NO NEED TO CALL THE DATA TEST CENTER!!!

Data set 202T can be tested with the Automatic Data Test System (ADTS) using the DIVA feature and TOUCH-TONE® signalling (from a rotary dial phone, use a KS-21799-L1 tone coupler).

DDD	TEST FUNCTION LB RT ER DL
X	X

Use local instructions for DIVA access.

Test commands are entered into ADTS by letters and numbers on the TOUCH-TONE dial. To enter letters depress the number sign (#), then depress the TOUCH-TONE key that has the desired alpha character on it. Then depress the digit (1, 2, or 3) corresponding to the position of the alpha character on the TOUCH-TONE key.

Examples:

202C10	202#2310*
401J	401#51*
208B	208#22*

FUNCTION	CHARACTERS
NO	0*
YES	1*
RESULTS	7*
LIST ALL TEST FUNCTIONS	8*
REPEAT LAST MESSAGE	#*
DIGITAL LOOPBACK (DL)	35*
ERROR RUN (ER)	37*
LOOPBACK TEST (LB)	52*
STOP AND DISCONNECT	#63*
STOP PRESENT FUNCTION	#73*
REMOTE TEST (RT)	78*

For fast test of above, depress 3 before function, eg, 352*. Be sure to use #63* to disconnect in every case.

For more details, see Sections 590-010-500 and 668-600-102.

DATA SET 202T

TRANSMITTER-RECEIVER

TEST PROCEDURES USING 921A DATA TEST SET

CONTENTS PAGE

CONTENTS PAGE

1. GENERAL

1.01 This section contains test procedures using the 921A data test set (DTS) and the self-test capabilities of data set (DS) 202T. Test procedures using the 914-type DTS and the self-test capabilities of DS 202T are contained in Section 592-031-500. These procedures are to be used when testing DS 202T on an initial installation or during a maintenance visit.

1.02 This section is reissued to add coverage for Version 2 of the 921A DTS. Since this reissue is a general revision, arrows normally used to indicate changes have been omitted.

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1.03 Test circuitry built into DS 202T permits a local self test to be performed. The test circuitry also facilitates the remote test of the data set from a test center. Additional tests require the use of external test equipment such as the 921A DTS.

1.04 The 921A DTS (Fig. 1) is a portable, general purpose data test set that provides the serial testing capabilities of the 914C DTS and is compatible with the 914C DTS for the testing of serial data sets. The 921A DTS also provides additional testing capabilities that are described in Section 107-402-100. Input to the 921A DTS is made through a 20-button keyboard. A 32-character display provides operator prompting and test results.

2. INSTALLATION TESTS

2.01 This part provides the sequence in which tests are to be performed following installation of the data set. This test sequence provides a method of verifying that the installation is satisfactory.

2.02 Before proceeding with the tests, verify that the private line meets the requirements specified in Section 314-410-500. For a 2-wire private line, the installation test sequence is shown in Fig. 2. For a 4-wire private line, the installation test sequence is shown in Fig. 3.

3. MAINTENANCE TESTS

3.01 This part provides the sequence in which tests are to be performed during a maintenance visit. This test sequence provides a method of isolating a trouble to the data set, the transmission facility, or the customer-provided equipment (CPE).

3.02 When a trouble report is received, a test center is responsible for isolating the trouble to the data set or transmission facility. The procedure for doing this is shown in Fig. 4.

3.03 If it is suspected that the trouble is in the data station equipment, a telephone company (telco) employee must be dispatched to conduct more extensive tests at the data station. The following equipment should be taken on a trouble visit:

- Spare data set
- 921A DTS.

3.04 Refer to Fig. 5 (2-wire private line) and Fig. 6 (4-wire private line) for the sequence in which tests are to be performed by the telco employee at the data station. If the data set is replaced, the defective data set should be tagged with a description of the trouble, carefully packed, and returned to the service center for repair. Verify that the replacement data set is equipped with the proper options before placing the data set in service.

3.05 If the trouble persists, proceed as follows.

(a) Check that options installed in data set agree with those specified on service order.

(b) Verify that CPE has been tested and is operating properly.

(c) Check for physical damage to data station equipment.

(d) Verify that all cords and connectors are properly connected.

(e) Check for intermittent trouble in station wiring.

(f) Verify that data set and CPE are connected to a common ground.

(g) If trouble persists, request help from immediate supervisor.

4. TEST PROCEDURES

4.01 This part provides the procedures for the installation and maintenance tests.

A. Local Self Test

4.02 This test checks the data set transmitter and receiver. The customer interface is not checked. Test data generated by the data set is looped back internally from the transmitter output to the receiver input. The received data is compared

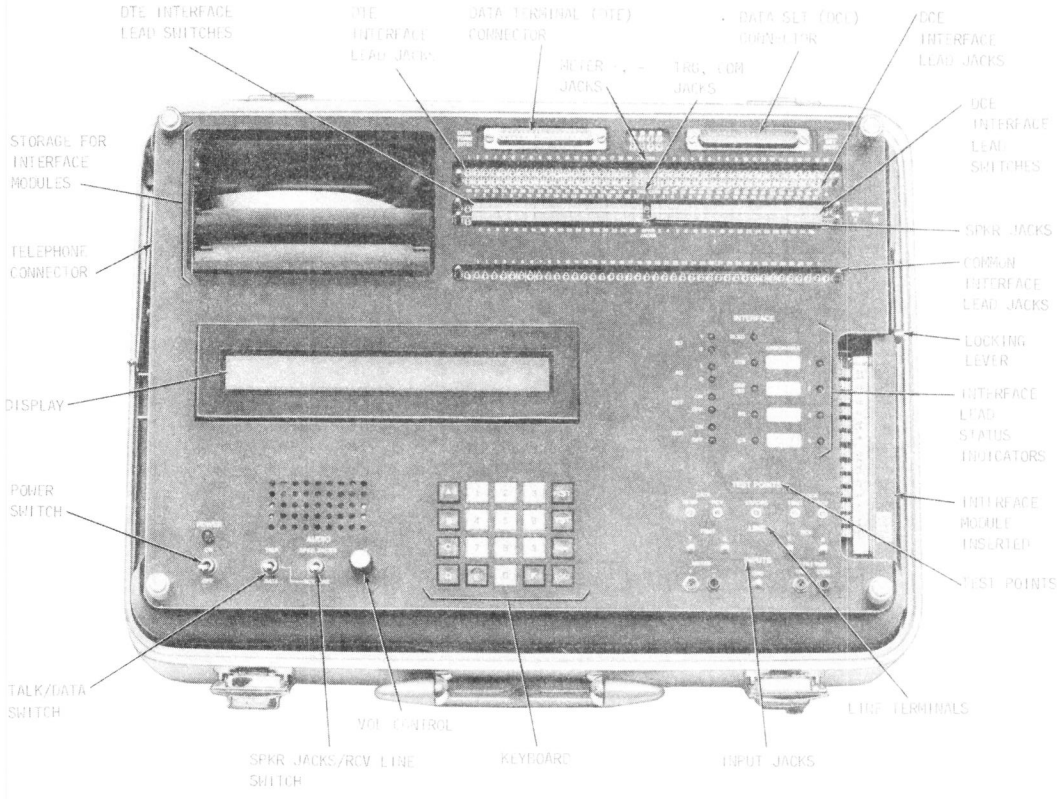

Fig. 1—921A Data Test Set—Front Panel

to the original data. Under normal conditions, all the data set indicator lamps are lighted; however, if an error is detected, the TM lamp goes off.

4.03 Perform the test as follows.

(1) Ensure that data set is not transmitting or receiving data.

(2) Firmly depress and hold LT switch for at least 15 seconds.

Note: If LT switch is depressed slowly, TM lamp may go off in a nondefective data set.

Requirement: TM lamp remains lighted while LT switch is depressed.

(3) If requirement specified in (2) is not met, repeat (2) four more times.

Requirement: TM lamp remains lighted during all four repeats.

B. Remote Test

4.04 This test allows a test center to check the data set transmitter and receiver and the facilities connecting the data set and the test center. The customer interface is not checked.

2-Wire Private Line

4.05 For a 2-wire private line, the data set RT switch conditions the data set for testing by a test center. Perform the test as follows.

