WIDEBAND DATA STATION USING DATA SET 303
FOUR-WIRE POINT-TO-POINT PRIVATE LINE
(COMMERCIAL SERVICE)
INSTALLATION AND CONNECTIONS

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CONTENTS PAGE

1. GENERAL

1.01 This practice describes the installation and connection of the combinations of equipment necessary for a wideband data station using Data Set (DS) 303. Information concerning the station arrangements using either restored polar or dc-coupled balanced line signal type wideband data sets is given in this secton. Option strapping for each data station configuration is also given in this practice.

1.02 This section is reissued to:

- Rate data mountings 9A1 and 9A2 Manufacture Discontinued (MD) and replace with data mounting 9A3

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- Replace Data Auxiliary Set (DAS) 804A1 (MD) with DAS 804A-type since DAS 804A1, A5, A3 (MD), or A7 can be used in the data station

- Add reference and information relative to DAS 806D1, the recommended substitute for DAS 806B-type

- Rate 10A2 Data Unit (DU) MD

- Revise Tables B and C

- Change note references in Fig. 10.

Due to extensive revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The data station configurations used in this section are for commercial service. Other types of service for both commercial and governmental use are found in other sections entitled Wideband Data Station Using Data Set 303 (593-800-ZZZ). Information which pertains to the business machine is not included.

1.04 For general information which concerns installation and connection, refer to the section entitled Data Sets, General Installation and Connection Information (590-010-200).

2. DATA STATION INSTALLATION

2.01 This part describes the installation and location of the cabinet and equipment which are common to all configurations of the wideband data station. The individual components and their various mounting arrangements will be covered in later paragraphs. Table A shows mounting hardware required for assembling these components. Only one bracket of the code indicated is required.

2.02 The equipment may be installed in a KS-20018-type cabinet or on a 19-, 23-, or 25-inch relay rack. A description of cabinets and other equipment is found in the section entitled Wideband Data Station Using Data Set 303, Four-Wire Point-to-Point Private Line (Commercial Service), Description and Operation (593-800-100).

2.03 The cabinet (Fig. 1) should be located within range of the interface cable which is to be supplied by the customer. This cable should not exceed 50 feet in length. The cabinet should be located in a well-lighted and well-ventilated area with adequate surrounding floor space. Easy access to both the front and back of the set, after the panels have been removed, is of prime importance.

2.04 The power outlet, which is to be furnished by the customer, should be equipped with a 3-wire outlet (UL approved and rated at 117 volts ac, 60 Hz, 15 amps). The outlet must accept a plug equipped with two parallel blades and a U-shaped grounding pin. This outlet is not to be under the control of a switch.

2.05 A common ground bond should exist between the business machine and the data set.

2.06 The data sets, data auxiliary sets, and coded equipment in the station derive their ac power from a 590B distribution panel mounted in the bottom of the cabinet or from outlet box KS-20598-L1 located at the left of DS 303-type (Fig. 2 and 3). The distribution panel is fastened to the mounting strips (located on the sides of the cabinet) by four bolts which screw into prethreaded holes (two on each side). The outlet box is mounted on the 87-type mounting bracket. The panel and outlet derive their power from a customer-provided ac outlet.

2.07 The power panel or outlet box can be used with the KS-20018-L2 or -L3 cabinet. The KS-20598-L1 outlet box must be used in the KS-20018-L7 cabinet when a T1WM-4 and T1 carrier line terminating unit (LTU) are part of the data station and mounted in a KS-20018-L7 cabinet.

2.08 For minimum signal interference, 761A-type cable, or equivalent, should be used for all data signal leads. Where possible, cable runs with foreign services and power cables should be avoided. Cabling between the underground or extension terminals to the data set should be complete without breaks in the shielding. Access ports provided in the front and rear center of the cabinet base permit the introduction of cords and leads which are to be connected to the apparatus mounted in the cabinet.

3. COMPONENT INSTALLATION AND CONNECTION

GENERAL

3.01 The following series of paragraphs describes the installation and connection of the DS

TABLE A

HARDWARE REQUIRED FOR ASSEMBLING DATA SETS AND DATA AUXILIARY SETS WHICH COMPRISE A WIDEBAND DATA STATION USING DATA SET 303-TYPE

STATION APPARATUS / TYPE OF MOUNTING	303-TYPE	809B1	806	404B1	806 AND 404B1	806 AND 806 *
	CODE OF MOUNTING BRACKETS REQUIRED					
#5 Crossbar-Type Frame (23" Mtg. Plates)	87T†	87T†	87B	—	87C	87D
KS-20018-Type Cabinet (23" Mtg. Plates)						
Bulb Angle-Type Frame (23" Mtg. Plates)	87U†	87U†	87F	—	87G	87H
Bulb Angle-Type Frame (12" Mtg. Plates)	87J	87J	87K	87L	—	—
KS-20093-Type Cabinet (25" Mtg. Plates)	87W†	87M†	87N	—	87P	87R

* Indicates units mounted adjacent to each other in the same horizontal space. Two P-46M668 brackets are used to fasten the two sets together.

† Indicates change to a new type of bracket used to accommodate the mounting of KS-20598-L1 outlet box for equipment in DS 303-type cabinets. The 87A-, 87E-, and 87M-type brackets are Manufacture Discontinued.

303-type, the various data auxiliary sets, and coded equipment (T1WM-4) that comprise a wideband data station.

3.02 Assembly of all components which comprise a data station will be presented in progressive steps, the first of which will be the DS 303-type with its own particular options. Various data sets, data auxiliary sets, and coded equipment may be added as required to make up the wideband data station. Figures 2 and 4 show the complete restored polar wideband data station. Figures 3 and 5 show the dc-coupled balanced line signal wideband data station.

