

DATA-PHONE® INTERCONNECTION ARRANGEMENT FOR LINE SIDE OF 10-TYPE DATA LINE CONCENTRATOR (DATREX*) TEST PROCEDURES

1. GENERAL

1.01 This section covers the test procedures to be followed when installing or troubleshooting the DATA-PHONE interconnection arrangement for the line side of the 10-type Data Line Concentrator.

1.02 The tests covered are as follows:

A. Power Source (Full Load) Test: This test checks the +24 and -24 volt dc output of the 28A1 Data Mounting power source under loaded conditions.

B. Power Source (No-Load) Test: This test checks the +24 and -24 volt dc output of the 28A1 Data Mounting power source under no-load conditions.

C. Data Set 109-Type Test Using 914B DTS: This test utilizes test points TP1, TP2, and TP3 on the data set and the 914B DTS to verify the operation of the AR270 circuit pack and Data Set 109D- or E-type.

D. Data Set 109-Type Test Using Interface Test Adapter: This test replaces Test C at installations where the 914B DTS is not available.

1.03 The line side data set (Data Set 103G-type or 113-type Data Station) should be tested in accordance with one of the sections entitled Data Set 103G-Type—Test Procedures (591-026-500) or 113-type Data Station—Test Procedures (591-814-500).

1.04 Both installation and maintenance test procedures are identical, therefore each test is presented only once.

1.05 The installation tests (Tests A and C or D) are designed to verify that the equipment

has been properly assembled and that the installation is operative. Test B need only be made when the requirements for Test A are not met.

1.06 The maintenance tests should be performed in accordance with the section entitled DATA-PHONE® Interconnection Arrangement for Line Side of 10-Type Data Line Concentrator (DATREX*)—Maintenance Procedures (591-811-303).

1.07 When performing Test C, take proper measures to ensure the customer is not billed for test calls. Refer to the section entitled Crediting Charges on Test Calls (010-250-001).



When performing Test C, 914B DTS switches not shown in Fig. 1 or mentioned in the test procedure are not required for the test. In addition, any lamp indications not called for in the test are not pertinent and may be disregarded.

1.08 Lettered Steps: A letter a, b, c, etc., added to a step in Part 3 of this section indicates an action which may or may not be required, depending on local conditions. The condition under which a lettered step or series of lettered steps should be made is given in the ACTION column of the tests in Part 3, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

All Tests

2.01 KS-14510-L1 volt-ohm-milliammeter (VOM), or equivalent.

SECTION 591-811-503

Test C

2.02 914B DTS (J79914B-1 DTS)

3. METHOD

STEP

ACTION

VERIFICATION

A. Power Source (Full Load) Test

- | | | |
|---|--|--|
| 1 | Condition VOM to measure 24 volts dc. | |
| 2 | At TB1 of 28A1 Data Mounting—
Connect VOM leads in accordance with Table A. | VOM indicates 21 to 27 volts dc. |
| 3 | Disconnect VOM leads and reconnect in accordance with Table B. | VOM indicates 21 to 27 volts dc and within 2 volts of reading in Step 2. |
| 4 | Disconnect both VOM leads. | |

B. Power Source (No-Load) Test

- | | | |
|---|--|---|
| 1 | Condition VOM to measure 24 volts dc. | |
| 2 | At TB1 of 28A1 Data Mounting—
Disconnect power source leads. | |
| 3 | At power source leads—
Connect negative VOM lead to the signal ground lead. | |
| 4 | Connect positive VOM lead to the + lead. | VOM indicates 21 to 27 volts dc. |
| 5 | Disconnect both VOM leads. | |
| 6 | Connect positive VOM lead to signal ground lead. | |
| 7 | Connect negative VOM lead to - lead. | VOM indicates 21 to 27 volts and within 2 volts of reading in Step 4. |
| 8 | Disconnect both VOM leads. | |

C. Data Set 109-Type Test Using 914B DTS



Before making any test connections, ensure that all programming pins are removed from the 914B DTS matrix.

