DATA SETS 108A- AND C-TYPES MULTIPLE PRIVATE LINE STATION ARRANGEMENT USING DATA AUXILIARY SET 820E-TYPE INSTALLATION AND CONNECTIONS

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1. GENERAL

1.01 This section describes the procedures to be followed to install and connect data set 108A- or 108C-type multiple private line station arrangement using data auxiliary set (DAS) 820E-type. In this section, data sets 108A- and C-types will be referred to as data sets 108A and C.

1.02 The data set 108A and C multiple private line station arrangement using DAS 820E-type may be housed in a KS-20018-L1, -L2, -L3, -L4 or -L7, or equivalent, or any mounting rack arrangement that will accept the 23- or 25-inch apparatus mounting. The cabinets should be installed on customer premises in accordance with the section entitled Data Sets—Multiple Installation Information (590-010-201).

Note: The KS-20018-L7 cabinet is similar to the KS-20018-L4 cabinet except that the L7 cabinet is deeper. Since the L7 cabinet can be used in place of the L4 cabinet, all information pertaining to the L4 cabinet also applies to the L7 cabinet.

1.03 The installation procedure (Part 2) in this section is to be used in the event cabinets are not equipped with the data sets or AR17 CP when received from the distributing house.

1.04 Present station configurations require the utilization of DAS 820E2 (Fig. 1) in KS-20018-type cabinets (Fig. 2). DAS 820E1 may also be mounted in the KS-20018-type cabinets. The installation of DAS 820E1 is similar to that of DAS 820E2.

1.05 In addition to regular installation tools, installation of DAS 820E-type in KS-20018-L1 through -L4 cabinets will require a KS-19053-L1 screwdriver, or equivalent. A portable station test set TTS-28, or equivalent, is also required.

2. INSTALLATION

2.01 Table A lists the apparatus required for installing and connecting the data sets and data auxiliary sets.

2.02 After positioning the KS-20018-type cabinet on the customer premises, remove the front and rear panels (Fig. 2) by applying outward

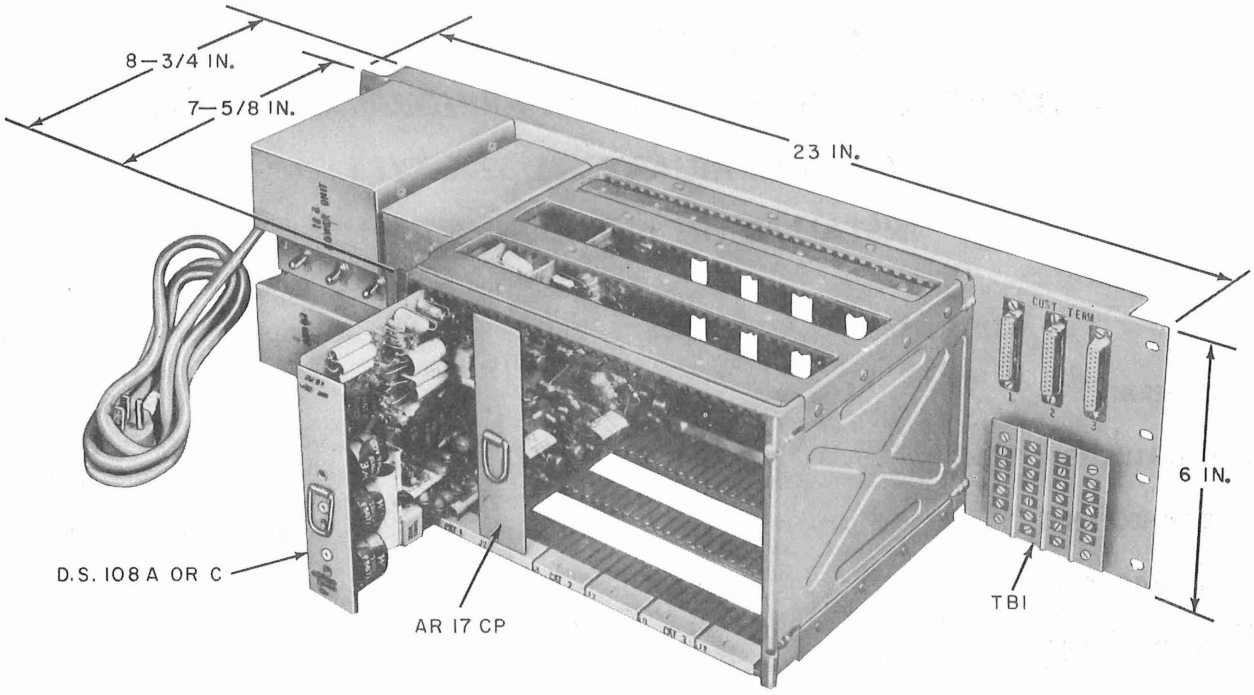


Fig. 1—Data Set 108A- or C-type and Associated Data Auxiliary Set 820E2-Type

pressure on the top of the panels until the catches disengage. Lift the panels up and away from the brackets while holding the bottom of the panel in position; then remove the front and rear access port covers by pulling them straight up.

2.03 Mount DAS 820E-type with the screws provided in the cabinet. Figures 3 and 4 provide examples of mounting arrangements in the various cabinets.

Note: DAS 820E-type should be mounted on the rear channel bracket (through the rear of the cabinet) to provide enough clearance to replace the front panel.