3.03 All wideband data station configurations using DS 303, without a T1WM-4 modem, can be mounted in a KS-20018-L2 or -L3 cabinet. When a T1WM-4 modem is mounted in the same cabinet with a data station using DS 303, DS 404B1, DAS 806, and a KS-20598-L1 outlet box, a KS-20018-L7 cabinet must be used. For additional information on cabinet installations, refer to the section entitled Data Sets, Multiple Installation Information (590-010-201).

3.04 The data set should be installed and all connections made to conform to existing practices covering the installation of station sets.

3.05 When the installation of the data sets and/or data auxiliary sets are completed, the set should be inspected and tested as described under the installation test of the section entitled Wideband Data Station Using Data Set 303-Type, Test Procedures (593-800-500).

Fig. 1—Wideband Data Station Cabinet Using Data Set 303-Type

DATA SET 303 ONLY

A. General

3.06 The following part of this practice will describe the assembly of the Data Set 303-type restored polar line signal and the Data Set 303-type dc-coupled balanced line signal type data stations. In certain types of installations, a T1WM-4 modem or a T1WM-4 and a T1 carrier LTU may be required. The installation of this equipment will be covered in later parts of this practice.

B. Assembly

3.07 The chassis of DS 303-type with its mounting bracket attached (Fig. 6) is fastened to the mounting strips (located on the side of the cabinet)

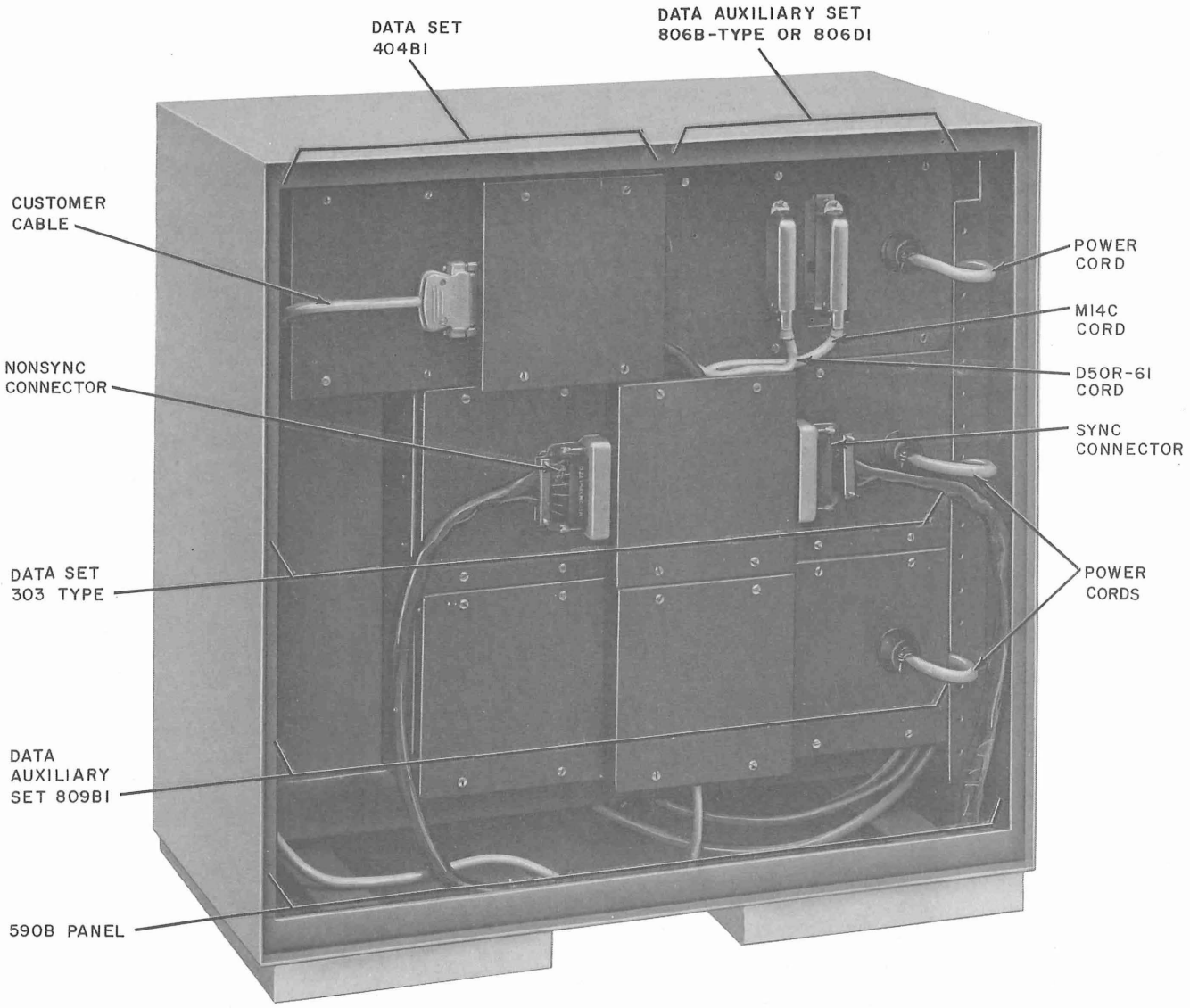


Fig. 2—Restored Polar Wideband Data Station—Rear View

by four or eight bolts which screw into prethreaded holes (a minimum of two on each side) directly above the power panel (Fig. 2). Refer to Table A for mounting bracket hardware codes. When viewing the station from the front, the 26A power unit is to be located on the left side.

3.08 Circuit packs are mounted and shipped in their proper positions in data mounting 9A3 according to the coding of the data set. Verify locations of all circuit packs prior to placing options and cabling. Refer to the section entitled Data Set 303-Type, Description (593-012-100). Refer to Fig. 6 for illustration of circuit pack numbers and locations.

