86A1 DATA SELECTIVE CALLING SERVICE
HALF-DUPLEX—100-WORD PER MINUTE DATA STATION
INSTALLATION

1. GENERAL

1.01 This section describes the procedures to be followed for the installation of a Model 33- or 35-type Teletypewriter (TTY) Data Station associated with the 86A1 Data Selective Calling Service.

1.02 The 33- or 35-type TTY data station is a self-contained station which is intended to be completely assembled by the distributing house prior to shipment.

1.03 The customer must furnish a standard 3-wire, grounding-type, 106- to 129-volt 59.55- to 60.45-Hz ac power receptacle (to accept a plug equipped with two parallel blades and a round-shaped grounding pin).

Note: The receptacle shall not be under control of a switch.

1.04 Verify with the serving test center (STC) that the loop facilities meet transmission requirements specified in the section entitled Private Line Data Circuits—Voice Bandwidth Circuits For Miscellaneous Data—Overall Tests and Requirements (314-410-500).

1.05 Reference directions (left, right, front, or rear) are in respect to facing the keyboard located at the front of the 33- or 35-type TTY.

2. INSTALLATION

2.01 Verify that the location selected by the customer for the 33- or 35-type TTY data station is adequate for maintenance. The following TTY measurements should be exceeded to allow room for 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

2.02 Verify that the customer-provided ac power receptacle is within 7 feet of the selected location.

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

2.03 To gain access to Data Set 109A or 108A and Data Auxiliary Set (DAS) 820B1, 820B2, or 820B7 proceed as follows:

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) At the front of the TTY, 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 front compartment panel. The panel will come to rest against the safety spring clip.

(3) Depress the safety spring clip located 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) Same as 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 820B2 or 820B7 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 804R3 and the connector assembly are mounted on the door of the stand.

(1) Apply outward pressure at the top rear of the KS-20018 type cabinet panel until the catches disengage.

(2) Lift the panel up to remove it from the framework.

2.04 Verify that the proper circuit packs (CP) are installed in DAS 820B1, 820B2, or 820B7 (Fig. 1 or 2), and that the R and CS switches are positioned properly according to the service order and/or worksheet. If a Data Set 108A is used, it must be series 4 or higher, and the loop-back switch should be in the NORM position.

Note 1: An option in DAS 820B1, 820B2, or 820B7 is the encoding of the shift registers on CP AR37 (DAS 820B1 or B2) or CP AR272 (DAS 820B7).

Note 2: For 33 ASR or 33 RO TTYs, position DAS 820B2 or 820B7 in the maintenance position as follows:

(1) Rotate latch counterclockwise (Fig. 3). This allows DAS 820B2 or 820B7 to pivot on the 91A bracket.

(2) With both hands placed on the rear of the data auxiliary set, gently pull the top towards the rear of the station as shown in Fig. 4.

2.05 Remove lock strip (card-retaining bar) by loosening the two screws holding it to the apparatus mounting. Slide lock strip from beneath screws to remove lock strip.

2.06 Using the 748A tool assembly (card-extracting tool), remove CP AR272 (or AR37) (Fig. 1 or 2) as follows:

(1) Place pivots of 748A on faceplate of CP and gently push 748A until pivots engage faceplate.

(2) Grasp handle of 748A and pull CP straight out.

