

## 85A1 DATA SELECTIVE CALLING SERVICE STATIONS 100-WORD PER MINUTE HALF-DUPLEX OPERATION INSTALLATION

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**1. GENERAL**

**Scope**

**1.01** This section describes the procedures to be followed when installing an 85A1 station consisting of a Model 33 or 35 Teletypewriter (TTY) equipped with a data auxiliary set (DAS)

820G- or 820J-type controller. This practice also contains information on the connection required to install a station (including the connections and/or strapping required).

**1.02** This section is reissued to provide coverage on the 85A RO station arrangement provided by the DAS 820J-type controller. This new arrangement is compatible with all the present station configurations used in the 85A1 DSCS. This reissue also updates and corrects general information. Additional information is included on the data sets used in the DAS 820G- and 820J-type controllers. Since this reissue constitutes a general revision, arrows ordinarily used to denote changes have been omitted.

**1.03** It is intended that the 85A1 station be completely assembled and tested at the distributing house prior to installation on the customer's premises. The completely assembled station using a 33 or 35 TTY, DAS 820G-type or 820J-type controller, with appropriate data set and attendant set is a self contained unit that should be assembled and tested before delivery. The following installation procedures are to be used in the event the station is not assembled prior to delivery to the customer's location.

**1.04** The customer must furnish a standard 3-wire, grounding-type power receptacle designed to accept a plug equipped with two parallel blades and a round-shaped grounding pin. *In order to avoid service interruptions, this receptacle shall not be under control of a switch.*

**1.05** The station requires a customer-furnished source of power as follows:

60 ±0.45 Hz at 106 to 129 Vac.

**1.06** Verify with the serving test center (STC) that the overall facilities meet the transmission requirements specified in the section entitled Private Line Data Circuits—Voice Bandwidth Circuits

## SECTION 581-131-200

for Miscellaneous Data—Overall Test Requirement (314-410-500).

**1.07** Reference directions (left, right, front, or rear) are in respect to facing the keyboard which is located at the front of the 33 or 35 TTY.

**1.08** Data sets 108E and 109E are the current models being produced for use in data selective calling service. New installations will be equipped with these data sets; however, older models (data sets 108A and 109A) currently in the field need not be replaced unless they are inoperative. In order to avoid confusion, the data sets in this BSP will be referred to as data set 108- and 109-type unless a specific model is being discussed. When a data set 108A or 108E is provided, it must be a series 4 or later model.

## 2. INSTALLATION

### GENERAL

**2.01** A portable station test set TTS-28, or equivalent, is required for data set 108-type level adjustment.

**2.02** Verify that the location and space selected by the customer for the 33 or 35 TTY data station is adequate for maintenance and installation purposes. The following TTY measurements should be exceeded to allow room for working on, or disassembly of, the station, if required.

- 33 ASR—22 inches wide, 34 inches high, and 19 inches deep
- 33 RO—19 inches wide, 34 inches high, and 19 inches deep
- 35 ASR—40 inches wide, 35 inches high, and 24 inches deep
- 35 RO—26 inches wide, 35 inches high, and 24 inches deep
- 35 ROTR—13-5/16 inches wide, 34 inches high, and 14 inches deep
- KS-20018-L1, -L2, -L3, or -L4 cabinet:

L1—24 inches wide, 12 inches high, and 12 inches deep

L2—24 inches wide, 17 inches high, and 12 inches deep

L3—24 inches wide, 24 inches high, and 12 inches deep

L4—24 inches wide, 30 inches high, and 12 inches deep.

**2.03** Verify that a customer-provided ac power receptacle is within seven feet of the selected location.

**THINK** *Do not connect power to the TTY data station until instructed to do so.*

**2.04** Before installing the 85A1 station, the TTY must have the shipping screws removed from the typing unit. Also, any other protective packing or covers must be removed at this time. If leg extenders are provided for this installation (supplied for sprocket feed machines only), they should be installed at this time.

**Note:** The shipping screws can be distinguished from the other screws by the large hexagonal bushings used under each of these screws.

**2.05** To gain access to the DAS 820G-type, DAS 820J-type, and data set 108- or 109-type, proceed as indicated in the following text.

### 33 ASR AND 33 RO TTY

- (1) Remove the two mounting screws located at the top rear of the stand.
- (2) Grasp top of rear panel and lift it up to disengage panel from stand.

### 35 ASR TTY

- (1) Remove the chad container by sliding it to the left, raising the right side, and sliding it to the right.
- (2) Operate the two pushbutton fasteners located at the top of the lower compartment panel.
- (3) Depress the spring clip underneath the keyboard and pivot the lower compartment panel to the floor.

- (4) Disengage the panel from pivot screws and remove panel.

### 35 RO TTY

- (1) The procedure is the same as that for the 35 ASR TTY with the exception that only one pushbutton fastener is used to hold the lower compartment panel and no chad container is provided.

### 35 ROTR TTY

**Note:** The data set and DAS 820G and 820J-types are *not* mounted in the 35 ROTR TTY stand (due to space limitation) when a 35 ROTR TTY is used as a primary data station. A KS-20018-type cabinet is required. In addition, DAS 804R7 and a 212A adapter are mounted on the door of the stand.

- (1) Apply outward pressure at the top rear of the KS-20018-L1, -L2, -L3, or -L4 cabinet panel until the catches disengage.
- (2) Lift the panel up to remove it from framework.

### 33-TYPE TTY INSTALLATION

**2.06** Installation of the 33 TTY shall be made in accordance with the section entitled 32 and 33 Teletypewriter Sets—Installation (574-100-201) with the following exceptions:

- No answer-back drum is used.
- Do not connect the power until instructed to do so in this section.

The DAS 820G- or 820J-type is mounted in the pedestal of a 33 TTY by using the 91A bracket (Fig. 1).

**2.07** The interconnection of station components for a 33 RO TTY station using a DAS 820G- or 820J-type controller is shown by Fig. 2. The interconnections for a 33 ASR are indicated by Fig. 3. All plugs and connectors shall be installed as indicated by the applicable figure. The line connections are made to the T and R terminals on the data auxiliary set.

### 35-TYPE TTY INSTALLATION

**2.08** Installation of a 35 RO TTY station shall be made in accordance with the section entitled 35 Receive Only Page Printer Set—Installation (574-200-200). The interconnection of station components for a 35 RO or ROTR TTY using a DAS 820G or 820J-type controller is shown by Fig. 2. All plugs and connectors shall be installed in accordance with Fig. 2. The line connections are made to the T and R terminals on the data auxiliary set. The DAS 820G or 820J-type controller is physically mounted in a 35 RO TTY using the 92A bracket. Figure 4 shows a DAS 820G1 controller mounted in a 35 RO TTY.

**Note:** The DAS 820J-type controller is provided with spacers and the associated hardware to facilitate mounting the controller. The spacers are used between the 92A mounting bracket and the frame of the TTY (Fig. 5). The DAS 820J-type controller must be mounted in the second and third mounting holes from the bottom of the 92A mounting bracket. This provides more space for mounting the controller and prevents interference between the controller plugs and the TTY door.

**2.09** The interconnections of the station components for a 35 ASR TTY using a DAS 820G-type controller is shown by Fig. 3. All plugs and connectors shall be installed as indicated by Fig. 3. The DAS 820G-type controller is physically mounted using the 92A brackets. Figure 6 shows a DAS 820G1 controller mounted in a 35 ASR TTY.

**2.10** Installation of a 35 ROTR TTY shall be made in accordance with the section entitled 35 Receive Only Typing Reperforator (ROTR) Sets—Installation (574-203-200). Due to space limitations, the DAS 820J-L1/2 or 820G-L1/5 is housed in a KS-20018-L1, -L2, -L3, or -L4 cabinet, using a 95A bracket (refer to Fig. 7). The interconnection of station components for 35 ROTR stations is shown in Fig. 2. Check that all plugs and connectors are installed as indicated by the previously referenced figure and that the line wire is correctly connected to the T and R terminals. The spacers provided with the DAS 820J will be required in order to mount the controller.

**Note:** The spacers are installed between the cabinet frame and the 95A mounting bracket that holds the data auxiliary set. This positions

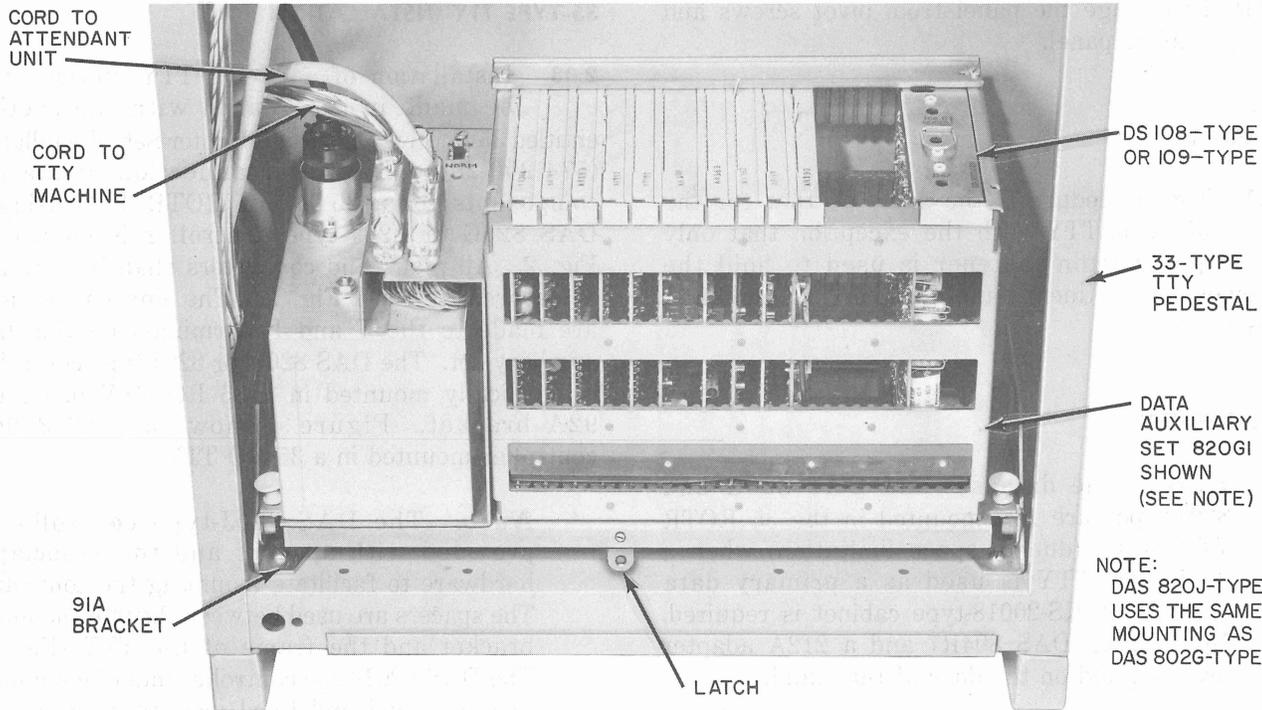


Fig. 1—Data Auxiliary Set 820G-Type Mounted in a 33 TTY Using a 91A Bracket

the 95A mounting bracket deeper in the cabinet and allows more room for the data auxiliary set.

#### PREINSTALLATION CHECK OF DAS 820G OR 820J-TYPE

**2.11** Verify that the proper circuit packs (CPs) are installed in the DAS 820G- and 820J-type. Refer to Fig. 8, 9, 10 and Table A for the circuit pack location and designation.

**Note:** When the DAS 820G- or 820J-type is mounted in the 33-type TTY, it can be tilted out of the kneewell into the maintenance position (Fig. 11) by pivoting the data auxiliary set on the 91A bracket. This allows better access to the data auxiliary set for checking or removing the circuit packs.

**2.12** When the DAS 820G-type controller is used, verify that the shift register (transfluxor) located on AR188 CP has been encoded for the station being installed. To check the transfluxor,

AR188 CP has to be removed from the auxiliary set as follows:

- (1) Remove the power cord from the power receptacle.
- (2) Remove the card lock strip by loosening the screws holding it in place.
- (3) Use a 748A card extracting tool or the notched end of the lock strip to extract AR188 CP.
- (4) Inspect the transfluxor. It should have two 36-gauge wires threaded through each of the eight holes in the transfluxor (refer to Fig. 12). In the event the transfluxor has not been encoded, refer to the section entitled 85A1 Data Selective Calling Service Stations—100-Word Per Minute Half-Duplex Operation—Maintenance (581-131-300) for instructions on encoding the transfluxor.
- (5) Replace the AR188 CP in the data auxiliary set and reinstall the locking bar.

