

DATA SET 202D-TYPE TRANSMITTER-RECEIVER INSTALLATION AND CONNECTIONS

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1. GENERAL

1.01 This section contains installation and connection information for data set 202D-type. The data sets should be installed in accordance with existing installation practices. Refer to the section

entitled Data Sets—General Installation and Connection Information (590-010-200).

1.02 This section is reissued to:

- Add Part 2 (TOOLS AND APPARATUS) to specify needed test apparatus.
- Delete option information in former Tables C and D and incorporate it into the specific connection figures.
- Show an M50G cord which replaces the D50R-61 cord for data auxiliary sets (DASs) 804A8 and 804A6, series 6 and later.
- Show the functional designation of the leads to DAS 804A-type in Figures 5 through 13, 15, and 17.

2. TOOLS AND APPARATUS

2.01 A 901- or 914-type data test set (DTS) and a voiceband transmission test set TTS-4, or equivalent, are needed for installation tests of data set 202D-type.

3. OPTION CONNECTIONS

3.01 Data set 202D is provided with a number of options which must be installed *prior* to placing the data set in service. The options to be added should be specified on the service order. The options are installed and removed using the straps on the terminal boards (Fig. 1) as specified in Table A.

3.02 When DAS 804A-type is used with data set 202D, the applicable options to be installed in the DAS are shown in the specific connection figures.

3.03 This section does not include all option wiring information for the associated DAS 804A-type. Refer to the section entitled Data Auxiliary Set

804A-Type—Description and Operation (598-030-100) for DAS 804A-type option wiring information. The DAS 804A1 or 804A2 can be provided in place of DASs 804A5 and 804A6, respectively, in applications where ESS central offices and Unigauge loops are not used. The DAS 804A6, series 6, replaces earlier DASs 804A5 and 804A6. An M50G cord (supplied with DAS 804A8 and 804A6, series 6 and later), replaces the D50R cord on earlier sets. The M50G cord is attached by a connector; the D50R cord is permanently attached.

3.04 When a DAS 801-type automatic calling unit (ACU) is used with data set 202D, the applicable options to be installed in the DAS 801-type ACU are shown in Table B.

3.05 Some service applications of the data set require additional service features provided by the use of key telephone circuitry. These features are shown as a part of the appropriate connection figure.

Note: The type of power supply and the related fusing requirements are not shown as a part of the connection figures. For this information, refer to the section entitled 1A1 Key Telephone System—Power Supply Connections to Key Telephone Units—Connection Data (518-114-400).

3.06 When the dial selective signaling system is used, the data station ground must be connected to the dial selective signaling system ground. The method of connecting this ground should be in accordance with local regulations.

4. INSTALLATION AND CONNECTIONS

4.01 It is preferred that the data set be installed apart from, but close to, the business machine equipment on a nearby desk, table, stand, or in a Bell System-provided equipment cabinet. The data set will operate in an ambient temperature range of +40 to +120°F and a relative humidity of 20 to 95 percent.

4.02 Data set 202D should be located near the business machine because the interface cord supplied by the customer should not exceed 50 feet in length. This requirement is specified in order to reduce stray capacitance and to conform to Electronic Industries Association (EIA) standards. In order to maintain high quality service and to

minimize interference from other equipment, data sets should be used on individual lines that do not have extensions.

4.03 Data set 202D requires a grounded 3-wire 117-Vac 60-Hz outlet. To prevent the data set from being accidentally turned off, this outlet should not be under control of a switch.

4.04 A 25-pin connector is provided at the rear of the data set for connection to the business machine. This connector is designed to mate with a customer-provided Cinch or Cannon DB-19604-432 plug equipped with a DB-51226-1 hood, or equivalent.

4.05 To minimize inductive interference to data signals on the data line, the line should not be carried in the same run as cable between the data set and business machine or lines connected to teletypewriter services. If this condition cannot be met, it will be necessary to run the data line in type-SK (shielded) station wire between the data set and the cable distribution terminal or building entrance. Ground this shield at one end only, preferably at the distribution terminal end.

4.06 To avoid the possibility of data errors due to a potential difference between data set ground and business machine ground, the outlet for the data set power cord should be served from the same ac distribution panel as the outlet for the business machine. If they are not served from the same panel, a test using the 6A or 6H impulse counter should be made to detect excessive noise. This test procedure is contained in Section 592-016-500.

4.07 Before connecting the data set to the line, verify that the loop and overall facilities have been tested and meet the requirements specified in the section entitled Voice Bandwidth Private Line Data Circuits—Tests and Requirements (314-410-500).

4.08 The designation strip of the associated DAS 804A is furnished with designations DATA, TALK, and TEST. Additional designations must be added on certain service applications. Select the appropriate service application and add designations as shown in Table C.

4.09 The drawings and information needed to connect data set 202D to its associated equipment and to the telephone (data) line are shown in Figures 2 through 18.



To eliminate possible damage to electronic components, do not connect power to the data station until all connections have been completed.

4.10 To make it easier to identify each key telephone unit (KTU) shown on the connection drawing, stencil or otherwise designate each unit.

4.11 When a louder ring is required, substitute an external high impedance ringer for the DAS ringer as follows:

- (1) Disconnect red and black ringer wires on the DAS 804A-type. Tape and store.
- (2) Connect external ringer to the 66E3 connecting block associated with the DAS 804A-type.
 - (a) On 2-wire switched network applications, connect external ringer to the 66E3 block at block 1, terminals 21 and 22.
 - (b) On all other service applications, connect external ringer to the 66E3 connecting block at block 3, terminals 21 and 22.

4.12 Interconnecting arrangements for the data set and all associated control circuitry are shown in Figures 2 through 18. Select the appropriate figure and wire as shown.

Note: These figures furnish one of several possible interconnecting methods. Other connection apparatus may be substituted provided that the interconnecting leads coincide with those shown on the figures.

Fig. 2—Two-Wire Private Line Without Data Auxiliary Set 804A-Type (No Talk Feature) Without Reverse Channel Capabilities

Fig. 3—Two-Wire Private Line Without Data Auxiliary Set 804A-Type (No Talk Feature) With Reverse Channel Capabilities Using Dry Line

Fig. 4—Four-Wire Private Line Without Data Auxiliary Set 804A-Type (No Talk Feature) Without Reverse Channel Capabilities With 6017AP Loop-Back Key

Fig. 5—Two-Wire Switched Network With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later

Note: Data set mounting cord must be replaced with D34B-61.

Fig. 6—Two-Wire Switched Network With Data Auxiliary Sets 801-Type, 804A1, 804A5 or 804A6, Series 6 and Later

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Verify that telephone (data) line is arranged for ground-start operation.

Note 3: When DAS 801-type ACU is installed, a ground noise test between the ACU, data set, and the business machine must be performed. (See Section 592-016-500.)

Note 4: See Section 598-010-201 for DAS 801-type ACU options.

Note 5: Install option T in DAS 804A-type in accordance with the section entitled Data Auxiliary Set 804A-Type—Description and Operation (598-030-100).

Fig. 7—Two-Wire Private Line With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 8—Two-Wire Private Line With Data Auxiliary Sets 804A1, 804A5 or 804A6 (Series 6 and Later), and With Alternate Switched Network Line

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 9—Four-Wire Private Line With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 10—Four-Wire Private Line With Data Auxiliary Set 804A2 or 804A6 and With One Alternate Switched Network Line

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 11—Four-Wire Switched Network With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later (Common Battery Signaling)

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 12—Four-Wire Switched Network With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later (With E and M Signaling)

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 13—Four-Wire Private Line With Data Auxiliary Set 804A2 or 804A6 and With Two Alternate Switched Network Lines

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 14—Additional Key Telephone Unit Strapping Information to be Used With Fig. 13

Fig. 15—Four-Wire Private Line With Data Auxiliary Sets 804A1, 804A5 or 804A6 (Series 6 and Later) With Reverse Channel

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Fig. 16—Additional Key Telephone Unit Strapping Information to be Used With Fig. 15

Fig. 17—Two Switched Network Lines With Data Auxiliary Set 804A2 or 804A6

Note 1: Data set mounting cord must be replaced with D34B-61.

Note 2: Key telephone circuitry is required for control purposes.

Data Auxiliary Set 804A2 Wiring Changes for Option ZK and Additional KTU Straps

4.13 When 4-wire PL stations are equipped with alternate switched network lines, wiring option ZK in the DAS 804A2 is required to ensure proper data to talk transfer when operation is over the switched network. The additional wiring required to provide wiring option ZK in DAS 804A2 or 804A6 is shown in the specific connection figures.

Note: Earlier systems using alternate switched network lines were wired for option ZK.

Data Auxiliary Set 828A Used With Data Set 202D

4.14 Data set 202D is compatible for use with DAS 828A. Data auxiliary set 828A provides standard, prewired, tested station arrangements for terminating 4-wire PL voiceband data channels. They are available with or without alternate voice. For more information concerning DAS 828A, refer to Sections 598-080-100 and 598-080-200.

4.15 When data set 202D is used with DAS 828A, refer to Fig. 18 for connection information.

▶Data Auxiliary Set 828C Used With Data Set 202D

4.16 Data set 202D is compatible for use with DAS 828C. Data auxiliary set 828C provides

a 4-wire private line with backup switched network lines or a 2- or 4-wire mode on two switched network lines. For additional information concerning DAS 828C, see Sections 598-080-101 and 598-080-201.◀

KTU Substitutions

4.17 When limited space is available for a new installation and the angle mounting-type KTU presents a space problem, a 251A KTU may be substituted for the 15D KTU and the 232B KTU may replace the 30A KTU.

4.18 Terminals of the 15D KTU and corresponding terminals for the 251A KTU are shown in Table D.

4.19 When the 232B KTU replaces the 30A KTU and the customer requests "locked in" signaling, connect the 232B KTU per appropriate application figure and provide option N (interrupted audible and visual signaling). Additional straps required to furnish option M (locked-in audible and visual signaling) are shown in Table E.

Note: The KS-15900-List 1 interrupter unit and the 10-volt ac power supply to the 232B KTU are not required for this application (option M).

Mounting Cord Replacement Procedures

4.20 When the furnished D6AA-61 mounting cord is to be replaced, proceed as follows.



Before attempting to replace the mounting cord, verify that the power cord has been disconnected.

- (1) ▶ Remove the data set cover by loosening the four captive retaining screws located around the base of the data set (Fig. 1). Lift to remove the cover.◀
- (2) Loosen terminal screws on TB1 and remove the spade-tipped leads of the D6AA-61 mounting cord.
- (3) Disconnect stayhook of mounting cord from chassis and remove cord.
- (4) Attach stayhook of D34B-61 mounting cord to chassis.