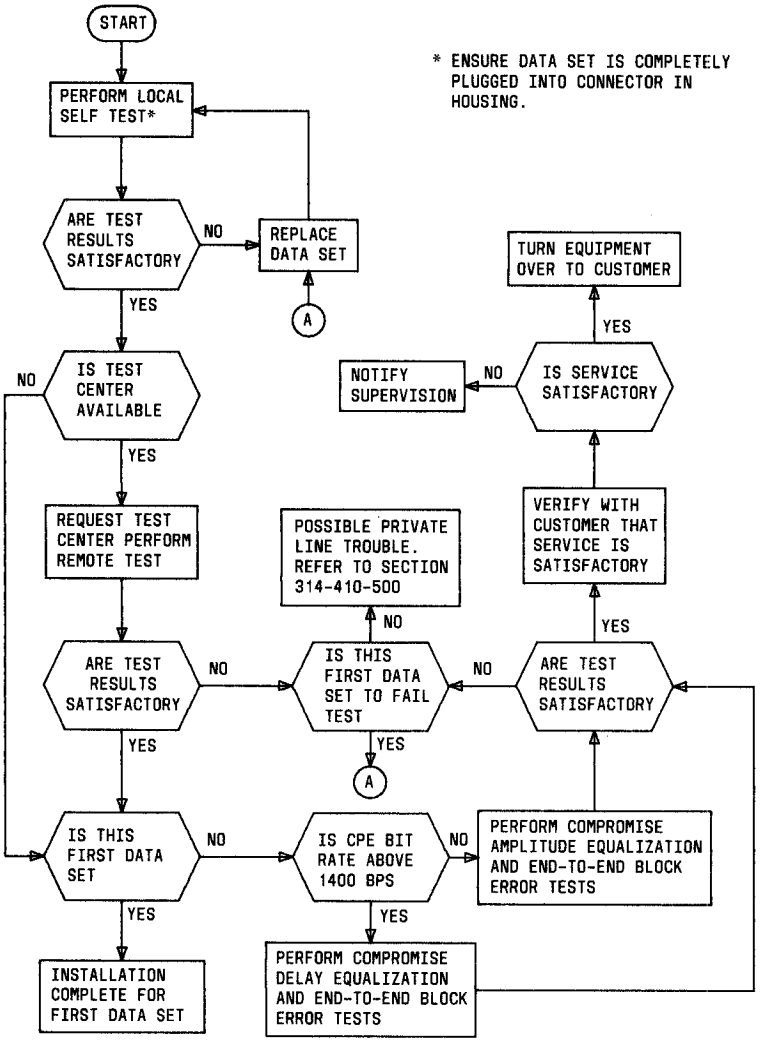

Fig. 2—Installation Test Sequence (2-Wire Private Line)

(1) Contact test center and request a remote test.

(2) When directed by test center, depress RT switch.

Requirement: On data set, all indicator lamps are lighted.

(3) Test center performs remote test.

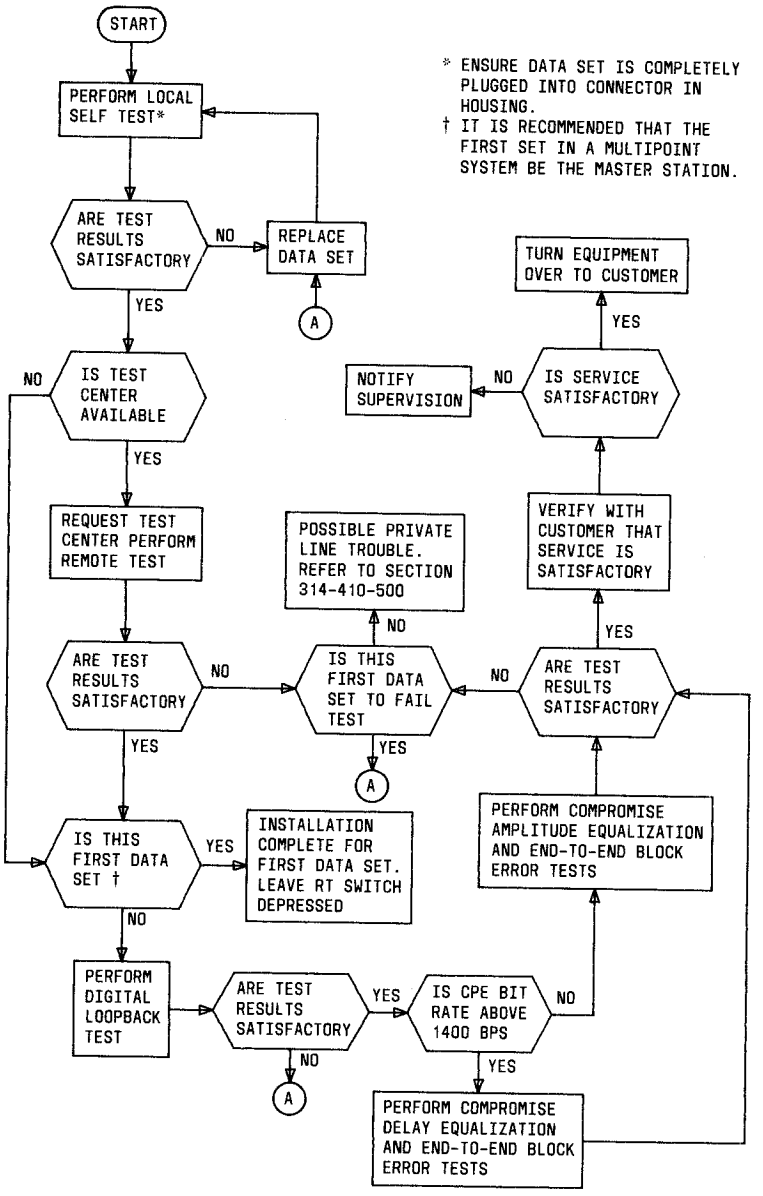

Fig. 3—Installation Test Sequence (4-Wire Private Line)

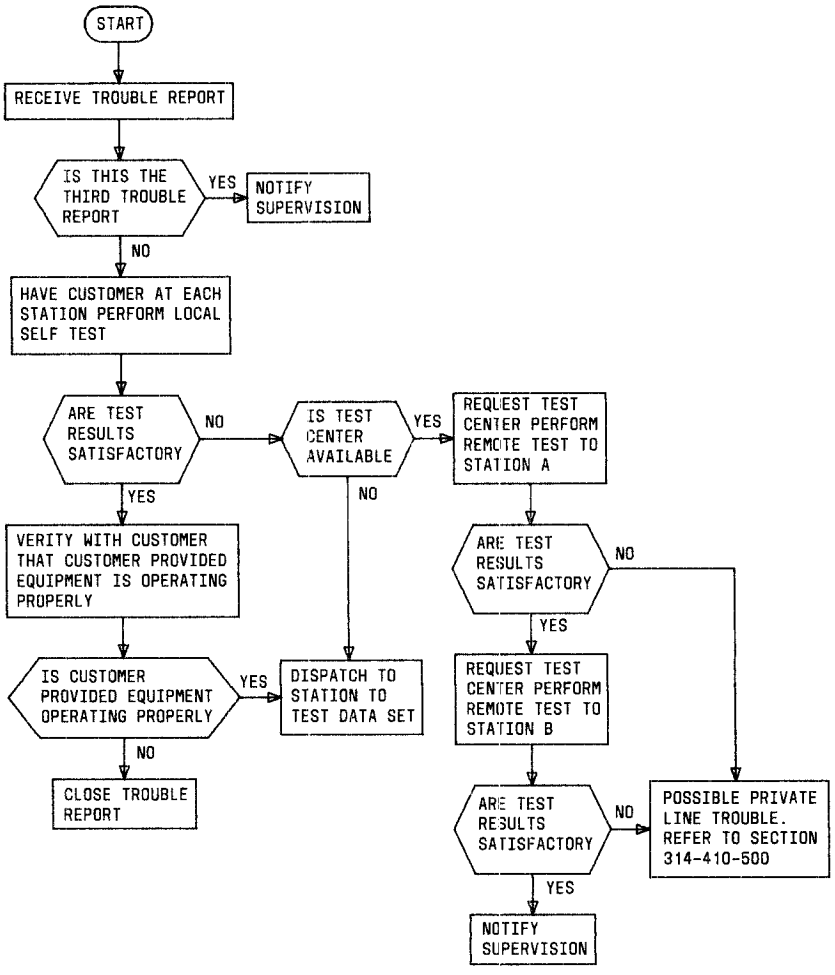

Fig. 4—Clearing Trouble Report (2-Wire or 4-Wire Private Line)

(4) When directed by test center, release RT switch.

