DATA SET 604A-TYPE

INSTALLATION AND CONNECTIONS

1. GENERAL

1.01 This section covers the installation and option connections for Data Set 604A-type transmitter.

1.02 This section is reissued for the following reasons:

- To identify data sets which have new output power level options for compliance with FCC tariff requirements
- To change rating of the section from "Special" to "Standard" with limited distribution.

1.03 The section does not include information on the installation or operation of the associated business machine.

1.04 Procedures for removal and replacement of the transmitter covers and for replacement of either the entire transmitter or the circuit pack cards of the transmitter are outlined in the section entitled Data Set 604A-Type—Maintenance (596-017-300).

1.05 Verify that the overall facilities have been tested and meet the transmission requirements specified in the section entitled Data Systems—DATA-PHONE® Service on Direct Distance Dialing Network—Test Requirements for Subscriber, Foreign Exchange, and Remote Exchange Lines (314-205-501).

Caution: Data Set 604A2 must be installed on a telephone line equipped with TOUCH-TONE® telephone facilities.

1.06 To avoid interference during data transmission, the following restrictions apply to the data line.

- Use only on individual lines.
- Do not connect extension telephones.

1.07 To minimize interference to the data signal on the telephone (data) line, the line should not be placed in the same run or raceway as the interface cable between the transmitter and business machine or lines carrying teletypewriter services. If this requirement cannot be met, it will be necessary to use SK (shielded) station wire between the transmitter and cable distribution terminal or building entrance. The shield should be grounded at distribution terminal end only.

2. OPTION CONNECTIONS

To eliminate possible damage to electronic components in the transmitter, do not make power connections until all other connections have been completed.

2.01 The data set options are used to provide the type of service requested by the customer. The option connections are normally made prior to the initial installation of the data set. The options used are specified on the service order or on DATA-PHONE circuit layout record (CLR) card for the data set installation. The option connections can be changed at any time if necessary to meet changes in the customer service requirements.

2.02 Option connections for Data Sets 604A-type are shown in Table A.

2.03 All in-service data sets must meet signal level requirements (Tariff FCC 263) which allow the data signal to be no greater than −12 dBm at the serving central office.

2.04 The data and answer-back transmit level of Data Sets 604A1 and 604A2, Series 1, may require padding to meet the signal level requirements mentioned in 2.03 (refer to Fig. 1 for pad construction and connecting information).

2.05 The pad will attenuate the data set output to meet the −12 dBm requirement. Table B shows the pad size required for different values

TABLE A

OPTION CONNECTIONS FOR DATA SET 604A-TYPE

FEATURE	OPTION	DESIG	CONNECTIONS ON TB2	
			FROM TERM.	TO TERM.
Grounding	FG to SG	M*	64	65
Termination	600 ohms	N	61	62
	900 ohms	Q*	60	61
DATA and ANSWER-BACK Transmit Level	—12 dBm	W	43	44
	—9 dBm†		41	42
	—9 dBm	X*	30	31
	—6 dBm†		28	29
	—6 dBm	Y	17	18
	—3 dBm†		15	16
	—3 dBm	Z	2	3
	0 dBm†		4	5

* Factory furnished.

† →Identifies options available in Data Sets 604A1 and 604A2, Series 1.←

of loop loss and data set output. The pad (Fig. 1) can be constructed locally or ordered from Western Electric Company.

→TABLE B←

OUTPUT LEVEL AND PAD LOSS REQUIRED FOR DATA SETS 604A1 AND 604A2, SERIES 1

LOOP LOSS AT 1 KHz (dB)	DATA SET OUTPUT LEVEL	PAD LOSS REQUIRED (dB)
0-3	—9	3
3-6	—9	None
6-9	—6	None
9-12	—3	None

2.06 The procedure for connecting the options of the data set are as follows.

(a) Remove the covers of the data set.

(b) Connect the specified options as shown in Table A on terminal board TB2 of the transmitter (Fig. 2). When option U (1035C3A station dial) is specified (Data Set 604A1), connect the option as shown in Table C and Fig. 3. A schematic diagram of the rotary dial is shown in Fig. 4.

Note: Since some Data Sets 604A1 with option T (1035B3 station dial now rated MD) may still be in service, information on option T is retained in Table D.

