DATA SET 109D-TYPE
MULTIPLE DATA SET ARRANGEMENT
USING 28A1 DATA MOUNTING AND 27A1 DATA UNIT
INSTALLATION AND CONNECTIONS

1. GENERAL

1.01 This section covers the procedures to be followed when installing and connecting the Data Set 109D-type multiple data set arrangement which uses the 28A1 Data Mounting and the 27A1 Data Unit as the associated mounting apparatus. This allows the installation of a large number of data sets in a relatively small area as compared to other Data Set 109D-type mounting arrangements and offers some features not available in any other arrangements.

1.02 The Data Set 109D-type multiple data set arrangement consists of one 28A1 Data Mounting for every 16 data sets, one 27A1 Data Unit for every eight data sets, and an appropriate power source. The plugs and cables for connecting the customer provided terminals (CPTs) to the data unit(s) are provided by the customer and should not exceed 50 feet in length. The cables for connecting the data mounting to the transmission facilities must be terminated at the data mounting end in a 50-pin connector such as that used with the A25B-type connector cable. The 28A1 Data Mounting, 27A1 Data Unit, and A25B-type connector cable are not furnished with the data sets and therefore must be ordered separately.

1.03 The data sets and associated mounting apparatus may be installed in any location within 50 feet of the CPT that is convenient for the customer.

1.04 Verify that the transmission facilities to be used meet the transmission requirements specified in the section entitled Private Line Data Circuits—Voice Bandwidth Circuits for Miscellaneous Data—Overall Tests and Requirements (314-410-500).

1.05 Reference directions (left, right, front, or rear) on the data mounting are in respect to facing the apparatus mounting side of the data mounting.

1.06 Verify that the location selected by the customer for the installation is adequate for maintenance and that the customer-provided (unswitched outlet) ac power is arranged to adequately reach the equipment cabinet or mounting rack arrangement.

Do not connect power to the equipment until instructed to do so in this practice.

2. INSTALLATION

2.01 This part describes the installation procedures for a Data Set 109D-type multiple data set arrangement of 16 data sets. This requires the use of one 28A1 Data Mounting, one A25B-type connector cable, two 27A1 Data Units, and sixteen Data Sets 109D-type. The 28A1 Data Mounting is electrically divided into two halves; therefore, the installation of each 27A1 Data Unit will be explained so that these instructions can be applied at installations having more than 16 or less than 9 data sets.

2.02 The 28A1 Data Mounting may be arranged to mount in either 23-inch (ie, KS-20018 type cabinet) or 25-inch (ie, KS-20093 type cabinet) racks by adjustment of the mounting brackets on each end of the data mounting.

2.03 If the 28A1 Data Mounting is to be installed in a 23-inch rack, arrange the mounting brackets with the long sides against the data mounting. For 25-inch racks, arrange the mounting brackets with the short sides against the data mounting.

2.04 If a KS-20575 rectifier is to be used to power the data sets, perform the following:

(1) Mount the rectifier in the space provided on the front left-hand side of the data mounting.

(2) Route the ac power cord from the rectifier to the rear of the data mounting via the slot in the top of the mounting.

2.05 Install the 27A1 Data Units as follows.

Note: The screws for mounting the 27A1 Data Units are supplied with the 28A1 Data Mounting.

KS-20018 Type Cabinet

(1) Mount one 27A1 Data Unit in the space provided at the rear right-hand side of the data mounting.

(2) Mount the second 27A1 Data Unit (if required) in the space provided at the rear left-hand side of the data mounting.

KS-20093 Type Cabinet

(3) Mount the data units behind the customer access door on the front left-hand side of the cabinet.

2.06 Mount the 28A1 Data Mounting as follows.

(1) Using eight 12-24 BHM screws, mount the 28A1 Data Mounting in the rack.

(2) Route the 27A1 Data Unit connector cables (two) across the rear of the data mounting and through the hole behind connectors J1, J2, and P3.

3. CONNECTION

3.01 The interconnection diagram of Fig. 1 shows the interconnections for a typical Data Set 109D-type multiple data set arrangement of 16 data sets.