Requirement: TM lamp goes off.

4-Wire Private Line

4.06 For a 4-wire private line, test data is generated and transmitted by a test center. The data set RT switch loops back this data internally from the receiver output to the transmitter input of the data set. The data is retransmitted, received by the test center, and compared to the original data. Perform the test as follows.

(1) Contact test center and request a remote test.

(2) When directed by test center, depress RT switch.

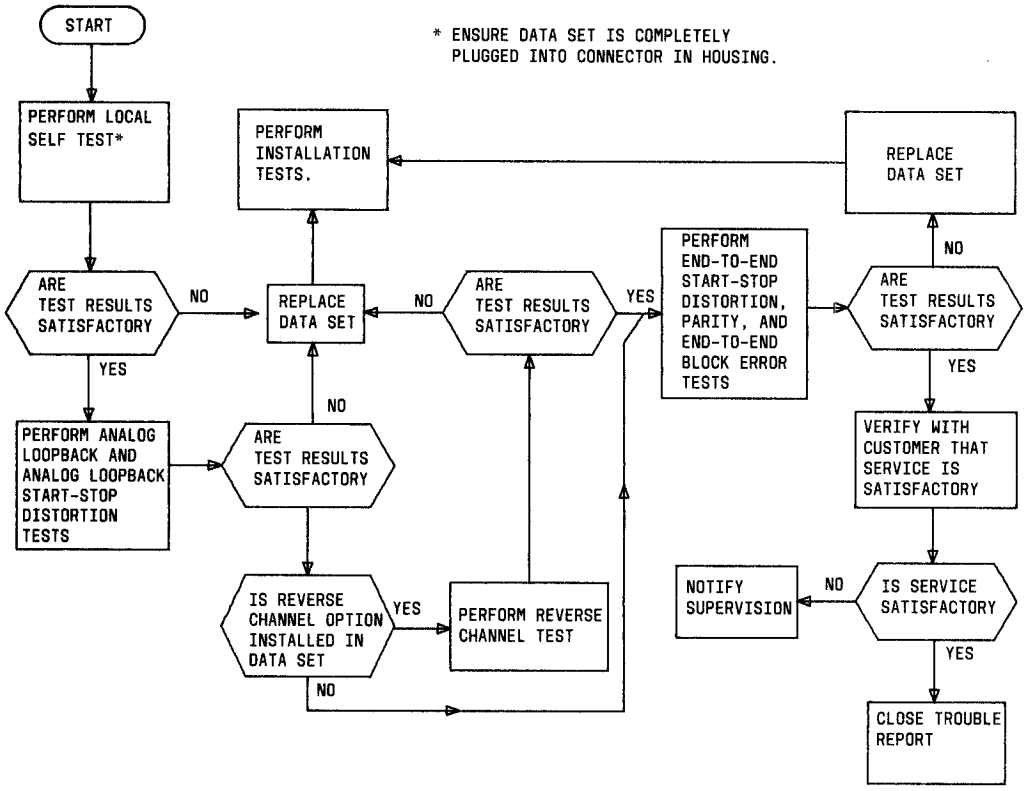

Fig. 5—Maintenance Test Sequence (2-Wire Private Line)

Requirement: On data set, only ON and TM indicator lamps are lighted.

(3) Test center performs remote test.

(4) When directed by test center, release RT switch.

Requirement: TM lamp goes off.

C. Initial Test Setup for 921A DTS

4.07 Perform the initial test setup for the 921A DTS when used to test DS 202T as follows.

STEP	ACTION	VERIFICATION
1	Connect data set to DTS using interface cable and EIA adapter cord provided with DTS. ***Note:*** The interface cable is equipped with two 37-pin connectors. The 6-inch adapter cord is equipped with a female 37-pin connector and a male 25-pin connector. Connect interface cable from DATA SET (DCE) connector on	

STEP	ACTION	VERIFICATION

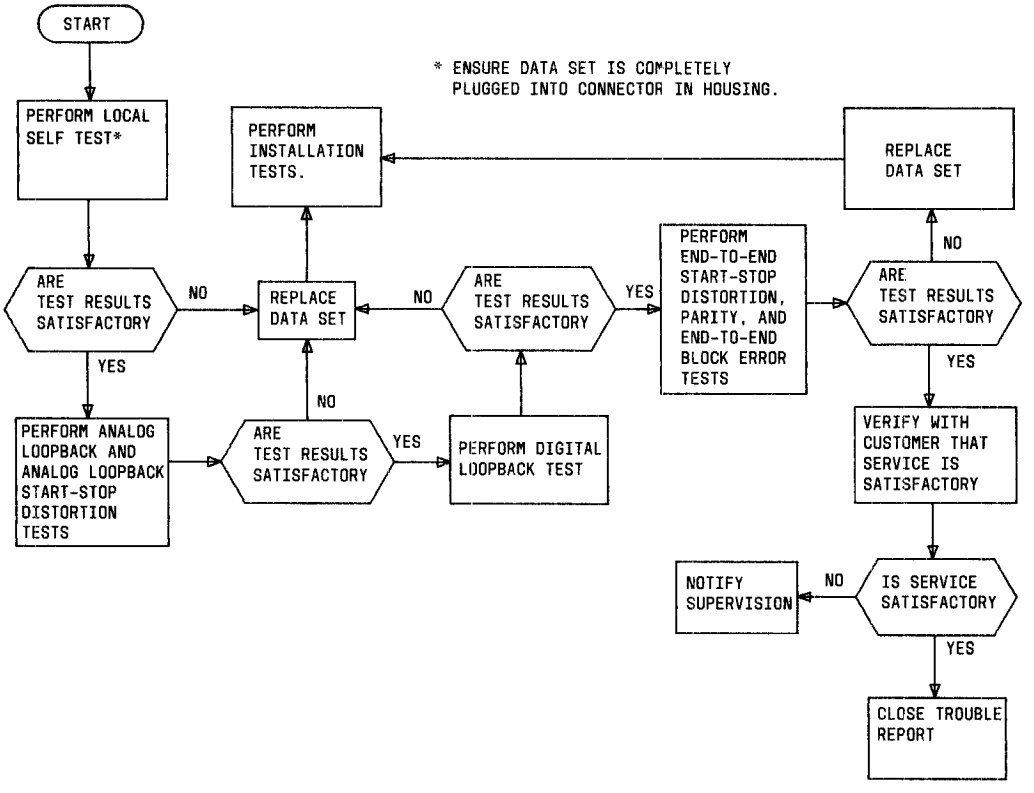

Fig. 6—Maintenance Test Sequence (4-Wire Private Line)

	DTS to 37-pin connector on adapter cord. Insert 25-pin connector on adapter cord into customer interface connector on data set.	
2	Connect DTS to a 105- to 129-Vac 60-Hz power source.	
3	Apply power to data set.	ON lamp lights.
4	On front of DTS, set POWER switch to ON.	POWER lamp lights.
5	Press RST on keyboard. ***Note:*** If RST is pressed during a test, the	Display reads (briefly) version number of DTS. DTS then performs self tests.

STEP	ACTION	VERIFICATION
	test is ended and the DTS recycles to this step.	If DTS is defective, display reads— TEST FAILED. If DTS is satisfactory, display reads— DATA SET:
6	Remove EIA RS-232-C interface module from storage and ensure that all 25 interface module switches are in TERM position.	
7	On right side of DTS, ensure that locking lever is in OPEN position.	
8	Insert interface module into slot.	
9	Move locking lever to CLOSE position.	
10	On front of DTS, ensure that all 37 DCE interface lead switches are in NORM position except that switch 11 is in OPEN position.	
11	Enter 25 on keyboard. ***Note:*** To delete a wrong entry on keyboard during any test, press back arrow (◖).	Display reads— DATA SET: 25
12	Press GO.	Display reads— BIT RATE:
13	Enter 12.	Display reads— BIT RATE: 12
14	Press GO. ***Note:*** If GO or TST is pressed at an unauthorized point in a test, the test is ended and the DTS recycles to this step.	Display reads— TEST SEQ:

D. Analog Loopback Test

4.08 In this test, an analog loopback block error run is performed, the CA-CB (RS-CS) interval is checked, and the CA-CF (RS-RLSD) interval is checked. The reverse channel is also checked, if it is installed in the data set. The block error run checks the data set transmitter and receiver and the customer interface. Test data is generated by the 921A DTS and looped back internally from the data set transmitter output to the receiver input. The received data is compared to the original data by the DTS. Data errors are indicated by the DTS display. The CA-CB interval check measures the interval between the time the request-to-send lead is turned ***on*** and the clear-to-send lead turns ***on.*** The CA-CF interval check measures the interval between the beginning of the line signal and the ***on*** condition of the received line signal detector lead.

