

PRIVATE LINE DATA SET 2096C
INSTALLATION AND CONNECTIONS
STAND ALONE - MULTIPLE
"DATAPHONE®" II SERVICE

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1. GENERAL

1.01 This section contains the information needed to install and connect private line version DATAPHONE® II data set (DS) 2096C. Refer to Fig. 1. The data set should be installed in conformance with the general instructions given in Section 590-010-200. The information in this section covers the installation of data sets in both individual mountings stand-alone (Fig. 2) and multiple mountings (Fig. 3). The stand-alone installation is described first. The similarities between stand alone and multiple will be referenced instead of repeated.

1.02 Whenever this section is reissued, the reason(s) for reissue will be contained in this paragraph.

1.03 The stand-alone mounting 63A1 and the multiple mounting 64A1 have been rated manufacture discontinued (MD) and have been replaced by 63A2 and 64A2 data mountings.

1.04 For optimum appearance and utility, install the stand-alone data set apart from the customer-provided equipment (CPE) on a nearby desk, table, stand, or in a Bell System-provided or customer provided equipment cabinet. It is recommended that multiple arrangements use KS-20018, L11 or KS-20018, L15C cabinets. If KS-20018, L11 cabinet is used, it should be on a table top 28 to 32 inches above the floor.

1.05 The data set operates in an ambient temperature range of +40 to +120°F and a relative humidity range of 5 to 95 percent, noncondensing. Acceptable storage temperature ranges from -40 to +150°F.

1.06 Installation at elevations higher than 1000 feet, refer to Table A which details temperature-altitude limits for such arrangements.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

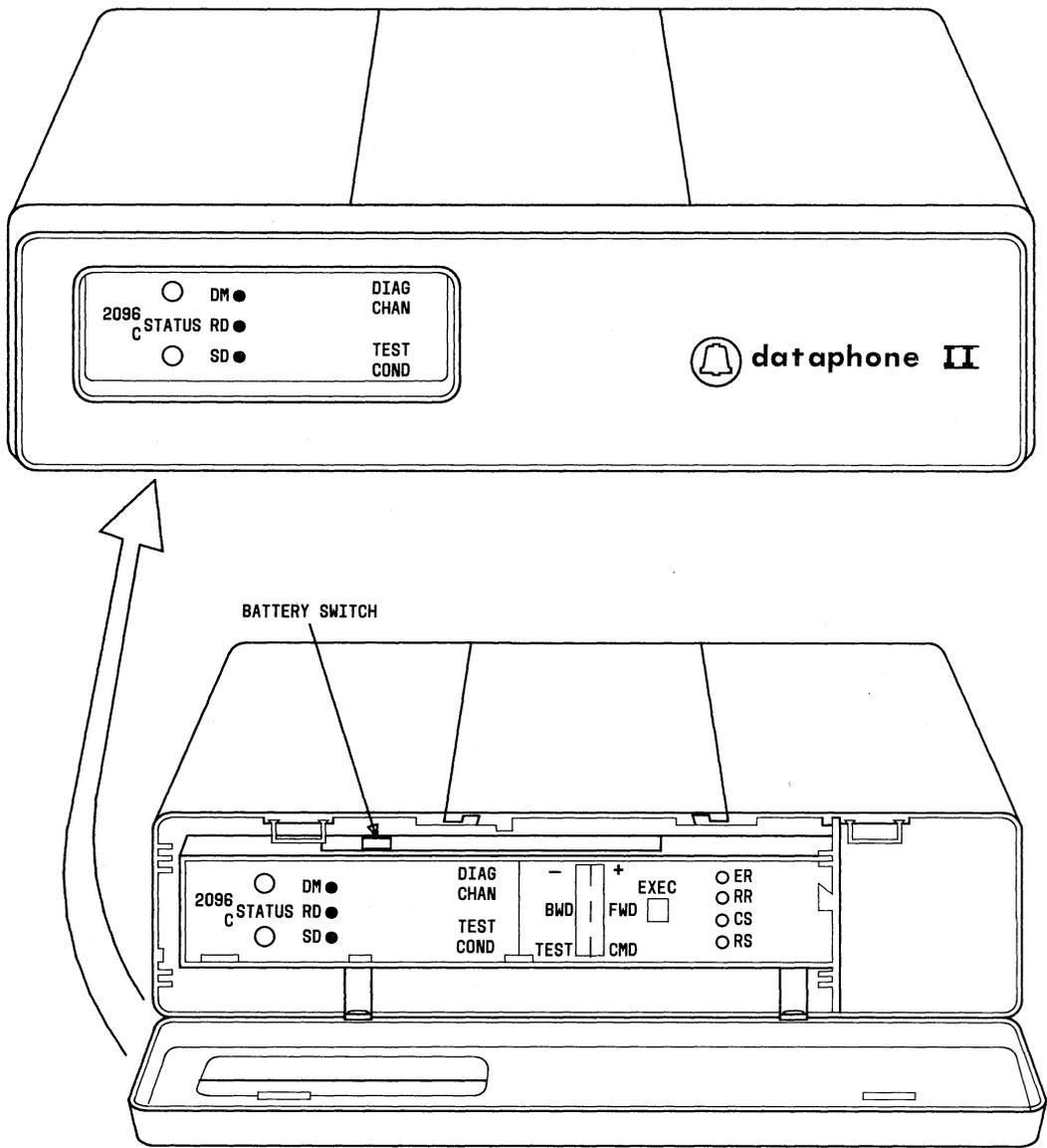


Fig. 1—63A-Type Data Mounting With DS 2096C Installed

1.07 Warning: Exercise caution when handling DATAPHONE II data sets to prevent static discharge damage to integrated circuits (ICs). All new and repaired DATAPHONE II data sets will be received in a package that is specially designed for reuse and to protect the data sets throughout the inventory pipeline. The package has provisions to include the Bell System Practices, cords, and adapter used with the data sets, so that these could be returned with the disconnected data set. Work locations should maintain sufficient empty protective packages for all their use. In case of surplus empty protective package buildup, local materials management (suppliers) forces should be contacted to arrange for handling of the surplus units. For further information refer to Section 590-009-100, Work Station Plan.

1.08 The faceplates of the data sets are designed to allow easy reading of the display, switch, and indicator designations regardless of data set orientation; horizontally for stand-alone arrangements and vertically for multiple arrangements. The three designation labels on the faceplate are removable and are made of flexible plastic that contains switch and indicator designations on both sides. One side of each label has the designations oriented for a horizontally mounted data set and the other side has the designations oriented for a vertically mounted data set. A small screwdriver may be used in the slot next to the small hole of the large designation label to start sliding it out (Fig. 4). This designation label slides out and slides in. The display back can be rotated 90 degrees with the large designation label removed (Fig. 5) for a vertically mounted data set. The larger of the two thin labels at the other end of the faceplate also slides into position, but first slide the label under the first set of molded hooks in the faceplate. Now using a finger, lift the front end of the label (Fig. 6) and rest it on the front edge of the EXEC button just in front of the second set of hooks. Depress the front corners of the label and the EXEC button, then slide the label under the second set of molded hooks and continue sliding until the EXEC button "pops" into the hole in the label. To remove this label, insert the point end of a pencil under it starting at the depression at one end in the center. Slide the pencil beneath the label longitudinally toward, but just to one side of the EXEC button (Fig. 7). To remove the smallest label next to the paddle switches, lift it in the center with a small screwdriver (Fig. 8). Insert this label by flexing and inserting one end at a time.

1.09 With RS-232-C interface and fast rise time option, the maximum allowable distance between the data terminal equipment (DTE) and the DS 2096C should not exceed 50 feet. With RS-449 and slow rise time option, the maximum allowable distance between the DTE and the data sets should not exceed 200 feet. In order to minimize inductive interference with data signals, the telephone line should not be carried in the same cable run as cable between the data set and CPE or lines connected to teletypewriter services. If this condition cannot be met, the telephone line must be run in type SK (shielded) station wire between the data set and the cable distribution terminal or building entrance. The shield should be grounded at one end only, preferably at the distribution terminal end.

Note: If RS-232-C interface is used, "rise time" fast option must be installed in the data set. A label naming the option(s) is located near the switch on the data set.

1.10 Cables for connecting either the stand-alone data set or the multiple data station to transmission facilities must be terminated at the data mounting end and in a 50-pin male connector.

1.11 The stand-alone data set requires a power source that provides 100 to 129 volts, up to 70 watts, at 57 to 63 Hz. Each multiple mounting can require up to 515 watts of power. The customer must supply an outlet that will accept the 3-prong ac power plug within 10 feet of the data set location. To prevent the data set from being turned off accidentally, this outlet should not be under the control of a switch. A KS-20340, L3 (or equivalent) power cord is provided with each 63-type data mounting and a KS-14532, L25 power cord is provided with each 64-type data mounting.

1.12 For 9600 bps operation, a D5 conditioned 3002 basic channel is required. Conditioning for private line is described in Section 314-410-500. Energy gated amplifiers may be required at bridge locations.

1.13 The DS 2096C is a quick start-up data set and is only compatible with DSs 2096C in the same network.

1.14 Connections to the CPE (Table B) are made through the 37-pin CUST INT connector at the rear of the data set (Fig. 2). If the customer interface

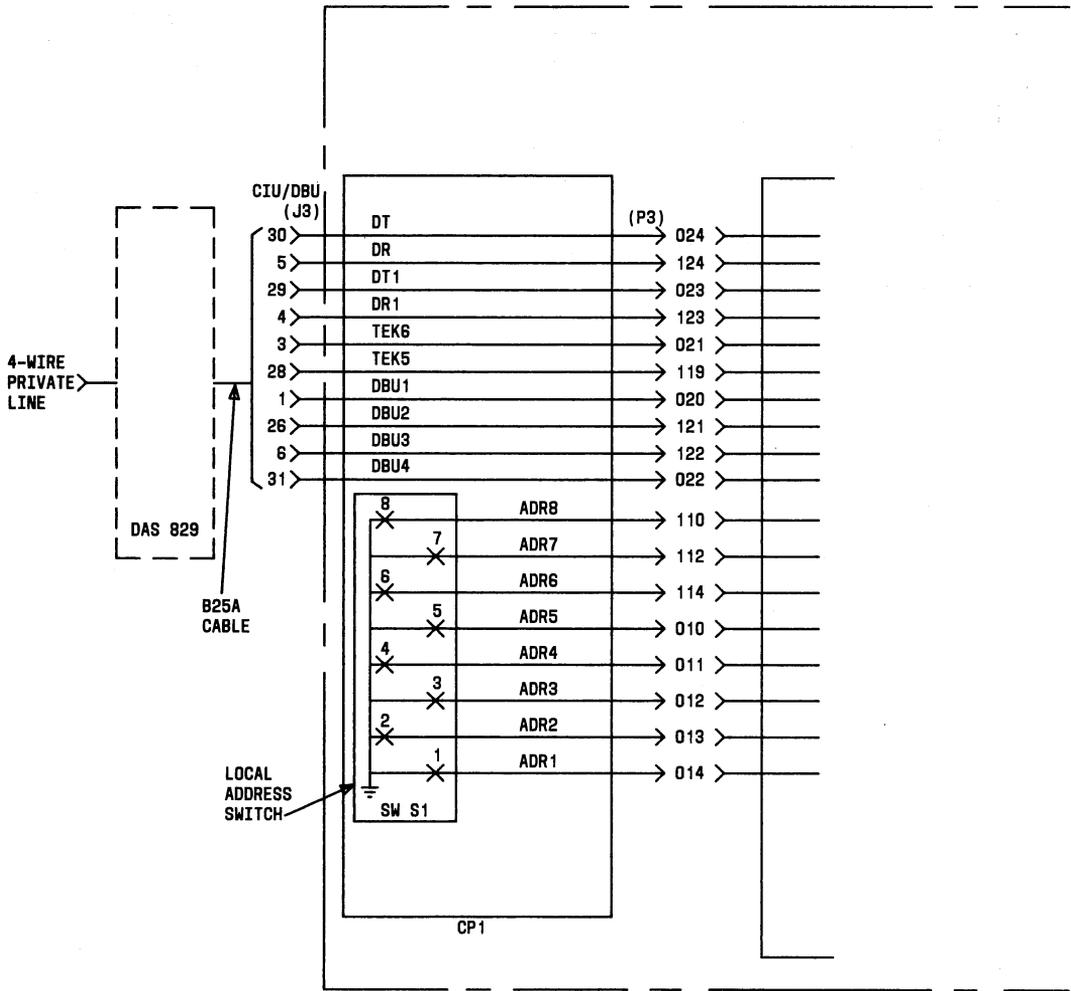


Fig. 2—Private Line Stand-Alone Connection Diagram (Sheet 1 of 4)

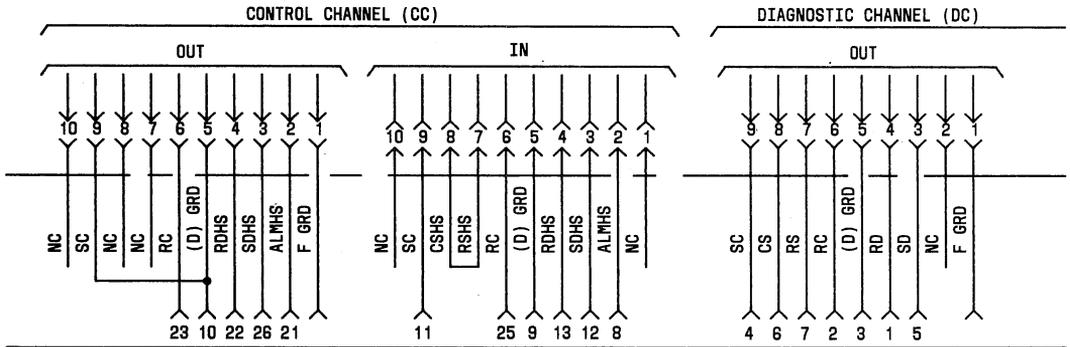


Fig. 2—Private Line Stand-Alone Connection Diagram (Sheet 2 of 4)

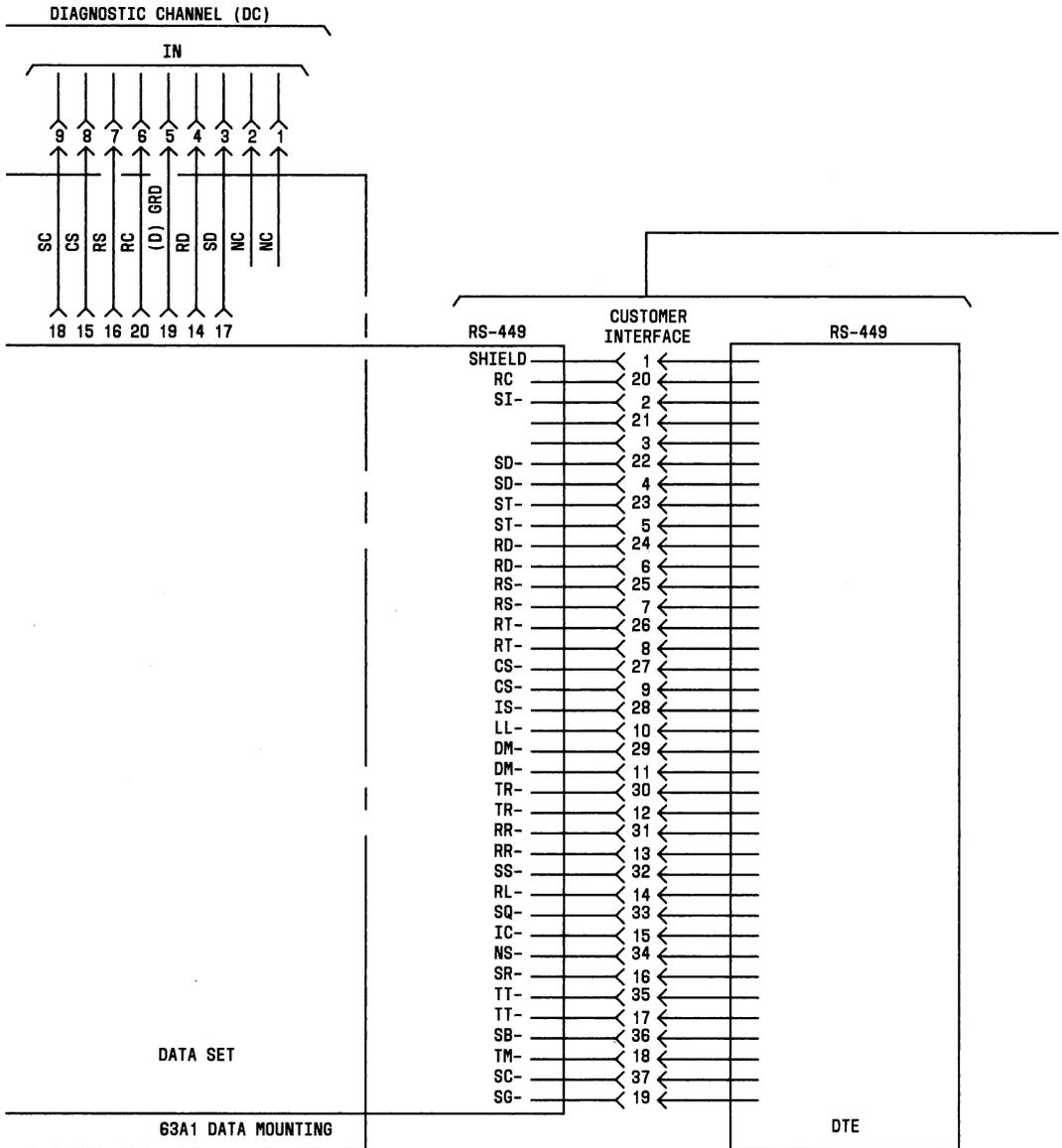


Fig. 2—Private Line Stand-Alone Connection Diagram (Sheet 3 of 4)

