

DATA SET 203-TYPE INSTALLATION AND CONNECTIONS

1. GENERAL

1.01 This section contains instructions for connecting and installing the Data Set 203-type. This section does not include installation methods for the associated business machine or related equipment.

1.02 This section is reissued to correct the tables and expand the information to cover new list number codes. Table C, for example, reflects the Manufacture Discontinued (MD) code compared to the new standard (STD) ordering code.

1.03 Data Set 203-type is designed to be operated in ambient temperatures from +40° to +120°F with a relative humidity of up to 95 percent.

1.04 The 41A-type power unit, which supplies operating voltages to the Data Set 203-type circuits, requires an ac power input of 117 volts (± 10 percent) at a frequency between 47.5 and 63 Hz. Each data set is supplied with a P3BG cord to connect the ac source to the 41A power unit.

1.05 A typical Data Set 203-type installation with a Data Auxiliary Set (DAS) 804-type is shown in Fig. 1. A typical Data Set 203A-type with the front cover removed is shown in Fig. 2. A typical Data Set 203B-type with front cover removed is shown in Fig. 3. Table A lists the optional data units and the DAS used with Data Set 203-type. Table B lists the function and associated data units for the main data set codes without regard to the speed or auxiliary channel options.

1.06 The data set code identifies the basic, speed, and functional options of the individual data sets as list (L) numbers. The basic unit options are covered in List L1A, L1B, etc. The speed and functional options are by numbered lists only, such as L2, L3, etc. Table C contains the basic unit lists, the size, and weight of the data sets. Table D contains the speed option lists. Table E contains the functional option lists. (Tables G, H, and I contain the information for conversion of one functional speed to another.) A typical example

of a coded Data Set 203-type is 203A-L1C/4/7/8. This is a 203-type transmitter and receiver mounted in a KS-20018-L3 cabinet for operation on switched network, 2- or 4-wire private lines at a bit rate of 2400, 4800, or 7200 bits per second (bps) with a 150-bps auxiliary channel and an EIA Standard interface. (Refer to list of authorized codes given in Section 592-019-180.)

2. INSTALLATION

2.01 Data sets mounted in the KS-20018-L3 cabinet have data set labels on the inside of the front cover. These labels are shipped loose with the data sets not in a cabinet. It is intended that these labels be used to record pertinent data to keep a record of apparatus change and installer and/or circuit options. ♦A complete set of labels, for replacement, is coded P-47M666 for ordering purposes.♦

2.02 Figure 4 shows the labels completely filled out. The typewritten data was filled in at the factory. The handwritten data was done by the installer at the time of installation. On the 24A1 Data Unit label, note the installer options and the change out of the 41A-type power unit. Since all circuit packs are series 1, this has been omitted; however, on replacement packs or units, series changes should be recorded.

2.03 On the data set label, the part under the SD number (starting with Ckt. No. 1 Tel. No. and ending with RET LOSS) must also be completed by the installer. The information recorded here should be compiled by the installer in conformance with Sections 314-205-300 and 314-205-500. The 1000-Hz and 2750-Hz figures should be A.M.L.

2.04 The blank space directly following can be used by the installer to record any pertinent data, such as error runs or special modifications.

2.05 Functions appearing on the pins of CUSTOMER connector (J12) are illustrated in Fig. 5. The connecting cord from the business machine

should provide compatible signals according to station arrangement. The directions for signal flow and EIA symbols are provided for reference only. Functions appearing on the pins of TELEPHONE line connector (P1) are illustrated in Fig. 5 for all possible station arrangements and associated equipment, such as DASs 804A- or M-type and DASs 801A- or C-type.



The ac power cord from the data set should be connected to an ac source which provides 117 volts (± 10 percent) at a frequency between 47.5 and 63 Hz. The customer must furnish a 3-wire ac outlet to accept a plug with two parallel blades and a U-shaped grounding pin. This source should not be controlled by a switch. Do not apply power in this section.

3. CONNECTIONS

Data Set Installer Options

3.01 Options which establish the operating characteristics of the data set are made on option circuit pack (CP) AR335 located in the 24A-type Data Unit. An option is made by inserting a strapping link under the heads of two screws of the associated terminals and turning the screws to a fully tightened position. The terminals on the option CP are shown in Fig. 6. The CP AR335 is provided with a bag of 25 strapping links. A listing of the available options and required strappings is provided in Table F.

3.02 A visual inspection should be made to ensure that the proper optional circuit packs and networks are installed for the list number specified in the data set code.

3.03 The optional circuit pack and network added to the 22A-type Data Unit for the Data Set 203 speed option lists (Table D) are presented in Table G.

3.04 The optional circuit packs and networks added to the 23A-type Data Unit for the Data Set 203 speed option list (Table D) are presented in Table H.

3.05 The optional circuit packs and network added to the 24A-type Data Unit for the

Data Set 203 functional option list (Table E) are presented in Table I.

3.06 The customer interface cable and the data set ac power cord must be routed through the front or rear port at the bottom of the cabinet and the opening in the rear panel as shown in Fig. 3. The customer-provided interface cable should be terminated with a Cinch or Cannon DB-19064-432 plug and DB-51226-1 hood.

3.07 Table J lists the applications in which the Data Set 203-type can be used and relates them to the speed option list numbers.

3.08 The DASs 804A1 through 804A4 require the following modifications to be compatible with Data Set 203-type operation. These modifications are incorporated as option ZL in DASs 804A5 and above.

- (a) TOS2, terminal 6: Remove the blue-red wire from terminal 55 and connect it to terminal 54 on the 3A1 Data Unit.
- (b) Remove the orange wire from terminal 34 on the 3A1 Data Unit, tape, and store.
- (c) DT, terminal 31: Remove the red-blue wire from terminal 16 on the 3A1 Data Unit, tape, and store.
- (d) DR, terminal 45: Remove the yellow-slate wire from terminal 18 on the 3A1 Data Unit, tape, and store.
- (e) MB1, terminal 40: Remove the black-slate wire from terminal 41 on the 3A1 Data Unit, tape, and store.
- (f) On the 3A1 Data Unit, connect a 456A (or equivalent) diode as follows:



Note: This modification is required only for DASs 804A1, 804A2, 804A3, and 804A4. The 456A diode is provided as a ship-loose item with Data Set 203-type. It is located in a bag taped to the inside of the 66E3 connector block cover.

(g) T, terminal 18: Remove the green-yellow wire from terminal 27 on the 3A1 Data Unit, tape, and store.

(h) R, terminal 50: Remove the violet-slate wire from terminal 45 on the 3A1 Data Unit, tape, and store.

3.09 The DAS 804M-type requires the following modifications to be compatible with the Data Set 203-type operation. The modifications will be incorporated as options in the DAS 804M-type at a later date.

(a) On terminal board TB1, connect a wire from terminal 24 to terminal 43.

(b) On terminal board TB1, remove the wire at terminal 63 which connects to the TEST key and connect it to terminal 23, on TB1.

3.10 ♦Table J♦ lists the required options to be installed in a DAS 804-type unit to provide a data service as listed. Terminal numbers assigned to the options required are provided in Data Auxiliary Set 804A-Type, Identification and Connections (Section 598-030-100) or Data Auxiliary Set 804M-Type, Identification and Connections (Section 598-057-100).

3.11 The DAS 801-type requires the following installer options to be compatible with Data Set 203-type.

(a) For 2-wire DDD with DAS 804A;

801A1: V, F, W, S, Q, Y or remove Y, Z or remove Z.

801A2: U, F, W, S, Q, Y or remove Y, Z or remove Z.

801A6: ZE or ZF, M, W, S, Q, B, R or H, G or Z, ZU or remove ZU, ZA.

801C2: V or Y, W, S, M, Q, R or remove R, Z or remove Z.

801C4: V or Y, W, S, M, Q, R or H, B, G or Z, ZH, ZM, ZA.

(b) For 4-wire common battery with DAS 804M-type data service;

801C4: Y, W, S, F, B, ZB, ZJ, ZL, R or H, A, N (requires a separately ordered M14C cord).

3.12 Terminal numbers assigned to the options required in a DAS 801-type will be found in the appropriate section listed:

- Data Auxiliary Sets 801A1, 801A2, 801A3, and 801A4 for Automatic Calling, Installation and Connections (Section 598-010-200)

- Data Auxiliary Sets 801A5 and 801A6 for Automatic Calling, Installation and Connections (Section 598-010-201)

- Data Auxiliary Sets 801C3 and 801C4, Installation (Section 598-012-201)

- Data Auxiliary Sets 801C1 and 801C2, Installation (Section 598-012-200).

3.13 *Special Notes:* The following notes should be considered per individual station arrangement requirements for installation:

- The DAS 801-type connecting cord leads are connected to the 66E3 block using 161A adapters which must be ordered separately. Each data set requires eight adapters.

- The DASs 801C4 and 804M-type, when used together, require M14C and M14E connecting cords, respectively. These cords must be ordered separately.

- The DAS 804M is connected to the data set through an M25A cord which is to be ordered separately. The 66E3 connector block assembly cord is removed from connector P1 on the data set and the M25A cord is connected in its place.

Station Arrangement Connections

3.14 The text and illustrations (Fig. 7 through Fig. 18) represent a few common configurations for interconnecting Data Set 203-type to the telephone facilities. No attempt is made to present all possible connections because of the multitude of acceptable station arrangements and equipment codes.

3.15 The illustrations are simplified arrangements of connection diagrams given in Data Systems Station, Data Set 203-type—SD-1D151-01. Figure 7 is a pictorial sketch of a typical DDD installation. Figure 8 is a sketch of a typical private line installation with a DAS 804A-type. Figure 9 is a sketch of a typical 4-wire common battery or 4-wire switched network installation.

3.16 Termination of telephone facility at the customer location to provide a data service is shown in Fig. 10 and listed in Table K. The sequence of both Fig. 10 and Table K is the same as listed in SD-1D151-01.

3.17 Table L lists the apparatus required for those data services which use key telephone units (Fig. 12, 13, 14, 16, 17, and 18).

3.18 Figure 19 shows available connections at the TELEPHONE connector and the 66E3 connector block on the Data Set 203-type. Figure 20 shows connections from a DAS 804A-type to the 66E3 connector block. These figures are provided to assist in the planning and/or installation of an equipment arrangement not included in this section.

2-Wire Switched Network Installation Check List

3.19 The following check list is provided as a guide for installation of Data Set 203-type with DAS 804A-type for operation over a 2-wire switched network:

- Modify the DAS 804A-type as indicated in 3.08.
- Install DAS 804A-type options as listed in Table J.



Option B provides for automatic answer only when the AUTO button is pressed. The AUTO button should be a locking type. Option F provides for permanent automatic answering under control of customer interface signal data terminal ready (DTR). With option F, the AUTO button is not used and should be blocked. The above use of options B and E may differ from what may be interpreted from the Bell System Practice describing the DAS 804A-type

and may provide exactly the opposite feature for other data set types.

- Install the required Data Set 203-type options on circuit pack AR335 (see Table F).
- Insert the DAS 804A-type mounting cord into the 66E3 connecting block assembly on the data set. The 66E3 connecting block must be connected to the TELEPHONE connector on the data set (see Fig. 7).
- Connect the telephone line to the 66E3 connecting block as shown in Fig. 10-3.
- If an automatic calling unit (DAS 801-type) is being used, refer to 3.11, 3.12, 3.13, Fig. 7, Fig. 10-3, and Fig. 11.
- Perform the required tests as outlined in Section 592-019-500.
- Fill in data set labels as required in 2.02, 2.03, and 2.04.

