

**DATA SET 201C-L1C
TRANSMITTER-RECEIVER
TEST PROCEDURES**

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Test Capabilities	1	<ul style="list-style-type: none"> ● Analog Loopback Self Test ● End-to-End Self Test ● Local Data Set Margin Test ● Remote Test From Data Test Center
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F. End-To-End Test	6	2. INSTALLATION TESTS
G. Automatic Answer Test	8	2.01 This part provides the sequence in which tests are to be performed after the data set has been installed. This test sequence provides a method of verifying that the installation is satisfactory. The self-test features of the data set are used for all installation testing; external test equipment is not required.
H. Ground Noise Test	9	2.02 Before proceeding with the tests, verify that the local loop meets the requirements specified in Section 314-205-501. Refer to Fig. 1 for the installation test sequence.
1. GENERAL		3. MAINTENANCE TESTS
1.01 This section contains test procedures using the 914- type data test set (DTS) and the self test capabilities of data set (DS) 201C-L1C. These procedures are to be used when testing DS 201C-L1C on an initial installation or during a maintenance visit.		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
1.02 When this section is reissued, the reason for reissue will be contained in this paragraph.		

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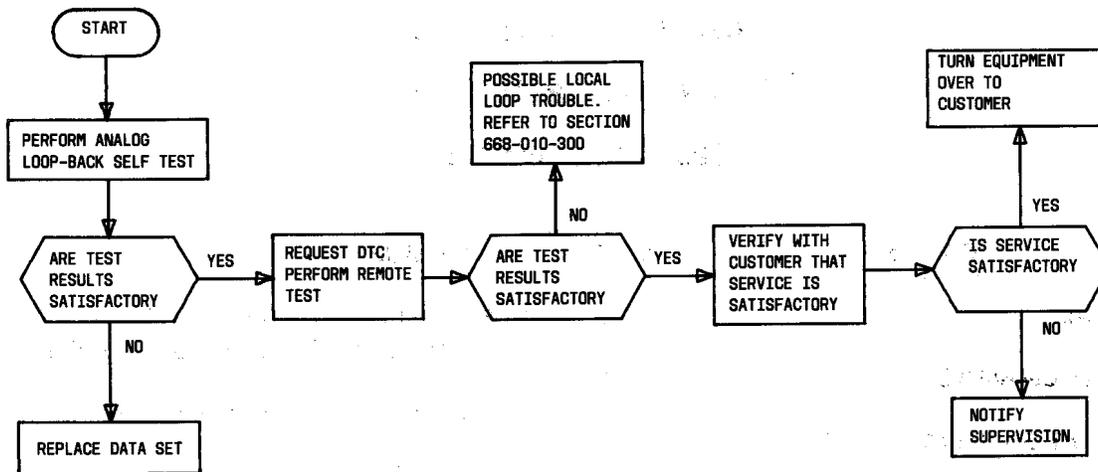


Fig. 1—Installation Test Sequence

isolating a trouble to the data set, the transmission facility, or the customer-provided equipment (CPE).

3.02 When a trouble report is received, the DTC is responsible for isolating the trouble to the data set or transmission facility. The procedure for doing this is shown in Fig. 2.

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

- Spare DS 201C-L1C
- 914C DTS.

3.04 Refer to Fig. 3 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 set should be tagged with a description of the nature 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 the options installed in the data set agree with those specified on the service order.

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

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

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

- (e) Check for intermittent trouble in the station wiring.

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

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

4. TEST PROCEDURES

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

A. Analog Loopback Self Test

4.02 The analog loopback self test checks the data set transmitter and receiver. The customer interface is not checked. Test data generated by the data set is looped back from the transmitter output to the receiver input through an internal attenuator. The received data is compared to the original data. Data errors and data set condition are indicated by the data set status lamps. The DL switch can be used to force