2.04 For KS-20018-L4 cabinets, mount a 590B panel in the top of the cabinet (Fig. 4).

2.05 Insert data set 108A or C into the proper mounting positions of DAS 820E-type (Fig. 1).

Note: Ensure that a good connection is made between the data set and DAS 820E-type by using sufficient force when pushing the data set into position.

2.06 Insert AR17 CP into the proper mounting positions of DAS 820E-type (Fig. 1).

3. CONNECTIONS

3.01 Due to the many different combinations and possible configurations for partially equipped cabinets, only general instructions are given on the installation of the incoming telephone lines.

A. DAS 820E2

3.02 The incoming telephone lines for the KS-20018-type installations should be run through the front access port of the cabinets and connected to terminal board (TB) 1 in accordance with Fig. 5. It is recommended that these telephone lines be tagged for future references. Connections to TB1 should be made after completion of the data set level adjustments given in Part 5 of this section.

Warning: To prevent injury to the telephone company employee and possible damage to the electrical components of the installation, ensure that all power switches

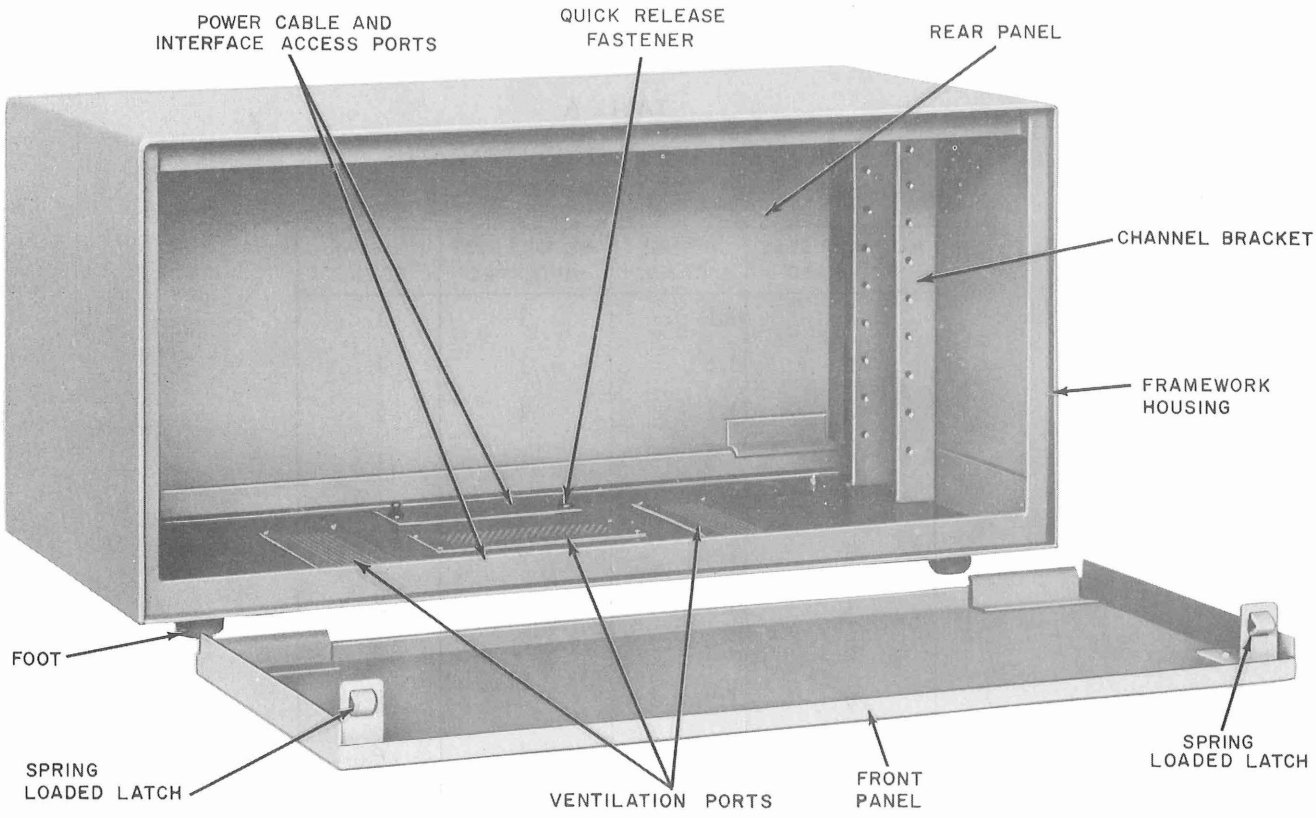


Fig. 2—KS-20018-L1 Cabinet Front View

on DAS 820E2 are in the OFF position before connecting power to the station.

3.03 Connect the ac power to DAS 820E2 in the following manner.

(a) When either a KS-20018-L1 or -L2 cabinet is used, the ac power cord of DAS 820E2 must be run out the rear access port of the cabinet and connected to the ac wall receptacle provided by the customer.

(b) When either a KS-20018-L3 or -L4 cabinet is used, connect the KS-14532-L16 power cord (provided with the 590B panel) to the single inlet on the 590B panel and run the cord out of the cabinet through the rear access port. Connect the cord to the ac wall receptacle provided by the customer. Connect the ac power cord of each DAS 820E2 to an outlet on the 590B panel.

3.04 Typical connections between the 6041G keysets and TB1 of DAS 820E2 are shown in Fig. 6. Refer to Table A, Fig. 4, and Fig. 6 for information on connections and arrangements when locally engineering this installation. The following steps outline the procedures necessary to complete a typical installation.

(1) Remove 6041G keyset cover by loosening the two screws located on top of the cover and lifting the cover straight up.