4.09 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Ensure that initial test setup described in paragraph 4.07 has been performed.	Display reads— TEST SEQ:

STEP	ACTION	VERIFICATION
	Note: If GO or TST is pressed at an unauthorized point in the following tests, the test in progress is ended and the DTS recycles to the start of that test (last preceding step that display read TEST SEQ:).	
Block Error Run		
2	On data set, depress AL switch.	TM lamp lights.
3	On DTS, enter 55.	Display reads— TEST SEQ: 55
4	Press GO.	Display reads— TRANSMITTER=? 1=921 2=914 3=903
5	Enter 1.	Display reads (briefly)— TRANSMITTER=1 1=921 2=914 3=903 Display then reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
6	Enter 5.	Display reads (briefly)— 511 BIT ERROR TEST Display then reads— 1=BIT ERRORS 2=BLOCK ERRORS
7	Enter 2.	Display reads— ????? BITS IN A BLOCK
8	Enter 01024.	Display reads (briefly)— 01024 BITS IN A BLOCK Display then reads— ???? SECONDS
9	Enter 0060. ***Note:*** To perform functions listed below, press associated key.	Display reads (briefly)— 0060 SECONDS Display then reads— BLK RCVD=0000 ERR=0000 From this point, display counts number of blocks received and number of blocks in error. If sync is lost during test, display flashes OSYN. If this occurs, test must be repeated by pressing A. At end of test, display reads TEST COMPLETE, total sync losses, total blocks received, and total blocks in error.

STEP	ACTION	VERIFICATION
		Requirement: No blocks in error.
	KEY FUNCTION A Repeat test. B Display time remaining in test. C Clear display. D End test. E Inject 8 errors into data stream. F Force out-of-sync condition.	
10	Press TST. ***Note:*** If option ZN (continuous carrier IN) is installed in data set, omit Steps 11 through 13.	Display reads— TEST SEQ:
	Clear-to-Send Interval Test	
11	Enter 30.	Display reads— TEST SEQ: 30
12	Press GO. ***Note 1:*** This test cannot be performed while an associated channel interface unit (DAS 828-type, DAS 829-type, or equivalent) is in the facility loopback mode. ***Note 2:*** Only the option actually installed in the data set need be tested. ***Note 3:*** To repeat test, press A.	Display reads RS-CS (CA-CB) interval in milliseconds. ***Requirement:*** Option M—7 to 9 ms Option K—28 to 32 ms Option J—56 to 64 ms Option G—170 to 191 ms
13	Press TST.	Display reads— TEST SEQ:
	Received Line Signal Detector Interval Test	
14	If option ZN (continuous carrier IN) is installed in data set, remove this option and install option ZO (continuous carrier OUT).	
15	Enter 31.	Display reads— TEST SEQ: 31
16	Press GO.	Display reads RS-RLSD (CA-CF) interval in milliseconds.

STEP	ACTION	VERIFICATION
	Note 1: Only the option actually installed in the data set need be tested.	***Requirement:***
	Note 2: To repeat test, press A.	Option Q—5.7 to 8 ms Option N—19 to 22 ms
17	Press TST.	Display reads— TEST SEQ:
18	If option ZO was installed in data set in Step 14, remove this option and install option ZN.	
Analog Loopback Reverse Channel Test (Does Not Apply to DS 202T-L1)		
	Note: If reverse channel is not installed in data set, omit Steps 19 through 29.	
19	Enter 47 48 38 47.	Display reads— TEST SEQ: 47 48 38 47
20	Press GO.	Display reads (briefly)— TEST COMPLETE Display then reads— SW CONN: X=?? Y=??
21	Enter 05 09.	Display reads (briefly)— SW CONN: X=05 Y=09 Display then reads— SW CONN: X=?? Y=??
22	Enter 15 10.	Display reads (briefly)— SW CONN: X=15 Y=10 Display then reads— SW CONN: X=?? Y=??
23	Enter 16 11.	Display reads (briefly)— SW CONN: X=16 Y=11 Display then reads— SW CONN: X=?? Y=??
24	Enter 10 05. ***Note:*** Steps 19 through 22 conditioned DTS to control request-to-send (S1), secondary request-to-send (S2), and data terminal ready (S3), and to monitor secondary received line signal detector on ASSIGNABLE 1 indicator.	Display reads (briefly)— SW CONN: X=10 Y=05 Display then reads— SW CONN: X=?? Y=??
25	Press GO.	Display reads (briefly)— TEST INTERRUPTED

STEP	ACTION	VERIFICATION
	Note: S1 is controlled by key 1; S2 is controlled by key 2; S3 is controlled by key 3. S4 is not used.	For Version 2 and higher DTS: Display then reads (briefly)— CROSS CONNECTIONS MANUALLY SET Display then reads state of controlled switches. A typical display might read— S1=OFF S2=OFF S3=ON S4=OFF
26	Press keys 1, 2, and 3 until state of S1, S2, and S3 are as shown in verification. Disregard S4.	Display reads— S1=OFF S2=ON S3=ON S4=OFF ***Requirement:*** ASSIGNABLE 1 indicator lights.
27	Press key 1.	Display reads— S1=ON S2=ON S3=ON S4=OFF ***Requirement:*** ASSIGNABLE 1 indicator goes off.
28	Press keys 1 and 2.	Display reads— S1=OFF S2=OFF S3=ON S4=OFF ***Requirement:*** ASSIGNABLE 1 indicator remains off.
29	Press GO.	Display reads (briefly)— TEST INTERRUPTED For Version 2 and higher DTS: Display then reads (briefly)— CROSS CONNECTIONS MANUALLY SET Display then reads (briefly)— TEST COMPLETE Display then reads— TEST SEQ:
30	On data set, release AL switch.	TM lamp goes off.

E. Digital Loopback Test (4-Wire Private Line)

4.10 This test checks the transmitter and receiver of both data sets and the facilities connecting the data sets. The customer interface at the distant data set is not checked. Test data is generated by the 921A DTS and transmitted by the local data set. This data is looped back internally from the receiver output to the transmitter input of the distant data set and retransmitted. The data is received by the local data set and compared to the original data by the DTS. Data errors are indicated by the DTS display.

4.11 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Ensure that initial test setup described in paragraph 4.07 has been performed.	Display reads— TEST SEQ:
2	Contact distant data station and have RT switch on data set depressed.	TM lamp lights on distant data set.
3	On DTS, enter 55.	Display reads— TEST SEQ: 55
4	Press GO.	Display reads— TRANSMITTER=? 1=921 2=914 3=903
5	Enter 1.	Display reads (briefly)— TRANSMITTER=1 1=921 2=914 3=903 Display then reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
6	Enter 5.	Display reads (briefly)— 511 BIT ERROR TEST Display then reads— 1=BIT ERRORS 2=BLOCK ERRORS
7	Enter 2.	Display reads— ????? BITS IN A BLOCK
8	Enter 01024.	Display reads (briefly)— 01024 BITS IN A BLOCK Display then reads— ???? SECONDS
9	Enter 0900. ***Note:*** To perform functions listed below, press associated key. **KEY — FUNCTION** A Repeat test. B Display time remaining in test. C Clear display. D End test. E Inject 8 errors into data stream. F Force out-of-sync condition.	Display reads (briefly)— 0900 SECONDS Display then reads— BLK RCVD=0000 ERR=0000 From this point, display counts number of blocks received and number of blocks in error. If sync is lost during test, display flashes OSYN. If this occurs, test must be repeated by pressing A. At end of test, display reads TEST COMPLETE, total sync losses, total blocks received, and total blocks in error.

STEP	ACTION	VERIFICATION
		Requirement: Total blocks in error are less than 12.
10	Contact distant data station and have RT switch on data set released.	TM lamp goes off on distant data set.