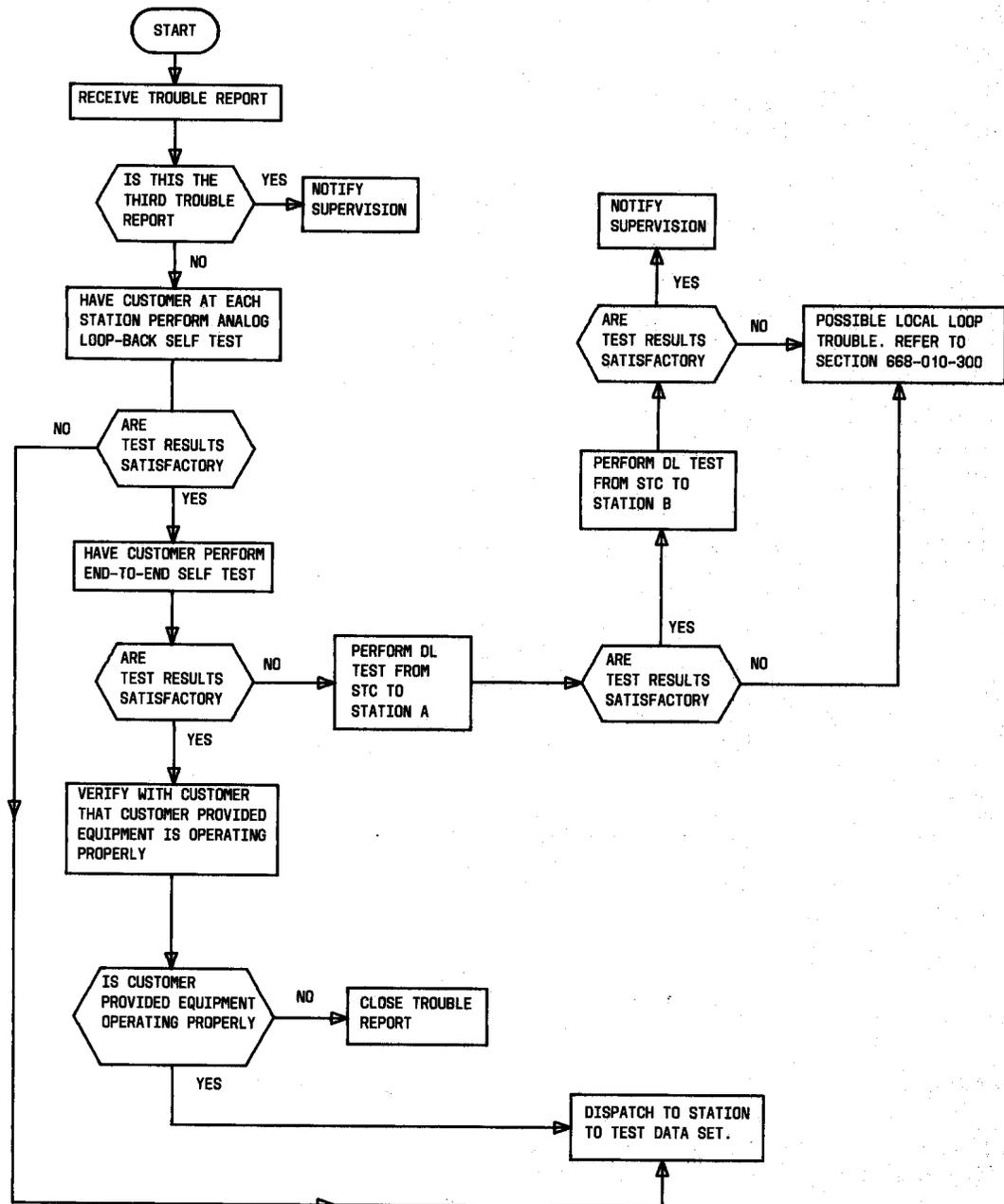


Fig. 2—Clearing Trouble Report

a loss of synchronization to verify that the data set will recognize a data set failure condition.

4.03 Perform the test as follows:

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

- (2) Press the AL and ST switches on the data set.

- (3) Observe the data set status lamps for at least 30 seconds.

Requirement: MC lamp is off continuously. All other indicators are lighted.