(2) Remove plastic key strip by lifting straight up.

(3) Modify the keyset by strapping the following terminals:

- LG to 1R
- LG to 2R
- LG to 3R

TABLE A

MULTIPLE DATA STATION APPARATUS
REQUIREMENTS PER REQUIRED DATA SETS

NO. DATA SETS REQUIRED	CABINET LIST NO.	NO. DAS 820E REQUIRED	NO. 6041 KEYS
1	L1	1	1
2	L1	1	1
3	L1	1	1
4	L2	2	1
5	L2	2	1
6	L2	2	2
7	L3	3	2
8	L3	3	2
9	L3	3	2
10	L4 or L7	4	2
11	L4 or L7	4	3
12	L4 or L7	4	3

Note: 590B panel required with L3 and L4 (L7) cabinets.

- LG to 4R
- LG to 5R
- Remove red wire from terminal ER and connect to terminal ET.

(4) When more than one DAS 820E2 is provided, strap terminal 1 of TB1 on the number 1 DAS 820E2 to terminal 1 of TB1 on each succeeding DAS 820E2 to provide the required ground connections.

(5) Make the connections indicated in Fig. 6.

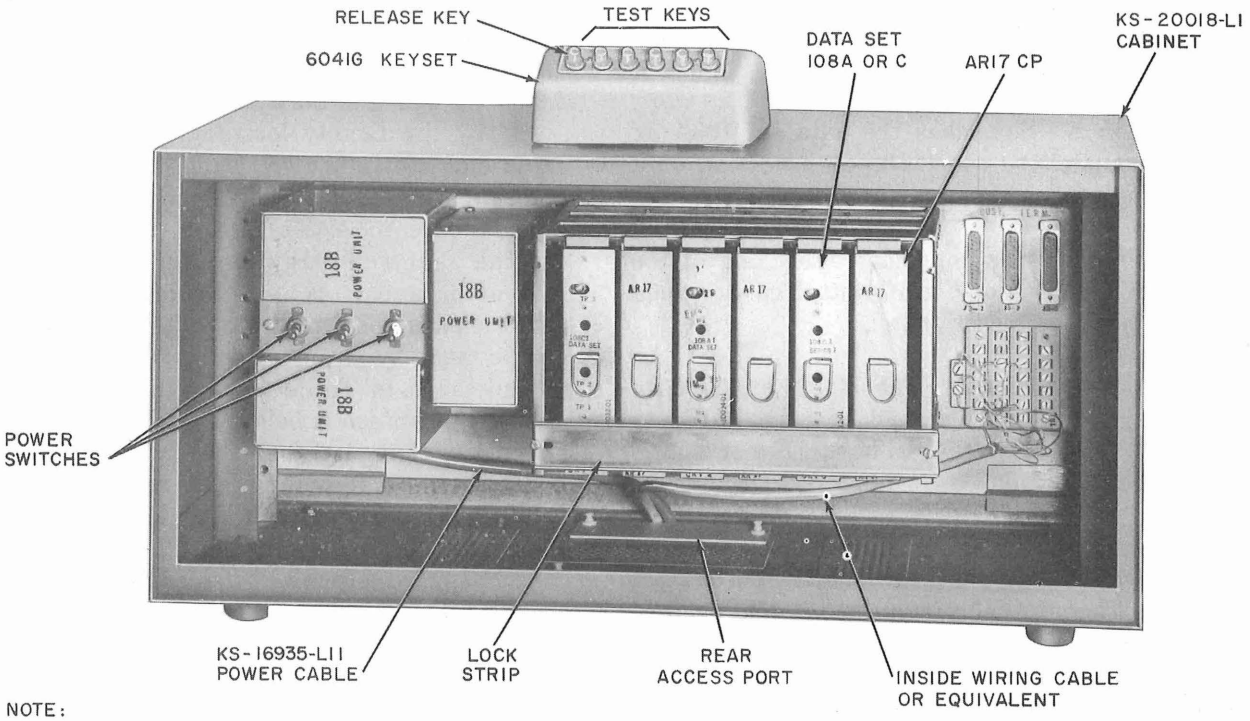
Note: A strain relief, such as an inside wiring cable clamp, should be provided on each end of the cable.

B. DAS 820E1

3.05 The connections for DAS 820E1 are the same as those for the DAS 820E2 except the DAS 820E1 contains three KS-19088-L2 connectors instead of a TB1 (DAS 820E2). DAS 820E1 also has different pin numbers when using the 6041G keyset as a means of putting the data auxiliary set into the test mode. Figure 7 provides connecting information (using M25A-61 double-ended cords) for the data sets 108A and C when used with DAS 820E1.

4. OPTIONS

4.01 The options for each data set are selected by adjusting screw switches located on AR17 CP (Fig. 8). An option is installed or removed by tightening or loosening the screws, respectively.



NOTE:
POWER SWITCHES AND CUST TERM. JACKS ARE ASSOCIATED WITH DATA SETS 1-3 FROM LEFT TO RIGHT RESPECTIVELY.

Fig. 3—Data Auxiliary Set 820E2 and 6041G Keyset Mounted in a KS-20018-L1 Cabinet

Note: When tightening screws, exercise care to avoid stripping the threads in the plastic mounting strip; however, verify that the screwhead makes contact with both sides of the terminal contacts.

4.02 Remove AR17 CP from the DAS by loosening the two screws holding the lockstrip (card retaining bar) to the apparatus mounting. Completely remove one of the screws and slide lockstrip from beneath remaining screw to remove lockstrip. Use extracting handle to remove the AR17 CP.