F. Compromise Amplitude Equalization Test

4.12 This test determines the proper compromise amplitude equalization option (ZX or ZW) to install in DS 202T-L1A. Four 90-second bit error tests are made, two with option ZX installed (minimum compromise amplitude equalization) and two with option ZW installed (maximum compromise amplitude equalization). The option that has the lowest number of bits in error in any of the four tests is then installed. If there is no difference, option ZW is installed. Option ZU (maximum compromise delay equalization) should be installed during this test and should remain installed.

Note: This test is required only for DS 202T-L1A operating over unconditioned channels at bit rates from 1000 to 1400 bps.

2-Wire Private Line (Half Duplex)

4.13 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct a compromise amplitude equalization test. ***Note 1:*** If distant station is not equipped with a 921A DTS, use a test set that provides at least one of the test patterns provided by the 921A DTS and use the same word length at both stations. ***Note 2:*** Procedure at transmitting station must be performed first.	
At transmitting station, perform Steps 2 through 6.		
2	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter first two digits of bit rate used by customer-provided equipment (CPE). Display in Step 13 reads digits entered.	Display reads— TEST SEQ:
3	Enter 53.	Display reads— TEST SEQ: 53
4	Press GO.	Display reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
5	Enter 6.	Display reads— 63 BIT ERROR TEST

STEP	ACTION	VERIFICATION
6	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read-- 63 BIT ERROR TEST
	At receiving station, perform Steps 7 through 20.	
7	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter first two digits of bit rate used by customer-provided equipment (CPE). Display in Step 13 reads digits entered.	Display reads— TEST SEQ:
8	Install options ZU and ZX in data set.	
9	On DTS, enter 54.	Display reads— TEST SEQ: 54
10	Press GO.	Display reads— TRANSMITTER=? 1=921 2=914 3=903
11	Enter code for DTS at transmitting station.	Typical display reads (briefly)— TRANSMITTER=1 1=921 2=914 3=903 Display then reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
12	Enter 6.	Display reads (briefly)-- 63 BIT ERROR TEST Display then reads— 1=BIT ERRORS 2=BLOCK ERRORS
13	Enter 1.	Display reads— ???? SECONDS
14	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read-- ???? SECONDS
15	Enter 0090.	
	Note: To perform functions listed below, press associated key. Keys A through D function at receiving station only. Keys E and F function at transmitting station only.	

STEP	ACTION	VERIFICATION
	KEY FUNCTION A Repeat test. B Display time remaining in test. C Clear display. D End test. E Inject 8 errors into data stream. F Force out-of-sync condition.	Display reads (briefly)— 0090 SECONDS Display then reads— 0000 BITS IN ERROR From this point, display counts number of bits in error. If sync is lost during test, display flashes OSYN. If this occurs, test must be repeated by pressing A. At end of test, display reads TEST COMPLETE, total sync losses, and total bits in error.
16	Record number of bits in error.	
17	Repeat test one time, by pressing A on DTS, and again record number of bits in error.	
18	Remove option ZX and install option ZW in data set.	
19	Repeat test two times and each time record number of bits in error.	
20	Select option (ZX or ZW) that had the lowest number of bits in error in any of the four tests, and install selected option in data set. If there is no difference, install option ZW in data set.	
21	Perform the compromise amplitude equalization test in the opposite direction. The receiving station now becomes the transmitting station.	

4-Wire Private Line (Full Duplex)

4.14 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct a compromise amplitude equalization test. ***Note:*** If distant station is not equipped with a 921A DTS, use a test set that provides at least one of the test patterns provided by the 921A DTS and use the same word length at both stations.	

STEP	ACTION	VERIFICATION
	At both stations, perform Steps 2 through 15.	
2	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter first two digits of bit rate used by customer-provided equipment (CPE). Display in Step 13 reads digits entered.	Display reads— TEST SEQ:
3	Install options ZU and ZX in data set.	
4	On DTS, enter 55.	Display reads— TEST SEQ: 55
5	Press GO.	Display reads— TRANSMITTER=? 1=921 2=914 3=903
6	Enter code for DTS at other station.	Typical display reads (briefly)— TRANSMITTER=1 1=921 2=914 3=903 Display then reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
7	Enter 6.	Display reads (briefly)— 63 BIT ERROR TEST Display then reads— 1=BIT ERRORS 2=BLOCK ERRORS
8	Enter 1.	Display reads— ???? SECONDS
9	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— ???? SECONDS
10	Enter 0090. ***Note:*** To perform functions listed below, press associated key. **KEY — FUNCTION** A Repeat test. B Display time remaining in test. C Clear display. D End test. E Inject 8 errors into data stream. F Force out-of-sync condition.	Display reads (briefly)— 0090 SECONDS Display then reads— 0000 BITS IN ERROR From this point, display counts number of bits in error. If sync is lost during test, display flashes OSYN. If this occurs, test must be repeated by pressing A.

STEP	ACTION	VERIFICATION
		At end of test, display reads TEST COMPLETE, total sync losses, and total bits in error.
11	Record number of bits in error.	
12	Repeat test one time, by pressing A on DTS, and again record number of bits in error.	
13	Remove option ZX and install option ZW in data set.	
14	Repeat test two times and each time record number of bits in error.	
15	Select option (ZX or ZW) that had the lowest number of bits in error in any of the four tests, and install selected option in data set. If there is no difference, install option ZW in data set.	

G. Compromise Delay Equalization Test

4.15 This test determines the proper compromise delay equalization option (ZV or ZU) to install in DS 202T-L1 (series 6 and higher) or DS 202T-L1A. Four 180-second start-stop distortion tests are made, two with option ZV installed (minimum compromise delay equalization) and two with option ZU installed (maximum compromise delay equalization). The option that has the lowest peak distortion in any of the four tests is then installed. If there is no difference, option ZU is installed. Option ZW (maximum compromise amplitude equalization) should be installed during this test and should remain installed.

Note: This test is required only for DS 202T-L1 (series 6 and higher) or DS 202T-L1A operating over channels with C2 conditioning at bit rates above 1400 bps.

2-Wire or 4-Wire Private Line (Half Duplex)

4.16 Perform the test as follows.

Note: A 911-type DTS can be used at the distant data station.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct a compromise delay equalization test. ***Note:*** Procedure at transmitting station must be performed first.	
At transmitting station, perform Steps 2 through 8.		
2	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter 18. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:

STEP	ACTION	VERIFICATION
3	Enter 52.	Display reads— TEST SEQ: 52
4	Press GO.	For Version 1 DTS: Display reads— TRMT: 1=MAN 2=CONT For Version 2 and higher DTS: Display reads— PARITY=? (0=EVEN 1=ODD)
5	For Version 2 and higher DTS, enter 0.	Display reads (briefly)— PARITY=0 (0=EVEN 1=ODD) Display then reads— TRMT=? (1=MAN 2=CONT)
6	Enter 2.	For Version 2 and higher DTS: Display reads (briefly)— TRMT=2 (1=MAN 2=CONT)
7	Place data set in data mode.	Display then reads— PRESS A TO START On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— PRESS A TO START
8	Press A.	For Version 1 DTS: Display reads— SENDING ASCII MESSAGE For Version 2 and higher DTS: Display reads (briefly)— CS MUST BE ON TO TRANSMIT Display then reads— SENDING MESSAGE
At receiving station, perform Steps 9 through 25.		
9	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter 18. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
10	Install options ZW and ZV in data set.	
11	For Version 1 DTS, enter 36.	Display reads— TEST SEQ: 36 RS=? (0 OR 1)
12	For Version 1 DTS, enter 0.	Display reads— TEST SEQ: 36 RS=0 (0 OR 1)

STEP	ACTION	VERIFICATION
13	For Version 1 DTS, press GO.	Display reads (briefly)— TEST COMPLETE Display then reads— TEST SEQ:
14	Enter 79.	For Version 1 DTS: Display reads— TEST SEQ: 79 HITS OVER ??%
15	For Version 2 and higher DTS, press GO.	Display reads— MODE=? (1=RCV 2=RCV & TRMT)
16	For Version 2 and higher DTS, enter 1.	Display reads (briefly)— MODE=1 (1=RCV 2=RCV & TRMT) Display then reads— HITS OVER ??% (MAX=49%)
17	Enter 40.	For Version 1 DTS: Display reads— TEST SEQ: 79 HITS OVER 40% For Version 2 and higher DTS: Display reads (briefly)— HITS OVER 40% (MAX=49%) Display then reads— ???? SECONDS
18	For Version 1 DTS, press GO.	Display reads— ???? SECONDS
19	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— ???? SECONDS
20	Enter 0180 and after about 2 seconds, press C. ***Note:*** To perform functions listed below, press associated key. **KEY FUNCTION** A* Repeat test. B* Display time remaining in test. C Clear display. D* End test. *Version 2 and higher DTS.	Display reads (briefly)— 0180 SECONDS Display then reads— PEAK=00% HITS=00/40 AVG BIAS=00% At end of test, display reads TEST COMPLETE and test results.
21	Record peak distortion.	