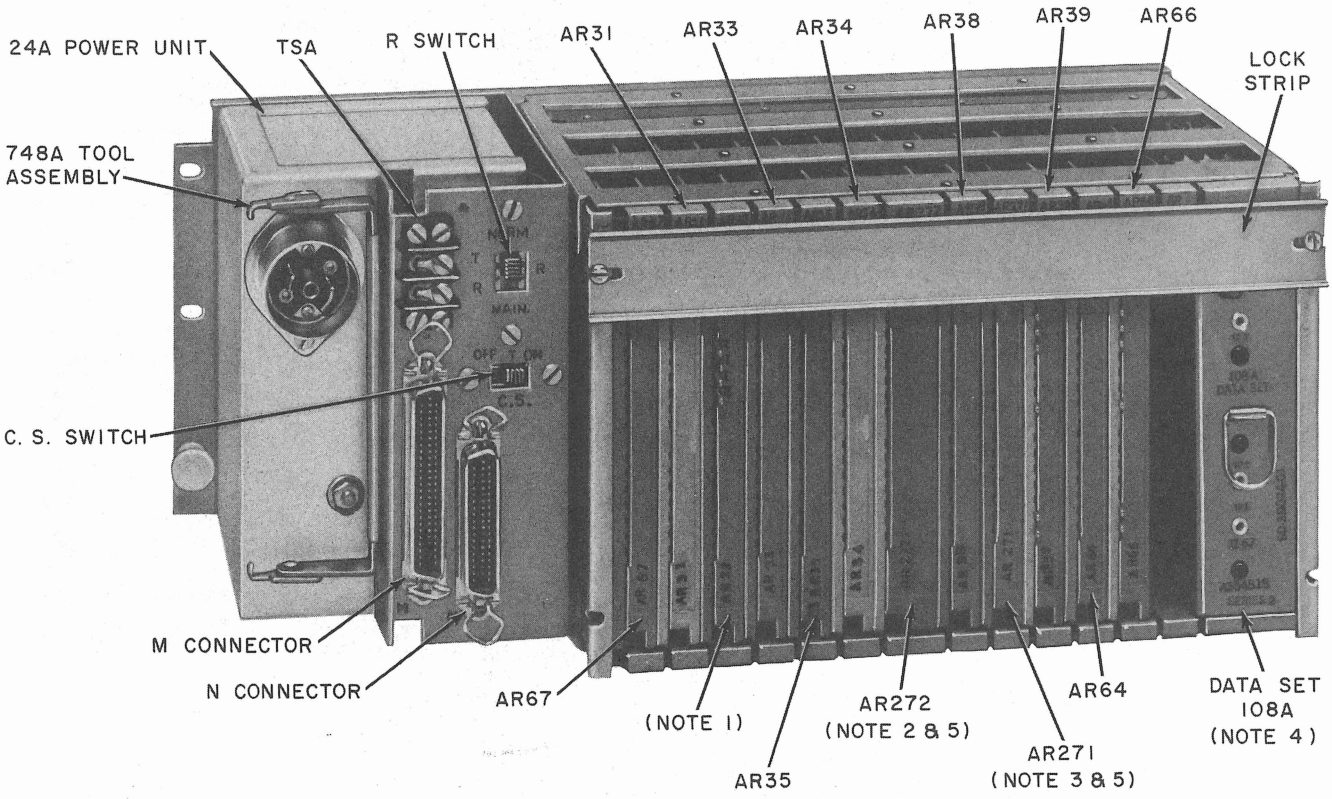
2.07 Inspect shift register (Fig. 5). A properly encoded AR272 (or AR37) shift register should have three 36-gauge polyurethane-coated wires running through the eight tubes.

In the event that the shift register is not encoded, refer to the section entitled 86A1 Data Selective Calling Service—Half-Duplex—100-Word Per Minute Data Station—Maintenance (581-136-300).

2.08 Replace CP AR272 (or AR37) as follows:

(1) Insert CP AR272 (or AR37) in position G.

(2) Verify that the CP is seated properly in the connectors.



NOTES:

1. AR32 WITH EOT COUNTER (DAS 820B1), AR356 W/O EOT COUNTER (DAS 820B2).
2. EARLY INSTALLATIONS MAY BE EQUIPPED WITH AR37.
3. EARLY INSTALLATIONS MAY BE EQUIPPED WITH AR36.
4. DATA SET 109A MAY BE SUBSTITUTED.
5. IF DAS IS EQUIPPED WITH AR36 AND IT IS TO BE REPLACED WITH AR271, AR37 MUST BE REPLACED WITH AR272 AND VICE VERSA.

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Fig. 1—Data Auxiliary Set 820B1 or 820B2 (Controller)

(3) Remove the 748A tool assembly by springing the bottom pivot down to disengage pivot from CP faceplate.

(4) Lift up 748A to disengage top pivot.

2.09 Installation of the 33-type TTY should be in accordance with the section entitled 32 and 33 Teletypewriter Set—Installation (574-100-201) with the following exceptions:

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

2.10 Installation of the 35 RO TTY should be in accordance with the section entitled 35 Receive Only Page Printer Set—Installation (574-200-200).

2.11 Installation of the 35 ASR TTY should be in accordance with the section entitled 35 Automatic Send Receive Set—Installation (574-202-200).

2.12 Installation of the 35 ROTR TTY should be in accordance with the section entitled 35 Receive Only Typing Reperforator (ROTR) Sets—Installation (574-203-200).