(5) Connect spade-tipped leads of D34B-61 mounting cord to TB1 as shown on the selected application figure.

(6) ▶ Replace the cover by positioning the retaining wedges so that they will receive the cover lugs easily. Lower the cover in place by positioning the two rear retaining wedges first. Tighten the four retaining screws.◀

Power Connections

4.21 Connect power cord between the data set power cord connector and the standard 3-wire power outlet. Secure the power outlet end of the power cord with an approved type clamp (where local regulations permit).

5. LOOP LOSS MEASUREMENT AND PADDING

5.01 Present tariffs for DATA-PHONE® service specify that the composite data signal power level reaching the serving central office (SCO) will be no greater than -12 dBm. To meet the required power levels on earlier model data sets, it may be necessary to install a pad external to the data set. The necessary pad may be either ordered assembled or may be made up in the field and installed in accordance with Fig. 19.

5.02 When data set 202D is used on PL applications, the data set transmit level should be set to the value specified on the service order or circuit layout record card.

5.03 The earlier series of data set 202D are equipped with a fixed attenuator. These data sets are:

- 202D1 and D2 prior to series 9
- 202D3 and D4 prior to series 4.

The fixed attenuator can be set to provide an output level of 0 dBm, -3 dBm, -6 dBm, or -9 dBm. An external pad must be used if output levels lower than these are required.

5.04 Data sets 202D1 and D2 (series 9 and later), data sets 202D3 and D4 (series 4 and later), and all data sets 202D5 and D6 are equipped with a variable attenuator. An external pad is not needed since the output signal can be adjusted to any level from 0 to -12 dBm. For the location of

the variable attenuators on these series data sets, see Fig. 20.

5.05 The screwdriver used for making adjustments in the data set must be the insulated blade type. A KS-6854 screwdriver with a 3-1/2 inch blade may be used by taping the blade.

5.06 In order to determine what the output level of the data set should be, it will be necessary to know the loop loss. To determine the loop loss, dial the SCO milliwatt supply or request the local test board to send a 1000-Hz tone at 0 dBm on the loop. Use a TTS-4 transmission measuring set (or equivalent) to measure the incoming signal.

5.07 Connect the TTS-4 across the line tip and ring and set the REC IMP switch to BRDG. Measure the incoming signal level while the data set is in the data mode.

Fixed Pad Attenuator

5.08 After the loop loss has been determined, refer to Table F for the data set power setting and external pad required. The data set power settings are options which can be installed and removed as specified in Table A.

Variable Attenuator

5.09 After the loop loss has been determined, disconnect the data set from the line. Connect the data set interface connector to an interface test adapter [in cover of 901B data test set (DTS)] or to a 914-type DTS. It will be necessary to condition the data set to transmit to adjust the data set transmitter output level. To adjust the output level of the 387-Hz reverse channel transmitter, it will be necessary to condition the data set to receive.

A. Transmitter Output Level

5.10 Condition the data set as follows.

- (1) If the interface test adapter is used, connect terminal 9 (+V) to terminal 4 (RTS) and to terminal 20 (DTR).
- (2) If the 914-type DTS is used, place a red pin in matrix positions 4-TP1, 9-TP1, and 20-TP1.

(3) Connect the TTS-4 across the data set tip and ring and set the REC IMP control to BRDG.

Note: The data set must be connected to the line.

(4) With the data set in the data mode, adjust the transmitter attenuator shown in Fig. 20 so that the data set output is equal to the difference between the desired power level of -12 dBm and the loop loss obtained in 5.07. For example, if the loop loss is 5 dB:

$$\begin{aligned} \text{Data Set Output} &= -12\text{ dBm} - [-5\text{ dB}] \\ &= -7\text{ dBm} \end{aligned}$$

The data set output signal level should be set to -7 dBm.

(5) Before proceeding to Part B, remove the pins from the matrix.

B. Reverse Channel Attenuator

5.11 Condition the data set as follows.

- (1) If the interface test adapter is used, connect terminal 10 (-V) to terminal 4 (RTS) and connect terminal 9 (+V) to terminals 11 (SA) and 20 (DTR).
- (2) If the 914-type DTS is used, insert red pins in matrix positions 10-TP1, 4-TP1, 9-TP2, 11-TP2, and 20-TP2.
- (3) Connect the TTS-4 across the data set tip and ring and set the REC IMP control to BRDG. The data set should be connected to the line.
- (4) With the data set in the data mode, adjust the reverse-channel attenuator so that the data set output is equal to the difference between the desired power level of -12 dBm and the loop loss obtained in 5.07. [Refer to 5.10(4) for an example.]

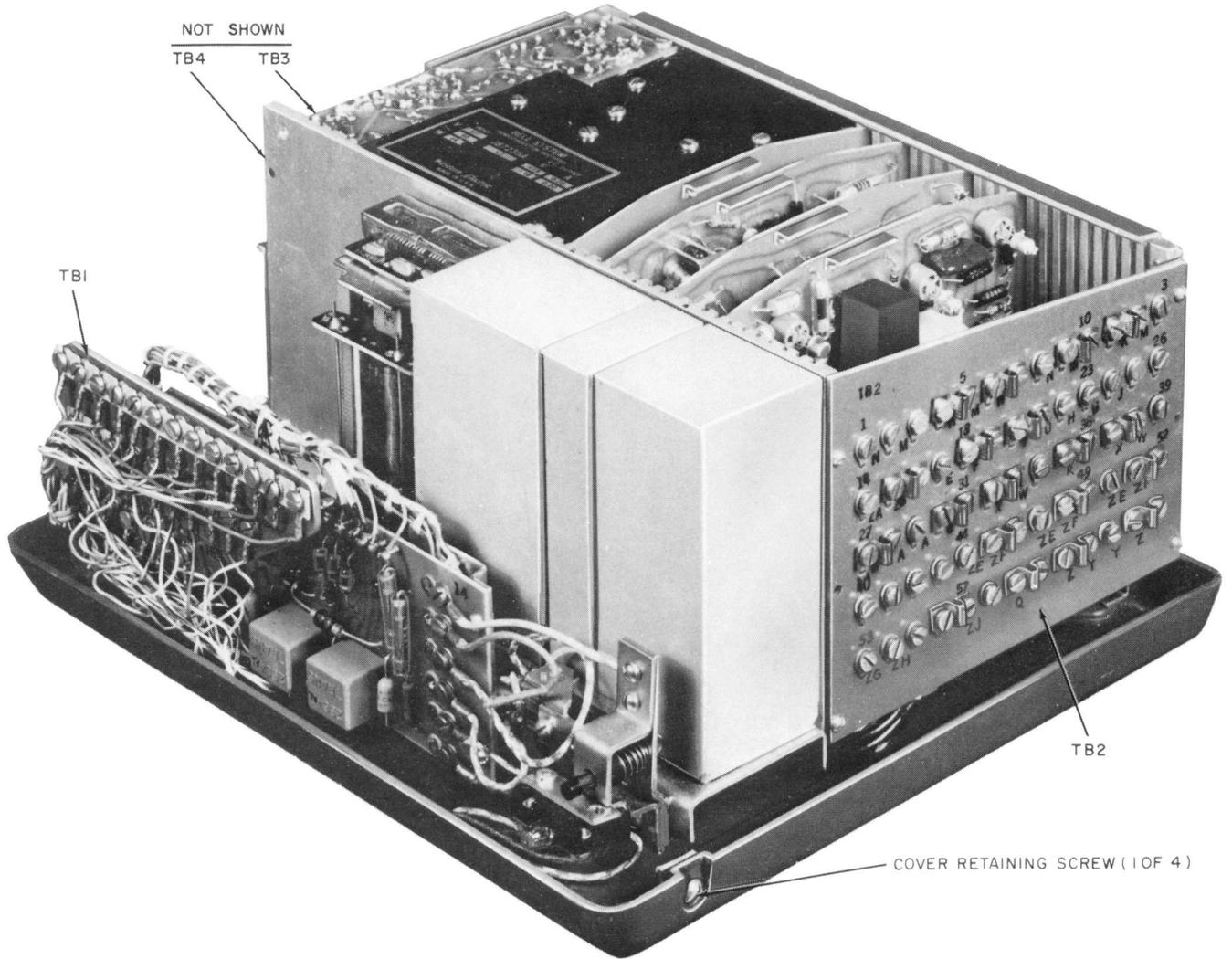


Fig. 1—Data Set 202D-Type—Location of Terminal Boards

TABLE A
OPTIONS AND CONNECTIONS

NUMBER REQUIRED PER CIRCUIT	DESCRIPTION OF FEATURE OR OPTION		OPTION DESIG	TERMINAL BOARD	CONNECTION	REMARKS
1	2-wire operation		Z	TB2	(61, 62) (64, 65)	—
	4-wire operation		Y		(62, 63, 64)	Note 1
1	600-ohm termination		X		(32, 33) (37, 38)	Note 1
	900-ohm termination		W		(33, 34) (38, 39)	—
1	Clamp on demod output when noise protection is required		V		(20, 21)	Note 1
	Clamp on demod output when noise protection is not required		U		(21, 22)	—
1	Reverse channel in		T	TB3	(1, 2) (6, 7)	Notes 1, 4
	Reverse channel out		S		(2, 3) (7, 8)	—
1	Squelch in		R	TB2	(35, 36)	Remove ZL wiring Notes 1, 2, 3
	Squelch out		ZL		(25, 35) or (22, 23)	
1	Automatic answering		Q		(59, 60)	Note 1
	No automatic answering		—		—	Remove Q wiring
1	EIA voltage interface		N		(1, 2) (4, 5) (6, 7) (8, 9)	Note 1
	Contact interface		M		(2, 3) (5, 6) (9, 10) (12, 13)	—
1	Data Transmit Power Levels	0 dBm	K		(11, 12)	Note 5
		-3 dBm	J		(24, 25)	Notes 1, 5
		-6 dBm	H		(22, 23)	Note 5
		-9 dBm	G		(23, 24)	Note 5
1	Equalizers for Switched Network Operation	Amplitude Equalizer In	F		(18, 19)	Note 1
		Amplitude Equalizer Out	E		(17, 18)	
1		Delay Equalizer In	B		(27, 28) (30, 31)	Note 1
		Delay Equalizer Out	A		(28, 29, 30)	
1	Bit Rate	900 bits per second or less	ZA		(14, 15)	—
		Over 900 bits per second	ZB		(15, 16)	
1	Enables data set TEST key		ZE		(44, 45) (47, 48) (50, 51)	Note 1
	Disables data set TEST key		ZF		(45, 46) (48, 49) (51, 52)	
1	2-wire operation without 4-wire backup		ZG		(53, 54)	—
	2-wire operation with 4-wire backup		—		—	Note 7
	4-wire operation without 2-wire backup		ZH		(54, 55)	Note 1
	4-wire operation with 2-wire backup		—		—	Note 6
1	When data set is used with 6017AP key only		—		(19, 25)	—
	When data set is not used with DAS 804A or 6017AP key		ZJ		(19, 23)	
	When data set is used with DAS 804A with or without 6017AP key		—		(57, 58) (40, 41)	
1	Reverse channel Transmit Power level	-3 dBm	ZK		(W) From 1A1 to TB4-1	Note 5
		-6 dBm	ZM		(W) From 1A1 to TB4-2	Notes 4, 5
		-9 dBm	ZN		(W) From 1A1 to TB4-3	Note 5
1	40-millisecond carrier detector timing		YM	TB2	(24, 25)	Notes 1, 10
	20-millisecond carrier detector timing		YN		(25, 26)	Note 10
1	200-millisecond clear-to-send timing		YP	TB4	(2, 3)	Notes 1, 10
	60-millisecond clear-to-send timing		YR		(1, 2)	Note 10
	30-millisecond clear-to-send timing		YS		(3, 4)	Note 10
1	Carrier soft Turnoff	IN	ZY	CP AS39	(1, 2)	Notes 1, 8
		OUT	ZZ		CP AS39	(3, 4)

