DATA SET 401E-TYPE
TRANSMITTER
INSTALLATION AND CONNECTIONS

1. GENERAL

1.01 This section provides an option table, cord connections, and installation information for data set 401E-type.

1.02 This section is reissued:

- To include option M, which permits substitution of data set 401E-type for data set 401A-type.
- To include cover removal and replacement instructions.

1.03 No special tools are required for the installation of data set 401E-type.

2. OPTION CONNECTIONS

2.01 The option provided with the data set is listed in Table A.

→ TABLE A ←

OPTIONS FOR DS 401E-TYPE

FEATURE	WIRING OPTION	STRAPPING
Data set compatibility	M	Remove strap from rightmost V and T terminal group located between pins 7 and 17 on CP 1 (Fig. 9).

2.02 ◗Data sets 401E2 or 401E4 can be used as replacements for data set 401A-type transmitters to work with data set 403-type receivers by providing option M. Data sets with option M installed have the label OPTION M placed above the customer interface connector at the rear of the data set.

Note: Data set 401E-type transmitters can be used as replacements for data set 401A-type transmitters to work with data set 401J-type receivers with no modification required.◖

3. INSTALLATION AND CONNECTIONS

3.01 The data set should be installed to conform with standard practices covering installation of station sets. For this information, refer to the section entitled Data Sets and Data Access Arrangements—General Installation and Connection Information (590-010-200).

The data set must be considered the main station in all installations. All extensions must be excluded by operation of the data key.

3.02 ◗*Cover Removal:* Six cover screws are located around the base of the set; two at the rear, two at the front, and one at each side. To remove the rear cover, loosen the screws at the rear and at each side and lift up cover. After the rear cover is off, the front cover may be removed. Loosen the two remaining screws and lift up cover. A front view of data set 401E1 with both covers removed is shown in Fig. 1. A front view of data set 401E3 or 401E5 with both covers removed is shown in Fig. 2.

3.03 *Cover Replacement:* When replacing the covers, the front cover should be replaced first. Proceed as follows:

Care must be taken to avoid damage to the data key contacts. In the event the data key contacts are bent or misaligned, refer to section entitled Data Set 401E-Type Transmitter—Maintenance (594-014-300) for alignment procedure.

(1) Press the two side holding screws in and position the cover retaining plates.