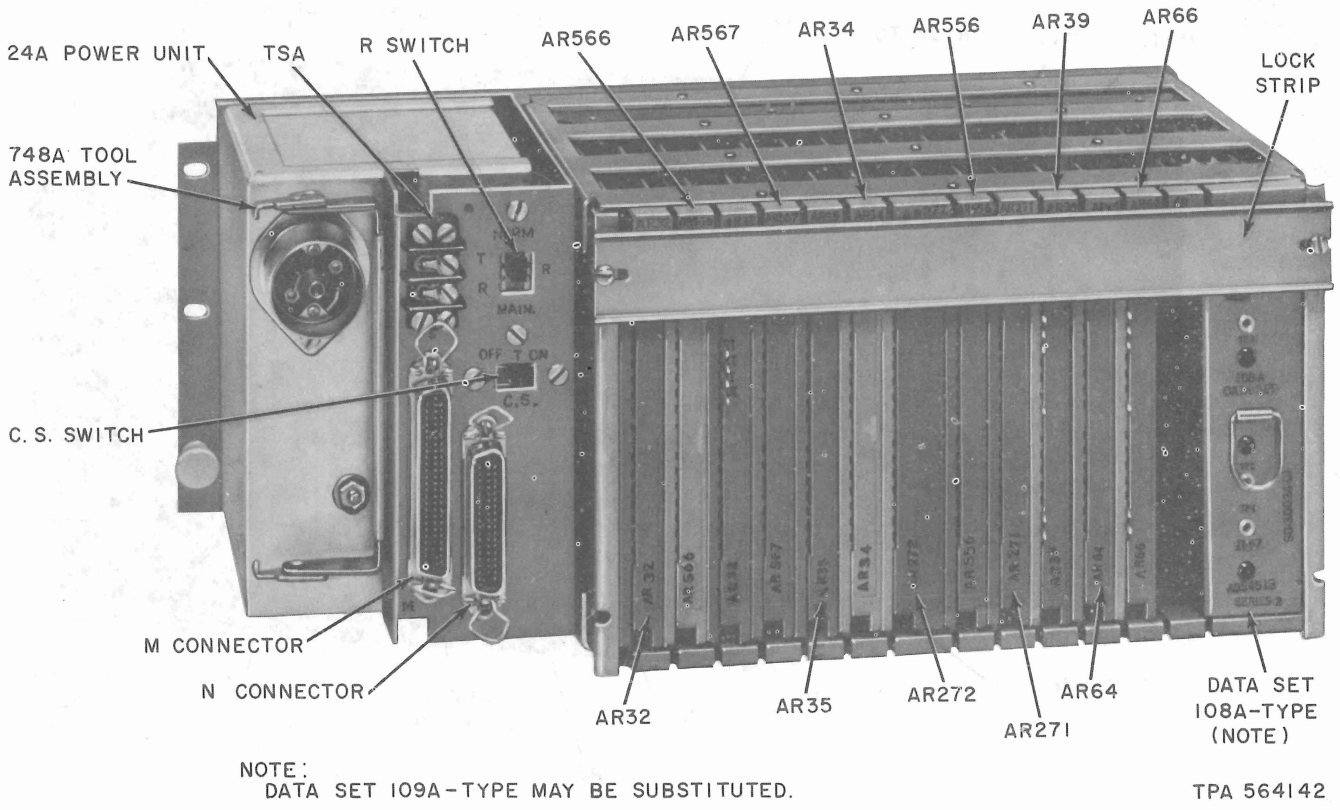

Fig. 2—Data Auxiliary Set 820B7 (Controller)

3. INTERCONNECTION OF STATION

3.01 The interconnection of the 33- and/or 35-type TTY station is shown in Fig. 6 and 7. The figures are shown for a primary station (with or without auxiliary TTY). Figure 6 illustrates an ORIGINATE/TERMINATE station and Fig. 7 illustrates a TERMINATE ONLY station.

3.02 Verify that the TTY is properly option-wired for the type of station being installed. The options for the TTY should be specified on the service order and/or worksheet.

4. PREOPERATIVE ADJUSTMENTS AND TESTS—DATA SET 108A

4.01 Screw switch D (Fig. 8) on Data Set 108A will have been closed to provide maximum sensitivity (maximum gain of the receive buffer amplifier) during manufacturing 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 A shows the reduction in gain for each screw setting. The screw switches should be set according to the service order and/or worksheet.

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 B shows typical loop impedance if the cable makeup is known. Select the proper facility makeup under the TYPICAL LOOP FACILITY column. Find the typical loop impedance at 2125 Hz corresponding to the Data Set 108A operation. When the impedance is found, refer to Table C for the strapping required for the optimum trans-hybrid balance. Set screw switch C and strap E-F as indicated in the table. Refer to Fig. 8 for the location of screw switches and the strap.

4.03 Upon completion of hybrid network strapping, plug Data Set 108A into DAS 820B1, 820B2, or 820B7.

TABLE A

DATA SET 108A

SCREW SWITCH D SETTINGS

DESENSITIZING PAD STRAPPING

FOR REDUCING GAIN OF THE

RECEIVE BUFFER AMPLIFIER

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

TABLE B

TYPICAL LOOP IMPEDANCE

TYPICAL LOOP FACILITY	TYPICAL LOOP IMPEDANCE
	2125 HZ (DATA SET 108A)
26 NL (HC)	650
24 NL (HC)	500
22 NL (HC)	400
19 NL (HC)	280
16 NL (HC)	200
26 H88 (HC)	1300
24 H88 (HC)	1260
22 H88 (HC)	1250
19 H88 (HC)	1240
16 H88 (HC)	1340

NL — Nonloaded (HC) — High Capacity

DATA SET LEVEL ADJUSTMENT

4.04 Connect terminals + and — of portable station test set TTS-28 to TP1 and TP2 of the data set (Fig. 8). Set FUNCTION switch of TTS-28 to DBM 900Ω TERM 0 position.