Notes

1. Factory-furnished option.
2. On data sets 202D1, D2, D3, and D4, in order to provide option ZL, a P-43N572 connector lead assembly or equivalent is required to connect terminal 25 to 35.
3. On data sets 202D5 and D6, connection of terminal 22 to 23 provides option ZL.
4. Wiring factory-furnished when reverse channel is specified.
5. Data sets prior to 202D1 and D2, series 10, and 202D3 and D4, series 5 contain discrete level options. Data sets starting with these series numbers and data sets 202D5 and D6 contain potentiometers to vary the transmit level from 0 to -12 dBm.
6. When DAS 804A is used to switch from 4-wire to 2-wire (1 DDD backup line) remove ZH wiring. When DAS 804A is used to switch from 4-wire to 2 DDD backup lines, install ZH wiring.
7. When DAS 804A is used to switch from 2-wire to 4-wire or from 4-wire to 2-wire operation, remove both ZG and ZH wiring.
8. Option is located on transmitter circuit pack AS39, AS77, AS87 and is available in data sets 202D3, D4, D5, and D6.
9. Requires TEST Key in DAS 804A.
10. Options contained only in 202D5 and D6.
11. Use option ZB for *all* bit rates.

TABLE B
OPTIONS TO BE INSTALLED IN 801 ACU (WHEN USED WITH DATA SET 202D)

FEATURE OR OPTION	OPTION DESIGNATION		REQUIRED
	801A1, A2, A6	801C2, C4	
Detect end of Answer Tone	W (Note 1)	W (Note 1)	Use All
Detect 2025-Hz Answer Tone	S (Note 1)	S (Note 1)	
Data Set to Data Mode by Contact to DT	Q (Note 1)	Q (Note 1)	
10-Conductor Mounting Cord (D10P-61)	M (Note 1)	M (Note 1)	
ACU Answer Detection or end of Number	B (Note 1)	B (Note 1)	
Isolated TK Contact	ZA (Note 1)	ZA (Note 1)	
Terminate Call via Data Set After DSS on (Line Transfer in Test)	G (Note 2)	G (Note 2)	Use One of the Two
Terminate Call via CRQ After DSS on (Line Transfer)	Z (Note 3)	Z (Note 3)	
ACT Timer Stop When DSS Goes On	R (Note 2)	R (Note 2)	Use One of the Two
Does Not Stop ACR Timer When DSS Goes on	H (Note 3)	H (Note 3)	
Voltage Interface	ZF (801A6) (Note 2) (Factory-Wired 801A1) (Not Available 801A2)	Factory-Wired	Use One of the Two
Contact Interface	ZE (801A6) (Note 3) (Not Available 801A1) (Factory-Wired 801A2)	Not Available	
Short Loop (under 400 ohms)	ZU Out	Not Applicable	Use One of the Two
Long Loop (over 400 ohms)	ZU		
Ground Start (2-Wire)	Factory-Wired	V	Use One of the Two
Without Ground Start (Loop Start) (Note 4)	Not Available	Y	
DLO Controlled by ACU	Factory-Wired	ZM (801C4) (Note 2) (Factory-Wired 801C2)	Use One of the Two
DLO Controlled by ACU and Data Set	Not Available	ZL (801C4) (Note 3) (Not Available 801C2)	

Note 1: Must be used in DAS 801 (ACU) when used with data set 202D.

Note 2: Normal option for DAS 801 when associated with data set 202D.

Note 3: Special option. Should be used only on customer request.

Note 4: Central office line must be equipped with precision dial tone and automatic number identification.

TABLE C
KEY DESIGNATIONS

SERVICE APPLICATIONS	DATA AUXILIARY SET 804A KEY DESIGNATIONS					
	TO BE ADDED			FURNISHED		
2-Wire Switched Network	<i>Note 1</i>	<i>Note 1</i>	<i>Notes 1, 2</i>	TEST	TALK	DATA
2-Wire Switched Network With DAS 801A	DIAL TONE	<i>Note 1</i>	<i>Note 1</i>	TEST	TALK	DATA
2-Wire Private Line Without Alternate Switched Network Line	RING	<i>Note 1</i>	<i>Note 1</i>	TEST	TALK	DATA
2-Wire Private Line With Alternate Switched Network Line	RING	<i>Note 3</i>	<i>Notes 1, 2</i>	TEST	TALK	DATA
4-Wire Private Line Without Alternate Switched Network Line	RING	<i>Note 1</i>	<i>Note 1</i>	TEST	TALK	DATA
4-Wire Private Line With Alternate Switched Network Line (1 Switched Network Line)	RING	<i>Note 3</i>	<i>Note 1</i>	TEST	TALK	DATA
4-Wire Private Line With Alternate Switched Network Lines (2 Switched Network Lines)	HOLD	<i>Note 4</i>	<i>Note 4</i>	TEST	TALK	DATA

Note 1: Block key by using P-12A858 blocking ring.

Note 2: Key labeled AUTO when key control of automatic answer is provided.

Note 3: Add telephone number of switched network line.

Note 4: Add telephone number of 1st and 2nd switched network line. (Do not assign terminal hunt numbers.)

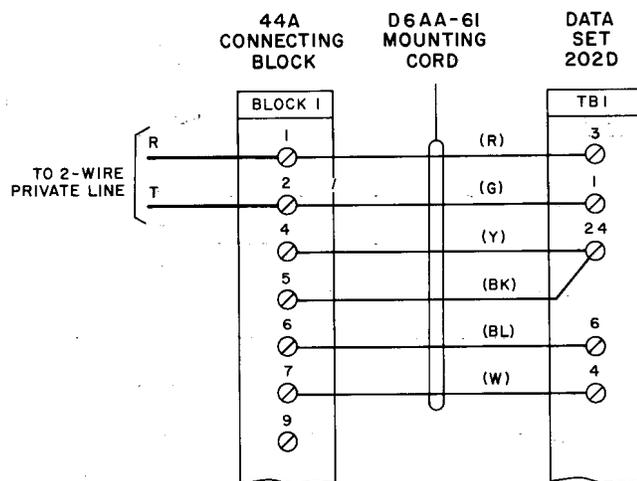


Fig. 2—Two-Wire Private Line Without Data Auxiliary Set 804A-Type (No Talk Feature) Without Reverse Channel Capabilities

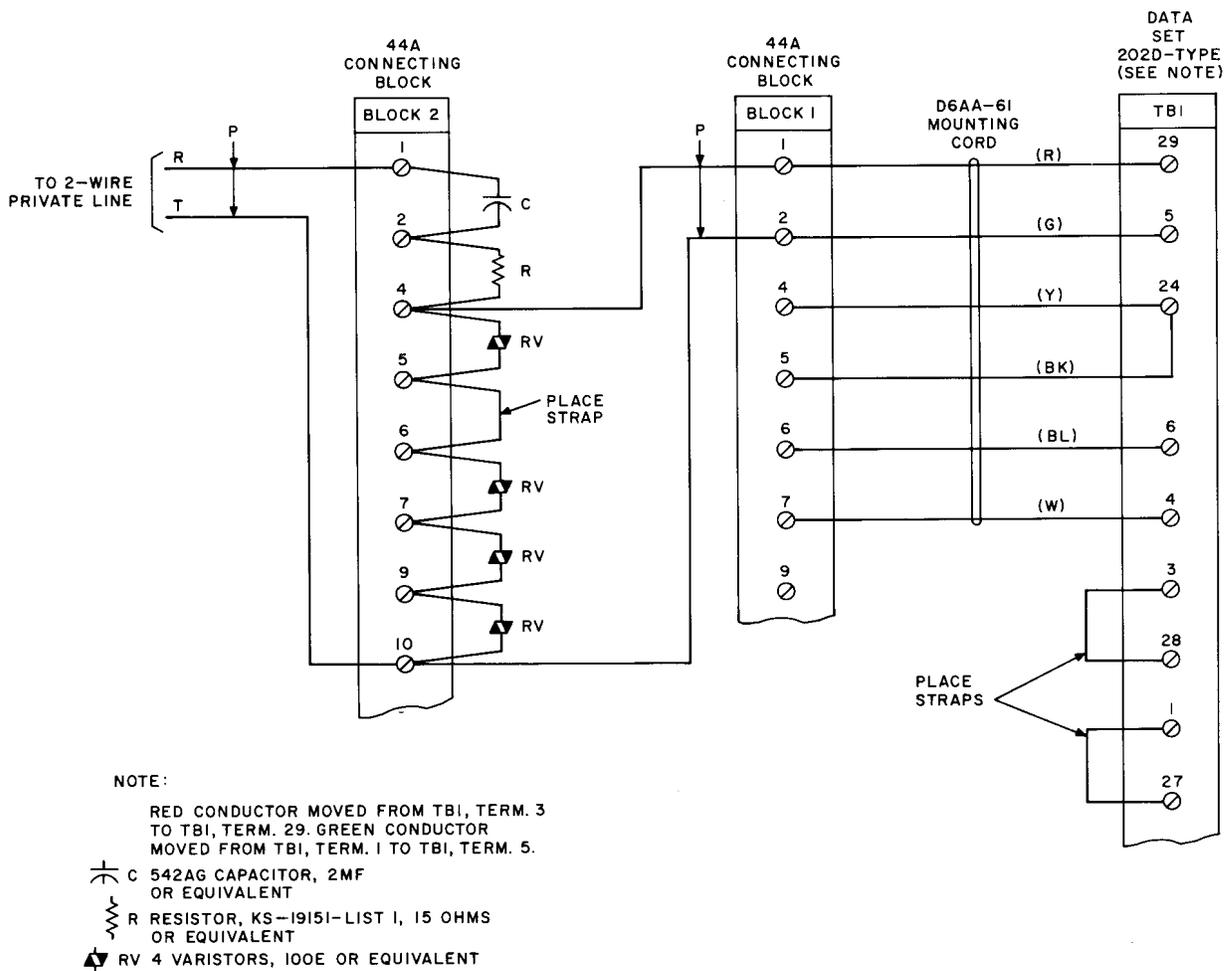


Fig. 3—Two-Wire Private Line Without Data Auxiliary Set 804A-Type (No Talk Feature) With Reverse Channel Capabilities Using Dry Line