4.03 Select options specified on the service order and/or work sheet from Table B. Table B indicates the action required to install each option. The 108A and C multiple private line station options are defined and keyed to Table B as follows:

- Option W—Arranges the interface toward the data terminal for EIA voltage interface operation.

- Option V—Arranges the interface toward the data terminal for current interface operation.

- Option T—Causes data which is being looped around through the data set (in test mode) to also be sent to the receive lead of the data terminal.

- Option S—Keeps the looped-around signals from reaching the receive lead of the data terminal.

- Option R—Allows the customer to monitor the transmitted data lead via the received data lead.

- Option Q—Does not allow the customer to monitor the transmitted data lead via the received data lead.

- Option N—Applies a constant mark signal to the data terminal receive data lead upon receipt of a carrier fail. This option may be used when the data station is arranged for EIA interface.

- Option M—Applies a constant space signal to the data terminal receive data lead upon receipt of carrier fail. This option may be

used when the data station is arranged for current interface.

- Option K—Squelches the data set 108A or C transmitted carrier upon detection of a carrier fail.

- Option J—Does not allow squelching of the data set 108A or C transmitted carrier upon detection of a carrier fail.

4.04 The X option is for DAS 820E2 and is used to tie the signal ground of DAS 820E2 to the chassis ground of the cabinet. The X option is installed in the following manner.

Note: It is suggested that the X option be installed in only one DAS 820E2 of a cabinet when the option is required. When more than one DAS 820E2 is mounted in a cabinet, strap terminal 1 of TB1 on the first DAS 820E2 to terminal 1 of TB1 on all other data auxiliary sets mounted in the cabinet.

(a) Connect one end of a sufficient-sized wire to terminal 1 of TB1 on DAS 820E2.

(b) Connect the other end of the wire to a convenient mounting screw which mounts DAS 820E2 to the chassis frame of the cabinet.

Note: This connection should be made in accordance with local telephone company procedures.

4.05 Install the required options and replace the AR17 CP in the DAS (J2 position).

5. PREOPERATIVE ADJUSTMENTS AND TESTS

Desensitizing Pad Adjustment

5.01 Screw switch D (Fig. 9) on data set 108A or C will be closed to provide maximum sensitivity (maximum gain of the receive buffer amplifier) during tests. The gain of the amplifier may be reduced in two 4-db steps and should be adjusted to fit the requirements of each installation. Table C shows the gain setting for each screw switch setting. The screw switches should be set according to the service order or circuit layout record card.

Hybrid Network Strapping

5.02 Strapping of the hybrid network is determined by the facility loop impedance. When the cable makeup is known, Table D can be used to determine the typical loop impedance. When the impedance can be determined, refer to Table E for the required strapping for optimum trans-hybrid balance. When the impedance is ***not*** determined, a good compromise for most applications can be made by strapping for a 900-ohm impedance as indicated in Table E. If the receive signal level at the station is below −30 dBm with 900-ohm strapping, change the strapping and desensitizing pad adjustment to optimize the receive signal level per Table E. Refer to Fig. 9 for the location of the adjustment and strap.

Note: The location of straps E-F and A-B are identical for data set 108A and C, respectively. Upon completion of hybrid network strapping, plug data set 108-type into the DAS. ***Do not turn on power switch for data set.***

5.03 Repeat 5.01 and 5.02 for all data sets installed in the cabinet.

Data Set Level Adjustment

The private line facility connections must be disconnected for data set level adjustment.

5.04 Connect the + and − terminals of portable station test set TTS-28 to TP1 and TP2 of the data set (Fig. 9). Set FUNCTION switch of TTS-28 to DBM 900Ω TERM 0 position. Set power switch of DAS 820E-type associated with data set to ON (Fig. 3). Adjust R11 potentiometer on data set for output level specified on service order and/or work sheet.

5.05 Repeat data set level adjustment for other data sets associated with the same cabinet before connecting the CPTs.

5.06 Connect customer interface cords to the respective CUST TERM. connector of DAS 820E2. Connect the tagged private line facilities to TB1 as shown in Fig. 5.