(c) Replace the cover of the data set.

2.07 When equipped with a 1035B3 or 1035C3A station dial (option T or U), the data set will appear as shown in Fig. 5.◀

3. INSTALLATION PROCEDURES

3.01 The transmitter shall be installed in conformance with existing practices covering installation of station sets. See the section entitled Data Sets—General Installation Information (590-010-200).

3.02 The customer must furnish a standard 3-wire grounded ac power receptacle that is not controlled by a switch.

TABLE C

OPTION U CONNECTIONS FOR DATA SET 604A1 (1035C3A STATION DIAL)

REMOVE FROM			CONNECT TO	
LEAD COLOR	LOCATION	TERM.	LOCATION	TERM.
Green (Dial)	4010-B Net.	RR	4010-B Net.	G
White (RCVR)	4010-B Net.	R	4010-B Net.	L1
Red (TRMTR)	4010-B Net.	R	4010-B Net.	L2
	4010-B Net.	C	TB1	25
1035C3A DIAL CORD LEAD COLOR			CONNECT TO	
			LOCATION	TERM.
Violet-Slate				C
Orange-White				L1
Brown-White				R
Slate-White			4010-B	L2
Slate-Violet			NETWORK	B
Violet-Green				RR
White-Slate				R
Blue-White				G
White-Brown				
Green-Yellow			TAPE	
Yellow-Green			AND	
Green-Violet			STORE	
White-Orange				
White-Blue			TB1	25

Note: To minimize noise and interference, the business machine and the transmitter should be served from the same ac distribution panel. A test using the 6A impulse counter should be made to detect any noise as outlined in the section entitled Data Set 604A-Type—Test Procedures (596-017-500). If the test requirements are not met, provide a bond to improve grounding of the business machine and the transmitter. The method of providing this bond should be in accordance with local instructions.

3.03 Locate the transmitter within range of the business machine interface connection cord (provided by the customer). This cord should not exceed 50 feet in length and must connect to the interface connector J1 on the rear of the transmitter. Transmitter interface leads that connect to the business machine via this cord are shown in Table E. Pins which are not shown in Table E are not used.

3.04 Figure 6 shows the connections for the transmitter to the telephone line connector block. Figure 7 is a block diagram showing the complete installation of the transmitter.

3.05 To complete the installation of the transmitter, apply power to the transmitter by connecting the ac power cord, which is shipped with the transmitter, to the ac power connector of the transmitter and to the local ac power receptacle (furnished by the customer).

4. INSTALLATION TESTING

4.01 Upon completion of the installation, the transmitter must be tested as outlined in the section entitled Data Set 604A-Type—Test Procedures (596-017-500). Testing is required to ensure proper operation of the transmitter following installation.

TABLE D

OPTION T CONNECTIONS FOR DATA SET 604A1 (1035B3 STATION DIAL)

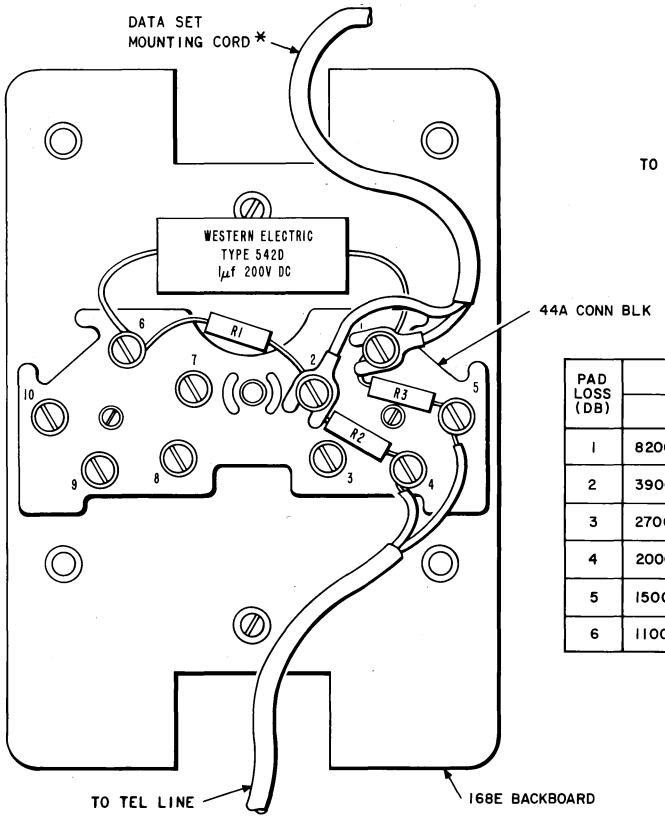
REMOVE FROM			CONNECT TO	
LEAD COLOR	LOCATION	TERMINAL	LOCATION	TERMINAL
Green	TB1	28	TB1	24
Red	4010-B Net.	R	4010-B Net.	L2
White	4010-B Net.	R	4010-B Net.	L1
White	Switch Hook	F	4010-B Net.	G
Unknown	4010-B Net.	C	Tape and Store	