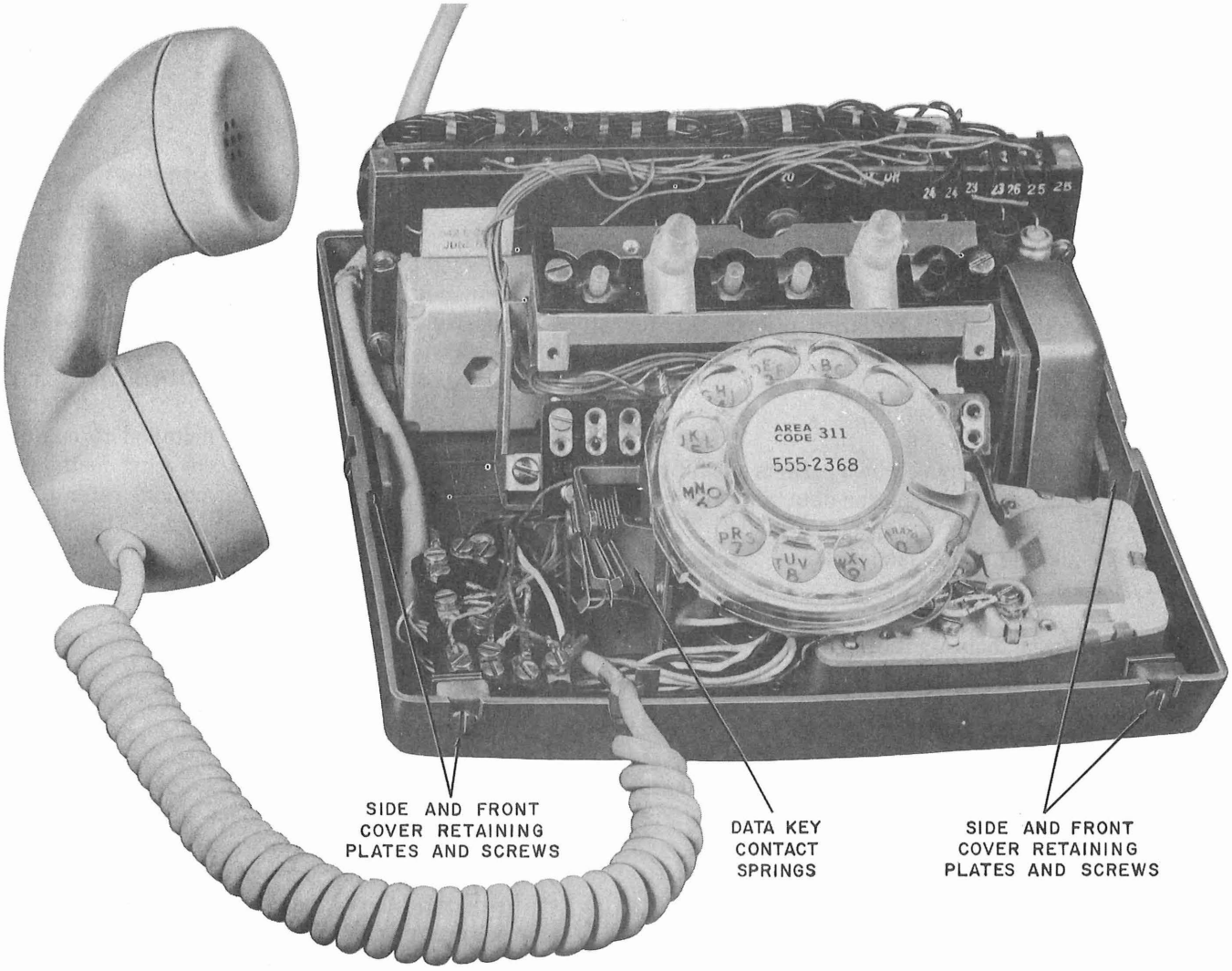

Fig. 1—Data Set 401E1—Front Interior View

(2) Press the two front holding screws in to provide clearance between the base pan and cover retaining plates.

(3) Holding front cover at an angle, as shown in Fig. 3, position the front slotted cover brackets between base pan and front cover retaining plates. Hold the inside cover screws in and carefully position the front section of the cover over the key unit and switchhook buttons, observing that the data key plunger is positioned properly between the outside contact springs.

(4) Check test keys and switchhook buttons to make sure they do not bind on cover.

(5) Replace rear cover carefully and tighten all screws.

3.04 Data set 401E1 is equipped with a D4BJ-61 mounting cord. The connections made with this cord are shown in Fig. 4.

3.05 When data set 401E1 is associated with 1A, 1A1, or 6A key telephone equipment or if the data set is to be connected to an extension telephone, a D10M-61 mounting cord is required and should be connected as shown in Fig. 5.

3.06 When data set 401E2 or 401E3 is associated with 1A, 1A1, or 6A key telephone equipment or if the data set is to be connected to an extension