C. Connections—Restored Polar

3.09 All connections to the data set are made from the rear. Options wired into the set are made on terminal boards located at the rear of the set.

3.10 The chassis wiring provides connections for both the restored polar and dc-coupled balanced line signal operation.

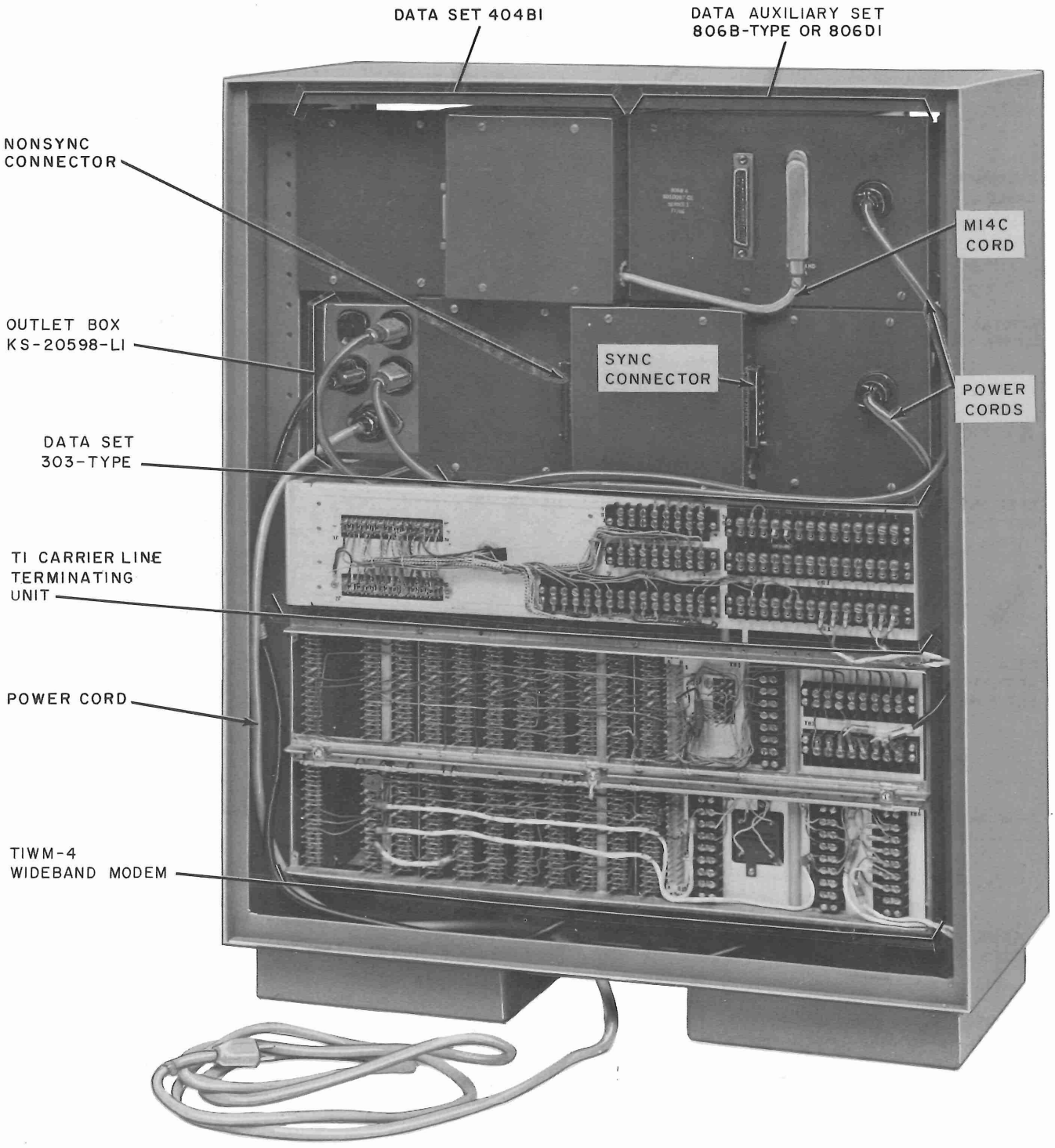


Fig. 3—DC-Coupled Balanced Line Signal Wideband Data Station Cabling—Rear View

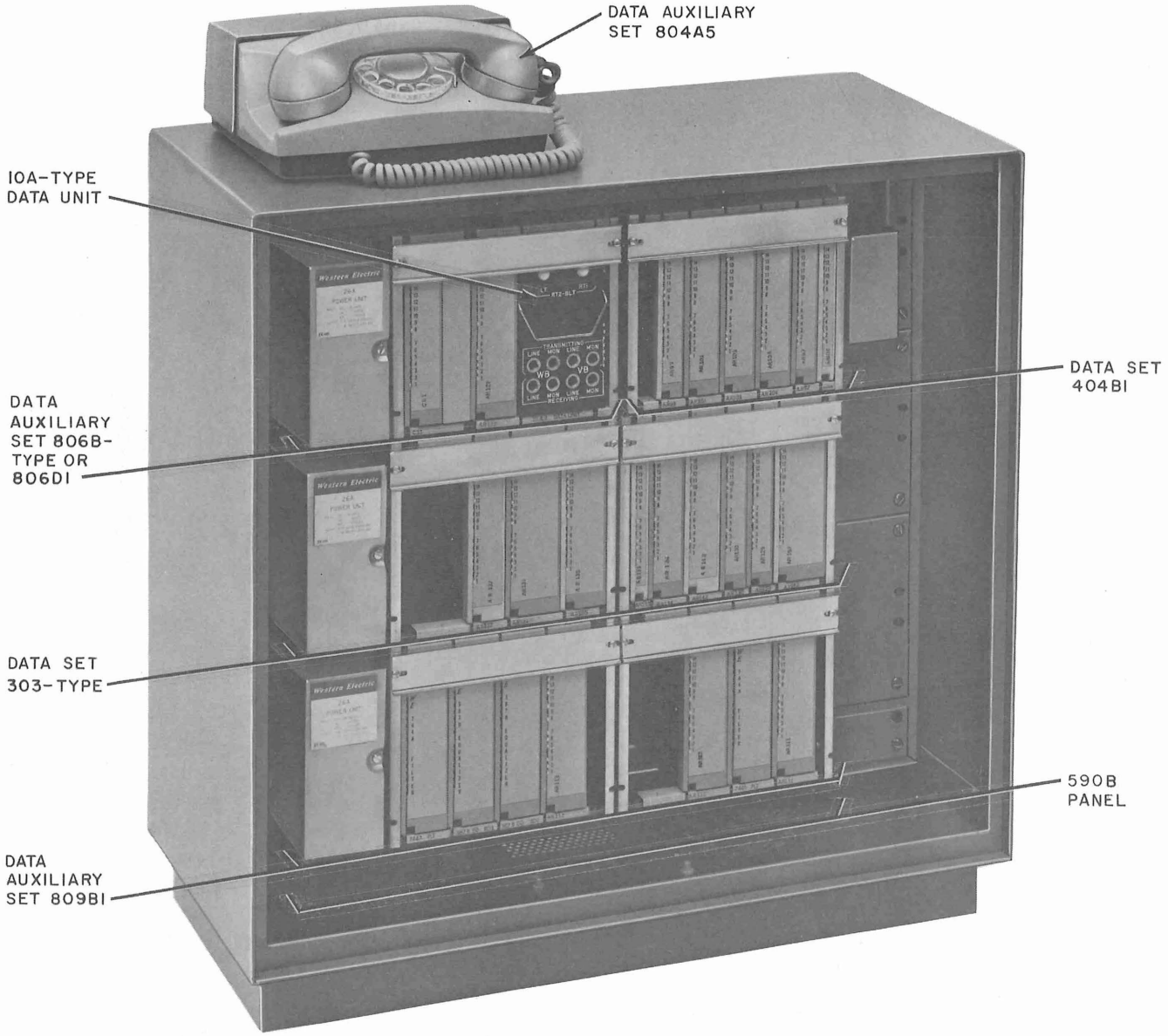


Fig. 4—Restored Polar Wideband Data Station Components—Front View

Early models of DS 303-type using restored polar type line signals used the 9A1 data mounting which is not compatible with circuit packs required for dc-coupled balanced line signal applications.

To prevent possible damage to electronic components within the data set, do not make power connections until all other connections have been made.

3.11 Access to the customer's interface cables is made through one of the two rectangular access ports in the front and rear center of the cabinet base. Interface cables should be dressed neatly up the rear of the data station. The customer-provided, high-speed data cable equipped with a KS-19402-L1 plug is connected to either the synchronous or nonsynchronous connector. All power cables should be located and dressed to the sides of the cabinet (as viewed from the rear) near the mounting strip and should be plugged into the