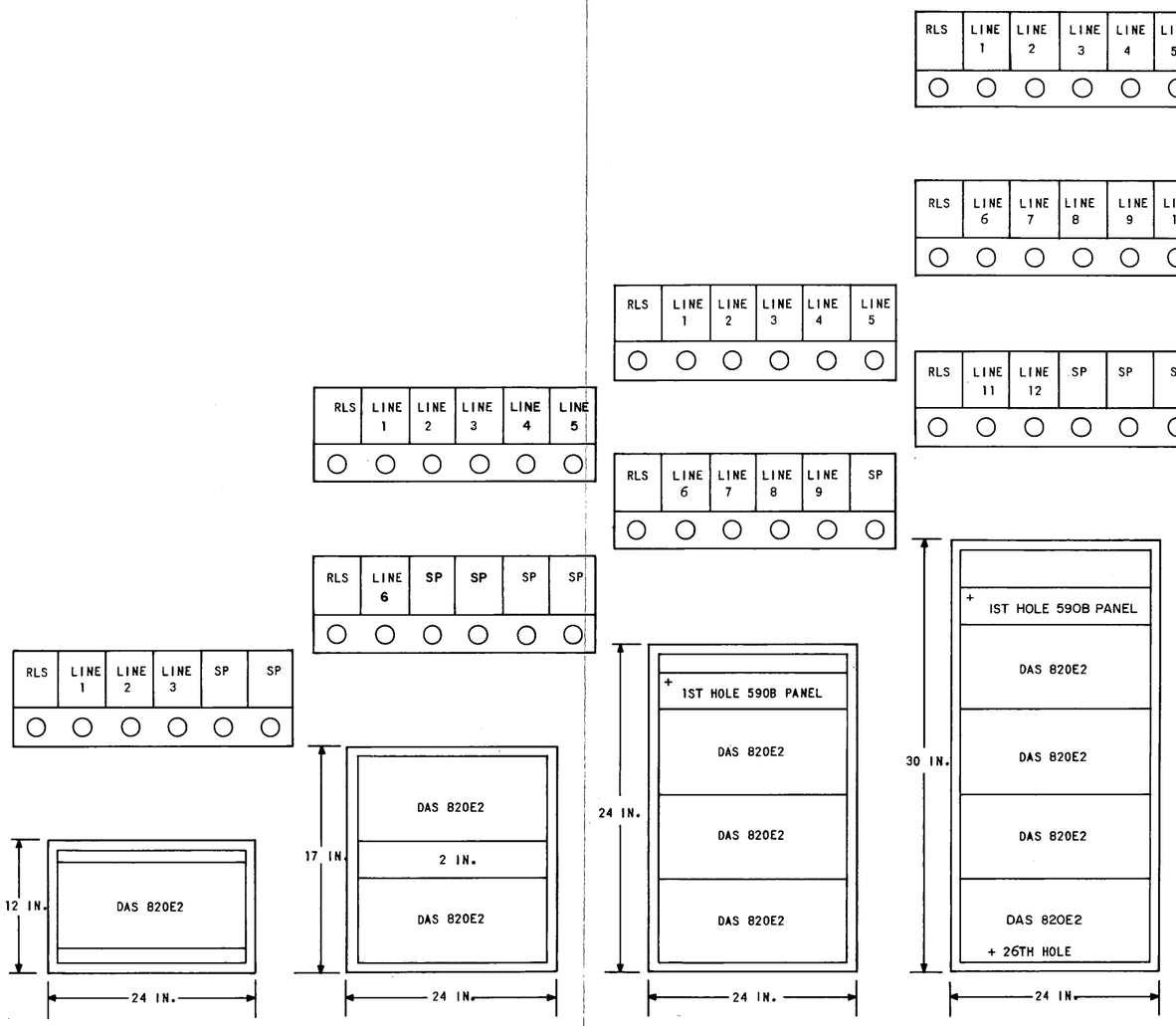


Fig. 4—Data Auxiliary Set 820E2 and 6041G Keyset Mounted in KS-20018-L1 Through -L4 Cabinets

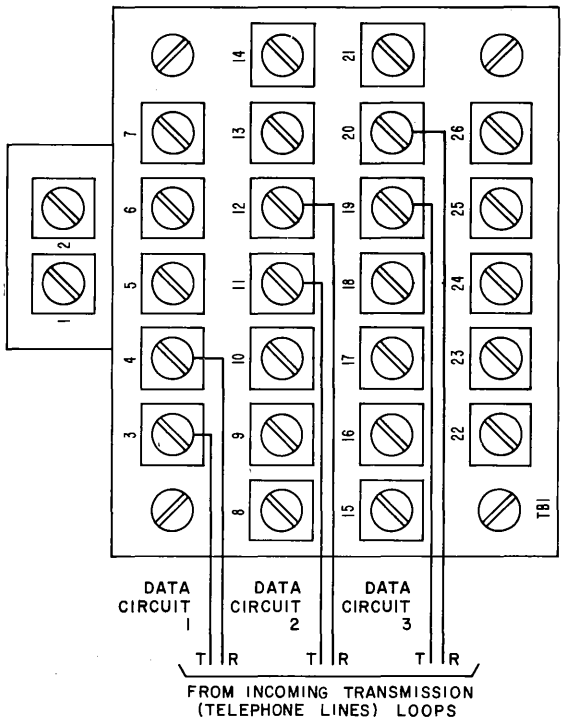


Fig. 5—Line Facility Connections For Data Auxiliary Set 820E2

Note: Ensure that proper customer terminals are connected to the respective connector of the DAS.

5.07 Perform installation tests in accordance with the section entitled Data Set 108-Type Multiple Private Line Station Using Data Auxiliary Set 820E-Type—Test Procedures (591-023-502).

6. REFERENCES

6.01 The following documents pertain to data sets 108A and C multiple private line station arrangement.

SD- & CD-3D024-01 Data Set 108A

SD- & CD-3D032-01 Data Set 108C

SD- & CD-3D031-01 Data Auxiliary Sets 820D and 820E

SECTION	TITLE
591-023-100	Data Set 108-Type Private Line System Station Application—Description
591-023-102	Data Sets 108A- and C-Types Multiple Private Line Station Arrangement Using Data Auxiliary Set 820E-Type, Description
591-023-300	Data Set 108-Type Private Line System Station Application, Maintenance
591-023-302	Data Sets 108A- and C-Types Multiple Private Line Station Arrangement Using Data Auxiliary Set 820E-Type, Maintenance
591-023-502	Data Sets 108A- and C-Types Multiple Private Line Station Arrangement Using Data Auxiliary Set 820E-Type, Test Procedures
598-059-100	Data Auxiliary Set 820E-Type, Identification
512-210-103	6041G Keyset—Identification, Installation, and Connections
590-010-201	Data Set Multiple Installation Information