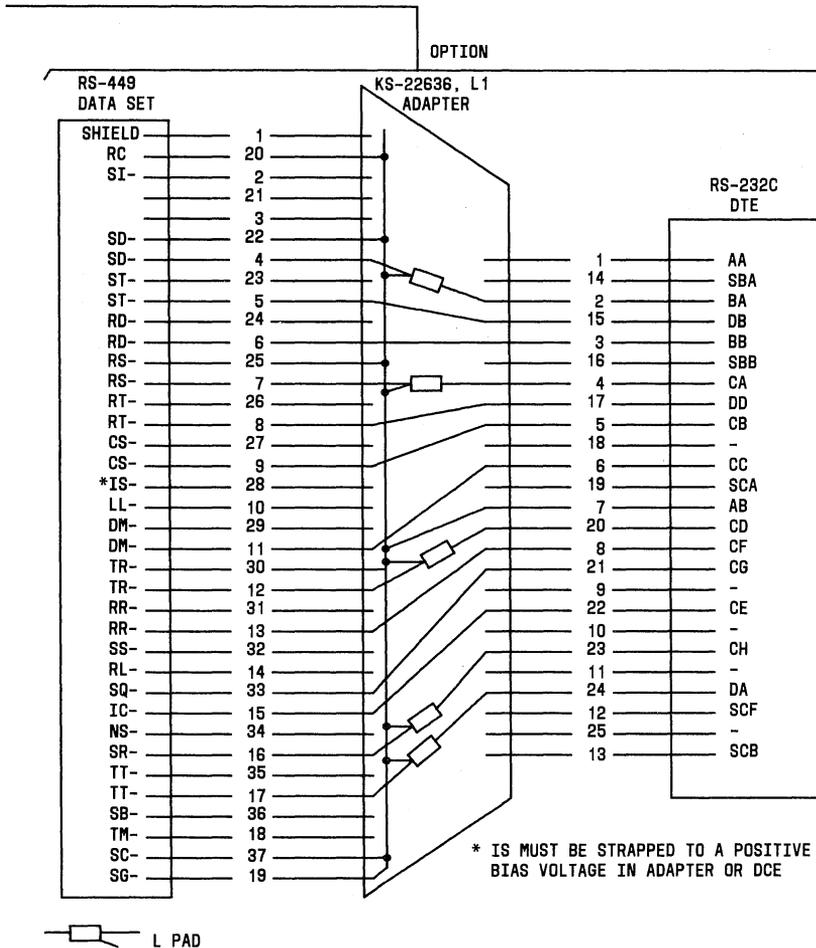


Fig. 2—Private Line Stand-Alone Connection Diagram (Sheet 4 of 4)

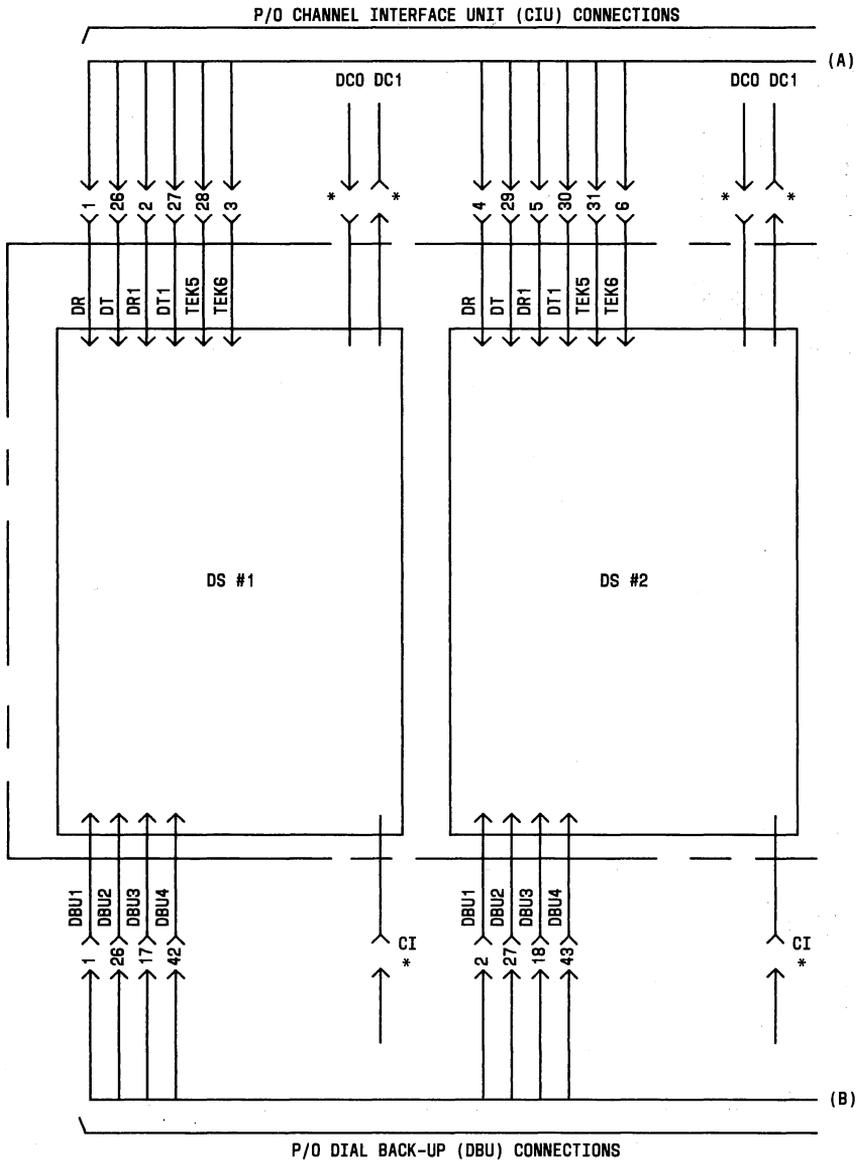


Fig. 3—Private Line Single Multiple Mounting Connection Diagram (Sheet 1 of 5)

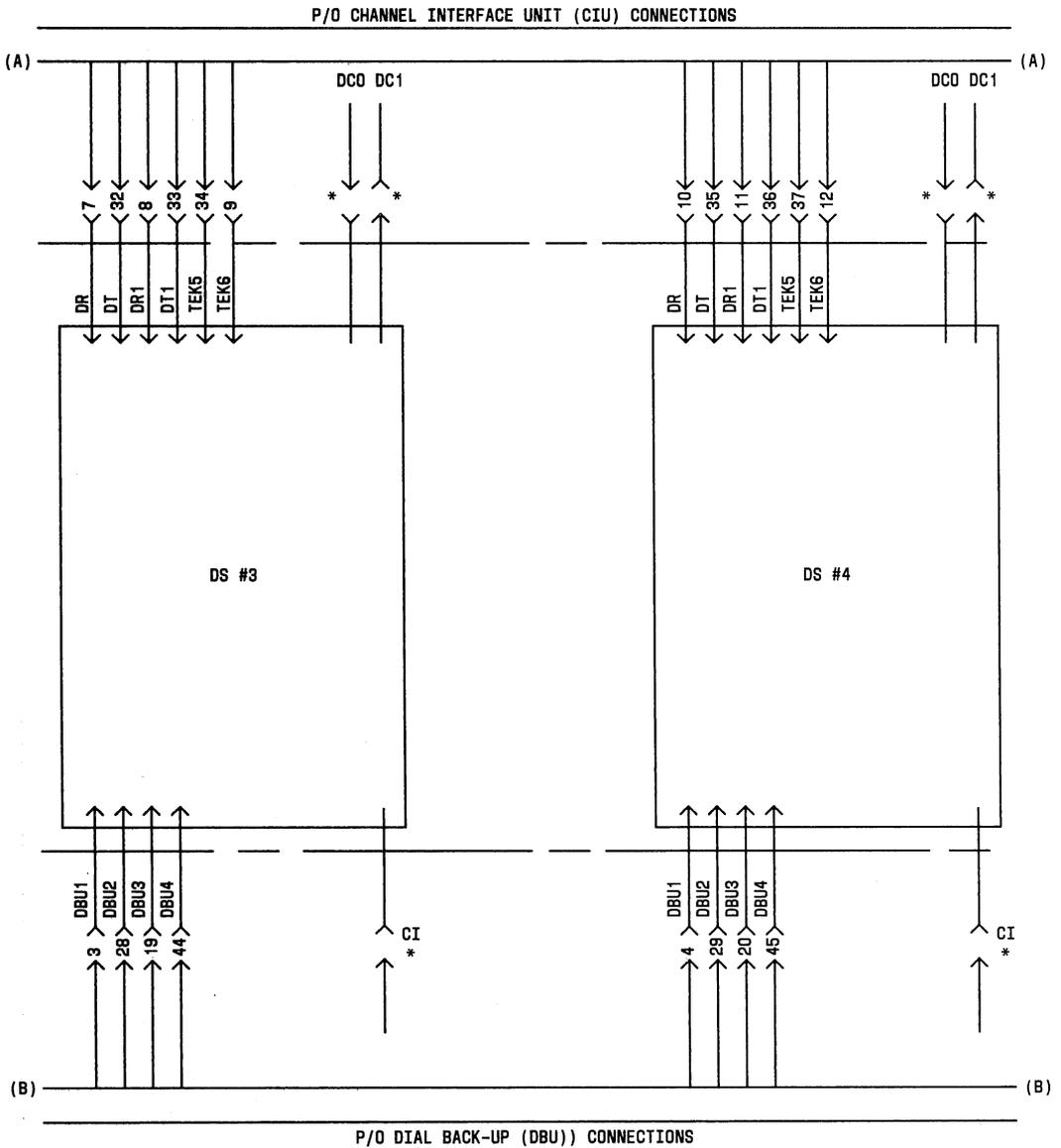


Fig. 3—Private Line Single Multiple Mounting Connection Diagram (Sheet 2 of 5)

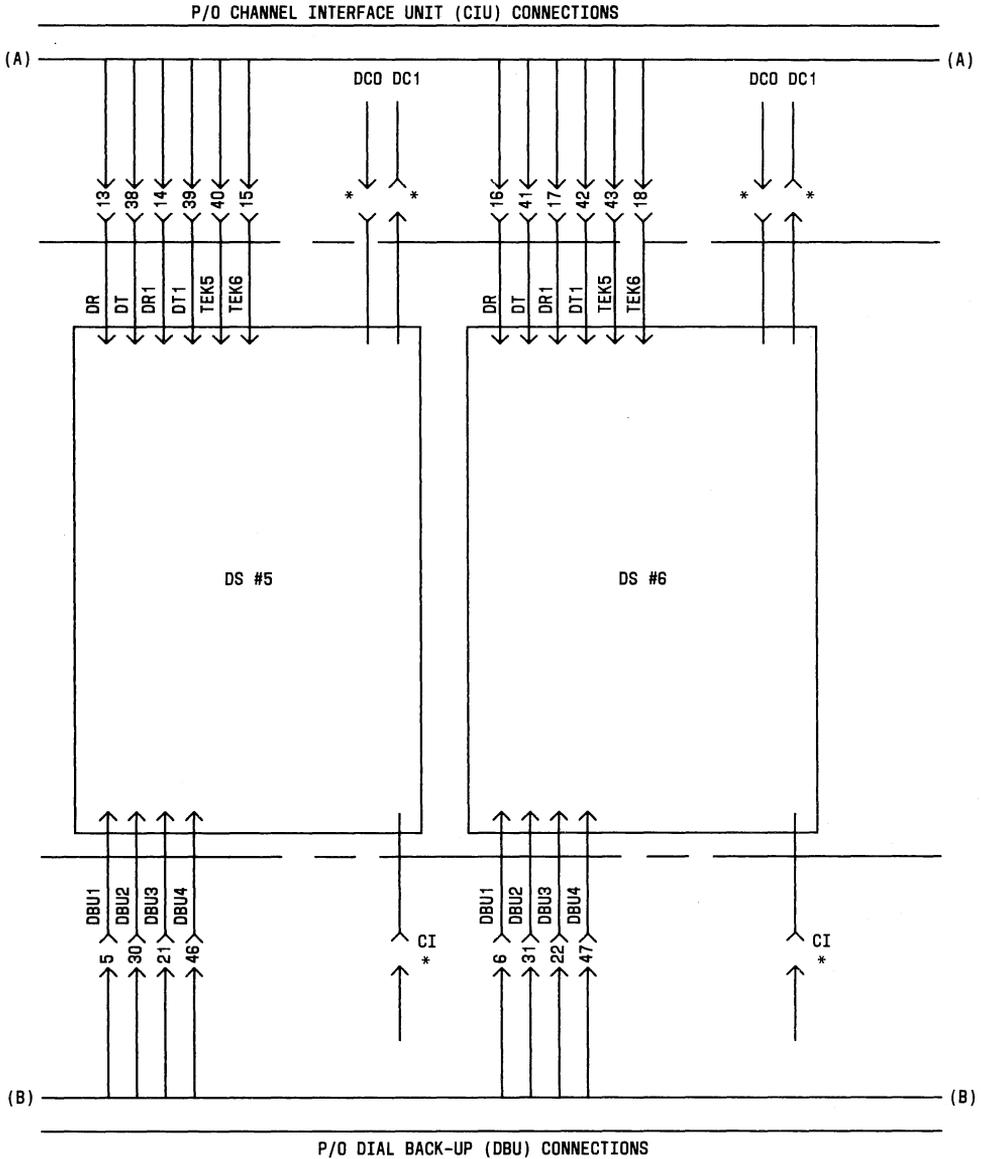


Fig. 3—Private Line Single Multiple Mounting Connection Diagram (Sheet 3 of 5)

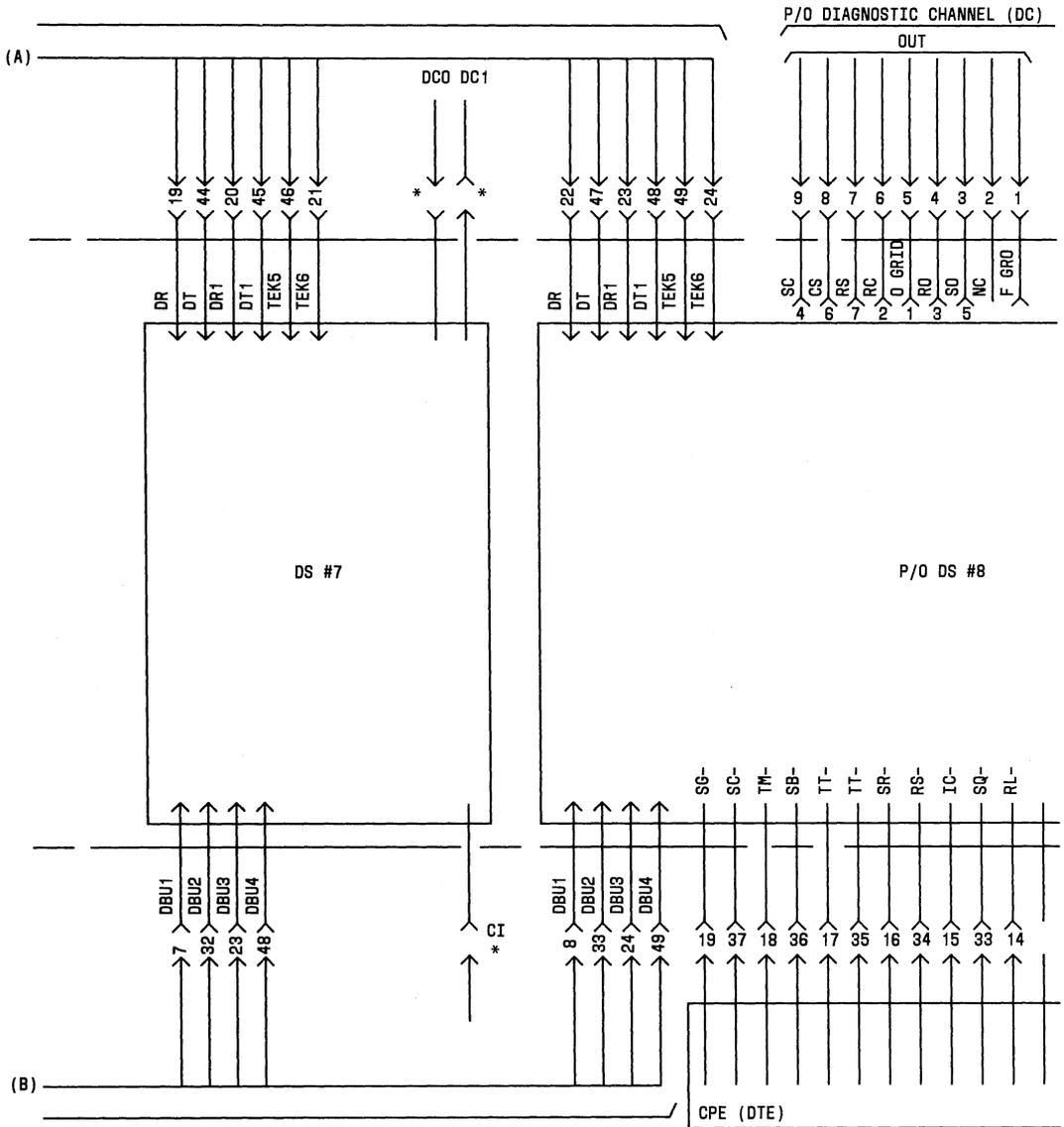


Fig. 3—Private Line Single Multiple Mounting Connection Diagram (Sheet 4 of 5)

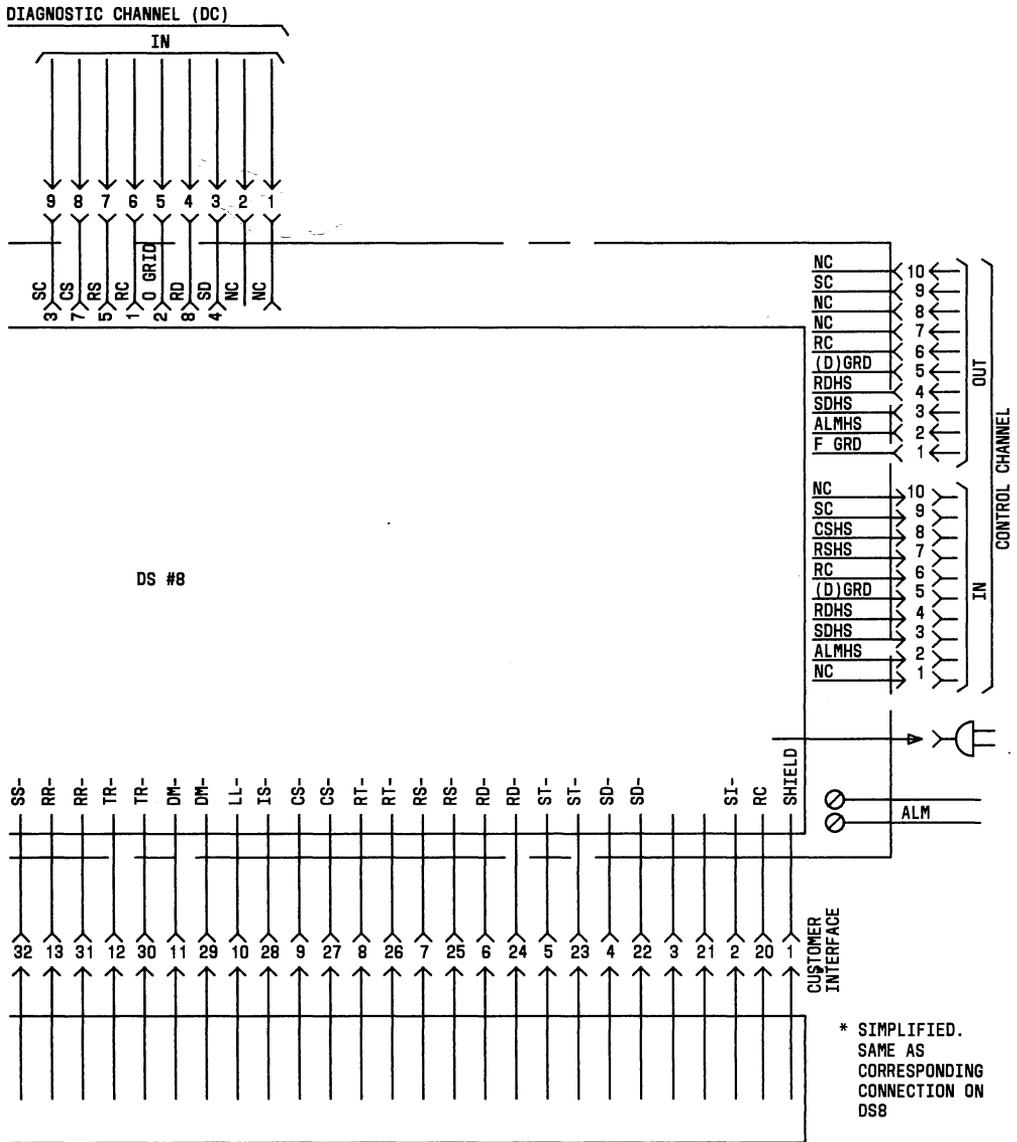


Fig. 3—Private Line Single Multiple Mounting Connection Diagram (Sheet 5 of 5)

is a 25-pin connector, use the KS-22636, L1 adapter furnished with each data set.