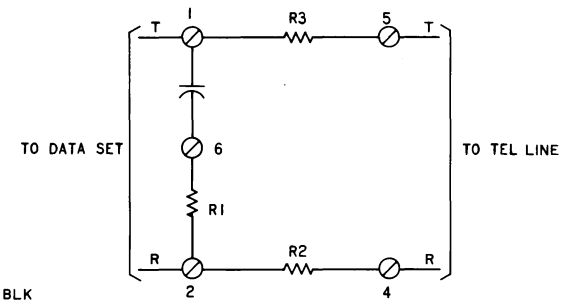
CABLE FROM 1035B3 STATION DIAL		CONNECT TO	
LEAD COLOR	TERMINAL	LOCATION	TERMINAL
Blue-White	1	4010-B Net.	G
Orange-White	2	4010-B Net.	L1
Brown-White	3	4010-B Net.	R
Slate-White	4	4010-B Net.	L2
White-Black	5	4010-B Net.	B
White-Orange	6	4010-B Net.	C
White-Brown	7	Tape and Store	
Green-Yellow	9	Tape and Store	
Yellow-Green	10	4010-B Net.	F
Green-Violet	11	Tape and Store	
Violet-Green	12	TB1	24
Slate-Violet	13	TB1	25
Violet-Slate	14	4010-B Net.	C
White-Slate	15	TB1	28

TABLE E

INTERFACE CONNECTOR LEAD ASSIGNMENTS

PIN NO.	DESIGNATION	LEAD ASSIGNMENT
21	AA	Automatic Answer
20	DTR	Data Terminal Ready
22	RI1	Ring Indicator 1
23	RI2	Ring Indicator 2
6	DSR	Data Set Ready
2	SDA1	Send Data (Channel A) 1
17	SDA2	Send Data (Channel A) 2
13	SDB1	Send Data (Channel B) 1
18	SDB2	Send Data (Channel B) 2
14	SDC1	Send Data (Channel C) 1
16	SDC2	Send Data (Channel C) 2
7	SG	Signal Ground
1	FG	Frame Ground
9	+V	Positive Supply Voltage (test)
10	−V	Negative Supply Voltage (test)
12	RCR	Reverse-Channel Receive





PAD LOSS (DB)	RESISTOR VALUE (OHMS)				ORDERING INFORMATION
	R1		R2 AND R3		
1	8200	GRAY RED RED	47	YELLOW VIOLET BLACK	F-58101
2	3900	ORANGE WHITE RED	110	BROWN BROWN BROWN	F-58102
3	2700	RED VIOLET RED	160	BROWN BLUE BROWN	F-58103
4	2000	RED BLACK RED	220	RED RED BROWN	F-58104
5	1500	BROWN GREEN RED	240	RED YELLOW BROWN	F-58105
6	1100	BROWN BROWN RED	270	RED VIOLET BROWN	F-58106

NOTES:
1. RESISTORS ARE ALLEN BRADLEY, 1 WATT, 5% TOLERANCE (KS-19151 L1). CAPACITOR IS WESTERN ELECTRIC CO. 542D TYPE, 1UF, 200VDC.
2. A 101C TYPE COVER SHOULD BE USED TO PROTECT THE PAD.
3. THE PAD VALUE SHOULD BE STENCILED ON COVER FOR FUTURE REFERENCE.