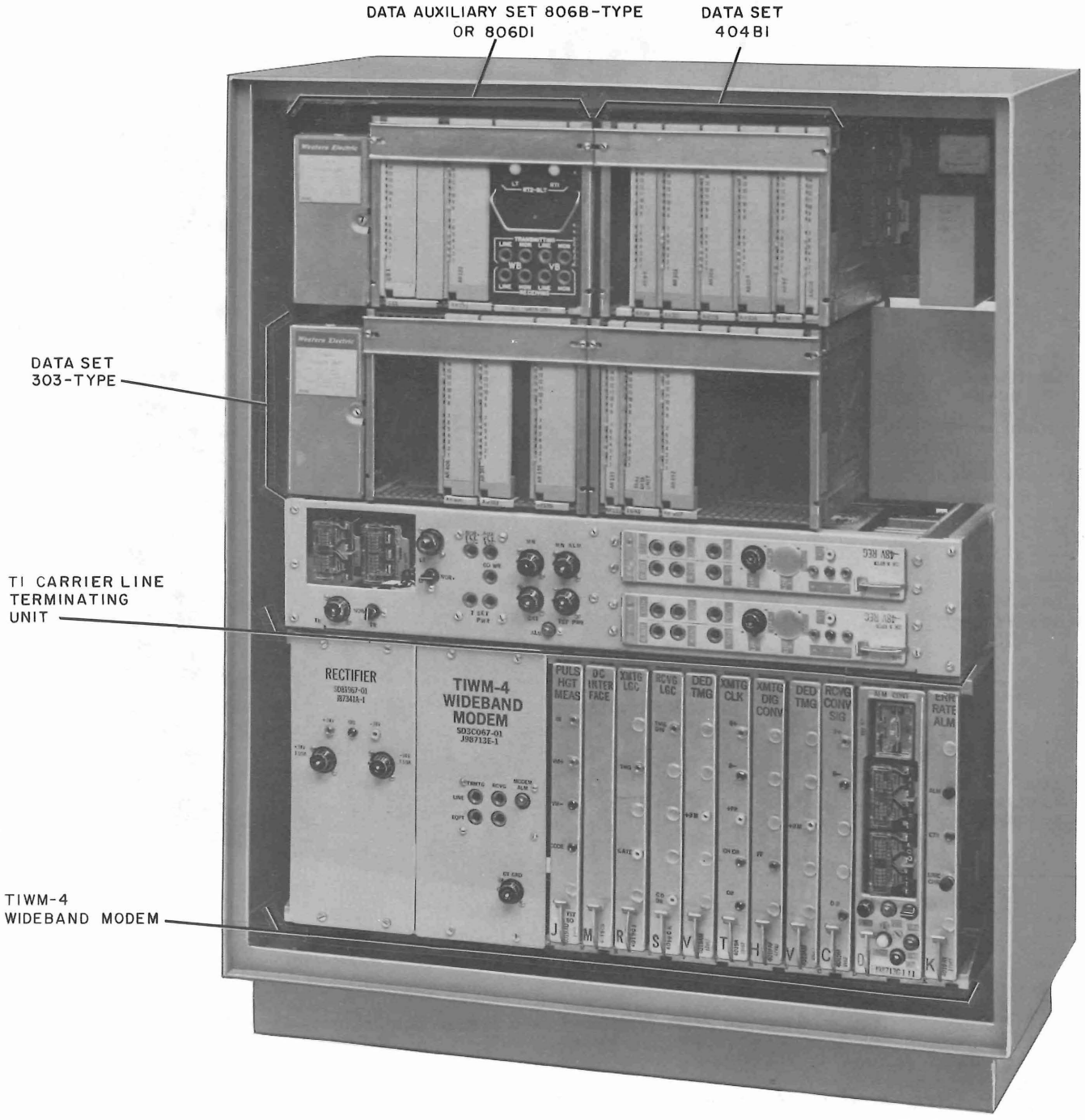


Fig. 5—DC-Coupled Balanced Line Signal Wideband Data Station Components—Front View

power panel or outlet box. Figures 2 and 3 show the proper routing of all cables. Cables and connectors associated with DS 303-type and data auxiliary sets are listed under their individual categories.

3.12 Location of the interface connectors and terminal blocks on DS 303 are shown in Fig. 7. Options for DS 303-type will be found in Table B. For explanation of options required for this installation, refer to the section entitled

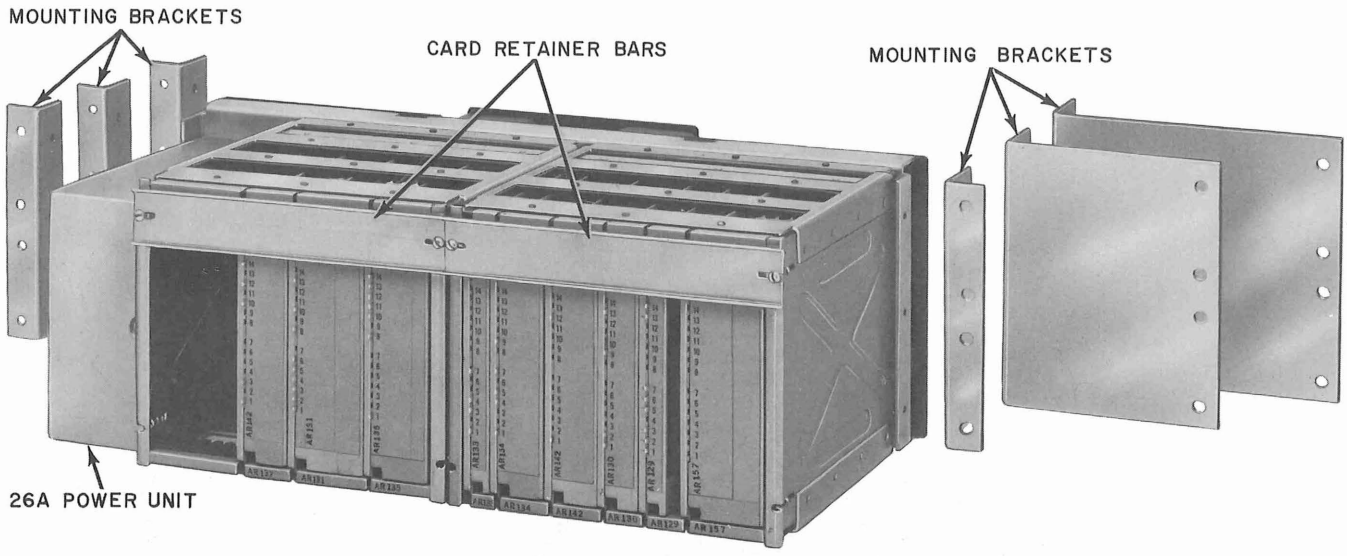


Fig. 6—Data Set 303-Type—Front View

Wideband Data Station Using Data Set 303, Four-Wire Point-to-Point Private Line (Commercial Service), Description and Operation (593-800-100).

3.13 When DS 303-type only is used, the wideband lines are connected to TB2 of DS 303-type as follows:

- Transmit

  Tip—Terminal 24

  Ring—Terminal 13

- Receive

  Tip—Terminal 23

  Ring—Terminal 12

It must be noted that, when DS 303-type is used on half-group facilities, it may be necessary to use a DAS 809B1. Refer to 3.43 through 3.51 for installation and connection of DAS 809B1.

D. Connections—DC-Coupled Balanced Line Signal

3.14 When DS 303-type is to be used in conjunction with a T1WM-4 modem, the DS 303-type must be a properly coded dc-coupled balanced line signal type data set.

