

## 86A2 DATA SELECTIVE CALLING SERVICE

### HALF-DUPLEX—150-WORD PER MINUTE DATA STATION

### INSTALLATION

#### 1. GENERAL

**1.01** This section describes the procedures to be followed for the installation of a Model 37-type teletypewriter (TTY) data station associated with the 86A2 Data Selective Calling Service.

**1.02** The 37-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, 104- to 126-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 overall 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 which is located at the front of the 37-type TTY.

**1.06** Preoperative adjustment of the data set level (108A only) will require use of a TTS-28 portable station test set (see 4.04).

#### 2. INSTALLATION

**2.01** Verify that the location selected by the customer for the 37-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.

● 37 ASR—44-1/2 inches wide, 36-1/4 inches high, and 27-1/2 inches deep

● 37 RO—32-1/2 inches wide, 36-1/4 inches high, and 24-1/4 inches deep

● 37 ROTR—15 inches wide, 35 inches high, and 15 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 seven 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 108A or 109A and Data Auxiliary Set (DAS) 820B6, proceed as follows:

#### 37 ASR or RO TTY

(1) Open door on right-hand front side of TTY pedestal.

(2) Loosen MOLLY® jack fastener on front of 93A mounting bracket and slide controller and 93A bracket forward.

© Registered by American Shoe Machine Corporation

## SECTION 581-136-201

- (3) Carefully place controller and 93A bracket on floor in front of TTY (Fig. 1).

### 37 ROTR TTY

**Note:** The data set and DAS 820B6 are not mounted in the 37 ROTR TTY stand (due to space limitation) when a 37 ROTR TTY is used as a primary data station. A KS-20018-type cabinet is required. However, the DAS 804R3 connector assembly is mounted on the door of the TTY 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 820B6 (Fig. 2), and that the R (data set loop-back) switch is in the NORM position and the CS (carrier squelch) switch is positioned properly according to the service order and/or worksheet.

**Note:** An option in DAS 820B6 is the encoding of the shift registers on AR272 CP.

**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 AR272 CP (Fig. 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 the shift register (Fig. 3). A properly encoded AR272 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 86A2 Data Selective Calling Service—Half-Duplex—150-Word Per***

### ***Minute Data Station—Maintenance (581-136-301).***

**2.08** Replace AR272 CP as follows.

- (1) Insert AR272 CP in position G.
- (2) Verify that the CP is seated properly in its connector.
- (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 37 RO TTY should be in accordance with the section entitled 37 Receive Only Page Printer Set—Installation (574-YYY-ZZZ).

**2.10** Installation of the 37 ASR TTY should be in accordance with the section entitled 37 Automatic Send Receive Set—Installation (574-YYY-ZZZ).

**2.11** Installation of the 37 ROTR TTY should be in accordance with the section entitled 37 Receive Only Typing Reperforator (ROTR) Sets—Installation (574-303-200).

### **3. INTERCONNECTION OF STATION**

**3.01** The interconnection of the 37-type TTY station is shown in Fig. 4 and 5. The figures are shown for a primary station (with or without auxiliary TTY). Figure 4 illustrates an originate terminate station and Fig. 5 illustrates 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. 6) on Data Set 108A-type 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