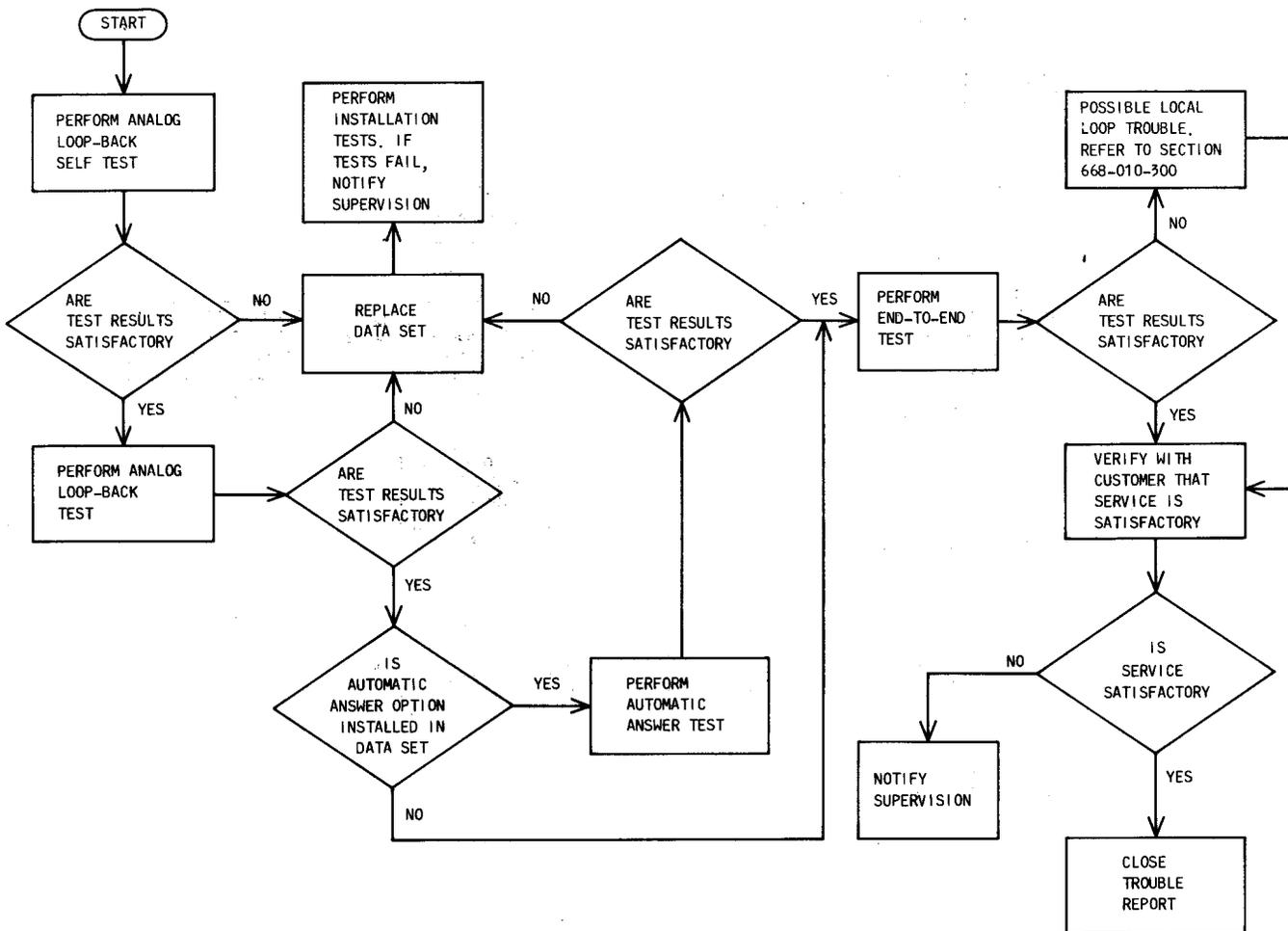


Fig. 3—Maintenance Test Sequence

(4) Press the RO switch.

Requirement: RS and CS indicators go off and MC lamp lights.