Private Line Without Telephone Set Installation Check List

3.20 The following check list is provided as a guide for installation of Data Set 203-type without telephone set for operation over 2- or 4-wire private line facilities:

- Install the required data set options on circuit pack AR335 (see Table F).
- Connect the telephone line to the 66E3 connecting block as shown in Fig. 10-1 or 10-2. The 66E3 connecting block assembly must be connected to the TELEPHONE connector on the data set.
- Perform the required tests as outlined in Section 592-019-500.
- Fill in data set labels as required in 2.02, 2.03, and 2.04.

4. CONVERSION

4.01 The data units provide a data set with operational functions which are designated by list number coding. A Data Set 203B-type or 203C-type can be converted to a 203A-type by

providing the appropriate data unit. Similarly, a speed option list code number can be converted to another speed option list code number by removal and replacement of appropriate circuit packs and networks.

4.02 Optional apparatus, which is required for each data unit to provide a speed option or associated function, is listed in Tables G, H, and I. Use the tables as appropriate to order the required circuit packs, networks, the L9 adapter cable assembly if required, and the proper labels. After the conversion is complete, the data set labels should be marked to indicate the change or to include the required information.

Caution: *Certain areas of incompatibility must be avoided when performing a conversion. These are as follows:*

(1) *Manufacture Discontinued (MD) circuit packs CANNOT be used in the new type (A2 or higher) data unit(s).*

(2) *Data units manufactured as A1 (ie, 22A1) should NOT be intermixed with the A2 (ie, 24A2) or higher data units because of wiring harness connections. There is NO conversion of an A1 Data Unit to an A2 Data Unit. All A1, A2, etc, Data Units should be prominently tagged and kept together in separate groups.*

4.03 Identification and ordering information for both data sets and data units are listed as follows:

- 22A-Type Data Unit (Transmitter), Identification (Section 590-100-115)
- 23A-Type Data Unit (Receiver), Identification (Section 590-100-116)
- 24A-Type Data Unit (Common Control Equipment), Identification (Section 590-100-117)
- Data Set 203-Type, Transmitter/Receiver, Summarizing Specification, Data Systems Station (Section 592-019-180).♦

→TABLE A←

NOMENCLATURE AND DESCRIPTIONS

APPARATUS	FUNCTIONAL DESCRIPTION	QUALIFICATIONS
22A-type Data Unit	Data Set Transmitter	Requires plug-in networks and associated circuit packs according to intended service of the data set to be operational
23A-type Data Unit	Data Set Receiver	
24A-type Data Unit	Data Set Common Control Equipment	
Data Auxiliary Sets 801A-type and 801C-type (optional)	Automatic calling features	Requires internal option strapping according to intended service
Data Auxiliary Sets 804A-type and 804M-type (optional)	Voice communication and network signaling control functions	Requires internal modification and option strapping according to intended service

TABLE B
DATA SET 203-TYPE ARRANGEMENTS

DATA SET CODE	FUNCTION	INTERNAL APPARATUS
203A-()	Transmitter and receiver	22A-type, 23A-type, 24A-type, all with Table A qualifications
203B-()	Transmitter only	22A-type, 24A-type, with Table A qualifications
203C-()	Receiver only	23A-type, 24A-type, with Table A qualifications

→TABLE C←

BASIC UNIT LISTS

DATA SET LIST NUMBER (Note 1)	DESCRIPTION	DATA SET SIZE AND WEIGHT		
		203A-()	203B-()	203C-()
L1(MD) L1C(STD)	Mounted in a KS-20018-L3 cabinet with provision for error control.	2 ft wide 1 ft deep 2 ft high 110 lbs	2 ft wide 1 ft deep 2 ft high 72.5 lbs	2 ft wide 1 ft deep 2 ft high 89.5 lbs
L1A(MD) L1D(STD)	No cabinet — 23-inch frame. Mounting with provision for error control.	23 in. wide 9 in. deep 20 in. high 90 lbs	23 in. wide 9 in. deep 14 in. high 53 lbs	23 in. wide 9 in. deep 20 in. high 70 lbs
L1B(MD) L1E(STD)	No cabinet — 23-inch frame. Mounting without provision for error control.	(Not applicable)	(Not applicable)	23 in. wide 9 in. deep 14 in. high 65 lbs

Note 1: MD — Manufacture Discontinued; STD — Standard.

→TABLE D←

SPEED OPTION LISTS

DATA SET LIST NUMBER	LINE SYMBOL RATES (BAUDS)	LINE SIGNAL BANDWIDTH (HZ)	SPEED CAPABILITY BITS/SEC			RECOMMENDED APPLICATION
			NUMBER OF LEVELS			
			2	4	8	
L2	2400	500-2900	2400	4800	7200*	4800 bps on 4-wire C2 private line
L3	1800	700-2700	1800	3600	5400*	3600 bps on switched network or on C2 private line (2- or 4-wire)
L4	2400	700-2700	2400	4800	7200*	4800 on switched network and C2 private line (2- or 4-wire)
L5	3200	400-2900	3200	6400	9600*	6400 on 4-wire C2 private line
L6	3600	401-2900	3600	7200	10,800*	7200 bps on 4-wire C2 private line

* May have degraded performance.

→TABLE E←

FUNCTIONAL OPTION LISTS

DATA SET LIST NUMBER	FUNCTION
L7*	To provide a low-speed (≤ 150 bps) auxiliary (secondary or reverse) channel
L8†	To provide an EIA Standard interface
L9†	To provide a MIL. Standard interface

* The auxiliary channel is optional only for Data Set 203A-type. The auxiliary channel is required equipment for Data Sets 203B-type and 203C-type.

† Optional only for 24A2 Data Unit. The 24A1 Data Unit, which has been replaced by the 24A2 Data Unit, contains an EIA Standard interface as common equipment.

→TABLE F←

DATA SET INSTALLATIONS

OPTION	FEATURE		STRAPPING ON AR335	PROVIDE
Z	MODE OF OPERATION	4-wire without Auxiliary Channel	Install 7, 12, 15, 17, 27, 34	One Per Station
Y		4-wire with Auxiliary Channel	Install 15, 17, 18, 26, 27	
X		2-wire (Auxiliary Channel required)	Install 16, 19	
W	CONTROL OF AUXILIARY CHANNEL	By Request to Send only (for switched network or 2-wire private lines)	Install 29, 30	One Per Station
V		By Auxiliary Request to Send only (For independent control on 2- or 4-wire private lines)	Install 28	
T		By Request to Send and Auxiliary Request to Send (For nonsimultaneous transmission on 2- or 4-wire private lines)	Install 29	
YD		Auxiliary Channel not provided	Install 28, 30	
S	LINE IMPEDANCE	600 Ohm	Install 21, 24	One Per Station
R		900 Ohm	Install 22, 23	
ZA	TRANSMIT LINE SIGNAL LEVEL AND 2-WIRE RECEIVER PAD	-15 dBm/15 dB	Install 8, 9, 13, 14	One Per Station
ZB		-14 dBm/14 dB	Install 1, 9, 13, 14	
ZC		-13 dBm/13 dB	Install 2, 8, 9, 13	
ZD		-12 dBm/12 dB	Install 1, 2, 9, 13	
ZE		-11 dBm/11 dB	Install 3, 8, 13, 14	
ZF		-10 dBm/10 dB	Install 1, 3, 13, 14	
ZG		-9 dBm/9 dB	Install 2, 3, 8, 13	
ZH		-8 dBm/8 dB	Install 1, 2, 3, 13	
ZI		-7 dBm/7 dB	Install 4, 8, 9, 14	
ZJ		-6 dBm/6 dB	Install 1, 4, 9, 14	
ZK		-5 dBm/5 dB	Install 2, 4, 8, 9	
ZL		-4 dBm/4 dB	Install 1, 2, 4, 9	
ZM		-3 dBm/3 dB	Install 3, 4, 8, 14	
ZN		-2 dBm/2 dB	Install 1, 3, 4, 14	
ZO		-1 dBm/1 dB	Install 2, 3, 4, 8	
ZP	0 dBm/0 dB	Install 1, 2, 3, 4		
B	RECEIVER PAD	10 dB for 4-wire Lines	Install 11	One Per Station
A		0 dB for 2-wire Lines	Install 6	
N	USE OF 804 TYPE DATA AUXILIARY SET	No	Install 5, 20	One Per Station
YA		Yes	Remove 5, 20	
K	INITIATE START-UP OF HIGH-SPEED CHANNEL	On receipt of Auxiliary Channel Carrier		Install 33
J		4-Wire Auto Retrain	Clear to Send Inhibited by Carrier on Delayed	Install 25, 38
ZR			Clear to Send Independent of Carrier on Delayed	Install 38
YB		Under customer control		Remove 33, 25, 38
Q	Using external serial clock transmitter		Install 35	As Required
F	Received Data (RD) never clamped		Install 31	As Required
E	Serial Clock Receiver (SCR) never clamped		Install 32	As Required
M	Receiver Only Data Set (203C-type)		Install 37, 39	As Required
ZQ	Transmitter Only Data Set (203B-type)		Install 6, 11	As Required

TABLE G

OPTIONAL APPARATUS FOR 22A-TYPE DATA UNIT

DATA SET 203 LIST NUMBER	CIRCUIT PACK	CIRCUIT PACK POSITION	NETWORK	NETWORK CONNECTOR
L2	AR321	07	4164A	J1
L3	AR322	07	4164B	J1
L4	AR323	07	4164C	J1
L5	AR324	07	4164D	J1
L6	AR411	07	4164E	J1

→TABLE H←

OPTIONAL APPARATUS FOR 23A-TYPE DATA UNIT

DATA SET 203 LIST NUMBER	CIRCUIT PACK	CIRCUIT PACK POSITION	NETWORK	NETWORK CONNECTOR
L2	AR348	13	4165A	J17
	—	—	4165K	J1
L3	AR347	13	4165B	J17
	—	—	4165F	J1
L4	AR346	13	4165C	J17
	AR359	01	4165G	J1
L5	AR345	13	4165D	J17
	AR359	01	4165H	J1
L6	AR412	13	4165E	J17
	AR359	01	4165J	J1

→TABLE I←

OPTIONAL APPARATUS FOR 24A-TYPE DATA UNIT (Note 1)

DATA SET 203 LIST NUMBER	CIRCUIT PACK	CIRCUIT PACK POSITION	NETWORK	NETWORK CONNECTOR
L7 (Note 2) Low-Speed Secondary Channel	AR336	11	4166A	J11
L8 (Notes 3 and 4) EIA Interface	AR338	07	—	—
	AR502 (STD) (AR339-MD)	09	—	—
L9 (Notes 3 and 5) MIL. Std 188B Interface	AR496	07	—	—
	AR497	09	—	—

Note 1: Appropriate labels must be affixed to the 24A-type Data Unit to indicate the speed selection available for the list chosen. These labels must be ordered separately as indicated below:

- L2 and L4 — P-42W554 Label
- L3 — P-42W555 Label
- L5 — P-42W557 Label
- L6 — P-42W556 Label

Note 2: Required for all 2-wire installations.

Note 3: Optional only for 24A2 Data Unit.

Note 4: The EIA interface is provided through a 25-pin KS-19087-L2 connector. The customer cord must be equipped with a Cinch DB-19604-432 connector and Cinch DB-51226-1 hood (or equivalent).

Note 5: The MIL. Std 188B interface is provided through a 15-pin KS-19087-L1 connector. (A 25-pin interface is also provided.) This connector is wired with a cable and plug for connection to the 25-pin connector. The customer cable must be equipped with a Cinch DA-19603-403 connector and Cinch DA-51225-1 hood (or equivalent). For conversion purposes, an adapter 840-128-573 must be ordered with the circuit packs for L9.