* STORE UNUSED CONDUCTORS ON VACANT TERMINALS

Fig. 1—Pad Construction and Connections

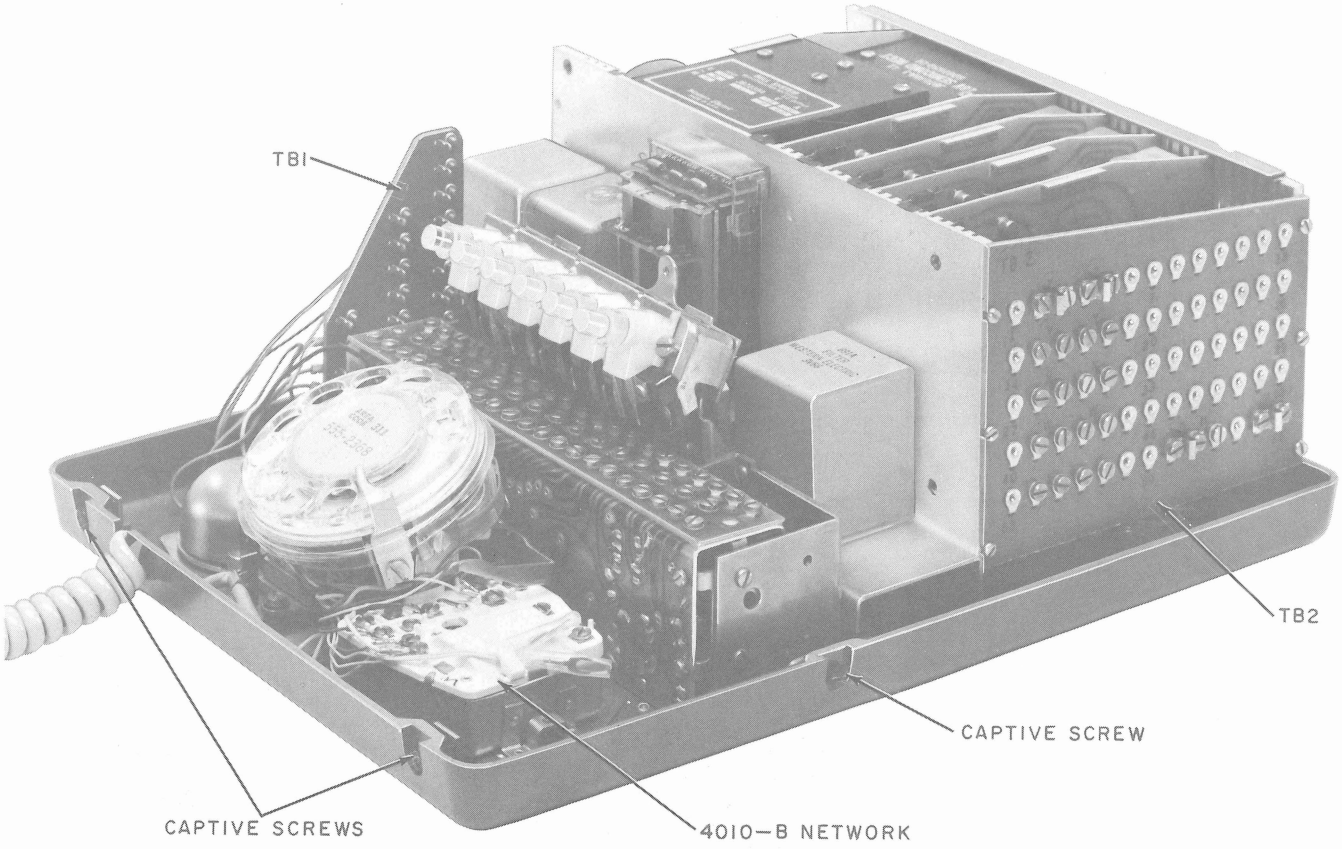


Fig. 2—Data Set 604A1—Right Front View

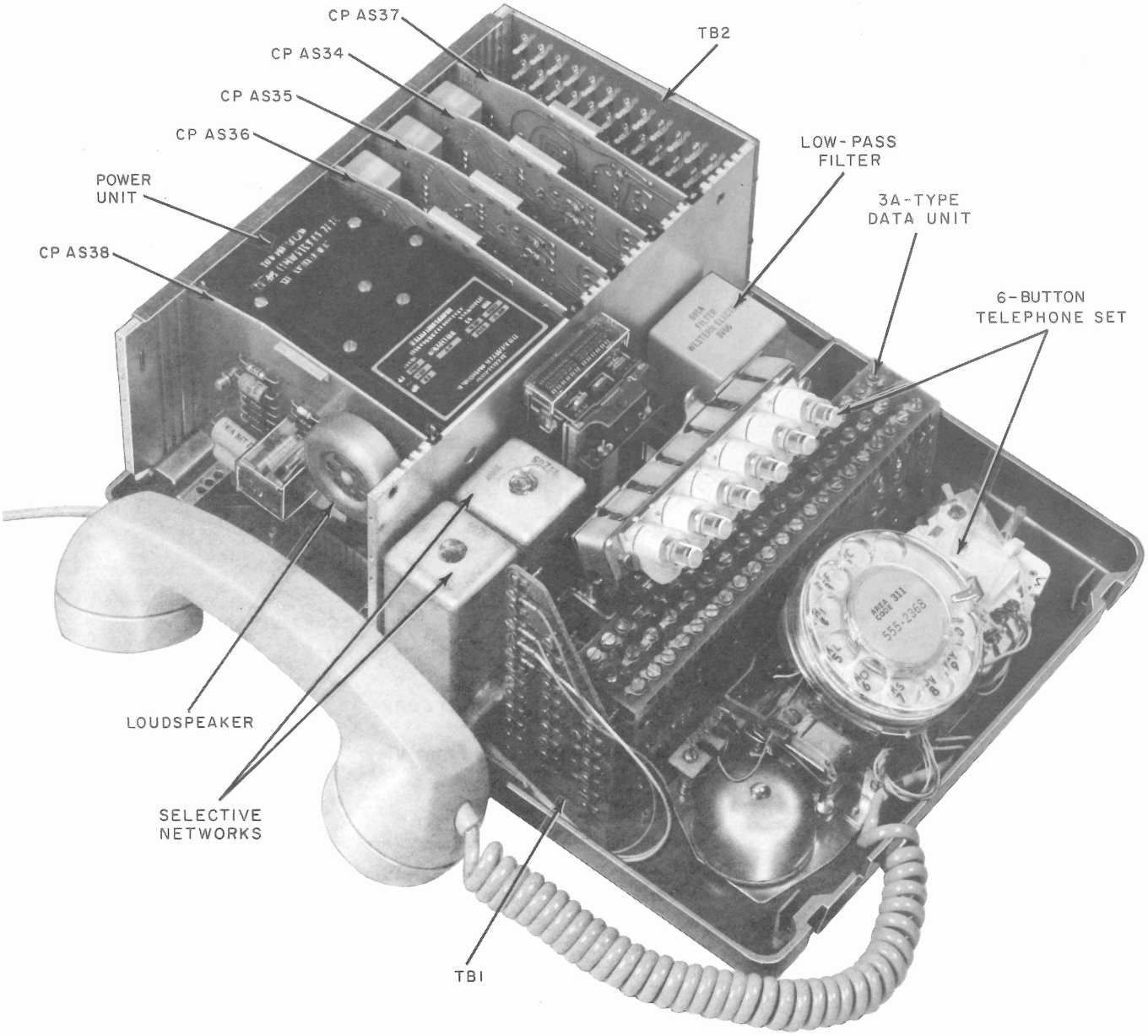