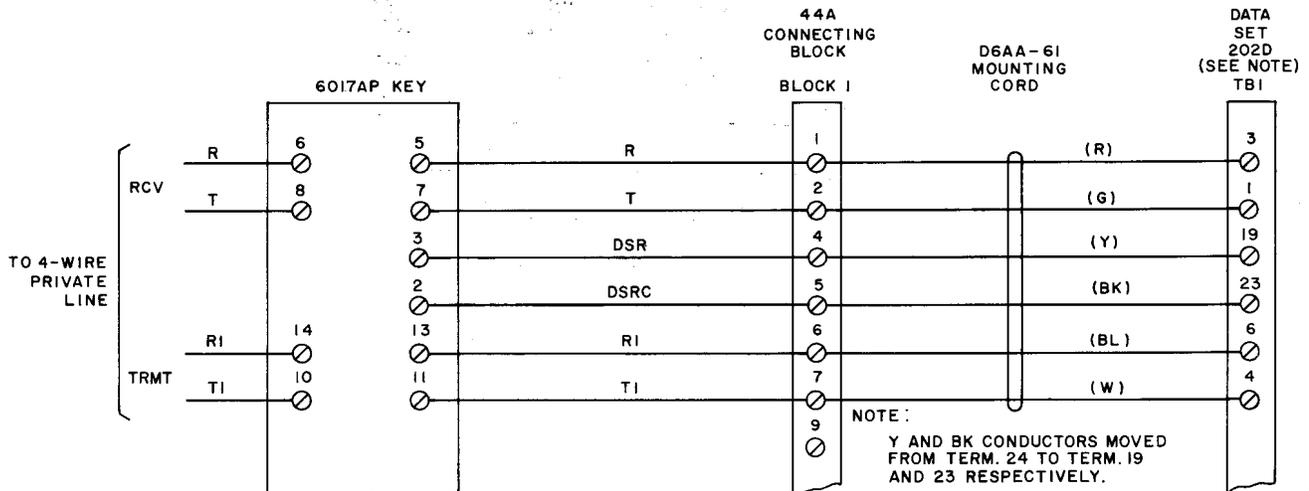


Fig. 4—Four-Wire Private Line Without Data Auxiliary Set 804A-Type (No Talk Feature) Without Reverse Channel Capabilities With 6017AP Loop-Back Key

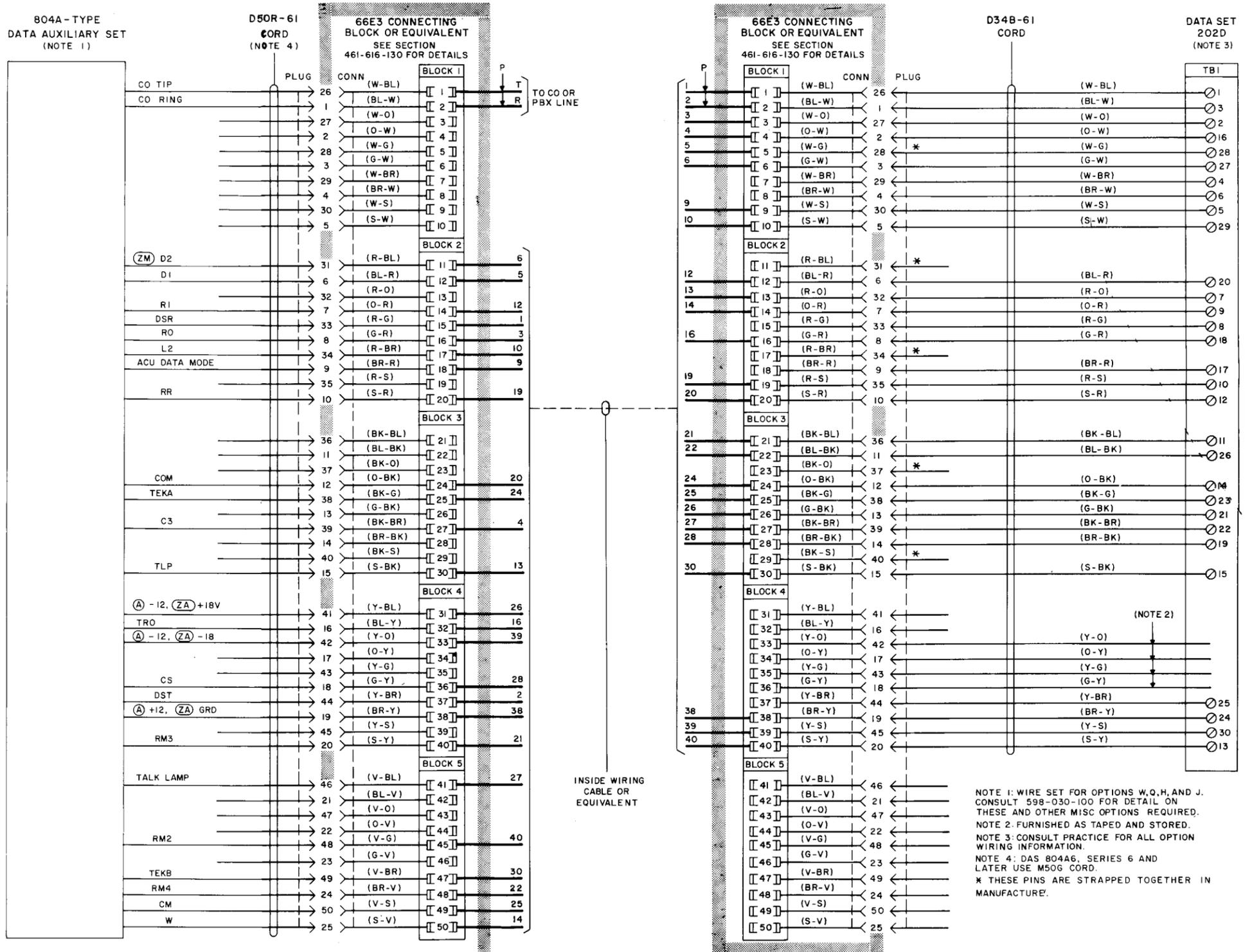


Fig. 5—Two-Wire Switched Network With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later