→TABLE J←

APPLICABLE TELEPHONE FACILITIES

NO.*	DATA SERVICE	FOR SPEED OPTIONS	REQUIRED DAS 804-TYPE OTIONS†	APPLICABLE DAS 804-TYPES
1	2-Wire without alternate voice	L3, L4	Not applicable	None
2	4-Wire without alternate voice	All		
3	2-Wire switched network with DAS 804A and optional DAS 801-type	L3, L4	G, B or E, H, J, Q, W, X or Y or Z, ZA, T, ZL	804A1, 804A3 804A5, 804A7
4	2-Wire private line with DAS 804A	L3, L4	G, B or E, H, J, N, W, X or Y or Z, ZA, ZL	804A1, 804A3 804A5, 804A7
5	2-Wire private line with switched network backup using DAS 804A	L3, L4		
6	4-Wire private line with DAS 804A	All	G, B or E, H, M, N, W, X or Y or Z, ZA, ZL	804A1, 804A2 804A3, 804A4, 804A5, 804A6, 804A7, 804A8
7	4-Wire common battery with DAS 804M	All	M or K, N, G or F, W, Z, R, T or V	804M1, 804M2
8	4-Wire E & M Signaling with DAS 804A	All	Same as No. 6	804A1, 804A2 804A5, 804A6
9	4-Wire private line with two switched network back-up lines using DAS 804A	L3, L4	B, H, U, N, W, X or Y or Z, ZA, ZL	804A2, 804A6
10	4-Wire operation using two switched network lines with DAS 804A	L3, L4	B, H, U, N, W, X or Y or Z, ZA, ZL	804A2, 804A4 804A6, 804A8

* These numbers refer to block diagram numbers in SD-1D151-01.

† Notes on DAS 804A-type:

- (1) Install option T only when using DAS 801-type on ground start lines.
- (2) Option ZL applies only to DAS 804A5, A6, A7, and A8.
- (3) Option B provides for automatic answer only when the AUTO button is pressed. The AUTO button must be a locking type. Option E provides for permanent automatic answer under control of customer interface signal data terminal ready (DTR). The AUTO button in this case is not used and should be blocked. The above use of options B and E may differ from what may be interpreted from the BSP for the DAS 804A-type and may provide exactly the opposite feature for other data sets.

→TABLE K←

INSTALLATION CONNECTION REFERENCE

DATA SERVICE	TEL LINE TERMINATION (SEE FIG.)	POWER, SIGNAL, AND OPTION STRAP CONNECTIONS	SD-1D151-01 CIRCUIT REFERENCE
2-Wire without alternate voice	10-1	Not Applicable	BD 1
4-Wire without alternate voice	10-2	Not Applicable	BD 2
2-Wire switched network with DAS 804A and optional DAS 801-type	10-3	Fig. 11	BD 3
2-Wire private line with DAS 804A	10-4	Fig. 12	BD 4
2-Wire private line with switched network backup using DAS 804A	10-5	Fig. 13	BD 5
4-Wire private line with DAS 804A	10-6	Fig. 14	BD 6
4-Wire common battery with DAS 804M	10-7	Fig. 15	BD 7
4-Wire E & M signaling with DAS 804A	10-8	Fig. 16	BD 8
4-Wire private line with two switched network back-up lines using DAS 804A	10-9	Fig. 17	BD 9
4-Wire operation using two switched network lines with DAS 804A	10-10	Fig. 18	BD 10

→TABLE L←
APPARATUS LIST

DATA SERVICE	KEY TELEPHONE UNITS								POWER SUPPLY (Note 2)	ADDITIONAL APPARATUS	
	219A	220A	229B	232B	245A	248B	251A	255A		REQUIRED	OPTIONAL
2-Wire Private Line with DAS 804A	1	2	—	1	—	—	1	—	1	—	1 — KS-15900-L1 Interrupter
2-Wire Private Line with DDD Backup using DAS 804A	1	4	1	1	1	—	2	—	1	1 — 89-type Resistor (Note 3)	1 — KS-15900-L1 Interrupter
4-Wire Private Line with DAS 804A	—	2 (S) or 1 (T) (Note 1)	2	1	1	1	1 (Q) or 0 (R) (Note 1)	—	1	1 — 542AG, 2 UF Cap. 1 — 89T Resistor 1 — 89BE Resistor	1 — KS-15900-L1 Interrupter
4-Wire E & M Lead Signaling with DAS 804A	1	—	2	—	1	—	—	1	1	1 — 48V Power Supply 1 — 89T Resistor 1 — 89BE Resistor	—
4-Wire Private Line with 2 DDD Back-up Lines with DAS 804A	1	2 (S) or 1 (T) (Note 1)	8	1	2	1	3 (Q) or 2 (R) (Note 1)	—	1	1 — 89-type Resistor (Note 3) 1 — 89T Resistor 1 — 89BE Resistor 1 — KS-15724-L1 Diode	1 — KS15900-L1 Interrupter
4-Wire Data Service using 2 DDD Lines with DAS 804A	1	1	6	—	—	1	2	—	1	—	—

Note 1: Provide option Q for nonselective incoming calls, provide option S for nonselective outgoing calls, provide option R for dial selective incoming calls, provide option T for dial selective outgoing calls.

Note 2: Recommend a 20B2 (wall-mounted) or 20C2 (rack-mounted) power unit. Power cord must be ordered separately. For additional information, see Section 167-440-201.

Note 3: The value of this attenuator pad is chosen to be equal to the local loop loss (1000 Hz) for the DDD line. If the exact value is not available, a pad with the next higher value of attenuation should be used.