- | | | |
|---|--|---|
| 1 | Ensure the arrangement to be tested is idle. | Lamp on faceplate of Data Set 109-type lighted. |
|---|--|---|

Test D

2.03 Interface test adapter (J79901B-L3; cover of 901B DTS).

STEP	ACTION	VERIFICATION
2	Disconnect AR270 circuit pack interface cord from line side data set.	
3	Connect AR270 circuit pack interface cord to 914B DTS as shown in Fig. 1.	
4	At intermediate distribution frame (IDF) or connector block for concentrator lines— Connect strap between L1 and L2 of Data Set 109-type associated with arrangement under test.	
5	Operate switches on 914B DTS as shown in Fig. 1.	
	 <p><i>Only those switches necessary to the test are shown. All others may be disregarded.</i></p>	
6	Insert programming pins in matrix of 914B DTS as shown in Fig. 1.	
	 <p><i>Insert programming pins in only those crosspoints designated in Fig. 1.</i></p>	
7	Connect power to 914B DTS and operate (depress) POWER switch.	POWER lamp and lamps DS3 and DS4 lighted.
8	At 914B DTS— Operate RESET switch and set TP1 TRIGGER switch to -/CLOSE.	Counter indicates 00.
9	Remove Data Set 109-type associated with arrangement under test from 28A1 Data Mounting.	At 914B DTS— TP1 FIRST lamp lighted. Counter indicates between 5 and 50. Lamp DS4 momentarily extinguished.
10	Operate switch S2 to OFF.	Lamp DS3 extinguished.
11	Remove programming pin from 914B DTS matrix crosspoint TP2-20 and place it in crosspoint TP2-8.	
12	Operate RESET switch.	
13	Operate COUNTER switch to INTERVAL X100.	

SECTION 591-811-503

STEP	ACTION	VERIFICATION
14	Operate switch S2 to ON.	TP2 FIRST lamp lighted. Lamp DS3 lighted. Counter indicates between 20 and 30. Lamp DS4 momentarily extinguished.
15	Operate switch S2 to OFF.	Lamp DS3 extinguished. Lamp DS4 lighted.
16	Reinstall Data Set 109-type in 28A1 Data Mounting.	Lamp on faceplate of data set lighted.
17	Insert red and black meter leads supplied with 914B DTS in red and black METER INPUT jacks, respectively.	
18	Operate FUNCTION switch to VOLT/OHM EXT position.	
19	Operate RANGE switch to DCV 30 position.	
20	Operate METER POLARITY switch to REV position.	
21	At 28A1 Data Mounting— Connect black meter lead to TB1-3.	
22	At Data Set 109-type— Connect red meter lead to TP3.	Meter indicates 3 to 24 volts. (CSQ off)
23	Disconnect red meter lead and connect it to TP2.	Meter indicates 3 to 24 volts. (BA marking)
24	Disconnect red meter lead and connect it to TP3.	Meter indicates 3 to 24 volts. (BB marking)
25	At 914B DTS— Operate switch S2 to ON.	Same as Step 24.
26	Disconnect red meter lead.	
27	Operate switch S1 to ON.	
28	Operate METER POLARITY switch to NOR.	
29	Connect red meter lead to TP2.	Meter indicates 3 to 24 volts. (BA spacing)
30	Disconnect red meter lead and connect it to TP1.	Meter indicates 3 to 24 volts. (CSQ on).

STEP	ACTION	VERIFICATION
31	Disconnect both meter leads and connect red lead to TP11 and black lead to TP10.	Meter indicates 12 volts. (Data Set 109-type sending space to line.)
32	Operate switch S2 to OFF.	Meter indicates 0 volts. (Data Set 109-type output squelched.)
33	Operate METER POLARITY switch to REV.	
34	Operate switch S1 to OFF.	
35	Operate switch S2 to ON.	Meter indicates 4 volts. (Data Set 109-type sending mark to line.)
36	Disconnect both meter leads.	
37	At IDF or connector block— Remove strap from L1 and L2 of Data Set 109-type.	
38	Disconnect AR270 circuit pack interface cord from 914B DTS and connect it to line side data set.	