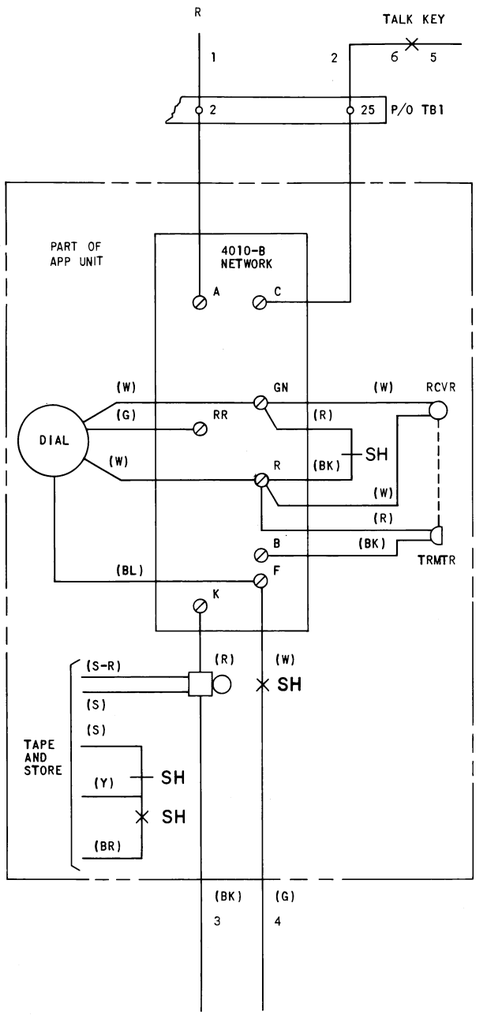
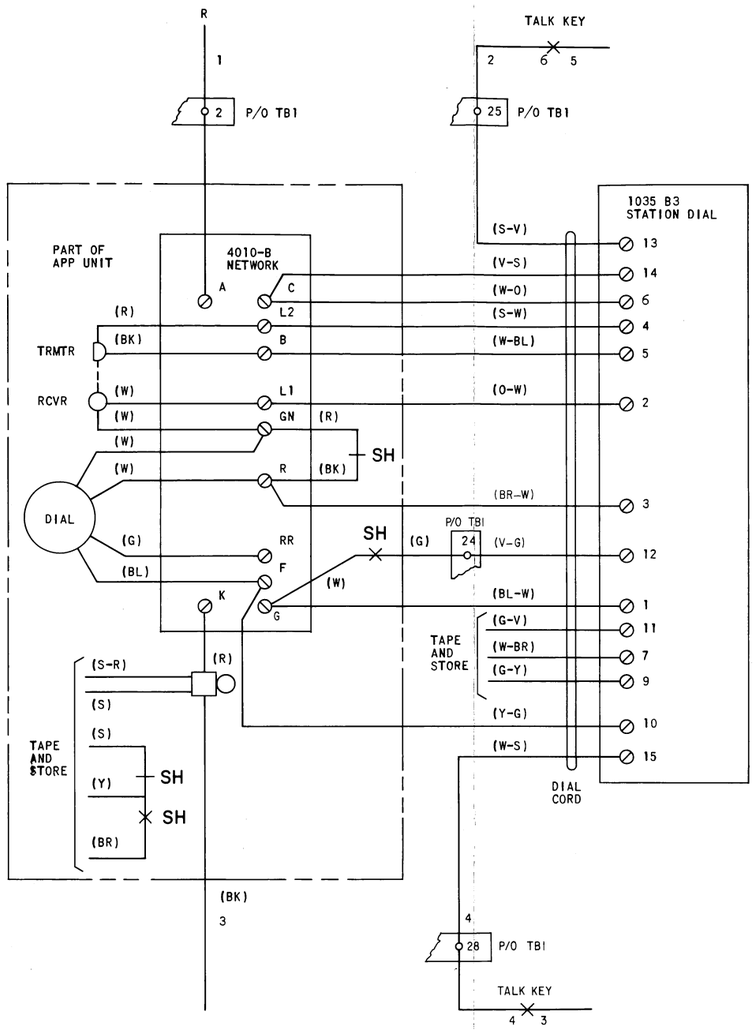


