"DATASPEED*" TAPE-TO-TAPE SYSTEM TYPE 2 SENDERS AND RECEIVERS

TEST PROCEDURES

WITH A DTC USING A "DATASPEED" TEST SET

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1. GENERAL

1.01 This practice provides instructions for on-line testing of DATASPEED Type 2 Senders and Receivers. These test procedures are for use by a telephone craft employee to follow the step-by-step actions of a Data Test Center (DTC) operator using a DATASPEED Test Set or a 904B or 904D Test Board in conjunction with Section 668-120-502 for on-line testing. These tests should be performed, following installation or before and after troubleshooting of a station, to verify proper operation.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 Both loop-back testing of the data set and attended on-line testing are covered in step-by-step procedures. Receiver terminal attended testing is covered in Table A; sender terminal attended testing is covered in Table B.

1.04 Instructions for testing Type 2 Senders and Receivers on-line from a DTC or other station equipped only with a Type 2 Sender or Receiver are contained in Section 579-501-350 (Field Maintenance Practice — FMP) or 579-501-351 (FMP).

1.05 Off-line testing and troubleshooting information are contained in Sections 579-501-350 (FMP), 579-501-351 (FMP), and 582-100-315.

1.06 Loop-back and off-line testing should be performed before any on-line testing. Refer to Part 2, Preparation For Testing.

2. PREPARATION FOR ON-LINE TESTING

2.01 After initial installation or before trouble analysis begins, a written record of the station options is to be made. This option record will be required during on-line testing (3.03). This information enables the DTC operator to recommend proper testing and allow complete evaluation of the test results.

2.02 Before testing a station, for which a trouble was reported, confirm the trouble report with the station operator. Try to determine the probable cause and location of the trouble. If the cause is apparent, repair should be made and testing used as a final checkout. If the cause is not apparent, an attempt should be made to isolate the trouble to the data set, the telephone line, or the Type 2 Station. Contact the DTC and request a loop-back test or other specific data set testing. In all other cases, full on-line testing of the station is required. Call the DTC and request complete on-line testing of the sender and/or the receiver. Off-line testing should be done before calling the DTC, or on a recommendation from the DTC. On-line testing will be under the coordination of the DTC.

2.03 Review the tables and introductory material in Part 3 — especially 3.04. This, along with the directions from the DTC operator, will speed the progress of the testing. Any results other than those explained in the procedure should be noted as possible troubles and mentioned to the DTC operator.

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2.04 Perform a final visual inspection of the station, cords, cables, connectors, and data set. Eliminate any obvious physical or mechanical problems. Also, remove any equipment used in off-line testing.

3. TEST PROCEDURES

3.01 Perform each step of the attended test procedure. Each action is followed by the required response. If the station does not respond as required, consult the DTC for aid or refer to Section 582-100-315 (Troubleshooting) or 579-501-350 (FMP) Sender or 579-501-351 (FMP) Receiver.

LOOP-BACK TEST

3.02 This test allows the data set and line facilities to be checked by looping back the Data Test Center signals through the data set. The test is performed as follows:

(1) Verify that the station has been released from service.

(2) Call the DTC and request the loop-back test.

(3) When the DTC operator is ready, the TEST key on the data set is to be depressed.

Note: Test signals are then sent and received by the DTC. The signals are checked for distortion.

(4) If the test results indicate that the line facilities on the data set are the problem, repair the line or replace the 202C Data Set as required and retest.

(5) If the test results indicate that the Type 2 equipment is the problem, proceed to 3.03 for on-line testing.

ON-LINE TESTING

3.03 Verify that the station has been released from service. Call the DTC and request testing for the Type 2 Station. Then give the station characteristics from the option record (prepared in 2.01):

(a) Type of terminal (2A Sender, 2B Receiver, or Sender and Receiver connected by a "Y" cable).

(b) Station area code and telephone number.

(c) Selected level of operation: 5, 6, 7, or 8 (8-level recommended for testing).

(d) Data set — type and options:

(1) Reverse channel feature (present — yes or no).

(2) Automatic answer-back feature used (yes or no).

