400 DATA PACKAGE
INSPECTION AND TESTS

Contents Page

1. GENERAL

1.01 This section covers tests and inspections required when the 400 Data Package is installed. It does not cover routine, operational, or maintenance tests which may be required subsequent to operation.

1.02 It is reissued to change oscillator frequencies, level tests, and to revise the port tests.

Note: Marginal arrows used to indicate changes are omitted.

1.03 Tests described in this practice require the use of test facilities which may consist of one or more of the following:

(a) Test and Monitor Circuit PSD-2G031, FS 22.

(b) Teletypewriter machine with 101C Data Set and PSD-1D028 4-Wire Interface Circuit.

(c) Installed station lines complete with terminating teletypewriter equipment and data sets.

2. APPARATUS

QUANTITY	ITEM
1	KS-14510, L1, VOLT-OHM-MILLIAMMETER (VOM), OR EQUIVALENT
1	258-TYPE DUMMY PLUG
1	1011-TYPE DIAL TEST HANDSET, OR EQUIVALENT
12	KS-16887, L1, RELAY BLOCKING TOOL
1	KS-19355, L3, NONMAGNETIC TRANSFORMER TUNING TOOL
1	72A FREQUENCY METER, OR EQUIVALENT
1	TRANSMISSION MEASURING SET (TMS) HAVING AN UNTERMINATED HIGH IMPEDANCE INPUT (SUCH AS HP 403A, OR EQUIVALENT)
2	2W6A 2-CONDUCTOR PATCH CORDS
2	6P3E 3-CONDUCTOR PATCH CORDS
1	600-OHM TERMINATION FOR THE TMS
1	TEST FIXTURE TO CONSIST OF EITHER OF THE FOLLOWING:
1	TEST AND MONITOR CIRCUIT, PSD-2G031
1	TELETYPEWRITER SET EQUIPPED WITH 101C DATA SET AND 4-WIRE INTERFACE CIRCUIT PSD-1D028
1	SET OF TRANSMISSION PLUG-IN UNITS FOR TEST LINE. SET TO CONSIST OF:
2	849C NETWORKS
1	359C EQUALIZER
1	359F EQUALIZER
1	89A RESISTOR (0 dB)
1	89BA RESISTOR (10 dB)

QUANTITY	ITEM
1	SET OF TRANSMISSION PLUG-IN UNITS FOR EACH 400 DATA PACKAGE EQUIPPED WITH ONE OR MORE PORTS ARRANGED FOR DX SIGNALING. SET TO CONSIST OF:
2	849C NETWORKS
2	359C NETWORKS
1	89A RESISTOR (0 dB)
1	89BA RESISTOR (10 dB)
2	SETS OF TRANSMISSION AND SIGNALING PLUG-IN UNITS FOR EACH 400 DATA PACKAGE EQUIPPED WITH ONE OR MORE PORTS ARRANGED FOR SF SIGNALING. EACH SET TO CONSIST OF:
1	PED-92092 SF SIGNALING UNIT
1	359F EQUALIZER
2	849C NETWORKS
1	89A RESISTOR (0 dB)
1	89BA RESISTOR (10 dB)
1	SET OF TRANSMISSION PLUG-IN UNITS FOR PSD-1D028 (SEE NOTE). SET TO CONSIST OF:
1	359F EQUALIZER
2	849C NETWORKS
1	89A RESISTOR (0 dB)
1	89BA RESISTOR (10 dB)

Note: Required only where teletypewriter set with 101C Data Set and PSD-1D028 is used to constitute the test facility.

3. INSPECTION OF CROSS-CONNECTING TERMINAL

3.01 The terminal box should be firmly mounted.

3.02 Connecting blocks, binding post chambers, and fanning strips should be mounted firmly and properly stenciled.

3.03 Cross-connections and wires to stations should be run and terminated in accordance with the approved practice.

3.04 The interior of the terminal should be clean and free from spare wire and wire clippings. The nuts on spare terminals should be turned down finger-tight.

4. INSPECTION OF CABLES

4.01 Cables should be fastened securely when run is exposed. And, they should be properly protected with two layers of friction tape when they pass around obstacles such as: gas pipes, electric light conduit, metal work, foreign telephone, telegraph and signal conductors.

5. INSPECTION OF EQUIPMENT CABINETS

5.01 Cabinets should stand solidly on the floor in a level position.

5.02 All adjacent cabinets should be bolted together with no appreciable gap between them. All bolts should be tight. Grounding strap between adjacent cabinets should be securely fastened.

5.03 End panel assemblies should be in place and properly latched.

5.04 Slide latches should operate smoothly and latch securely when the slide is closed.

5.05 Slides should open and close smoothly and should actuate the interlocks so that only one slide in each cabinet can be open at any one time.

5.06 Entering cables should be clamped, external to the cabinet.

5.07 All crown-cable plugs should be properly plugged into their respective jacks in the crown.

5.08 The interior of the cabinets should be clean and free from wire clippings, solder splashes, etc., and the exterior should present a neat appearance without unsightly scratches or other defects.

5.09 The terminal lugs and terminal strips should be free from wire clippings.

5.10 All mounting-plate screws should be tight.

5.11 Inspect the wiring side of the equipment for broken leads and wire clippings.

5.12 Verify that make and break springs of wire-spring relays are parallel and in proper relation to their associated fixed contact.

5.13 All relay covers should be in place and actuation cards of wire-spring relays properly positioned to prevent mechanical binding.

5.14 Check all equipment to verify that required strapping for options is provided.

5.15 Any spare fuses, tools, lamps, test leads, etc., should be neatly arranged and properly stored.

5.16 The SD drawings and CD sheets should be complete, in their binders, and properly stored.

6. POWER PLANT

6.01 Check that the power plant is placed in service in accordance with the Bell System Practice (BSP) covering the J86464 Power Plant. (See BSP Index in the 167 Division.)

7. RELAY TESTS

7.01 No mechanical or electrical tests are required to be made on the relays in the PBX at the time of installation if no operating failures occur during the operational tests. If it is necessary to test or readjust any relays, the requirements for the particular relays involved should be met.

8. TEST FOR PBX GROUND

8.01 Unplug the ac line cord from the ac receptacle.

8.02 With VOM set on scale Rx1, connect one test lead to a water pipe ground and the other test lead to the framework of Slide 1. Resistance measurement should not exceed 1/2 ohm.

8.03 Unplug house and feeder cable connector M in terminal M.

8.04 Unplug ac cords to the power plant and the ring supply from the service outlet in the crown, plug in the ac line cord and repeat 8.02.