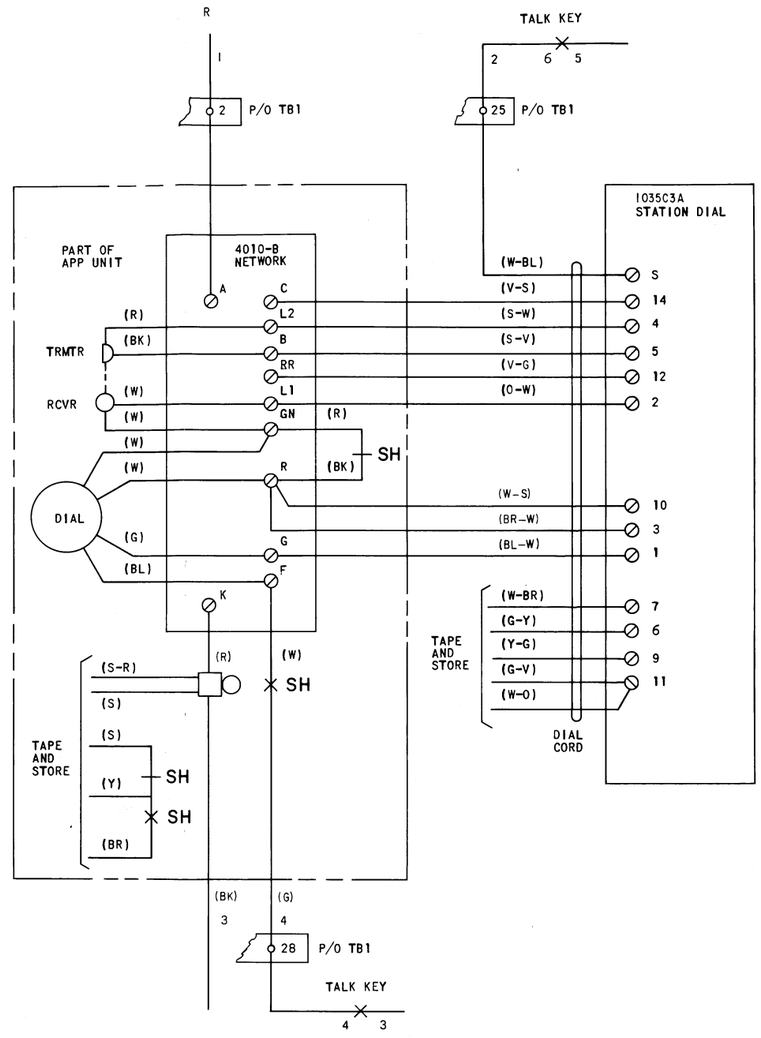
Fig. 3—Data Set 604A1—Left Front View



BEFORE ADDING OPTION T OR U



DATA SET 604AI WITH OPTION T INSTALLED



DATA SET 604AI WITH OPTION U INSTALLED

TPA 537148

Fig. 4—Schematic for Adding Option T or U to Data Set 604A1