3.02 Interconnect the 27A1 Data Unit and 28A1 Data Mounting as follows.

KS-20018 Type Cabinet

(1) Connect P1 of the 27A1 Data Unit mounted on the rear right-hand side of the 28A1 Data Mounting to connector J1.

(2) Connect P1 of the data unit mounted on the rear left-hand side of the data mounting to connector J2.

KS-20093 Type Cabinet

(3) Connect P1 of the top data unit to connector J1 of the data mounting.

(4) Connect P1 of the second data unit to connector J2 of the data mounting, etc.

3.03 The interface leads CB, CC, CD, and CF are provided with spade-tipped leads in the 27A1 Data Unit. The connection arrangement of these leads is dependent upon the programming of the CPT and the type of service (DATREX* or private line). The basic arrangements of these leads for the 10-type Data Line Concentrator System (DATREX) and private line usage are given in Table A.

*Service mark of the Bell System

3.04 Connect the CB, CC, CD, and CF spade-tipped leads in the 27A1 Data Unit(s) in accordance with the options specified on the service order sheet.

3.05 Connect the 28A1 to the transmission facilities as follows.

(1) Plug the 50-pin connector end of the line cable into P3 of the 28A1 Data Mounting.

(2) Route the cable through the hole (behind J1, J2, and P3) in the data mounting to the intermediate distribution frame (IDF) or connector block.

(3) Connect leads 1 through 16 (L2 of data sets in slots 1 through 16, respectively) of the A25B-type connector cable to the IDF (or connector block).

(4) Connect leads 26 through 41 (L1 of data sets in slots 1 through 16, respectively) of the

A25B-type connector cable to the IDF (or connector block).

(5) Cross-connect, on the IDF (or connector block), L1 of loops 1 through 16 to leads 26 through 41, respectively, of the A25B-type cable.

(6) Cross-connect, on the IDF (or connector block), L2 of loops 1 through 16 to leads 1 through 16, respectively, of the A25B-type cable.

3.06 Install the Data Sets 109D-type as follows.

Data sets to be used for private line loops must be equipped with the option that disables the data set carrier squelch feature (option Y—screw switch S4 open). In this case, the 27A1 Data Unit NORMAL-OFF switch associated with a data set so equipped will be ineffective.

(1) Install the options as designated on the service order sheet for loop 1 in a Data Set 109D-type.

(2) Repeat Step 1 for each data set for loops 2 through 16.

(3) Install the data sets in their respective positions on the 28A1 Data Mounting.

3.07 Connect the CPTs to the 27A1 Data Unit(s) as follows.

(1) Connect the plugs of the customer-provided cables from the CPTs to be associated with loops 1 through 8 to J1 through J8, respectively, of the 27A1 Data Unit connected to J1 of the 28A1 Data Mounting.

(2) Connect the plugs of the customer-provided cables from the CPTs to be associated with loops 9 through 16 to connectors J1 through J8, respectively, of the 27A1 Data Unit connected to J2 of the 28A1 Data Mounting.

3.08 Connect power as follows.

(1) If one power source is to be used to power both halves of the data mounting, strap terminals 1, 2, and 3 of TB1 on the 28A1 Data Mounting to terminals 4, 5, and 6, respectively.

(2) Connect the FR GRD terminal of the 27A1 Data Unit(s) and terminal 8 of TB1 on the 28A1 Data Mounting to frame ground.

(3) Connect the +24 volts dc lead of the power source to terminal 1 of TB1.

(4) Connect the −24 volts dc lead of the power source to terminal 2 of TB1.

(5) Connect SIG GRD lead of the power source to terminal 3 of TB1.

(6) If the KS-20575 rectifier is used as the power source, connect the ac power cord to a 115-volt 60-Hz ac outlet.

3.09 Perform the installation tests as described in the section entitled Data Set 109D-Type—Multiple Data Set Arrangement—Test Procedures (591-029-501).

TABLE A

27A1 DATA UNIT OPTIONAL ARRANGEMENTS

OPTION	WIRING		FACTORY EQUIPPED	CONNECT SPADE-TIPPED LEADS TO SCREWS AS INDICATED			
				CC	CF	CB	CD
Z	CC and CF Terminations	Datrex	√	RS	ON		
Y		Private Line		ON	RS		
X	CB Termination	Open				†	
W		Looped to CA	√			CA	
V		Common to CC				‡	
T	CD Termination	Datrex: No signal from CPT	√				ON
S		Datrex: Signal from CPT Private Line: All Applications					†

† Insulate and Store.