STEP	ACTION	VERIFICATION
22	Repeat test one time and again record peak distortion. ***Note:*** To repeat test—For Version 1 DTS, press TST on DTS and repeat Steps 14 through 20. For Version 2 and higher DTS, press A on DTS.	
23	Remove option ZV and install option ZU in data set.	
24	Repeat test two times and each time record peak distortion.	
25	Select option (ZV or ZU) that had the lowest peak distortion in any of the four tests, and install selected option in data set. If there is no difference, install option ZU in data set.	
26	Perform the compromise delay equalization test in the opposite direction. The receiving station now becomes the transmitting station.	

4-Wire Private Line (Full Duplex) (Version 2 and Higher DTS)

Note: A 911-type DTS can be used at the distant data station.

4.17 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct a compromise delay equalization test.	
At both stations, perform Steps 2 through 16.		
2	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter 18. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
3	Enter 52 79.	Display reads— TEST SEQ: 52 79
4	Press GO.	Display reads— PARITY=? (0=EVEN, 1=ODD)
5	Enter 0.	Display reads (briefly)— PARITY=0 (0=EVEN, 1=ODD)

STEP	ACTION	VERIFICATION
		Display then reads— TRMT=? (1=MAN 2=CONT)
6	Enter 2. ***Note:*** Ignore display, PRESS A TO START	Display reads (briefly)— TRMT=2 (1=MAN 2=CONT) Display then reads— PRESS A TO START
7	Press GO.	Display reads (briefly)— TEST INTERRUPTED Display then reads— MODE=? (1=RCV 2=RCV & TRMT)
8	Enter 2.	Display reads (briefly)— MODE=2 (1=RCV 2=RCV & TRMT) Display then reads— HITS OVER ??% (MAX=49%)
9	Enter 40.	Display reads (briefly)— HITS OVER 40% (MAX=49%) Display then reads— ???? SECONDS
10	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— ???? SECONDS
11	Enter 0180 and after about 2 seconds, press C. ***Note:*** To perform functions listed below, press associated key. **KEY FUNCTION** A Repeat test. B Display time remaining in test. C Clear display. D End test.	Display reads (briefly)— 0180 SECONDS Display then reads— PEAK=00% HITS=00/40 AVG BIAS=00% At end of test, display reads TEST COMPLETE and test results.
12	Record peak distortion.	
13	Repeat test one time, by pressing A on DTS, and again record peak distortion.	
14	Remove option ZV and install option ZU in data set.	
15	Repeat test two times and each time record peak distortion.	

STEP	ACTION	VERIFICATION
16	Select option (ZV or ZU) that had the lowest peak distortion in any of the four tests, and install selected option in data set. If there is no difference, install option ZU in data set.	

H. End-to-End Block Error Test

4.18 This test checks the transmitter and receiver of both data sets and the facilities connecting the data sets. The customer interfaces are also checked. Identical test data is generated by 921A DTSs at both data sets. This data is transmitted by one of the data sets and compared to the data generated by the DTS at the receiving data set. Data errors are indicated by the DTS display.

Note 1: For DS 202T-L1A operating over unconditioned channels at bit rates from 1000 to 1400 bps, perform the compromise amplitude equalization test before performing the end-to-end error test. If the compromise amplitude equalization test is not required, ensure that option ZW (maximum compromise amplitude equalization) is installed in the data set before performing the end-to-end error test.

Note 2: For DS 202T-L1 (series 6 and higher) and DS 202T-L1A operating over channels with C2 conditioning at bit rates above 1400 bps, perform the compromise delay equalization test before performing the end-to-end error test. If the compromise delay equalization test is not required, ensure that option ZU (maximum compromise delay equalization) is installed in the data set before performing the end-to-end error test.

2-Wire Private Line (Half Duplex)

4.19 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct an end-to-end block error test. ***Note 1:*** If distant station is not equipped with a 921A DTS, use a test set that provides at least one of the test patterns provided by the 921A DTS and use the same word length at both stations. ***Note 2:*** Procedure at transmitting station must be performed first.	
At transmitting station, perform Steps 2 through 6.		
2	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter first two digits of bit rate used by customer-provided equipment (CPE). Display in Step 13 reads digits entered.	Display reads— TEST SEQ:
3	Enter 53.	Display reads— TEST SEQ: 53

STEP	ACTION	VERIFICATION
4	Press GO.	Display reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
5	Enter 6.	Display reads— 63 BIT ERROR TEST
6	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— 63 BIT ERROR TEST
At receiving station, perform Steps 7 through 15.		
7	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter first two digits of bit rate used by customer-provided equipment (CPE). Display in Step 13 reads digits entered.	Display reads— TEST SEQ:
8	Enter 54.	Display reads— TEST SEQ: 54
9	Press GO.	Display reads— TRANSMITTER=? 1=921 2=914 3=903
10	Enter code for DTS at transmitting station.	Typical display reads (briefly)— TRANSMITTER=1 1=921 2=914 3=903 Display then reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
11	Enter 6.	Display reads (briefly)— 63 BIT ERROR TEST Display then reads— 1=BIT ERRORS 2=BLOCK ERRORS
12	Enter 2.	Display reads— ????? BITS IN A BLOCK
13	Enter 01024.	Display reads (briefly)— 01024 BITS IN A BLOCK Display then reads— ???? SECONDS
14	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— ???? SECONDS

STEP	ACTION	VERIFICATION
15	Enter 0900. ***Note:*** To perform functions listed below, press associated key. Keys A through D function at receiving station only. Keys E and F function at transmitting station only. **KEY FUNCTION** A Repeat test. B Display time remaining in test. C Clear display. D End test. E Inject 8 errors into data stream. F Force out-of-sync condition.	Display reads (briefly)— 0900 SECONDS Display then reads— BLK RCVD=0000 ERR=0000 From this point, display counts number of blocks received and number of blocks in error. If sync is lost during test, display flashes OSYN. If this occurs, test must be repeated by pressing A. At end of test, display reads TEST COMPLETE, total sync losses, total blocks received, and total blocks in error. ***Requirement:*** Total blocks in error are as follows: 1000 bps—less than 10 1200 bps—less than 12 1400 bps—less than 14 1600 bps—less than 16 1800 bps—less than 18
16	Perform the end-to-end block error test in the opposite direction. The receiving station now becomes the transmitting station.	

4-Wire Private Line (Full Duplex)

4.20 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct an end-to-end block error test. ***Note:*** If distant station is not equipped with a 921A DTS, use a test set that provides at least one of the test patterns provided by the 921A DTS and use the same word length at both stations.	

STEP	ACTION	VERIFICATION
	At both stations, perform Steps 2 through 9.	
2	Ensure that initial test setup described in paragraph 4.07 has been performed, except in Step 13 enter first two digits of bit rate used by customer-provided equipment (CPE). Display in Step 13 reads digits entered.	Display reads— TEST SEQ:
3	Enter 55.	Display reads— TEST SEQ: 55
4	Press GO.	Display reads— TRANSMITTER=? 1=921 2=914 3=903
5	Enter code for DTS at other station.	Typical display reads (briefly)— TRANSMITTER=1 1=921 2=914 3=903 Display then reads (briefly)— SELECT ERROR TEST Display then reads— D=DT 0=SP 1=MK 2=2047 5=511 6=63
6	Enter 6.	Display reads (briefly)— 63 BIT ERROR TEST Display then reads— 1=BIT ERRORS 2=BLOCK ERRORS
7	Enter 2.	Display reads— ????? BITS IN A BLOCK
8	Enter 01024.	Display reads (briefly)— 01024 BITS IN A BLOCK Display then reads— ???? SECONDS
9	Enter 0900. ***Note:*** To perform functions listed below, press associated key. **KEY FUNCTION** A Repeat test. B Display time remaining in test. C Clear display. D End test. E Inject 8 errors into data stream. F Force out-of-sync condition.	Display reads (briefly)— 0900 SECONDS Display then reads— BLK RCVD=0000 ERR=0000 From this point, display counts number of blocks received and number of blocks in error. If sync is lost during test, display flashes OSYN. If this occurs, test must be repeated by pressing A. At end of test, display reads TEST COMPLETE,

STEP	ACTION	VERIFICATION
		total sync losses, total blocks received, and total blocks in error. ***Requirement:*** Total blocks in error are as follows: 1000 bps—less than 10 1200 bps—less than 12 1400 bps—less than 14 1600 bps—less than 16 1800 bps—less than 18

I. Reverse Channel Test

4.21 This test checks the interface circuits used with the reverse channel. The 921A DTS and a test center are required for the test. The test center must be capable of transmitting a 387-Hz tone to the data set and measuring the frequency of the tone received from the data set.