8.05 Plug in crown-cable connector M and the ac cords to power plant and ring supply.

8.06 Disconnect VOM.

9. ZENER DIODE TESTS

9.01 The following test procedure is performed only on those ports arranged for SF signaling.

STEP	ACTION	VERIFICATION
1	CONNECT VOM FROM GROUND TO PUNCHING D, CONNECTOR J4, ON THE REPEATER SHELF ASSOCIATED WITH LINE CIRCUIT 20.	WITH SF SIGNALING UNIT PED-92092 REMOVED FROM EQL 2 SOCKET, READ -48V. WITH SF SIGNALING UNIT INSTALLED IN THE EQL 2 SOCKET READ -19V TO -21V. IF THE VOLTAGE IS LESS THAN -19V, REPLACE THE IN4747A ZENER DIODE.
	NOTE: IF PORT 20 IS NOT ARRANGED FOR SF SIGNALING, PERFORM THIS TEST ON THE LOWEST NUMBERED PORT SO ARRANGED.	
2	REPEAT STEP 1 FOR EACH PORT.	
3	DISCONNECT AND REMOVE VOM.	
	NOTE: DO NOT LEAVE SF SIGNALING UNITS INSTALLED IN EQL 2 SOCKETS UNLESS THE PORT IS TERMINATED WITH STATION APPARATUS.	

10. OSCILLATOR FREQUENCIES AND LEVELS

STEP	ACTION	VERIFICATION
	A. SF OSCILLATOR TEST	
1	LOCATE THE 2600 Hz SF TONE SUPPLY UNIT PSD-90075 NEAR THE TOP OF SLIDE 2.	
2	CONNECT A FREQUENCY METER BETWEEN PIN 3 AND GROUND OF AMPLIFIER (AMPL) A (ALTEC TYPE 461A).	ADJUST OSCILLATOR AS REQUIRED TO OBTAIN 2600, ±5 Hz.
3	DISCONNECT AND REMOVE FREQUENCY METER.	
4	CONNECT THE TMS BETWEEN PIN 3 AND GROUND OF AMPL A.	A TMS READING OF +5 dBm, ±3 dB SHOULD BE OBTAINED. SEE PSD-90075, NOTE 301. DO NOT READJUST THE LEVEL AT THIS TIME.
5	DISCONNECT AND REMOVE TMS.	
	NOTE: FINAL LEVEL ADJUSTMENTS WILL BE MADE IN PART 12.	
	B. ED-99701-30 MILLIWATT REFERENCE GENERATOR TEST	
1	LOCATE RELAY TSL ON THE MISCELLANEOUS SWITCH ASSEMBLY, SLIDE 1 AND BLOCK IT OPERATED.	
2	CONNECT A TMS EQUIPPED WITH A 600 OHM TERMINATION ACROSS PINS 8 AND 10 OF EQL T LOCATED ON THE MISCELLANEOUS SWITCH ASSEMBLY.	A TMS READING OF 0 dBm ±0.5 dB SHOULD BE OBTAINED. ADJUST THE MILLIWATT REFERENCE GENERATOR AS REQUIRED TO MEET THIS OBJECTIVE.
3	REMOVE THE BLOCKING TOOL.	
4	DISCONNECT AND REMOVE THE TMS.	
	C. F2M AND F2S OSCILLATOR ASSEMBLIES, PSD-2G034	
1	ON SLIDE 2 LOCATE THE F2M AND F2S ASSEMBLIES. VERIFY THAT PJ2G034AA, L4 IS INSERTED IN THE F2M SOCKET AND THAT L3 IS INSERTED IN THE F2S SOCKET.	
2	ON SLIDE 3 BLOCK RELAY PU OPERATED ON BOTH RETRY REGISTERS.	
3	ON SLIDE 2 CONNECT FREQUENCY METER TO PINS 2 AND 6 OF THE F2M COMPONENT ASSEMBLY.	THE F2M OSCILLATOR SHOULD OPERATE AT A FREQUENCY OF 2225, ±5 Hz. ADJUST THE 2500-TYPE TRANSFORMER SLUG ON THE OSCILLATOR CARD AS REQUIRED TO MEET THIS OBJECTIVE.
4	RECONNECT FREQUENCY METER TO PINS 2 AND 6 OF THE F2S COMPONENT ASSEMBLY.	THE F2S OSCILLATOR SHOULD OPERATE AT A FREQUENCY OF 2025, ±5 Hz. ADJUST THE 2500-TYPE TRANSFORMER SLUG ON THE OSCILLATOR CARD AS REQUIRED TO MEET THIS OBJECTIVE.
5	DISCONNECT AND REMOVE FREQUENCY METER.	
6	CONNECT TMS EQUIPPED WITH A 600 OHM TERMINATION TO PINS 2 AND 6 OF THE F2S COMPONENT ASSEMBLY.	ADJUST THE OSCILLATOR LEVEL AS PRESCRIBED BY LOCAL INSTRUCTIONS.
7	RECONNECT TMS TO PINS 2 AND 6 OF THE F2M COMPONENT ASSEMBLY.	ADJUST THE OSCILLATOR LEVEL AS PRESCRIBED BY LOCAL INSTRUCTIONS.
	NOTE: THE F2M AND F2S OSCILLATORS ARE ADJUSTED TO -11 dBm AT THE FACTORY.	

STEP	ACTION	VERIFICATION
8	DISCONNECT AND REMOVE TMS.	
9	IN BOTH RETRY REGISTERS REMOVE THE BLOCKING TOOL.	

11. TEST CIRCUIT

11.01 This test procedure verifies operation of the Test Circuit, PSD-2G031, FS22, which is an elective option (Option N).

STEP	ACTION	VERIFICATION
1	CHECK THE TEST CIRCUIT FOR PRESENCE OF AN 89BA (10 dB) RESISTOR IN THE T PAD SOCKET AND 89AA (5 dB) RESISTOR IN THE R PAD SOCKET OF THE 1C TERMINATING SET. SET SCREW SWITCHES COMP NET AND S1 DOWN. ALL OTHER SCREW SWITCHES ARE TO REMAIN UP.	
2	USING A THREE CONDUCTOR PATCH CORD, CONNECT THE AMP 1 IN JACK OF ANY PORT ARRANGED FOR SF SIGNALING TO TEST TRSMT JACK. USING ANOTHER THREE CONDUCTOR CORD, CONNECT THE AMP 2 OUT JACK OF ANY PORT ARRANGED FOR SF SIGNALING TO THE TEST RCV JACK.	RELAY L OPERATES AND LOCKS.
3	CHECK THE 2220B *"TOUCH-TONE®"* HANDSET, PART OF THE TEST CIRCUIT, FOR SIDETONE.	SIDETONE MUST BE HEARD FROM BOTH VOICE TRANSMISSION AND FROM DEPRESSION OF *"TOUCH-TONE"* KEYS.
4	DEPRESS AND HOLD THE RECALL SWITCH ON THE 2220B HANDSET.	RELAY L RELEASES.
5	RELEASE THE RECALL SWITCH ON THE 2220B HANDSET.	RELAY L OPERATES.