1.15 Connections to the channel interface unit (CIU)/dial backup unit (DBU) connector for stand-alone mountings (Table C) are made through a 50-pin connector at the rear of the data set mounting. Connections to the CIU and DBU connectors for multiple mountings are made through two 50-pin connectors (Tables D and E) at the rear of the mounting. A B25A cable (ordered separately) must be used for this purpose. For private line service a data auxiliary set (DAS) 829 CIU is required for each data set.

1.16 A label (comcode 842990954) is shipped loose with every DS 2096C that identifies the data set by address, trouble report telephone number, and circuit number. This information should be filled in and the label applied to the faceplate.

1.17 Option labels are attached to the shield behind the faceplate on all data sets. The installed

options of the data set should be marked on the space provided on the label.

2. INSTALLATION

STAND ALONE

2.01 It is desirable to install the 63A-type stand-alone data mounting adjacent to or within view of the CPE. This will allow visual monitoring of the status lamps on the data set while operating or testing the CPE.

2.02 Before proceeding with installation, read service order to determine data set options and local and network addresses for location. The required installation steps are as follows:

- Set local address.
- Remove data set from data mounting following data set removal procedure.
- Enable the battery.

TABLE A

TEMPERATURE-ALTITUDE LIMIT FOR MULTIPLE ARRANGEMENTS OF "DATAPHONE" II SERVICE APPARATUS

ARRANGEMENT	APPROXIMATE ALTITUDE FEET ABOVE SEA LEVEL	MAXIMUM AMBIENT TEMPERATURE IN DEGREES FAHRENHEIT			
		4 MTGS	3 MTGS (NOTE)	2 MTGS	1 MTG
KS-20018, L11A Cabinet (64-type mounting only)	0 - 1000				120
	1001 - 6000				120
	6001 - 10000				100
KS-20018, L15C and Commercial Cabinet (23-inch mounting)	0 - 1000	120	120	120	120
	1001 - 6000	120	120	120	120
	6001 - 10000	120	120	120	120
Commerical Cabinet (19-inch mounting)*	0 - 1000	120	120	120	120
	1001 - 6000	100	120	120	120
	6001 - 10000	NR†	100	120	120

Note: If a network controller is added above the 64-type data mountings derate the maximum ambient temperature by 10 degrees Fahrenheit.

* A 19-inch wide commerical cabinet having a louvered top with at least 22 square inches of open area. For commercial cabinets having at least 2 square feet of open area, apply KS-20018, L15C criteria.

† Not recommended.

TABLE B
CUSTOMER INTERFACE CONNECTOR

PIN NO.	EIA CIRCUIT MNEMONIC (RS-449)	EIA CIRCUIT NAME (RS-449)	DS 2096C STATUS
2	SI	Signaling Rate Indicator	√
4, 22	SD	Send Data	√
5, 23	ST	Send Timing	√
6, 24	RD	Receive Data	√
7, 25	RS	Request-to-Send	√
8, 26	RT	Receive Timing	√
9, 27	CS	Clear-to-Send	√
10	LL	Local Loopback	√
11, 29	DM	Data Mode	√
12, 30	TR	Terminal Ready	*
13, 31	RR	Receiver Ready	√
14	RL	Remote Loopback	*
15	IC	Incoming Call	*
16	SR	Signaling Rate Selector	√
17, 35	TT	Terminal Timing	√
18	TM	Test Mode	√
19	SG	Signal Ground	√
20	RC	Receive Common	√
28	IS	Terminal-In-Service	*
32	SS	Select Standby	√
33	SQ	Signal Quality	√
36	SB	Standby Indicator	√
37	SC	Send Common	√

√ indicates lead used on the data set

* indicates lead not used on the data set. It may be terminated or have a voltage present

- Set rise time option.
- Install data set in the mounting following data set replacement procedure.
- Connect cables.
- Turn on power.
- Set data set options.
- Set network address.
- Add data set to poll list, if it is a tributary data set.
- Install poll list if data set is a control data set (DS 2096C as a control data set in a multipoint circuit can have **up to** 15 tributary data sets).

TABLE C

**STAND-ALONE MOUNTING CHANNEL INTERFACE
UNIT (CIU)/DIAL BACKUP UNIT (DBU) CONNECTOR**

J6 PIN NO.	MNEMONIC	FUNCTION
1,26,6,31	DBU1, DBU2, DBU3, DBU4	Dial Backup Control Leads
4,29	DR1, DT1	Transmit Pair
5,30	DR, DT	Receive Pair
3,28	TEK6, TEK5	Not in Data Indicator

- Perform installation test.

The procedures for the above are contained in the following paragraphs.

2.03 To set the local address of the data set, it is necessary to gain access to the back of the 63A-type data mounting (Fig. 9). Set local address of data set to correspond with the local address as specified on the service order using the 8-position dual in-line package (DIP) switch located on the backplane of the data mounting. Details for setting the switch are shown in Fig. 10.

2.04 Remove data set from the mounting following data set removal procedures.

2.05 Enable the battery by depressing the rocker of the battery switch toward the white dot (ON).

TABLE D

**MULTIPLE MOUNTING CHANNEL
INTERFACE UNIT (CIU) CONNECTOR**

PIN NO.	LEAD DESIGNATIONS	DATA SET POSITION NO.	FUNCTIONS
1,26	DR, DT	1	Receive Pair
2,27	DR1, DT1	1	Transmit Pair
3,28	TEK6, TEK5	1	Line Status Indicator
4,29	DR, DT	2	Receive Pair
5,30	DR1, DT1	2	Transmit Pair
6,31	TEK6, TEK5	2	Line Status Indicator
7,32	DR, DT	3	Receive Pair
8,33	DR1, DT1	3	Transmit Pair
9,34	TEK6, TEK5	3	Line Status Indicator
10,35	DR, DT	4	Receive Pair
11,36	DR1, DT1	4	Transmit Pair
12,37	TEK6, TEK5	4	Line Status Indicator
13,38	DR, DT	5	Receive Pair
14,39	DR1, DT1	5	Transmit Pair
15,40	TEK6, TEK5	5	Line Status Indicator
16,41	DR, DT	6	Receive Pair
17,42	DR1, DT1	6	Transmit Pair
18,43	TEK6, TEK5	6	Line Status Indicator
19,44	DR, DT	7	Receive Pair
20,45	DR1, DT1	7	Transmit Pair
21,46	TEK6, TEK5	7	Line Status Indicator
22,47	DR, DT	8	Receive Pair
23,48	DR1, DT1	8	Transmit Pair
24,49	TEK6, TEK5	8	Line Status Indicator

TABLE E

MULTIPLE MOUNTING DIAL BACKUP
UNIT (DBU) CONNECTOR

PIN NO.	LEAD DESIGNATIONS	DATA SET POSITION NO.	FUNCTION
1,26	DBU1,DBU2	1	Dial Backup Control Leads 1 and 2
2,27		2	
3,28		3	
4,29		4	
5,30		5	
6,31		6	
7,32		7	
8,33		8	
17,42	DBU3,DBU4	1	Dial Backup Control Leads 3 and 4
18,43		2	
19,44		3	
20,45		4	
21,46		5	
22,47		6	
23,48		7	
24,49		8	

The switch is on top of the data set circuit boards behind the front panel (refer to Fig. 1).

2.06 Select data set rise time by setting 4-position rise time switch to either fast (open) or slow (closed) to correspond with service order according to the label next to the switch. Refer to Fig. 11 for rise time switch on DS 2096C. The switch is closed when the rocker is down on the side adjacent to the numbers and open when down on the side opposite the numbers. For Electronics Industries Association (EIA) RS-449 interface, the switch must be in closed position, and in open position for RS-232-C interface.

2.07 Install data set in the mounting following data set replacement procedure.

2.08 Turn on power.

2.09 Set data set options following the procedure described in Part 4, Options.

2.10 Set network address of data set as specified on service order from front panel switches. Refer to Section 592-040-121 for operation of the front panel switches to install network address.

2.11 Unless directed otherwise, add data set to poll list by using ADPL command if it is a tributary. Refer to Section 592-040-121 for operation of the front panel switches to add to poll list. Install poll list (up to 15 data sets in a multipoint network) if the data set is a control data set by using CHPL command.

2.12 Use CHMX command from the front panel switches to change EIA interface port speed to 9600, 7200, or 4800 bps if necessary. For 9600 or 7200 bps port speed, the line speed will be 9600 bps and for 4800 bps port speed, the line speed will be 4800 bps. The port speed of all DSs 2096C on a multipoint network must be the same.

2.13 Follow the installation test sequence as outlined in Section 592-040-521. This test sequence provides a method of verifying that the installation is satisfactory. Refer to Section 592-040-121 for a description of test and command menu and operation of data set.

A. Data Set Removal

2.14 The data set should be removed from the mounting as follows:

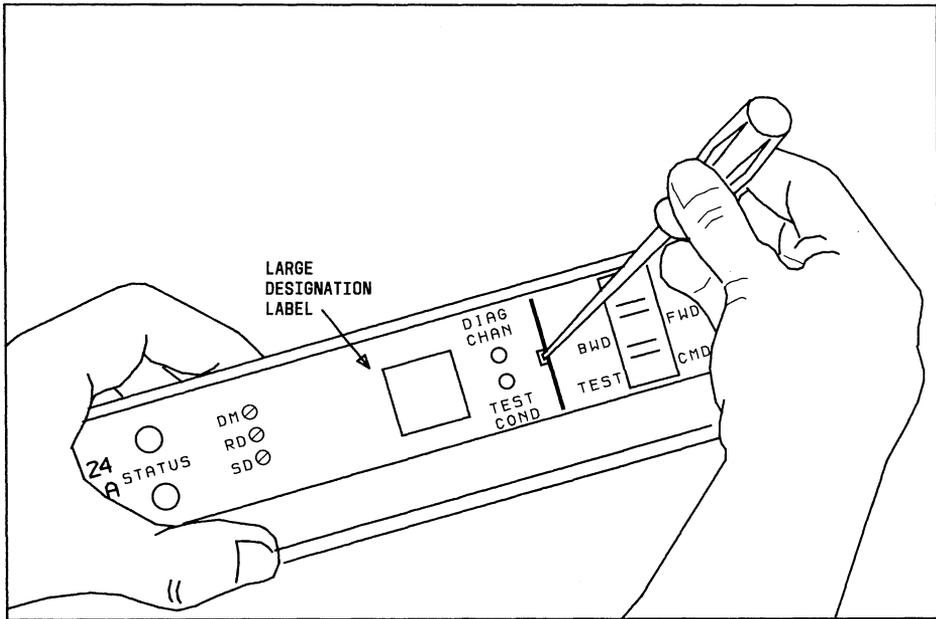


Fig. 4—Removal Procedure of the Large Designation Label

- (1) Disconnect the customer interface cord from the rear of the data set.
- (2) Open the magnetically latched, hinged front cover by pulling outward on top edge and rotating downward.
- (3) **DANGER: Do not touch the slider heat sink (alongside the "Danger Hot Surface" Label) when the data set is removed from its mounting. The heat sink retains a potentially hazardous temperature for approximately 10 minutes after power is removed from the data set.**

Warning: When the data set is removed from its mounting, an approved wrist strap should be used or handle only by faceplate, edges or brackets to prevent static discharge damage to integrated circuits (ICs). The data set should be placed on a clean, dry, nonconductive surface.

Disengage the latches on both sides of the data set and rotate outward until the set is free of its connector, then slide the data set out the front of the mounting.

- (4) **Caution: When removing rear cover use finger pressure only. No special tools are required. Excessive force may crack the data set cover.**

Remove the rear cover by gently depressing on the top edge and rotating downward then lift off.

- (5) Turn off the battery switch on top of the data set circuit board behind the front panel (Fig. 1), if data set is being removed from service. The switch is off when the rocker is down on the side opposite the white dot.

B. Data Set Replacement

- 2.15 To reassemble the data set, proceed as follows:

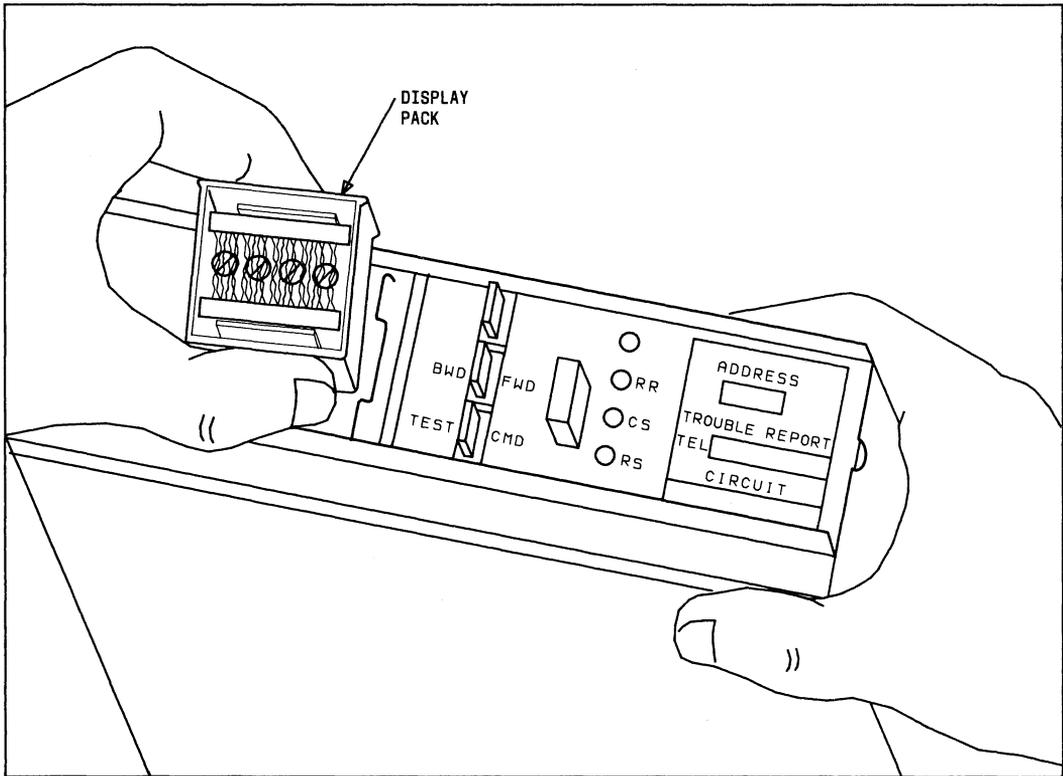


Fig. 5—Display Pack Under the Large Designation Label

- (1) **Warning:** An approved wrist strap should be used or handle only by faceplate, edges, or brackets to prevent static discharge damages to ICs.

Slide the data set into the mounting until the latches on both sides engage and the handles are flush with the front edge of the faceplate.

- (2) Turn the battery switch, located on top of the data set circuit board, ON. The battery switch is ON when the rocker is down toward the white dot.
- (3) **Caution:** Do not push on the latches when inserting.

Close front cover — rotate upward until magnetic latches engage.

- (4) Replace the rear cover by hooking the bottom tabs on the mounting, rotate forward and gently depress the top edge to engage the tabs on the top edge.
- (5) Connect all cords.

MULTIPLE

- 2.16 This part provides installation procedures to be followed when installing private line data sets in a multiple arrangement.
- 2.17 The 64A-type data mounting is furnished with a static discharge protection plate (comcode

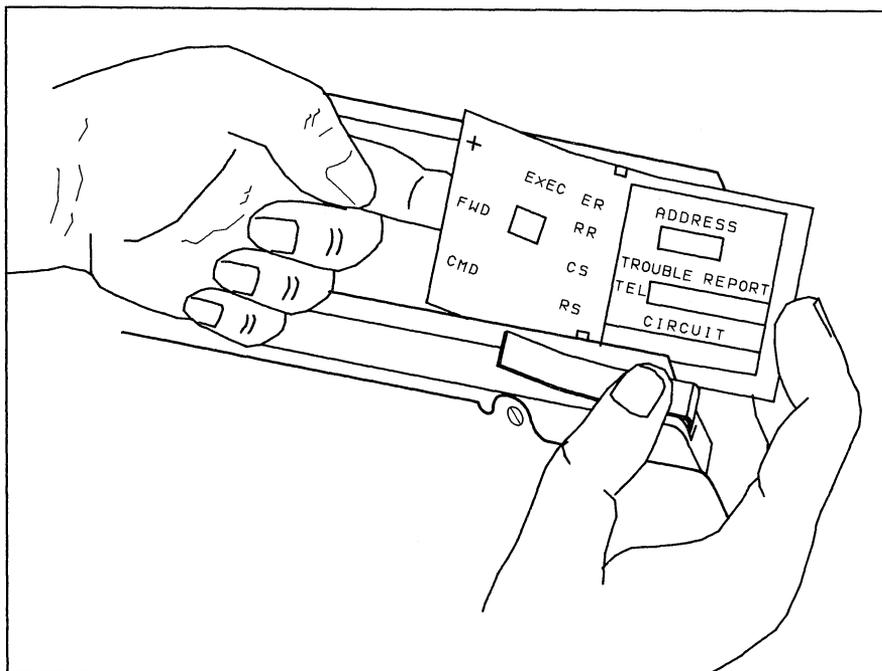


Fig. 6—Insertion Procedure of the Thin (Larger) Designation Label

843992489) which is used when the 64A-type mounting is not filled with data sets, ie, seven or less data sets. The static discharge protection plate should be inserted in the slot to the right of the last data set.

2.18 Each 64A-type data mounting when NOT installed in a computer center environment, ie, not having air conditioning system and associated filtration, requires an add-on filter holder assembly (comcode 842532913).