(f) Receiver terminal options:

(1) TP199550 Discrete Calling Identifier (use manual mode for testing).

(2) TP199593 Automatic Answer and Disconnect feature (present — yes or no).

(3) 9160 Item Selector (present — yes or no). If present, BYPASS switch must be ON.

(4) SA110 or SA120 Parity Failure Detector (present — yes or no). If present, PARITY CHECK switch must be OFF.

(g) Sender Terminal options:

(1) TP146527 Automatic Answer and Line Break Assembly (yes or no).

(2) TP148161 Interim Unattended Answer (yes or no). Not used in these tests; all testing is attended.

(3) TP199551 Discrete Calling Recognizer Unit (yes or no).

(4) SA120 Parity Failure Detector (yes or no). Not used in these tests. Turn switch to OFF.

3.04 During the conversation with the DTC operator, verify that all the initial steps of the Attended Testing Tables A and B are understood. If not, go over the steps with the operator to verify any actions required during testing. Complete the conversation and disconnect the call.

3.05 Ready the station for testing (check power on, check tape supply and routing, close door, etc). The DTC will call back shortly. Now, proceed to Table A for receiver testing or Table B for testing a sender.

TABLE A

SECTIONALIZING TROUBLE
ATTENDED TESTING — RECEIVER TERMINAL

STEP	ACTION OF ATTENDANT OR MTCE EMPLOYEE AT STATION TAKEN AT REQUEST OF TEST CENTER	ACTION OBSERVED AT THE STATION	TEST CENTER ACTION
1	Position OMIT switches for proper level. Leave WINDER and PUNCH switches unoperated. Turn SEND/ RECEIVE switch to RECEIVE (if present).	POWER lamp on.	Test set up.
2	None	Data set rings.	Calls back.
3	Depress TALK key, lift handset, and establish voice contact.	TALK lamp lights.	Gives instructions and discusses steps to be followed.
Note: Testing of automatic answer-back feature is omitted. All testing is to be done attended.			
4	Depress DATA key.	DATA lamp on. Punch and winder motors on.	Enters data mode.
5	None	Tape punching occurs.	Sends message.
6	None	Tape punching stops.	Stops sending.
7	Check punched tape for bad punching, omitted, or added level.	If DTC is sending from a DATASPEED Test Set, tape pattern will be alternate U* characters (or equivalent) followed by alternate BLANK DELETE characters. If DTC is using a 904 Type Test Board, tape pattern will be a 14 character test pattern.	None
8	Lift handset; depress TALK.	Give results.	Discuss results.
Note: On-line testing problems are fully covered in Section 579-501-351 (FMP).			

3.06 If calling from a send-receive station and the sender is to be tested, "remain in talk" and proceed to Table B — Attended Testing — Sender Terminal, starting with Step 1.

TABLE B

SECTIONALIZING TROUBLE
ATTENDED TESTING — SENDER TERMINAL

STEP	ACTION OF ATTENDANT OR MTCE EMPLOYEE AT STATION TAKEN AT REQUEST OF TEST CENTER	ACTION OBSERVED AT THE STATION	TEST CENTER ACTION
Note: For a send-only station, begin with Step 7. If a receiver has already been tested (Table A), terminal is in the talk mode.			
1	None	None	Call placed to unit to be tested.
2	Lift handset and establish voice contact.	TALK lamp on.	Voice contact.
Note: During conversation with DTC operator, make sure all steps of this test are understood.			
3	Go to receiver terminal: Check power on, tape at punch, and OMIT switches for 8-level. Turn SEND/RECEIVE switch to RECEIVE.	POWER lamp on.	Set up test.
4	Lift handset; verify voice contact.	None	Instruct station to go to data mode.
5	Depress DATA key.	Punch and winder motor on.	Enters data mode. Sends short message.
6	Remove message tape from receiver (depress LTRS F.O. for extra tape). Insert message into reader.	Tape punching starts and stops — test tape received.	None
7	For send-only stations: Insert TP146606 test tape into reader (with arrows pointing left).	None	None
8	Check power on, select proper code level at reader dial and at level selector switch, check guides on reader, turn AUTO-MANUAL switch to MANUAL, move RUN-STOP-FREE lever to STOP, and depress READER button. Turn SEND/RECEIVE switch to SEND (if present).	POWER lamp on and motor on.	Test set up and goes to receive mode.
Note: If data set has the reverse channel feature "in," move OPR/TEST switch to OPR, and (if present) move BREAK FEATURE switch to OFF; if the reverse channel feature is "out," move OPR/TEST switch to TEST and omit Steps 13 through 17.			