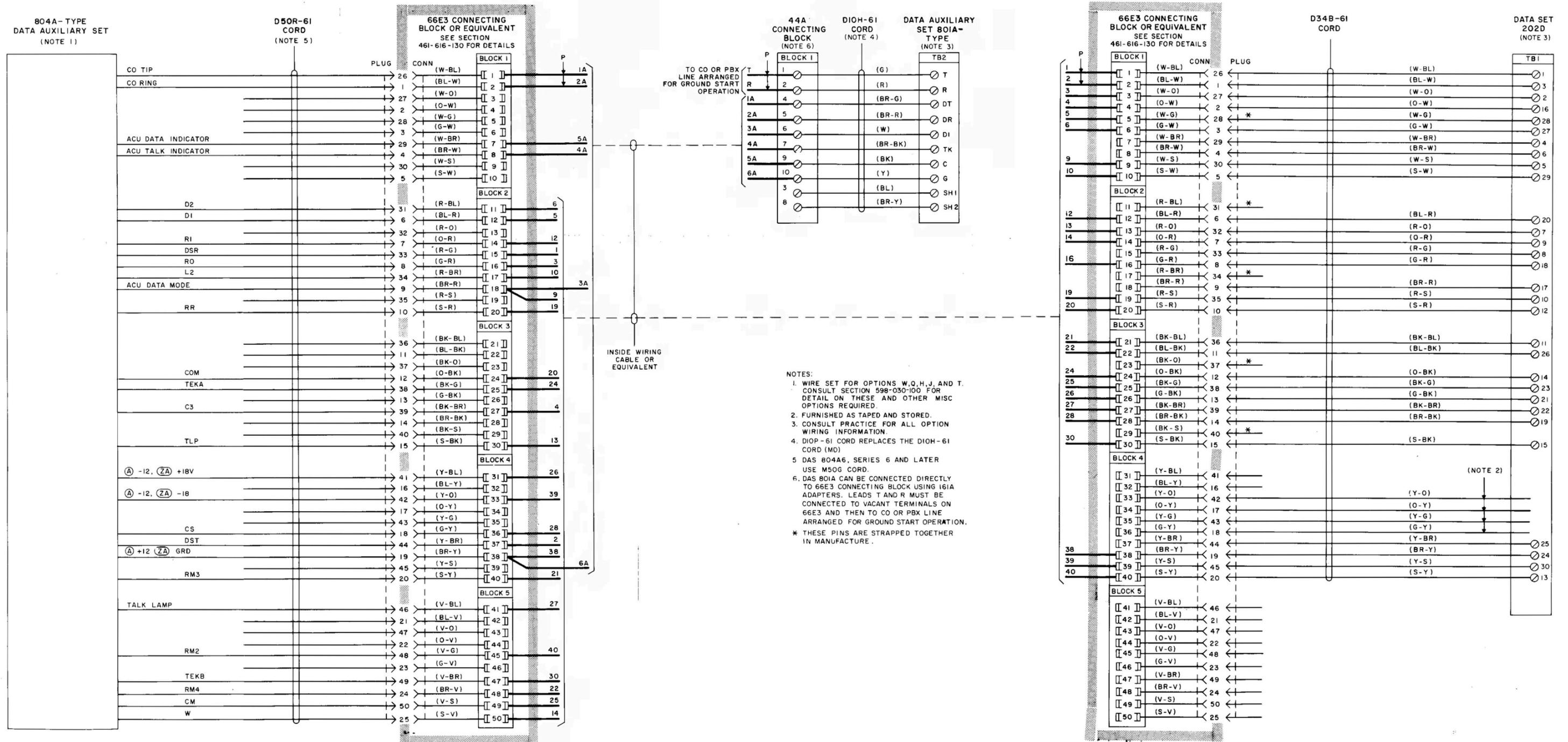
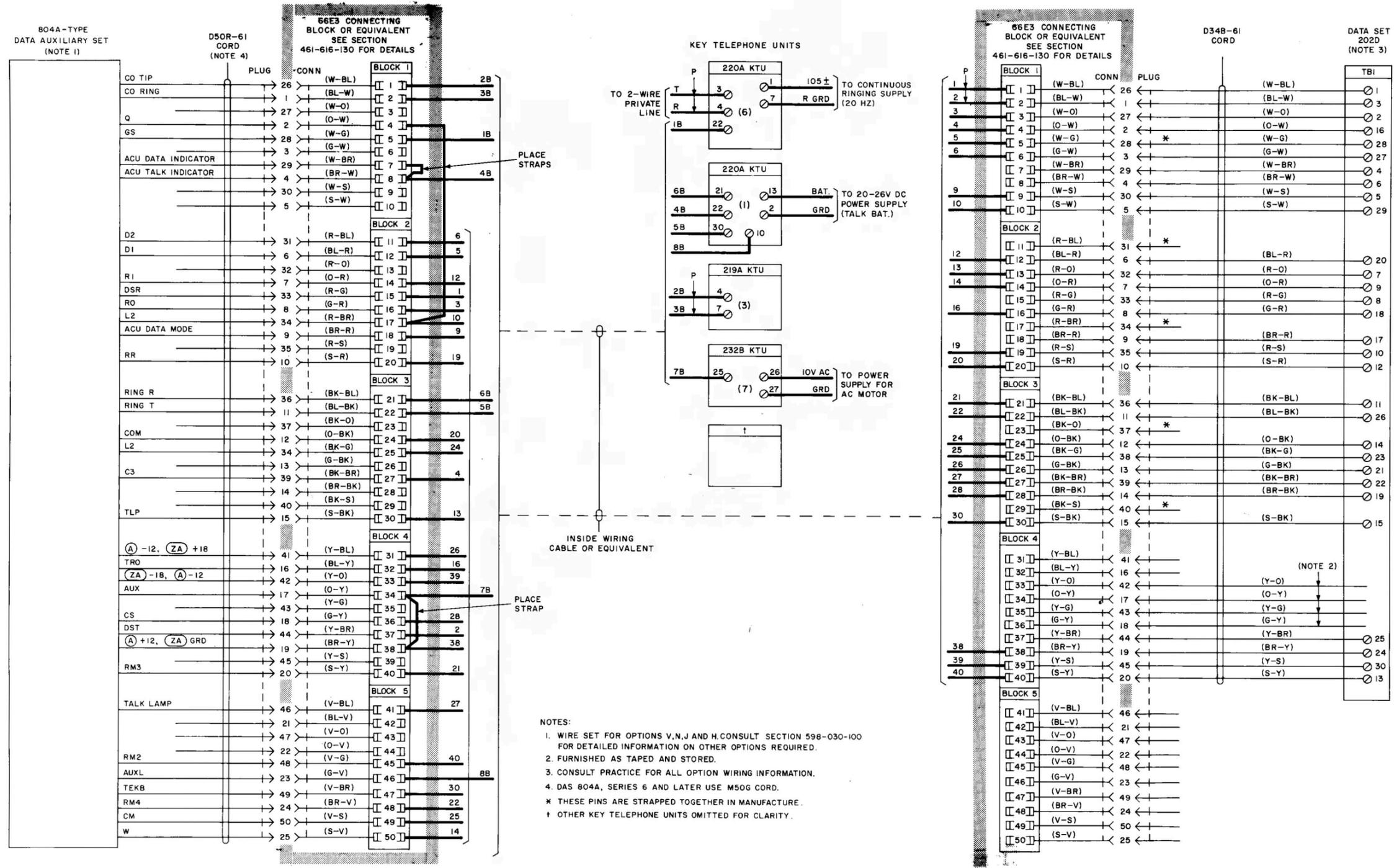


Fig. 6—Two-Wire Switched Network With Data Auxiliary Sets 801-Type, 804A1, 804A5 or 804A6, Series 6 and Later



KEY TELEPHONE UNIT STRAPPING INFORMATION

KEY TELEPHONE UNITS						
220A (1)	NOT USED (2)	219A (3)	NOT USED (4)	251A (5)	220A (6)	232B (7)
13					13	24-10
2				8-19		25
3				16		
6						38
12				15		
17				7		
		4				40
		7				30
		9		3	5	
		12		4	6	
		1-11				
		2-10				
		5-3				
		6-14				
				6-9		
				18		36
					2-8	
OPTION (N) - INTERRUPTED AUDIBLE AND VISUAL SIGNALS						
						35-36
					8	29
					7	34
30						33
				5		21
				17		1
OPTION (M) - LOCKED IN AUDIBLE AND VISUAL SIGNALS						
				5	8	
30					7	
				17		10
(1) 220A	(2) NOT USED	(3) 219A	(4) NOT USED	(5) 251A	(6) 220A	(7) 232B

KEY TELEPHONE UNITS

Fig. 7—Two-Wire Private Line With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later