2.19 The multiple data station consists of private line data sets in 64A-type data mountings (eight data sets per data mounting), and an appropriate cabinet or rack framework. An additional KS-22291, L1 power strip and a KS-14532, L38 cord are required if powering more than two 64-type mountings in a KS-20018, L15 cabinet. The rear view of a 64-type data mounting is shown in Fig. 12. The data sets in the data station should be installed in conformance with the general instructions in Section 590-

010-200. For additional information on installation planning, refer to Section 590-010-201.

A. Cabinet

2.20 Mounting a 63A-type stand-alone data mounting in a 19- or 23-inch cabinet requires a bracket assembly (comcode 842531782) ordered separately.

2.21 The recommended cabinet for the DATAPHONE II service multiple data station consists of KS-20018, L11A or L15C cabinets (Fig. 13). A rack arrangement that will accept the 23-inch 64A-type data mounting can be used. The 64A-type data mounting can be modified, by placing the power supplies between the mounting plates and changing mounting plates so that the data mounting will fit a 19-inch relay rack. Mounting the data mounting in a 19-inch rack requires a mounting plate (comcode 842989451), for each pair of mountings (Fig. 14), a

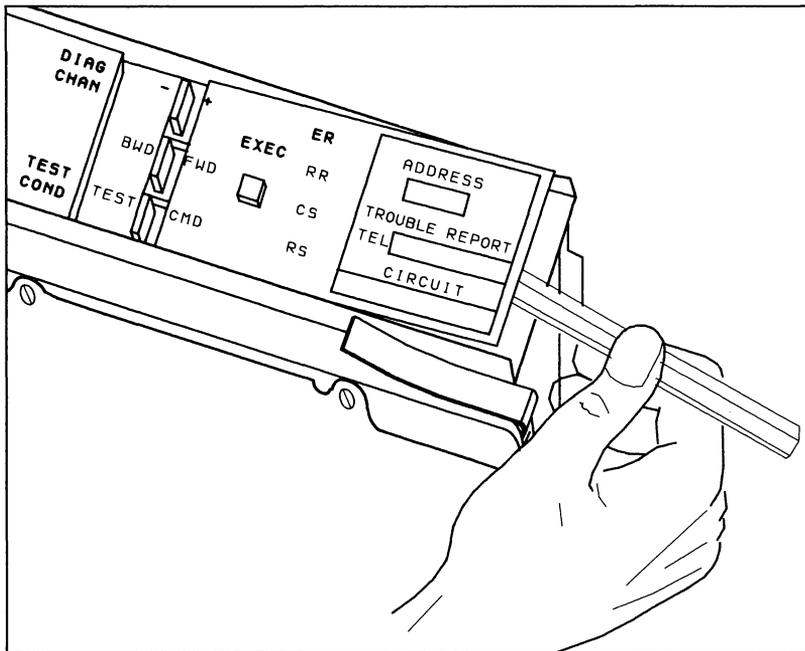


Fig. 7—Removal Procedure of the Thin (Larger) Designation Label

data set power extension cord (comcode 842989469), and a fan power extension cord (comcode 842992463 ordered separately). The mounting brackets on the 64-type mounting should be replaced by the mounting brackets (comcode 842532541) when used in commercial cabinets (Fig. 15) where the mounting uprights are located forward of the data mounting. The mounting plate (comcode 842989451) will accommodate either one or two power units, and may be used to serve two data mountings if it is mounted between them with no intervening equipment. If the data mountings cannot be grouped in pairs, a mounting plate must be ordered for each data mounting installed in a 19-inch rack (refer to Fig. 14). In either arrangement, one of each type cord is required for each data mounting.

2.22 In addition, if the installation is NOT in a computer center environment, refer to Table F for air filter options.

2.23 Each listed KS-20018-type cabinet above can house the following number of 64A-type data mountings, data sets, or network controller.

- KS-20018, L11A cabinets can house one 64A-type data mounting with a maximum of eight data sets and either a 46A2 data mounting (Fig. 16) containing eight DAS 829s or a network controller. The 64A-type mounting should be located at the bottom of the cabinet when it is installed with a network controller.
- KS-20018, L15C cabinets can house four 64A-type data mountings with a maximum of 32 data sets (Fig. 17 and 18). A second arrangement is to group the data sets and the DAS 829s (Fig. 19). This arrangement provides space for 24 data sets and 24 DAS 829s. Another arrangement includes three 64A-type data mountings and a network controller. The network controller should be installed on

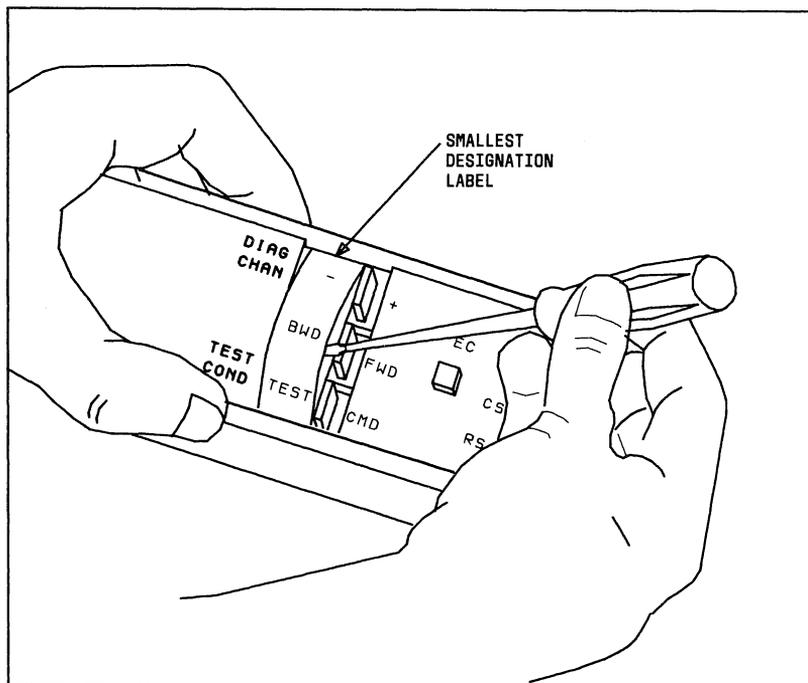


Fig. 8—Removal Procedure of the Smallest Designation Label

top or at least on top of one 64A-type data mounting.

- Existing KS-20018, L15A; L15D; or L17C cabinets can be modified to resemble the KS-20018, L15C cabinets. Existing KS-20018, L15A or L15D cabinets can be modified by installing a KS-20018, L18 solid rear door panel. Existing KS-20018, L17C cabinets may be modified by adding a filter holder assembly (comcode 842532913) to the bottom data mounting or by replacing the KS-20018, L17 cabinet blower by a KS-22100, L1 blower. This blower should NOT be powered through the 77A detector included with the KS-20018, L17-type cabinet. The 77A detector is NOT recommended as a temperature alarm for DATAPHONE II service apparatus in KS-20018, L15 or KS-20018, L17-type cabinets.

2.24 The multiple data station arrangement may be installed in any location within 50 feet (RS-232-C interface) or 200 feet (RS-449 interface) of the CPE that is convenient for the customer. It is desirable to mount the station adjacent to or within view of the CPE. This will allow visual monitoring of the status lamps on the data sets while operating or testing the CPE. Verify that the location selected is adequate for ventilation and maintenance. The customer should provide the standard 3-wire, grounded, 117 Vac outlets, not controlled by a switch. Each outlet should have a 15A or 20A circuit breaker. Refer to Fig. 18 and 19 for the power requirements for the different cabinet configurations. The ac power outlet and cable must be arranged to adequately reach the equipment cabinet or mounting rack arrangement (10 feet). The KS-20018, L15C cabinet comes equipped with its own power strip (KS-22291, L1). However, an additional KS-22291, L1 power strip and KS-14532, L38 power cord are required for installa-

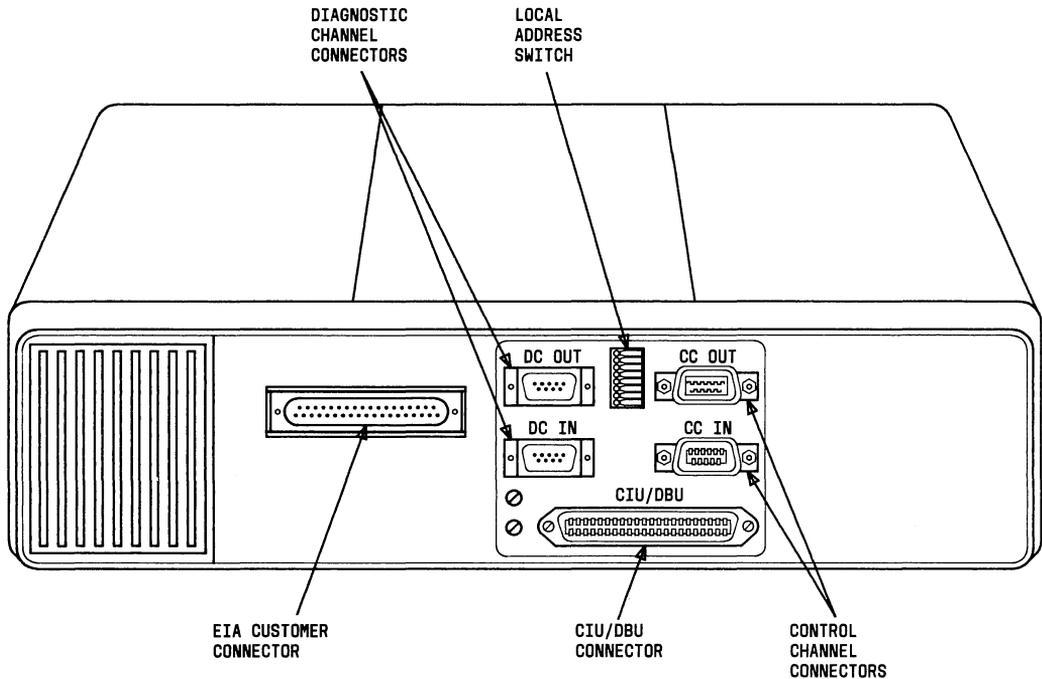


Fig. 9—Rear View of 63A-Type Stand-Alone Data Mounting

tion involving more than two 64A-type data mountings. Separate powering of each data mounting in a cabinet is accomplished by using the 10-foot power cord included with the 64A-type data mounting.

2.25 Up to 32 data sets (four 64A-type data mountings) can be installed in a KS-20018, L15C cabinet (Fig. 20). If all 32 data sets are DS 2096Cs, the cabinet must be served by two separate outlets each served by a 15A or 20A circuit breaker. A full cabinet of DS 2096Cs requires approximately 24 amps.

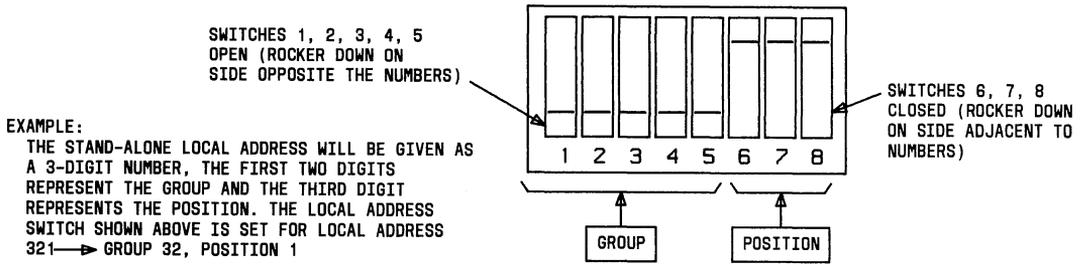
2.26 Many data sets and KS-20018-type cabinet combinations are possible. The combinations illustrated in this section are typical examples of the many possibilities available for required needs. Do **not** apply power to the cabinet or any of the related components of the data station until the complete

station has been installed. Prepare the KS-20018-type cabinet in accordance with Section 590-010-201.

Note: Always fill the cabinets starting from the top down.

B. Air Filtration

2.27 Air filters are not required when installations are done in an environment with air conditioning system and associated filtration (Table F). When multiple installations are done in an environment without an air conditioning system and associated filtration, a filter holder assembly (comcode 842532913) **or** a KS-22100, L1 blower is required to supply filtered air. Refer to Table F for air filter options for multiple installations. When the filter holder assembly is used, the bottom data mounting should be at least one inch above the cabinet frame.



0 = OPEN
X = CLOSED

LOCAL ADDRESS	GROUP 12345	POSITION 678	LOCAL ADDRESS	GROUP 12345	POSITION 678	LOCAL ADDRESS	GROUP 12345	POSITION 678	LOCAL ADDRESS	GROUP 12345	POSITION 678	LOCAL ADDRESS	GROUP 12345	POSITION 678	LOCAL ADDRESS	GROUP 12345	POSITION 678
011	X000X	XXX	071	X000X	XXX	131	X000X	XXX	191	X000X	XXX	251	X000X	XXX	311	X000X	XXX
012	X000X	0XX	072	X000X	0XX	132	X000X	0XX	192	X000X	0XX	252	X000X	0XX	312	X000X	0XX
013	X000X	X0X	073	X000X	X0X	133	X000X	X0X	193	X000X	X0X	253	X000X	X0X	313	X000X	X0X
014	X000X	00X	074	X000X	00X	134	X000X	00X	194	X000X	00X	254	X000X	00X	314	X000X	00X
015	X000X	X00	075	X000X	X00	135	X000X	X00	195	X000X	X00	255	X000X	X00	315	X000X	X00
016	X000X	0X0	076	X000X	0X0	136	X000X	0X0	196	X000X	0X0	256	X000X	0X0	316	X000X	0X0
017	X000X	X00	077	X000X	X00	137	X000X	X00	197	X000X	X00	257	X000X	X00	317	X000X	X00
018	X000X	000	078	X000X	000	138	X000X	000	198	X000X	000	258	X000X	000	318	X000X	000
021	0X00X	XXX	081	0X00X	XXX	141	0X00X	XXX	201	0X00X	XXX	261	0X00X	XXX	321	0000X	XXX
022	0X00X	0XX	082	0X00X	0XX	142	0X00X	0XX	202	0X00X	0XX	262	0X00X	0XX	322	0000X	0XX
023	0X00X	X0X	083	0X00X	X0X	143	0X00X	X0X	203	0X00X	X0X	263	0X00X	X0X	323	0000X	X0X
024	0X00X	00X	084	0X00X	00X	144	0X00X	00X	204	0X00X	00X	264	0X00X	00X	324	0000X	00X
025	0X00X	X00	085	0X00X	X00	145	0X00X	X00	205	0X00X	X00	265	0X00X	X00	325	0000X	X00
026	0X00X	0X0	086	0X00X	0X0	146	0X00X	0X0	206	0X00X	0X0	266	0X00X	0X0	326	0000X	0X0
027	0X00X	X00	087	0X00X	X00	147	0X00X	X00	207	0X00X	X00	267	0X00X	X00	327	0000X	X00
028	0X00X	000	088	0X00X	000	147	0X00X	000	208	0X00X	000	268	0X00X	000	328	0000X	000
031	X000X	X0X	091	X000X	X0X	151	X000X	X0X	211	X000X	X0X	271	X000X	X0X			
032	X000X	0X0	092	X000X	0X0	152	X000X	0X0	212	X000X	0X0	272	X000X	0X0			
033	X000X	X00	093	X000X	X00	153	X000X	X00	213	X000X	X00	273	X000X	X00			
034	X000X	00X	094	X000X	00X	154	X000X	00X	214	X000X	00X	274	X000X	00X			
035	X000X	X00	095	X000X	X00	155	X000X	X00	215	X000X	X00	275	X000X	X00			
036	X000X	0X0	096	X000X	0X0	156	X000X	0X0	216	X000X	0X0	276	X000X	0X0			
037	X000X	X00	097	X000X	X00	157	X000X	X00	217	X000X	X00	277	X000X	X00			
038	X000X	000	098	X000X	000	158	X000X	000	218	X000X	000	278	X000X	000			
041	0000X	XXX	101	0000X	XXX	161	0000X	XXX	221	0000X	XXX	281	0000X	XXX			
042	0000X	0XX	102	0000X	0XX	162	0000X	0XX	222	0000X	0XX	282	0000X	0XX			
043	0000X	X0X	103	0000X	X0X	163	0000X	X0X	223	0000X	X0X	283	0000X	X0X			
044	0000X	00X	104	0000X	00X	164	0000X	00X	224	0000X	00X	284	0000X	00X			
045	0000X	X00	105	0000X	X00	165	0000X	X00	225	0000X	X00	285	0000X	X00			
046	0000X	0X0	106	0000X	0X0	166	0000X	0X0	226	0000X	0X0	286	0000X	0X0			
047	0000X	X00	107	0000X	X00	167	0000X	X00	227	0000X	X00	287	0000X	X00			
048	0000X	000	108	0000X	000	168	0000X	000	228	0000X	000	288	0000X	000			
051	X000X	X0X	111	X000X	X0X	171	X000X	X0X	231	X000X	X0X	291	X000X	X0X			
052	X000X	0X0	112	X000X	0X0	172	X000X	0X0	232	X000X	0X0	292	X000X	0X0			
053	X000X	X00	113	X000X	X00	173	X000X	X00	233	X000X	X00	293	X000X	X00			
054	X000X	00X	114	X000X	00X	174	X000X	00X	234	X000X	00X	294	X000X	00X			
055	X000X	X00	115	X000X	X00	175	X000X	X00	235	X000X	X00	295	X000X	X00			
056	X000X	0X0	116	X000X	0X0	176	X000X	0X0	236	X000X	0X0	296	X000X	0X0			
057	X000X	X00	117	X000X	X00	177	X000X	X00	237	X000X	X00	297	X000X	X00			
058	X000X	000	118	X000X	000	178	X000X	000	238	X000X	000	298	X000X	000			
061	0X00X	XXX	121	0X00X	XXX	181	0X00X	XXX	241	0X00X	XXX	301	0X00X	XXX			
062	0X00X	0XX	122	0X00X	0XX	182	0X00X	0XX	242	0X00X	0XX	302	0X00X	0XX			
063	0X00X	X0X	123	0X00X	X0X	183	0X00X	X0X	243	0X00X	X0X	303	0X00X	X0X			
064	0X00X	00X	124	0X00X	00X	184	0X00X	00X	244	0X00X	00X	304	0X00X	00X			
065	0X00X	X00	125	0X00X	X00	185	0X00X	X00	245	0X00X	X00	305	0X00X	X00			
066	0X00X	0X0	126	0X00X	0X0	186	0X00X	0X0	246	0X00X	0X0	306	0X00X	0X0			
067	0X00X	X00	127	0X00X	X00	187	0X00X	X00	247	0X00X	X00	307	0X00X	X00			
068	0X00X	000	128	0X00X	000	188	0X00X	000	248	0X00X	000	308	0X00X	000			

Fig. 10—Local Address Switch and Switch Setting for Stand-Alone Data Set

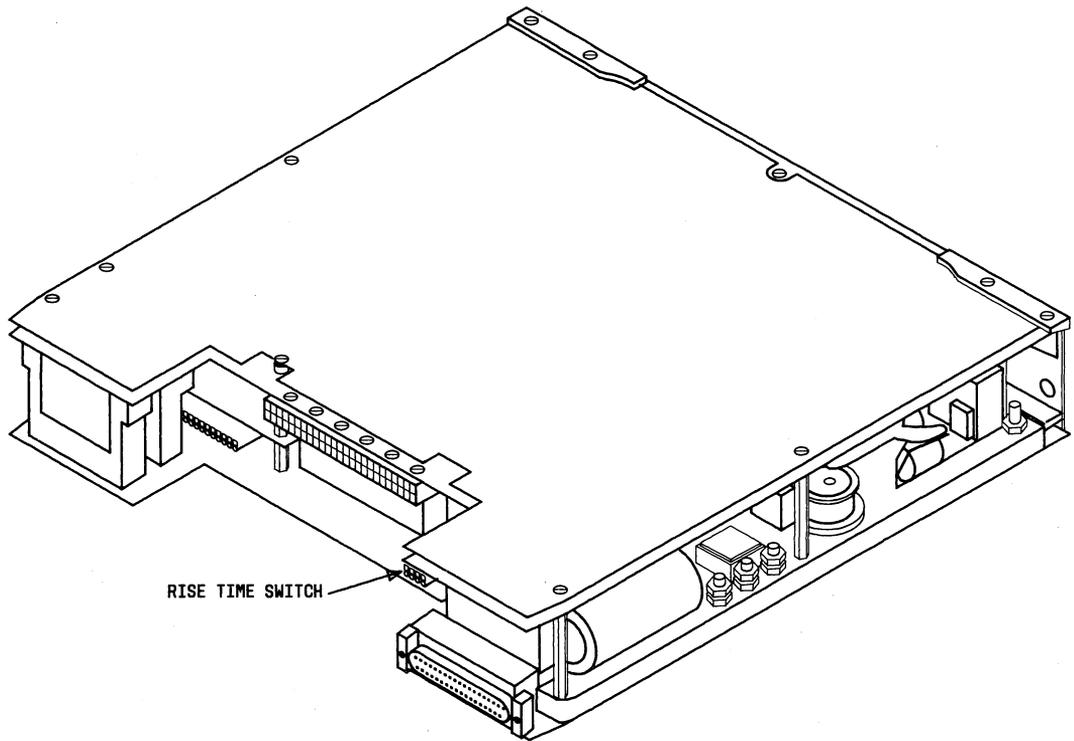


Fig. 11—Rise Time Switch on Data Set 2096C-L1

Levelers on the KS-20018, L15C cabinet should be extended one inch to provide sufficient inlet area for the entering air flow.

