DATA-PHONE® INTERCONNECTION ARRANGEMENT FOR TRUNK SIDE OF 10B DATA LINE CONCENTRATOR (DLCS*) TEST PROCEDURES

1. GENERAL

1.01 This section contains the test procedures to be followed when installing or troubleshooting the interconnection arrangements for the trunk side of a 10B Data Line Concentrator (DLCS). An interconnection arrangement consists of a dc data set (Data Set 109D or 109E), an ac data set (Data Set 108D-L1), logic circuit pack AR72, and interface circuit pack AR73 or AR74.

* Data Line Concentrator Service, formerly known as DATREX

1.02 Circuit packs AR73 and AR74 contain the necessary circuits to interface Data Set 108D-L1 with the telephone facility. Circuit pack AR73 is intended to function with rotary dial signaling. Circuit pack AR74 is intended to function with TOUCH-TONE® signaling. One screw switch setting on circuit pack AR72 provides compatible operation with either AR73 or AR74.

1.03 The data sets and circuit packs are mounted and interconnected in a 28A1 Data Mounting using a special 209A adapter cord. The data mounting provides space to contain two complete interconnection arrangements. One 209A adapter cord will interconnect both arrangements for all required functions.

1.04 The following tests are covered:

A. Power Source (Loaded) Test: This test checks the +24 and −24 volt dc outputs of the 28A1 Data Mounting power source under loaded conditions.

B. Power Source (Unloaded) Test: This test checks the +24 and −24 volt dc outputs of the 28A1 Data Mounting power source under unloaded conditions.

C. Circuit Pack AR73 or AR74: This test uses available test points on the associated circuit pack to check that signal paths have continuity.

D. Loop-Back Test (Data Set 108D-L1 Only): This test is performed by the 904-type Data Test Center (DTC).

E. Concentrator (Trunk Side) Data Set Test: This test checks the output of Data Set 109D or 109E between the unsquelched and squelched mode of operation.

F. Loop-Loss Measurement (Data Set 108D-L1 Only):

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

Installation Testing

1.06 The installation tests are designed to verify that the equipment has been properly assembled and that the installation is operative. The tests should be performed in the following sequence:

(1) Test A—Power Supply (Loaded) Test

(2) Test C—Circuit Pack AR73 or AR74 Test

(3) Test D—Carrier Test

(4) Test E—Concentrator (Trunk Side) Data Set Test.

Test B need only be made if the requirements of Test A are not met.

Maintenance Testing

1.07 The maintenance tests should be performed in accordance with DATA-PHONE® Interconnection Arrangement for Trunk Side of 10B Data Line Concentrator (DLCS*) (Section 591-811-304). As for the installation tests, Test B need only be performed when the requirements of Test A are not met. Test D need not be made at the time of installation.

1.08 When performing Tests C, E, and F, take proper steps to ensure that the customer is not billed for test calls. Refer to the section entitled Crediting Charges on Test Calls (010-250-001).

1.09 Test D requires access to and assistance at a 904-type DTC.

1.10 When a circuit pack fails a test, replace the unit with one known to be operating properly. Before inserting a new circuit pack, be sure that all option straps are inserted identically the same as on the circuit pack being replaced.

2. APPARATUS

Tests A, B, C, and E

2.01 KS-16979-L1 volt-ohm-milliammeter (VOM) or equivalent.

Test D

2.02 904-type DTC.

Test F

2.03 Portable station test set TTS-28 or equivalent.

3. METHOD

STEP	ACTION	VERIFICATION
A. Power Source (Loaded) Test		
1	Condition meter to measure 24 volts dc.	
2	At TB1 of 28A1 Data Mounting, connect meter leads in accordance with Table A.	Meter indicates 22 to 26 volts dc.
3	Disconnect meter leads and reconnect in accordance with Table B.	Meter indicates 22 to 26 volts dc and within 2 volts of Step 2.
4	Disconnect both meter leads.	

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

B. Power Source (Unloaded) Test

1 Condition meter to measure 24 volts dc.

STEP	ACTION	VERIFICATION
2	At TB1 of 28A1 Data Mounting, disconnect power source leads.	
3	At power source leads, connect negative meter lead to signal ground lead.	
4	Connect positive meter lead to + lead.	Meter indicates 22 to 26 volts dc.
5	Disconnect both meter leads.	
6	Connect positive meter lead to signal ground lead.	
7	Connect negative meter lead to – lead.	Meter indicates 22 to 26 volts dc and within 2 volts of Step 4.
8	Disconnect both meter leads and reconnect power source leads removed in Step 2.	
C. Circuit Pack AR73 or AR74		
1	Connect 1011-type handset to TP11 and TP14 of AR73 or AR74 associated with the interconnection arrangement being tested. Operate TEST switch on AR72 to TEST position.	Dial tone from the central office heard in handset.
2	Reset TEST switch to NORM position.	
3	Connect 1011-type handset to TP12 and terminal 3 (SIG GRD) of TB1 on the data mounting.	
4	Operate TEST switch on AR72 to TEST position.	Dial tone should be heard on operation of TEST switch.
5	Reset TEST switch to NORM position and remove 1011-type handset connections.	
D. Loop-Back Test (Data Set 108D-L1 Only)		
1	Make sure the line to be tested is idle (ie, the lamp on associated Data Set 109-type is illuminated). Operate the desired LINE key on the telephone set, call a 904-type DTC, and request a test of the arrangement. Operate TEST switch on AR72 to TEST position and release LINE key on the telephone set.	
2	Test is now under control of the 904-type DTC.	

STEP	ACTION	VERIFICATION
3	When informed by DTC that test is complete, operate AR72 TEST switch to NORM.	

E. Concentrator (Trunk Side) Data Set Test

1	Condition VOM to measure 4 volts dc.	
2	At Data Set 109D, connect positive and negative meter leads to TP14 and TP13, respectively (or Data Set 109E, use TP10 and TP11, respectively).	Meter indicates 4.0 ($\pm$0.5) volts.
3	Operate TEST switch on circuit pack AR72 to TEST position.	Meter indicates 0.25 ($\pm$0.25) volt.
4	Reset TEST switch to NORM position. Disconnect both meter leads and request station be returned to idle.	

F. Loop-Loss Measurement

1	At IDF or connector block for the DDD facilities and concentrator lines, disconnect tip and ring of DDD facility associated with Data Set 108D-L1.	
2	Set FUNCTION switch of TTS-28 to DBM 900Ω TERM 0 position.	
3	Connect + and − terminals of TTS-28 to tip and ring, respectively, of DDD facility.	
4	Call the 1000-Hz generator at the central office to send 1000 Hz at 0 dbm and record TTS-28 meter indication. ***Note:*** It may be necessary to set TTS-28 FUNCTION switch to DBM 900Ω TERM −10 position to obtain a meter indication.	Meter indication should not deviate from limits given in Table C. ***Note:*** Meter indications are the actual measured loss (AML) of the transmission facility. The station layout card shows the expected measured loss (EML) when the facility was designed.

TABLE C

LOOP LIMITS

TYPE OF LOOP	AML LIMITS
Without repeaters or carriers	EML ±1 dB
With E7 repeaters	EML ±1 dB
With all other repeaters and/or carriers	EML ±2 dB

STEP	ACTION	VERIFICATION
5	If AML is not within limits, replace DDD facility with one that is and turn the faulty facility in for repair.	
6	Disconnect TTS-28.	
7	Reconnect tip and ring connections removed.	