‡ Connect to same screw as spade CC.

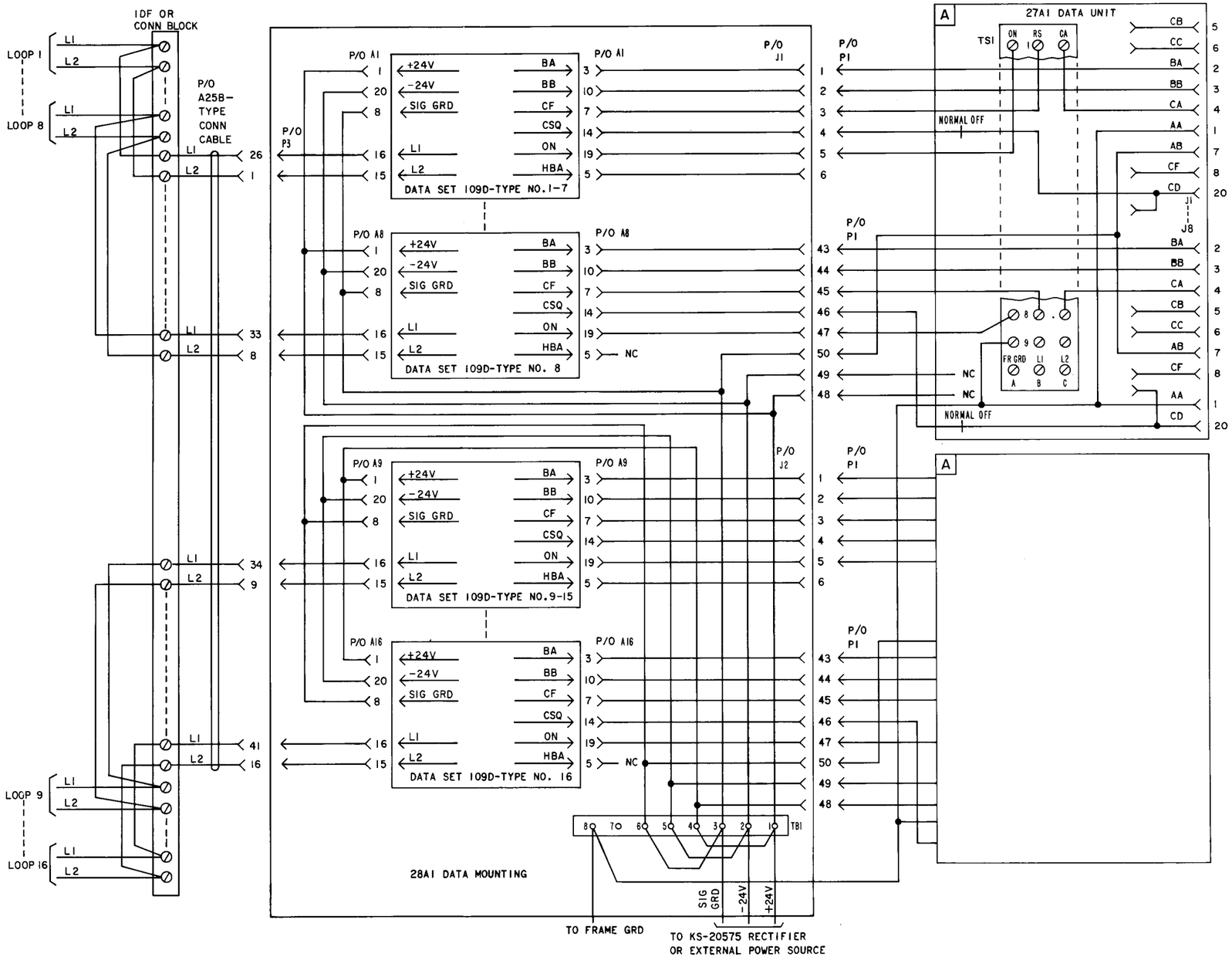

Fig. 1—Data Set 109D-Type—Multiple Data Set Arrangement—Interconnection Diagram