(5) Release the RO switch.

Requirement: All lamps are lighted except MC.

(6) Press the DL switch.

Requirement: MC lamp is blinking. All other lamps are lighted.

(7) Release the DL, AL, and ST switches.

Requirement: ON lamp is lighted. All other lamps are off.

B. End-To-End Self Test

4.04 In the end-to-end self test mode, the data set is optioned for half-duplex operation; therefore, transmitter and receiver sections are tested separately. This test requires that the data set be connected to a distant DS 201C-type through a telephone channel and that both data sets be in the data mode. The distant data set may be either a DS 201C-L1C or a 201C-L1. However, if the distant data set is a DS 201C-L1C, the DL switch at the distant end can be used to inject errors into the data stream to verify proper operation of the test.

4.05 Perform the test as follows:

- (1) Establish voice communication between the data stations and arrange to conduct an end-to-end test.
- (2) On the transmitting data set, press the ST switch.

Requirement: All lamps are lighted except CO.

- (3) On the receiving data set, press the ST and RO switches.

Requirement: All lamps are lighted except RS, CS, and MC.

- (4) To verify proper operation of the test, press the DL switch at the transmitting end while the attendant at the receiving end observes the MC lamp.

Requirement: MC lamp blinks.

- (5) Release the DL switch at the transmitting end.
- (6) On the receiving data set, observe the MC lamp for ten 1-minute periods.

Requirement: MC lamp does not blink more than an average of twice per 1-minute period.

- (7) Perform the end-to-end self test in the opposite direction by releasing the RO switch on the original receiving end and pressing the RO switch on the original transmitting end.
- (8) Repeat Steps 4, 5, and 6.
- (9) Upon completing the test, release the test switches on both data sets and return to the voice mode or terminate the call.

C. Remote Test From Data Test Center

4.06 The remote 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.

- (1) Contact the DTC and request a remote test.

- (2) When directed by the DTC, press the RT switch.

- (3) The DTC will perform the remote test. If requested by the DTC, press the DL switch to inject errors into the data stream.

- (4) When directed by the DTC, release the test switches and restore the data station to pretest condition.

D. Receiver Margin Test

4.07 In this test mode, the data set is in the analog loopback mode, but the receiver compromise equalizer is bypassed and the distortion threshold at which the MC indicator will light is reduced. In this mode, the MC indicator acts not only as an indicator of errors in the locally looped data stream, but also blinks on for 50 ms whenever the peak signal distortion measured by the demodulator exceeds the "half-way" point to the receiver decision threshold. The DL switch can be used to force an out-of-sync condition and cause the MC indicator to blink.

4.08 Perform the test as follows:

- (1) Ensure that the data set is not transmitting or receiving data.
- (2) Press the AL and RT switches on the data set.
- (3) Observe the data set status lamps for at least 30 seconds.

Requirement: MC and MR lamps are off. All other lamps are lighted.

- (4) Press the DL switch.

Requirement: MC lamp blinks.

- (5) Release the DL switch.

Requirement: MC lamp goes off.

- (6) Release the AL and RT switches.

Requirement: ON lamp is lighted. All other lamps are off.

E. Analog Loopback Test

4.09 In this test, the power supply voltages are measured, an analog loopback error run is performed, and the CA-CB (RS-CS) interval is checked. The error run checks the data set transmitter and receiver and the customer interface. Test data is generated by a data test set (DTS) and looped back from the data set transmitter output to the receiver input through an internal attenuator. The received data is compared to the original data by the DTS. Data errors are indicated by the DTS counter. The CA-CB interval check measures the interval between the time the request-to-send (CA) lead is turned *on* and the clear-to-send (CB) lead turns *on*.

4.10 The following test equipment is required:

1—914C DTS *or*

1—914B DTS *and* 1—903-type DTS.

4.11 Perform the test as follows:

- (1) Connect and condition test equipment as shown in Fig. 4.
- (2) Apply power to data set and then to test equipment.
- (3) Depress AL switch on data set.

Requirement: TM lamp lights.