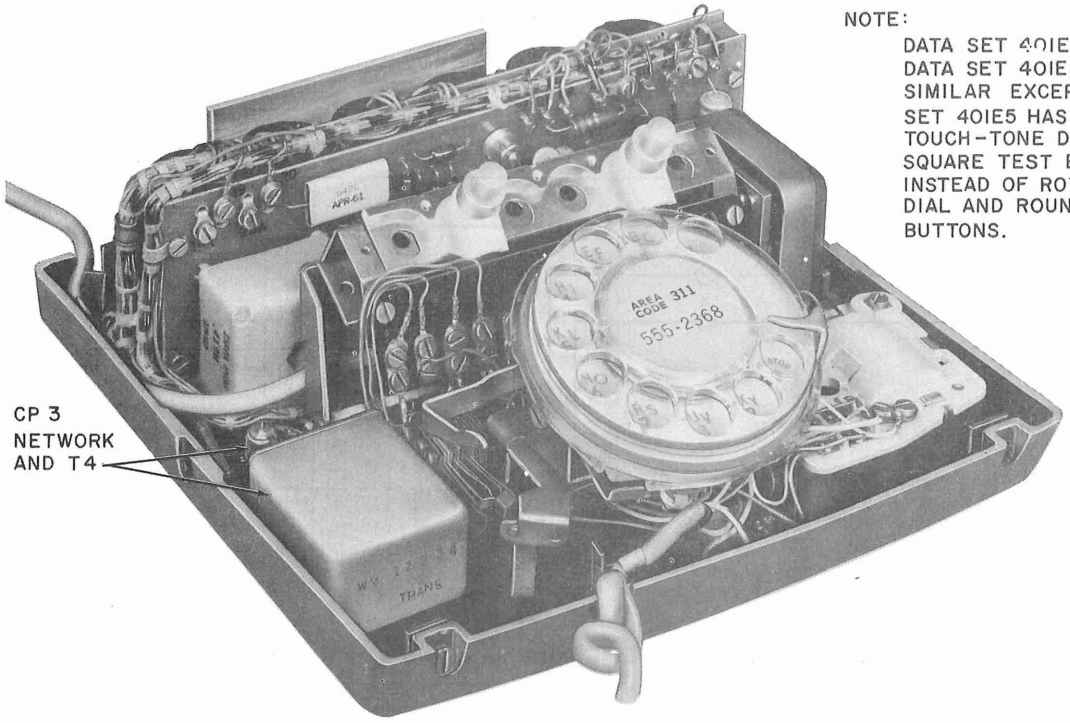

Fig. 2—Data Set 401E3—Front Interior View

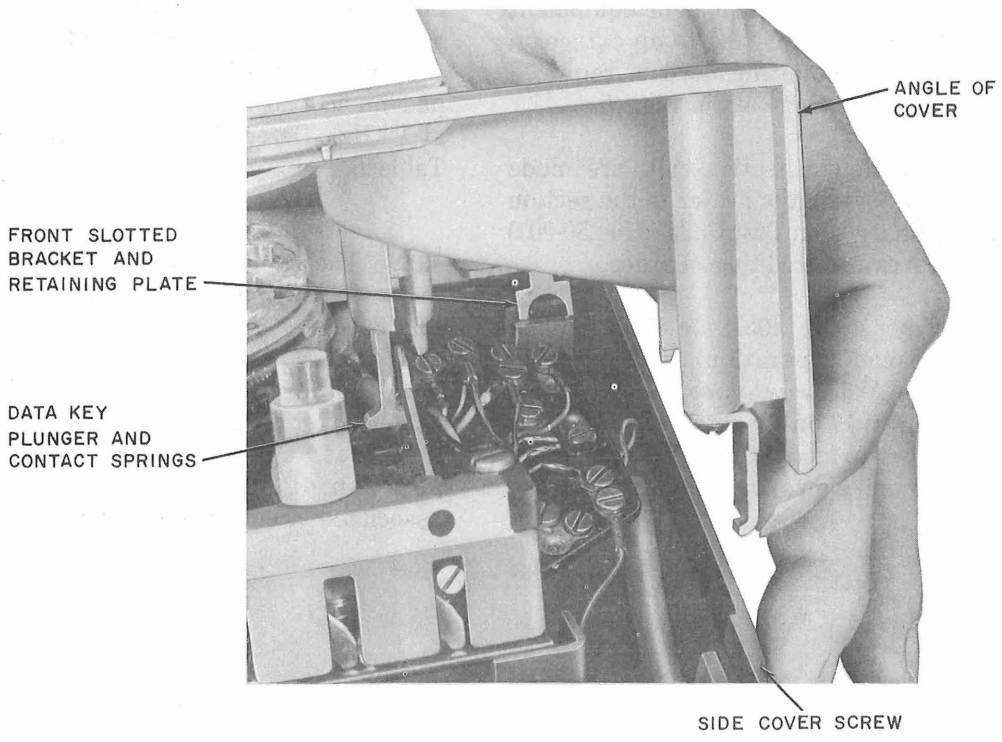

Fig. 3—Data Set 401E-Type—Method of Replacing Front Cover

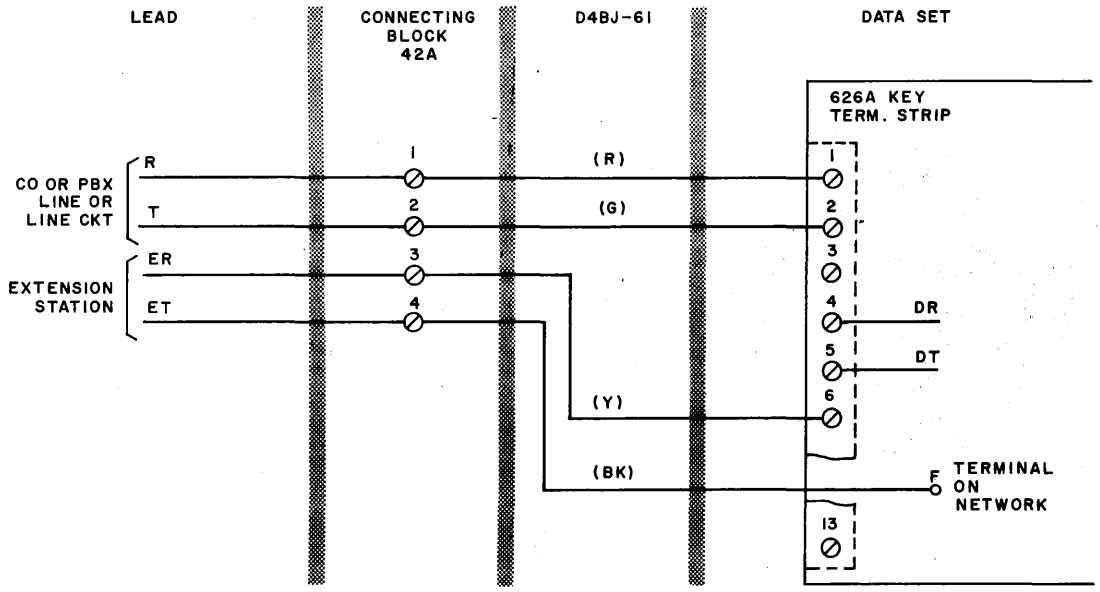

Fig. 4—Data Set 401E1 Connections (D4BJ-61 Cord)

telephone, a D6AA-61 mounting cord is required and should be connected as shown in Fig. 6.

3.07 When data set 401E4 or 401E5 is associated with 1A, 1A1, or 6A key telephone equipment or if the data set is to be connected to an extension telephone, a D6AA-61 mounting cord is required and should be connected as shown in Fig. 7.

3.08 When test or demonstration calls are made at the time of installation, refer to the section entitled Crediting Charges on Test Calls (010-250-001) for proper procedures for crediting charges.

3.09 When data set 403A, 403D, or 403E (having a 2-out-of-8 code operation) is to be used as the receiving set, the ***customer*** must connect terminal 14 to terminal 17 on the interface connector to disable the "C" group modulator. This connection is necessary to ensure proper operation at the receiving station.

4. LOOP LOSS MEASUREMENT AND PADDING

4.01 FCC Tariff No. 263 requires that the data signal level at the serving central office be no greater than −12 dBm. Since the output of data set 401E-type is fixed at a level of approximately −4 dBm, it may be necessary to install an external pad on low loss loops. Measure loop loss in dB at 1 kHz. Determine the required attenuation from Table B.

4.02 The required pad may be ordered or made in the field and installed in accordance with Fig. 8.

4.03 After installation of the pad, measure loop loss again to verify installation. Record addition of pad and new power level on the associated circuit layout record.