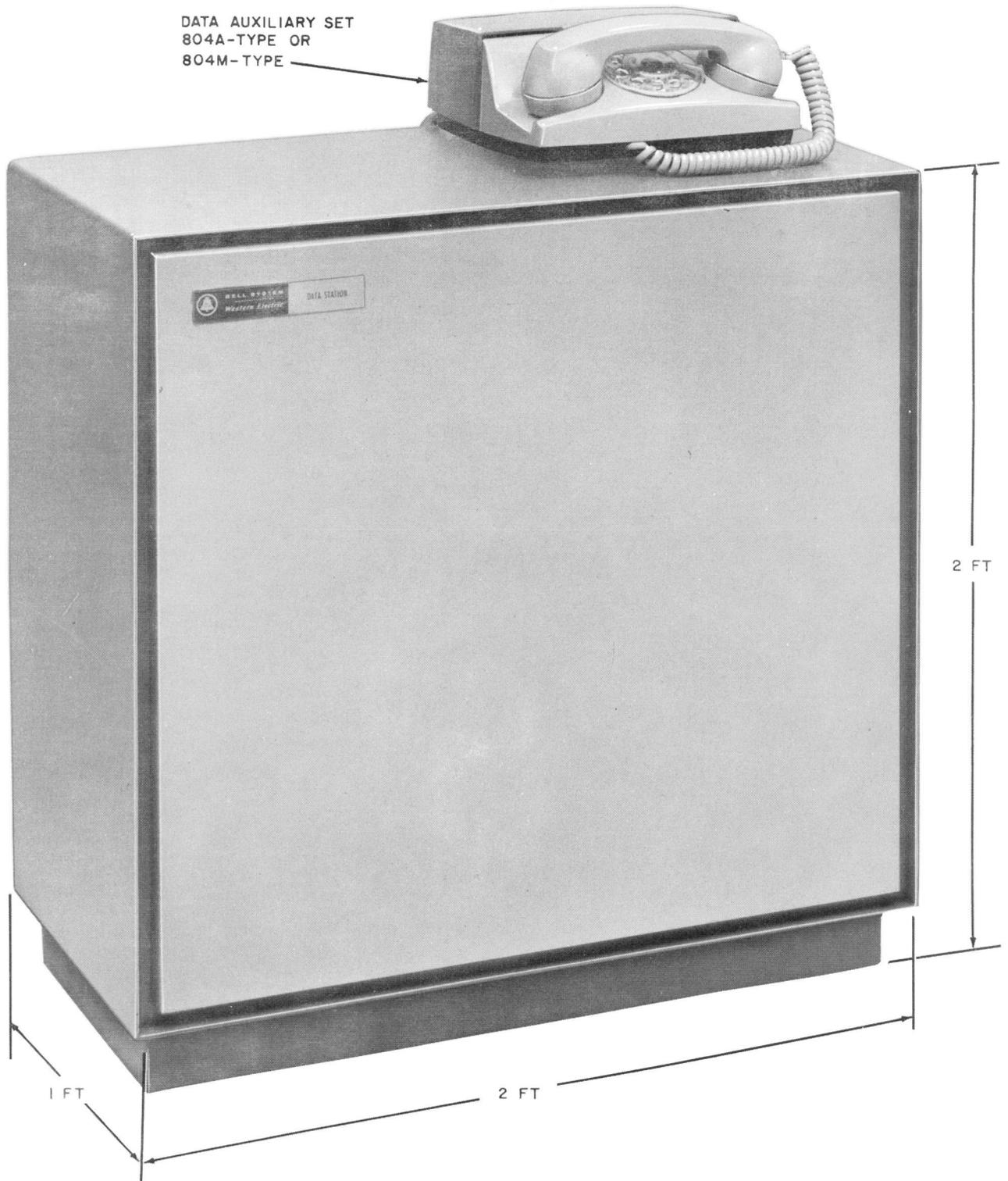


Fig. 1—A Typical Data Set 203-Type Installation With DAS 804-Type

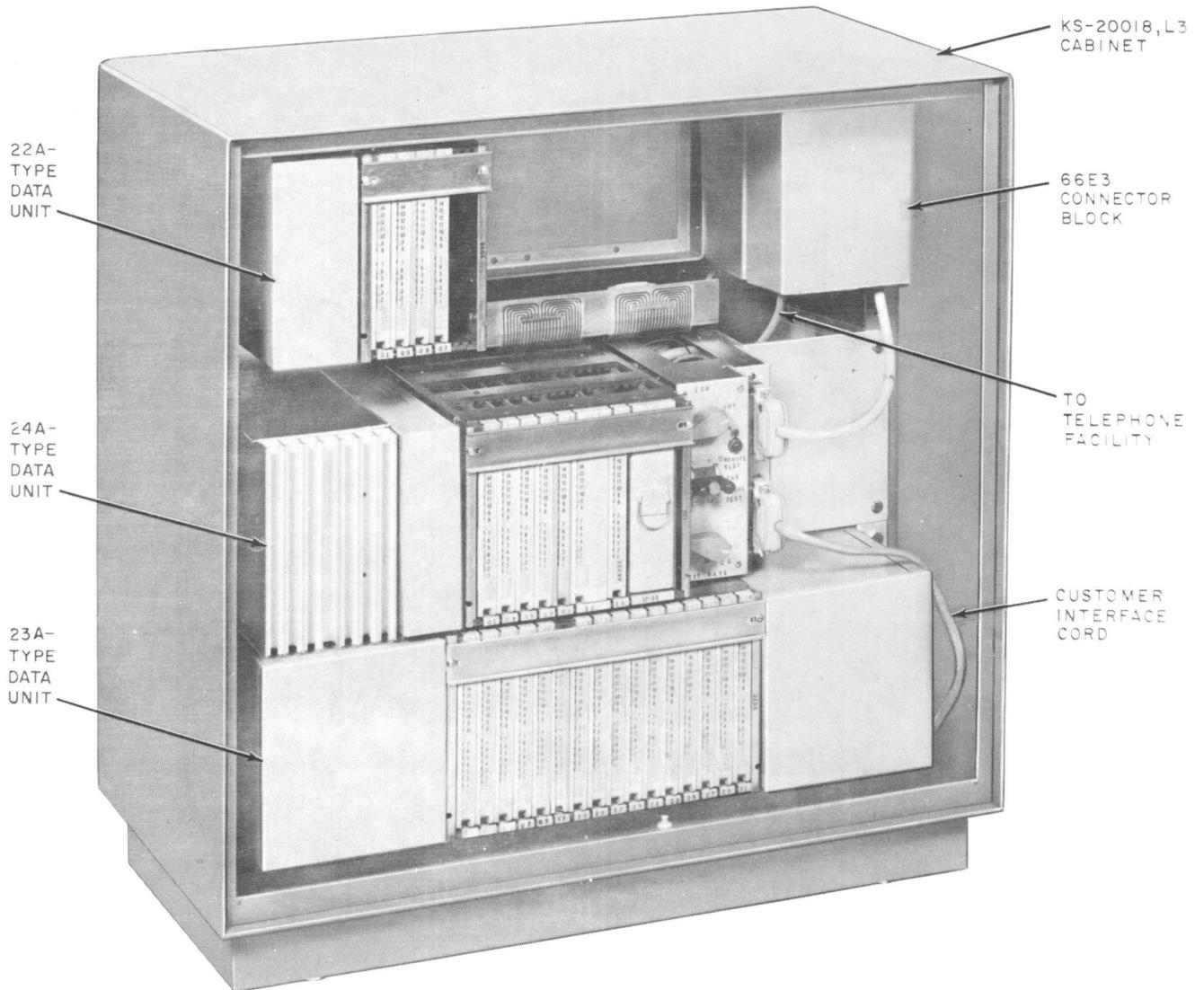


Fig. 2—A Typical Data Set 203A-Type With Front Cover Removed

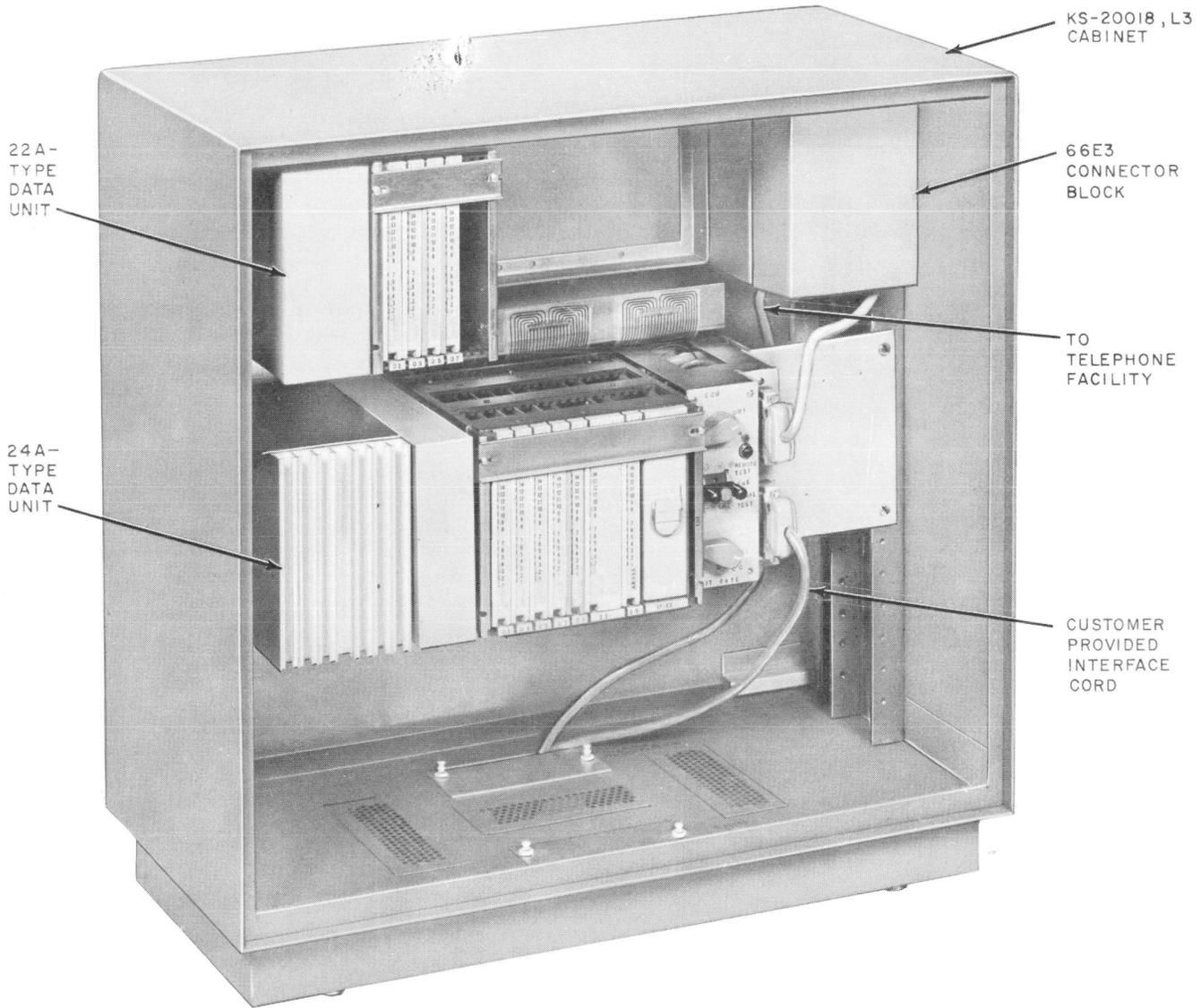


Fig. 3—A Typical Data Set 203B-Type With Front Cover Removed

DATA SET 203A-L1/2/7 SERIAL NO. 1		
SD-1D151-01		
CKT NO./TEL NO. 1731T 777	INSTL R. S. B.	DATE 5/7/69
OFF 949	1000 HZ 16 dB	2750 HZ 19 dB
MESS NOISE 35 dB RWCO	IMPULSE 7	RET LOSS 30 dB
AR321		
AR348		
AR336		
4164A		
4165A		
4165K		
4166A		

DATA UNIT 22A1		
SD-1D152-01		
CKT NO./TEL NO.	INSTL	DATE
OFF	1000 HZ	2750 HZ
MESS NOISE	IMPULSE	RET LOSS
AR325		
AR473		
AR327		

DATA UNIT 23A1		
SD-1D153-01		
CKT NO./TEL NO.	INSTL	DATE
OFF	1000 HZ	2750 HZ
MESS NOISE	IMPULSE	RET LOSS
AR342	AR354	
AR343	AR359 (3)	
AR344	AR360	
AR349	AR328	
AR350		
AR474		
AR352		
AR353		

DATA UNIT 24A1		
SD-1D154-01		
CKT NO./TEL NO.	INSTL	DATE
OFF	1000 HZ	2700 HZ
MESS NOISE	IMPULSE	RET LOSS
16, 19, 29, 22, 23, 1, 13, 14, 6, 5, 20, 33, 36, 31		
AR335		
AR337		
AR338		
AR339		
AR340		
AR341		
19A1 DU		
		41A PU 5/7/69 RSB

Fig. 4—Example of Data Set Labels for a Typical Data Set 203A-Type

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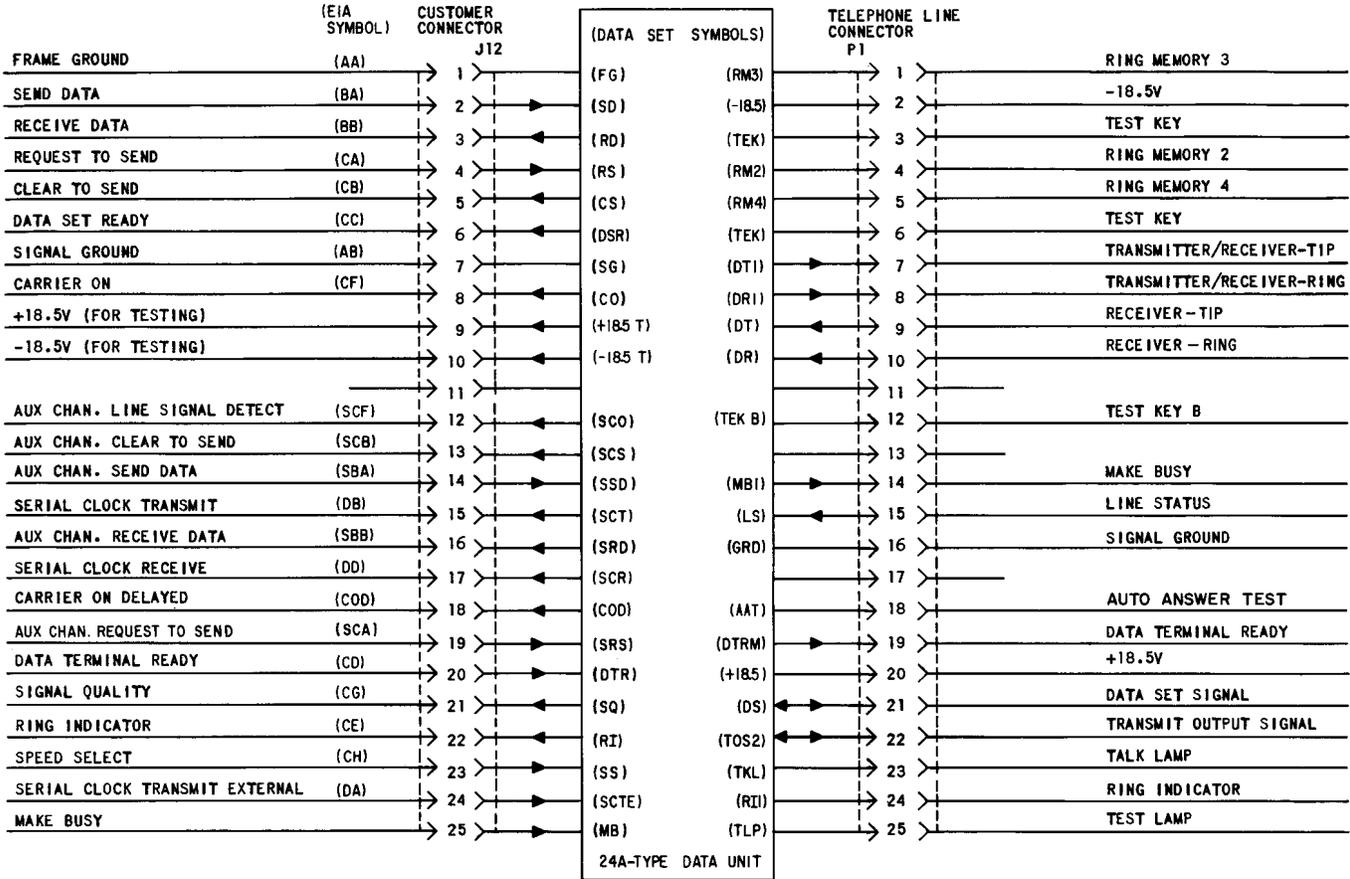