- (4) On 914-type DTS, set S1 to ON. (If 903-type DTS is used, momentarily depress START button.)

Requirement: DS1, DS2, and DS3 are lighted.

- (5) Set FUNCTION to VOLT INT.

Requirement: +11.0 to +14.5 volts.

- (6) Set FUNCTION to OFF, POLARITY to REV, and VERTICAL MONITOR to 10.

- (7) Set FUNCTION to VOLT INT.

Requirement: -12.2 to -15.0 volts.

- (8) Set FUNCTION to OFF, POLARITY to NOR, RANGE to DCV-10, and VERTICAL MONITOR to 19.

- (9) Set FUNCTION to VOLT INT.

Requirement: +4.75 to +5.25 volts.

- (10) Set FUNCTION to OFF.

- (11) Set WORD SYNC momentarily to MAN.

- (12) Depress RESET and allow counter to operate for 5 minutes.

Requirement: No errors indicated.

- (13) Set S1 to OFF.

- (14) Condition test equipment as follows:

(a) On 914C DTS, set TEST SET MODE to INTERVAL, COUNTER to INTERVAL—X10, and RCV BIT RATE TO 1200.

(b) On 914B DTS, set TEST SET MODE to TRMT SER, COUNTER TO INTERVAL—X10, and BIT RATE to 1200.

- (15) On 914-type DTS, depress RESET and then set S1 to ON. CA-CB interval will appear on counter.

Requirement: 138 to 158 ms.

- (16) To remeasure CA-CB interval, set S1 to OFF, depress RESET, and set S1 to ON.

- (17) Release AL switch on data set.

Requirement: TM lamp goes off.

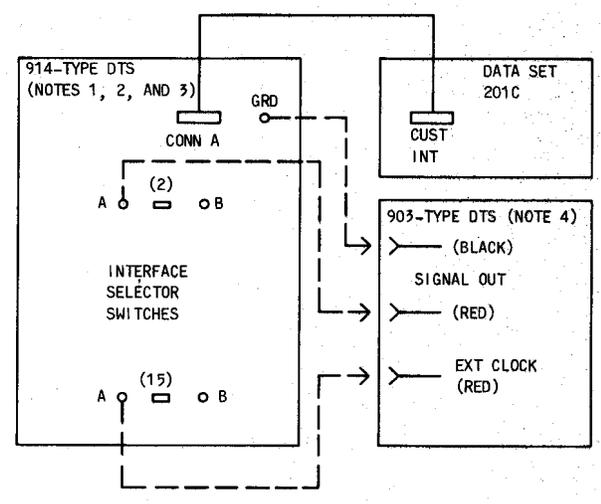
- (18) Remove all test equipment and restore data set to pretest condition.

F. End-to-End Test

4.12 The end-to-end 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 DTSs at both sets. This data is transmitted by one of the data sets and compared to the data generated by the DTS at the receiving

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	STG	
GRD	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	GRD
SD	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SD
RD	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	RD
S1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S1
DS1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS1
DS2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS2
S2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S2
DS3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS3
TP1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP1
TP2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP2
S3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S3
DS4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS4
DS5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS5
S4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S4
SCT	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCT
S5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S5
SCR	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCR
DS6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS6
S6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S6
DS7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS7
DS8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS8
S7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S7
TP3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP3
S8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S8

914-TYPE DTS MATRIX



NOTES:

1. SET SWITCHES ON 914-TYPE DTS AS FOLLOWS:

SWITCH	SETTING
INTERFACE SELECTOR A	ALL DEPRESSED (NOTE 5)
INTERFACE MODE	VOLTAGE
VERTICAL MONITOR	9
TEST SET MODE	SER (914C)
	RCV SER (914B)
COUNTER	BIT ERRORS
FUNCTION	OFF
RANGE	DCV-30
POLARITY	NOR
SAMPLE WIDTH	.5μS
TRIGGER-TP1	+ / OPEN
TRIGGER-TP2	+ / OPEN
START (914C)	A OR B
RCV BIT RATE (914C)	EXT+
RCV WORD LENGTH (914C)	63
TRANSMIT BIT RATE (914C)	EXT+
TRANSMIT WORD LENGTH (914C)	63
SIG LEV (914C)	±4V
BIT RATE (914B)	EXT+
WORD LENGTH (914B)	63
SIGNAL LEVEL (914B)	±4V
S1	OFF
S4	OFF
S6	ON