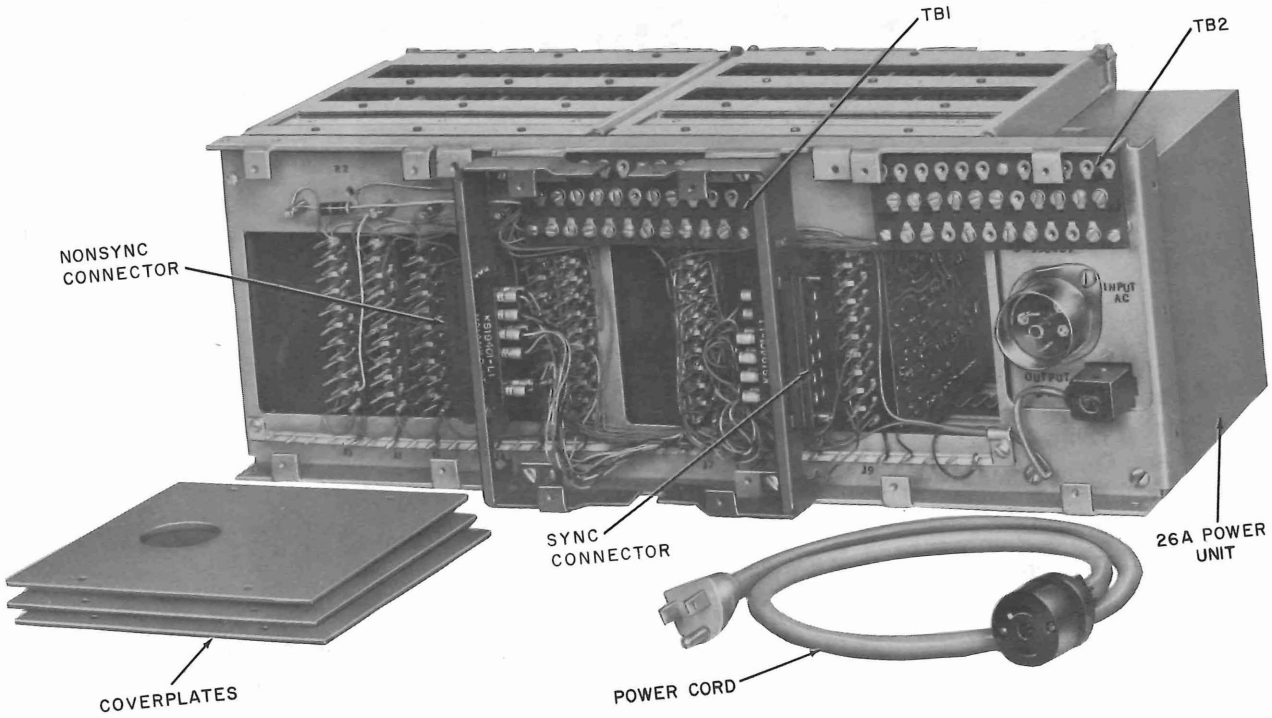


Fig. 7—Data Set 303-Type—Rear View Showing Power Supply, Connector, and Terminal Blocks

TABLE B

OPTIONS FOR DATA SET 303-TYPE

WIRING OPTIONS		FEATURES		TERMINAL BLOCK CONNECTIONS	
				TB1	TB2
A		Permanent Nonsync		17-18	—
T		Permanent Send Request		16-17	—
E	One per Station	External Transmitter Clock		7-8	—
Z		Internal Transmitter Clock		—	10-11
K		Permanent LS (required when DAS 804A is not provided)		—	17-28
W		No DAS 806		—	25-26-27
M	One per Station	SR Control on Scrambler		16-19	—
Q		Free-Running Scrambler		17-19	—
N*		Alt *off*	Simultaneous WB Data/ Talk (sync only)	—	5-15
		Alt *on*	DAS 804A in data mode (nonsync only) to transmit WB Data.		
S*		Alt *on*	Simultaneous WB Data/ Talk (nonsync)	—	4-15
		Alt *off*	DAS 804A in data mode (sync only) to transmit WB Data.		
R		SR Control of VSB Carrier		15-16	—
V		No VSB (no DAS 809B1)		25-26 28-29	—
X		Scrambler, no Descrambler		5-6 12-13	—
Y	One per Station — Provide in all sync. sets.	Descrambler, no Scrambler		4-5 13-14	—
J		Sync Logic Normal		4-13	—

* Provides features shown when DS 303 is used with DAS 806B-type or when DS 303 is used with DAS 806D1 and the simultaneous data and talk feature is on a switched basis under control of customer's ALT signal (ZD option in DAS 806D1). When DS 303 is used with DAS 806D1 and the simultaneous data and talk feature is provided on a permanent basis (ZC option in DAS 806D1), the N and S options in DS 303 are not required.

3.15 Data Set 303-type using a dc-coupled balanced line signal is shipped with proper cards and installed per individually ordered coded equipment. The strapping on CP AR361 should be checked for agreement with the following:

CP AR361 STRAPPING		
A1	to	B1
A2	to	B2
D1	to	E1
D2	to	E2

3.16 All options that apply to DS 303-type using restored polar type sets also apply to dc-coupled balanced line signal, with the exception of the R and V options. R and V options apply only to DS 303-type restored polar sets when using DAS 809B1. Refer to Table B.

3.17 When DS 303-type only is used, the wideband data lines from the T1WM-4 are connected to TB2 of the DS 303-type as follows (Fig. 7):

- Transmit

  Tip—Terminal 24

  Ring—Terminal 13

- Receive

  Tip—Terminal 23

  Ring—Terminal 12

3.18 Shielded cable type 761A, or equivalent, should be used to make the wideband data line connections between DS 303-type and the T1WM-4 modem when DAS 806 is not used. This type cable must be used whether the T1WM-4 is mounted externally or within the data cabinet.

3.19 When all wiring connections and cable routings are completed, the rear coverplates should be reinstalled to protect the wiring connections. When the installation of the data sets and/or data auxiliary sets are completed, the set should be inspected and tested.