Fig. 5—Customer and Telephone Line Interface Signals

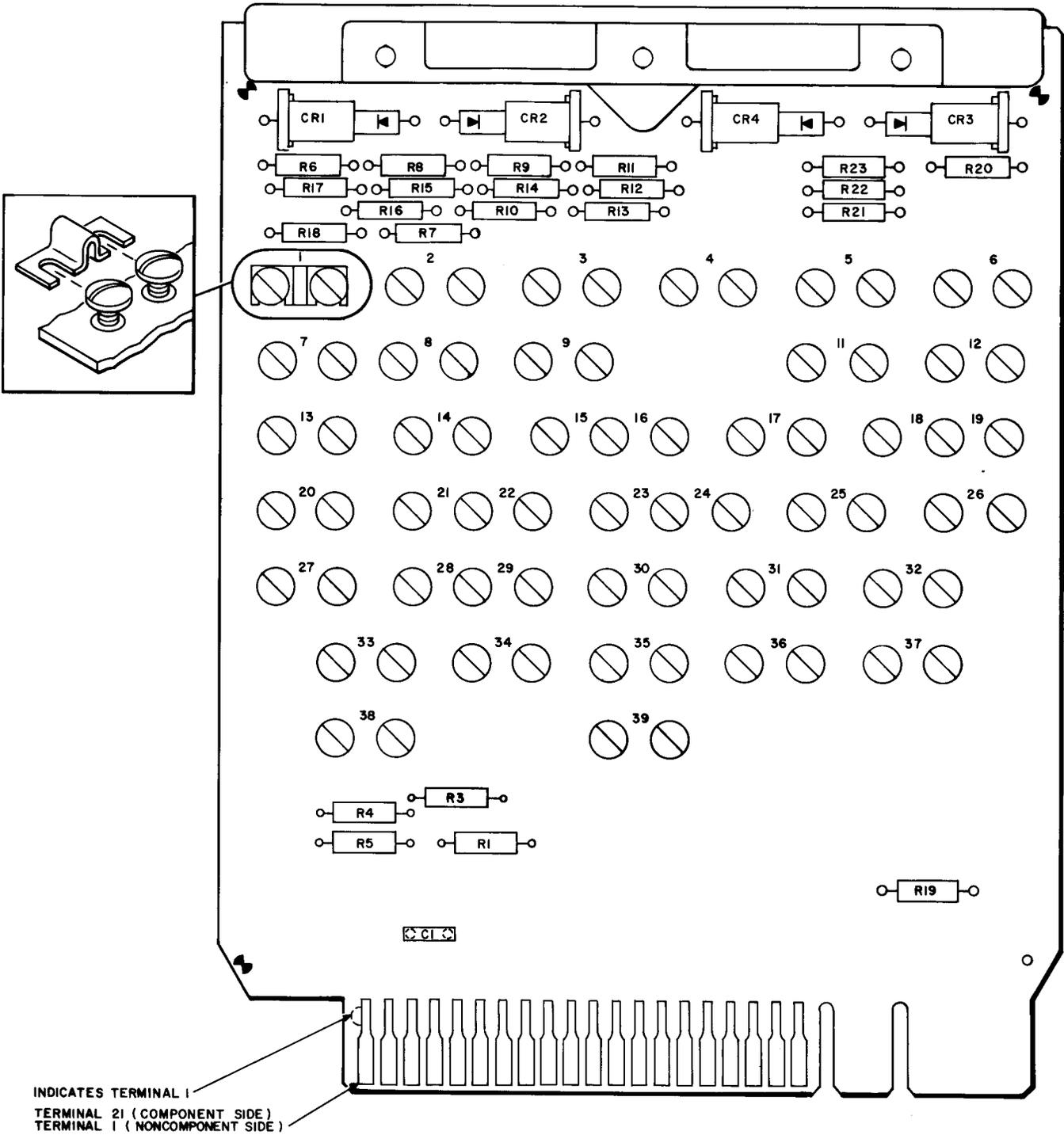


Fig. 6—Option Board AR335

NOTE:
 1. THE DAS 801-TYPE MOUNTING CORD LEADS ARE CONNECTED TO THE 66E3 BLOCK USING 161A ADAPTERS.

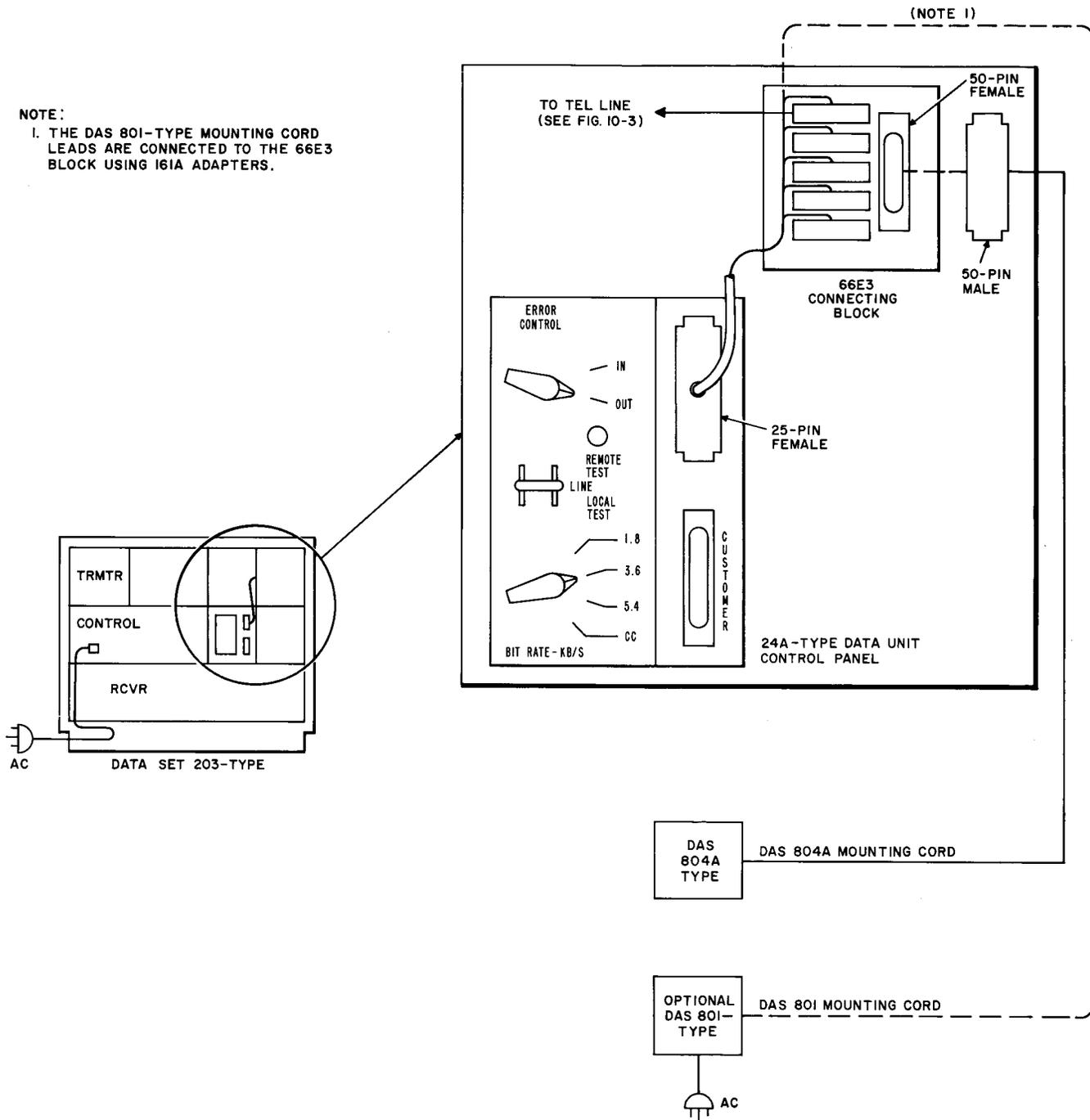


Fig. 7—A Typical Data Set 203 DDD Installation With DAS 804A-Type and Optional DAS 801-Type

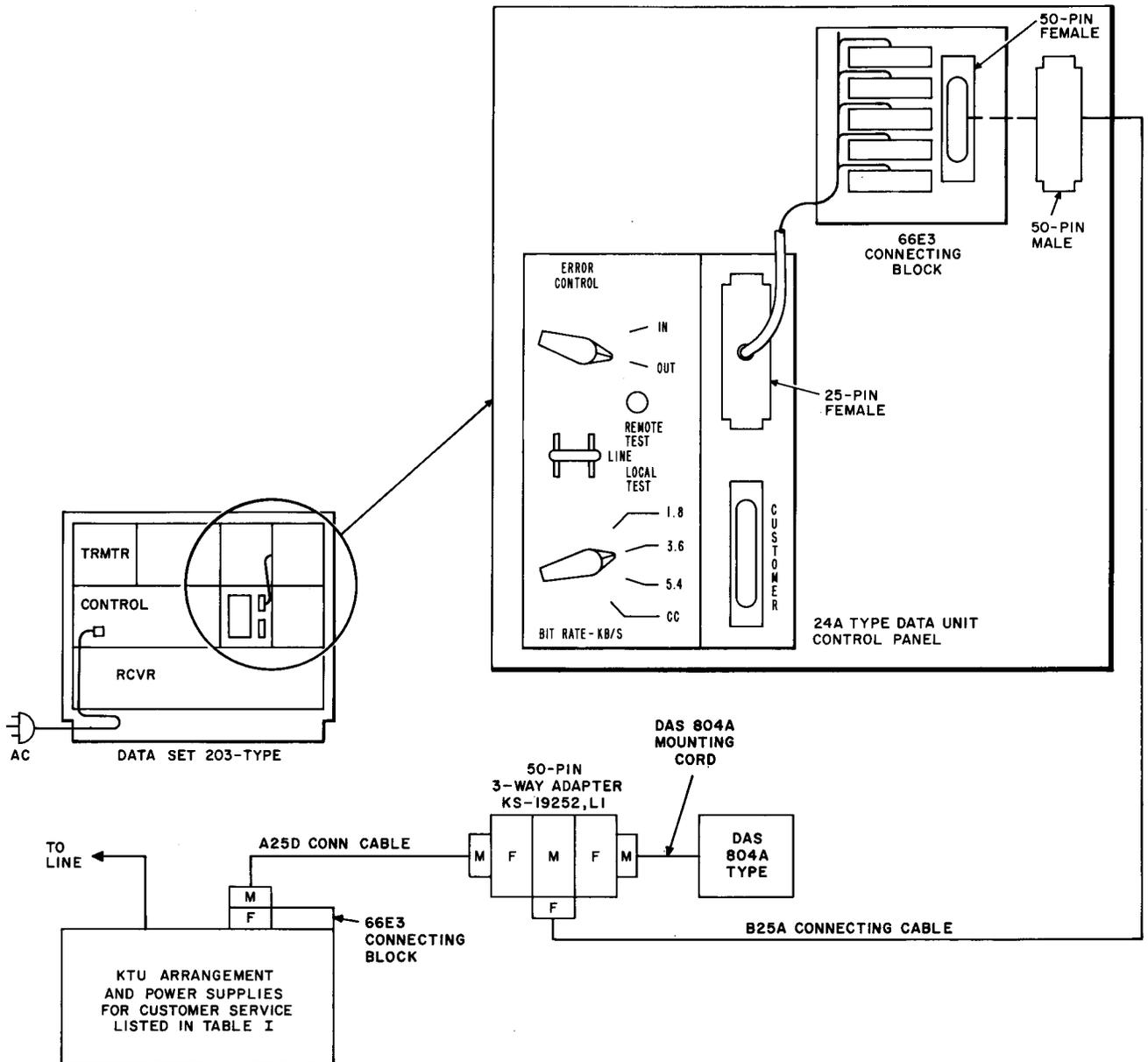


Fig. 8—A Typical Data Set 203 Private Line Installation With DAS 804-Type

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NOTE:

WHEN USING THE DAS 804M-TYPE, THE CONNECTING BLOCK IS REMOVED FROM THE "TELEPHONE" CONNECTOR. THE FEMALE END OF THE M25A INTERCONNECTING CORD IS TERMINATED AT THE DATA SET "TELEPHONE" CONNECTOR.