2.28 If the optional KS-22100, L1 blower is installed to pressurize and supply filtered air in the cabinet, the installation should be in a designated area to ensure that personnel are not continually exposed to the blower sound.

2.29 The KS-20018, L15C front base supports are removed and are replaced by the KS-22100, L1 blower and accompanying blower brackets. The KS-22100, L1 blower brackets could be removed and repositioned to provide cable access ports in the KS-20018, L15C front base.

C. Mounting

2.30 In addition to the standard installation tools, installation of the data mountings and data sets may require the following additional tools:

12-inch screwdriver

A screw starter, Kedman Co. No. 1736, or equivalent.

2.31 For a one-person installation perform the following:

- For 23-inch mounting space, thread the furnished 12-24 by 1/2-inch long screws into the rack one inch above the bottom of each mounting.
- For the 19-inch mounting space, insert the furnished 12-24 by 1/2-inch long screws 3-1/2

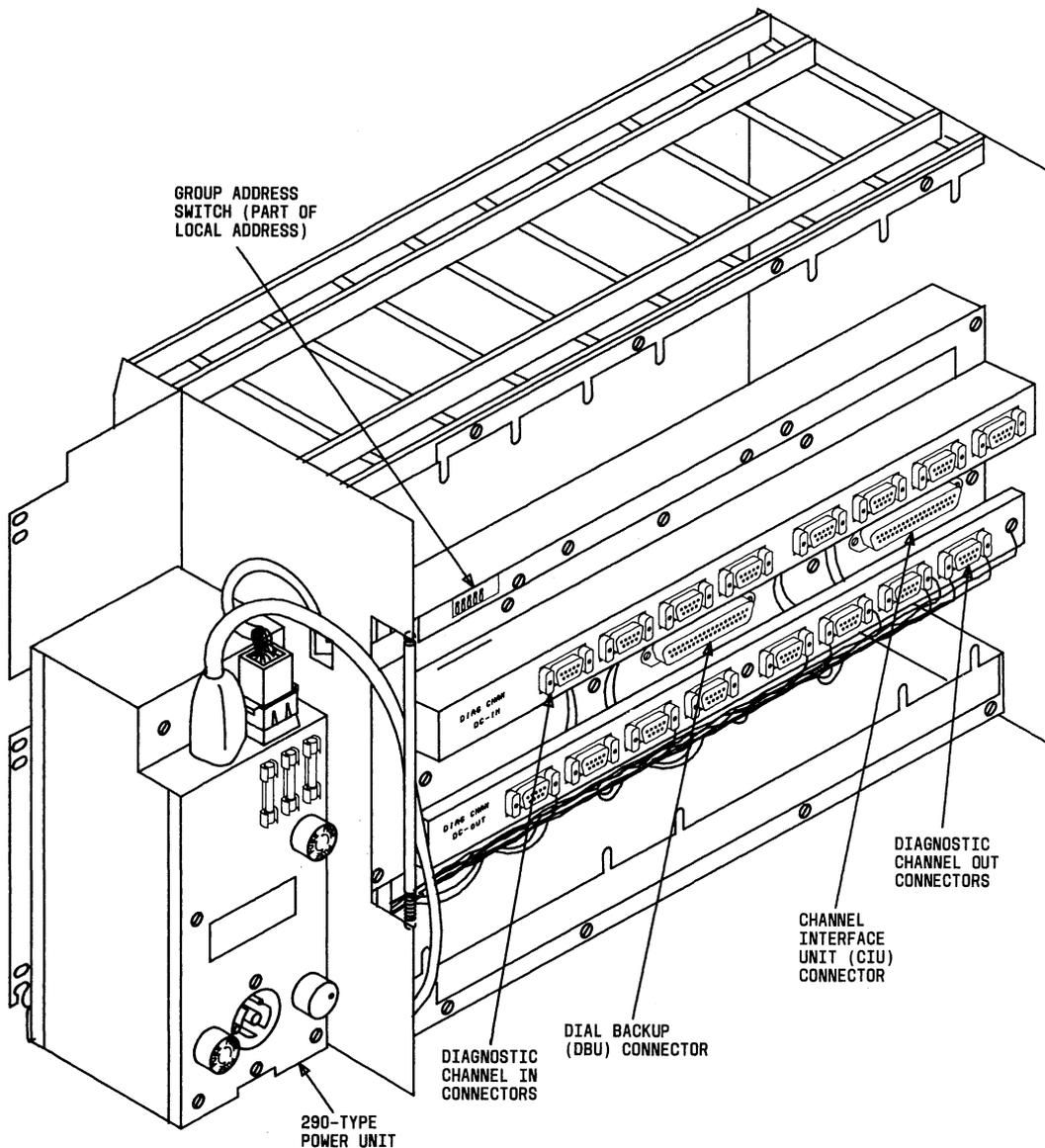
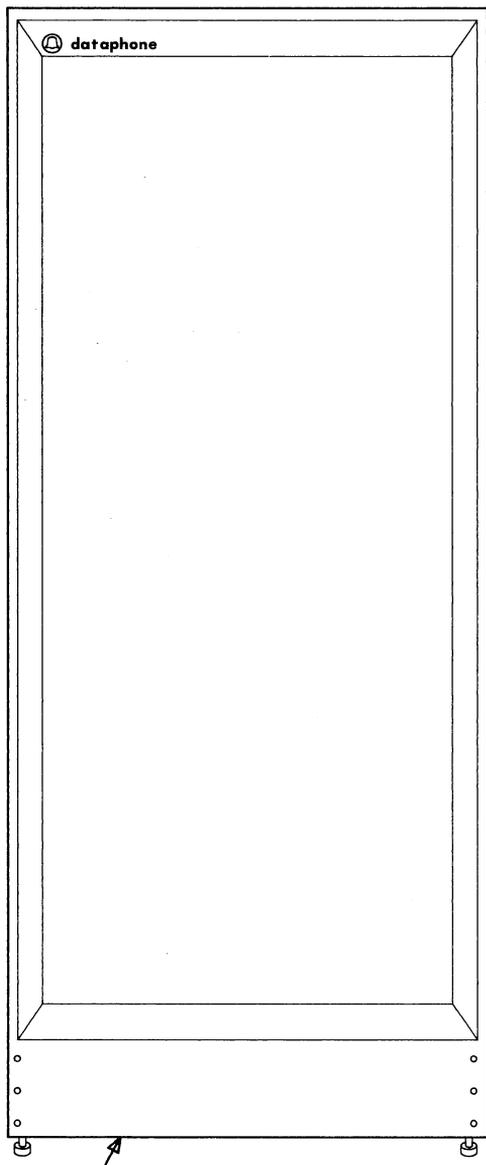
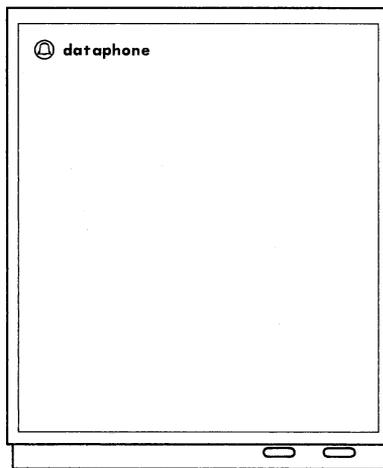


Fig. 12—Rear View of 64A-Type Multiple Data Mounting (Control Channel IN and OUT Connectors and Alarm Screws are not Shown)



KS-20018, L15

CABINET	HEIGHT	WIDTH	DEPTH
KS-20018, L11	30 IN.	24 IN.	19 IN.
KS-20018, L15	72 IN.	26 IN.	



KS-20018, L11

Fig. 13—KS-20018, L11 and KS-20018, L15 Cabinets

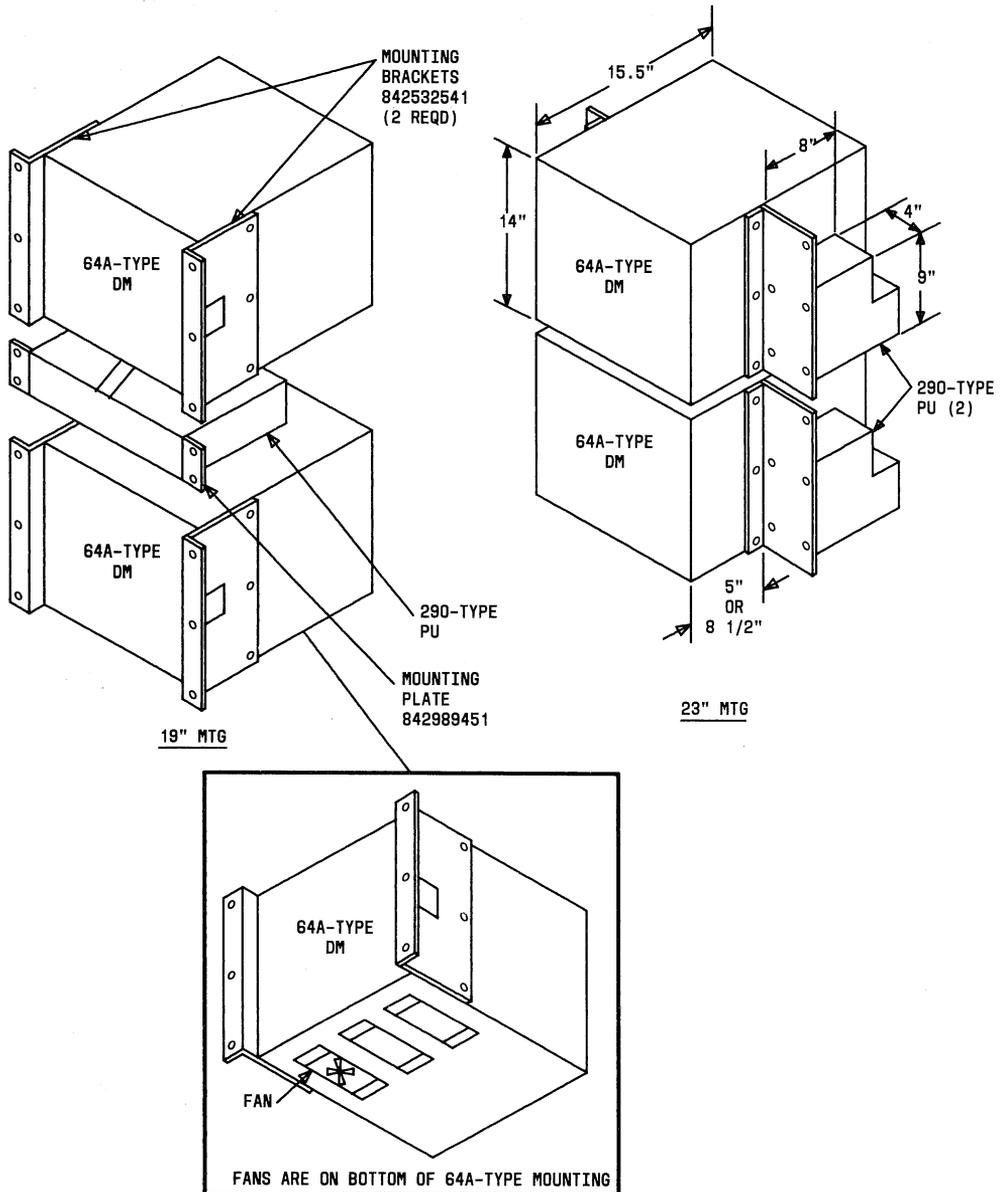


Fig. 14—Location of Transformer Brackets in 19- and 23-Inch Mountings

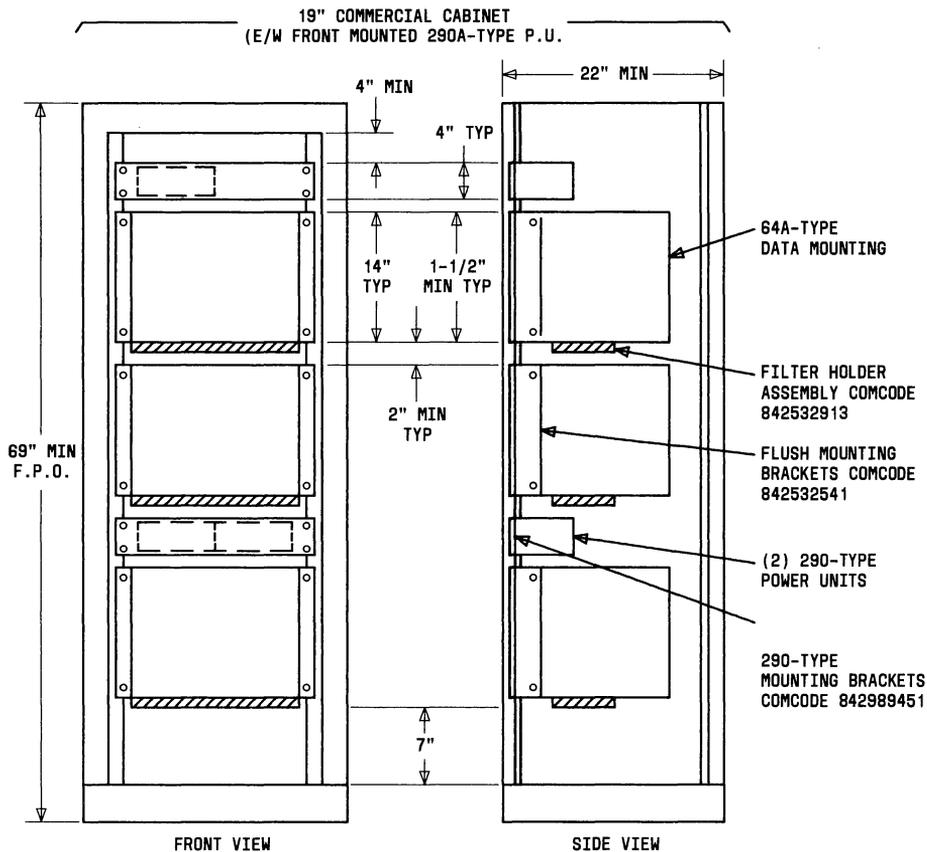


Fig. 15—Commercial Cabinet Equipped With 64A-Type Multiple Data Mounting

inches above the bottom of the mounting on each side in the threaded upright position of the cabinet or rack.

- Hook the oversized hole in the mounting bracket of the 64-type mounting onto this started screw and then insert the remaining mounting screws in position using the screw starter and making minor position changes if necessary. Mount the 290-type power unit to the 64-type data mounting if it is a 23-inch cabinet. Mount the 290-type power unit to a 842989451 mounting plate after the mounting

plate is mounted on the rack if it is a 19-inch cabinet (Fig. 14).

2.32 For ease of installation of the 64-type data mountings, the KS-20018, L11 cabinet may be placed **face up** or **face down** during installation. The screw starter and KS-19053, L1 screwdriver may be helpful in installing the data mounting.

2.33 The local mounting address must be installed in the data mounting. The mounting has a 5-position address switch (Fig. 12). This switch sets the group part of the local address. The data set position is prewired into the mounting. The local address to

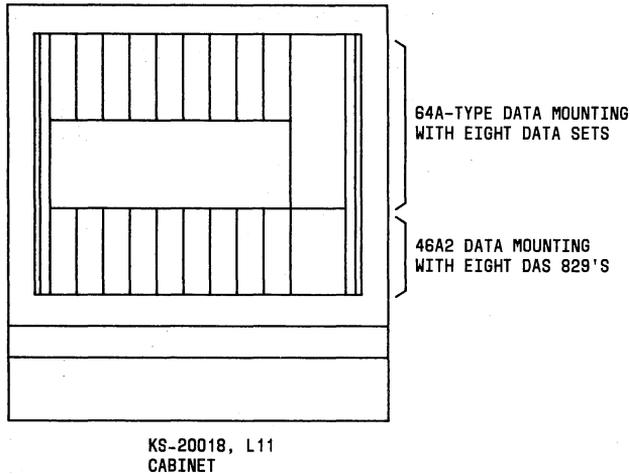


Fig. 16—One 64A-Type Multiple Data Mounting and One 46A2 Data Mounting Installed in a KS-20018, L11 Cabinet

be installed will be specified on the service order. Details for setting the switch are shown in Fig. 21.

Note: This address, circuit number, and trouble report telephone number may be written on the label furnished with each data set and then attached to the faceplate of each data set. A designation strip is also provided on the front cover of the 64-type mounting for line identification.