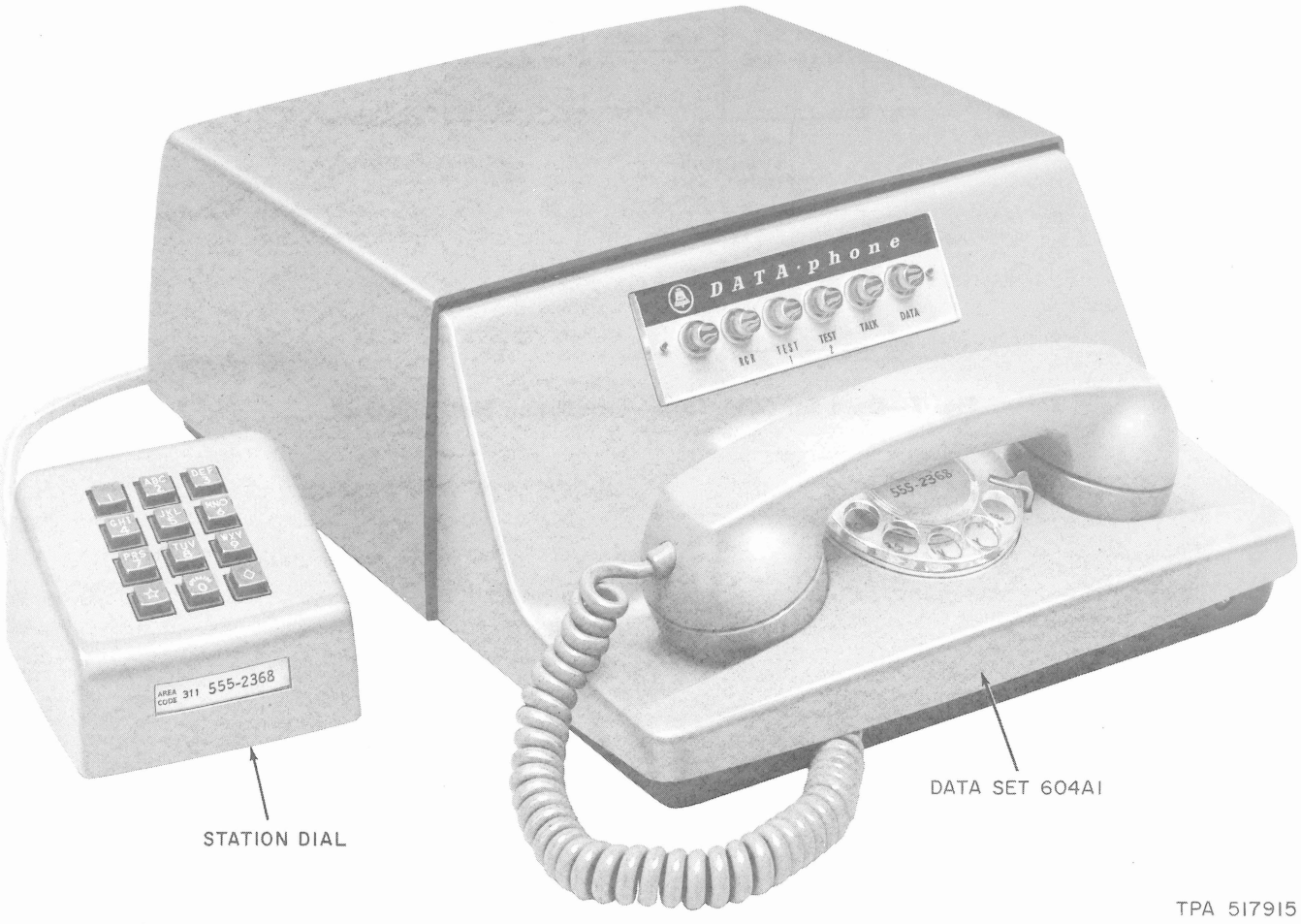


Fig. 5—Data Set 604A1 Equipped With Option T or U

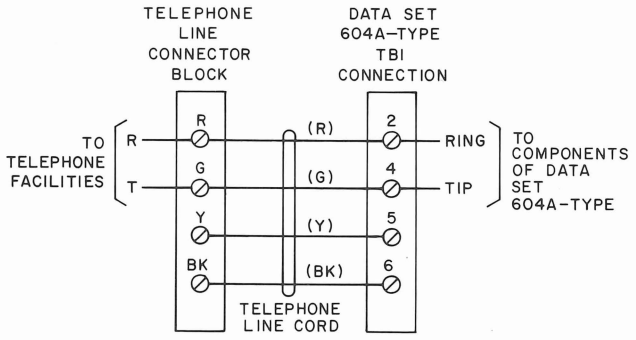


Fig. 6—Data Set 604A-Type—Diagram of Telephone Line Connection

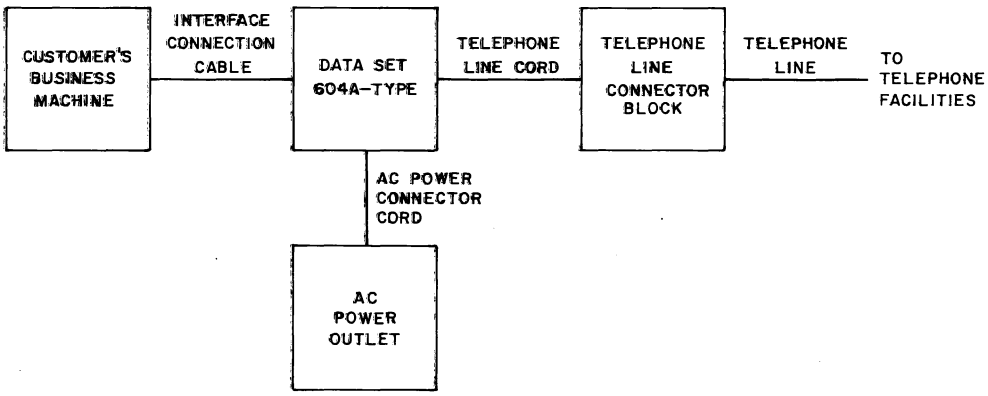


Fig. 7—Data Set 604A-Type—Installation Block Diagram