4.05 Connect TTY power cord to the customer-provided ac receptacle.

4.06 Adjust R11 potentiometer on data set for output level specified on service order and/or circuit layout record card.

TABLE C

DATA SET 108A

HYBRID NETWORK STRAPPING

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

Note: If no output level is measured, operate carrier squelch (CS) switch on DAS 820B1, 820B2, or 820B7 to OFF. Restore CS switch after adjustment of R11 and remove TTS-28.

4.07 Connect the incoming data line to the tip (T) and ring (R) terminals on TS A located on DAS 820B1, 820B2, or 820B7.

4.08 Perform installation tests in accordance with the section entitled 86A1 Data Selective Calling Service—Half-Duplex—100-Word Per Minute Data Station—Test Procedures (581-136-500).

5. PREOPERATIVE ADJUSTMENTS AND TESTS—DATA SET 109A

5.01 There are no preoperative adjustments and tests required for Data Set 109A-type (Fig. 9).

5.02 Verify that Data Set 109A is seated firmly in its connector.

5.03 Connect the incoming data line to the tip (T) and ring (R) terminals on TS A located on DAS 820B1, 820B2, or 820B7.

The data line must be connected to DAS 820B1, 820B2, or 820B7 correctly (tip to T terminal and ring to R terminal). The tip has a positive potential from the STC.