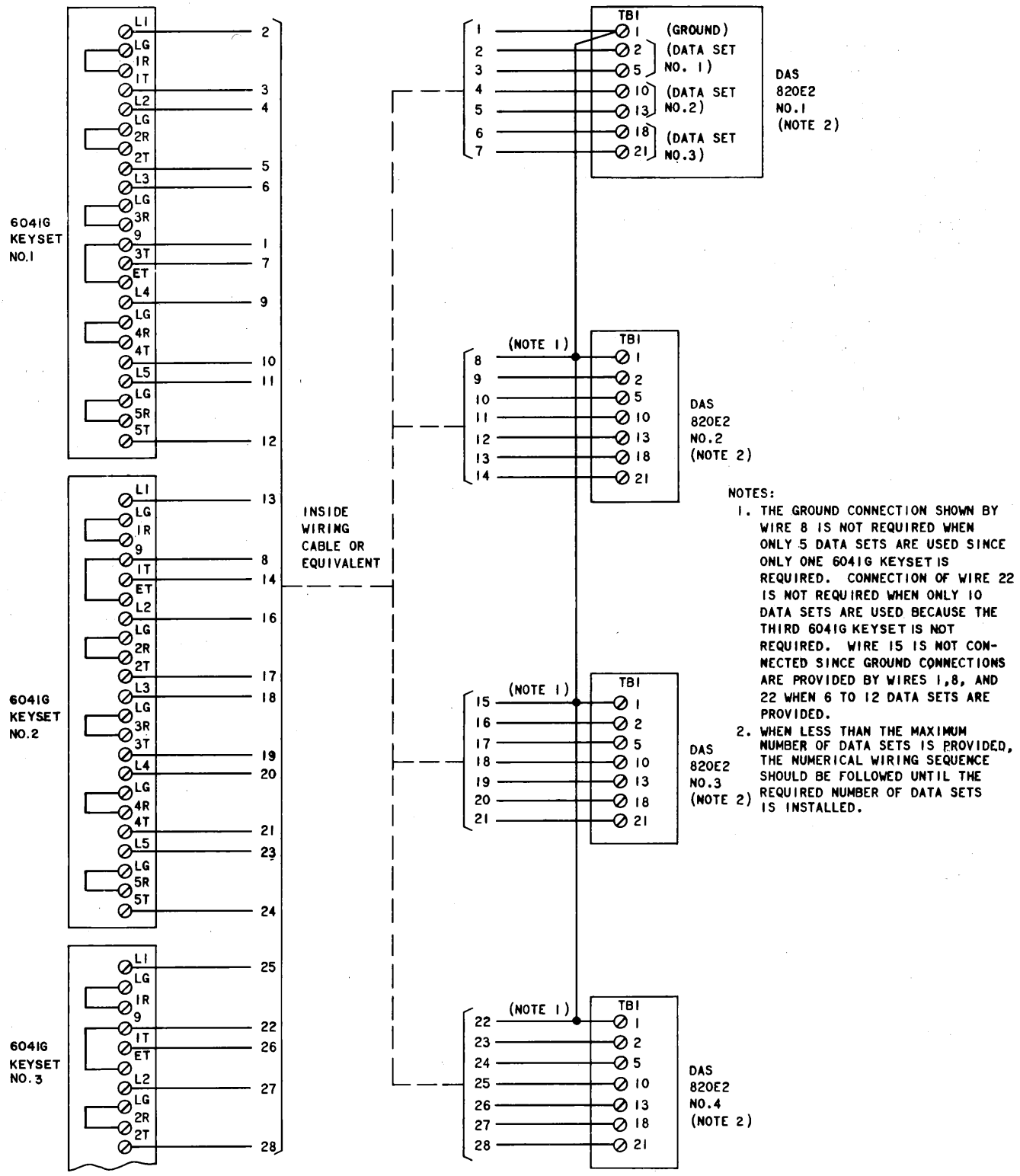
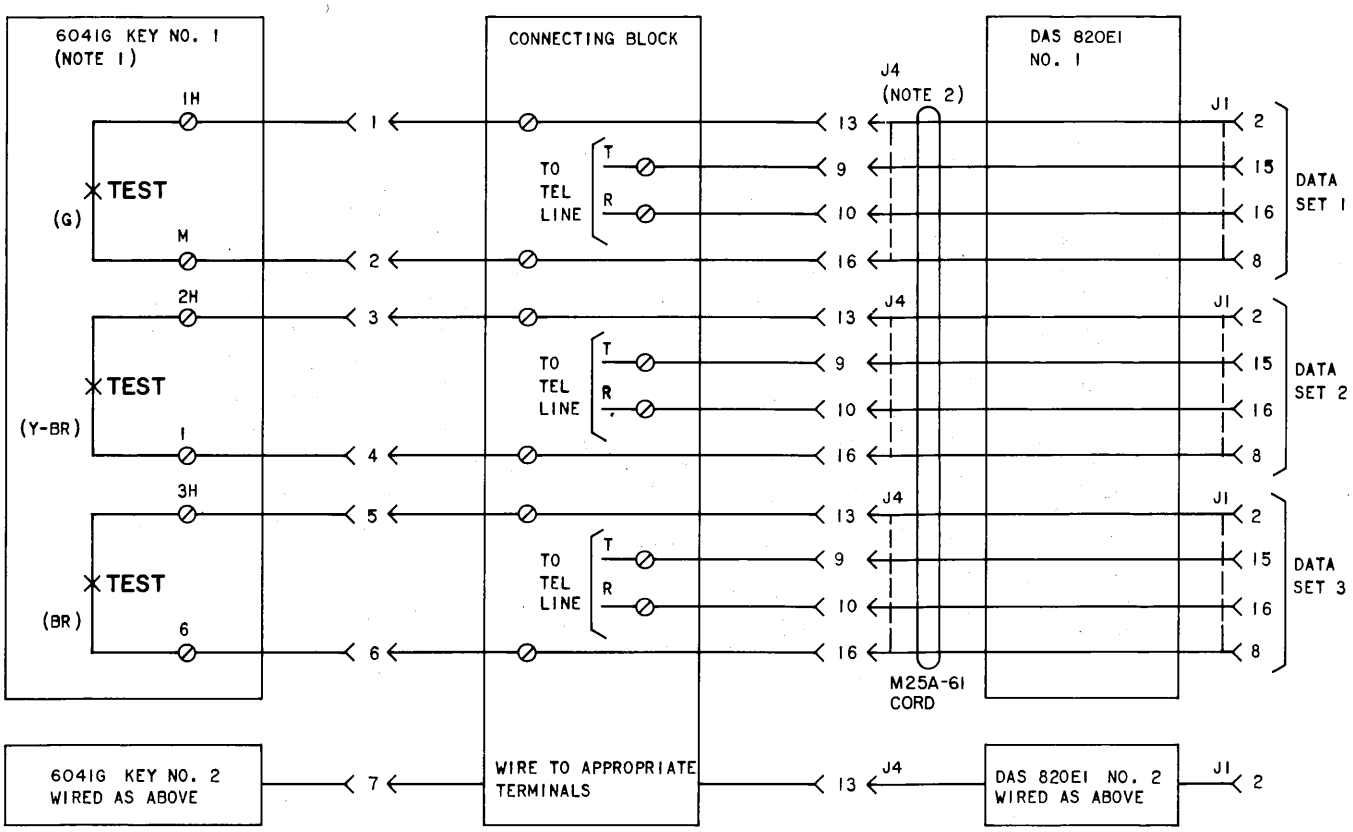