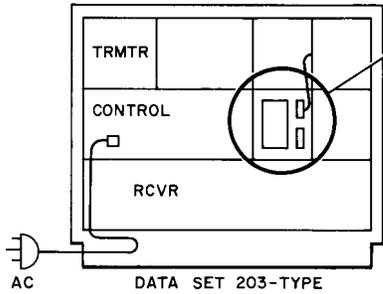
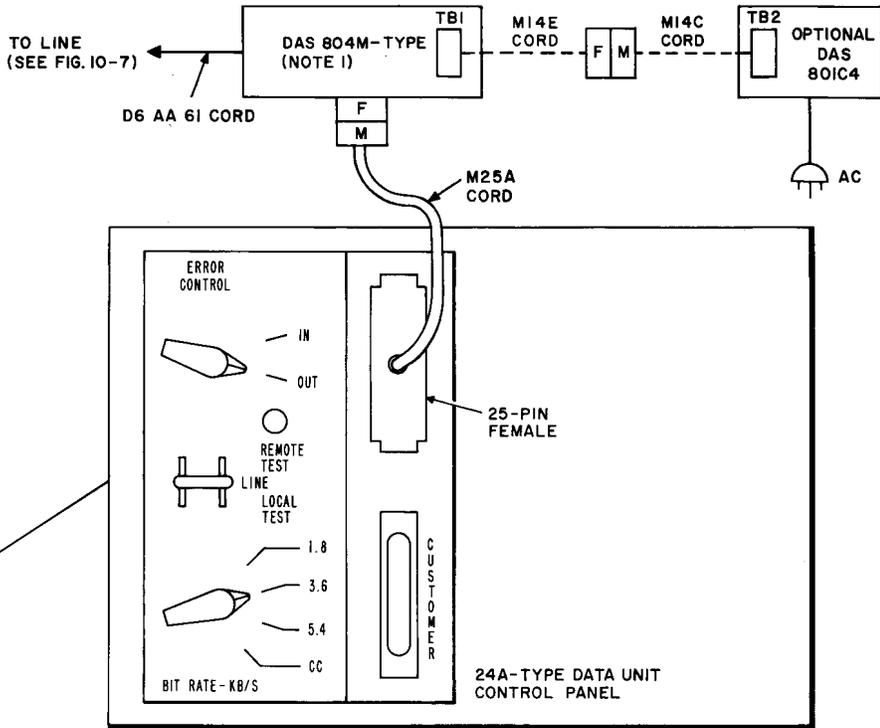


Fig. 9—A Typical Data Set 203 Installation With DAS 804M-Type and Optional DAS 801C4

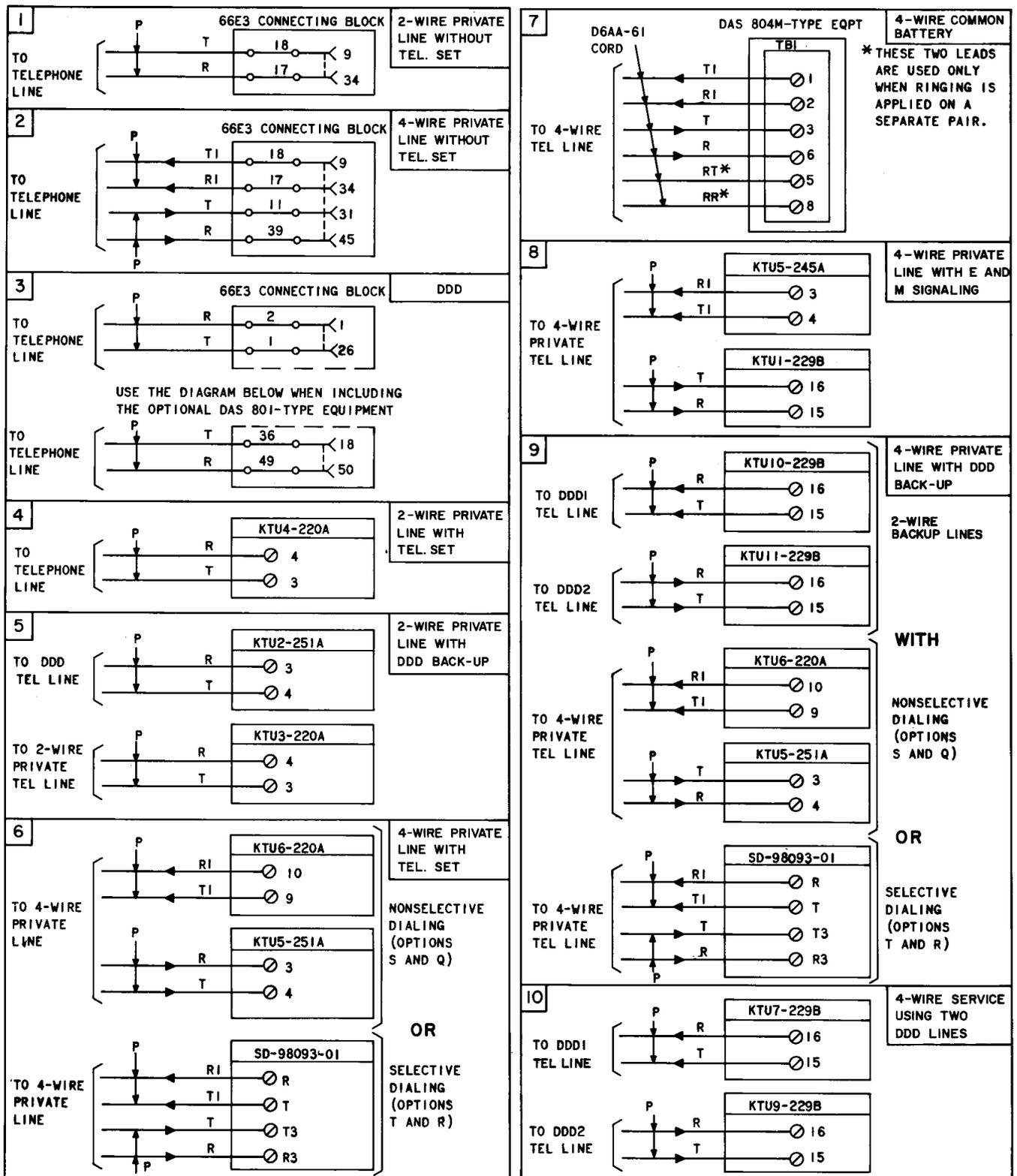
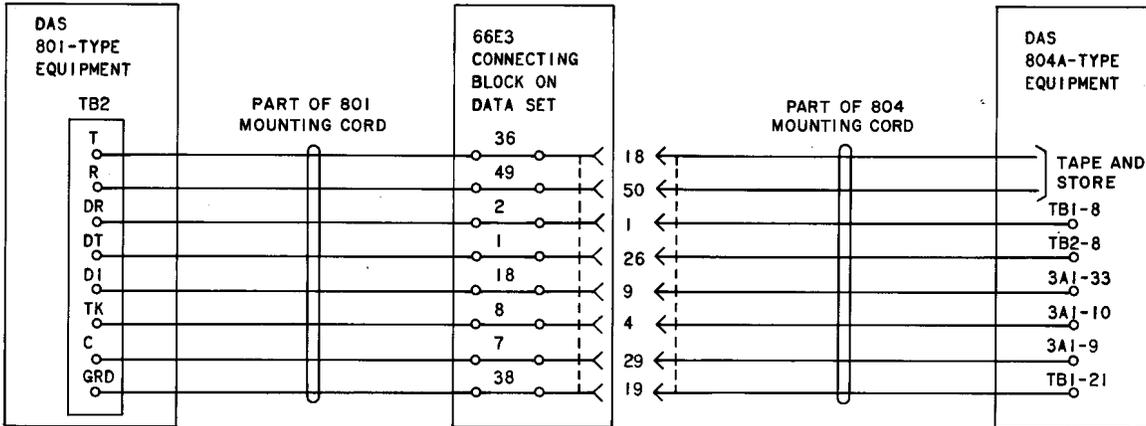


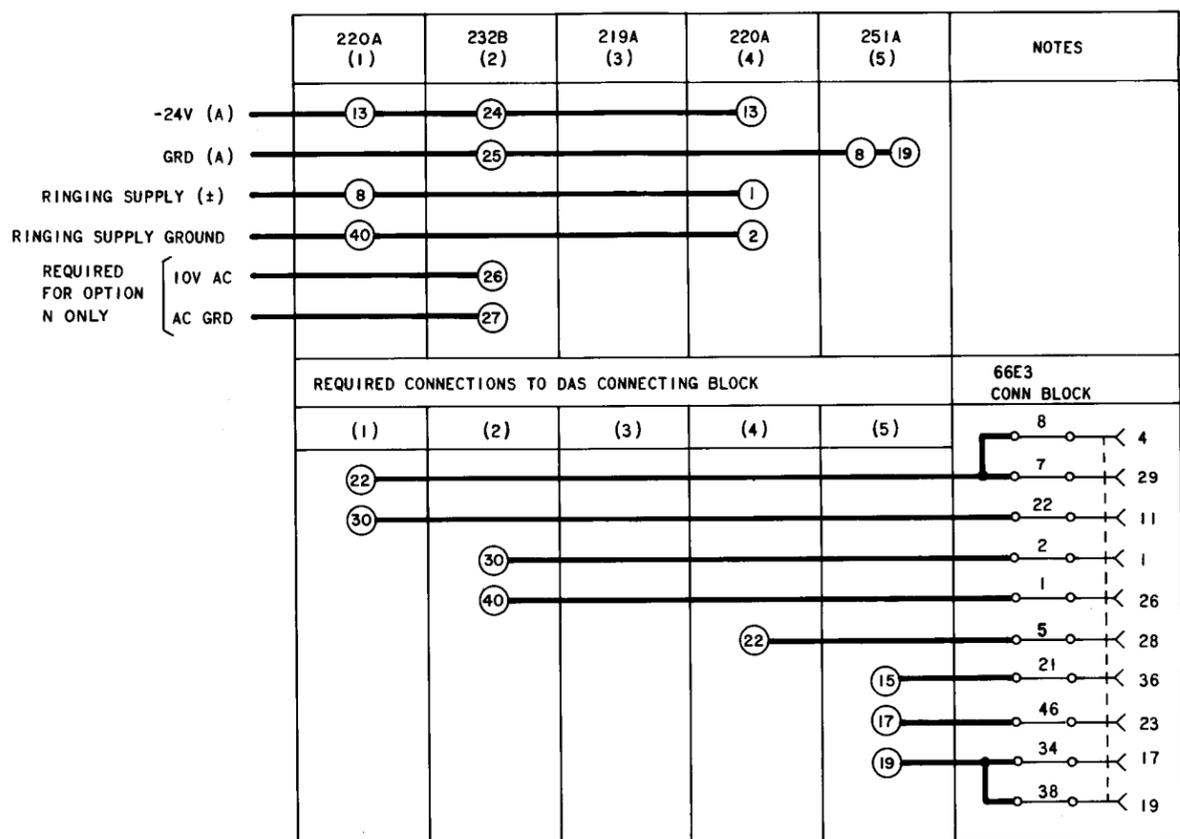
Fig. 10—Termination of Telephone Line for Data Service



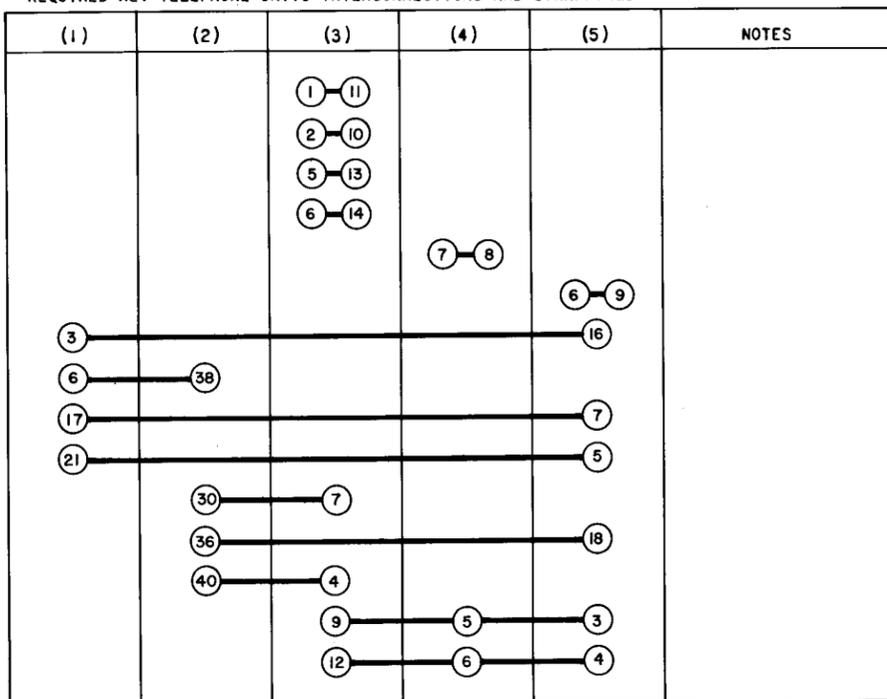
NOTE:
THE DAS 801-TYPE CONNECTING CORD LEADS ARE CONNECTED TO THE 66E3 BLOCK USING 161A ADAPTERS.