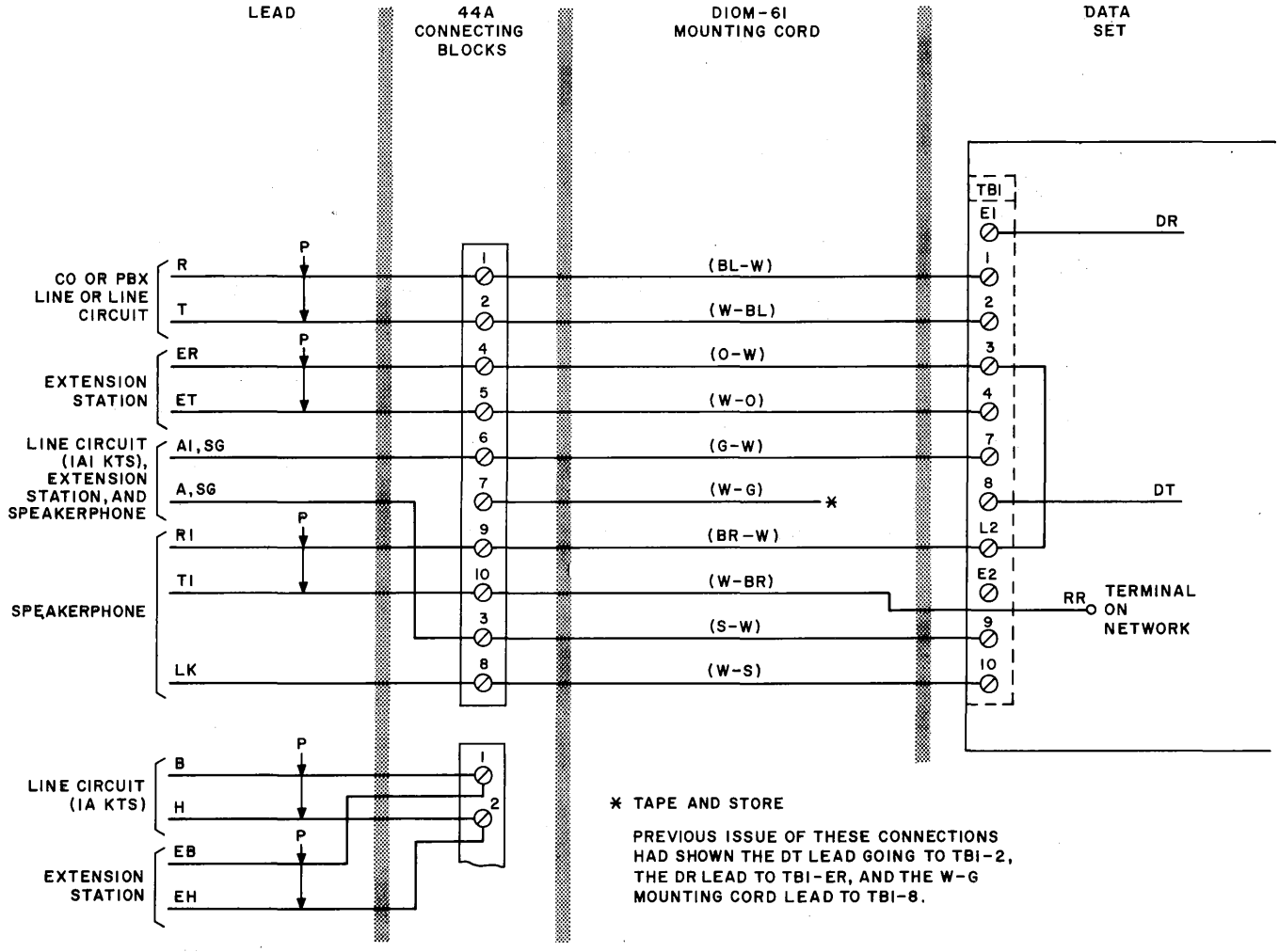

Fig. 5—Data Set 401E1 Connections (D10M-61 Cord)