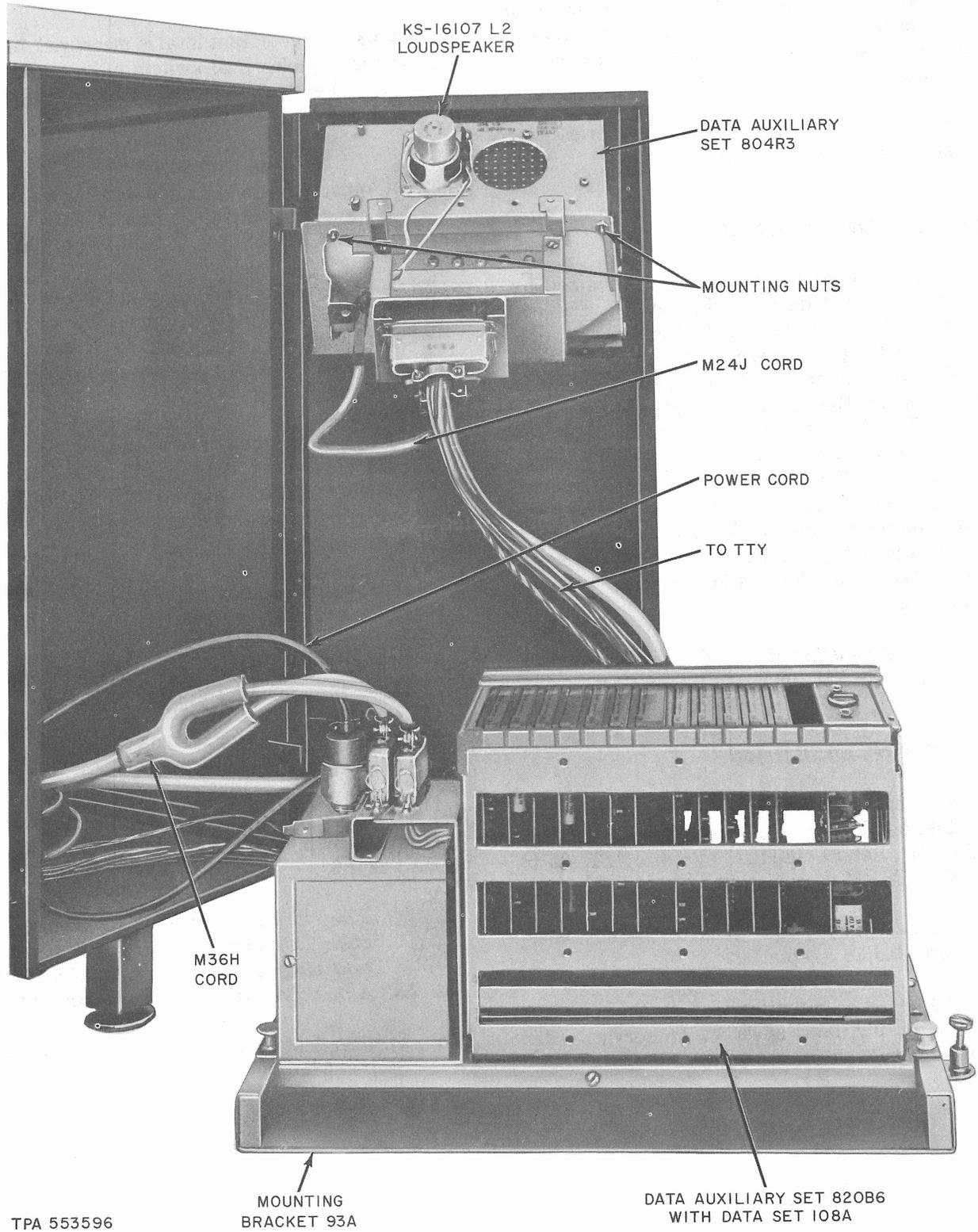


Fig. 1—37 RO TTY With DAS 820B6 in the Maintenance Position

## SECTION 581-136-201

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.

**Note:** Data Set 108A must be series 4 or later for use with 86A2 stations.

### 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. 6 for the location of screw switches and the strap.

**4.03** Upon completion of hybrid network strapping, plug Data Set 108A into DAS 820B6.

### 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. 6). 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 the data set for output level specified on service order and/or circuit layout record card.

**Note:** If no output level is measured, operate carrier squelch (CS) switch on DAS 820B6 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 820B6.



*The data line must be connected to the DAS 820B6 correctly (tip to T terminal and ring to R terminal). The tip has a positive potential from the STC.*

**4.08** Perform installation tests in accordance with the section entitled 86A2 Data Selective Calling Service—Half-Duplex—150-Word Per Minute Data Station—Test Procedures (581-136-501).

### 5. PREOPERATIVE ADJUSTMENTS AND TESTS—DATA SET 109A

**5.01** There are no preoperative adjustments and tests required for Data Set 109A (Fig. 7).

**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 820B6.



*The data line must be connected to DAS 820B6 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 581-136-501.