DATA SET 303 PLUS DATA AUXILIARY SET 806

A. General

3.20 This part covers the installation and cable connections of DAS 806. Either DAS 806B1, B2, B6, or B7 (which are rated MD) can be used with this station arrangement. DAS 806D1 can also be used in this station arrangement as it is a recommended substitute for any of the above DASs 806B. Data Set 303-type plus the DAS 806B-type permit local test or local and remote tests, depending upon the code of DAS 806B-type. Both types of tests are provided for by DAS 806D1. The preferred options given in Tables C and D are for all station arrangements and customer preference arrangements using the DAS 806B-type and DAS 806D1, respectively. All options in Tables C and D can be used. For functional explanation of options, refer to the section entitled Wideband Data Station Using Data Set 303-Type (Commercial Service), Description and Operation (593-800-100).

3.21 Installation and cable connections for the basic DS 303-type are covered in Table B of this practice.

B. Installation and Connections

3.22 The DAS 806 used as a part of a wideband data station should be mounted directly above the DS 303-type. The 26A power unit (part of DAS 806) should be located on the lefthand side of the cabinet as viewed from the front. (See Table A for mounting bracket hardware.)

3.23 The DAS 806 connects to DS 303-type through cable P-10H099 (MD) or cable 840286447, which replaces cable P-10H099, supplied with DS 303. Refer to Table E for connections. The power cable and all external cabling will be fastened as prescribed in this practice. Refer to Tables C and D for option connections in DAS 806B-type and 806D1, respectively. Refer to Table F for telephone line connections. Options wired into DAS 806 are made on terminal boards located at the rear of the sets, with the exception of the 10A-type DU. Refer to Fig. 8 and 9 for location of terminal boards and connectors on DAS 806B and 806D1, respectively. The options pertaining to the 10A-type DU are made on the unit itself.

3.24 The DS 303-type options for this installation are the same as those for the DS 303-type only, except option W which must be removed.

3.25 In restored polar line signal type data stations with half-group operation, a DAS 809B1 is normally used at the data set location.

TABLE C

OPTIONS FOR DAS 806B-TYPE

WIRING OPTIONS		FEATURES	CONNECTIONS	
			DAS 806B-TYPE (Note 2)	10A-TYPE DATA UNIT
			TB1	TB1
		Options for use With DS 303-Type Only		
R (Note 1)		Voiceband line termination when coordination channel adapter unit is not used	—	15-16 20-21
V		4-Wire voiceband circuit	31-32	1-2 4-5 9-10 12-13
W		2-Wire voiceband circuit	—	2-3 5-6 8-9* 11-12*
X†‡		0-dB Wideband transmit line pad	Factory-installed	
Z		Power for remote test when DAS 804A is not provided	19-20	—
Options for use in Stations With DAS 804A or DAS 804A and DS 404B1				
J‡		Completes the voice-frequency data path in DAS 804A	13-14 30-31-32	—
S‡	One per Station	Data terminal ready signal provided by customer data terminal	28-29	—
T		Wired data terminal ready signal	27-28	—
V		4-Wire voiceband circuit	31-32	1-2 4-5 9-10 12-13
X†‡		0-dB Wideband transmit line pad	Factory-installed	

Note 1: When R option is not provided, store straps on terminals 16-17 and 19-20 on TB1 of 10A-type DU.

Note 2: See Fig. 8 for location of option terminal board on DAS 806B-type.

* Stored strap.

† X and Y option pad is located inside the 10A-type DU. The 0-dB pad inscribed on the board should face the color painted on the socket.

‡ Factory-installed for all codes.

DATA SET 303, DATA AUXILIARY SET 806, PLUS DATA AUXILIARY SET 804A

A. General

3.26 Installation and connections found in this part are for DAS 804A. All installation information and option tables pertaining to DS 303-type and DAS 806 will be found in the preceding parts of this practice. For an explanation of options required in this installation, refer to Section 593-800-100.

3.27 DS 303-type options for this installation are the same as those for the station combination of DS 303-type and DAS 806 except that option K in DS 303-type is not used. Options S or N in DS 303-type may or may not be used. Refer to Table B.

B. Installation and Connections

3.28 The DAS 804A-type is of the desk-top type telephone equipment and is not to be mounted in the cabinet (Fig. 1). It may be placed on top of the cabinet or up to 75 feet from the cabinet by using the appropriate length of B25A cable. The B25A cable is available in lengths of 5, 15, 30, and 60 feet.

3.29 The DAS 804A-type is equipped with a D50R-61 mounting cord. Access for the cord to the data set is through either the front or rear opening at the base of the cabinet. The cable is plugged into J5 at the rear of DAS 806.

3.30 Power for the DAS 804A-type is obtained from the associated DAS 806 with the exception of the talk battery. This power is supplied by the private line terminal equipment. Refer to Fig. 10 and 11 for a typical arrangement of a 4-wire private line.

3.31 Options required for DAS 804A-type for this particular installation are F, H, N, M, V, ZA, ZM, and X. Those that can be installed are B and G. For additional information on the options, refer to the section entitled Data Auxiliary Set 804A-Type, Description and Operation (598-030-100).

Remove power from associated data sets when changing option straps in the DAS 804A-type.

TABLE D

OPTIONS FOR DAS 806D1

WIRING OPTIONS	FEATURE	CONNECTIONS		
		DAS 806D1	10A3 DATA UNIT	CP CS4
		TB1	TB1	
Options for use with DS 303-Type Only				
B (Note 1)	Provides wideband transmission path which includes remote test and local test looping configurations	—	22-23 25-26 28-29 31-32	—
R	Voiceband line termination when coordination channel adapter unit is not used	—	15-16 20-21	—
V	4-Wire voiceband circuit	31-32	1-2 9-10 4-5 12-13	—
W	2-Wire voiceband circuit	—	2-3 8-9 5-6 11-12	—
X†‡	0-dB Wideband transmit line pad	Factory-installed		
Z	Power for remote test when DAS 804A is not provided	19-20	—	—
Options for use in Stations with DAS 804A or DAS 804A and DS 404B1				
B	Provides wideband transmission path which includes remote test and local test looping configurations	—	22-23 25-26 28-29 31-32	—
J‡	Completes the voice-frequency data path in DAS 804A	13-14 30-31-32	—	—
S‡ (One per Station)	Data terminal ready signal provided by customer data terminal	28-29	—	—
T (One per Station)	Wired data terminal ready signal	27-28	—	—
V	4-Wire voiceband circuit	31-32	1-2 9-10 4-5 12-13	—
X†‡	0-dB Wideband transmit line pad	Factory-installed		
ZA	Provides operating path for WB DATA lamp in associated DAS 804A-type	45-46	—	—
ZB	Use when DAS 804A is provided. Furnishes path for off-hook indication when DAS 804A is in the talk mode.	52-53	—	—
ZC	Provides simultaneous wideband data and talk feature or a nonswitched basis	—	—	18-19