5.04 Perform installation tests in accordance with Section 581-136-500.

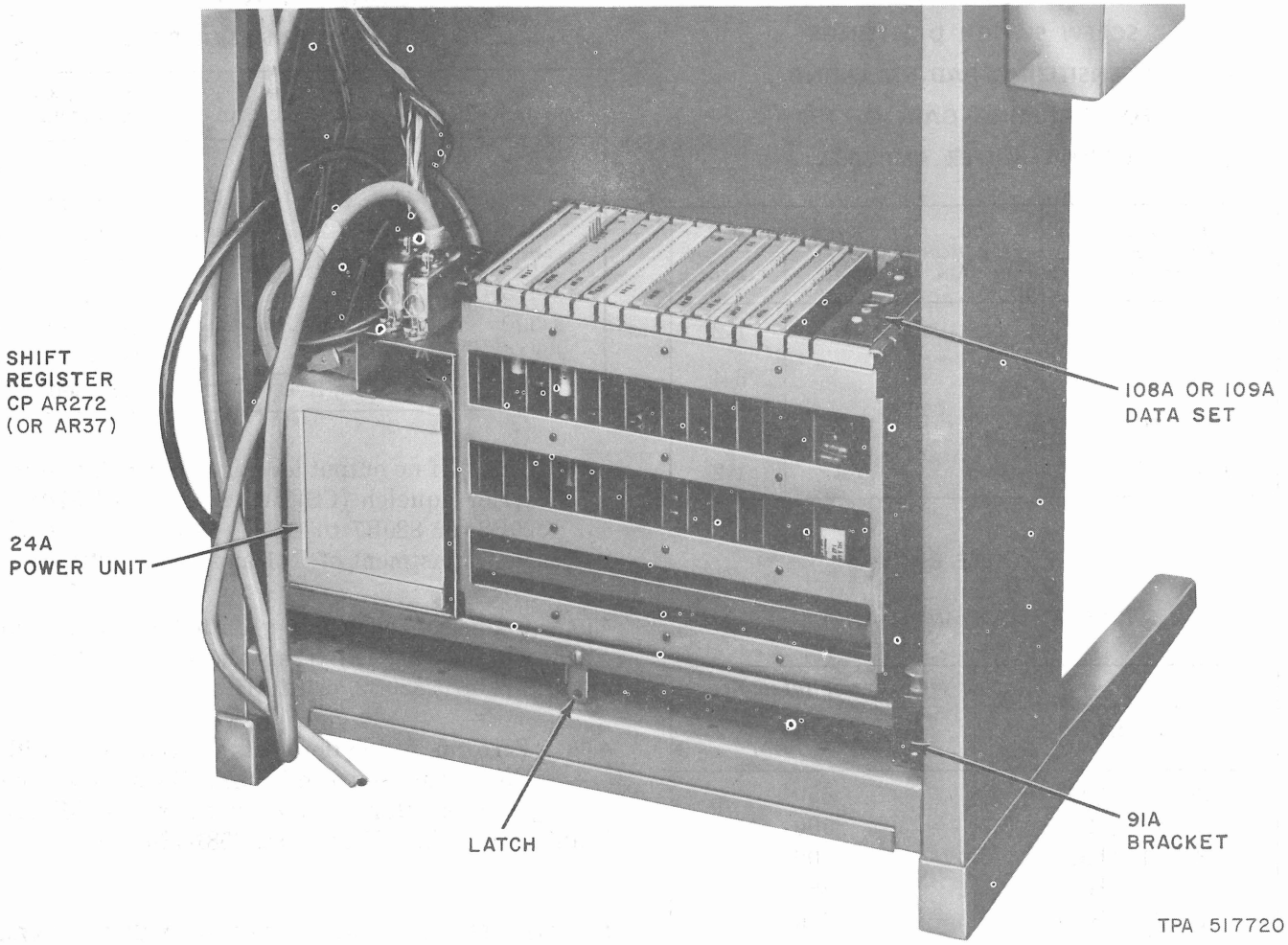

Fig. 3--Mounting Arrangement for DAS 820B-Type in a 33-Type TTY

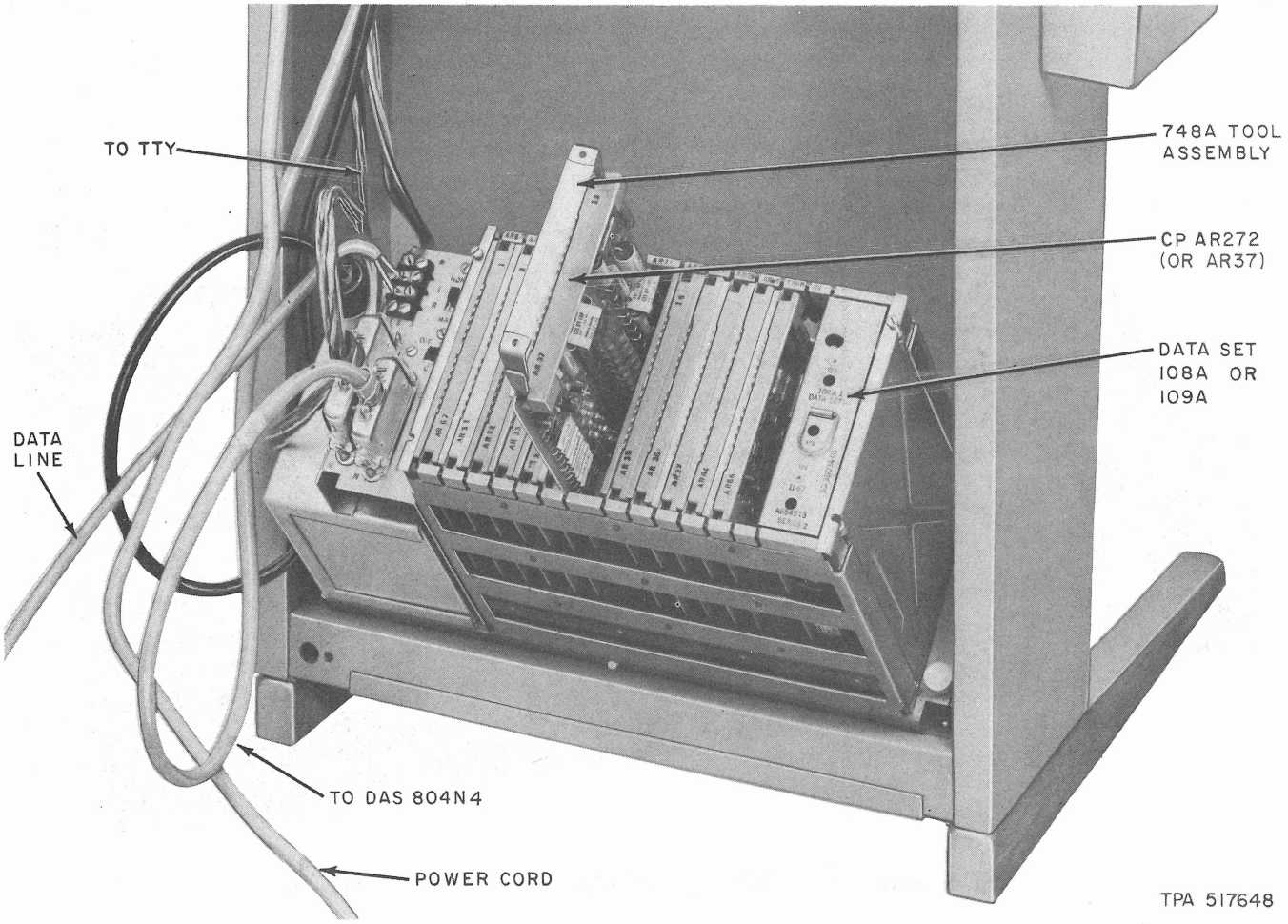

Fig. 4—Mounting Arrangement for DAS 820B-Type in a 33-Type TTY—Maintenance Position