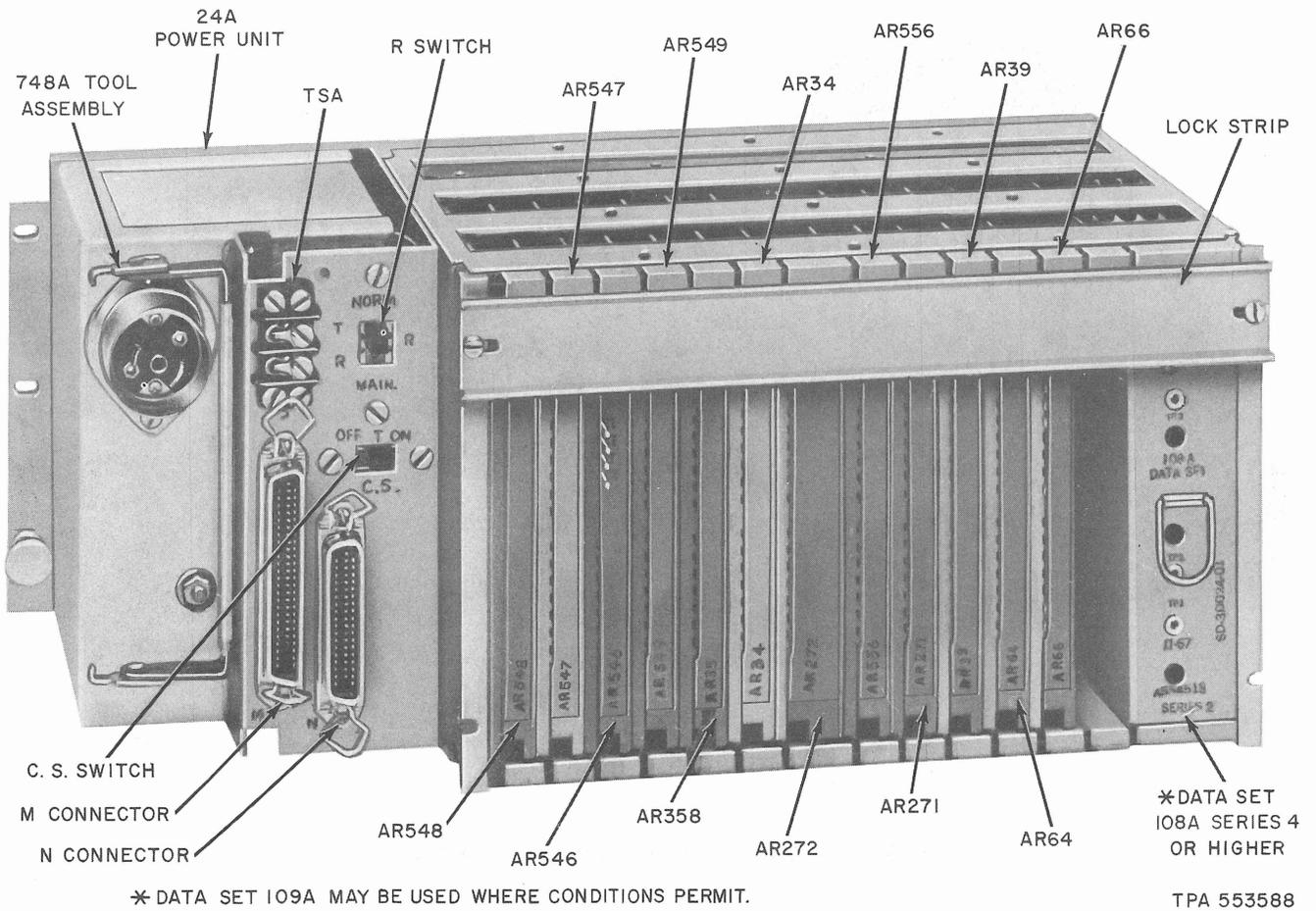


Fig. 2—DAS 820B6—Location of Circuit Packs and Components

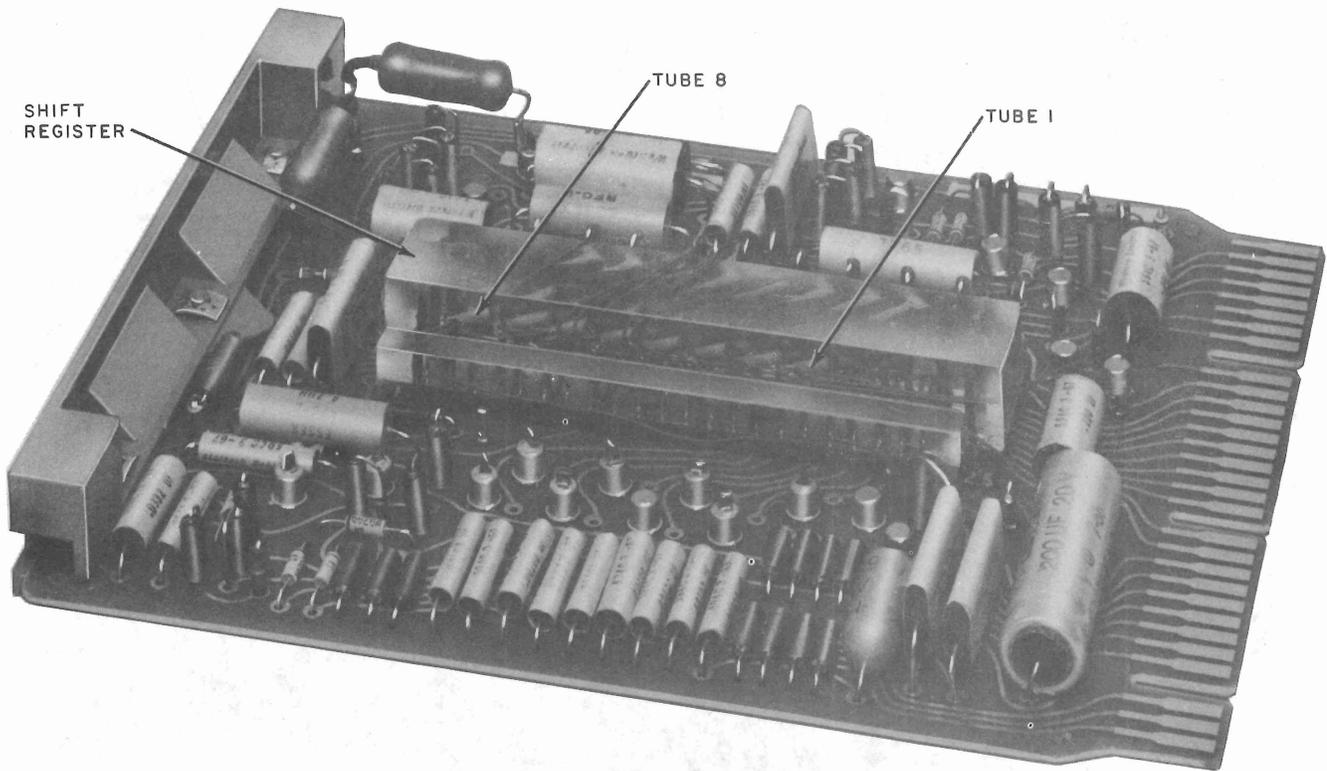


Fig. 3—AR272 Circuit Pack—Location of Shift Register

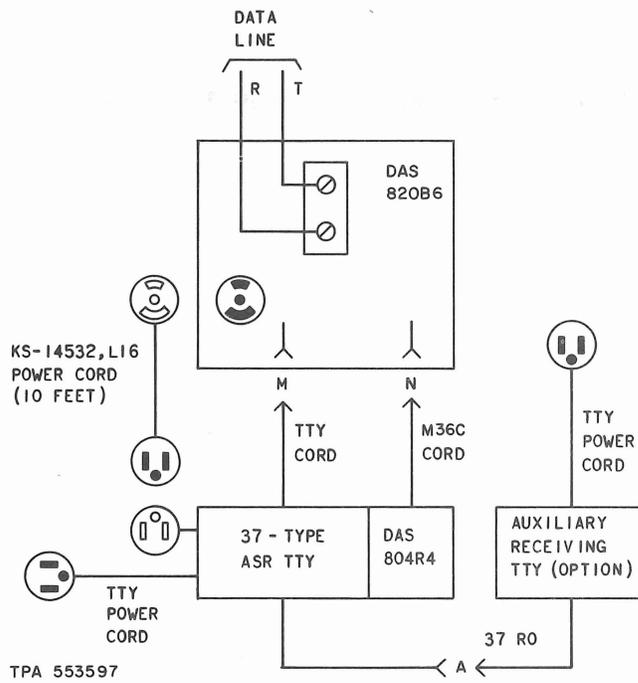