2. INSERT RED PROGRAMMING PINS IN 914-TYPE DTS MATRIX IN POSITIONS INDICATED.
3. 914-TYPE DTS SWITCHES AND INDICATOR LAMPS CORRESPOND TO THE FOLLOWING INTERFACE LEADS:

SWITCH	LAMP	LEAD	EIA
S1		REQUEST TO SEND (RS)	CA
	DS1	CLEAR TO SEND (CS)	CB
	DS2	DATA SET READY (DSR)	CC
	DS3	RECEIVED LINE SIGNAL DETECTOR (CD)	CF
S4		NEW SYNC (NS)	
S6		DATA TERMINAL READY (DTR)	CD

4. 903-TYPE DTS IS REQUIRED WITH 914B DTS. SET SWITCHES ON 903-TYPE DTS AS FOLLOWS:

SWITCH	SETTING
BIT RATE	EXT CLOCK
TRIGGER	+ (POSITIVE)
RANDOM-DOT	RANDOM

5. IF 914B DTS IS USED, PULL OUT INTERFACE SELECTOR SWITCHES A(2) AND A(15).

Fig. 4—Analog Loopback Test Setup

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data set. Data errors are indicated by the DTS counter.

4.13 For the 2-wire switched network, a complete end-to-end test involves making one 15-minute test run in each direction. If the test fails in either direction, it is repeated one time. These test calls should be made during busy hours to assure that all calls do not use the same trunks and routes. Perform the test as follows:

- (1) Establish voice communication between the data stations and arrange to conduct an end-to-end test.
- (2) At both stations, connect and condition test equipment as shown in Fig. 5 except as follows:
 - (a) At receiving station, on 914-type DTS set S1 to OFF.
 - (b) At transmitting station, if 914B DTS is used set TEST SET MODE to TRMT SER.
- (3) At both stations, apply power to data set and then to test equipment.
- (4) Establish a test call between the stations.



The receiving station should verify that the 914-type DTS NO DATA and NO CLOCK lamps are off. This indicates that a valid connection has been established between the stations. If either lamp lights during the test, the receiving station must contact the transmitting station and arrange to retest.

- (5) At receiving station, on 914-type DTS set WORD SYNC momentarily to MAN.
- (6) At receiving station, on 914-type DTS depress RESET and allow counter to operate for 15 minutes. Record total errors indicated.

Requirement: Total errors are less than 23.

- (7) If requirement in (6) is not met, repeat (4) through (6) one time.

- (8) Perform the end-to-end test in the opposite direction. The receiving station now becomes the transmitting station.

- (9) At original receiving station, on 914-type DTS set S1 to ON. (If 914B DTS is used, set TEST SET MODE to TRMT SER.)

- (10) At original transmitting station, on 914-type DTS set S1 to OFF. (If 914B DTS is used, set TEST SET MODE to RCV SER.)

- (11) Repeat (4) through (7).

- (12) At both stations, remove all test equipment and restore data sets to pretest condition.

G. Automatic Answer Test

4.14 The automatic answer test verifies that the data set will automatically answer and end a call.

4.15 The following test equipment is required:

1—914-type DTS.

4.16 Perform the test as follows:

- (1) Connect and condition test equipment as shown in Fig. 6.
- (2) Apply power to data set and then to test equipment.
- (3) Have a call made to data set.

Requirement: DS8 lights (ring indicator **on**) during ringing period. DS8 goes off (ring indicator **off**) during silent period. Data set does **not** answer call.