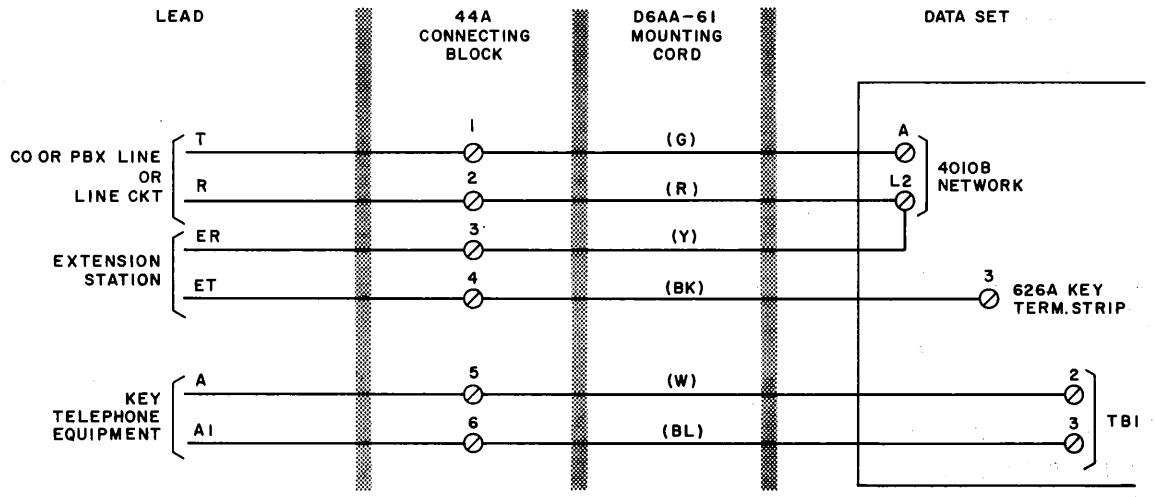

Fig. 6—Data Set 401E2 and 401E3 Connections

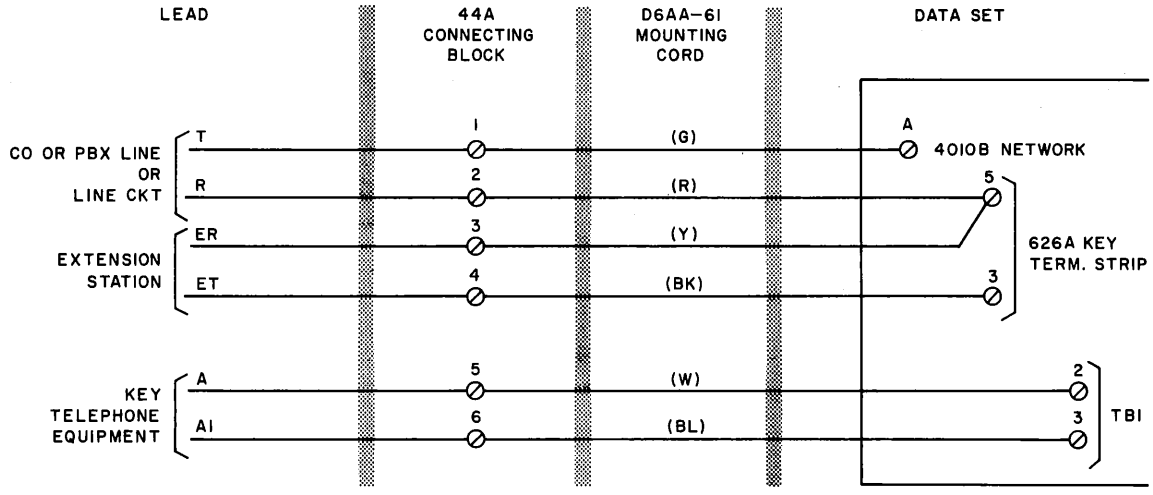

Fig. 7—Data Set 401E4 and 401E5 Connections

TABLE B

PAD ATTENUATION REQUIRED

MEASURED LOOP LOSS IN dB @ 1 KHz	PAD ATTENUATION REQUIRED (dB) (NOTE)
0-1	6
1-2	5
2-3	4
3-4	3
4-5	2
5-6	1
Over 6	None Required

Note: Due to the lower activity factors associated with typical applications of the 401-type transmitters, a smaller value of pad may be used than would be required on other data sets.