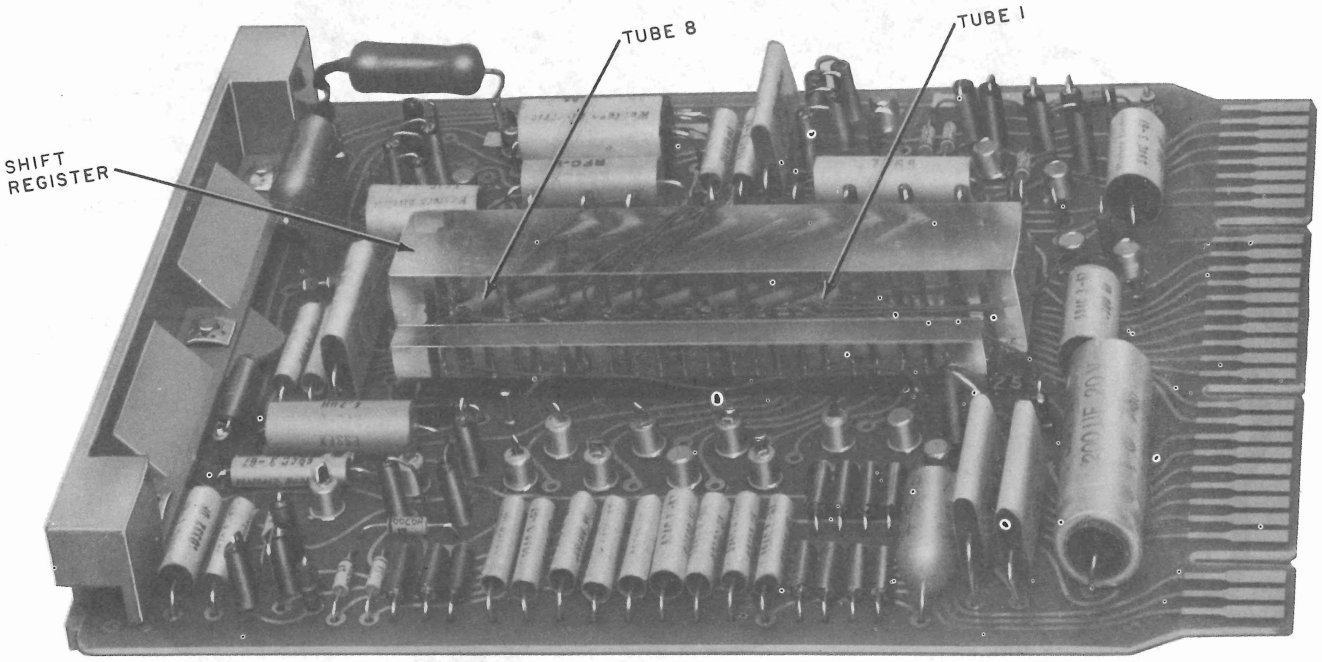

Fig. 5—Circuit Pack AR272 (or AR37)—Location of Shift Register

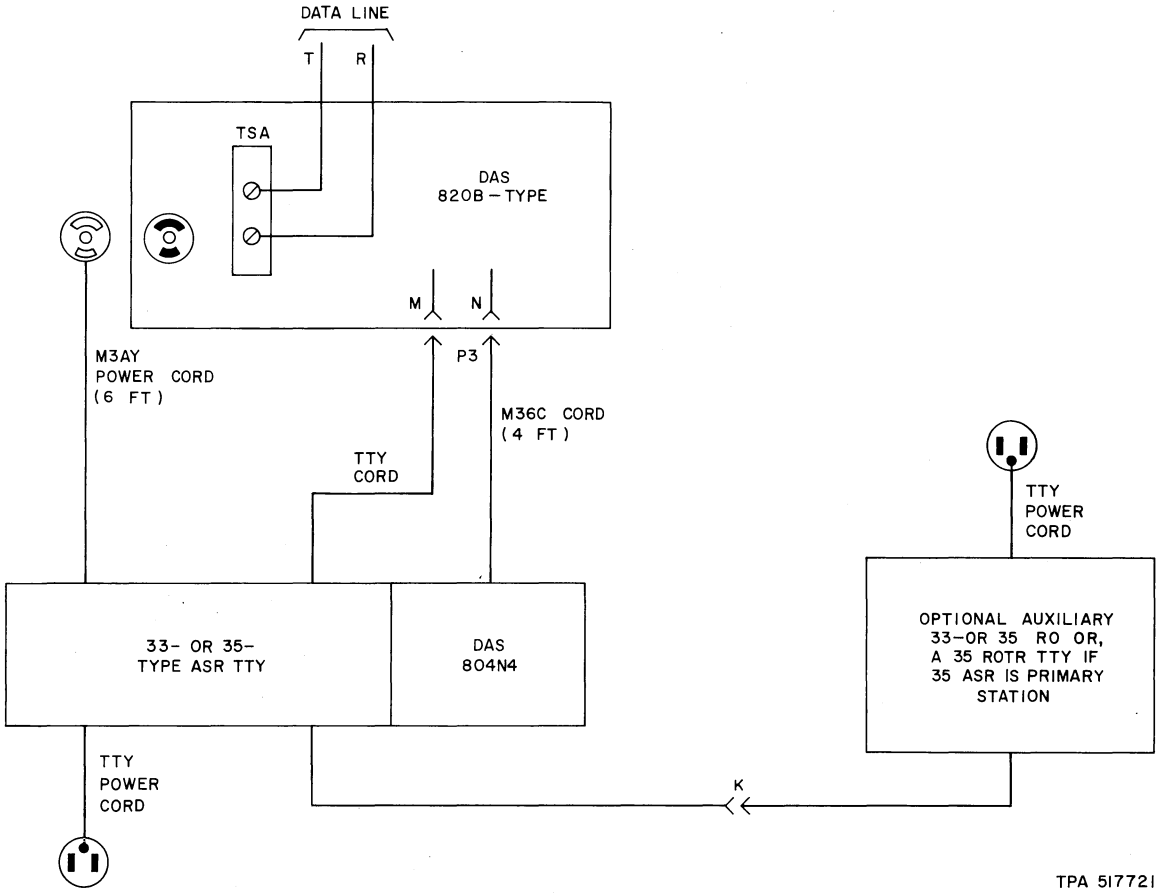