D. Data Set 109-Type Test Using Interface Test Adapter

1	Ensure that arrangement to be tested is idle.	At Data Set 109-type associated with arrangement under test— Lamp on faceplate lighted.
2	Disconnect AR270 circuit pack interface cord from line side data set.	
3	At intermediate distribution frame (IDF) or connector block for concentrator lines— Connect a strap between L1 and L2 of Data Set 109-type associated with arrangement being tested.	
4	At interface test adapter— Close all shorting bars except 20.	
5	Connect AR270 circuit pack interface cord to connector on interface test adapter.	
6	Connect interface test adapter cord to line side data set.	
7	Condition VOM to measure 24 volts dc.	

SECTION 591-811-503

STEP	ACTION	VERIFICATION
8	At interface test adapter— Connect VOM - lead to TST 7 and VOM + lead to EQ 20.	VOM indicates 3 to 24 volts. (CD to line side data set on.)
9	Disconnect both VOM leads.	
10	Connect VOM + lead to TST 7 and VOM - lead to TST 8.	VOM indicates 3 to 24 volts. (Line side data set CF off.)
11	Disconnect VOM - lead and connect it to TST 2.	VOM indicates 3 to 24 volts. (line side data set BA marking.)
12	Disconnect VOM - lead and connect it to TST 3.	VOM indicates 3 to 24 volts. (line side data set BB marking.)
13	Disconnect VOM - lead and connect it to TP3 on Data Set 109-type.	VOM indicates 3 to 24 volts. (Data Set 109-type CSQ off.)
14	Disconnect VOM - lead and connect it to TP2.	VOM indicates 3 to 24 volts. (Data Set 109-type BA marking.)
15	Disconnect VOM - lead and connect it to TP1.	VOM indicates 3 to 24 volts. (Data Set 109-type BB marking.)
16	Disconnect both VOM leads.	
17	Connect VOM + lead to TP10 and VOM- lead to TP11.	VOM indicates 0 volts. (Data Set 109-type output squelched.)
18	At interface test adapter— Close shorting bar 20.	
19a	If line side data set is Data Set 103G-type— Place Data Set 103G-type in the talk mode.	
20a	Place a call to the 904-type Data Test Center (DTC) and request that F2 mark frequency be sent.	
21a	When F2 marking frequency is heard— Operate DATA button.	When call connection is complete— Lamp on faceplate of Data Set 109-type extinguished. VOM indicates 4 volts. (Data Set 109-type sending mark to line.)
22b	If line side data set is Data Set 113B-type (113-type Data Station)— Plug service line into service line twin jack on data set associated with arrangement under test.	

STEP	ACTION	VERIFICATION
23b	Using a nearby telephone— Call the DTC and request a call be placed to the service line.	When call connection complete— Lamp on faceplate of Data Set 109-type extinguished. VOM indicates 4 volts. (Data Set 109-type sending mark to line.)
24	Disconnect both VOM leads.	
25	At interface test adapter— Connect VOM - lead to TST 7 and VOM + lead to TST 8.	VOM indicates 3 to 24 volts. (Line side data set CF on.)
26	Disconnect VOM + lead and connect it to EQ 20.	VOM indicates 3 to 24 volts. (CD to line side data set on.)
27	Disconnect both VOM leads.	
28	Disconnect AR270 circuit pack interface cord from interface test adapter.	
29	Disconnect interface test adapter cord from line side data set.	
30	At IDF or connector block for concentrator lines— Remove strap between L1 and L2 of Data Set 109-type.	
31	Connect AR270 circuit pack interface cord to line side data set	

TABLE A

FOR SLOTS	CONNECT METER LEADS TO	
	+	-
1 through 8	TB1 1	TB1 3
9 through 16	TB1 4	TB1 6

TABLE B

FOR SLOTS	CONNECT METER LEADS TO	
	+	-
1 through 8	TB1 3	TB1 2
9 through 16	TB1 6	TB1 5