12. PORT TESTS

12.01 Port tests are intended to verify operation of the line circuit, 44V4 repeater, and signaling circuit comprising each port.

12.02 For ports arranged for SF signaling, these tests may be made using the Test and Monitor Circuit, PSD-2G031, Option N, as outlined in Sections A and B of the test procedures.

12.03 Alternatively, tests may be made using a Model 33 or 35 teletypewriter set equipped with a 101C Data Set and 4-Wire Interface Circuit, PSD-1D028, as outlined in Sections C through E of the test procedures.

12.04 For ports arranged for DX signaling, these tests must be made using the Test and Monitor Circuit as outlined in Section F of the test procedures. In this case, only a partial test of the DX signaling circuit can be made at this time.

STEP	ACTION	VERIFICATION
	A. TEST PREPARATIONS – REQUIRED PRIOR TO USE OF THE TEST AND MONITOR CIRCUIT FOR TESTING EQUIPPED PORTS.	
1	REMOVE FROM THE 66E3 CROWN CONNECTORS THE A-25 TYPE CONNECTING CABLES IN ORDER TO ISOLATE THE DATA PACKAGE FROM LINE FACILITIES.	
2	IN SLIDE 2, LOCATE THE 44V4 SHELF ASSOCIATED WITH PORT 20. INSTALL A 359F EQUALIZER IN THE EQL 1 SOCKET, AND AN 849C NETWORK EQUIPPED WITH AN 89A (0 dB) RESISTOR IN THE AMP 2 SOCKET, AND AN 849C NETWORK EQUIPPED WITH AN 89BA (10 dB) RESISTOR IN THE AMP 1 SOCKET.	
3	CONNECT A 1011 TEST HANDSET TO THE AMP 1 MON IN JACK. SET THE HANDSET SWITCH TO MON.	
	NOTE 1: IT IS NECESSARY THAT A HIGH-IMPEDANCE MONITORING HANDSET BE USED IN ORDER NOT TO DISTURB THE SF LEVELS, WHICH, IN TURN, MAY RESULT IN MALFUNCTIONING OF THE SIGNALING SYSTEM.	
4	WHILE MONITORING ON THE 1011 HANDSET, INSTALL A PED-92092 SF SIGNALING UNIT IN THE EQL 2 SOCKET.	2600 Hz TONE HEARD. RELAY SR IN LINE CIRCUIT 20 OPERATES. AFTER APPROXIMATELY 8 TO 16 SECONDS, RELAY SR RELEASES AND RELAY PS OPERATES.
5	RECONNECT THE 1011 HANDSET TO AMP 2 MON OUT JACK.	2600 Hz TONE HEARD.
6	USING A THREE CONDUCTOR PATCH CORD, CONNECT THE AMP 1 IN JACK OF PORT 20 TO THE TST TRMST JACK OF THE TEST CIRCUIT.	RELAYS SR AND SL IN LINE CIRCUIT 20 OPERATE AND LOCK. A REGISTER IS SEIZED.
7	WAIT FOR REGISTER TIMEOUT.	RELAYS SR AND SL RELEASE. RELAY PS IN LINE CIRCUIT 20 OPERATES AND LOCKS.
8	USING ANOTHER THREE CONDUCTOR PATCH CORD, CONNECT THE AMP 2 OUT JACK OF PORT 20 TO THE TST RCV JACK OF THE TEST CIRCUIT.	RELAY L IN THE TEST CIRCUIT OPERATES AND LOCKS. 2600 Hz PS TONE HEARD IN THE 2220B HANDSET PART OF THE TEST CIRCUIT.
9	DEPRESS AND HOLD THE RECALL SWITCH ON THE 2220B HANDSET.	RELAY L RELEASES. RELAY PS IN LINE CIRCUIT 20 RELEASES.
10	RELEASE THE RECALL SWITCH.	RELAYS SR AND SL IN LINE CIRCUIT 20 OPERATE AND LOCK. A REGISTER IS SEIZED AND DIAL TONE HEARD IN THE 2220B HANDSET.
11	FROM THE 2220B HANDSET, CALL PORT 03.	REGISTER RELAY KRA OPERATES. MARKER ACTION OCCURS. 1000 Hz MILLIWATT TONE HEARD IN THE 2220B HANDSET.
12	DEPRESS AND HOLD THE RECALL SWITCH.	RELAY SR RELEASES IN LINE CIRCUIT 20. 1000 Hz TONE STOPS.
13	RELEASE THE RECALL SWITCH. DISCONNECT THE 1011 HANDSET.	
14	BLOCK RELAY SL RELEASED IN PORT 20.	
15	CONNECT TMS EQUIPPED WITH A 600-OHM TERMINATION TO THE AMP 2 OUT JACK OF PORT 20.	ADJUST SF OSCILLATOR PSD-90075 TO OBTAIN A LEVEL PRESCRIBED BY LOCAL INSTRUCTIONS.
	NOTE 2: A TMS READING OF -28 dBm, ±1 dBm WAS ESTABLISHED AT THE FACTORY. THIS EQUATES TO AN OSCILLATOR OUTPUT LEVEL OF -18 dBm, ±1 dBm.	
16	MOMENTARILY OPERATE RELAY PS IN PORT 20.	TMS READING SHOULD BE WITHIN 2 dB OF THAT OBTAINED IN STEP 15.