Fig. 6—Typical Keyset Connections for KS-20018-Type Cabinet



NOTES:
1. SINCE THERE IS NO AC CONNECTION ON J4 OF DAS 820EI, THE LIGHTS ARE NOT WIRED IN THE 6041G KEYSET.
2. ON SERIES 2 AND LATER OF DAS 820EI, THE CUSTOMER TERMINAL CONNECTOR IS DESIGNATED J3 AND THE TELEPHONE TERMINAL CONNECTOR IS DESIGNATED J4. ON SERIES 1, THE CUSTOMER TERMINAL CONNECTOR IS DESIGNATED J4 AND THE TELEPHONE TERMINAL IS DESIGNATED J3.

Fig. 7—Typical 6041G Keyset Connection for DAS 820E1

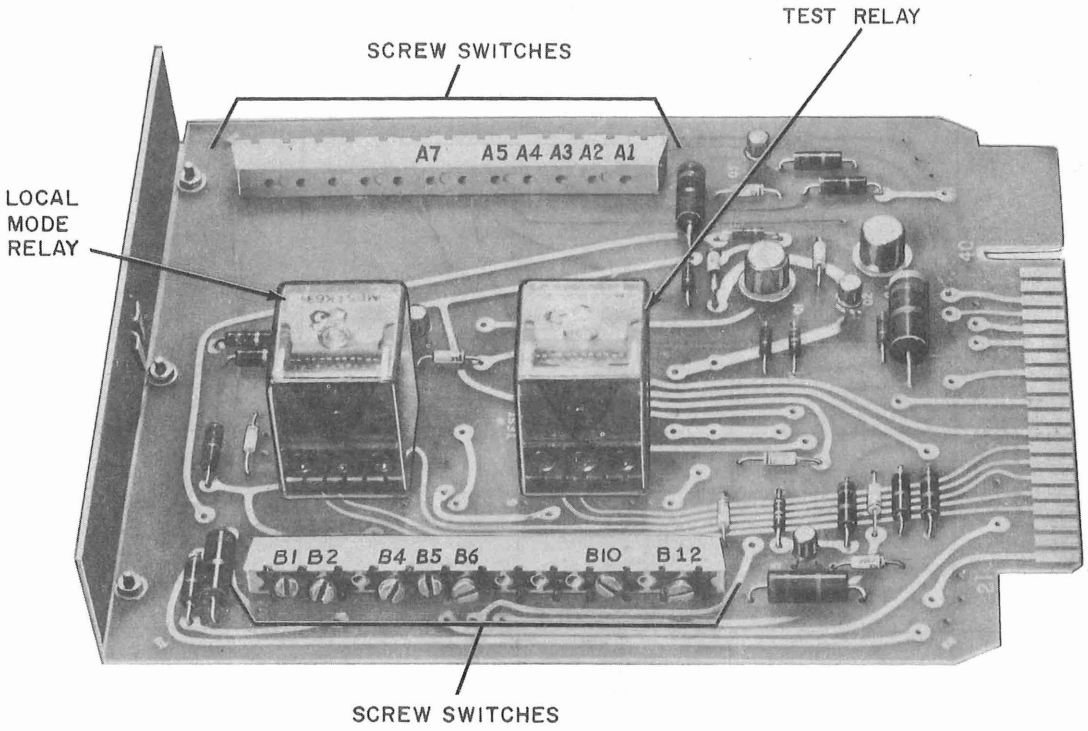


Fig. 8—AR17 Circuit Pack

TABLE B

SCREW OPTIONS FOR THE 108A AND C MULTIPLE STATION

OPTION FEATURE	OPT DESIG	EARLIER MODEL CP AR17		LATER MODEL CP AR17	
		SCREW(S) OPEN	SCREW(S) CLOSED	SCREW(S) OPEN	SCREW(S) CLOSED
EIA Interface	W	I2, I3, I5, I7, I9	I1, I4, I6, I8	A2, A4, B2, B4, B6	A1, A3, B1, B5
Current Interface	V	I1, I4, I6, I8	I2, I3, I5, I7, I9	A1, A3, B1, B5	A2, A4, B2, B4, B6
Copy in Test Mode	T	M2	M1		B12
No Copy in Test Mode	S	M1	M2	B12	
Local Copy	R		LC		B10
No Local Copy	Q	LC		B10	
Mark Hold on Carrier Fail	N		SH		A5
Space Hold on Carrier Fail	M	*SH		*A5	
Carrier Squelch on Carrier Fail	K		S		A7
No Carrier Squelch on Carrier Fail	J	S		A7	