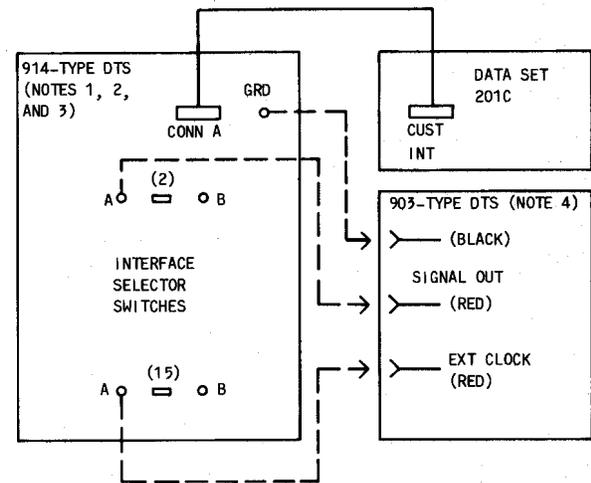
- (4) During silent period of ringing cycle, set S7 to ON (data terminal ready and ready **on**).

Requirement: At end of next ringing cycle, data set answers call. After about 4 seconds, DS7 lights (data set ready **on**). This indicates that data set is in data mode.

- (5) Set S7 to OFF (data terminal ready **off**) to end call.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	STG		
GRD	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	GRD
SD	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SD
RD	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	RD
S1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S1
DS1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS1
DS2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS2
S2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S2
DS3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS3
TP1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP1
TP2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP2
S3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S3
DS4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS4
DS5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS5
S4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S4
SCT	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCT
S5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S5
SCR	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCR
DS6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS6
S6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S6
DS7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS7
DS8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS8
S7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S7
TP3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP3
S8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S8
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	STG		

914-TYPE DTS MATRIX



NOTES:

1. SET SWITCHES ON 914-TYPE DTS AS FOLLOWS:

SWITCH	SETTING
INTERFACE SELECTOR A	ALL DEPRESSED (NOTE 5)
INTERFACE MODE	VOLTAGE
TEST SET MODE	SER (914C)
	RCV SER (914B)
COUNTER FUNCTION	BLOCK ERRORS-16WL
	OFF
SAMPLE WIDTH	.5μS
RCV BIT RATE (914C)	EXT+
RCV WORD LENGTH (914C)	63
TRANSMIT BIT RATE (914C)	EXT+
TRANSMIT WORD LENGTH (914C)	63
SIG LEV (914C)	±4V
BIT RATE (914B)	EXT+
WORD LENGTH (914B)	63
SIGNAL LEVEL (914B)	±4V
S1	ON
S4	OFF
S6	ON

2. INSERT RED PROGRAMMING PINS IN 914-TYPE DTS MATRIX IN POSITIONS INDICATED.

3. 914-TYPE SWITCHES CORRESPOND TO THE FOLLOWING INTERFACE LEADS:

SWITCH	LEAD	EIA
S1	REQUEST TO SEND (RS)	CA
S4	NEW SYNC (NS)	
S6	DATA TERMINAL READY (DTR)	CD

4. 903-TYPE DTS IS REQUIRED WITH 914B DTS FOR DUPLEX TESTS. SET SWITCHES ON 903-TYPE DTS AS FOLLOWS:

SWITCH	SETTING
BIT RATE TRIGGER	EXT CLOCK + (POSITIVE)
RANDOM-DOT	RANDOM

5. IF 914B DTS IS USED FOR DUPLEX TESTS, PULL OUT INTERFACE SELECTOR SWITCHES A(2) AND A(15).

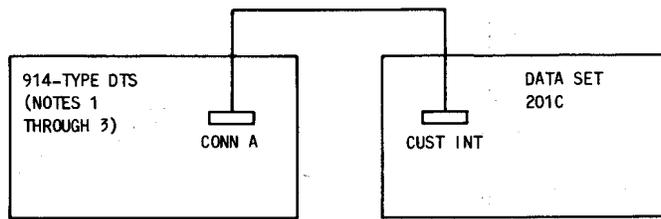
Fig. 5—End-to-End Test Setup

Requirement: DS7 goes off (data set ready off).

(6) Remove all test equipment and restore data set to pretest condition.