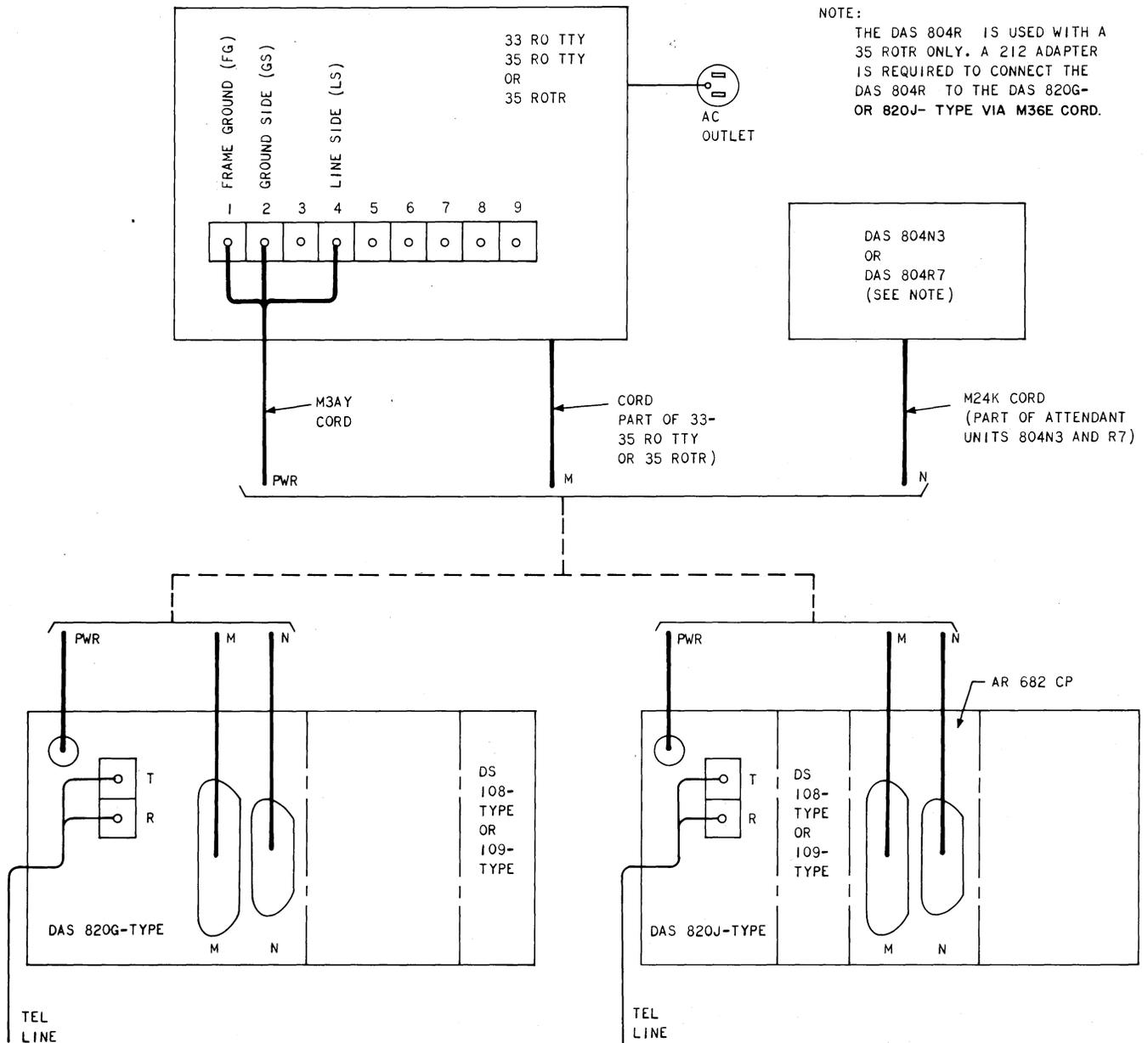


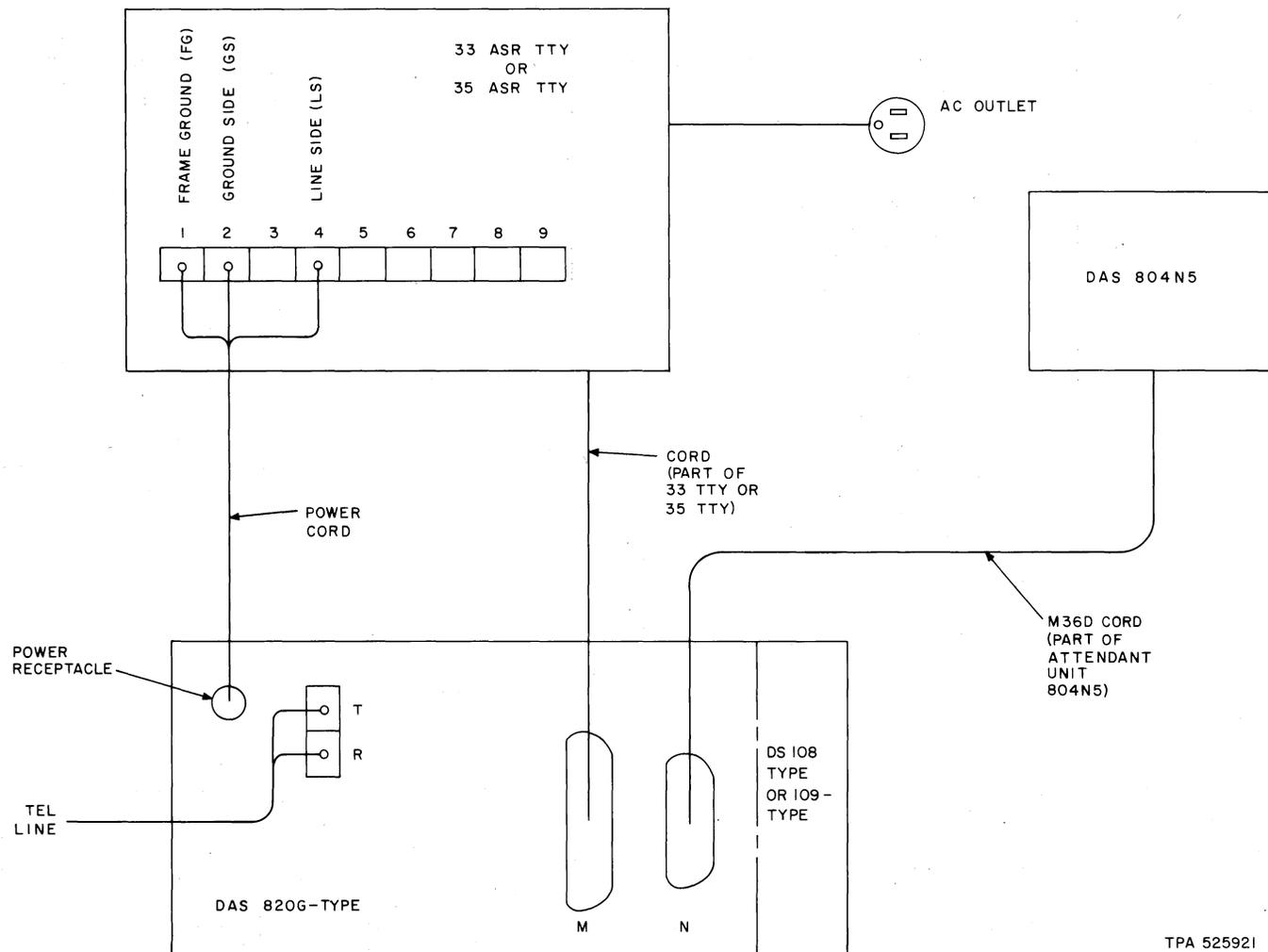
Fig. 2—85A1 Station—33 RO TTY, 35 RO TTY, and 35 ROTR—Interconnection of Station Components

(6) Reconnect the power cord to the power receptacle.

**2.13** The DAS 820J-type controller does not use a shift register transfluxor to generate the SIC or ACK response. The SIC or ACK response is encoded by setting the SC switch on AR686 CP. The SCC for the station is set using SA and SB

switches on AR 686 CP. To check the encoding, proceed as follows:

- (1) Remove the power cord from the power receptacle.
- (2) Remove the card lock strip by loosening the screws holding it in place.



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**Fig. 3—85A1 Station—33 ASR TTY and 35 ASR TTY—Interconnection of Station Components**

- (3) Use a 748A card extracting tool or the notched end of the lock strip to extract the AR686 CP.
- (4) Check the switch positions for switch SA, SB and SC. To determine the required switch settings and encoding procedure, refer to the BSP entitled 85A1 Data Selective Calling Service Stations—100 Word Per Minute Half Duplex Operation—Maintenance (581-131-300).
- (5) Replace AR686 CP in the data auxiliary set and replace the lock strip.
- (6) Reconnect the power cord to the power receptacle.

### 3. OPTIONS

**3.01** The options to be used at a station are provided by setting the screw switches or rocker arm switches on the DAS 820G- or 820J-type circuit packs. The circuit packs are shown in Fig. 13 through Fig. 27. The screw-switch settings for the DAS 820G1 are indicated in Table B. The screw-switch settings for the DASs 820G-L1/4 and 820G-L1/5 are indicated in Table C. The rocker switch settings for the DAS 820J-type options are shown by Table D. Condition the station for the desired service by removing the circuit packs indicated in Tables B, C or D and set the switches to obtain the desired function. Refer to the previously referenced figures for switch designations.

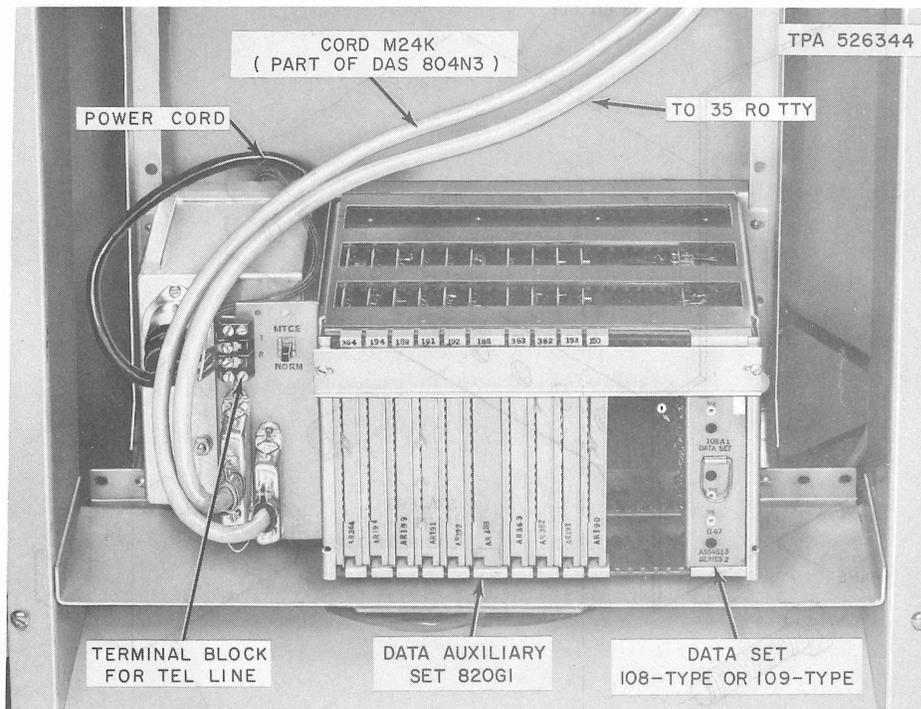


Fig. 4—Data Auxiliary Set 820G1 Mounted in a 35 RO TTY Using a 92A Bracket

**Note:** In Table B, AR191 CP may be replaced by AR530 CP (optional) with no change in screw-switch settings.

Used in Station Applications—Description (591-028-100).

This is a dummy line.

#### 4. PREOPERATIVE ADJUSTMENTS AND TESTS—DATA SET 108-TYPE

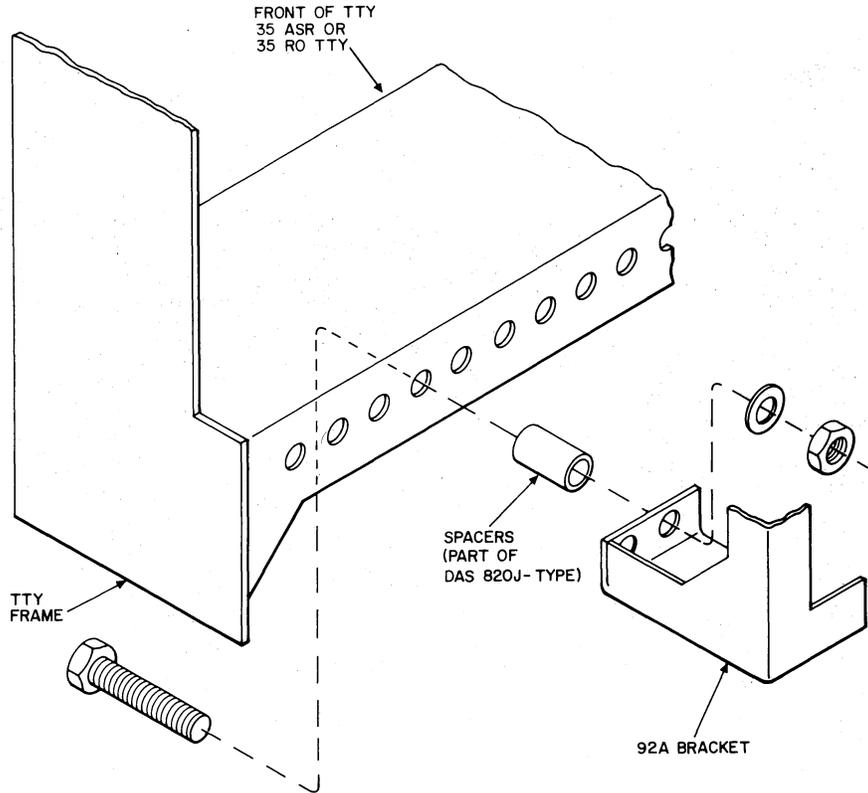
**4.01** Screw-switch D (Fig. 28 for data set 108A-type or Fig. 29 for data set 108E-type) may have been set to provide maximum data set sensitivity during manufacturing tests. The gain may be reduced in steps as indicated in Table E. The gain must be adjusted to meet the requirements of each installation by setting the screw switches as indicated on the service order and Table E.

**Note:** When data set 108-type is provided, a series 4, or later, model must be used. The data set options should be specified on the service order or line record card. When data set 108E-type is used, Options S, U, X and Y are required. For information on providing the required options, refer to the BSP entitled Data Sets 108D- and 108E-Types

#### HYBRID NETWORK STRAPPING

**4.02** Strapping of the hybrid is determined by the loop impedance of the facility. The loop impedance should be shown on the service order and/or circuit layout record card. Table F shows the typical loop impedance that can be used when the cable makeup is known. Select the proper facility makeup from the TYPICAL LOOP FACILITY column or find the measured loop impedance in Table F. The screw-switch settings and strapping required for optimum trans-hybrid balance is given in Table F. Refer to Fig. 28 for the location of the screw switches and strap for data set 108A-type. Refer to Fig. 29 for the location of data set 108E screw switches.

**4.03** Upon completion of the hybrid network strapping and installation of the required data set options, plug the data set 108-type into the DAS 820G or 820J-type controller.



NOTE:  
EIGHT SPACERS ARE FURNISHED WITH THE DAS 820J-TYPE CONTROLLER.  
BOLTS, NUTS AND ASSOCIATED HARDWARE FOR USE WITH THE SPACES  
ARE ALSO PROVIDED. SPACERS ARE USED BOTH TOP AND BOTTOM OF  
92A BRACKET.