2.34 If the alarm circuit is to be used, connect station wire to the ALARM (ALM) terminals. The alarm circuit lead to which this is connected should draw less than 100 ma through the contact and should be noninductive; otherwise, a 458A diode or equivalent network is required in parallel with the contact.

2.35 Turn on the battery switch on the data set (Fig. 22) before installing the data set in the data mounting by depressing the rocker of the battery switch toward the white dot.

D. Data Sets

2.36 Be sure that the battery switch is on and the rise time option is selected. For RS-449 interface the switch must be in closed position and in open

position for RS-232-C interface. The type of interface will be specified on the service order. The rise time options switch is closed when rocker is down on the side adjacent to the numbers and open when down on the side opposite the numbers. For slow rise time, the switch must be in closed position, and in open position for fast rise time. Insert the data sets into the 64A-type data mountings. Ensure that all data sets are slid into place and are secured by the latch on the data set.

2.37 Route connector cables and customer equipment cables behind the cable retainer springs on each data mounting and route downward and out of the cabinet. Connect the power cord to the twist-lock connector on the 290A-type power unit. Connect the fan and data set cords to the 290A-type power unit if it is a 23-inch mounting. If it is a 19-inch mounting, connect using (comcode 842989469 and KS-16935, L30) extender cords.

Note: Care should be exercised when attaching the power cord of 64A-type mounting to the 290-type power unit. Be sure the polarized connectors are correctly positioned.

EXTENDED LOCATIONS

2.38 Extended service is necessary when two DS 2096As are used in a point-to-point multiplex

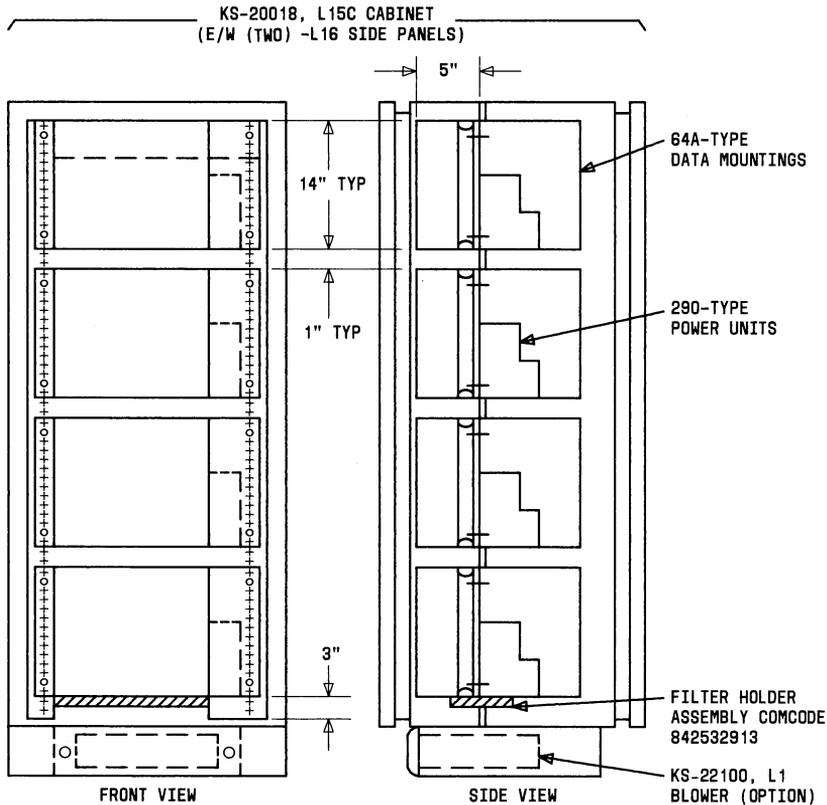


Fig. 17—Four 64A-Type Data Mountings in a KS-20018, L15C Cabinet

mode, with at least one of the multiplexed channels extended beyond the interface capability (RS-449—200 feet, RS-232-C—50 feet). The installation is the same as previously described; however, there are cable changes which are described in Part 3, Connections.

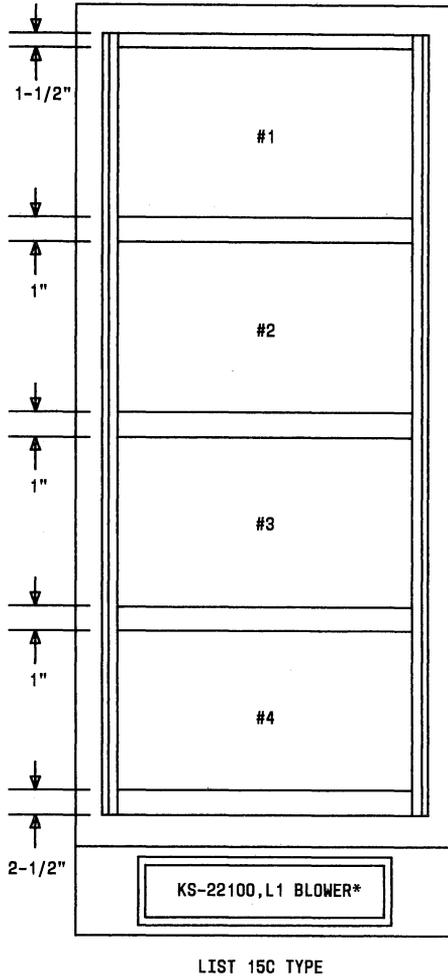
2.39 In an arrangement involving both multiple and stand-alone mountings, all stand-alone sets should be at the end of the daisy-chain to ensure proper operation of the common alarm and power failure bypass feature.

3. CONNECTIONS

STAND ALONE

3.01 The connection part of a typical installation requires minimum effort on part of the installer, since the connections consist of connecting the appropriate cables.

3.02 The external wiring of the data set with the mounting is shown in Fig. 2. The adapter (KS-22636, L1) for converting from a 37-pin customer interface to a 25-pin interface is also shown in Fig. 2. This adapter is supplied with data set.



POWER REQUIREMENTS (APPROX)

DS 2096C	
WATTS	AMPS
515	4.7
515	4.7
515	4.7
515	4.7
140	1.5
2200	20.3

*OPTIONAL

Fig. 18—64A-Type Data Mountings in a KS-20018, L15C Cabinet (Power and Current Requirements Shown)

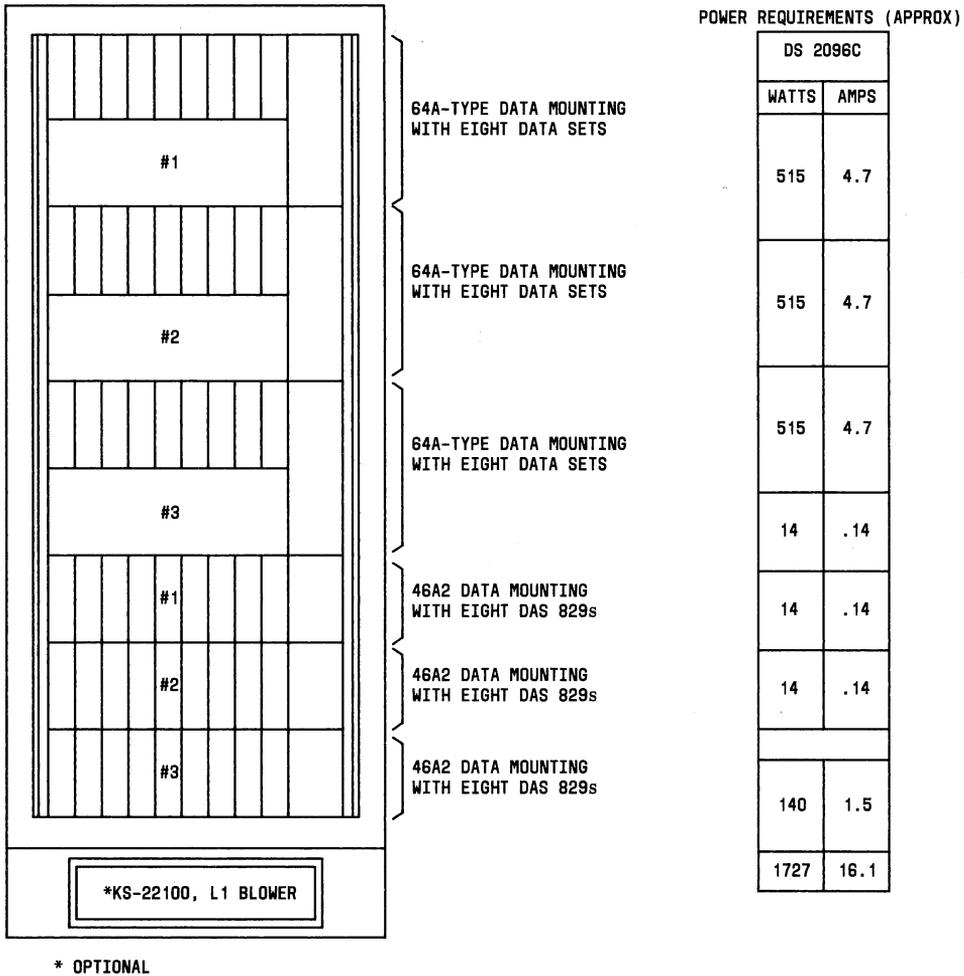


Fig. 19—Three 64A-Type Multiple Data Mountings and Three 46A2 Data Mountings Installed in a KS-20018, L15C Cabinet

3.03 Connections for the various types of service using private line data sets are shown in Fig. 23 and 24. The emphasis in these diagrams is on equipment interconnections at one location and not system configuration. The figures, numbers, and titles of the connection diagrams are shown below:

Fig. 23—Single Stand-Alone Data Set Connection Diagram

Fig. 24—More Than One Stand-Alone Data Set Connection Diagram.

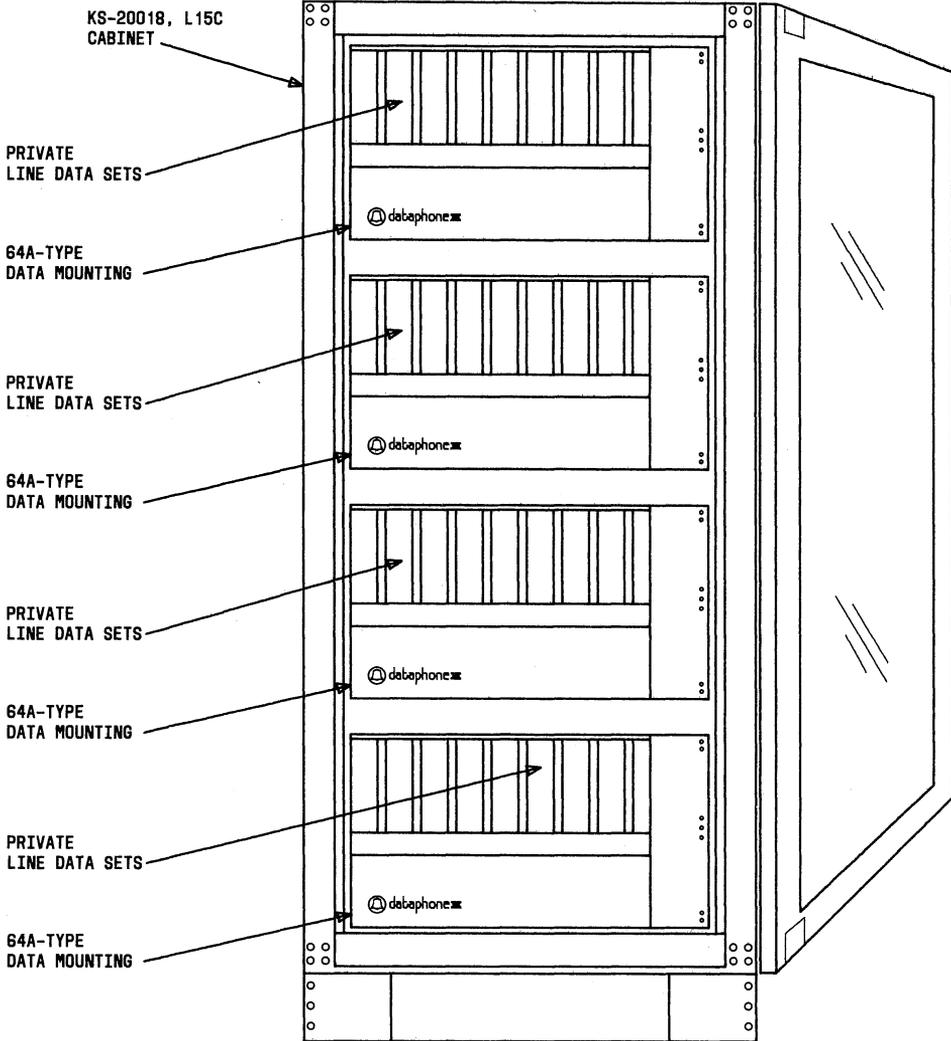


Fig. 20—Cabinet KS-20018, L15C Equipped With 32 Data Sets (Front Cover Open)

TABLE F

AIR FILTER OPTIONS FOR MULTIPLE INSTALLATIONS

CABINET	ENVIRONMENT		
	AIR CONDITIONING SYSTEM WITH ASSOCIATED FILTRATION (NOTE 1)	GENERAL OFFICE ENVIRONMENT (NOTE 2)	EQUIPMENT ROOM ENVIRONMENT (NOTE 3)
KS-20018, L11A	Not required	Filter holder assembly (comcode 842532913) for the 64A1 data mounting or filter holder assembly (comcode 842534448) for network controller	Filter holder assembly (comcode 842532913) for the 64A1 data mounting or filter holder assembly (comcode 842534448) for network controller
KS-20018, L15C	Not required	Filter holder assembly (comcode 842532913) for the 64A1 data mounting at the bottom	KS-22100, L1 blower with included air filter
Commercial Cabinets	Not required	Filter holder assembly (comcode 842532913) for each 64A1 data mounting and filter holder assembly (comcode 842534448) for the network controller	Filter holder assembly (comcode 842532913) for each 64A1 data mounting and filter holder assembly (comcode 842534448) for the network controller

Note 1: A location where filtered air can be supplied from a floor plenum to the cabinet containing the multiple installation.

Note 2: An office or work location which is routinely cleaned and regularly occupied by personnel.

Note 3: Customer designated location which is not routinely cleaned or frequently used by personnel and where 70 dBA noise levels are acceptable.

MULTIPLE

3.04 The connection part of a typical installation requires minimum effort by the installer. The connections consist of connecting the appropriate cables.

3.05 The recommended connections for the various types of multiple installations are shown in Fig. 25, 26, 27, and 28. The figure number and title of the typical multiple connection diagram is shown below:

Fig. 25—Private Line, Single Multiple Mounting

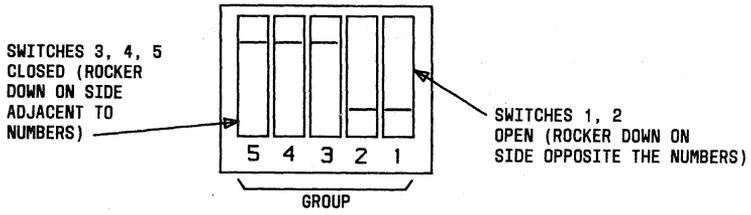
Fig. 26—Private Line, More Than One Multiple Mounting

Fig. 27—Private Line, Mixture of Stand-Alone and Multiple Mountings

Fig. 28—Private Line Mixture of Stand-Alone and Multiple Mountings to Illustrate Diagnostic Channel Connection (M9F and M9H Cords, Used in Extended Service Connections).

PRIVATE LINE POINT-TO-POINT CIRCUITS

3.06 Figure 29 and 30 show some examples of basic DATAPHONE II service using DSs 2096C. Figure 29 shows two DS 2096Cs, one at the control location and the other at the tributary location. Figure 30 shows the DS 2096Cs in a multipoint circuit. The EIA interface port speed for all DS 2096Cs in a multipoint network must be the same (9600, 7200 or 4800 bps).



	SW5	SW4	SW3	SW2	SW1
01	X	X	X	X	X
02	X	X	X	X	0
03	X	X	X	0	X
04	X	X	X	0	0
05	X	X	0	X	X
06	X	X	0	X	0
07	X	X	0	0	X
08	X	X	0	0	0
09	X	0	X	X	X
10	X	0	X	X	0
11	X	0	X	0	X
12	X	0	X	0	0
13	X	0	0	X	X
14	X	0	0	X	0
15	X	0	0	0	X
16	X	0	0	0	0
17	0	X	X	X	X
18	0	X	X	X	0
19	0	X	X	0	X
20	0	X	X	0	0
21	0	X	0	X	X
22	0	X	0	X	0
23	0	X	0	0	X
24	0	X	0	0	0
25	0	0	X	X	X
26	0	0	X	X	0
27	0	0	X	0	X
28	0	0	X	0	0
29	0	0	0	X	X
30	0	0	0	X	0
31	0	0	0	0	X
32	0	0	0	0	0

0 = OPEN
X = CLOSED

- NOTES:
1. POSITION NUMBER PREWIRED ON BACKPLANE.
 2. THE SWITCH SETTING SHOWN ABOVE IS 04 REPRESENTING GROUP PART OF LOCAL ADDRESS IN MULTIPLE MOUNTINGS.