STEP	ACTION	VERIFICATION
17	REMOVE BLOCKING TOOL.	
	NOTE 3: IF PORT 20 IS NOT AN EQUIPPED PORT ARRANGED FOR SF SIGNALING, PERFORM THE STEPS OUTLINED IN THIS SECTION FOR THE LOWEST NUMBERED EQUIPPED PORT SO ARRANGED. PORT 20 (OR THE LOWEST NUMBERED EQUIPPED PORT) TOGETHER WITH THE TEST CIRCUIT WILL BE USED IN FOLLOWING SECTIONS AS A TEST FACILITY TO TEST ALL REMAINING EQUIPPED PORTS IN THE DATA PACKAGE.	
	B. PERFORM THESE STEPS ON EACH EQUIPPED PORT ARRANGED FOR SF SIGNALING (SEE STEP 18).	
1	IN SLIDE 2, LOCATE THE 44V4 SHELF ASSOCIATED WITH THE NEXT HIGHER NUMBERED EQUIPPED PORT.	
2	INSTALL A 359F EQUALIZER IN THE EQL 1 SOCKET, AN 849C NETWORK EQUIPPED WITH AN 89A (0 dB) RESISTOR IN THE AMP 2 SOCKET, AND AN 849C NETWORK EQUIPPED WITH AN 89BA (10 dB) RESISTOR IN THE AMP 2 SOCKET.	
3	INSTALL A PED-92092 SF SIGNALING UNIT IN THE EQL 2 SOCKET.	RELAY SR OPERATES. RELAY SA OPERATES, THEN RELEASES. IN 8 TO 16 SECONDS LINE CIRCUIT RELAY PS OPERATES AND RELAY SL RELEASES.
4	SET THE 1011B HANDSET SWITCH TO MON. CONNECT THE HANDSET TO THE AMP 2 MON IN JACK.	2600 Hz. PS TONE IS HEARD.
5	RECONNECT THE HANDSET TO THE AMP 2 MON OUT JACK.	2600 Hz. PS TONE IS HEARD.
6	RECONNECT THE HANDSET TO THE AMP 1 MON OUT JACK.	NO TONE OR SOUND IS HEARD.
7	IN THE CROWN OF THE DATA PACKAGE, LOCATE THE APPROPRIATE 66E3 CONNECTOR FOR PORT UNDER TEST. CONNECT THE RT LEAD TO THE TT LEAD AND THE RR LEAD TO THE TR LEAD. SEE PSD-2G030, CAD 11, 12, 30, 31, 32, AND 33.	2600 Hz SF TONE IS HEARD IN THE HANDSET. RELAYS PS AND SR RELEASE.
8	IF VERIFICATION FOR STEP 7 IS NOT OBTAINED, CONNECT A THREE CONDUCTOR PATCHING CORD ASSEMBLY FROM THE AMP 2 OUT TO THE AMP 1 IN JACK.	2600 Hz SF TONE IS HEARD IN THE HANDSET.
	NOTE 1: IF VERIFICATION IS OBTAINED IN STEP 8, TROUBLE EXISTS IN THE WIRING BETWEEN THE LINE CIRCUIT AND THE 66E3 CROWN BLOCK CONNECTOR. IF VERIFICATION IS NOT OBTAINED IN STEP 8, TROUBLE EXISTS IN THE 44V4 SHELF.	
9	USING THE TEST FACILITY (SEE SECTION A TEST PREPARATION, NOTE 3), CALL THE PORT NOW UNDER TEST WHILE MONITORING ON THE 1011 HANDSET.	2600 Hz SF TONE STOPS. RELAYS SR, SA, SL, AND RV IN THE LINE CIRCUIT OPERATE.
10	CLEAR THE TEST FACILITY.	ALL LINE CIRCUIT RELAYS RELEASE. 2600 Hz SF TONE HEARD IN THE TEST HANDSET.
11	RECONNECT THE 1011 HANDSET TO THE AMP 2 OUT JACK.	2600 Hz SF TONE STOPS. RELAYS SR AND SL OPERATE. RELAY SA OPERATES, THEN RELEASES. STEADY DIAL TONE HEARD IN THE TEST HANDSET.
12	USING THE TEST FACILITY, CALL THE PORT UNDER TEST.	
13	CONNECT A THREE CONDUCTOR PATCHING CORD FROM THE MILLIWATT REFERENCE GENERATOR IN THE TOP OF SLIDE 2 TO THE AMP 1 IN JACK OF THE PORT UNDER TEST.	1000 Hz TONE HEARD IN THE 2220B HANDSET AT THE TEST CIRCUIT.

STEP	ACTION	VERIFICATION
14	INSPECT THE CROSSBAR SWITCH AND NOTE WHICH LINK IS IN USE.	
15	CLEAR TEST FACILITY.	
16	DISCONNECT AND REMOVE THE 1011 HANDSET, THE THREE CONDUCTOR CORD ASSEMBLIES, TOGETHER WITH ALL PLUG-IN UNITS INSTALLED IN STEPS 2 AND 3.	
17	CONNECT A LEAD FROM GROUND TO PIN 2 (S-LEAD) OF THE LINK LAST USED (STEP 14).	
18	REPEAT STEPS 1 THROUGH 17 FOR EACH EQUIPPED PORT IN THE DATA PACKAGE.	
	NOTE 2: AS STEPS 1 THROUGH 17 ARE REPEATED FOR EACH PORT, THE GROUND PLACED ON THE S-LEAD BY STEP 17 WILL FORCE THE NEXT CALL INTO A DIFFERENT LINK, THEREBY CHECKING ALL LINKS FOR TRANSMISSION. AFTER MAKING 10 CALL-THROUGH TESTS, ALL LINKS WILL BE BUSY; REMOVE ALL TEST LEADS PER STEP 17 AND REPEAT THIS PROCESS FOR THE NEXT GROUP OF 10 CALL-THROUGH TESTS.	
	C. TEST PREPARATIONS FOR PORTS ARRANGED FOR SF SIGNALING WHERE A MODEL 33 OR 35 TELETYPEWRITER SET EQUIPPED WITH A 101C DATA SET AND A PSD-1D028 4-WIRE INTERFACE CIRCUIT IS USED FOR TEST PURPOSES. EITHER THIS TEST OR THAT DESCRIBED IN SECTION A IS TO BE APPLIED TO EACH PORT ARRANGED FOR SF SIGNALING.	
1	STRAP THE HYBRID CARD IN THE 101C DATA SET FOR AN F2 LEVEL OF 0 dBm AND AN F1 LEVEL OF –4 dBm PER SECTION 591-013-200, TABLE C. CORRECT STRAP CONNECTIONS FOR THIS PURPOSE ARE PCHGS 1 - 8, 2 - 9, 3 - 4, AND 10 - 16.	
2	CHECK THE HYBRID CARD TO CONFIRM THAT IT HAS BEEN MODIFIED BY THE ADDITION OF A 446F DIODE IN ACCORDANCE WITH PSD-1D028. DATA SETS MUST BE STRAPPED TO PROVIDE FOR RINGING TRIP DURING BOTH SILENT AND RINGING INTERVAL BY CONNECTING PCHGS 53 AND 54, T S (D) PER SHEET. NOTE 1 SD-3D007-01-B7.	
3	INSTALL A PED-92092 SF SIGNALING UNIT AND A PED-92093 CONTROL CARD IN THE PSD-1D028 4-WIRE INTERFACE CIRCUIT MOUNTED ON THE 101C DATA SET.	
4	WITHIN THE PSD-1D028 CIRCUIT, INSTALL A 359F EQUALIZER IN THE EQL 1 SOCKET AND AN 849C NETWORK EQUIPPED WITH AN 89A (0 dB) RESISTOR IN THE T AMPL SOCKET, AND AN 849C NETWORK EQUIPPED WITH AN 89BA (10 dB) RESISTOR IN THE R AMPL SOCKET.	
5	CONNECT A TMS TO THE AMP 1 MON IN JACK ON THE PSD-1D028 CIRCUIT.	A READING OF –11 dBm, ±0.5 dBm SHOULD BE OBTAINED. ADJUST THE POTENTIOMETER ON THE PSD-92093 CONTROL CARD AS REQUIRED TO MEET THIS OBJECTIVE.
6	DISCONNECT TMS AND CONNECT THE FREQUENCY METER TO THE AMP 1 MON IN JACK	A READING OF 2600, ±5 Hz SHOULD BE OBTAINED. ADJUST THE SLUG IN THE 2500-TYPE TRANSFORMER ON THE CONTROL CARD AS REQUIRED TO MEET THIS OBJECTIVE.
7	IF AN ADJUSTMENT IS REQUIRED AS A RESULT OF STEP 6, REPEAT STEPS 5 THROUGH 6.	