Fig. 5—Installation of Mounting Bracket Using Spares Provided for DAS 820-J-Type Installation

**ADJUSTMENT OF DATA SET 108-TYPE TRANSMIT LEVEL**



*Verify that proper options are installed in the replacement data set 108-type.*

- 4.04 Disconnect incoming data line from the T and R terminals on the controller.
- 4.05 Connect terminals + and - or portable station test set TTS-28 to TP 1 and TP 2 of the data set (Fig. 28 or 29). Set FUNCTION switch of TTS-28 to DBM 900Ω TERM 0 position.
- 4.06 Connect TTY power cord to the customer-provided ac receptacle.

- 4.07 Adjust R11 on data set 108A or R18 on data set 108E for the output level specified on service order and/or circuit layout record card (see Fig. 28 and 29).

*Note:* If no output level is measured, operate carrier squelch (CS) switch on the data auxiliary set to OFF. Restore CS switch after adjustment of R11 or R18 and remove TTS-28.

- 4.08 Connect the incoming data line, removed in 4.04, to the T and R terminals of the controller.
- 4.09 Complete the installation of the station by performing the test outlined in the section entitled 85A1 Data Selective Calling Service Stations—100-Word Per Minute Half-Duplex Operation—Test Procedures (581-131-500). Successful

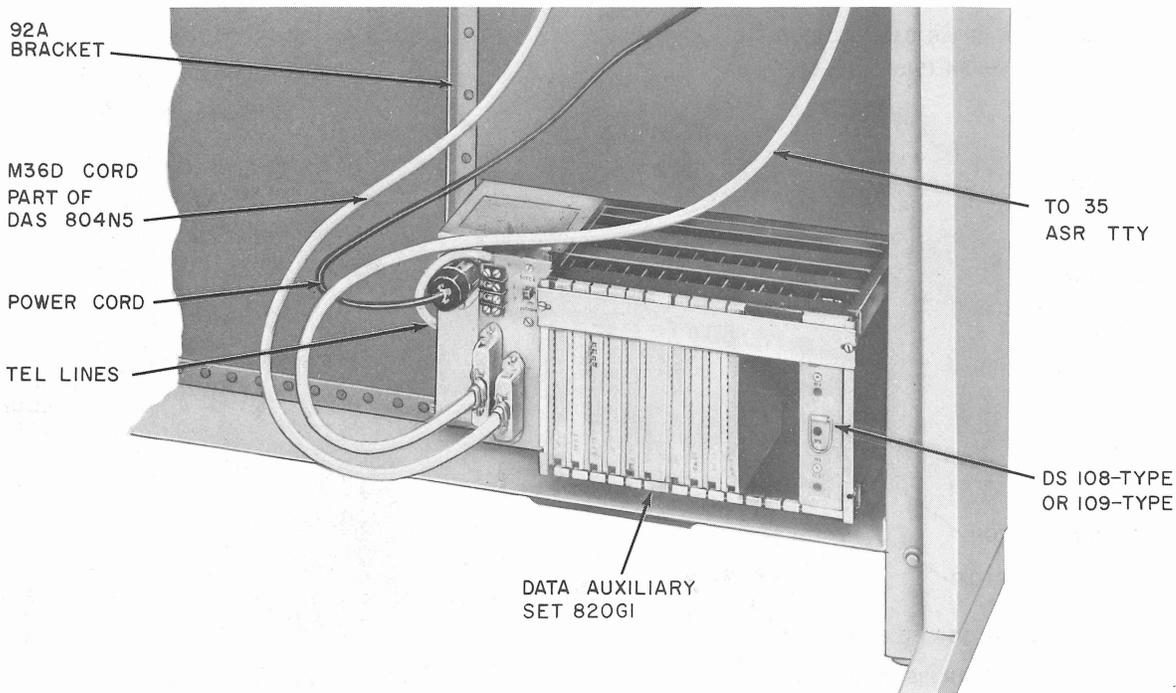


Fig. 6—Data Auxiliary Set 820G1 Mounted in a 35 ASR TTY Using a 92A Bracket

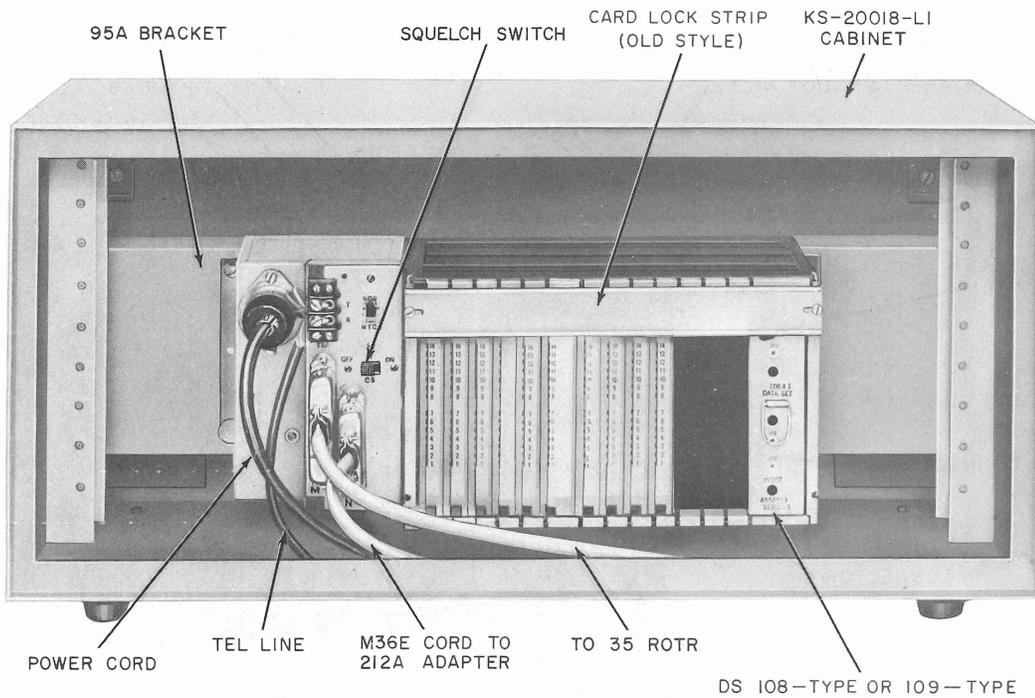


Fig. 7—Data Auxiliary Set 820G-L1/5 Mounted in a KS-20018-L1 Cabinet Using a 95A Bracket

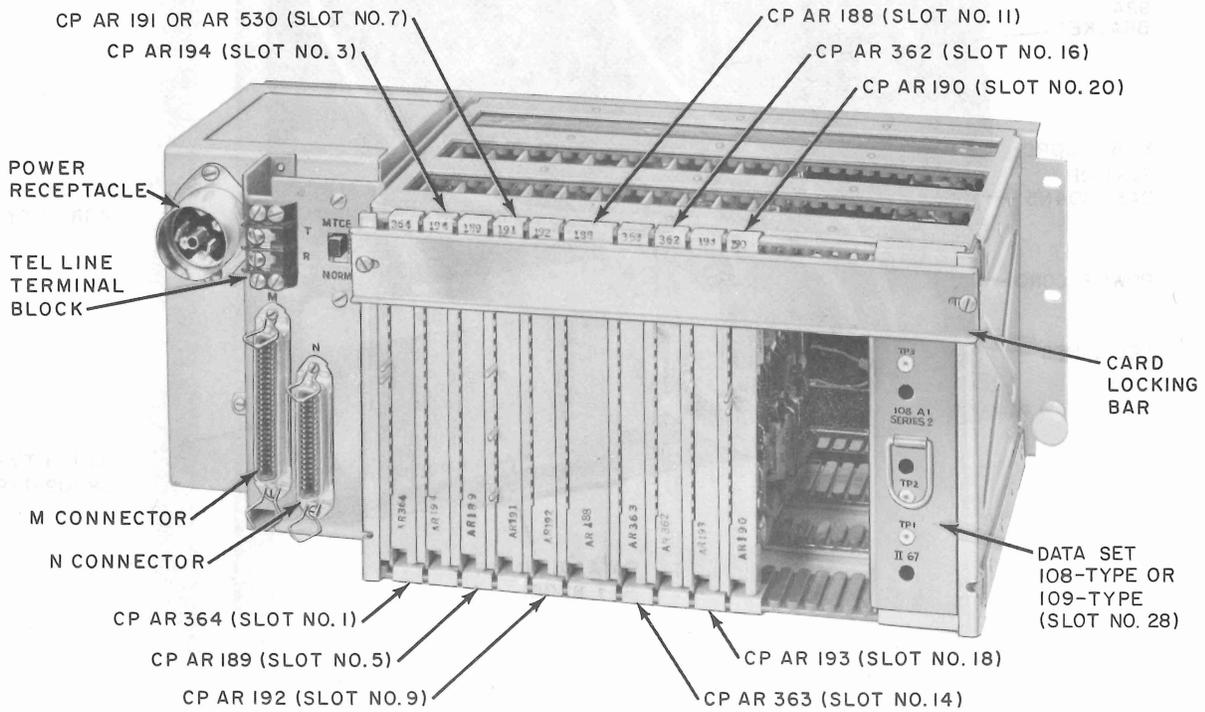


Fig. 8—Data Auxiliary Set 820G1—Circuit Pack Location and Designation

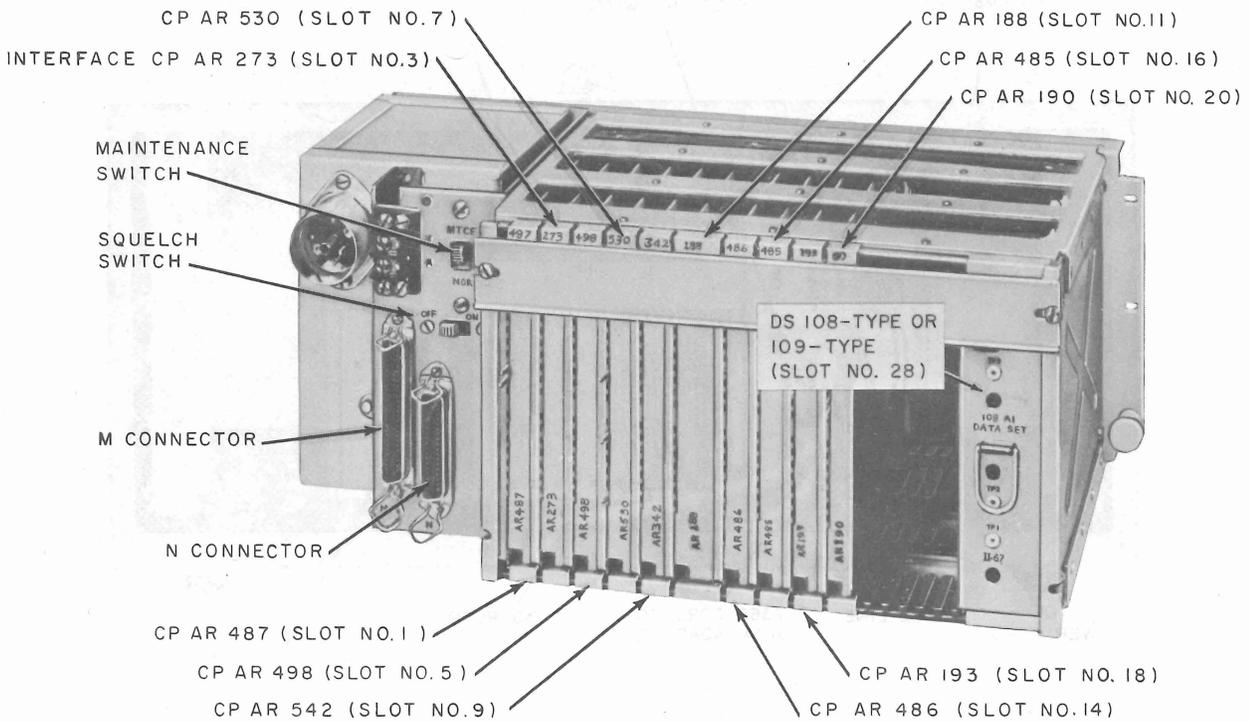
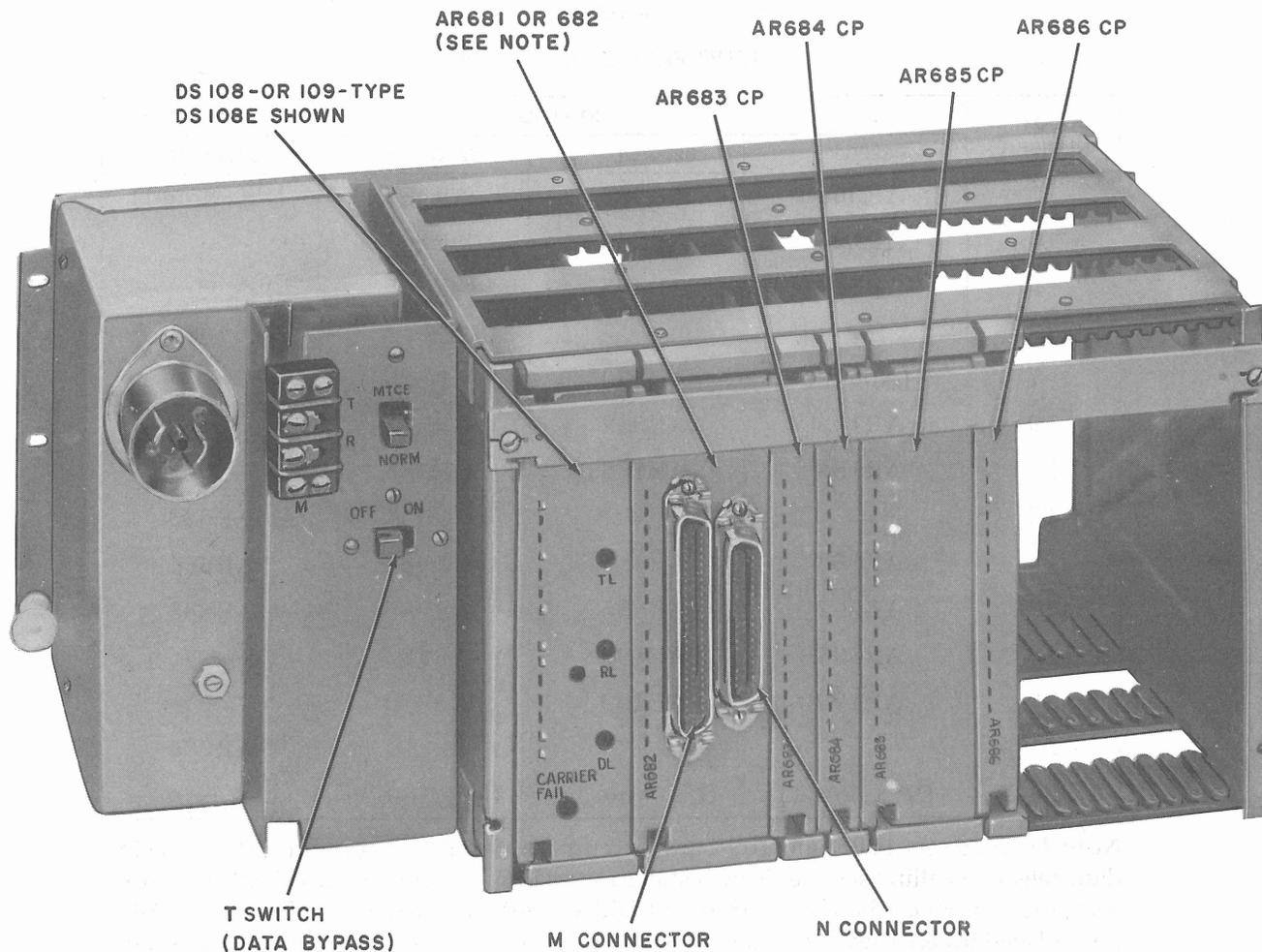