TABLE B

SECTIONALIZING TROUBLE
ATTENDED TESTING — SENDER TERMINAL (Continued)

STEP	ACTION OF ATTENDANT OR MTCE EMPLOYEE AT STATION TAKEN AT REQUEST OF TEST CENTER	ACTION OBSERVED AT THE STATION	TEST CENTER ACTION
9	Lift handset, (if required, depress TALK key) and verify voice contact.	For send-only station: Call back is required and data set rings.	Voice contact.
10	Depress DATA key and wait a few seconds.	DATA lamp on.	Enters data mode.
11	Move RUN-STOP-FREE lever to RUN.	Tape transmission starts.	Receives message.
12	Move RUN-STOP-FREE lever to STOP (to conclude the first part of test).	Tape transmission stops.	Message stops.
Note: If reverse channel is not used, proceed to Step 19; if reverse channel is used, proceed with Step 13.			
13	Move BREAK FEATURE switch (if present) to ON. If a short tape is being used, reposition it to the beginning of the message. Move RUN-STOP-FREE lever to RUN.	Tape transmission starts.	Message starts.
14	None	Bell sounds, LINE BREAK lamp on, and transmission stops.	Interrupts transmission.
15	None	Tape transmission starts.	Restarts transmission.
16	None	Message ends; transmission stops.	Test set goes to local mode.
17	Move RUN-STOP-FREE lever to STOP.	None (or if continuous loop tape is used, transmission stops).	None
18	Depress READER (punch) button.	Motor off.	None
19	Lift handset, depress TALK key, and verify voice contact.	Discuss results.	Gives results.
	Testing concluded.		

4. REFERENCES

4.01 For information on description and operation, refer to the following sections:

582-100-100 — "DATASPEED Tape-To-Tape System Type 1 and 2 Tape Senders and Receivers"

582-100-101 — "DATASPEED Tape-To-Tape System Type 1 and 2 Tape Senders and Receivers — Electronic Circuitry"

4.02 For information on installation, checkout, and troubleshooting, refer to the following sections:

582-100-215 — "DATASPEED Tape-To-Tape System Type 1 and 2 Tape Senders and Receivers — Installation"

579-501-350 — "DATASPEED Type 2 Tape-To-Tape System Tape Sender 2A — FMP"

582-100-315 — "DATASPEED Tape-To-Tape System Type 1 and 2 Tape Senders and Receivers Test, Adjustments, and Troubleshooting Guide"

579-501-351 — "DATASPEED Type 2 Tape-To-Tape System Receiver 2B — FMP"

4.03 For information on adjustments and lubrication, refer to the following sections:

582-100-715 — "DATASPEED Tape-To-Tape System Type 1 and 2 Tape Senders and Receivers — Cabinet Adjustments"

582-100-716 — "DATASPEED Tape-To-Tape System Type 1 and 2 Tape Senders and Receivers — Cabinet Lubrication"

5. TROUBLESHOOTING AIDS

5.01 When troubleshooting a 2A Sender or 2B Receiver Station, repairs at the station should be confined to troubles of a minor nature (replacement of assemblies or circuit cards and tape transport adjustments, etc). Troubles of a serious nature should be isolated to the specific assembly. The defective assembly should then be replaced with a known good assembly. Return the defective assembly to a repair center that has the facilities to perform comprehensive testing and repairs.

Caution: Do not insert, remove, connect, or disconnect any electronic component while the maintenance ON-OFF switch (located on the power supply front panel) is in the ON position.

5.02 When the station fails a step in the test procedure, refer to Section 579-501-350 (Sender) or 579-501-351 (Receiver) for an indication of the probable cause and location of the trouble.