STEP	ACTION	VERIFICATION
8	USING LOCAL WIRE, CONNECT PCHGS 1 (RT), 2 (RR), 3 (TT), AND 4 (TR) OF TS (A) ON PSD-1D028 TO PCHGS 1 (RT), 2 (RR), 3 (TT), AND 4 (TR) OF TS (J), A 66E3 CROWN CONNECTOR LOCATED IN THE TOP OF THE DATA PACKAGE.	
9	DISCONNECT ALL A25-TYPE CABLES CONNECTED TO 66E3 CROWN CONNECTORS TO ISOLATE THE DATA PACKAGE FROM ALL LINE FACILITIES.	
	NOTE: THE TRANSMISSION AND SIGNALING PLUG-IN UNITS INSTALLED AND ALIGNED AS DESCRIBED IN THIS SECTION ARE CORRECT FOR THE PURPOSES OF THIS PRACTICE **ONLY**.	
	D. TESTS PORT 20 AND VERIFIES ITS OPERATION AS A TEST FACILITY	
1	IN SLIDE 2, LOCATE THE 44V4 SHELF ASSOCIATED WITH PORT 20. (SEE NOTE 3 IN SECTION A.)	
2	CONNECT A 1011 TEST HANDSET TO THE AMP 1 MON IN JACK. SET HANDSET SWITCH TO MON.	
	NOTE 1: IT IS NECESSARY THAT A HIGH IMPEDANCE MONITORING HANDSET BE USED IN ORDER NOT TO DISTURB THE SF LEVELS, WHICH, IN TURN, MAY RESULT IN MALFUNCTIONING OF THE SIGNALING SYSTEM.	
3	WHILE MONITORING ON THE 1011 HANDSET, INSTALL A PED-92092 SF SIGNALING UNIT IN THE EQL 2 SOCKET.	2600 Hz TONE HEARD.
4	RECONNECT THE 1011 HANDSET TO THE AMP 2 MON OUT JACK.	2600 Hz TONE HEARD.
5	DEPRESS ORIG KEY ON THE TELETYPEWRITER.	2600 Hz TONE STOPS. DIAL TONE HEARD AT THE TELETYPEWRITER.
6	AT THE TELETYPEWRITER, CALL THE TONE PORT (03).	1000 Hz TONE HEARD AT THE TELETYPEWRITER.
7	DEPRESS THE CLR KEY ON THE TELETYPEWRITER WHILE MONITORING ON THE 1011 HANDSET.	2600 Hz TONE HEARD WHEN THE TELETYPEWRITER AND DATA PACKAGE DISCONNECT.
8	DISCONNECT THE 1011 HANDSET.	
9	BLOCK RELAY SL RELEASED IN PORT 20.	
10	CONNECT TMS EQUIPPED WITH A 600-OHM TERMINATION TO THE AMP 2 OUT JACK OF PORT 20.	ADJUST THE SF OSCILLATOR PSD-90075 TO OBTAIN A LEVEL PRESCRIBED BY LOCAL INSTRUCTIONS.
	NOTE 2: A TMS READING OF -28 dBm, ±1 dB WAS ESTABLISHED AT THE FACTORY. THIS EQUATES TO AN OSCILLATOR OUTPUT LEVEL OF -18 dBm, ±1 dB.	
11	MOMENTARILY OPERATE RELAY PS IN PORT 20.	TMS READING SHOULD BE WITHIN 2 dB OF THAT OBTAINED IN STEP 10.
12	REMOVE BLOCKING TOOL AND DISCONNECT TMS.	
	E. PERFORM THE FOLLOWING STEPS ON EACH EQUIPPED PORT IN THE DATA PACKAGE	
1	IN SLIDE 2, LOCATE THE 44V4 SHELF ASSOCIATED WITH THE NEXT HIGHEST NUMBERED EQUIPPED PORT.	
2	INSTALL A 359F EQUALIZER IN THE EQL 1 SOCKET, AND AN 849C NETWORK EQUIPPED WITH AN 89A (0 dB) RESISTOR IN THE AMP 2 SOCKET, AND AN 849C NETWORK EQUIPPED WITH AN 89BA (10 dB) RESISTOR IN THE AMP 1 SOCKET.	