Fig. 9—Data Auxiliary Set 820G-L1/4—Circuit Pack Location and Designation

**NOTE:**

DAS 820J-L1/2 USES AR682 CP

DAS 820J-L1/3 USES AR681 CP

**Fig. 10—Data Auxiliary Set 820J-L1/2—Circuit Pack Location and Designation**

completion of the previously referenced test procedures verifies that the installation is operative.

### 5. PREOPERATIVE ADJUSTMENTS AND TESTS—DATA SET 109-TYPE

**5.01** There are no preoperative adjustments and tests required when installing the data set 109A-type (Fig. 30).

**5.02** Verify that the data set 109A-type is seated firmly in the connector and has been installed in the correct slot. The data set 109A is used

for installations where only transmission over short loop distances (2000 ohms) is desired.

**5.03** When data set 109E-type is used, the correct options must be installed and the line resistance pads must be set. The line pad screw switches are set to obtain a total loop resistance of approximately 2000 ohms.

**5.04** Three adjustable screw switches (S1, S2, and S3) are used to select options on data set 109E-type (Fig. 31). Screw switch S1 is subdivided into two sections (S1A and S1B); screw switch S3 is further subdivided into twelve sections.

TABLE A  
CIRCUIT PACK DESIGNATIONS

SLOT NUMBER	CONTROLLER			
	820G1	820G-L1/4	820G-L1/5	820J-L1/2
1	AR364	AR487	AR487	D/S (Note 1)
3	AR194	AR273	AR268	—
5	AR189	AR498	AR498	—
6	—	—	—	AR682
7	(Note 2)	AR530	AR530	—
9	AR192	AR542	AR542	—
11	AR188	AR188	AR188	—
12	—	—	—	AR683
14	AR363	AR486	AR486	AR684
16	AR362	AR485	AR485	AR685
18	AR193	AR193	AR193	—
20	AR190	AR190	AR190	—
21	—	—	—	AR686
28	D/S (Note 1)	D/S (Note 1)	D/S (Note 1)	—

*Note 1:* Data sets 108E and 109E are the current models being produced for use in data selective calling service. New installations will be equipped with these sets; however, older models (data sets 108A- and 109A-type) currently in the field need not be replaced unless they are inoperative. In order to avoid confusion, the data sets in this BSP will be referred to as data sets 108- and 109-type unless a specific model is being discussed. The data set 108-type must be a series 4 or later. The data set 109A-type, unlike the 109E-type, does not provide loop-back test capability. Data set 109A1 is used at stations requiring surge voltage protection. Data set 109A2 does not provide surge voltage protection.

*Note 2:* Data auxiliary set 820G1 uses the AR191 circuit pack or AR530 circuit pack in position 7.

Two of these sections (S3-1 and S3-2) are used for options; eight of the remaining sections (S3-4 through S3-7, and S3-9 through S3-12) are used in selecting the proper line pad resistance (Table G). Sections S3-3 and S3-8 are not used and should not be equipped with screws.

**5.05** Install the required options and line padding in the replacement data set in accordance with Table G, the service order, and the data set 109E-type being replaced.

**5.06** Connect the incoming data line to the T and R (tip and ring) terminals of the DAS 820G- or 820J-type.



*The data line must be connected to the DAS 820G- or 820J-type correctly, ie, tip to T terminal and ring to R terminal, due to the polar signals used by this data set. The tip lead can be identified by the positive potential*

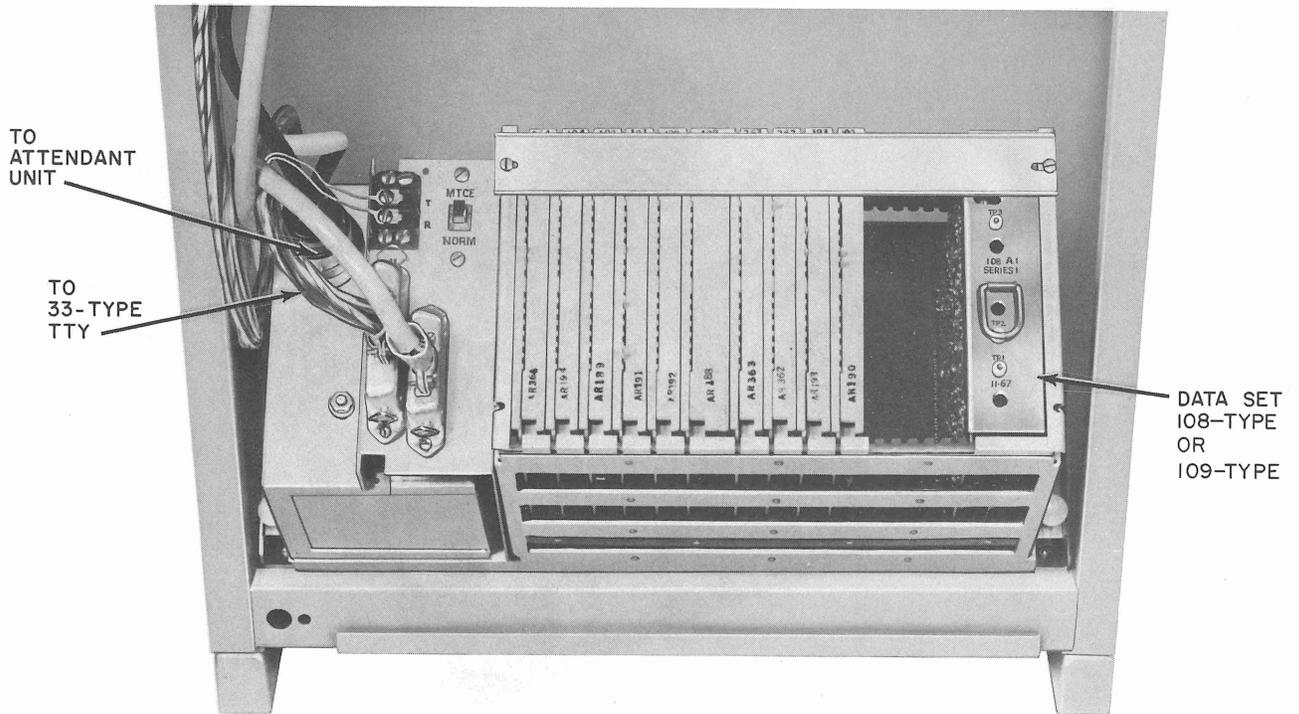


Fig. 11—Data Auxiliary Set 820G1 Mounted in a 33-Type TTY Showing the Maintenance Position