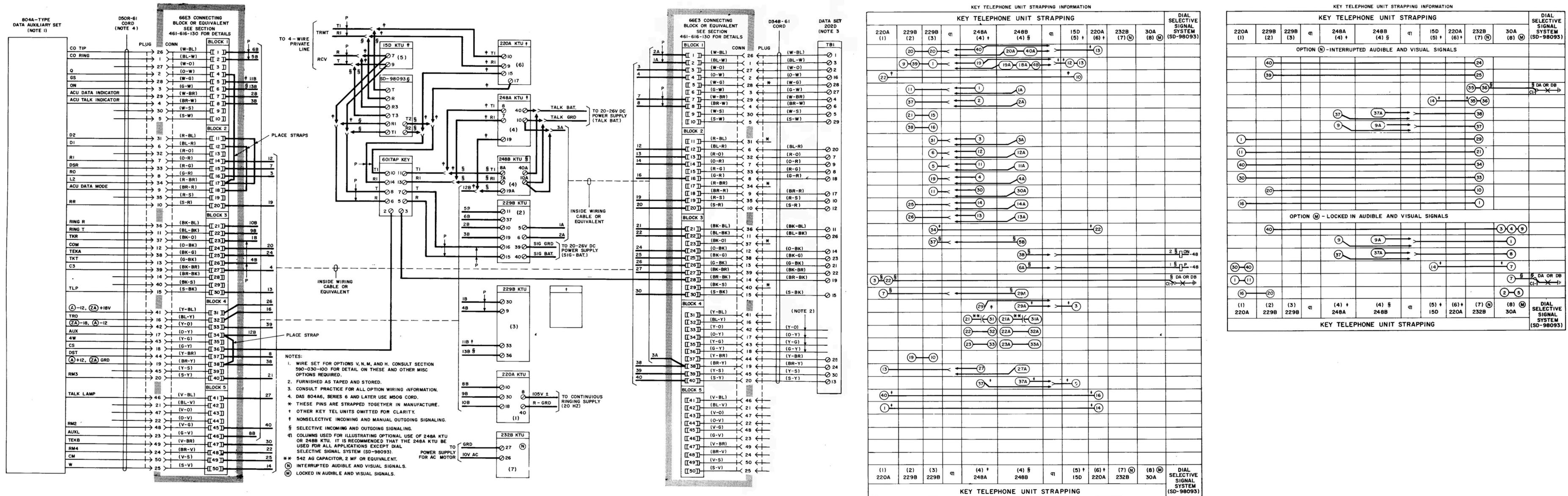
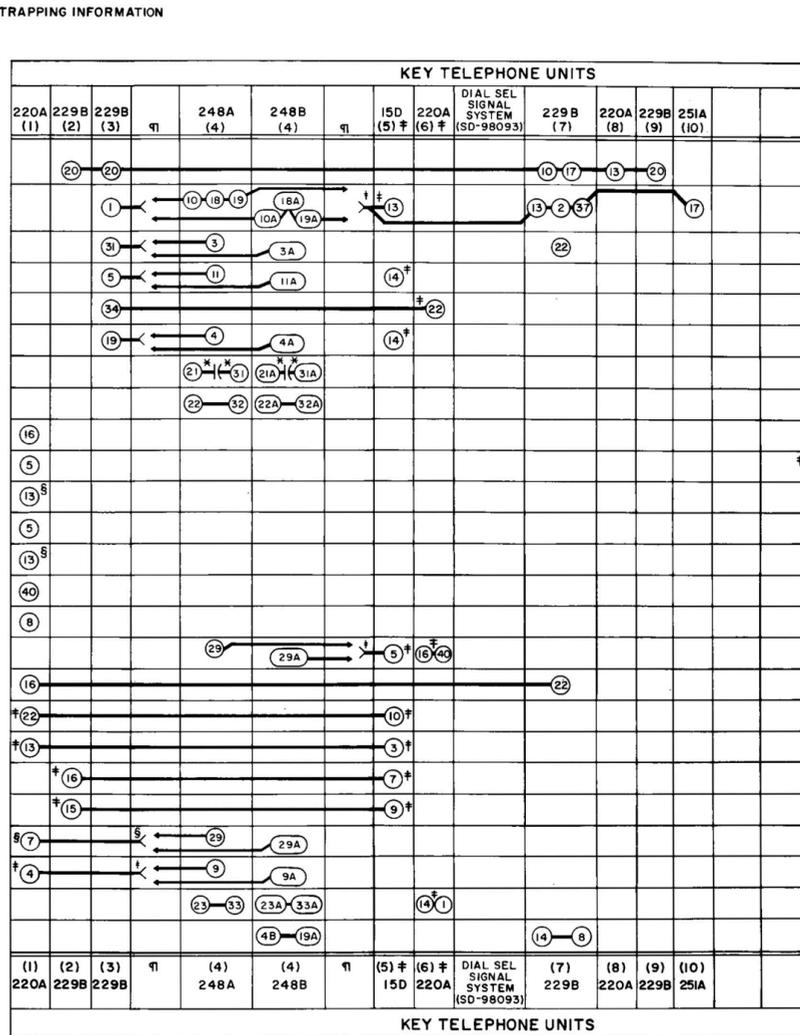
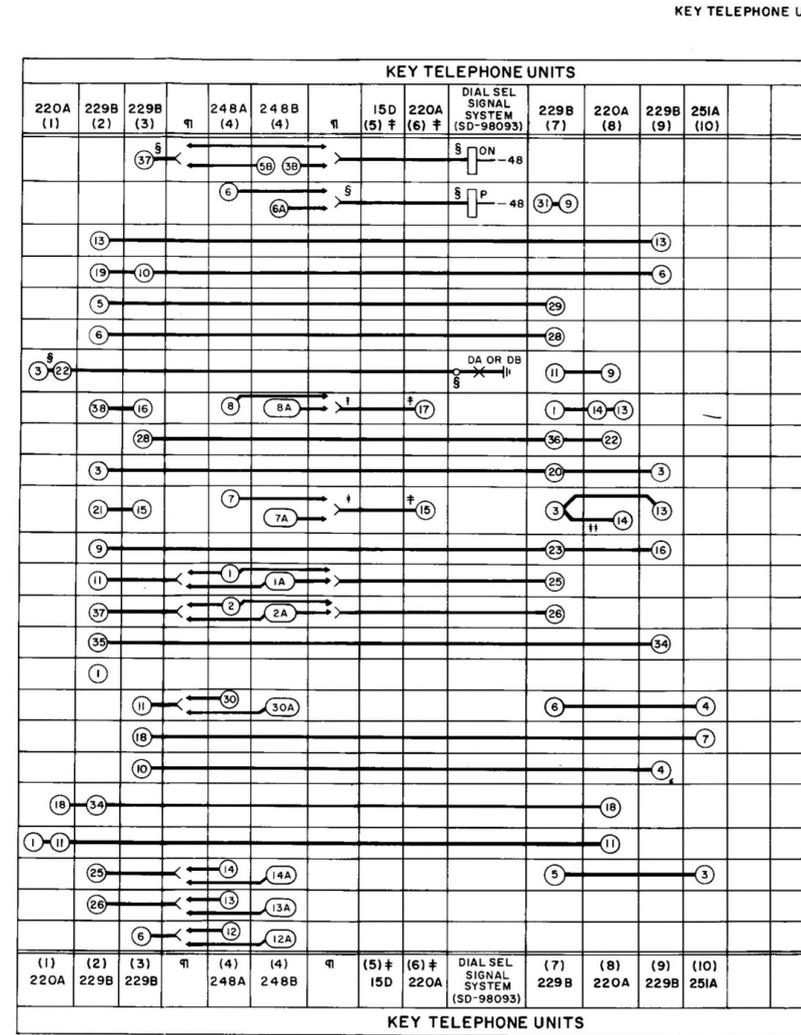
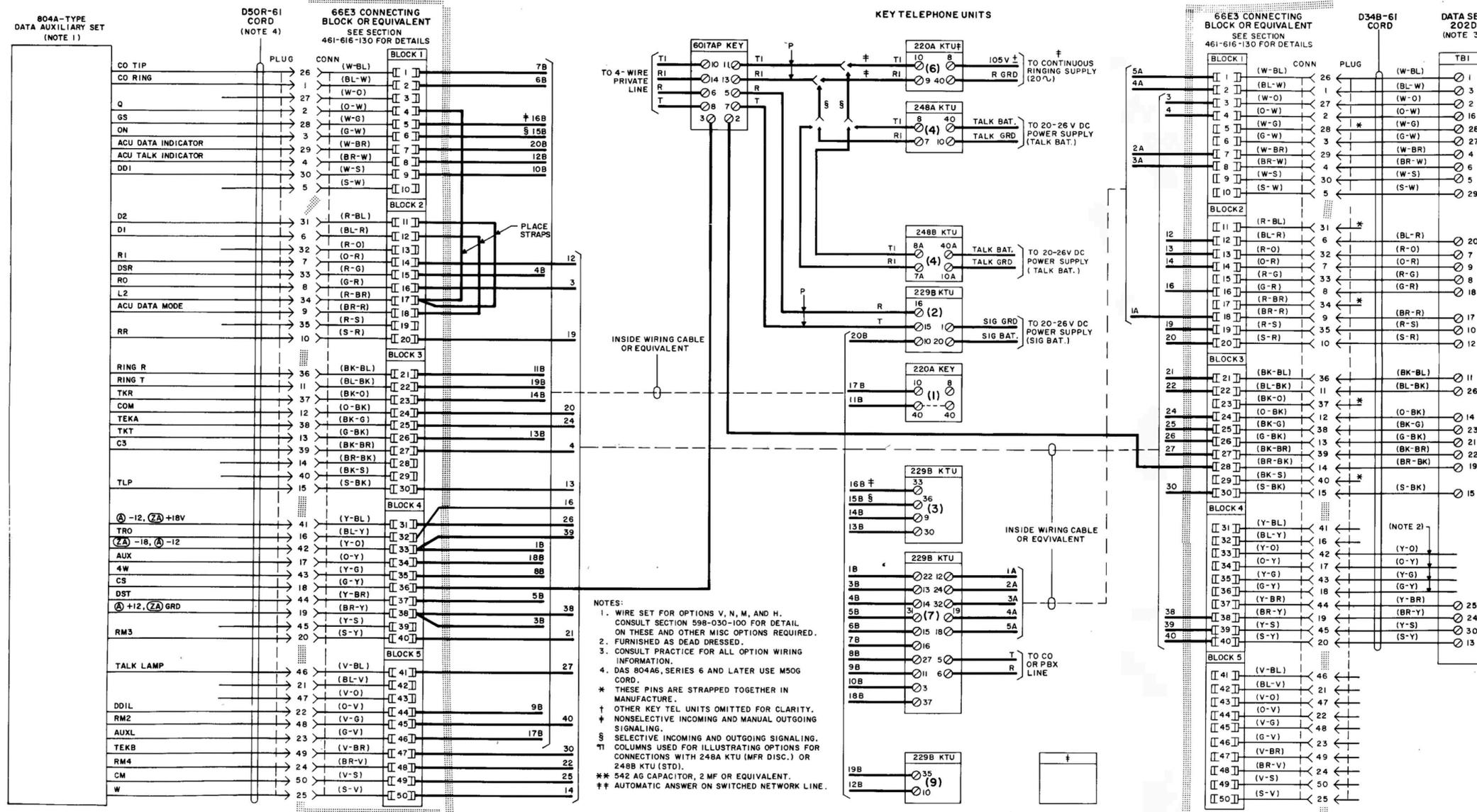


Fig. 9—Four-Wire Private Line With Data Auxiliary Sets 804A1, 804A5 or 804A6, Series 6 and Later†



NOTES:
 1. WIRE SET FOR OPTIONS V, N, M, AND H. CONSULT SECTION 598-030-100 FOR DETAIL ON THESE AND OTHER MISC OPTIONS REQUIRED.
 2. FURNISHED AS DEAD DRESSED.
 3. CONSULT PRACTICE FOR ALL OPTION WIRING INFORMATION.
 4. DAS 804A6, SERIES 6 AND LATER USE M506 CORD.
 * THESE PINS ARE STRAPPED TOGETHER IN MANUFACTURE.
 † OTHER KEY TEL UNITS OMITTED FOR CLARITY.
 ‡ NONSELECTIVE INCOMING AND MANUAL OUTGOING SIGNALING.
 § SELECTIVE INCOMING AND OUTGOING SIGNALING.
 ¶ COLUMNS USED FOR ILLUSTRATING OPTIONS FOR CONNECTIONS WITH 248A KTU (MFR DISC.) OR 248B KTU (STD).
 ** 542 AG CAPACITOR, 2 MF OR EQUIVALENT.
 †† AUTOMATIC ANSWER ON SWITCHED NETWORK LINE.

Fig. 10—Four-Wire Private Line With Data Auxiliary Set 804A2 or 804A6 and With One Alternate Switched Network Line†

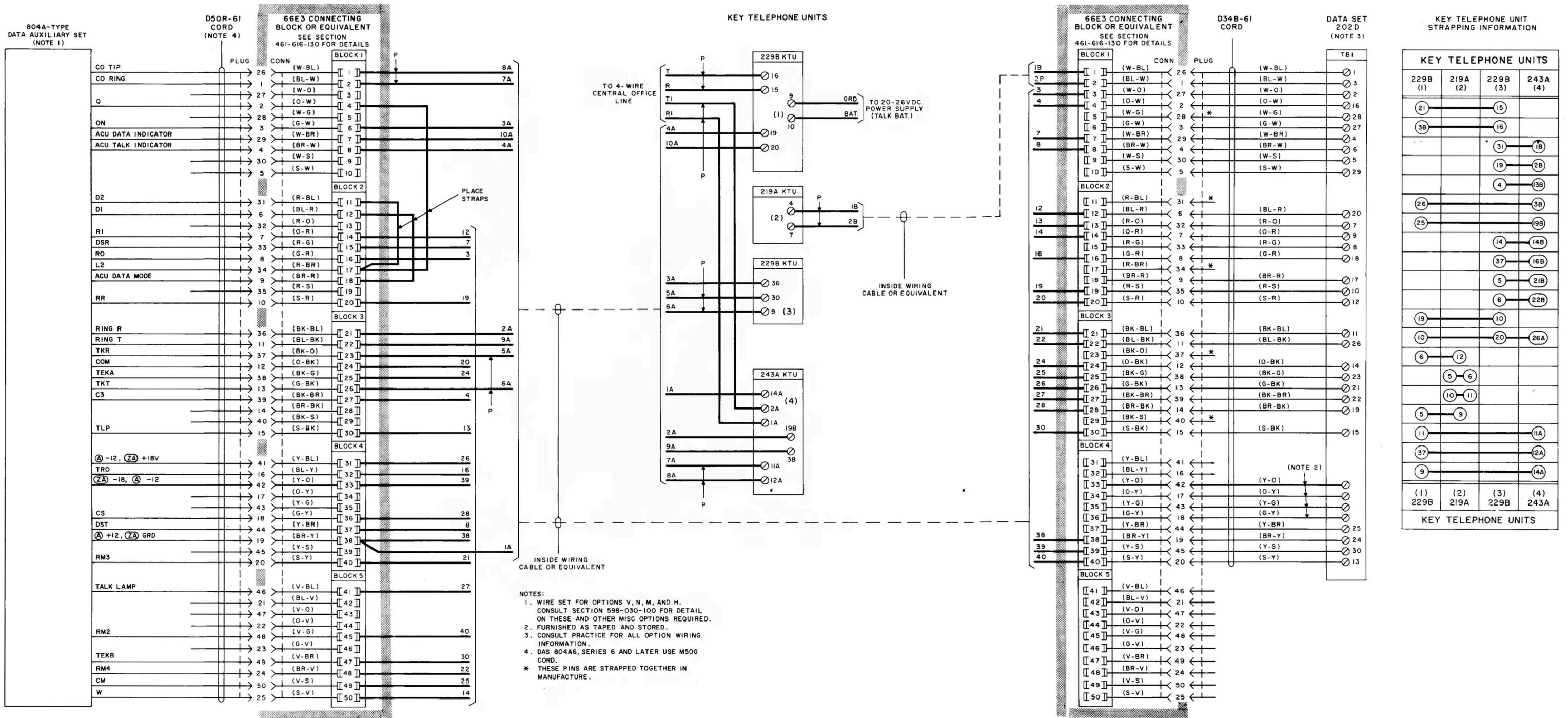


Fig. 11—Four-Wire Switched Network With Data Auxiliary Set 804A1, 804A5 or 804A6, Series 6 and Later (Common Battery Signaling)