H. Ground Noise Test

4.17 If the data set and CPE are not connected to the same ground, errors may be caused by a potential difference between data set ground and CPE ground. To detect the presence of noise



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	STG	
GRD	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	GRD
SD	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SD
RD	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	RD
SI	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SI
DS1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS1
DS2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS2
S2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S2
DS3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS3
TPI	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TPI
TP2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP2
S3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S3
DS4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS4
DS5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS5
S4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S4
SCT	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCT
S5	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S5
SCR	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	SCR
DS6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS6
S6	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S6
DS7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS7
DS8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	DS8
S7	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S7
TP3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	TP3
S8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	S8

914-TYPE DTS MATRIX

NOTES:

1. SET SWITCHES ON 914-TYPE DTS AS FOLLOWS:

SWITCH	SETTING
INTERFACE SELECTOR A	ALL DEPRESSED
INTERFACE MODE	VOLTAGE
FUNCTION	OFF
S7	OFF
S8	OFF

3. 914-TYPE DTS SWITCHES AND INDICATOR LAMPS CORRESPOND TO THE FOLLOWING INTERFACE LEADS:

SWITCH	LAMP	LEAD	EIA
S7	DS7	DATA SET READY (DSR)	CC
	DS8	RING INDICATOR (RI)	CE
		DATA TERMINAL READY (DTR) READY (RDY)	CD

2. INSERT RED PROGRAMMING PINS IN 914-TYPE DTS MATRIX IN POSITIONS INDICATED.

Fig. 6—Automatic Answer Test Setup

potentials, a test should be made using the 6-type impulse counter. This counter is used to count the number of impulse noise peaks during a measured time period. The counter registers only the peaks which exceed a preset level and which are separated by approximately 150 ms or more.

4.18 Test equipment required for this test is as follows:

- 1—6H impulse counter (or equivalent)
- 1—914-type DTS

1—2W6A test cord for 6H impulse counter (310 plug on one end, alligator clips connected to tip and ring on the other end).

Note: For information pertaining to the 6H impulse counter, refer to the section entitled 6H and 6HR Impulse Counters (J94006H and J94006HR)—Description, Operation, and Maintenance (103-620-101). If the 6H impulse counter is not available, a 6A impulse counter may be used. For information pertaining to the 6A impulse counter, refer to the section entitled J94006A (6A) Impulse Counter—Description, Operation, and Maintenance (103-620-100).

4.19 In this test, the impulse counter is connected between the grounds of the data set and the CPE. The counter registers when potential differences of sufficient amplitude have developed between the separated grounds. The 914-type DTS is used to gain access to the ground interface leads. If a 914-type DTS is not available, any suitable method of access (such as 901 test adapter) may be used.

4.20 The 6H impulse counter is connected and the test is performed as follows:

(1) Connect the 914-type DTS connector A to the customer connector on the data set. Connect the 914-type DTS connector B to the data set connector on the CPE. This test assumes that protective ground from the CPE appears at the customer interface.

(2) On the 914-type DTS, remove all programming pins from the matrix. Pull up all A and B interface selector switches.

(3) Connect one clip to the 2W6A cord to switch 1B and the other clip to any clear, bare metal on the data set housing. Verify that power is applied to data set and CPE.

(4) Insert the 310 plug into the 310 MEAS jack on the 6H impulse counter.

(5) On the 6H impulse counter, set the DIAL-MEAS switch to MEAS and set the DBRN dial to 90.

(6) Reset the counter on the 6H impulse counter to 0.

(7) Set the minutes control to 15. After the 15-minute test has elapsed, record the number of indications on the counter.

(8) Remove clips of 2W6A cord and connect to 7A and 7B.

(9) Reset the counter on the 6H impulse counter to 0.

(10) Set the minutes control to 15. After the 15-minute test has elapsed, record the number of indications on the counter.

4.21 At the end of both of the 15-minute periods, there should be no indications on the counter of the 6H impulse counter. If there is an indication on the counter, the grounds must be bonded together according to local instructions. At the end of the test, disconnect the test equipment and restore the data set to pretest condition.