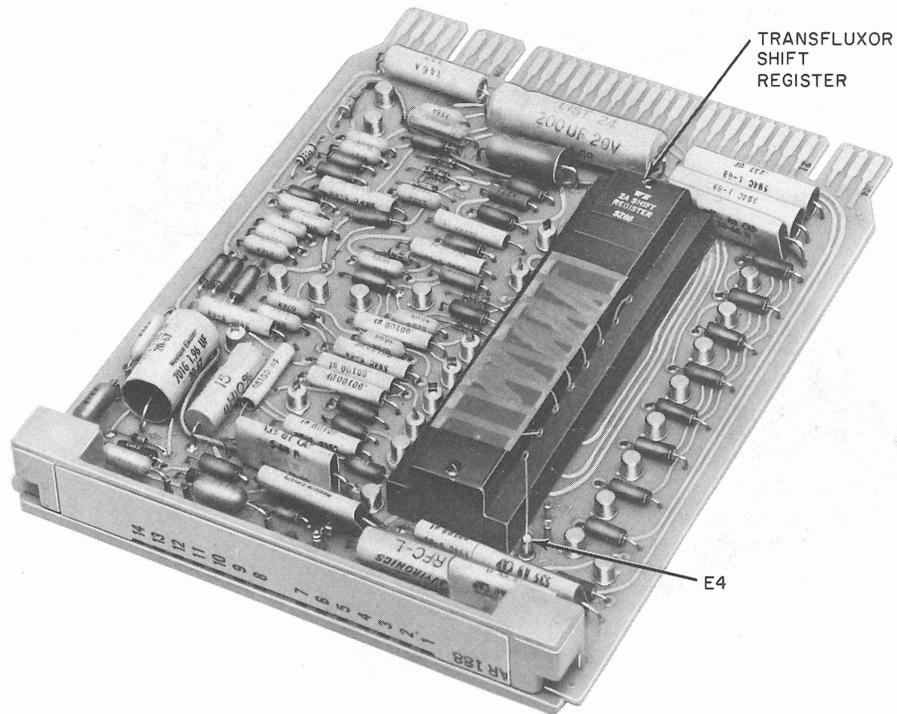


Fig. 12—AR188 CP Showing an Encoded Transfluxor Shift Register

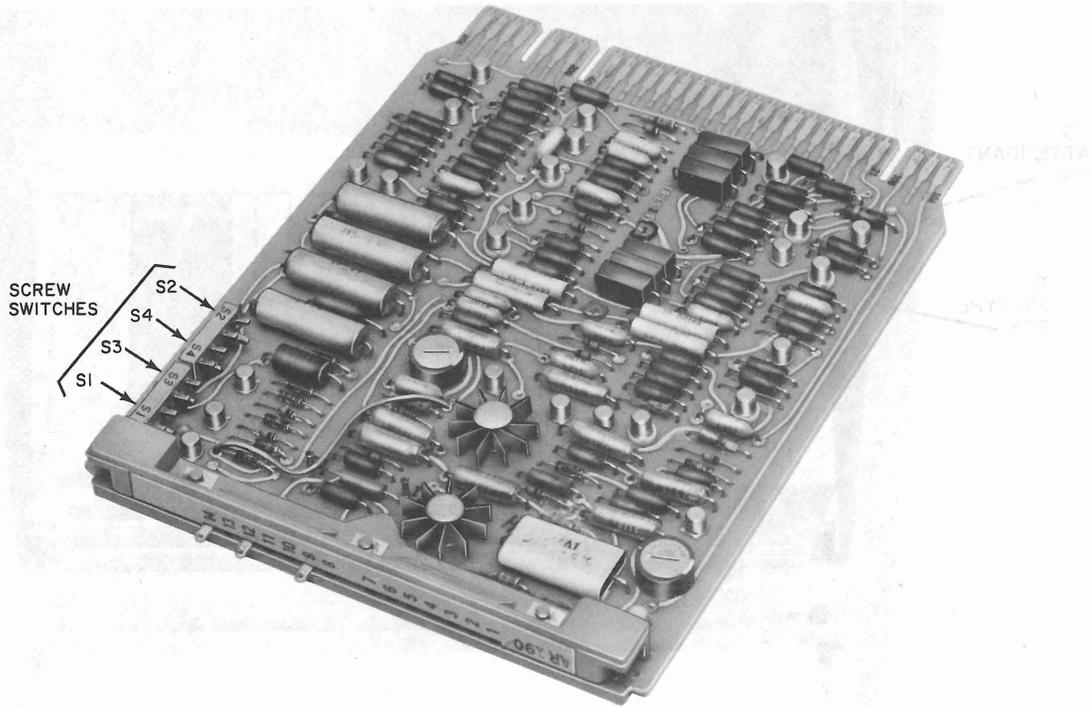


Fig. 13—AR190 CP Screw Switch Terminals—Location and Designation

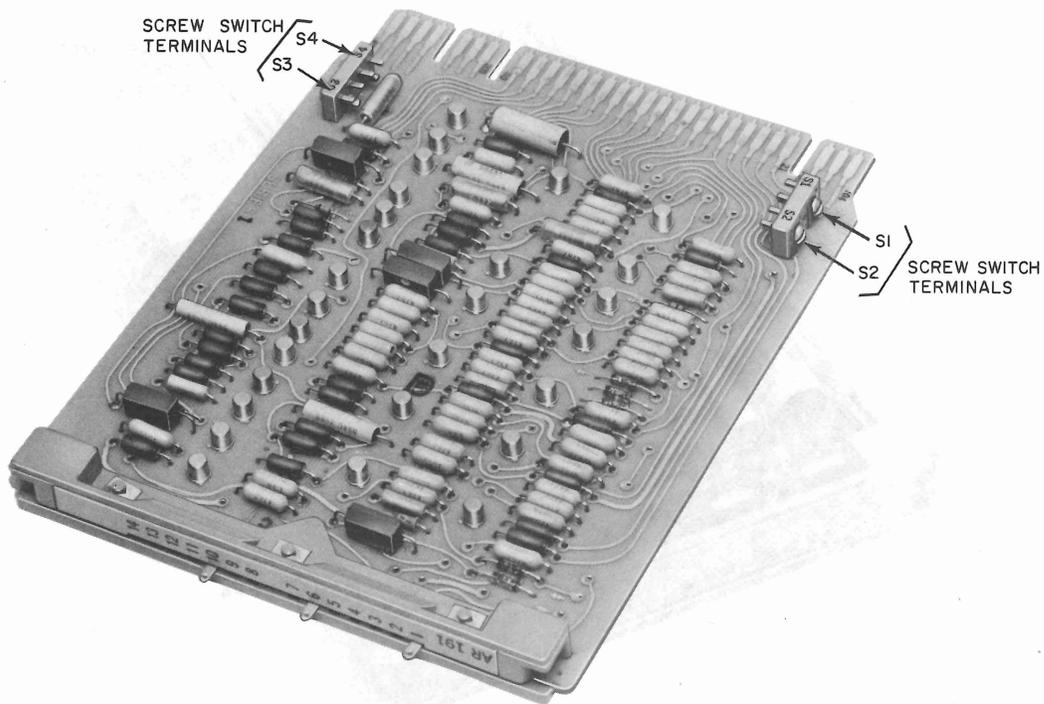


Fig. 14—AR191 CP Screw Switch Terminals—Location and Designation

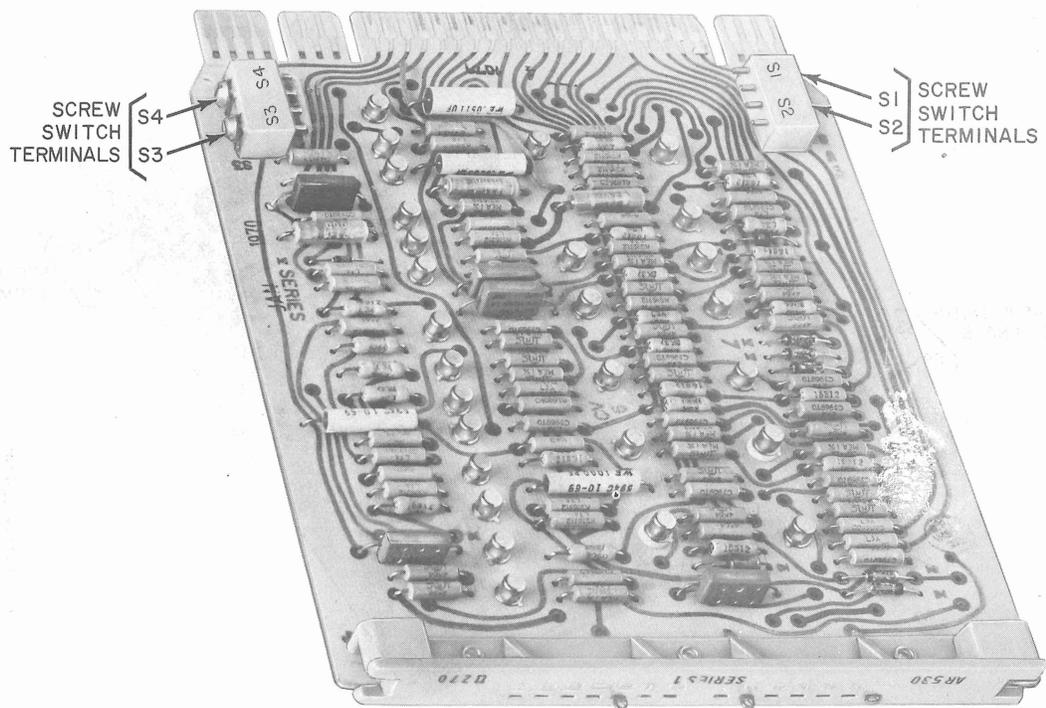


Fig. 15—AR530 CP Screw Switch Terminals—Location and Designation

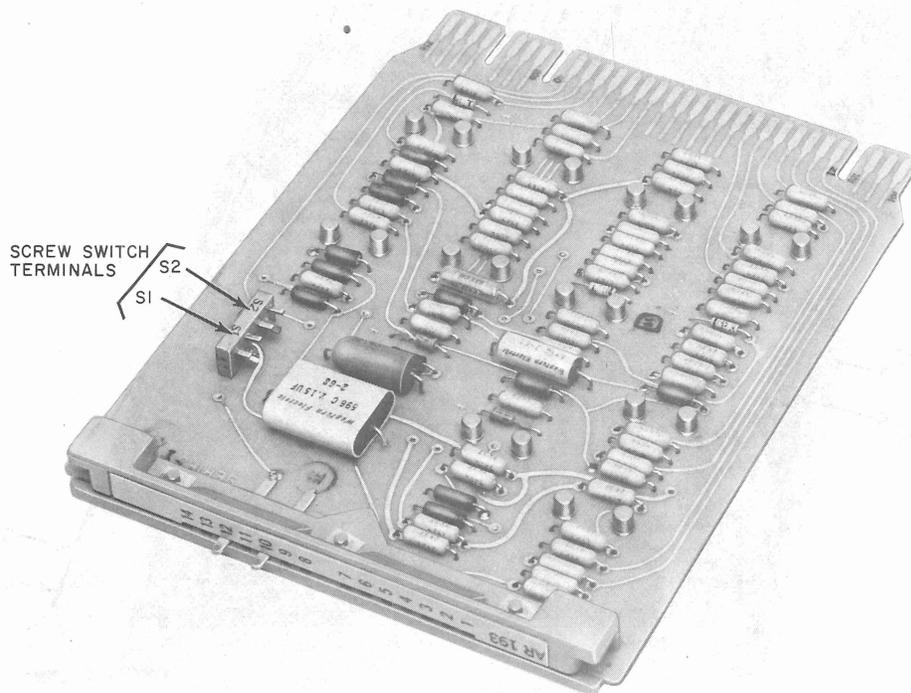


Fig. 16—AR193 CP Screw Switch Terminals—Location and Designation

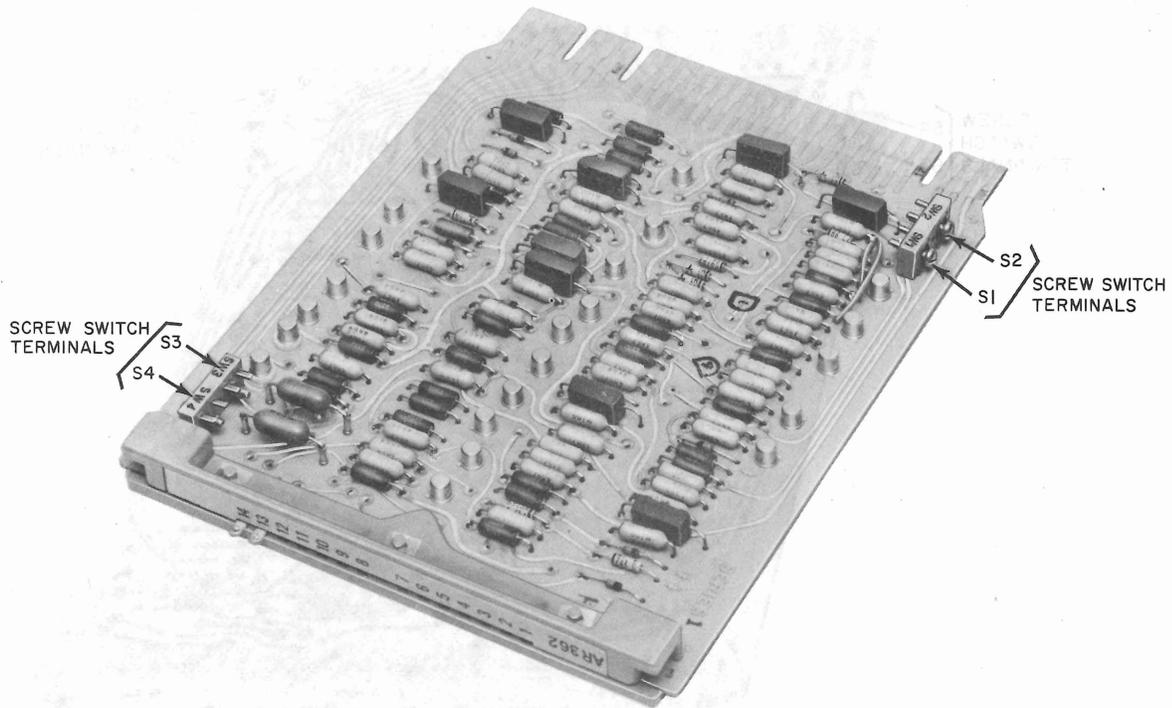


Fig. 17—AR362 CP Screw Switch Terminals—Location and Designation

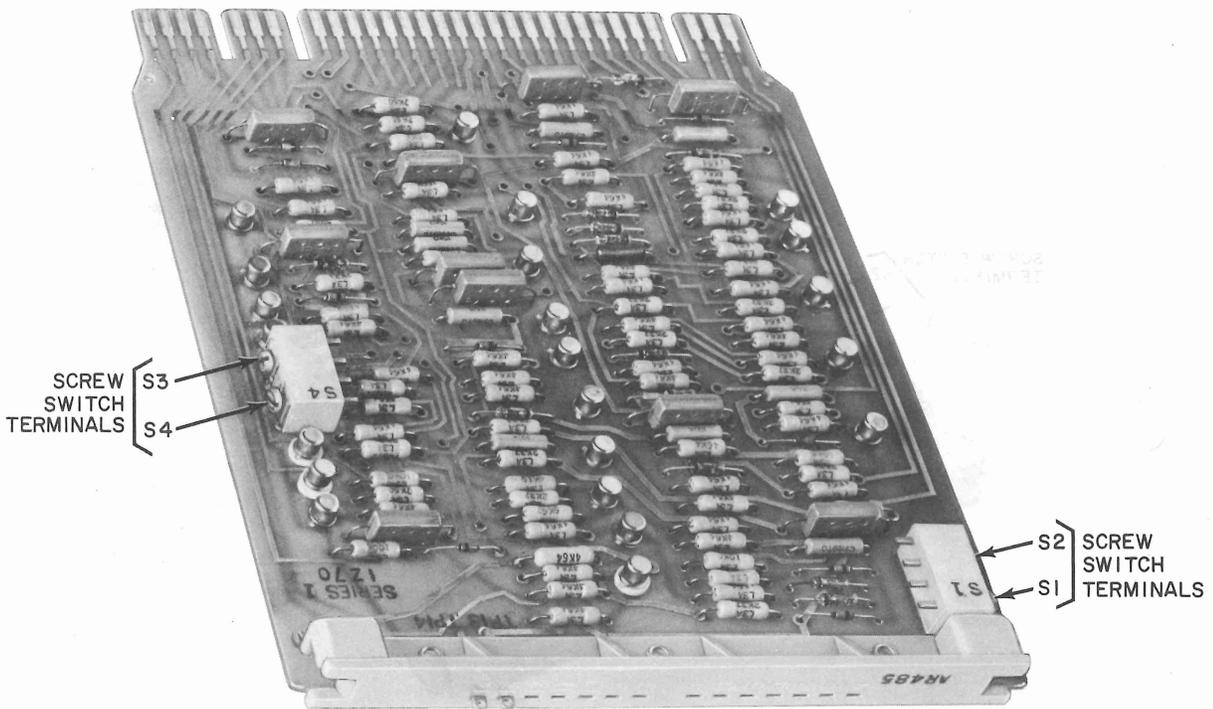


Fig. 18—AR485 CP Screw Switch Terminals—Location and Designation

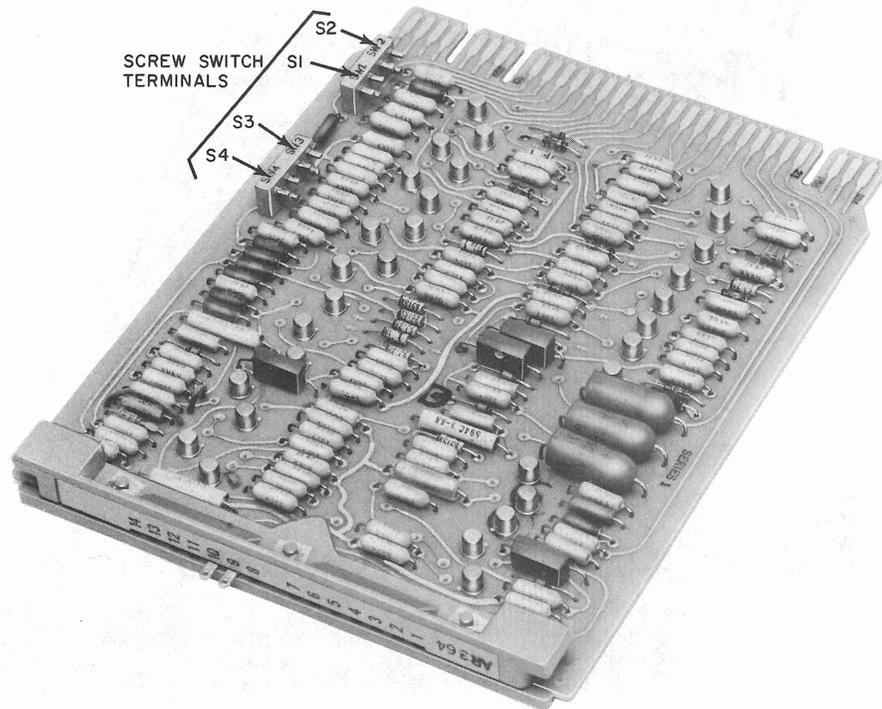


Fig. 19—AR364 CP Screw Switch Terminals—Location and Designation

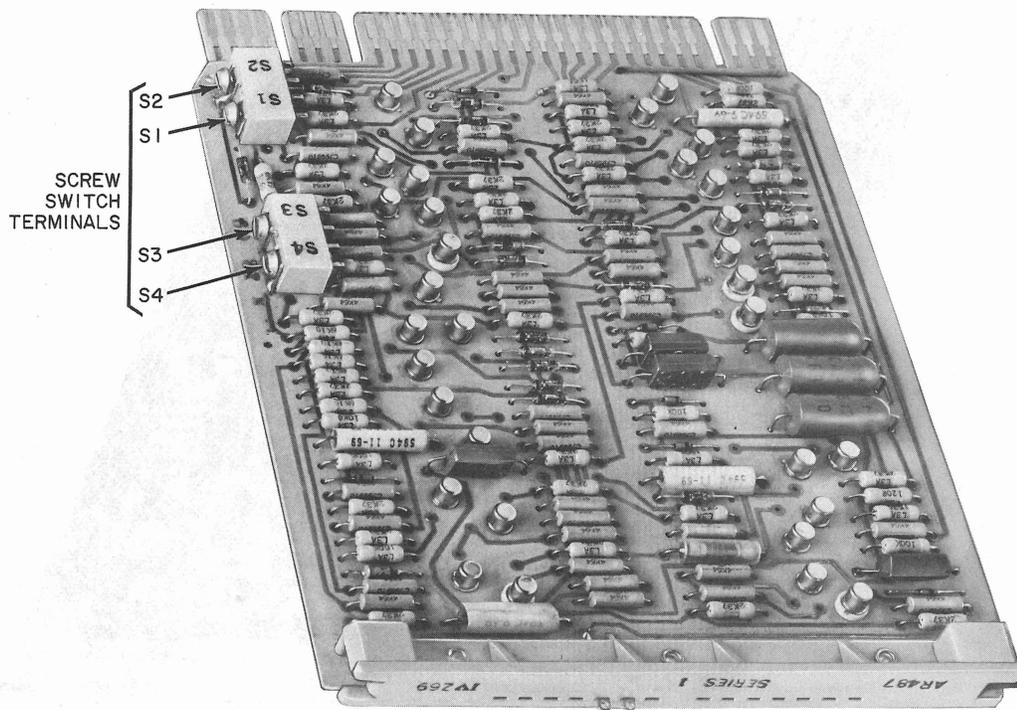


Fig. 20—AR487 CP Screw Switch Terminals—Location and Designation

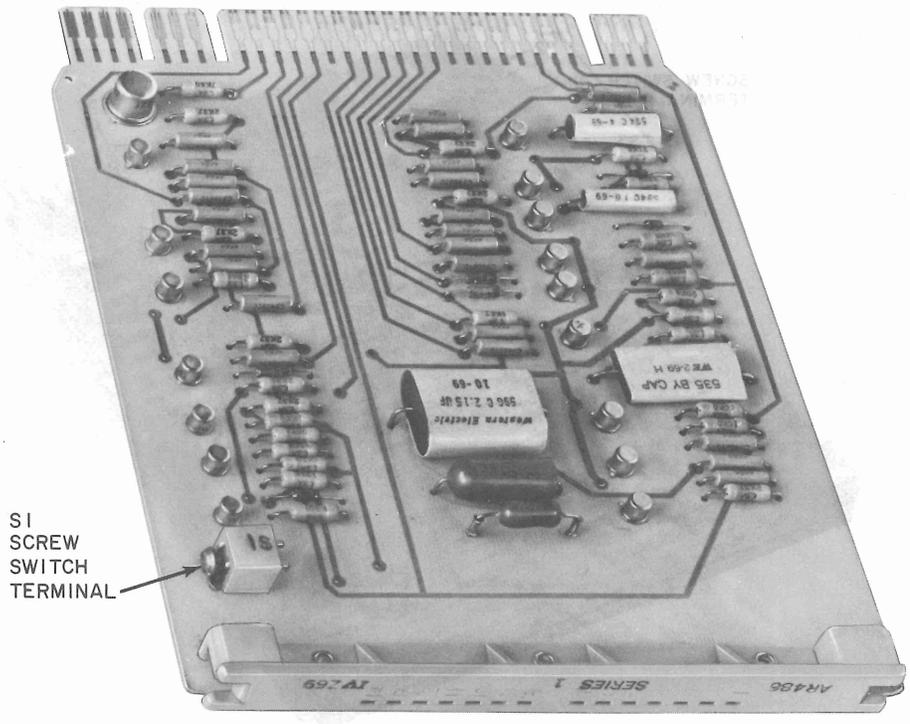


Fig. 21—AR486 CP Screw Switch Terminals—Location and Designation

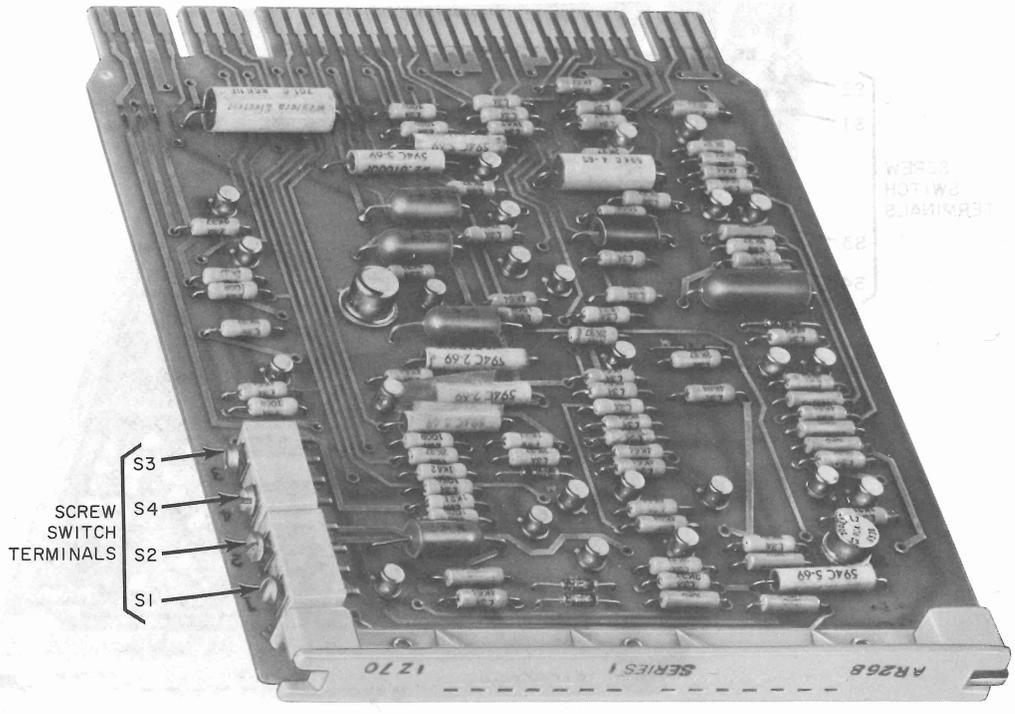


Fig. 22—AR268 CP Screw Switch Terminals—Location and Designation

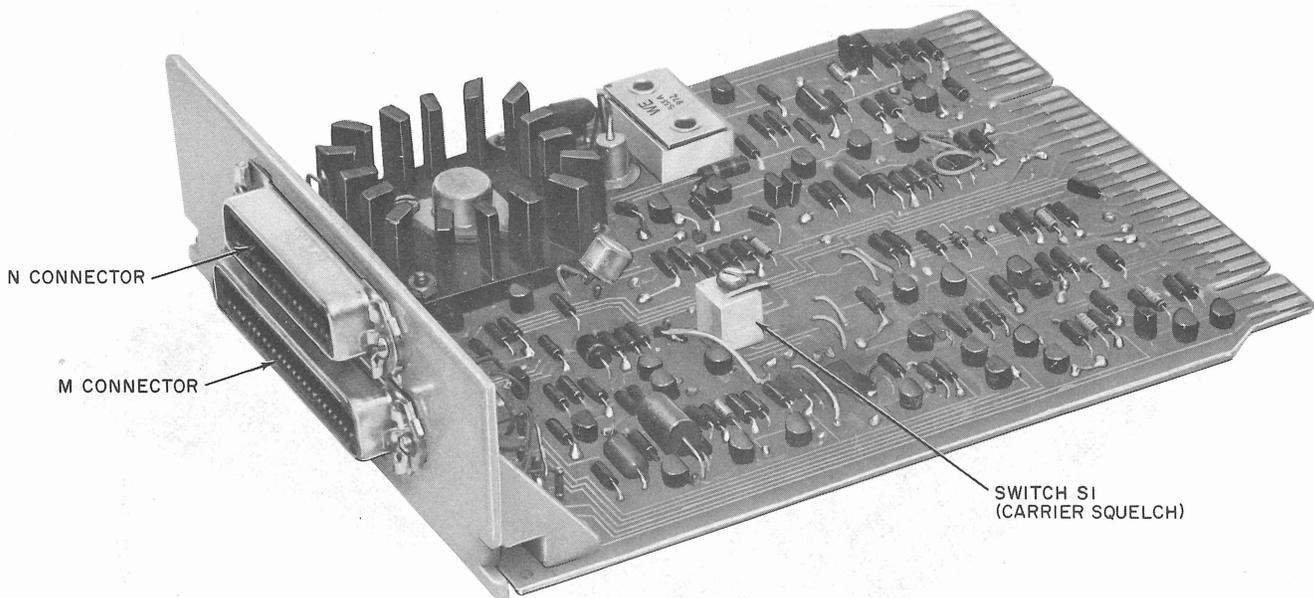


Fig. 23—AR682 CP Switch Location and Designation

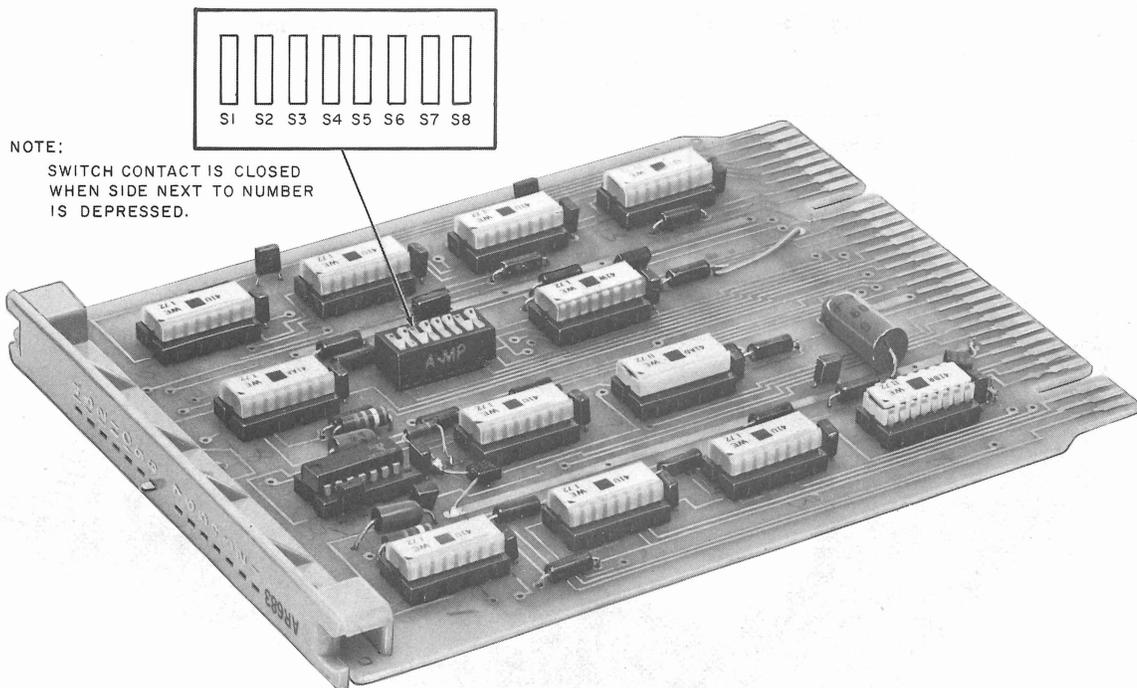


Fig. 24—AR683 CP Switch Location and Designation

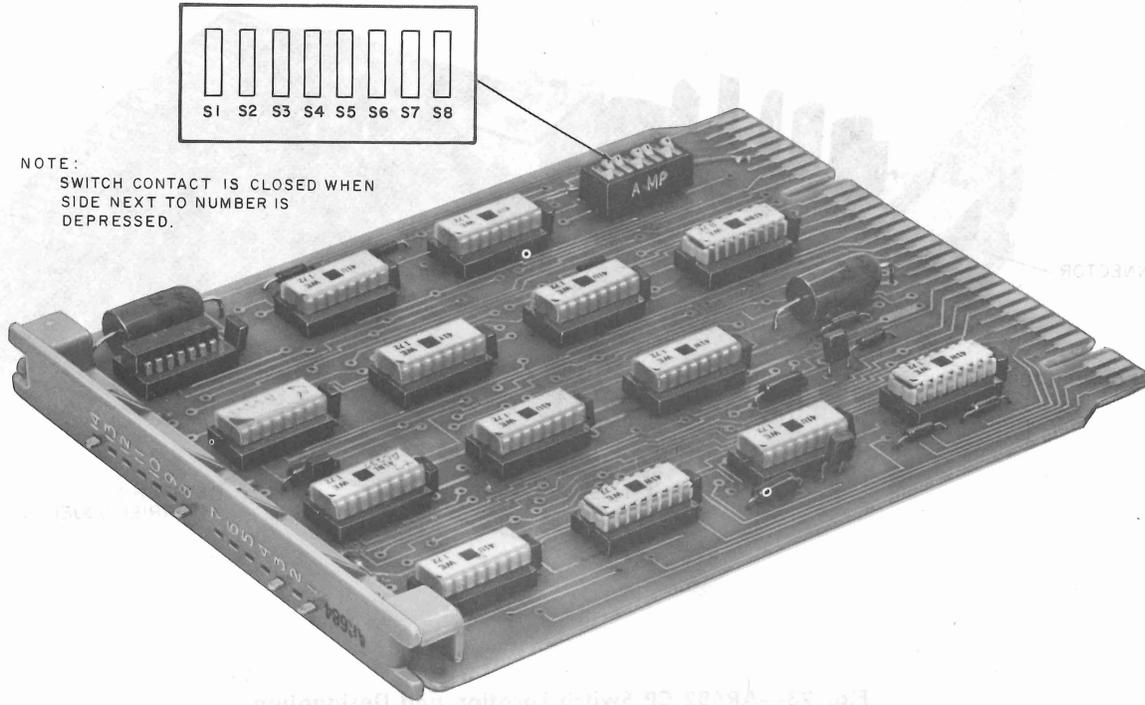


Fig. 25—AR684 CP Switch Location and Designation

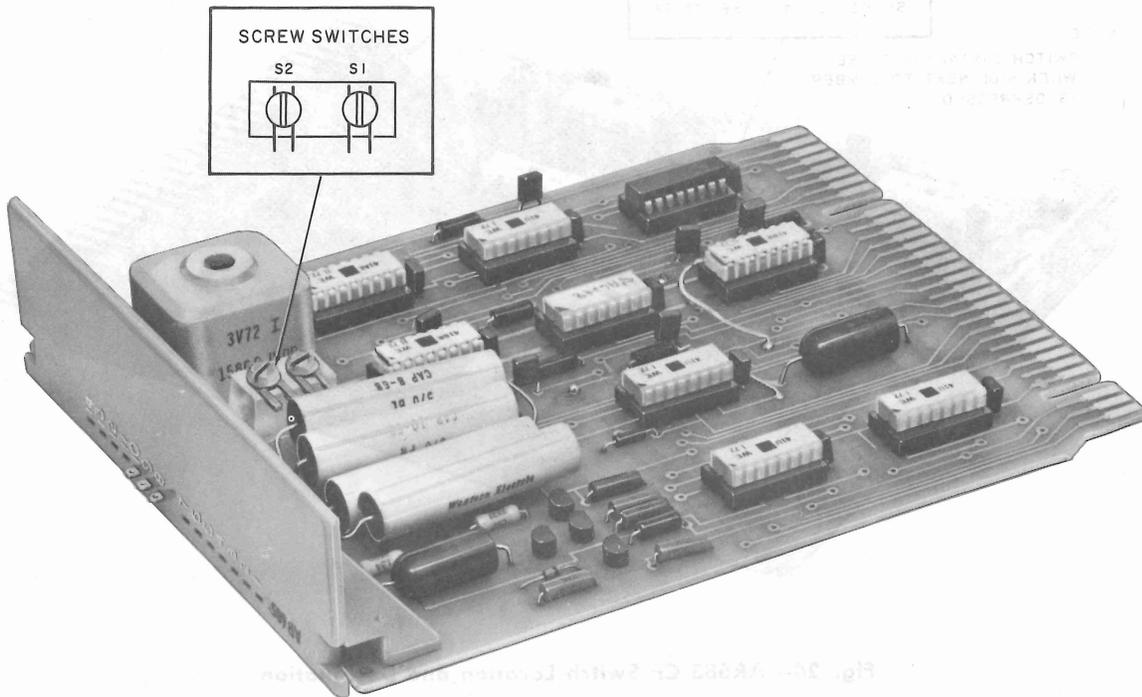


Fig. 26—AR685 CP Switch Location and Designation

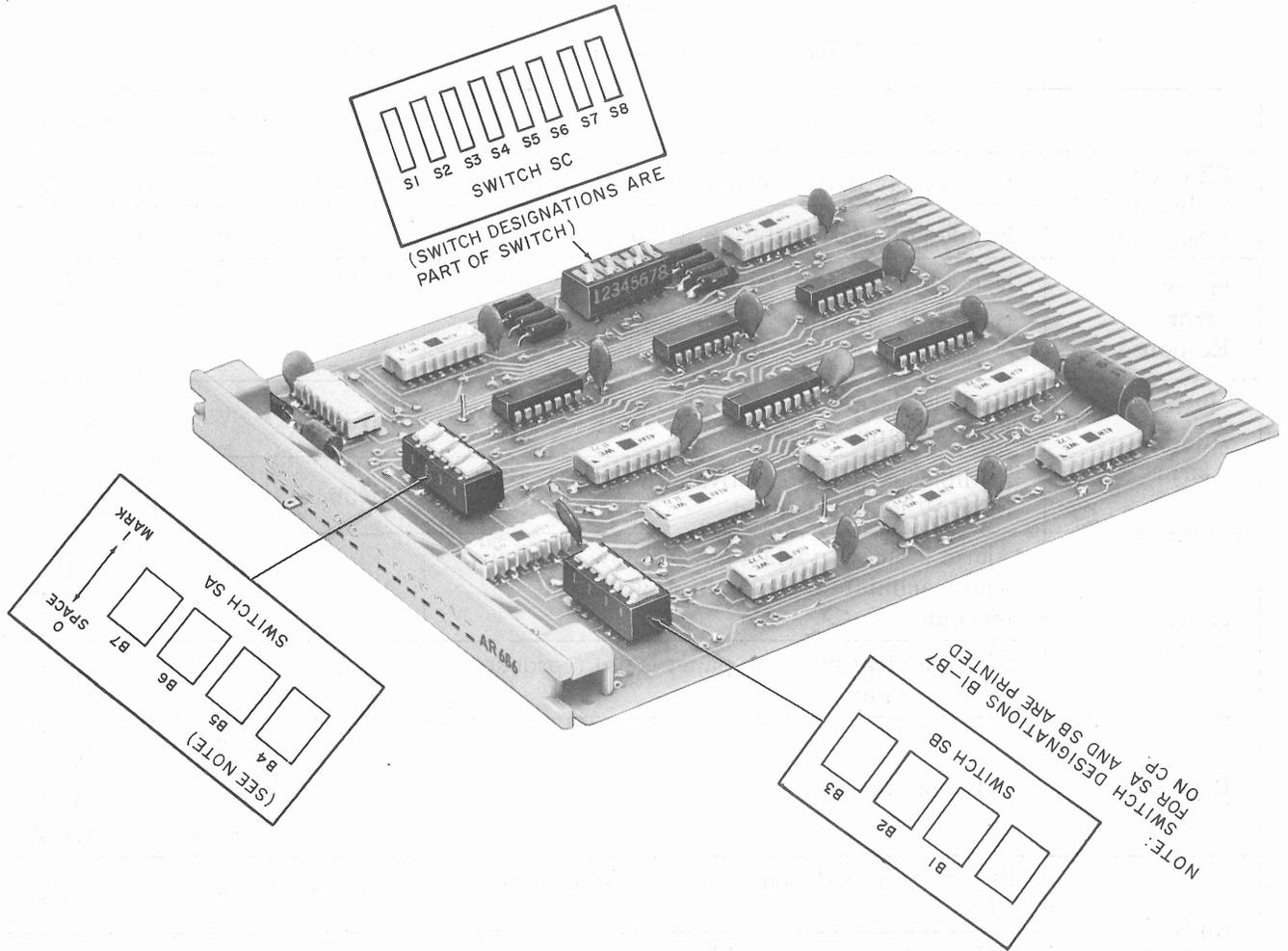


Fig. 27—AR686 CP Switch Location and Designation

*from the STC when the STC data set 109B-type is in the marking condition.*

**5.07** Connection of the data line completes the installation of the data set 109-type. To

verify that this unit is operating properly, the entire station can be tested as outlined in the practice entitled 85A1 Data Selective Calling Service Stations—100-Word Per Minute Half-Duplex Operation—Test Procedures.

TABLE B

## 85A1 STATION OPTIONS AVAILABLE WITH DAS 820G1

FUNCTION OR OPTION		CIRCUIT PACK	SWITCH	POSITION
Blind or Unblind SOH Response	Unblind on SOH — station will type heading	AR362	SW1	OUT