NOTE: SEE FIG. 10-3 FOR TEL. LINE CONNECTIONS.

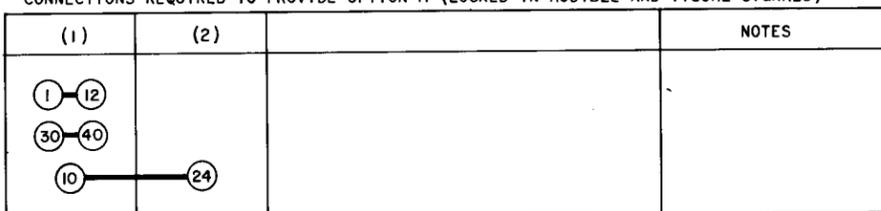
Fig. 11—Connections for 2-Wire Switched Network With DAS 804A and Optional DAS 801-Type



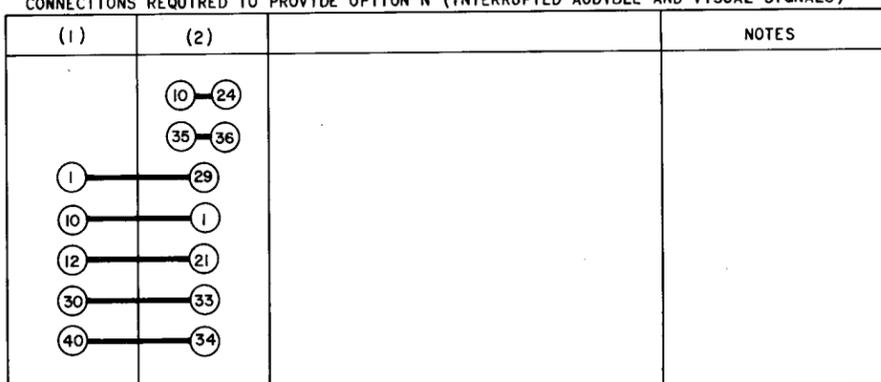
REQUIRED KEY TELEPHONE UNITS INTERCONNECTIONS AND STRAPPINGS



CONNECTIONS REQUIRED TO PROVIDE OPTION M (LOCKED IN AUDIBLE AND VISUAL SIGNALS)

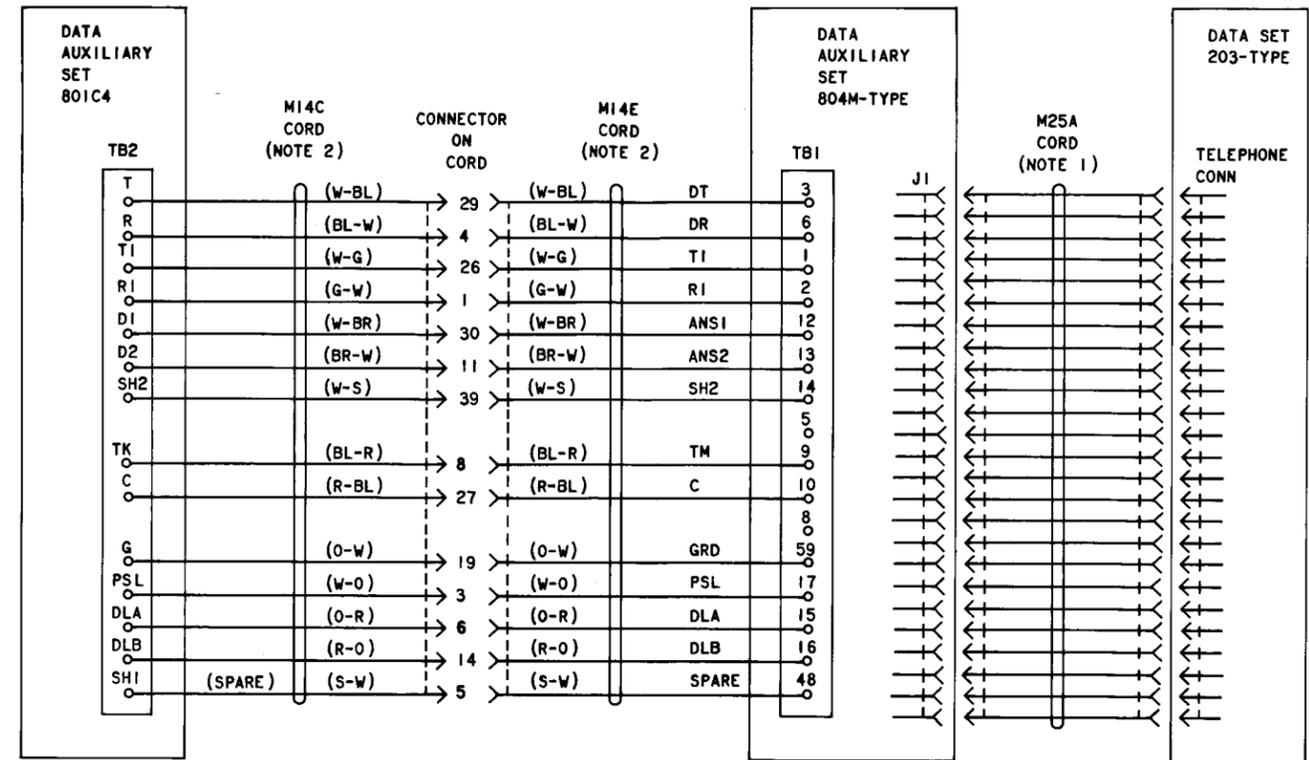


CONNECTIONS REQUIRED TO PROVIDE OPTION N (INTERRUPTED AUDIBLE AND VISUAL SIGNALS)



NOTE: SEE FIG. 10-4 FOR TEL. LINE CONNECTIONS.

Fig. 12—Connections for 2-Wire Private Line With DAS 804A

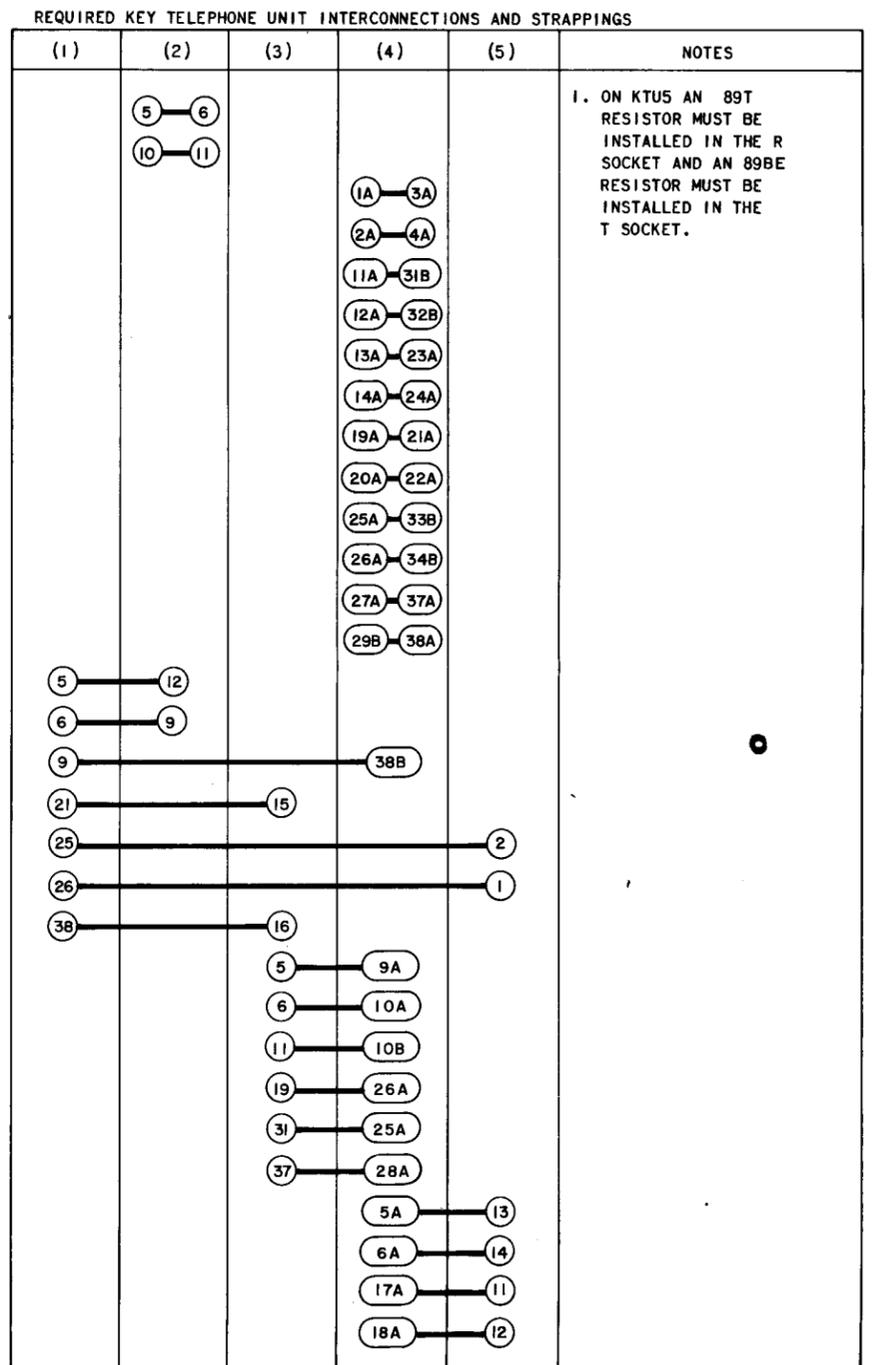
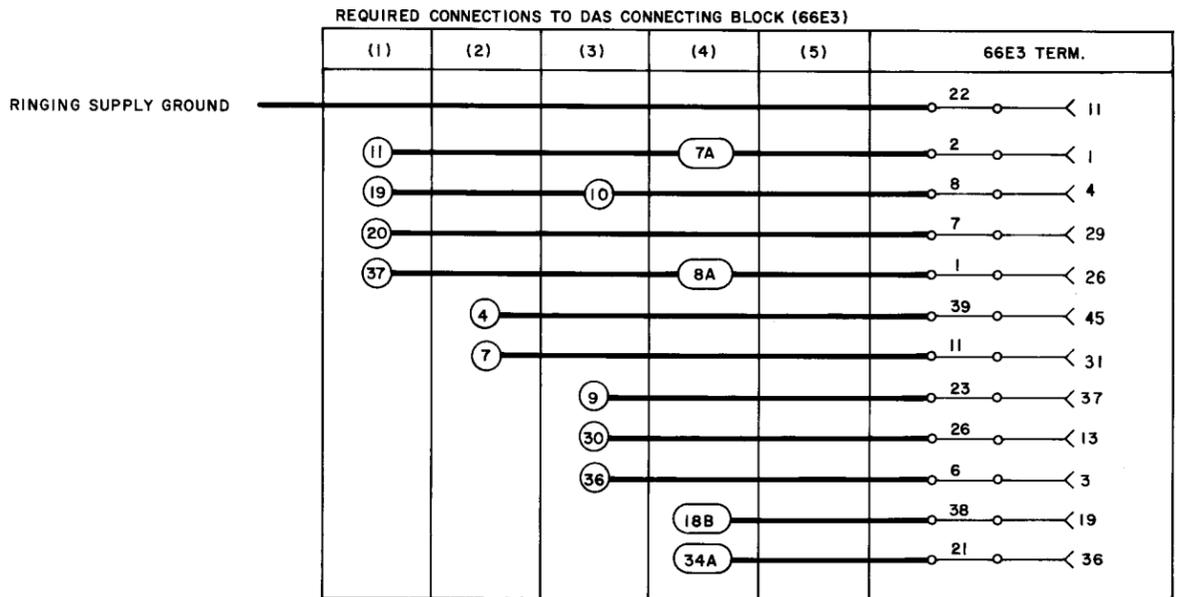
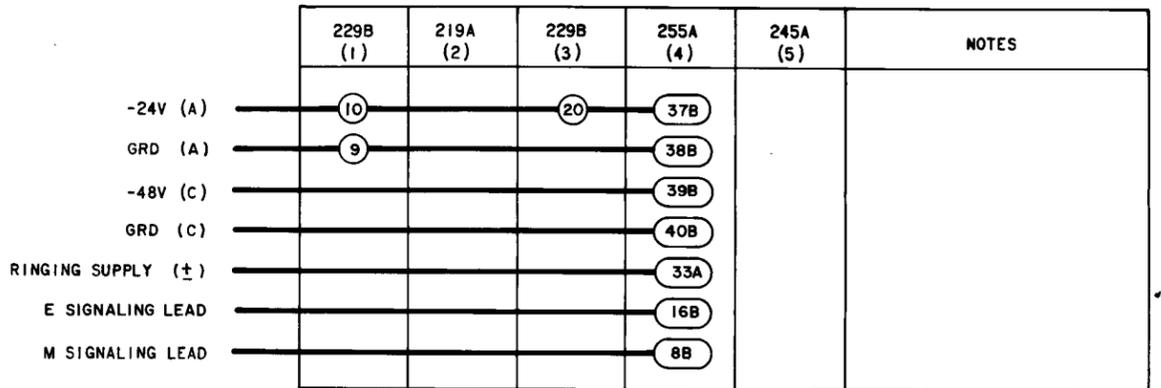