* Use only with current interface.

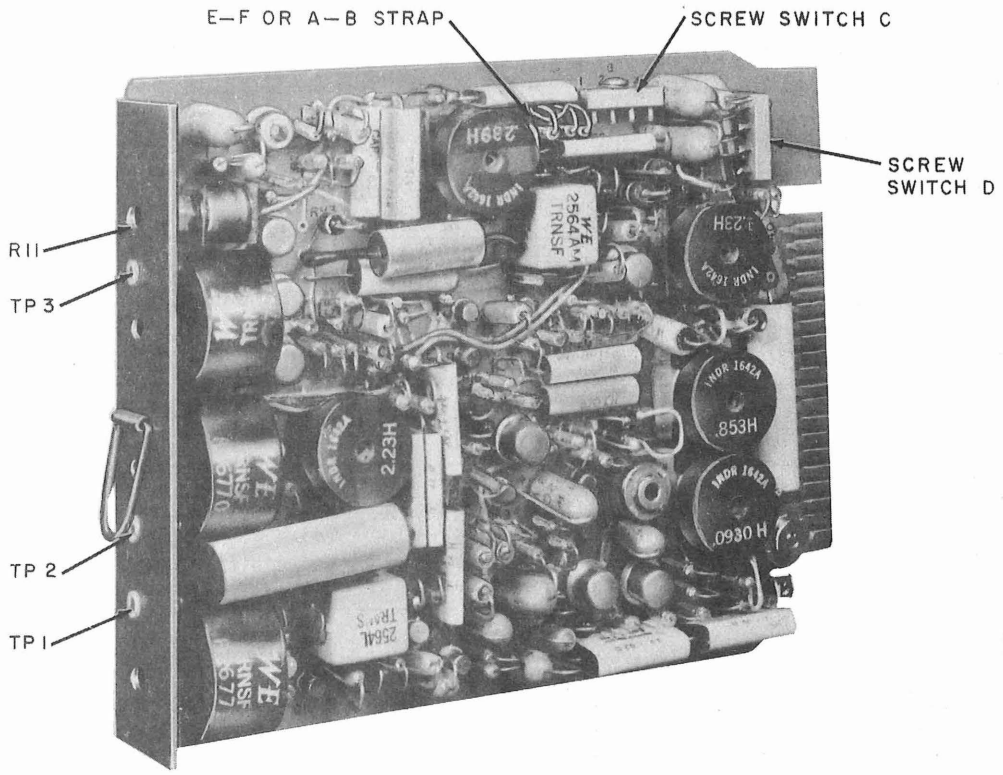


Fig. 9—Data Set 108A- or C-Type Location of Test Points and Screw Switches

TABLE C

SCREW SWITCH D SETTINGS FOR DESENSITIZING PAD STRAPPING

LOOP FACILITY LOSSES (DB)		DESENSITIZING PAD (DB) TO BE USED	SCREW SWITCH D ON 108A OR C	
DATA SET 108A 1000 HZ	DATA SET 108C 2300 HZ		CLOSE	OPEN
0-3		8		1-2, 3-4
3.1-7		4	1-2	3-4
7.1 and greater		0	3-4	1-2

TABLE D

TYPICAL LOOP IMPEDANCE

TYPICAL LOOP FACILITY	TYPICAL LOOP IMPEDANCE	
	DATA SET 108A-TYPE (2125 Hz)	DATA SET 108C-TYPE (1170 Hz)
26 NL (HC)	650	900
24 NL (HC)	500	700
22 NL (HC)	400	550
19 NL (HC)	280	400
16 NL (HC)	200	280
26 H88 (HC)	1300	1180
24 H88 (HC)	1260	1080
22 H88 (HC)	1250	1060
19 H88 (HC)	1240	1030
16 H88 (HC)	1340	1130

NL — Nonloaded (HC) — High Capacity

TABLE E

HYBRID NETWORK STRAPPING

LOOP IMPEDANCE	DATA SET 108A- AND 108C-TYPE SCREW SWITCH C CLOSED	DATA SET 108A-TYPE E-F CONNECTION	DATA SET 108C-TYPE A-B CONNECTION
1255	2-3	Cut	Cut
900	2-3	Strapped	Strapped
850	1-2	Cut	Cut
750	3-4	Cut	Cut
575	1-2, 3-4	Cut	Cut
500	1-2	Strapped	Strapped
410	3-4	Strapped	Strapped
220	1-2, 3-4	Strapped	Strapped