Fig. 4—Interconnection of 37-Type ORIG/TERM Stations

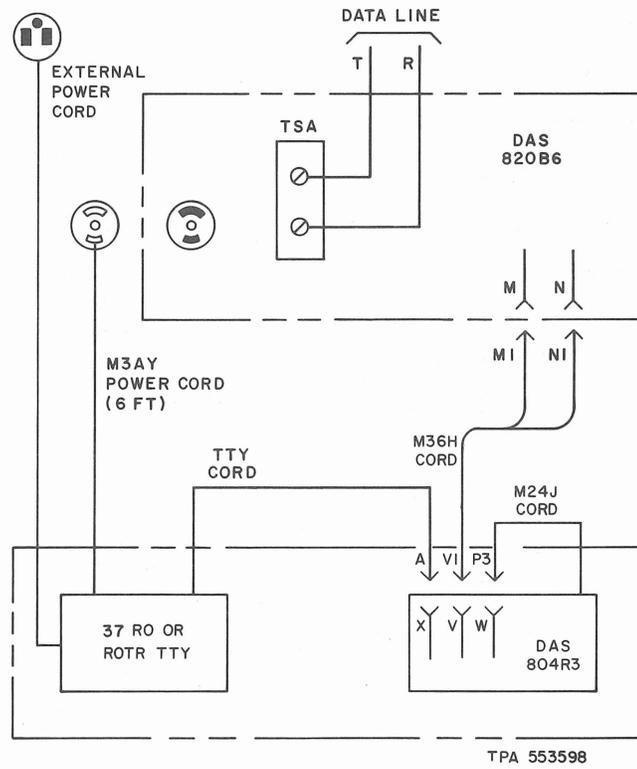


Fig. 5—Interconnection of 37-Type TERM ONLY Stations

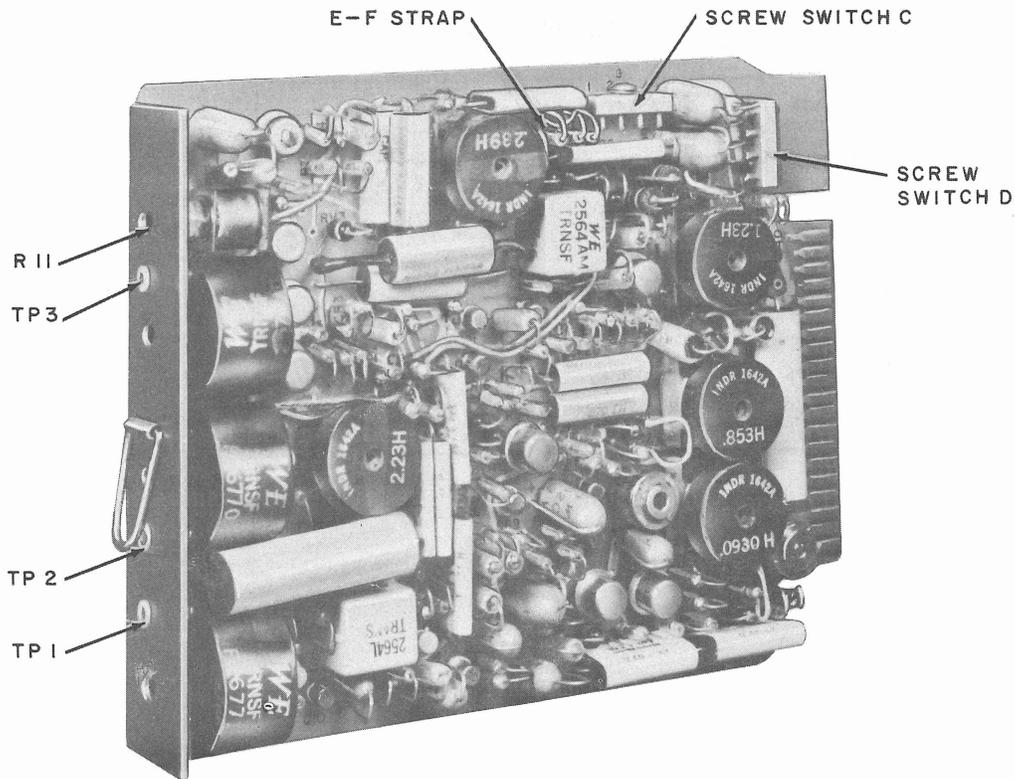


Fig. 6—Data Set 108A—Location of Test Points and Switches