Fig. 6—Interconnection of 33- or 35-Type ORIG/TERM Station

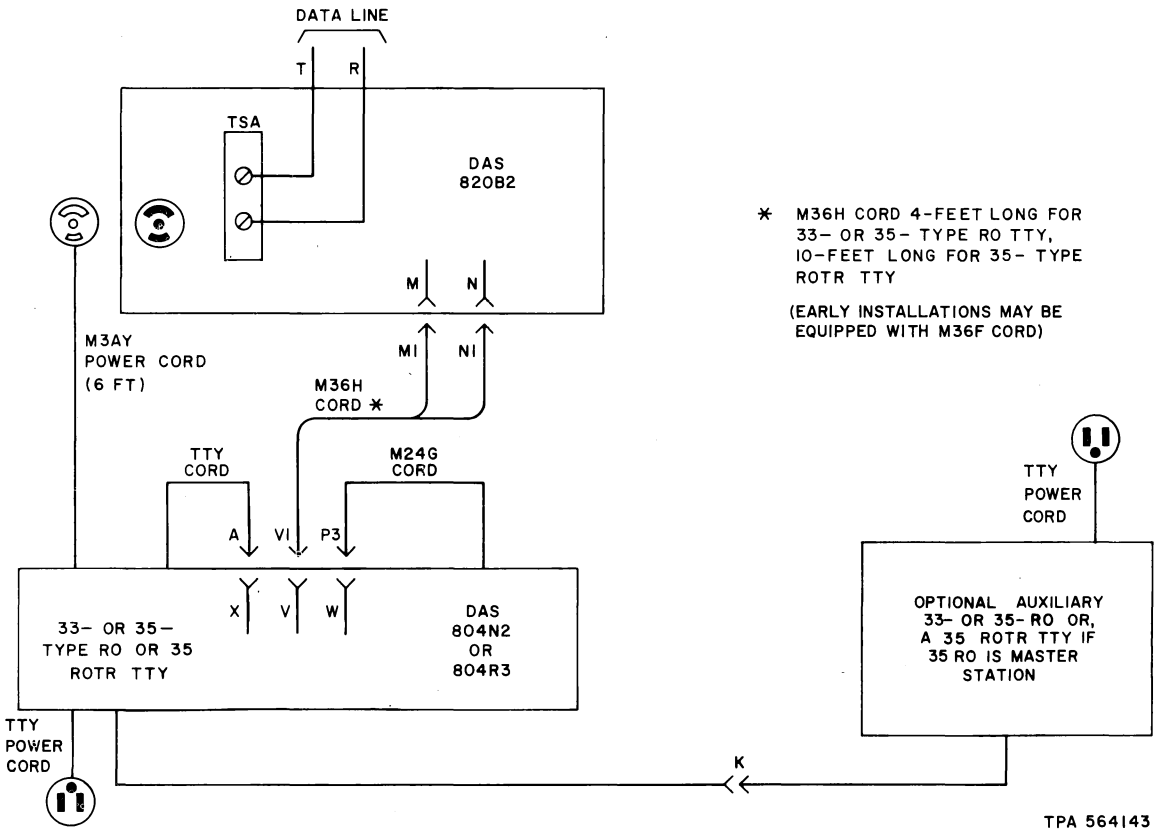

Fig. 7—Interconnection of 33- or 35-Type TERM ONLY Station