LOSS (DB)	RESISTOR VALUE (OHMS)			ORDERING INFORMATION
	R1	R2	R3	
1	8200	47	47	F-58101
2	3900	110	110	F-58102
3	2700	160	160	F-58103
4	2000	220	220	F-58104
5	1500	240	240	F-58105
6	1100	270	270	F-58106

NOTES:
1. ALL RESISTORS ARE ALLEN BRADLEY 1 WATT ±5% (KS-19151,L1). CAPACITOR IS WE 542 D-TYPE, 1 UF, 200 VDC.
2. MOUNT COMPONENTS ON 44A CONNECTING BLOCK, WHICH IS MOUNTED ON 168E BACKBOARD.
3. USE A 101C-49 COVER TO PROTECT PAD. STENCIL PAD VALUE ON COVER FOR FUTURE REFERENCE.

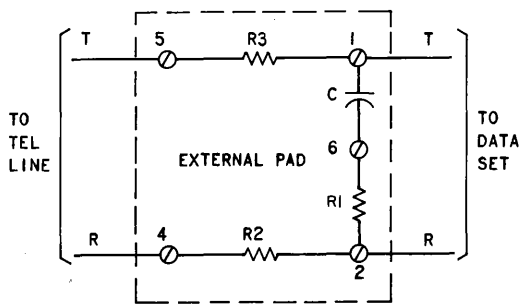

Fig. 8—Construction of External Pad

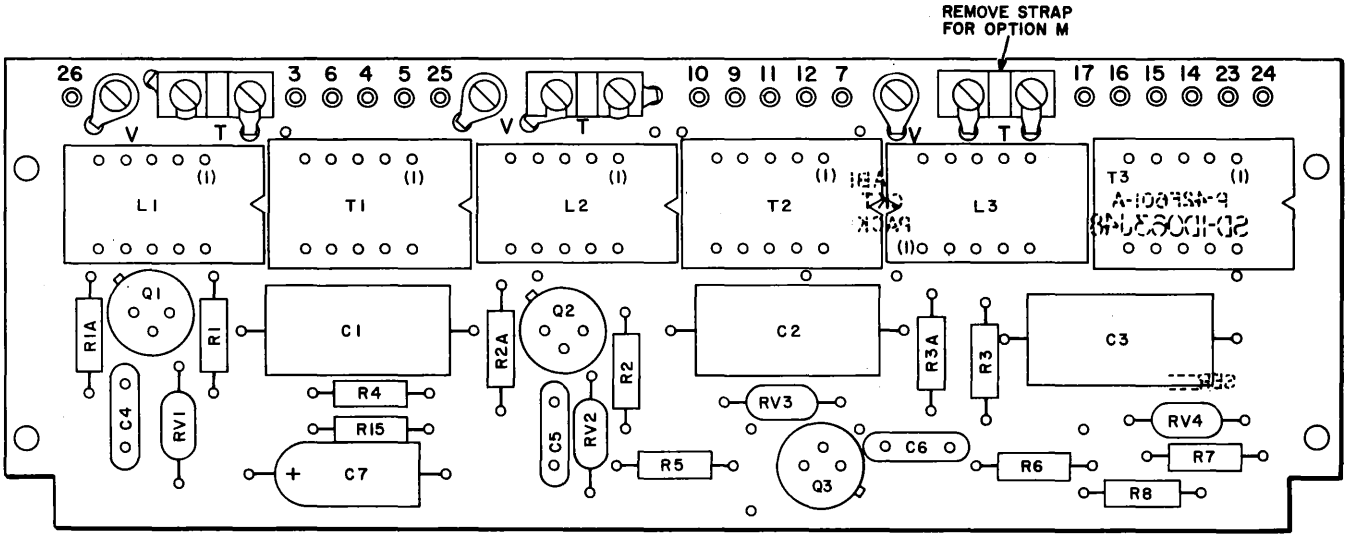

Fig. 9—CP1 Component Arrangement