	Blinded on SOH — station will not type heading	AR362	SW1	IN
Parity Error Response	Detection of parity error causes a CAN response	AR362	SW3	IN
	Detection of parity error does not cause a CAN response	AR362	SW3	OUT
Audible Alarm	Audible alarm is activated when the MSG ERROR lamp is lighted	AR364	SW4	IN
	Audible alarm is not activated when the MSG ERROR lamp is lighted	AR364	SW4	OUT
Paper Alarm	Alarm indication when paper is low (friction feed machine) or the tape is low (ROTR machine)	AR364	SW1 SW2	IN OUT
	Alarm indication when paper is out (sprocket feed machine)	AR364	SW1 SW2	OUT IN
Baud	110-baud operation	AR190	SW1 SW2 SW3 SW4	IN IN OUT OUT
Shift Out EOT	Station returned to idle mode upon receipt of EOT	AR362	SW2	OUT
	EOT shifted to terminal by pushing character out of transfluxor before station assumes idle mode	AR362	SW2	IN
Line Operation	Half-Duplex (HDX) operation	AR191 or AR530	SW2	IN
		AR193 AR193	SW1 SW2	IN OUT
Line Operation	Echoplex (EPX) operation (see Note 1)	AR191 or AR530	SW2	OUT
		AR193 AR193	SW1 SW2	OUT IN
Polling Response	Station starts transmitter when polled	AR362	SW4	OUT
	Station answers ACK when polled	AR362	SW4	IN
	Station answers SIC when polled	AR362	SW4 Note 2	IN

TABLE B (Cont)

FUNCTION OR OPTION		CIRCUIT PACK	SWITCH	POSITION
Stop On SOH	Station does not stop on SOH	AR191	SW3	OUT
	Station stops on SOH	AR191	SW3	IN
Stop On STX	Station stops on STX	AR191	SW4	OUT
	Station does not stop on STX	AR191	SW4	IN
Stop On ETX	Station does not stop on ETX	AR191	SW1	IN
	Station stops on ETX	AR191	SW1	OUT
Test Poll Response	Responds to test poll with a ready-to-send indication	AR364	SW3	IN
	Responds to test poll with a ready-to-receive indication	AR364	SW3	OUT

*Note 1:* Although the screw switches for echoplex operation are functional, the echoplex option is no longer offered.

*Note 2:* The ACK character in the transfluxor must be replaced by the SIC character and the strap between terminals E5 and E6 (AR188 CP) removed. The transfluxor is located on AR188 CP. Instructions on encoding the transfluxor are given in the section entitled 85A1 Data Selective Calling Service Stations — 100-Word Per Minute Half-Duplex Operation — Maintenance (581-131-300).

TABLE C

85A1 STATION OPTIONS AVAILABLE WITH DAS 820G-L1/4 AND DAS 820G-L1/5