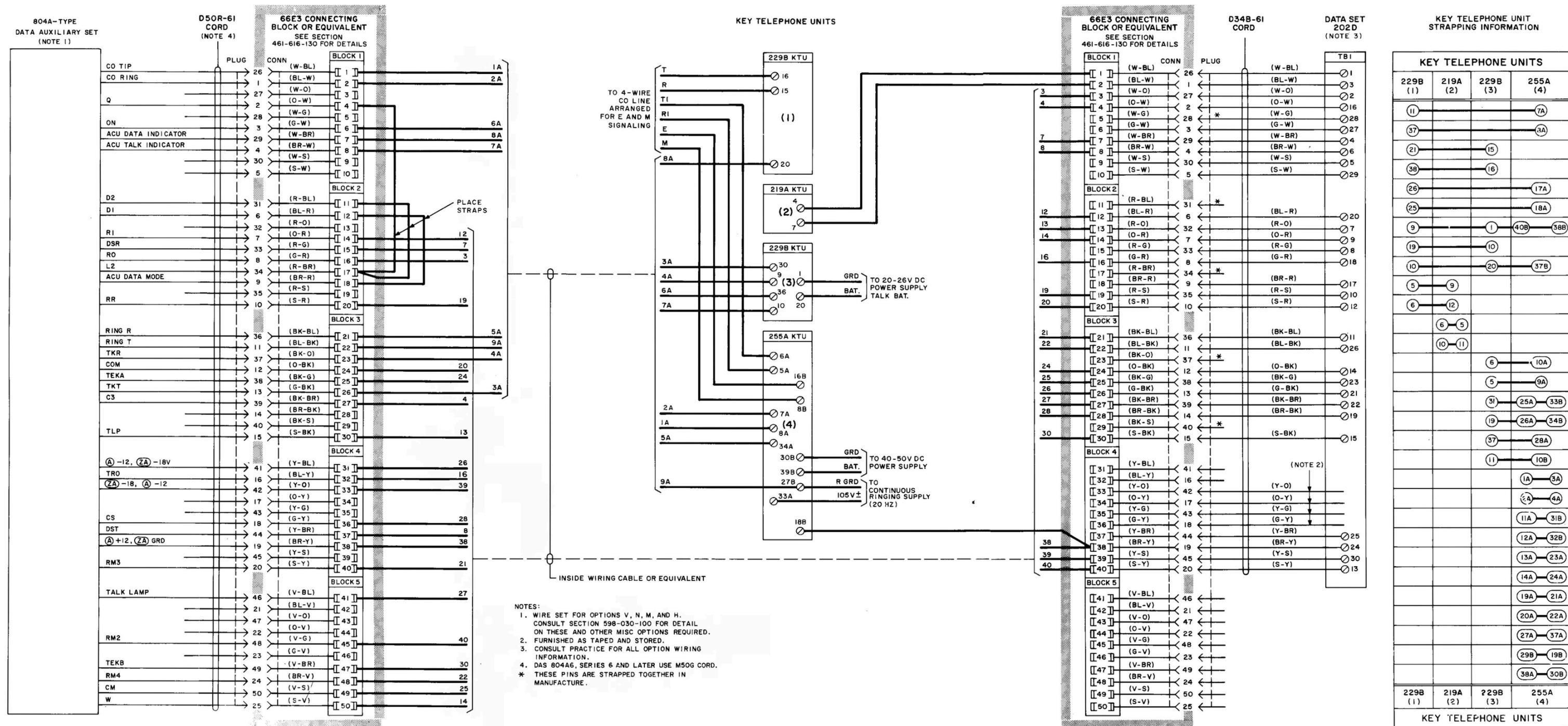


Fig. 12—Four-Wire Switched Network With Data Auxiliary Set 804A1, 804A5 or 804A6, Series 6 and Later (With E and M Signaling)

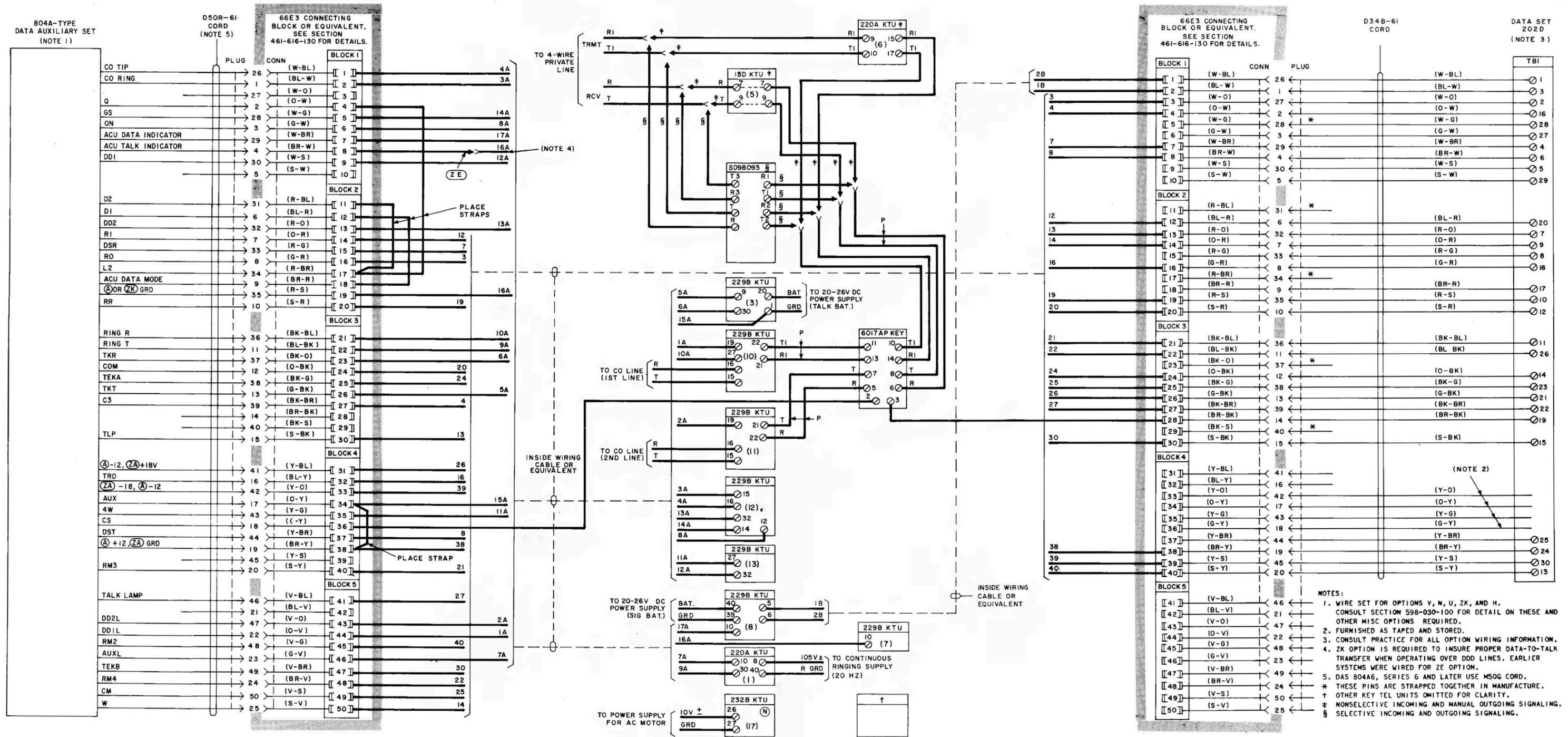
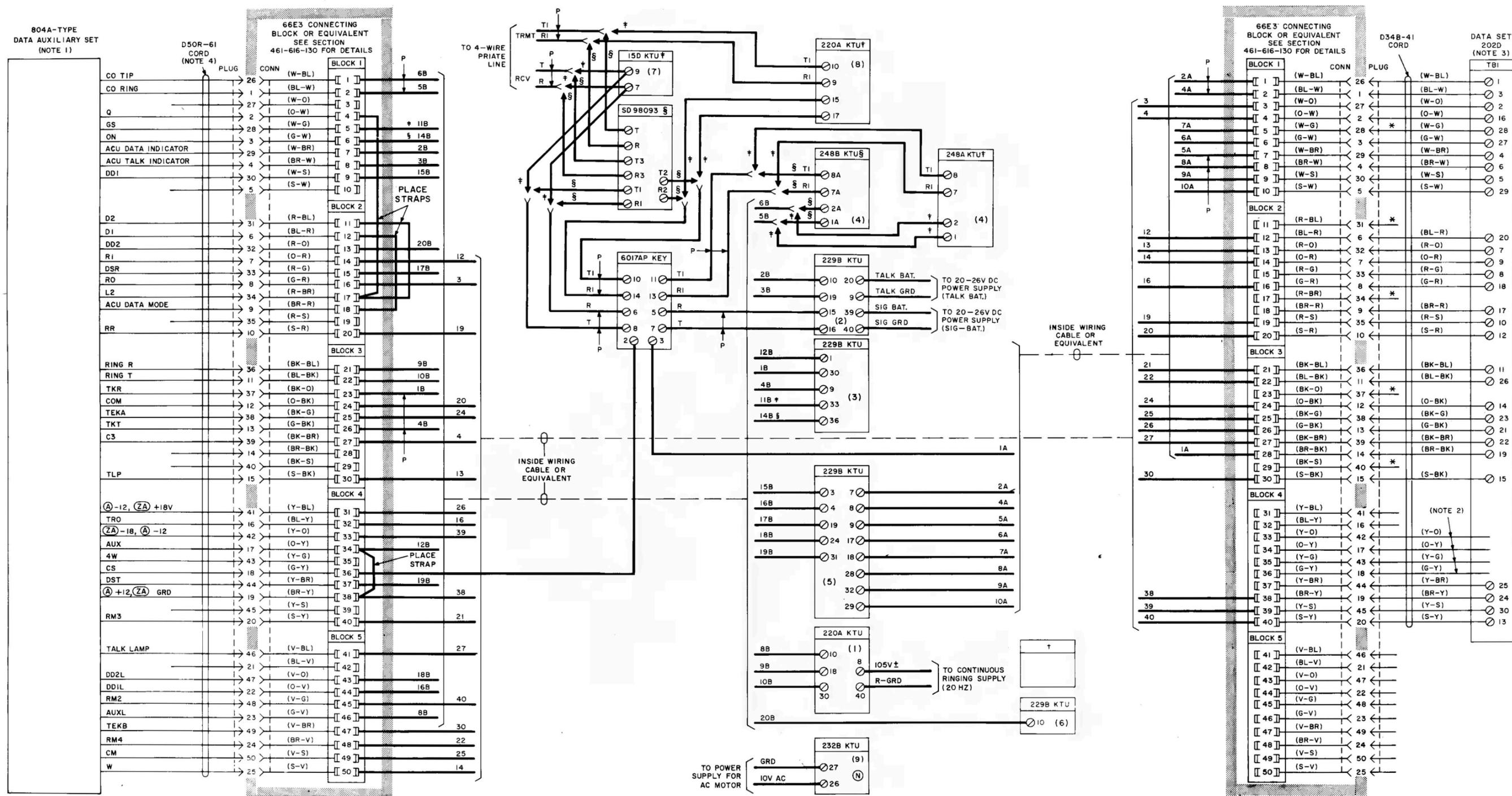
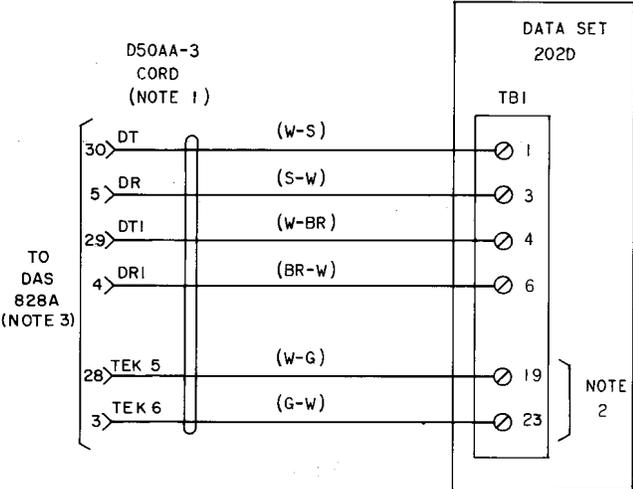