STEP	ACTION	VERIFICATION
3	INSTALL A PED-92092 SF SIGNALING UNIT IN THE EQL 2 SOCKET.	RELAY SR OPERATES. RELAY SA OPERATES, THEN RELEASES. IN 8 TO 16 SECONDS, LINE CIRCUIT RELAY PS OPERATES AND RELAY SL RELEASES.
4	SET THE 1011B HANDSET SWITCH TO MON. CONNECT THE HANDSET TO THE AMP 2 MON IN JACK.	2600 Hz PS TONE IS HEARD.
5	RECONNECT THE HANDSET TO THE AMP 2 MON OUT JACK.	2600 Hz PS TONE IS HEARD.
6	RECONNECT THE HANDSET TO THE AMP 1 MON OUT JACK.	NO TONE OR SOUND IS HEARD.
7	IN THE CROWN OF THE DATA PACKAGE, LOCATE THE APPROPRIATE 66E3 CONNECTOR FOR THE PORT UNDER TEST. CONNECT THE RT LEAD TO THE TT LEAD AND THE RR LEAD TO THE TR LEAD. SEE PSD-2G030, CAD 11, 12, 30, 31, 32, AND 33.	2600 Hz SF TONE IS HEARD IN THE HANDSET. RELAYS PS AND SR RELEASE.
8	IF VERIFICATION FOR STEP 7 IS NOT OBTAINED, CONNECT A THREE CONDUCTOR PATCHING CORD ASSEMBLY FROM AMP 2 OUT TO AMP 1 IN JACK.	2600 Hz SF TONE IS HEARD IN THE HANDSET.
	NOTE 1: IF VERIFICATION IS OBTAINED IN STEP 8, TROUBLE EXISTS IN THE WIRING BETWEEN THE LINE CIRCUIT AND THE 66E3 CROWN BLOCK CONNECTOR. IF VERIFICATION IS NOT OBTAINED IN STEP 8, TROUBLE EXISTS IN THE 44V4 SHELF.	
9	USING THE TEST FACILITY (SECTIONS C & D) CALL THE PORT NOW UNDER TEST WHILE MONITORING ON THE 1011 HANDSET.	2600 Hz SF TONE STOPS. RELAYS SR, SA, SL, AND RV IN THE LINE CIRCUIT OPERATE.
10	CLEAR THE TEST FACILITY.	ALL LINE CIRCUIT RELAYS RELEASE. 2600 Hz SF TONE HEARD IN THE TEST HANDSET.
11	RECONNECT THE 1011 HANDSET TO THE AMP 2 OUT JACK.	2600 Hz SF TONE STOPS. RELAYS SR AND SL OPERATE. RELAY SA OPERATES, THEN RELEASES. STEADY DIAL TONE HEARD IN THE TEST HANDSET.
12	USING THE TEST FACILITY, CALL THE PORT UNDER TEST.	
13	CONNECT A THREE CONDUCTOR PATCHING CORD FROM THE MILLIWATT REFERENCE GENERATOR IN THE TOP OF SLIDE 2 TO THE AMP 1 IN JACK OF THE PORT UNDER TEST.	1000 Hz TONE HEARD AT THE TELETYPEWRITER TERMINATING THE TEST FACILITY.
14	INSPECT CROSSBAR SWITCH AND NOTE WHICH LINK IS IN USE.	
15	CLEAR TEST FACILITY.	
16	DISCONNECT AND REMOVE 1011 HANDSET, THE THREE CONDUCTOR CORD ASSEMBLIES, TOGETHER WITH ALL PLUG-IN UNITS INSTALLED IN STEPS 2 AND 3.	
17	CONNECT A LEAD FROM GROUND TO PIN 2 (S-LEAD) OF THE LINK LAST USED (STEP 14).	
18	REPEAT STEPS 1 THROUGH 17 FOR EACH EQUIPPED PORT IN THE DATA PACKAGE.	
	NOTE 2: AS STEPS 1 THROUGH 17 ARE REPEATED FOR EACH PORT, THE GROUND PLACED ON THE S-LEAD BY STEP 17 WILL FORCE THE NEXT CALL INTO A DIFFERENT LINK, THEREBY CHECKING ALL LINKS FOR TRANSMISSION. AFTER MAKING 10 CALL-THROUGH TESTS, ALL LINKS WILL BE BUSY; REMOVE ALL TEST LEADS PER STEP 17 AND REPEAT THIS PROCESS FOR THE NEXT GROUP OF 10 CALL-THROUGH TESTS.	

STEP	ACTION	VERIFICATION
	F. TEST FOR PORTS ARRANGED FOR DX SIGNALING – WHERE THE TEST AND MONITOR CIRCUIT IS USED FOR TEST PURPOSES. APPLY TO EACH PORT ARRANGED FOR DX SIGNALING.	
1	IN THE PORT UNDER TEST, INSTALL AN 849C NETWORK EQUIPPED WITH AN 89A (0 dB) RESISTOR IN THE AMP 2 SOCKET, AN 849C NETWORK EQUIPPED WITH AN 89BA (10 dB) RESISTOR IN THE AMP 1 SOCKET, A 359F EQUALIZER IN THE EQL 1 SOCKET, AND A 359C NETWORK IN THE EQL 2 SOCKET.	
2	USING A 2W6A TEST CORD, CONNECT TST TRSMT JACK OF THE TEST CIRCUIT TO THE RT AND RR PCHGS OF THE APPROPRIATE 66E3 CROWN CONNECTOR. (SEE PSD-2G031, CAD 11 AND 12).	
3	USING A 2W6A TEST CORD, CONNECT TEST RCV JACK OF THE TEST CIRCUIT TO THE TT AND TR PCHGS OF THE APPROPRIATE 66E3 CROWN CONNECTOR.	RELAY L IN THE TEST CIRCUIT OPERATES AND LOCKS.
4	IN SLIDE 2, LOCATE THE PSD-2G035 DX SIGNALING CIRCUIT ASSOCIATED WITH THE PORT UNDER TEST. CONNECT A 1011 HANDSET TO THE DIAL TEST JACK ON THE SIGNALING CIRCUIT. SET HANDSET SWITCH TO TALK.	RELAYS SR AND SL IN THE LINE CIRCUIT UNDER TEST OPERATE AND LOCK. A REGISTER IS SEIZED AND DIAL TONE HEARD IN THE 2220B HANDSET, PART OF TEST CIRCUIT.
5	FROM THE 2220B HANDSET, CALL STATION 03.	MARKER ACTION OCCURS AND MILLIWATT TONE IS HEARD IN THE 2220B HANDSET.
6	RESTORE 1011 HANDSET SWITCH TO MON.	RELAYS SR AND SL RELEASE. 1000 Hz MILLIWATT TONE STOPS.
7	DISCONNECT AND REMOVE 1011 HANDSET AND ALL PATCH CORDS.	

13. TEST LINE AND MONITOR CIRCUIT

13.01 These tests confirm proper operation of the Test Line, PSD-2G031, FS19, and the Monitor Circuit, PSD-2G031, FS22, which is an elective option.

STEP	ACTION	VERIFICATION
	A. TEST LINE PSD-2G031, FS19	
1	DISCONNECT TEST FACILITY FROM TIE SHIP AND RECONNECT IT TO PCHGS 1, 2, 3, AND 4 ON TS(M).	
2	REMOVE FROM PORT 20 ALL SIGNALING AND TRANSMISSION PLUG-IN UNITS.	
3	INSTALL IN THE 44V4 SHELF ASSOCIATED WITH THE TEST LINE, A 359C EQUALIZER IN THE EQL 1 SOCKET AND A 359C EQUALIZER IN THE EQL 2 SOCKET. INSTALL AN 849C NETWORK EQUIPPED WITH AN 89A (0 dB) RESISTOR IN THE AMP 2 SOCKET AND AN 89BA (10 dB) RESISTOR IN THE AMP 1 SOCKET.	
4	ORIGINATE AT TEST FACILITY.	NO DIAL TONE HEARD.