Fig. 21—Multiple Mounting Local Address Switch

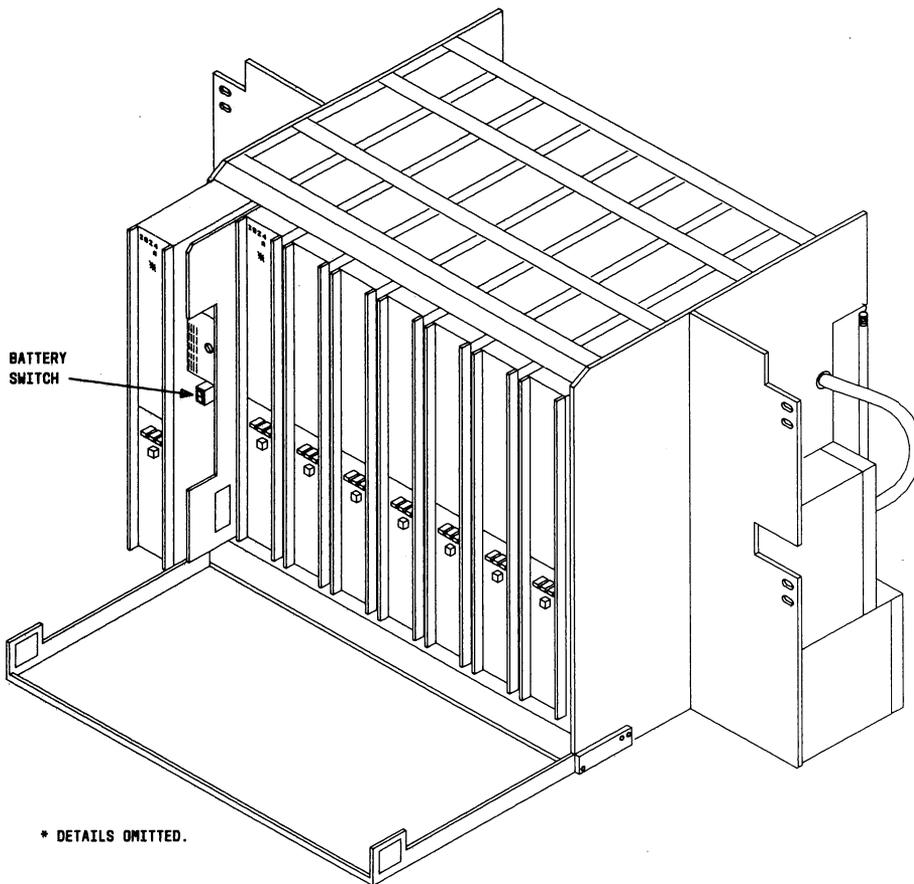


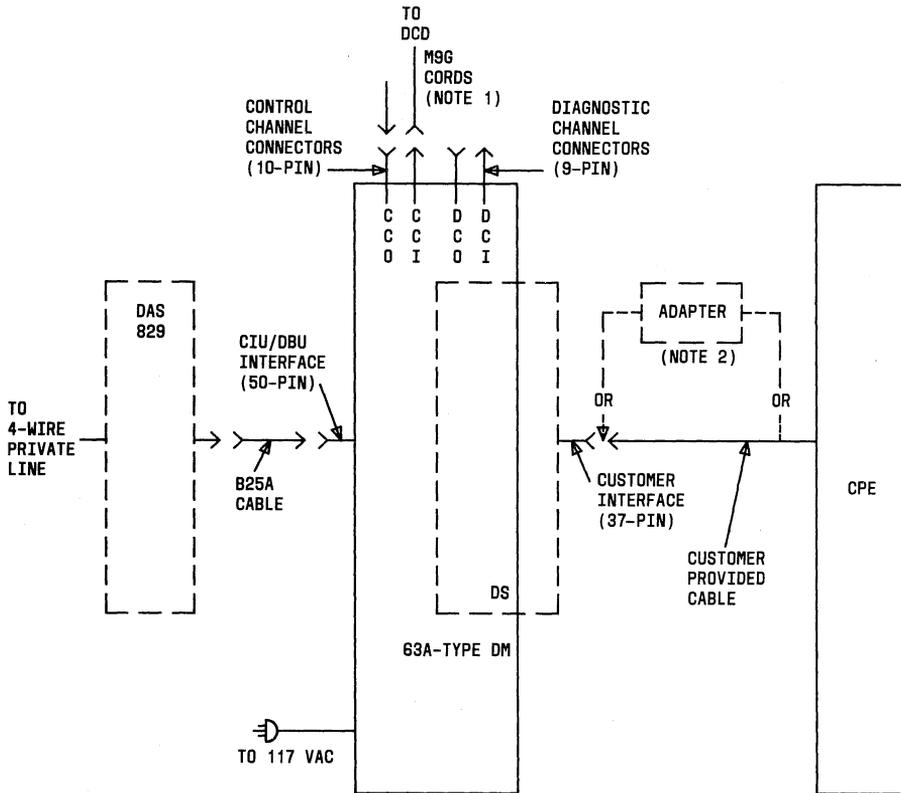
Fig. 22—64A-Type Multiple Data Mounting With Data Sets Installed (One Data Set Pulled out to Show Battery Switch Location)

EXTENDED LOCATIONS

3.07 Figure 31 shows an example of extended service circuits and a local terminal that are multiplexed over a 9600 bps data link (backbone channel) to a data terminal equipment (DTE). In this example, port speed of 2096C must be either 7200 or 4800 bps to correspond to the port speed of 2096A. The diagnostic connections in this circuit consist of a diagnostic control device (DCD) connected to the control channel (denoted by a dotted line) at the control loca-

tion and diagnostic channel interconnections (denoted by dashed lines) between colocated data sets at the extended location by M9G and M9H cords. These connections allow the diagnostic capabilities to be extended throughout the network.

3.08 Figure 32 shows an extended service where a line concentrator or multiplexer is employed. The line concentrator allows several data sets to bid for the channel of the DS 2096A. The network diagnostic system is able to extend around the concentra-



NOTES:

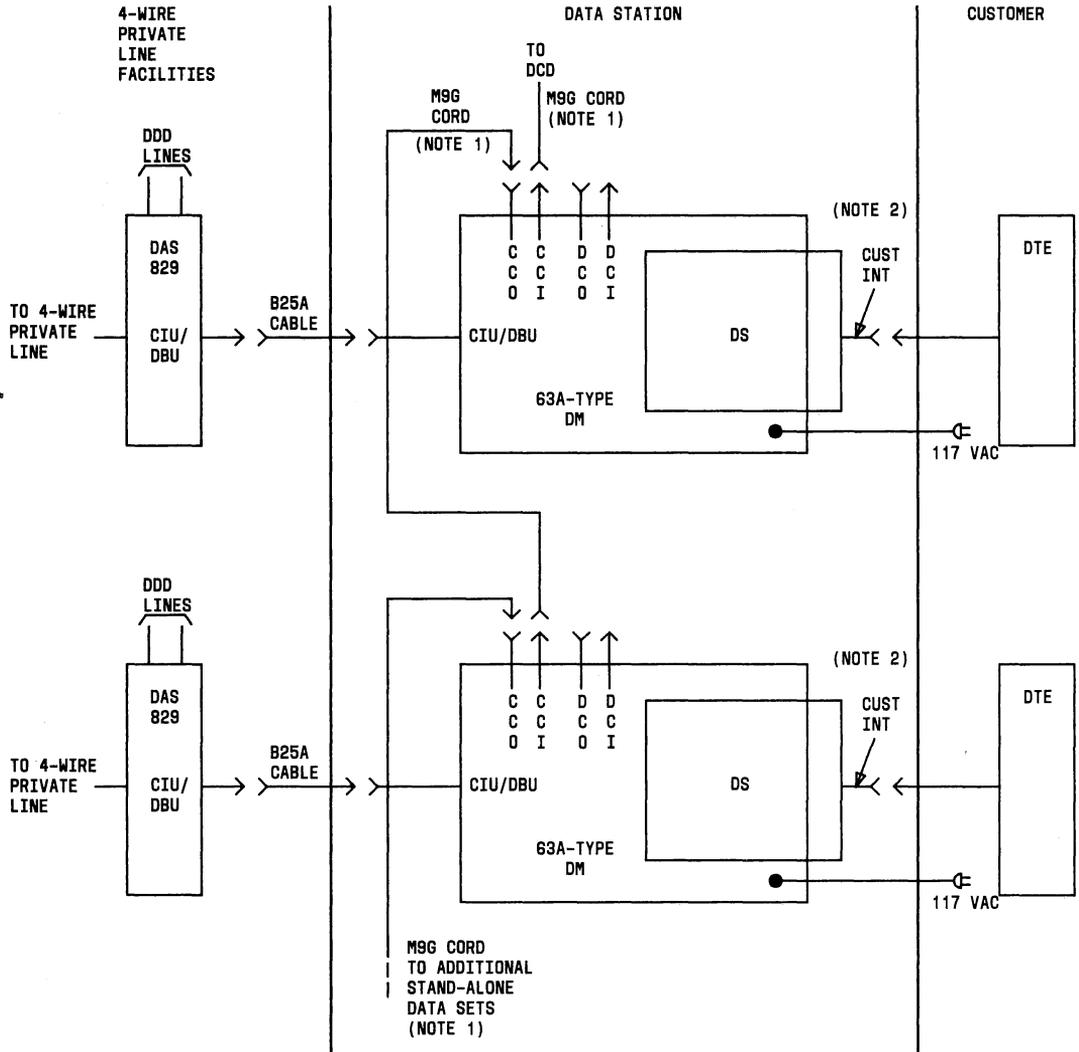
1. IF THE DISTANCE IS MORE THAN 30 FT., THE M9G CORD IS REPLACED BY THE M9L-87 CORD THAT ADAPTS THE CC-OUT CONNECTOR AND A B25A CABLE. THE M9M-87 CORD ADAPTS A B25A CABLE TO THE CC-IN CONNECTOR. THE MAX ALLOWABLE DISTANCE IS 400 FT.
2. THE 37-PIN TO 25-PIN KS-22636, L1 ADAPTER IS REQUIRED ONLY WHEN THE CPE HAS A 25-PIN INTERFACE.

Fig. 23—Single Stand-Alone Data Set Connection Diagram

tor from the backbone DS 2096A to the other data sets. This is done by interconnecting the diagnostic channels of all the data sets at the concentrator location in a daisy-chain. The diagnostic system can monitor and test all DATAPHONE II service components in this circuit. Note that the data channels are connected directly to the multiplexer. Extended service through a customer-provided or telephone company-

provided multiplexer (instead of a line concentrator) would be done in a similar fashion.

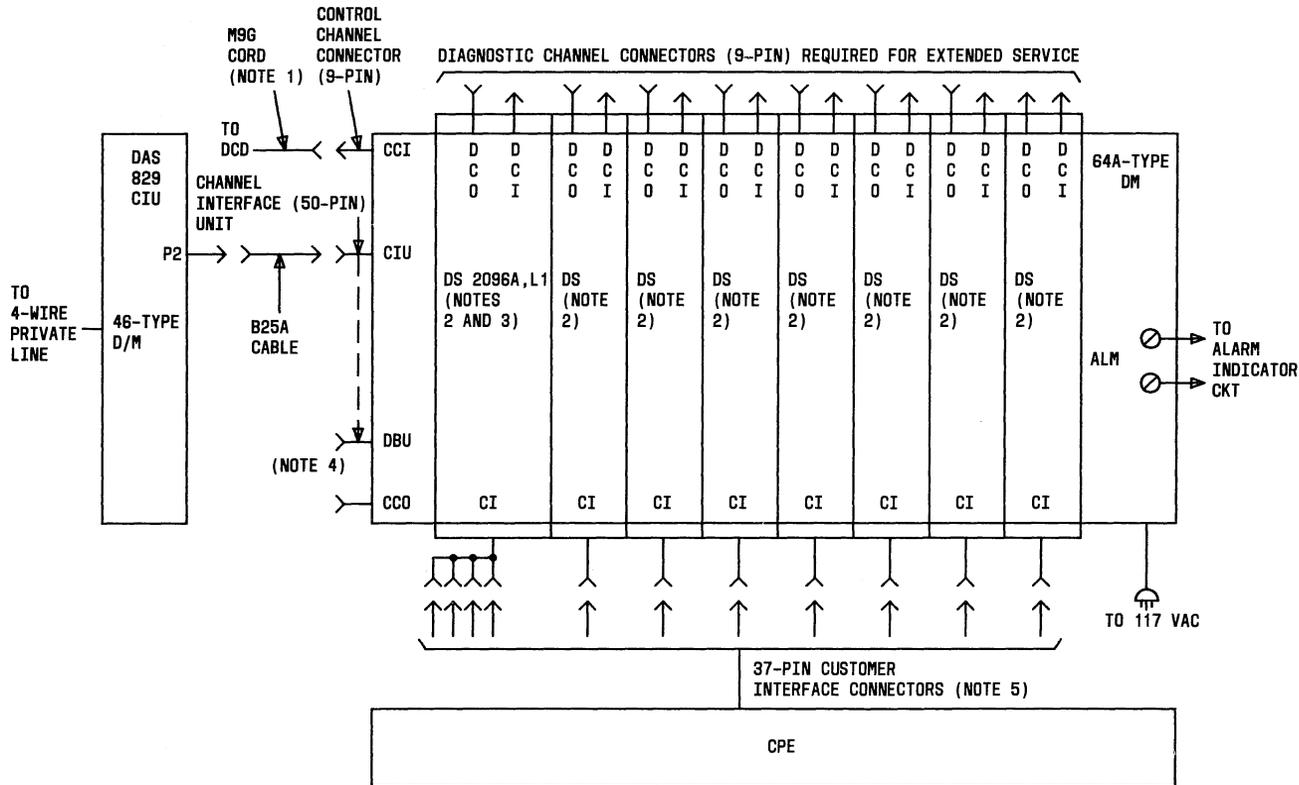
Note: Daisy-chain refers to a series connection of devices, each having a special pair of ports designated "in" and "out," for this purpose. The intermediate device uses both ports;



NOTES:

1. IF THE DISTANCE IS MORE THAN 30 FT., THE M9G CORD IS REPLACED BY THE M9L-87 CORD THAT ADAPTS THE CC-OUT CONNECTOR AND A B25A CABLE. THE M9M-87 CORD ADAPTS A B25A CABLE TO THE CC-IN CONNECTOR. MAX ALLOWABLE DISTANCE IS 400 FT.
2. ADAPTER KS-22636, L1 IS REQUIRED FOR 25-PIN INTERFACE.

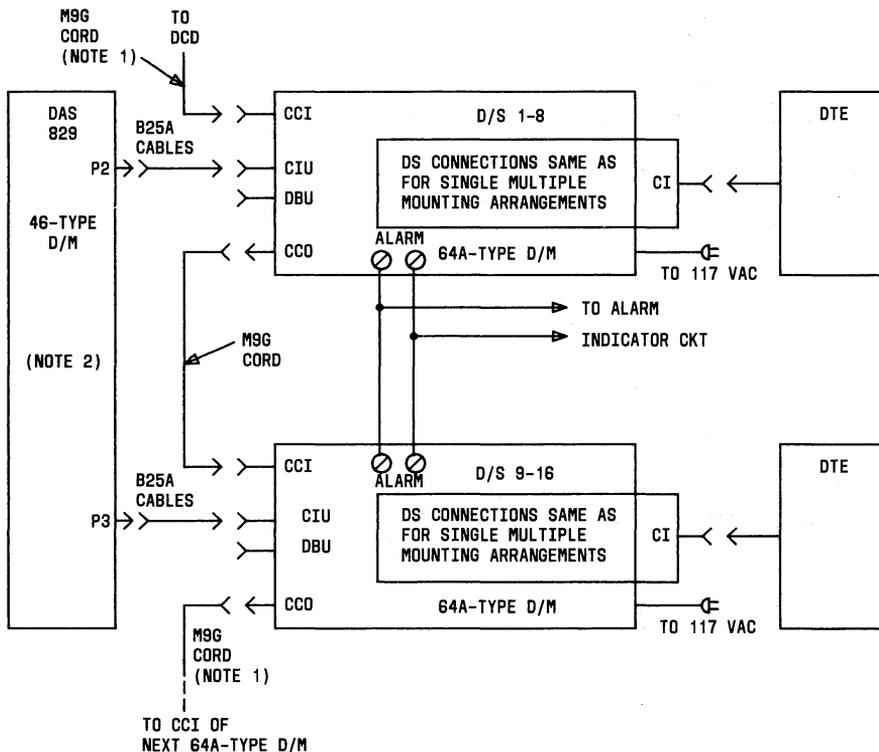
Fig. 24—More Than One Stand-Alone Data Set Connection Diagram



NOTES:

1. IF THE DISTANCE IS MORE THAN 30 FT., THE M9G CORD IS REPLACED BY THE M9L-87 CORD THAT ADAPTS THE CC-OUT CONNECTOR AND A B25A CABLE. THE M9M-87 CORD ADAPTS A B25A CABLE TO THE CC-IN CONNECTOR. THE MAX ALLOWABLE DISTANCE IS 400 FT.
2. DS CAN BE EITHER 2024A, LIST 1; 2048A OR C, LIST 1; 2096A OR C, LIST 1.
3. DS 2096A, L1 CAN REQUIRE UP TO 4 CUSTOMER CONNECTORS.
4. MANUAL DIAL BACK-UP IS AVAILABLE FOR MULTIPLE ARRANGEMENT ONLY.
5. USE 37-PIN TO 25-PIN KS-22636, L1 ADAPTER TO CONNECT TO 25-PIN CPE.

Fig. 25—Private Line, Single Multiple Mounting



NOTES:

1. IF THE DISTANCE IS MORE THAN 30 FT., THE M9G CORD IS REPLACED BY THE M9L-87 CORD THAT ADAPTS THE CC-OUT CONNECTOR AND A B25A CABLE. THE M9M-87 CORD ADAPTS A B25A CABLE TO THE CC-IN CONNECTOR. THE MAX ALLOWABLE DISTANCE IS 400 FT.
2. 46-TYPE DATA MOUNTING (D/M) CAN HANDLE UP TO 23 DATA SETS (1-8 ON P2, 9-16 ON P3 AND 17-23 ON P4). ADDITIONAL DATA SETS REQUIRE ADDITIONAL 46-TYPE DM(S), 48D1 D/U(S) AND TELEPHONE SET(S).

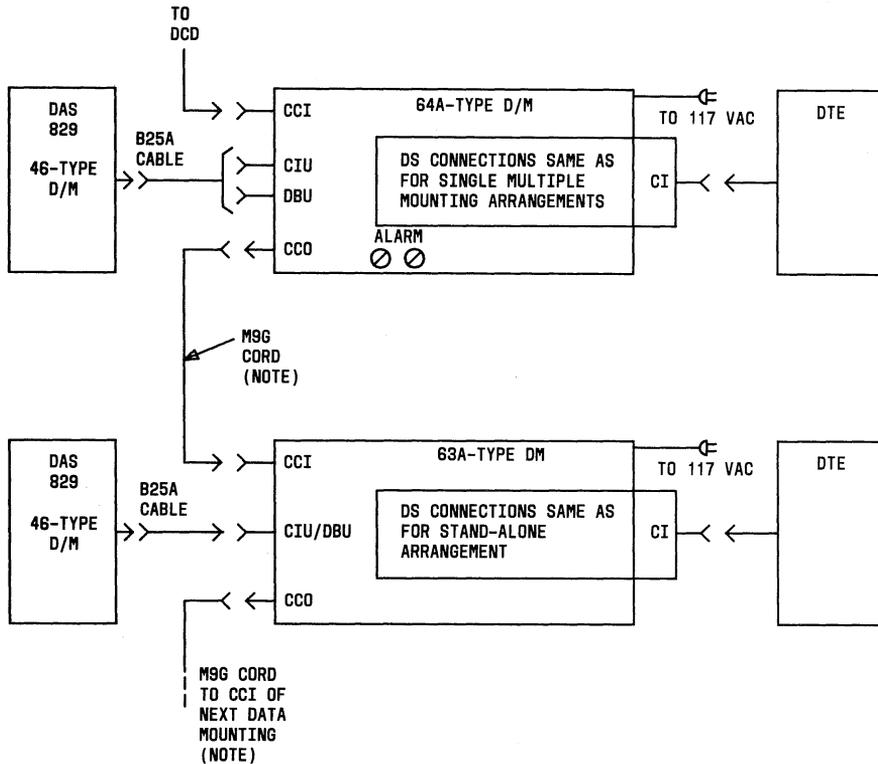
Fig. 26—Private Line, More Than One Multiple Mounting

whereas, a device at either end of the connection uses only one of the ports.