Fig. 13—Four-Wire Private Line With Data Auxiliary Set 804A2 or 804A6 and With Two Alternate Switched Network Lines



- NOTES:
1. WIRE SET FOR OPTIONS V, N, M, AND H. CONSULT SECTION 598-030-100 FOR DETAIL ON THESE AND OTHER MISCELLANEOUS OPTIONS REQUIRED.
 2. FURNISHED AS TAPED AND STORED ON EARLIER DAS 804A.
 3. CONSULT PRACTICE FOR ALL OPTION WIRING INFORMATION.
 4. DAS 804A6, SERIES 6 AND LATER USE M50G CORD.
- * THESE PINS ARE STRAPPED TOGETHER IN MANUFACTURE.
- † OTHER KEY TEL UNITS OMITTED FOR CLARITY.
- ‡ NONSELECTIVE INCOMING AND MANUAL OUTGOING SIGNALING.
- § SELECTIVE INCOMING AND OUTGOING SIGNALING.
- (N) INTERRUPTED AUDIBLE AND VISUAL SIGNALS ON PRIVATE LINE.
- (M) LOCKED IN AUDIBLE AND VISUAL SIGNALS ON PRIVATE LINE.

Fig. 15—Four-Wire Private Line With Data Auxiliary Set 804A1, 804A5 or 804A6 (Series 6 and Later) With Reverse Channel†



- NOTES:
- 1. USE D50AA-3 CORD IN PLACE OF D6AA-61 SUPPLIED WITH DATA SET.
 - 2. REMOVE ZJ OPTION STRAP (TBI, 19 TO 23) IN DATA SET.
 - 3. FOR ADDITIONAL INFORMATION CONCERNING DAS 828A REFER TO SECTION 598-080-200.

Fig. 18—Data Set 202D Connections to Data Auxiliary Set 828A

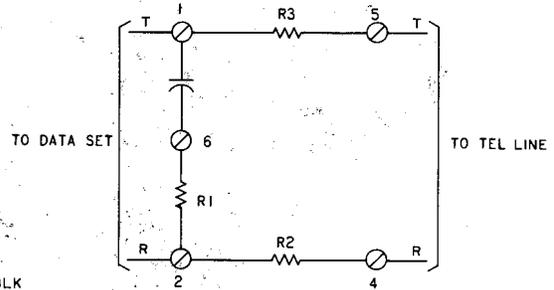
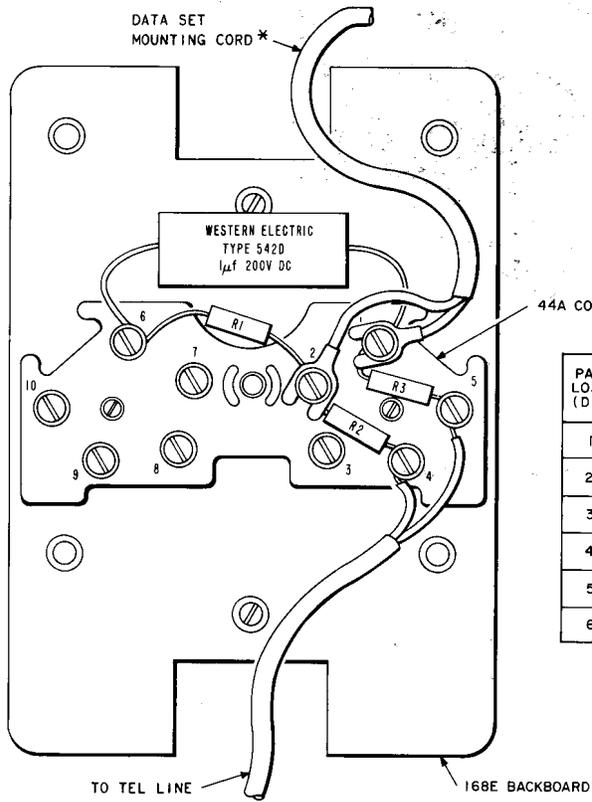
TABLE D
KTU TERMINALS

15D KTU TERM.	251A KTU TERM.
7	3
9	4
10	15
12	5
3	16
5	19
13	8
14	18

Note: A strap is also required between terminals 6 and 9 on the 251A KTU.

TABLE E
ADDITIONAL STRAPPING TO
232B KTU FOR OPTION M

CONNECT	
FROM	TO
21	29
33	34
10	1



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, 1µF, 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. 19—Insertion Loss Pad Connections

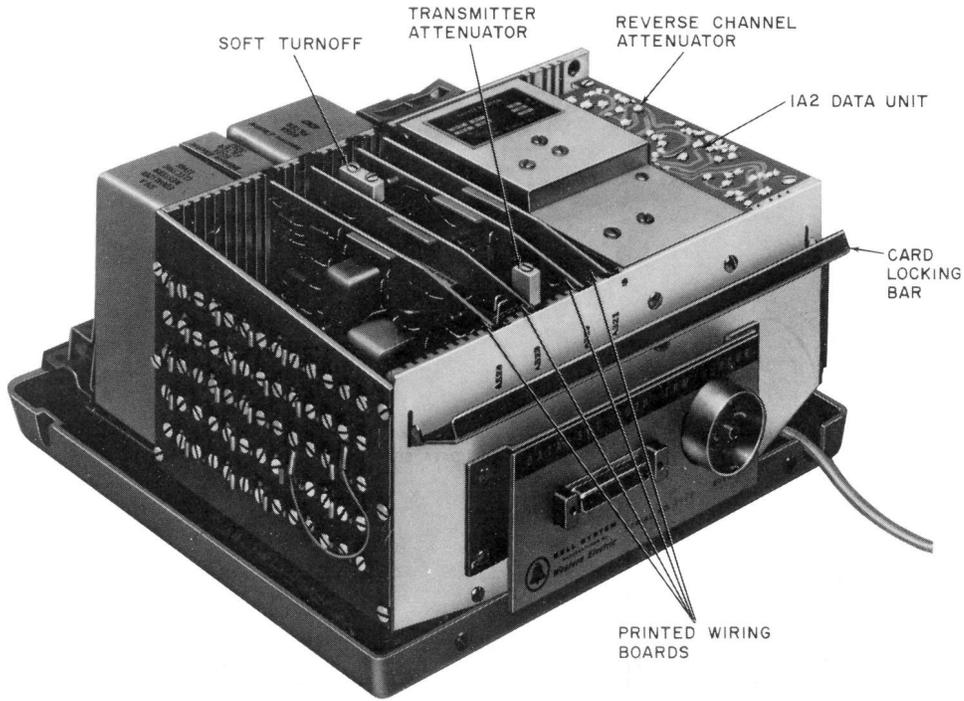


Fig. 20—Data Set 202D-Type—Rear View

TABLE F
DATA SET POWER SETTING AND PAD LOSS

MEASURED LOOP LOSS IN DB	POWER SETTING (DATA SET OPTION STRAP)	PAD LOSS IN DB
0 — 1	-9	3
1 — 2	-9	2
2 — 3	-9	1
3 — 4	-9	None
4 — 5	-6	2
5 — 6	-6	1
6 — 7	-6	None
7 — 8	-3	2
8 — 9	-3	1
9 — 10	-3	None
10 — 11	0	2
11 — 12	0	1