FUNCTION OR OPTION		CIRCUIT PACK	SWITCH	POSITION
Parity Error Response	Detection of parity error causes a CAN response	AR485	SW3	IN
	Detection of parity error does not cause a CAN response	AR485	SW3	OUT
Audible Alarm	Audible alarm is activated when the MSG ERROR lamp is lighted	AR487	SW4	IN
	Audible alarm is not activated when the MSG ERROR lamp is lighted	AR487	SW4	OUT
Paper Alarm	Alarm indication when paper is low (friction feed machine) or the tape is low (ROTR machine)	AR487	SW1	IN
	Alarm indication when paper is out (sprocket feed machine)	AR487	SW1	OUT
Baud	110-baud operation	AR190	SW1 SW2 SW3 SW4	IN IN OUT OUT
Shift Out EOT	Station returned to idle mode upon receipt of EOT	AR485	SW2	OUT
	EOT shifted to terminal by pushing character out of transfluxor before stations assume idle mode	AR485	SW2	IN
Polling Response	Station starts transmitter when polled	AR485	SW4	OUT
	Station answers ACK when polled	AR485	SW4	IN
	Station answers SIC when polled	AR485	SW4 (see Note)	IN
Stop On SOH	Station does not stop on SOH	AR530	SW3	OUT
	Station stops on SOH	AR530	SW3	IN
Stop On STX	Station stops on STX	AR530	SW4	OUT
	Station does not stop on STX	AR530	SW4	IN
Stop On ETX	Station does not stop on ETX	AR530	SW1	IN
	Station stops on ETX	AR530	SW1 SW2	OUT IN
Copy Heading	Station will copy heading	AR486	SW1	OUT
	Station will not copy heading	AR486	SW1	IN
Delete Trailer	Alarm on delete trailer	AR487	SW2	OUT
	No alarm on delete trailer	AR487	SW2	IN

TABLE C (Cont)

FUNCTION OR OPTION		CIRCUIT PACK	SWITCH	POSITION
Response To Call While Tape Feeding	Responds NAK	AR268	SW3 SW4	OUT IN
	Responds ACK or SIC	AR268	SW3 SW4	IN OUT
Tape Feedout	Feedout in roll call or when station unselects	AR268	SW2	OUT
	Feedout only when station unselects	AR268	SW2	IN
Automatic Tape Feedout	Automatic tape feedout	AR268	SW1	OUT
	No automatic tape feedout	AR268	SW1	IN

*Note:* The ACK character in the transfluxor must be replaced by the SIC character and the strap between terminals E5 and E6 (AR188 CP) removed. The transfluxor is located on AR188 CP. Instructions on encoding the transfluxor are given in the section entitled 85A1 Data Selective Calling Service Stations — 100-Word Per Minute Half-Duplex Operation — Maintenance (581-131-300).