STEP	ACTION	VERIFICATION
5	IN SLIDE 2, BLOCK RELAY R IN THE DX SIGNALING UNIT OPERATED (IE, ARMATURE TOWARD LEFT, FACING THE RELAY).	DIAL TONE HEARD AT TEST FACILITY.
6	AT TEST FACILITY, CALL THE TONE PORT (STATION 03).	1000 Hz TONE HEARD AT THE TELETYPEWRITER.
	NOTE: STEPS 1 THROUGH 6 HAVE CONFIRMED OPERATION OF TEST LINE CIRCUIT, FS19, WIRED FOR OPTION P. IF THIS CIRCUIT IS WIRED FOR OPTION N, PERFORM STEPS 1 THROUGH 9.	
7	ORIGINATE FROM TEST FACILITY AND CALL STATION 05.	HM 15 OPERATES, THEN IMMEDIATELY RELEASES. RELAY MON OPERATES AND LOCKS.
8	CLEAR TEST FACILITY.	
9	DISCONNECT AND REMOVE ALL BLOCKING TOOLS AND TRANSMISSION PLUG-IN UNITS.	
	B. MONITOR CIRCUIT, PSD-2G031, FS21	
1	SET OSCILLATOR FOR AN OUTPUT OF 0 dBm AT 1000 Hz INTO A 600 OHM LOAD.	
2	CONNECT TMS EQUIPPED WITH A 600 OHM TERMINATION TO THE AMP 2 MON IN JACK OF THE TEST LINE (PORT 02). PUT A DUMMY PLUG IN THE AMP 2 IN JACK.	
3	BLOCK RELAY MON OPERATED.	
4	CONNECT OSCILLATOR OUTPUT TO MON RCV JACK.	SET R AMPL GAIN FOR A TMS READING OF 0 dBm.
5	RECONNECT OSCILLATOR OUTPUT TO MON TRMT JACK.	SET T AMPL GAIN FOR A TMS READING OF 0 dBm.
	NOTE 1: A 1000 Hz AMPLIFIER GAIN OF APPROXIMATELY 19 dB IS REQUIRED IN ORDER TO COMPENSATE FOR THE HIGH IMPEDANCE INPUT TO R AMPL AND T AMPL.	
6	DISCONNECT AND REMOVE OSCILLATOR AND TMS.	
7	REMOVE BLOCKING TOOL FROM RELAY MON.	
	NOTE 2: FURTHER TESTS OF THIS CIRCUIT SHOULD BE MADE AT SUCH TIME THAT A 10B TESTBOARD (OR OTHER SUITABLE TEST FACILITY) IS CONNECTED TO PORT 02 AND SOME OTHER TERMINATION CONNECTED TO ANY OTHER PORT. PCD-2G031, ISSUE B, APPENDIX A, PROVIDES A DESCRIPTION OF CIRCUIT OPERATION WHEN CONNECTING A 10B TESTBOARD TO A PORT FOR MONITORING PURPOSES.	

14. REGISTER TEST

14.01 Check the strapping placed on TS(A) of each register to ensure that each register is properly strapped per job information. (See PSD-2G032-01-D1, Notes 301 and 401 through 404.)

14.02 Place a #258 dummy plug in the TST jack of register 1 and make the following tests:

1. Using the test facility, call the tens digit of each unequipped tens group. The register will return no-such-number (NSN) tone (120 IPM) for 8 to 16 seconds, then place the calling station in a permanent signal condition and release.

2. Using the test facility, dial the tens digit of any one equipped tens group. 7.5 seconds after register relay PU operates, relay TMO operates and the register releases. The calling station will be placed in a permanent signal condition as before.

3. Using the test facility, seize the register by originating at the calling station. Upon receiving dial tone, do not call any number. 7.5 seconds after register relay PU operates relay TMO operates and the register releases. The calling station will be placed in a permanent signal condition as before.

14.03 Remove dummy plug from register 1 and place it in register 0. Repeat the tests listed in 14.02 for register 1. At the conclusion of these tests, remove dummy plug from register 0.

15. RETRY REGISTER TEST

15.01 Adjust the retry timer RTT in each retry register per job information. If none is provided, adjust both timers to provide a 50, ±2 second time-out interval. To establish this interval, use the VOM set on scale Rx1, connecting one test lead to terminal 57, TS(A) of the retry register and the other test lead to ground. With a KS-16887, List 1, relay blocking tool, block the A relay operated. Time the interval from operation of the A relay until the VOM indicates a ground condition. Adjust the time-out interval by adjusting the potentiometer on RTT (7B timer). Turn clockwise to increase, counterclockwise to decrease the timing interval.

15.02 Perform an operational test of **each** retry register as follows:

STEP	ACTION	VERIFICATION
1	BLOCK MARKER RELAY RTAO OPERATED; COMPLETE STEPS 2 THROUGH 11 FOR RETRY REGISTER 0.	
2	IN ANY EQUIPPED PORT, INSTALL THE APPROPRIATE SET OF TRANSMISSION PLUG-IN UNITS REQUIRED FOR TESTING.	
3	IF THE PORT IS ARRANGED FOR SF SIGNALING, CONNECT AN SF SIGNALING UNIT PED-92092 TO THE EQL 2 SOCKET.	WITHIN 8 TO 16 SECONDS LINE CIRCUIT RELAY PS WILL OPERATE.
4	IF THE PORT IS ARRANGED FOR DX SIGNALING, BLOCK LINE CIRCUIT RELAY PS OPERATED.	
5	USING THE TEST FACILITY, CALL THE PORT DESCRIBED IN STEP 3 OR 4.	15 IPM RETRY TONE WILL BE HEARD AT THE CALLING STATION.
6	IF THE PORT IS ARRANGED FOR SF SIGNALING, USE A THREE CONDUCTOR PATCHING CORD TO CONNECT THE AMP 2 OUT JACK TO THE AMP 1 IN JACK OF THE CALLED PORT.	LINE CIRCUIT RELAY PS WILL RELEASE. WITHIN 8 SECONDS THE RETRY REGISTER WILL CONNECT THE CALLING STATION TO THE CALLED STATION. RELAYS SR, SA, SL, AND RV IN THE CALLED STATIONS LINE CIRCUIT OPERATE.
7	IF THE PORT IS ARRANGED FOR DX SIGNALING REMOVE THE BLOCKING TOOL FROM RELAY PS (STEP 4).	WITHIN 8 SECONDS THE RETRY REGISTER WILL CONNECT THE CALLING STATION TO THE CALLED STATION.
8	CLEAR THE TELETYPEWRITER IF THE TEST FACILITY IS USED, OR DEPRESS AND HOLD THE RECALL SWITCH IF THE TEST CIRCUIT IS USED.	
9	REMOVE PATCH CORD INSTALLED IN STEP 6.	IF THE PORT IS ARRANGED FOR SF SIGNALING, RELAY PS WILL OPERATE IN 8 TO 16 SECONDS.
10	IF THE PORT IS ARRANGED FOR DX SIGNALING, BLOCK RELAY PS OPERATED.	