3.09 The M23E cord (Fig. 28) is used to connect the customer interface ports of a DS 2096A to another DATAPHONE II data set (up to four may be required). To extend the customer's diagnostics through the extended site, the diagnostic channel interfaces associated with each data set must be connected in a daisy-chain. An M9H cord is always used

to connect the DS 2096A diagnostic channel out (DCO) port to the first extended data set DCO port. Subsequent connections from diagnostic channel in (DCI) to DCO ports are made using M9F cords. These M9H and M9F cord connections form the daisy-chain.

3.10 Connection of the control channel (CC) to the data set mountings is via the CC-OUT connector. Connection of the control channel to a network



NOTE: IF THE DISTANCE IS MORE THAN 30 FT., THE M9G CORD IS REPLACED BY THE M9L-87 CORD THAT ADAPTS THE CC-OUT CONNECTOR AND A B25A CABLE. THE M9M-87 CORD ADAPTS A B25A CABLE TO THE CC-IN CONNECTOR. THE MAX ALLOWABLE DISTANCE IS 400 FT.

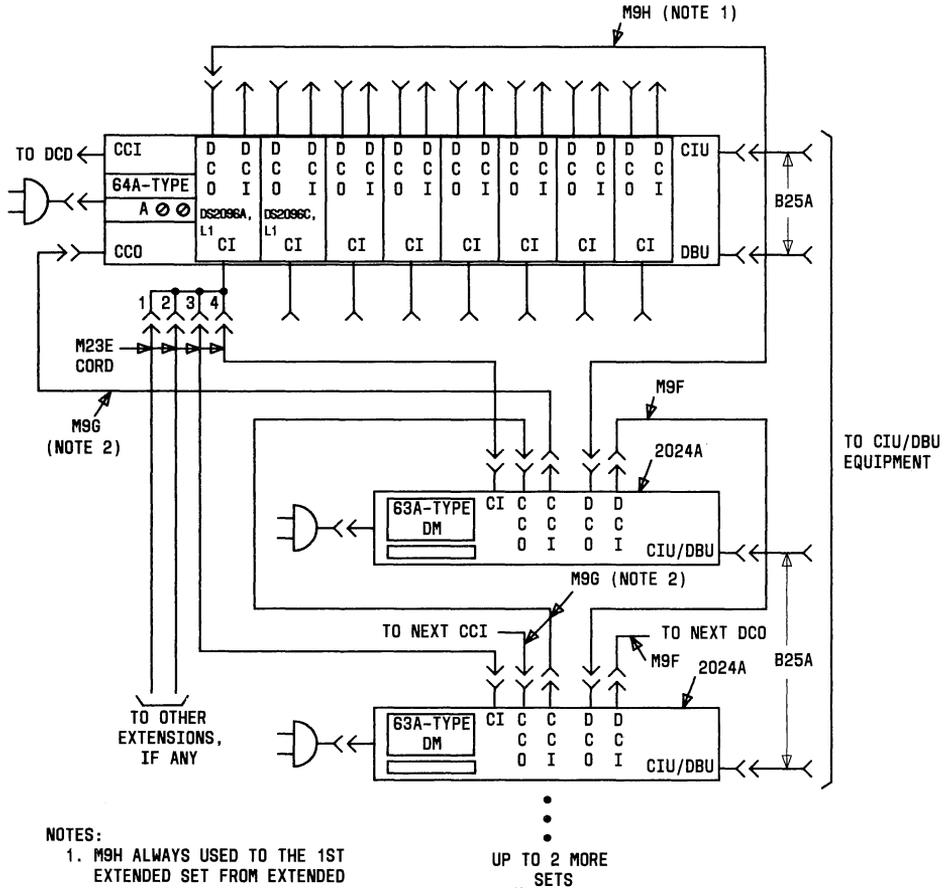
Fig. 27—Private Line Mixture of Stand-Alone and Multiple Mountings

controller or a second diagnostic console is via the CC-IN connector.

3.11 The control channel may be extended from the CC-OUT port to the data mounting's CC-IN port via a 1200-bps voiceband data link for remote access (Fig. 33). The data link may consist of DSs 212AR over dial-up facilities or DSs 202T over 4-wire private line facilities. Two especially coded cords, M4BA and M4BB, serve to connect the appropriate CC-OUT and CC-IN interfaces to the 1200-bps data sets.

4. OPTIONS

4.01 DATAPHONE II data sets have seven categories of options with each category having up to eight options. The A to J categories (not including F, H, or I categories) of options are installed and removed from the data set by operating the switches on the front panel. The data set interface rise time options are installed or removed by means of the rise time switch(s) on the data set. The categories are designated by letters A to J and the options by numbers



- NOTES:
1. M9H ALWAYS USED TO THE 1ST EXTENDED SET FROM EXTENDED CONTROL.
 2. IF THE DISTANCE IS MORE THAN 30 FT., THE M9G CORD IS REPLACED BY THE M9L-87 CORD THAT ADAPTS THE CC-OUT CONNECTOR AND A B25A CABLE. THE M9M-87 CORD ADAPTS A B25A CABLE TO THE CC-IN CONNECTOR. THE MAX ALLOWABLE DISTANCE IS 400 FT.

Fig. 28—Private Line Mixture of Stand-Alone and Multiple Mountings to Illustrate Diagnostic Channel Connections (M9F and M9H Cords) in Extended Service Configuration

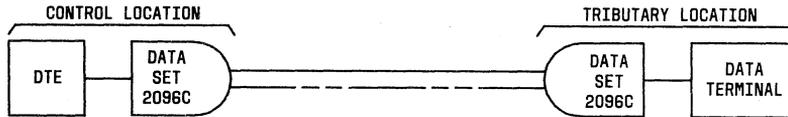


Fig. 29—Private Line Point-to-Point Circuit

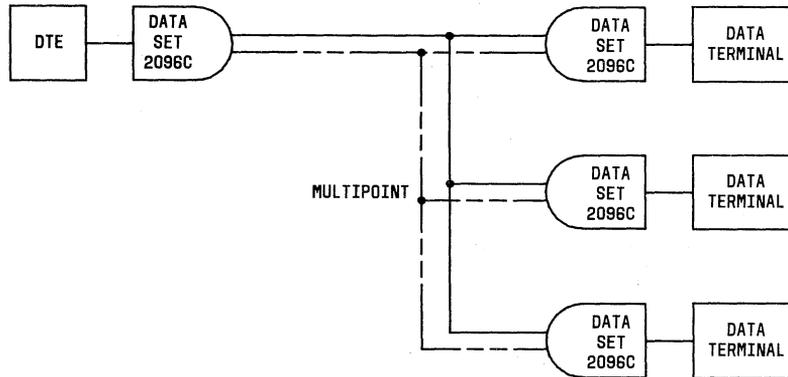


Fig. 30—Private Line Multipoint Circuit

from 1 to 8 within each category. Refer to Table G for data set options.

Note: A write-on block on the option label next to the option description permits the installer to mark the installed options in a given set.

4.02 The options are stored in a volatile memory which has a battery backup in case of power failure. Upon initial application of power or whenever the data set has power applied to it after having been totally without power, the default options will be automatically loaded into memory.

Note: Refer to Section 592-040-121 for a description of test and command menu and operation of data set.

4.03 The installer should verify that the rise time option called for on the service order is installed in the data sets prior to placing it in service. In DS 2096C, the rise time options are installed and

removed by means of a 4-position DIP switch in the vicinity of the backplane connector adjacent to the rise time option label on the data set cover plate. The switch is closed when the rocker is down on the side adjacent to the numbers and open when down on the side opposite the numbers. For RS-449 interface, four rockers must be in closed position, and all four rockers in open position for RS-232-C interface.

4.04 The data set options are installed by operating the front panel switches, as follows:

Place TEST/CMD switch in CMD position. Operate and hold the BWD/FWD switch in FWD position until MTCE appears on the display. Press EXEC button. The display will indicate MC/O. Press EXEC button and the display changes to MC/I. Operate and hold the BWD/FWD switch in FWD position until "CLOP" appears on the display, then release. Press EXEC button twice at more than 1-second intervals. This clears the options and moves to the CHOP command. The display blanks for a second and then CH** will appear with ** flashing on the display. Operate

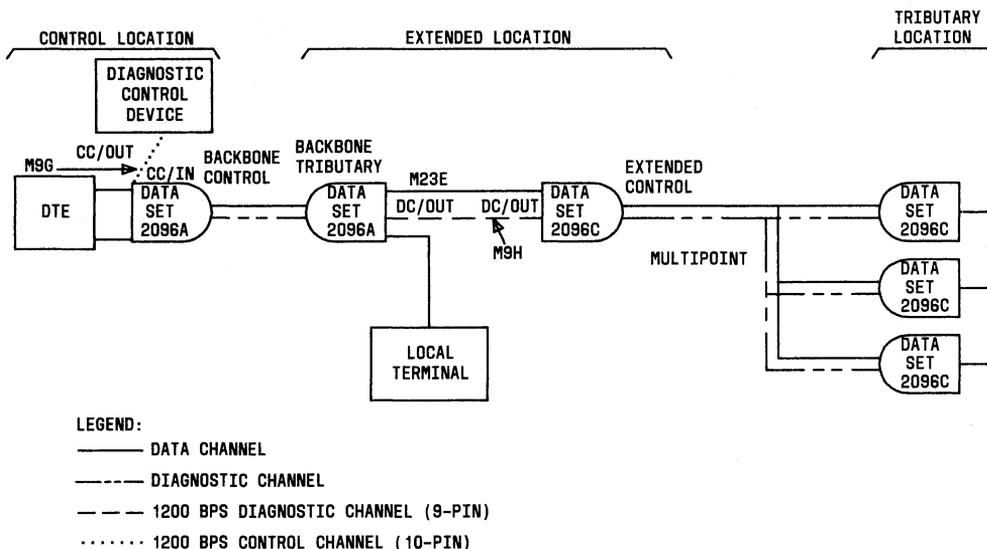


Fig. 31 — Extended Service Example

and hold the -/+ switch to either position. The display will show the designation of each data set option, one at a time. To install any available option (eg, A3), release the -/+ switch when the desired option (A3) is displayed. Depress EXEC button. The display changes to ✓ A3 indicating the option is installed. (If EXEC button is depressed again, the display changes to A3 indicating that the option has been removed.) Repeat this for each option to be installed. After all desired options are installed, operate and hold the BWD/FWD switch until MTCE appears on the display. Press EXEC button and the display indicates MC/I. Press EXEC button and the display indicates

MC/O. Place the TEST/CMD switch in normal position and the display returns to normal indication.

Note: If the TEST/CMD switch is returned to normal position, without any option installed, the data set will automatically install a set of default options.

4.05 Refer to Table G for data set options, Table H for customer application and suffix, and Table I for options and applications.

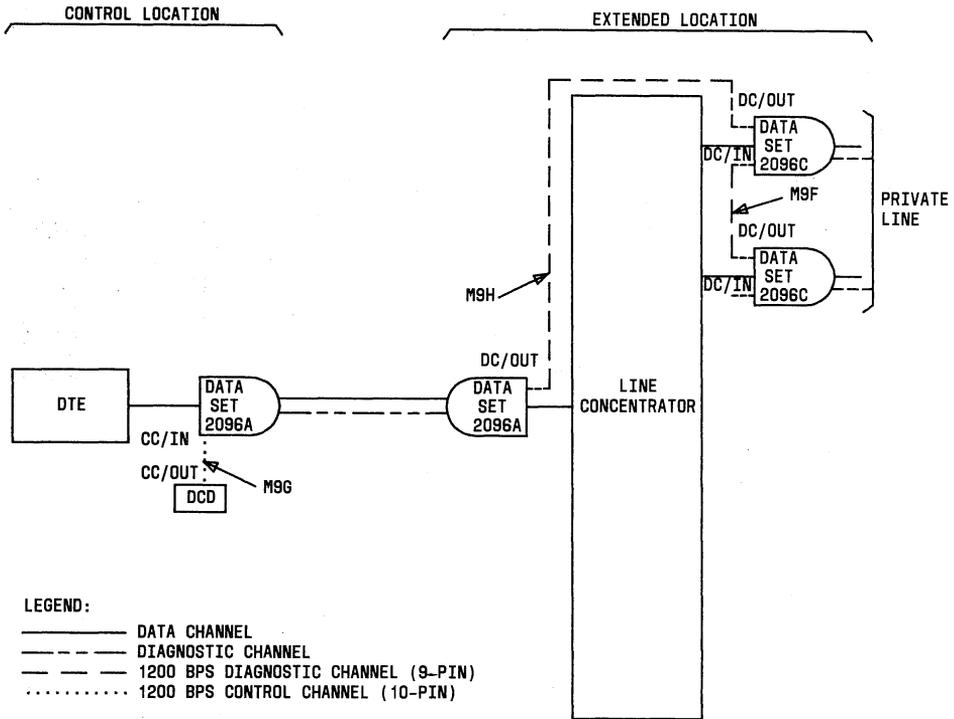


Fig. 32—Extended Service With Line Concentrator

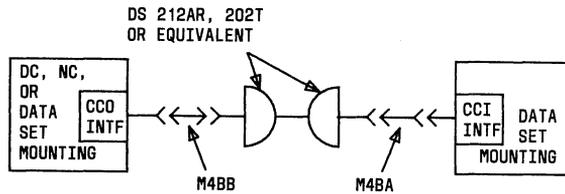


Fig. 33—DCD - Other Special Purpose Connection

TABLE G
DATA SET OPTIONS

OPTION DESIG	OPTION NAME	2096C DATA SET OPTIONS	REMARKS
A3	Category A-Service Offerings Multipoint Control	√	
A4	Multipoint Tributary or Extended Multipoint Tributary	*	
B1	Category B-Timing Control Internal Timing	*	Mutually Exclusive
B2	Slaved Timing	√	
B3	External Timing	√	
C1	Category C-Carrier Control Continuous Carrier, Switched RS	√	Mutually Exclusive
C5	Continuous Carrier, Continuous RS	√	
C6	Switched Carrier, Switched RS	*	
D1	Category D-Interface Control DM off in Analog Loop	√	
D2	Received Data Not Clamped in Modem Test	√	
D3	Signaling Rate Selector (SR) Used	√	
D4	Antistream Timer - 3 seconds	√	
D5	Antistream Timer - 9 seconds	√	
D6	Antistream Timer - 27 seconds	√	
D7	Data Auxiliary Set or TEK Leads Not Used†	√	
D8	Disable Receive Signal Quality for Facility Health Monitor	√	
E1	Category E - Miscellaneous Options Quick Start-Up	‡	
E2	One-second Holdover Out	*	
E5	Maximum Address - 16	√	
E7	Disable Secondary Channel	√	
E8	Disable Receive Signal Level for Facility Health Monitor	√	
	Category G - Additional Service Offerings		
G6	Extended Multipoint Control	√	

TABLE G (Contd)
DATA SET OPTIONS

OPTION DESIG	OPTION NAME	2096C DATA SET OPTIONS	REMARKS
J1	Category J - Inteface Control for Port Identification Extended Service Addressing	√	
LA	Interface Rise Time Options RS-449 Rise Time	√	
SA	RS-232 Rise Time	§	

√ Available option.

* Default option, and available option.

† Provided only when TEK leads or 829-type
CIUS are not present

‡ Permanently installed

§ Factory installed

TABLE H
DS 2096C CUSTOMER APPLICATIONS
AND SUFFIX TABLE

CONFIGURATION	APPLICATION SUFFIX
Private Line Multipoint Control Tributary	CA DA
Extended Service Multipoint Control Tributary	CE DE

TABLE I
2096C DATA SET OPTIONS AND APPLICATIONS

	CA	DA	CE	DE
A3 Multipt Control	√	*	*	*
A4 Multipt Tributary	*	√	*	√
B1 Internal Timing	√	√		√
B2 Slaved Timing	*			
B3 External Timing			√	
C1 Confs Carr Swd RS		*		
C5 Confs Carr Confs RS	√	*	√	
C6 Switched Carrier		√	*	√
D1 DM Off in AL				
D2 RD Not Cmpld in ST				
D3 SR Used				
D4 Antisteam 3 Sec	*		*	
D5 Antisteam 9 Sec	*		*	
D6 Antisteam 27 Sec	*	√	*	√
D7 DAS Not Used †				
D8 Disable RSQ-Fac Hlth				
E1 Quick Start-up				
E2 1 Sec Holdover Out	√		√	
E5 Max Address 16	√		√	
E7 Disable Sec Channel				
E8 Disable RSL-Fac Hlth				
G6 Extnd Multipt Contr	*	*	√	*
J1 Extnd Svc Adrsg	*	*	√	*
LA RS-449 Rise Time				
SA RS-232 Rise Time	√	√	√	√

√ Available option

* Not Applicable

† Install only when TEK leads or 829-type CIUs are not used.

5. REFERENCES

5.01 Additional information concerning private line data sets is contained in the following Bell System Practices:

SECTION	TITLE	SECTION	TITLE
		592-102-100	2200A Data Control Unit (Network Controller) — Description and Operation—DATAPHONE® II Service
590-010-200	Data Sets and Data Access Arrangements—General Installation and Connection Information	592-102-101	2200A-L1A Data Control Unit (Network Controller)—Description and Operation—DATAPHONE® II Service
590-010-201	Data Sets—Multiple Installation Information	592-102-200	2200A Data Control Unit (Network Controller)—Installation and Connections—DATAPHONE® II Service
592-040-120	Private Line Data Set 2024, 2048 and 2096 — Stand Alone — Multiple — Description and Operation — DATAPHONE® II Service	592-102-201	2200A-L1A Data Control Unit (Network Controller)—Installation and Connections—DATAPHONE® II Service
592-040-121	Private Line Data Set 2096C—Stand Alone — Multiple—Description and Operation — DATAPHONE® II Service	592-102-500	2200A Data Control Unit—(Network Controller)—Test Procedures — DATAPHONE® II Service
592-040-220	Data Set 2024A, 2048A and C, and 2096A Private Line — Stand Alone — Multiple—Installation and Connections	592-102-501	2200A-L1A Data Control Unit (Network Controller)—Test Procedures— DATAPHONE® II Service
592-040-520	Private Line Data Set 2024, 2048, and 2096 —Stand Alone — Multiple — Test Procedures — DATAPHONE® II Service	598-082-100	Data Auxiliary Set 829-Type—Channel Interface Units—Voiceband Private Line Channel—Description
592-040-521	Private Line Data Set 2096C—DATAPHONE® II Service	598-082-200	Data Auxiliary Set 829-Type—Channel Interface Units—Voiceband Private Line Channels—Installation and Connections
592-101-100	2100A Data Control Unit (Diagnostic Console)—Description and Operation—DATAPHONE® II Service	598-082-500	Data Auxiliary Set 829-Type—Channel Interface Units—Voiceband Private Line Channels—Maintenance and Test Procedures
592-101-200	2100A Data Control Unit (Diagnostic Console)—Installation and Connections — DATAPHONE® II Service		
592-101-500	2100A Data Control Unit (Diagnostic Console)—Test Procedures— DATAPHONE® II Service		