4.22 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Ensure that initial test setup described in paragraph 4.07 has been performed.	Display reads— TEST SEQ:
2	Enter 39.	Display reads— TEST SEQ: 39
3	Press GO.	Display reads— SRLSD IS OFF
4	Contact test center and request test center to send a 387-Hz tone at -12 dBm at the O TLP.	Display reads— SRLSD IS ON After several seconds, display reads— SRS IS ON
5	Request test center to measure frequency of reverse channel tone received from data set.	***Requirement:*** 377 to 397 Hz

J. Analog Loopback Start-Stop Distortion Test (Version 2 and Higher DTS)

4.23 This test uses the 921A DTS to measure three types of start-stop distortion, as follows.

- Peak distortion
- Number of "hits" above a specified threshold
- Average bias distortion.

4.24 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Ensure that initial test setup described in paragraph 4.07 has been performed. ***Note:*** Procedure in Step 13 of paragraph 4.07 is for DS 202T-L1 with reverse channel.	Display reads— TEST SEQ:

STEP	ACTION	VERIFICATION
	For DS 202T-L1 without reverse channel and for DS 202T-L1A with or without reverse channel, enter 18 in Step 13. Display in Step 13 reads BIT RATE: 18.	
2	If option ZU (maximum compromise delay equalization) is installed in DS 202T-L1, remove this option and install option ZV (minimum compromise delay equalization).	
3	If option ZY (basic channel condition) is installed in DS 202T-L1A, remove this option and install option ZZ (C2 channel condition).	
4	On data set, depress AL switch.	TM lamp lights.
5	On DTS, enter 52 79.	Display reads— TEST SEQ: 52 79
6	Press GO.	Display reads— PARITY=? (0=EVEN, 1=ODD)
7	Enter 0.	Display reads (briefly)— PARITY=0 (0=EVEN, 1=ODD) Display then reads— TRMT=? (1=MAN 2=CONT)
8	Enter 2. ***Note:*** Ignore display, PRESS A TO START	Display reads (briefly)— TRMT=2 (1=MAN 2=CONT) Display then reads— PRESS A TO START
9	Press GO.	Display reads (briefly)— TEST INTERRUPTED Display then reads— MODE=? (1=RCV 2=RCV & TRMT)
10	Enter 2.	Display reads (briefly)— MODE=2 (1=RCV 2=RCV & TRMT) Display then reads— HITS OVER ??% (MAX=49%)
11	Enter YY. ***Note:*** Select the two digits to be entered for YY from the values shown in the PEAK column in Table A.	Display reads (briefly)— HITS OVER YY% (MAX=49%) Display then reads— ???? SECONDS
12	Enter 0090 and after about 2 seconds, press C. ***Note:*** To perform functions listed below,	Display reads (briefly)— 0090 SECONDS Display then reads— PEAK=00% HITS=00/YY AVG BIAS=00%

STEP	ACTION	VERIFICATION
	press associated key.	At end of test, display reads TEST COMPLETE and test results.
	KEY FUNCTION A Repeat test. B Display time remaining in test. C Clear display. D End test.	***Requirements:*** As shown in Table A.
13	On data set, release AL switch.	TM lamp goes off.

TABLE A

ANALOG LOOPBACK START–STOP DISTORTION

202T-TYPE	REVERSE CHANNEL	MAXIMUM DISTORTION		
		PEAK	HITS	AVG BIAS
L1	In	19	00/19	05
	Out	34	00/34	13
L1A	In	25	00/25	07
	Out	21	00/21	06

14	If option ZV (minimum compromise delay equalization) was installed in DS 202T-L1 in Step 2, remove this option and install option ZU (maximum compromise delay equalization).	
15	If option ZZ (C2 channel condition) was installed in DS 202T-L1A) in Step 3, remove this option and install option ZY (basic channel condition).	

K. End-to-End Start-Stop Distortion Test

4.25 This test uses the 921A DTS to measure three types of start-stop distortion, as follows.

- Peak distortion
- Number of "hits" above a specified threshold
- Average bias distortion.

Note 1: For DS 202T-L1A operating over unconditioned channels at bit rates from 1000 to 1400 bps, perform the compromise amplitude equalization test before performing the end-to-end start-stop distortion test. If the compromise amplitude equalization test is not required, ensure that option ZW (maximum compromise amplitude equalization) is installed in the data set before performing the end-to-end start-stop distortion test.

Note 2: For DS 202T-L1 (series 6 and higher) and DS 202T-L1A operating over

channels with C2 conditioning at bit rates above 1400 bps, perform the compromise delay equalization test before performing the end-to-end start-stop distortion test. If the compromise delay equalization test is not required, ensure that option ZU (maximum compromise delay equalization) is installed in the data set before performing the end-to-end start-stop distortion test.

2-Wire or 4-Wire Private Line (Half Duplex)

4.26 Perform the test as follows.

Note: A 911-type DTS can be used at the distant data station.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct an end-to-end start-stop distortion test. ***Note:*** Procedure at transmitting station must be performed first.	
At transmitting station, perform Steps 2 through 8.		
2	Ensure that initial test setup described in paragraph 4.07 has been performed. ***Note:*** Procedure in Step 13 of paragraph 4.07 is for unconditioned channels. For channels with C2 conditioning, enter 18 in Step 13 of paragraph 4.07. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
3	Enter 52.	Display reads— TEST SEQ: 52
4	Press GO.	For Version 1 DTS: Display reads— TRMT: 1=MAN 2=CONT For Version 2 and higher DTS: Display reads— PARITY=? (0=EVEN 1=ODD)
5	For Version 2 and higher DTS, enter 0.	Display reads (briefly)— PARITY=0 (0=EVEN 1=ODD) Display then reads— TRMT=? (1=MAN 2=CONT)
6	Enter 2.	For Version 2 and higher DTS: Display reads (briefly)— TRMT=2 (1=MAN 2=CONT) Display then reads— PRESS A TO START

STEP	ACTION	VERIFICATION
7	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— PRESS A TO START
8	Press A.	For Version 1 DTS: Display reads— SENDING ASCII MESSAGE For Version 2 and higher DTS: Display reads (briefly)— CS MUST BE ON TO TRANSMIT Display then reads— SENDING MESSAGE
At receiving station, perform Steps 9 through 20.		
9	Ensure that initial test setup described in paragraph 4.07 has been performed. ***Note:*** Procedure in Step 13 of paragraph 4.07 is for unconditioned channels. For channels with C2 conditioning, enter 18 in Step 13. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
10	For Version 1 DTS, enter 36.	Display reads— TEST SEQ: 36 RS=? (0 OR 1)
11	For Version 1 DTS, enter 0.	Display reads— TEST SEQ: 36 RS=0 (0 OR 1)
12	For Version 1 DTS, press GO.	Display reads (briefly)— TEST COMPLETE Display then reads— TEST SEQ:
13	Enter 79.	For Version 1 DTS: Display reads— TEST SEQ: 79 HITS OVER ??%
14	For Version 2 and higher DTS, press GO.	Display reads— MODE=? (1=RCV 2=RCV & TRMT)
15	For Version 2 and higher DTS, enter 1.	Display reads (briefly)— MODE=1 (1=RCV 2=RCV & TRMT) Display then reads— HITS OVER ??% (MAX=49%)