STEP	ACTION	VERIFICATION
11	USING THE TEST FACILITY, CALL THE PORT MADE BUSY IN STEPS 9 OR 10.	RETRY TONE WILL BE HEARD AT THE CALLING STATION. AFTER THE RETRY TIMEOUT INTERVAL ESTABLISHED IN 15.01 (PLUS AN ADDITIONAL INTERVAL OF ZERO TO 8 SECONDS), F2M (2225 Hz) AND F2S (2025 Hz) TONES WILL BE HEARD AT THE CALLING STATION. THE TELETYPEWRITER AND DATA SET TERMINATING THE TEST FACILITY WILL DISCONNECT.
12	REMOVE BLOCKING TOOL FROM RELAY RTAO. MANUALLY RELEASE THIS RELAY AND BLOCK IT RELEASED.	
13	REPEAT STEPS 3 THROUGH 11 FOR RETRY REGISTER 1.	
14	REMOVE ALL BLOCKING TOOLS AND PATCH CORDS TOGETHER WITH ALL TRANSMISSION AND SIGNALING PLUG-IN UNITS INSTALLED IN STEPS 2 AND 3.	

16. MARKER TESTS

16.01 There are no discrete tests prescribed for the marker operation of the Data Package. Test conditions specified for registers, retry registers, multiple address, and line circuits, together with the manufacturing test, reasonably ensure that all components of the marker are operating correctly.

17. MULTIPLE ADDRESS TEST

17.01 Check strapping placed on resistors M and N in the 2G037 circuit for Option P, R, and S, in accordance with PSD-2G037-01-D1, Note 102.

17.02 Check oscillators F2M, F2S, F1MR, and F1S for proper frequency as set forth in PSD-2G037-01-D1, Note 302. Frequencies shall be adjusted as required to meet objectives stated ±5 Hz.

17.03 Check gain adjustment of the MA amplifier per Note 303 and readjust as required to meet objectives. Test timer DT as set forth in Note 306. Replace timer assembly if objective is not met.

17.04 Check oscillators F2M, F2S, F1MR, and F1S for proper levels in accordance with local instructions.

17.05 Further tests of the multiple address circuit cannot be performed until at least three stations have been installed and connected to the Data Package. One of these stations may be the test facility or test circuit. When three stations are available, perform the following tests:

STEP	ACTION	VERIFICATION
	A. OPERATIONAL TEST	
1	ORIGINATE AT ANY OF THE THREE STATIONS AND CALL STATION "00".	1000 Hz MULTIPLE ADDRESS DIAL TONE HEARD AT THE ORIGINATING STATION.
2	CALL ANOTHER STATION.	CALLED STATION ANSWERS; ORIGINATING STATION DISCONNECTS. CALLED STATION RECEIVES A RUBOUT CHARACTER EVERY 4 SECONDS. IF OPTION M HAS NOT BEEN APPLIED TO THE PSD-2G037 CIRCUIT, THE CALLED STATION REST LAMP WILL LIGHT.

STEP	ACTION	VERIFICATION
3	REORIGINATE AND CALL THE THIRD STATION.	CALLED STATION ANSWERS; ORIGINATING STATION DISCONNECTS. CALLED STATION RECEIVES A RUB-OUT CHARACTER EVERY 4 SECONDS. IF OPTION M HAS NOT BEEN APPLIED TO THE PSD-2G037 CIRCUIT, THE CALLED STATION REST LAMP WILL LIGHT.
4	REORIGINATE AND CALL STATION "0".	THE CALLING STATION IS TRANSFERRED TO THE MA BRIDGE, THE 4 SECOND RUBOUT TRANSMISSION STOPS, AND ALL REST LAMPS EXTINGUISH.
5	TRANSMIT A TEST MESSAGE FROM THE CALLING STATION TO THE TWO CALLED STATIONS.	
6	CLEAR CALLING STATION.	ALL STATIONS DISCONNECT.
	B. MULTIPLE ADDRESS TIMER TEST	
1	ORIGINATE AT ANY OF THE THREE STATIONS AND CALL STATION "00".	1000 Hz MULTIPLE ADDRESS DIAL TONE HEARD AT ORIGINATING STATION.
2	CALL ANOTHER STATION.	CALLED STATION ANSWERS; ORIGINATING STATION DISCONNECTS.
3	DO NOT REORIGINATE.	WITHIN 5 TO 6 SECONDS, MA RELAYS TB AND TBL OPERATE. CALLED STATION IS RELEASED AND DISCONNECTS.
	C. CALLED STATION PREMATURE DISCONNECT TEST	
1	ORIGINATE AT ANY STATION AND PLACE A MULTIPLE ADDRESS CALL TO TWO OTHER STATIONS.	
2	TRANSMIT A TEST MESSAGE FROM ORIGINATING STATION.	CONFIRM THAT TEST MESSAGE WAS RECEIVED AT THE CALLED STATION.
3	CLEAR EITHER OF THE TWO CALLED STATIONS.	THE MA CIRCUIT WILL DISCONNECT AND CLEAR BOTH THE ORIGINATOR AND OTHER CALLED STATION.

D. COUNTING CIRCUIT CHECK (OPTION Q)

17.06 With the VOM set on scale Rx1, connect one test lead to terminal 38 TS(A), register circuit 0 and the other test lead to ground. Temporarily strap Y option in the MA circuit (bottom of the F resistor to bottom of the H resistor). In the line circuit, block any four SR relays operated and operate their corresponding MA relay. The VOM will indicate a closed circuit. If the job specification calls for other counting limits, disregard the temporary strap (Y option) and block as many SR relays as required to check wiring options. (See PSD-2G037-01, Note 102.) Readjust relay TA as required to provide positive operation at the counting limit specified. Remove all temporary strapping and blocking tools.

18. TEST COMPLETION

18.01 Remove all temporary strapping and reconnect all A-25 cables disconnected per Step 9, Part 12 (A) and (C).

18.02 Disconnect and remove all test sets, inspect all relays for blocking tools and contact insulators, removing any which may be found.

19. CONNECTING CIRCUITS

19.01 Repeater, Type 44V4, refer to the following sections:

- 332-104-100 — Description
- 332-104-500 — Lineup
- 332-104-501 — Test and Adjustment
- 332-106-101 — Mounting Shelf
- 332-104-101 — 227 Amplifiers
- 332-115-101 Fol. — 849 Networks
- 332-116-101 Fol. — 359 Equalizers

19.02 *"TOUCH-TONE"* Receiving Circuit, Type A3.

- SD-98148-01
- CD-98148-01
- Section 201-821-301
- Section 218-135-501
- Section 218-135-503