NOTES:

1. THE M25A CORD MUST BE ORDERED SEPARATELY. THE 66E3 ASSEMBLY BLOCK CORD IS REMOVED FROM THE TELEPHONE CONNECTOR ON THE DATA SET AND THE M25A CORD IS CONNECTED IN ITS PLACE.
2. THE M14C AND M14E CORDS MUST BE ORDERED SEPARATELY.

NOTE: SEE FIG. 10-7 FOR TEL. LINE CONNECTIONS.

Fig. 15—Connections for 4-Wire Common Battery With DAS 804M and Optional DAS 801C



NOTE: SEE FIG. 10-8 FOR TEL. LINE CONNECTIONS.

Fig. 16—Connections for 4-Wire E and M Signaling With DAS 804A

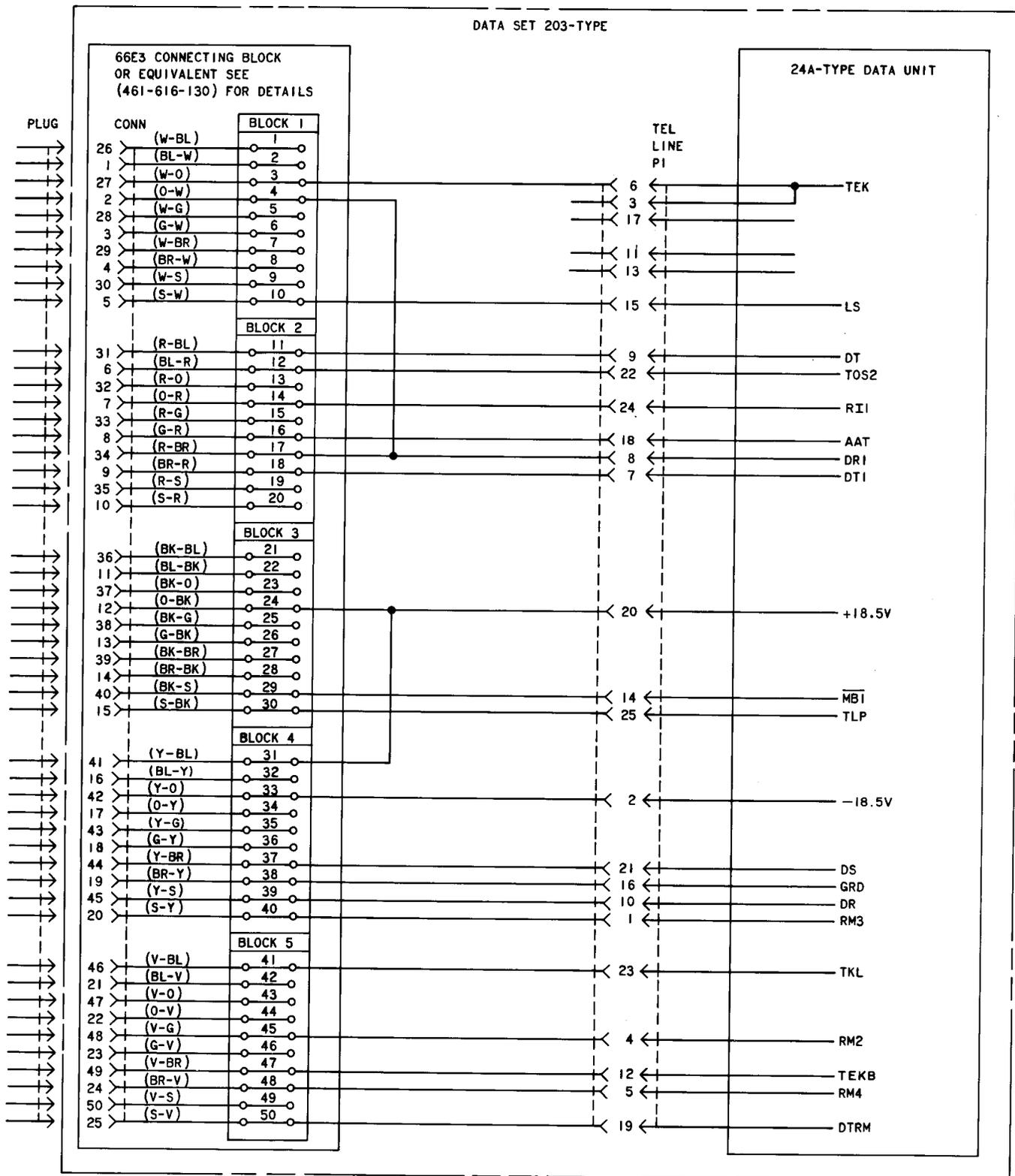


Fig. 19—Available Connections at Data Set 203-Type

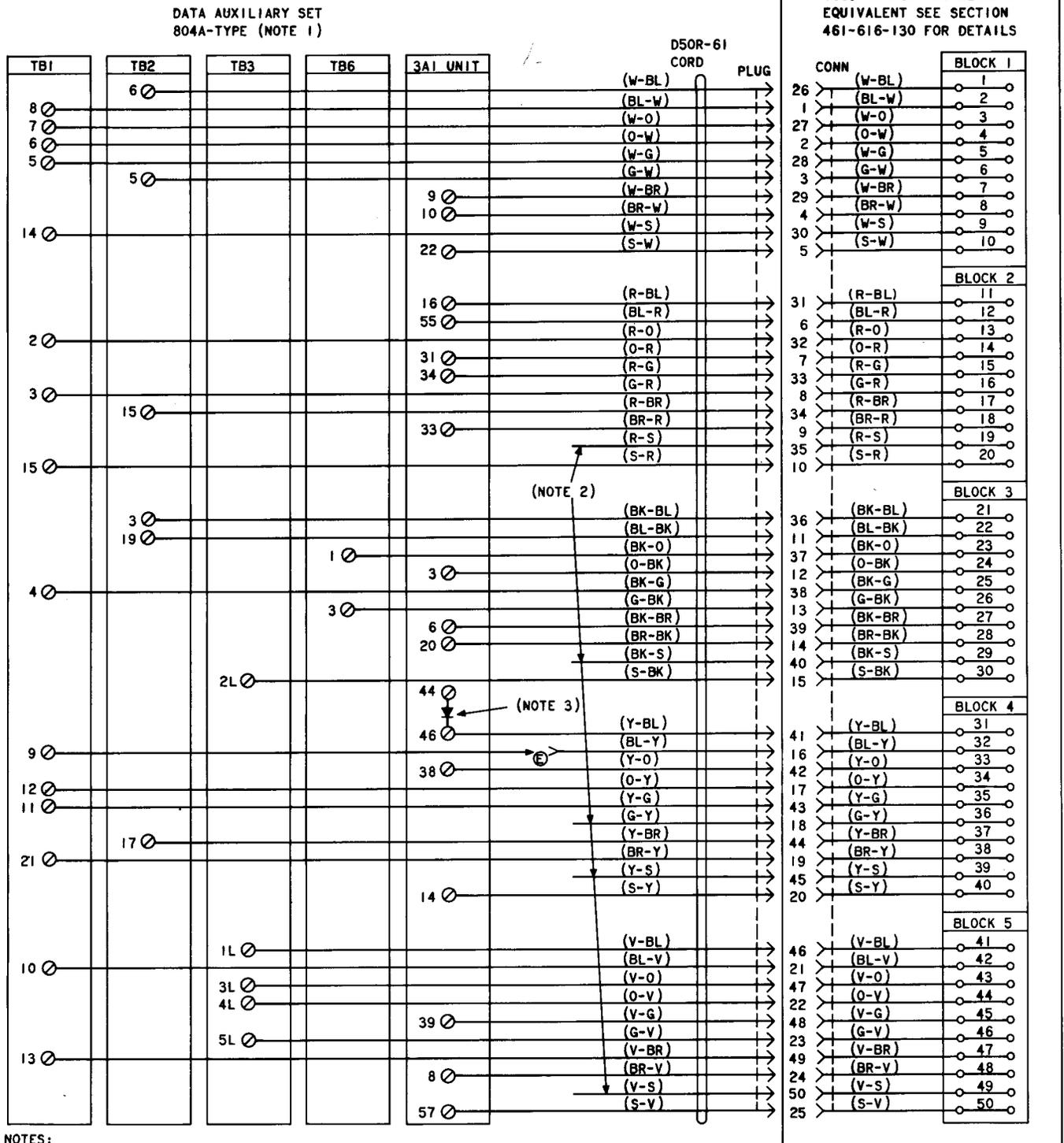


Fig. 20—Connections From Associated Data Auxiliary Set 804A-Type