STEP	ACTION	VERIFICATION
16	For unconditioned channels, enter 35.	For Version 1 DTS: Display reads— TEST SEQ: 79 HITS OVER 35% For Version 2 and higher DTS: Display reads (briefly)— HITS OVER 35% (MAX=49%) Display then reads— ???? SECONDS
17	For channels with C2 conditioning, enter 40.	For Version 1 DTS: Display reads— TEST SEQ: 79 HITS OVER 40% For Version 2 and higher DTS: Display reads (briefly)— HITS OVER 40% (MAX=49%) Display then reads— ???? SECONDS
18	For Version 1 DTS, press GO.	Display reads— ???? SECONDS
19	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— ???? SECONDS
20	Enter 0180 and after about 2 seconds, press C. ***Note:*** To perform functions listed below, press associated key.	Display reads (briefly)— 0180 SECONDS Display then reads— For unconditioned channels— PEAK=00% HITS=00/35 AVG BIAS=00% For channels with C2 conditioning— PEAK=00% HITS=00/40 AVG BIAS=00% At end of test, display reads TEST COMPLETE and test results. ***Requirements:*** For unconditioned channels— 1. Less than 45% peak distortion. 2. Less than 04/35 hits. 3. Less than 15% average bias distortion. For channels with C2 conditioning— 1. Less than 45% peak distortion. 2. Less than 05/40 hits. 3. Less than 15% average bias distortion.

STEP	ACTION	VERIFICATION
	KEY FUNCTION A* Repeat test. B* Display time remaining in test. C Clear display. D* End test. *Version 2 and higher DTS.	
21	Perform the end-to-end start-stop distortion test in the opposite direction. The receiving station now becomes the transmitting station.	

4-Wire Private Line (Full Duplex) (Version 2 and Higher DTS)

Note: A 911-type DTS can be used at the distant data station.

4.27 Perform the test as follows.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct an end-to-end start-stop distortion test.	
	At both stations, perform Steps 2 through 12.	
2	Ensure that initial test setup described in paragraph 4.07 has been performed. ***Note:*** Procedure in Step 13 of paragraph 4.07 is for unconditioned channels. For channels with C2 conditioning, enter 18 in Step 13 of paragraph 4.07. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
3	Enter 52 79.	Display reads— TEST SEQ: 52 79
4	Press GO.	Display reads— PARITY=? (0=EVEN, 1=ODD)
5	Enter 0.	Display reads (briefly)— PARITY=0 (0=EVEN, 1=ODD) Display then reads— TRMT=? (1=MAN 2=CONT)
6	Enter 2. ***Note:*** Ignore display, PRESS A TO START	Display reads (briefly)— TRMT=2 (1=MAN 2=CONT) Display then reads— PRESS A TO START

STEP	ACTION	VERIFICATION
7	Press GO.	Display reads (briefly)— TEST INTERRUPTED Display then reads— MODE=? (1=RCV 2=RCV & TRMT)
8	Enter 2.	Display reads (briefly)— MODE=2 (1=RCV 2=RCV & TRMT) Display then reads— HITS OVER ??% (MAX=49%)
9	For unconditioned channels, enter 35.	Display reads (briefly)— HITS OVER 35% (MAX=49%) Display then reads— ???? SECONDS
10	For channels with C2 conditioning, enter 40.	Display reads (briefly)— HITS OVER 40% (MAX=49%) Display then reads— ???? SECONDS
11	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— ???? SECONDS
12	Enter 0180 and after about 2 seconds, press C. ***Note:*** To perform functions listed below, press associated key.	Display reads (briefly)— 0180 SECONDS Display then reads— For unconditioned channels— PEAK=00% HITS=00/35 AVG BIAS=00% For channels with C2 conditioning— PEAK=00% HITS=00/40 AVG BIAS=00% At end of test, display reads TEST COMPLETE and test results.

KEY	FUNCTION
A	Repeat test.
B	Display time remaining in test.
C	Clear display.
D	End test.

Requirements:

For unconditioned channels—
1. Less than 45% peak distortion.
2. Less than 04/35 hits.
3. Less than 15% average bias distortion.

For channels with C2 conditioning—
1. Less than 45% peak distortion.
2. Less than 05/40 hits.
3. Less than 15% average bias distortion.

L. Parity Test

4.28 This test uses the 921A DTS to check the number of parity errors that occur in transmitting an ASCII format message.

Note 1: For DS 202T-L1A operating over unconditioned channels at bit rates from 1000 to 1400 bps, perform the compromise amplitude equalization test before performing the parity test. If the compromise amplitude equalization test is not required, ensure that option ZW (maximum compromise amplitude equalization) is installed in the data set before performing the parity test.

Note 2: For DS 202T-L1 (series 6 and higher) and DS 202T-L1A operating over channels with C2 conditioning at bit rates above 1400 bps, perform the compromise delay equalization test before performing the parity test. If the compromise delay equalization test is not required, ensure that option ZU (maximum compromise delay equalization) is installed in the data set before performing the parity test.

4.29 Perform the test as follows.

Note: A 911-type DTS can be used at the distant data station.

STEP	ACTION	VERIFICATION
1	Establish voice communication between the data stations and arrange to conduct a parity test. ***Note:*** Procedure at transmitting station must be performed first.	
	At transmitting station, perform Steps 2 through 8.	
2	Ensure that initial test setup described in paragraph 4.07 has been performed. ***Note:*** Procedure in Step 13 of paragraph 4.07 is for unconditioned channels. For channels with C2 conditioning, enter 18 in Step 13 of paragraph 4.07. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
3	Enter 52.	Display reads— TEST SEQ: 52
4	Press GO.	For Version 1 DTS: Display reads— TRMT: 1=MAN 2=CONT For Version 2 and higher DTS: Display reads— PARITY=? (0=EVEN 1=ODD)
5	For Version 2 and higher DTS, enter 0.	Display reads (briefly)— PARITY=0 (0=EVEN 1=ODD) Display then reads— TRMT=? (1=MAN 2=CONT)

STEP	ACTION	VERIFICATION
6	Enter 2.	For Version 2 and higher DTS: Display reads (briefly)— TRMT=2 (1=MAN 2=CONT) Display then reads— PRESS A TO START
7	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— PRESS A TO START
8	Press A.	For Version 1 DTS: Display reads— SENDING ASCII MESSAGE For Version 2 and higher DTS: Display reads (briefly)— CS MUST BE ON TO TRANSMIT Display then reads— SENDING MESSAGE
At receiving station, perform Steps 9 through 15.		
9	Ensure that initial test setup described in paragraph 4.07 has been performed. ***Note:*** Procedure in Step 13 of paragraph 4.07 is for unconditioned channels. For channels with C2 conditioning, enter 18 in Step 13 of paragraph 4.07. Display in Step 13 reads BIT RATE: 18.	Display reads— TEST SEQ:
10	Enter 57.	Display reads— TEST SEQ: 57 ? (0=EVEN 1=ODD)
11	Enter 0.	Display reads (briefly)— TEST SEQ: 57 0 (0=EVEN 1=ODD) DISPLAY then reads— :
12	Press GO.	Display reads— PRESS A TO START
13	Place data set in data mode.	On DTS, DSR indicator lights (data set ready lead ***on***) Display continues to read— PRESS A TO START
14	Press A.	Display reads— PARITY ERRORS=00

STEP	ACTION	VERIFICATION
		From this point, display counts number of parity errors.
15	Conduct test for about 3 minutes.	***Requirement:*** For unconditioned channels— less than 4 parity errors. For channels with C2 conditioning— less than 5 parity errors.
16	Perform the parity test in the opposite direction. The receiving station now becomes the transmitting station.	

5. REFERENCES

5.01 Additional information concerning the testing of DS 202T is contained in the following publications:

SECTION	TITLE
107-402-100	921A Data Test Set—Description and Operation
314-410-500	Voice Bandwidth Private Line Data Circuits—Tests and Requirements
592-031-100	Data Set 202T—Transmitter-Receiver—Description and Operation
592-031-150	Data Set 202T—Transmitter-Receiver—Supplementary Information
592-031-200	Data Set 202T—Transmitter-Receiver—Installation and Connections
592-031-500	Data Set 202T—Transmitter-Receiver—Test Procedures and Maintenance
666-511-502	Test of Data Services Provided by Data Set 202T From a Private Line Testroom
999-100-142	Data Set 202T—How to Operate Manual

5.02 Detailed information concerning DS 202T is contained in CD- and SD-1D243-01.