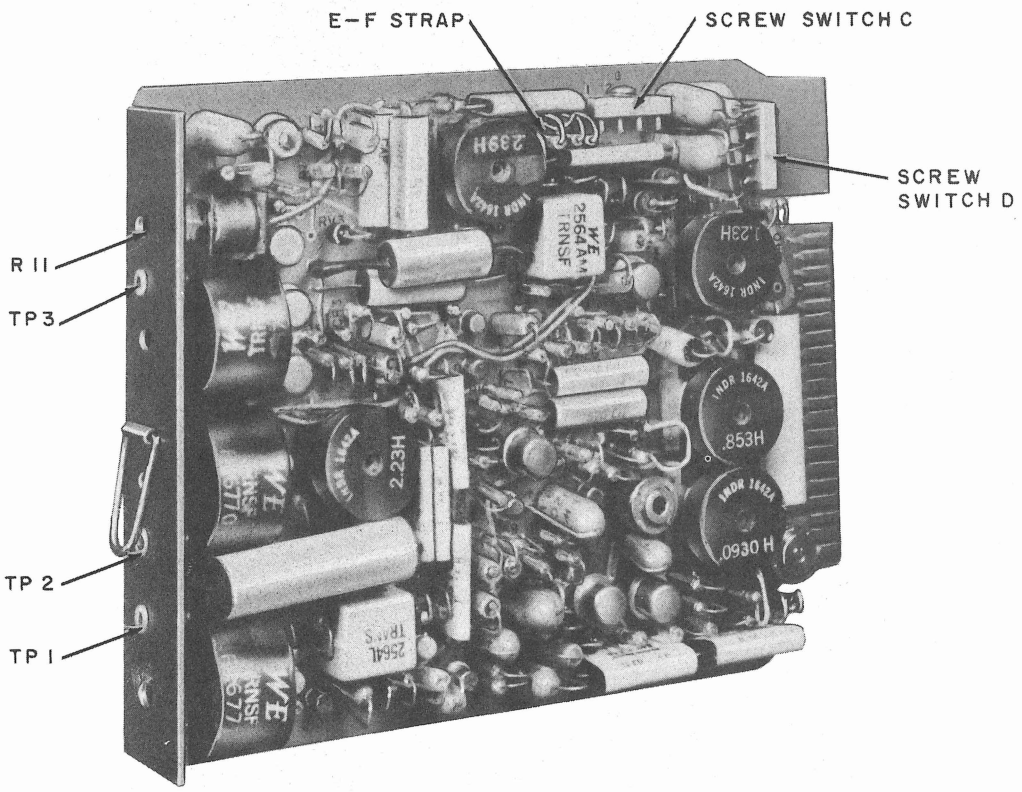

Fig. 8—Data Set 108A—Location of Test Points and Screw Switches

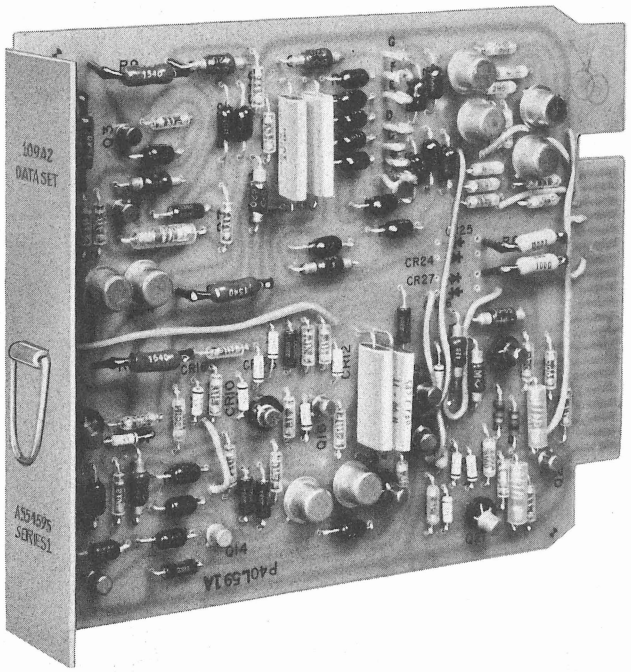

Fig. 9—Data Set 109A