**TABLE A**  
**DATA SET 108A-TYPE**  
**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-TYPE)
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

**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

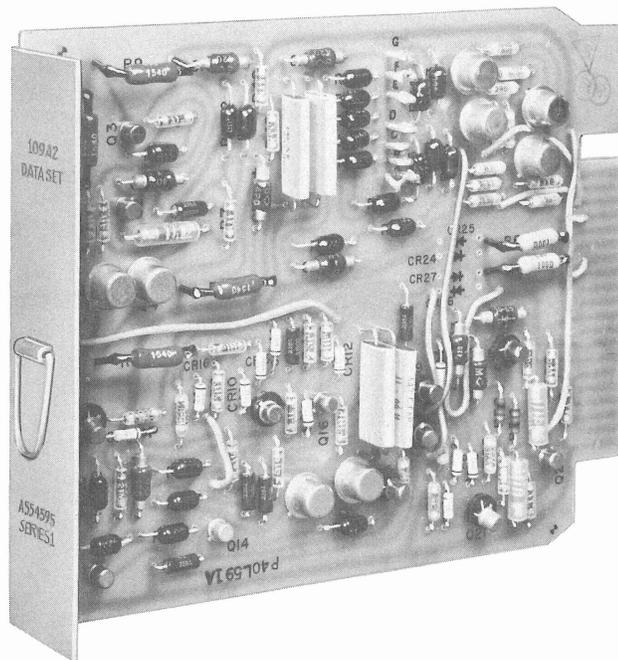


Fig. 7—Data Set 109A