TABLE D

85A1 STATION OPTIONS AVAILABLE WITH DATA AUXILIARY SET 820J-L1/2

	FUNCTION OR OPTION	CIRCUIT PACK	SWITCH	POSITION (NOTE 1)
Parity Error Response	Detection of a parity error causes a CAN response	AR683	S7	Closed
	Detection of a parity error does not cause a CAN response	AR683	S7	Open
Audible Alarm	Audible alarm is activated when a message error is detected and the MSG ERROR lamp is lighted	AR683	S3	Closed
	Audible alarm is not activated when a message error is detected and the MSG ERROR lamp is lighted	AR683	S3	Open
Paper Alarm	Paper alarm and indication is actuated when paper is low (friction feed machine) or tape is low (RO TTY)	AR683	S6	Closed
	Paper alarm and indication is actuated when paper is out (sprocket feed machine)	AR683	S6	Open
Shift Out EOT	Station returned to idle mode upon receipt of EOT	AR684	S8	Open
	EOT passed to terminal by pushing character before station assumes the idle mode	AR684	S8	Closed
Polling Response (Test Poll and Regular Poll)	Single CAN response to indicate the last message was improperly received (must be specified for DAS 820G1 operation)	AR684	S1 S2 S3 S4 S5 S6 S7	Open Closed Closed Open Closed Closed Open
	CAN response indicates no traffic — receiver ready (must be specified for DAS 820G-L1/-operation)	AR683 AR684	S8 S1 S2 S3 S4 S5 S6 S7	Open Closed Open Open Closed Open Open Closed
Response To Test Poll In DAS 820G1 Operation	ACK or SIC response indicating the receiver is ready	AR683	S8	Closed
	NAK response indicating there is no traffic	AR683	S8	Open
Response To Call-in While Form or Tape is Feeding	ACK or SIC response	AR683	S1 S2	Open Closed
	NAK response	AR683	S1 S2	Closed Open

TABLE D (Cont)

FUNCTION OR OPTION		CIRCUIT PACK	SWITCH	POSITION (NOTE 1)
Response To Call-in, Roll Call, and Test Poll	ACK response (see Note 2)	AR686	Switch SC	Switch positions are determined by the code character
	SIC response (see Note 2)		All Eight Sections	
Automatic Tape Feed Out	Automatic tape feed out on roll call or when the station unselects	AR683	S4	Closed
	Automatic tape feed out only when station unselects	AR683	S4	Open
Baud	110-baud operation	AR685	S1* S2* (Note 4)	Closed Closed
Carrier Squelch On Carrier Fail	Yes	AR683	S1*	Closed
	No (Note 3)	AR682	S1*	Open

*Note 1:* The "open" and "closed" designations referred to in this table are obtained by depressing one side of the rocker arm switch. When the side with the numbers (or dot) is depressed, the switch is closed. When the side opposite the numbers (or dot) is depressed, the switch is open.

*Note 2:* Encoding the ACK or SIC response requires the setting of the eight contacts of the SC switch (AR686 CP) to give the proper mark-space sequence. The setting of each contact is determined by the character being encoded. Refer to the BSP entitled 85A1 Data Selective Calling Service Stations — 100-Word Per Minute Half-Duplex Operation — Maintenance (581-131-300) for information on setting these switches.

*Note 3:* When the data set 109E is used, the no-carrier squelch option must be provided for both the data set and the DAS 820J-L/-.

*Note 4:* Switches marked thus (\*) are screw switches and are "closed" when the screw is turned all the way in.

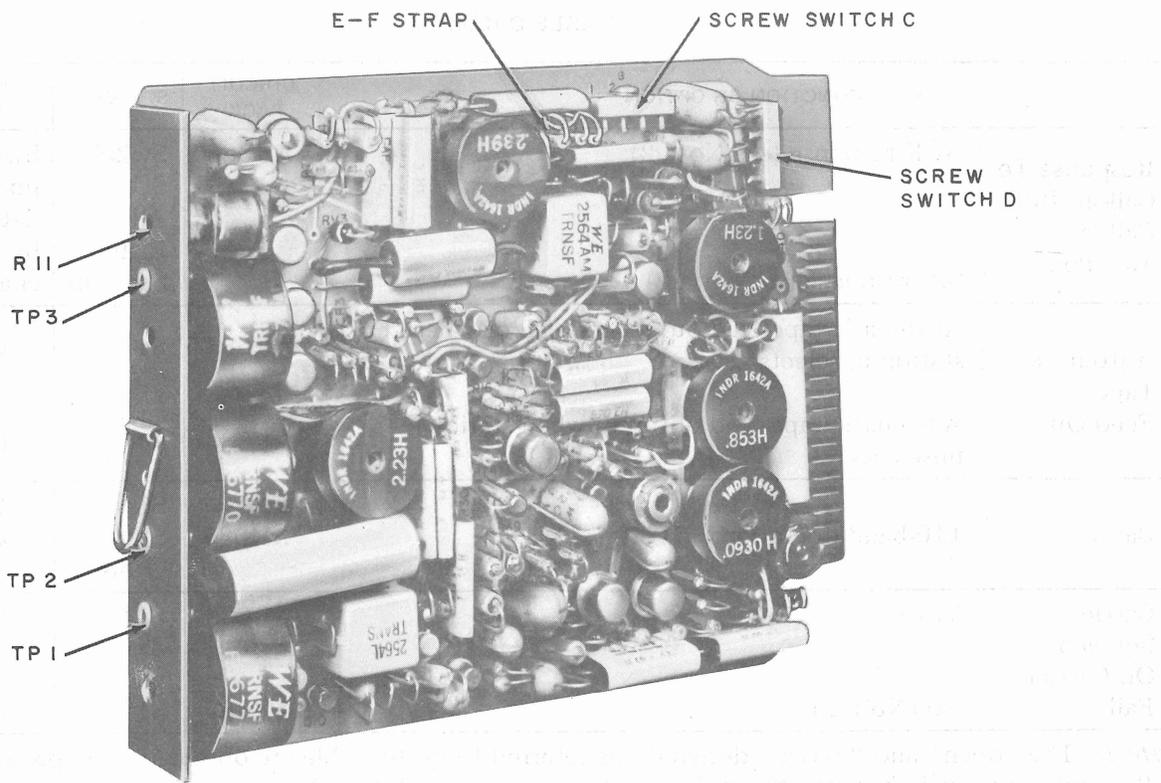


Fig. 28—Data Set 108A-Type—Location of Test Points and Screw Switches

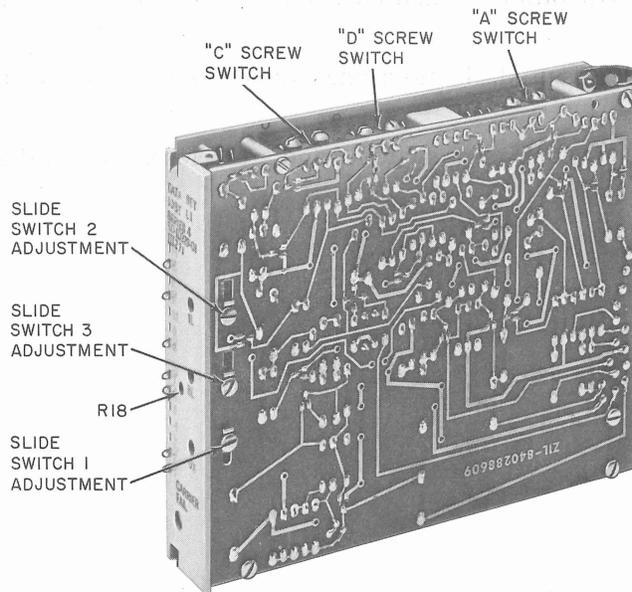


Fig. 29—Data Set 108E-Type—Location of List Points and Screw Switches

TABLE E  
 DATA SET 108-TYPE  
 SCREW SWITCH D SETTINGS  
 FOR REDUCING GAIN OF THE  
 RECEIVE BUFFER AMPLIFIER

LOOP FACILITY WITH 2300 HZ LOSSES (DB)	DATA SET 108A-TYPE			DATA SET 108E-TYPE		
	REDUCTION IN GAIN (DB)	SCREW SWITCH D		REDUCTION IN GAIN (DB)	SCREW SWITCH D	
		CLOSED	OPEN		CLOSED	OPEN
0 to 3	8		1-2, 3-4	6		1-2
3.1 to 7	4	1-2	3-4			
7.1 and Greater	0	3-4	1-2	0	1-2	

TABLE F  
 DATA SET 108-TYPE  
 HYBRID NETWORK

TYPICAL LOOP FACILITY	TYPICAL 2-WIRE LOOP IMPEDANCE MEASURED AT 2125 HZ	DATA SET 108E-TYPE				DATA SET 108A-TYPE		E-F CONNECTION
		SCREW SWITCH C		SCREW SWITCH D		SCREW SWITCH C		
		OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	
—	900*	1-2,3-4	2-3		3-4	1-2,3-4	2-3	STRAPPED
—	850	2-3,3-4	1-2	3-4		2-3,3-4	1-2	CUT
—	750	1-2,2-3	3-4	3-4		1-2,2-3	3-4	CUT
26 NL (HC)	650	2-3	1-2,3-4	3-4		2-3	1-2,3-4	CUT
24 NL (HC)	500	2-3,3-4	1-2		3-4	2-3,3-4	1-2	STRAPPED
22 NL (HC)	400	1-2,2-3	3-4		3-4	1-2,2-3	3-4	STRAPPED
19 NL (HC)	280	2-3	1-2,3-4		3-4	2-3	1-2,3-4	STRAPPED
16 NL (HC)	200	2-3	1-2,3-4		3-4	2-3	1-2,3-4	STRAPPED
26 H88 (HC)	1300	1-2,3-4	2-3	3-4		1-2,3-4	2-3	CUT
24 H88 (HC)	1260	1-2,3-4	2-3	3-4		1-2,3-4	2-3	CUT
22 H88 (HC)	1250	1-2,3-4	2-3	3-4		1-2,3-4	2-3	CUT
19 H88 (HC)	1240	1-2,3-4	2-3	3-4		1-2,3-4	2-3	CUT
16 H88 (HC)	1340	1-2,3-4	2-3	3-4		1-2,3-4	2-3	CUT

NL — Nonloaded (HC) — High Capacity

\*Compromise hybrid network switching

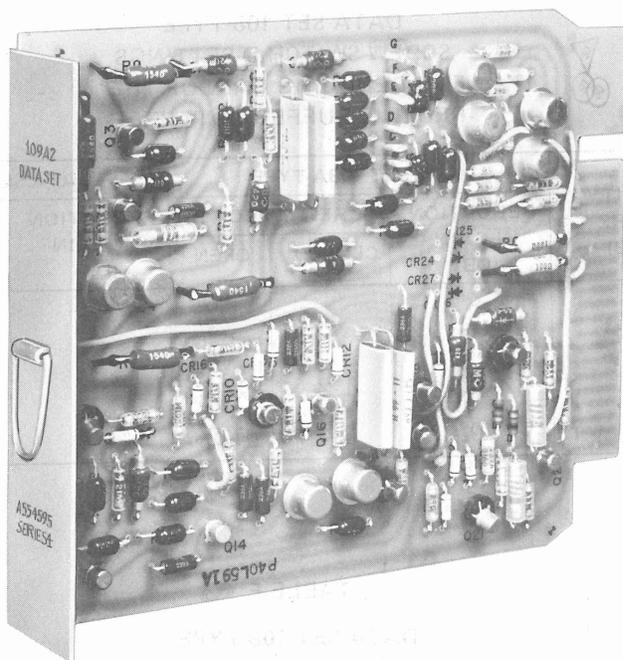


Fig. 30—Data Set 109A-Type

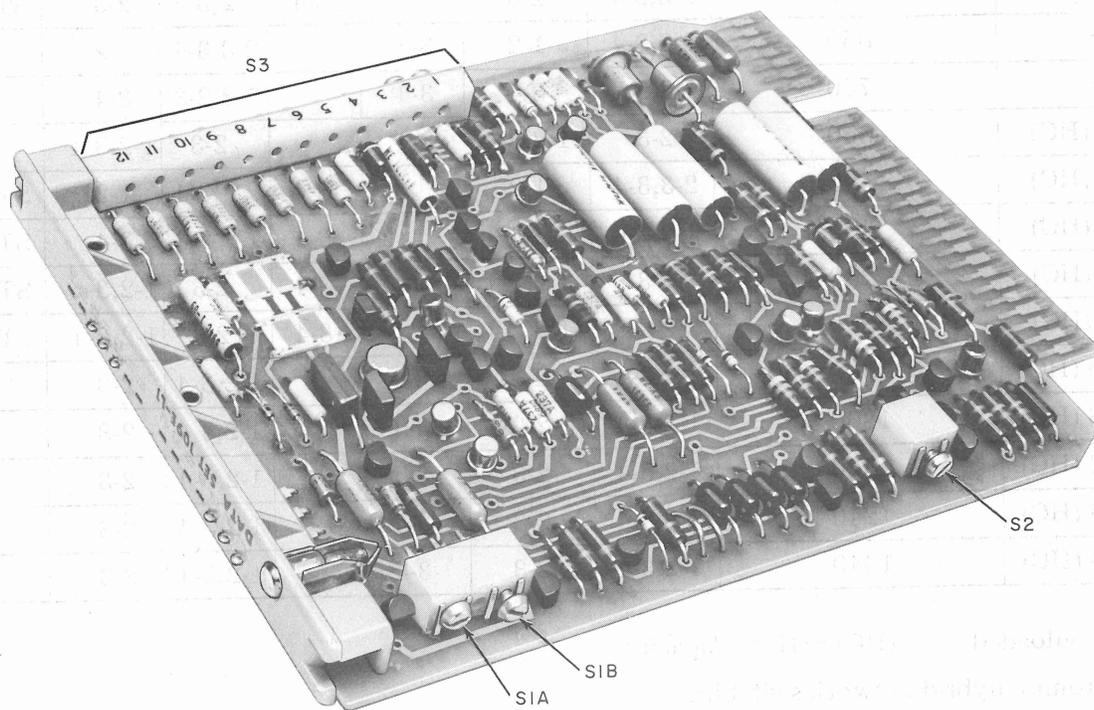


Fig. 31—Data Set 109E-Type Location of Screw Switches

**TABLE G**  
**DATA SET 109E-TYPE**  
**LINE PAD ADJUSTMENTS**

LINE PAD RESISTANCE (OHMS)	SCREW SWITCH S3 SETTINGS	
	CLOSE S3-	OPEN S3-
00.0	4,5,6,7,9,10,11,12	
136.2	4,5,6,10,11,12	7,9
266.0	4,5,7,9,11,12	6,10
402.2	4,5,11,12	6,7,9,10
522.0	4,6,7,9,10,12	5,11
658.2	4,6,10,12	5,7,9,11
788.0	4,7,9,12	5,6,10,11
924.2	4,12	5,6,7,9,10,11
1022.0	5,6,7,9,10,11	4,12
1158.2	5,6,10,11	4,7,9,12
1288.0	5,7,9,11	4,6,10,12
1424.2	5,11	4,6,7,9,10,12
1544.0	6,7,9,10	4,5,11,12
1680.2	6,10	4,5,7,9,11,12
1810.0	7,9	4,5,6,10,11,12
1946.2		4,5,6,7,9,10,11,12