TABLE D (Cont)

WIRING OPTIONS	FEATURE	CONNECTIONS		
		DAS 806D1	10A3 DATA UNIT	CP CS4
		TB1	TB1	
ZD	Provides the simultaneous wideband data and talk feature on a switched basis under control of the ALT signal from customer. Used in conjunction with N or S option in DS 303.	—	—	18-20
ZE	Terminates an associated DAS 804A operated to the data mode when a voiceband data set is not provided.	—	—	10-11 12-13
ZF	Completes control path to provide switching of the receive pair of a 4-wire point-to-point voice coordination line between the telephone receiver of DAS 804A and associated DS 404B1.	—	—	14-15

Note 1: When R option is not provided, store straps on terminals 16-17 and 19-20 on TB1 of 10A-type DU.

Note 2: See Fig. 9 for location of option terminal board on DAS 806D1.

* Stored strap

† X and Y option pad is located inside the 10A-type DU. The 0-dB pad inscribed on the board should face the color painted on the socket.

‡ Factory-installed for all codes.

TABLE E

CABLE CONNECTIONS BETWEEN DAS 806B-TYPE OR 806D1 AND DS 303-TYPE

DAS 806 TB1	DESIGNATIONS	DS 303-TYPE TB2
4	T	24
3	R	13
2	T1	23
1	R1	12
11	LTA	30
9	LTC	27
6	RTN	25
7	RT2A	16
18	GRD	26
15	DTR	19
17	RI	20
12	BLTK	31
10	BLTL	29
8	LS	28
5	LST	15
16	SHIELD	14

TABLE F

TELEPHONE LINE CONNECTIONS FOR DAS 806B-TYPE OR 806D1

FUNCTIONS	DESIGNATION	REMARKS	DAS 806B CONNECTIONS		DAS 806D1 CONNECTIONS
			TB2	TB3	TB1
WB TRMTG LINE	T	Shielded leads will be used on all data input and output leads. Lead dress of the shielded pair will not exceed one inch after termination at terminal.	—	1	66
	R		—	2	67
WB RECVG LINE	T1	Cable will be 761A-type or equivalent. Ground shield at DS 303-type end only. Leave ungrounded at the far end. Do not ground terminal 5 of TB3 on DAS 806B-type or terminal 65 on TB1 in DAS 806D1.	—	3	68
	R1		—	4	69
VB TRMTG LINE	T3	When 2-wire telephone circuit is provided for remote test control only, use TRMTG LINE connections.	3	—	61
	R3		4	—	62
VB RECVG LINE	T2		1	—	59
	R2		2	—	60

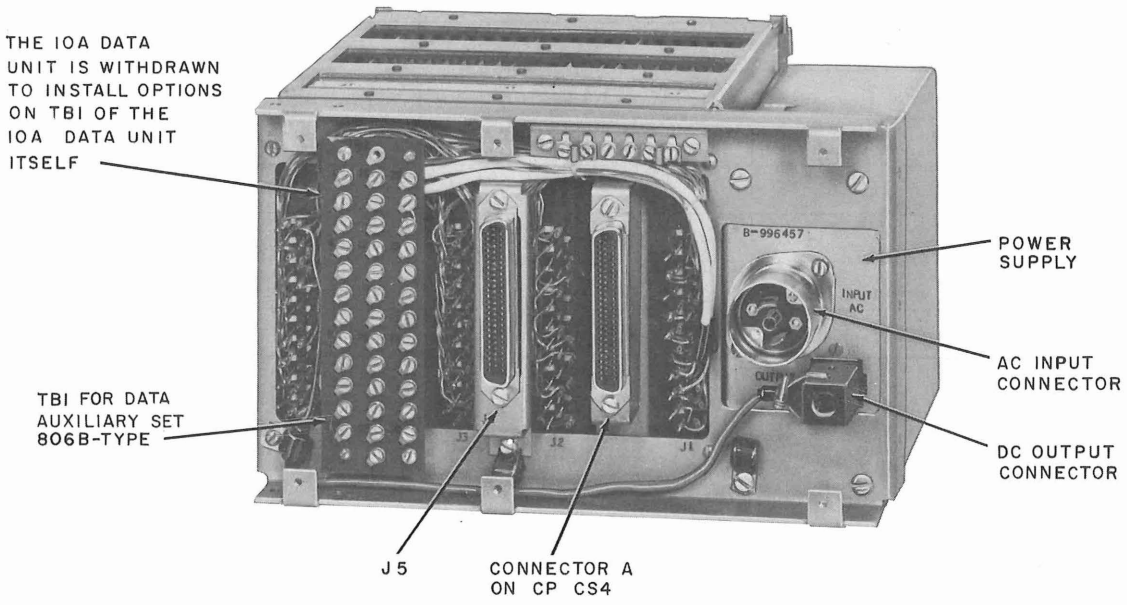


Fig. 8—Option Board on Data Auxiliary Set 806B-Type

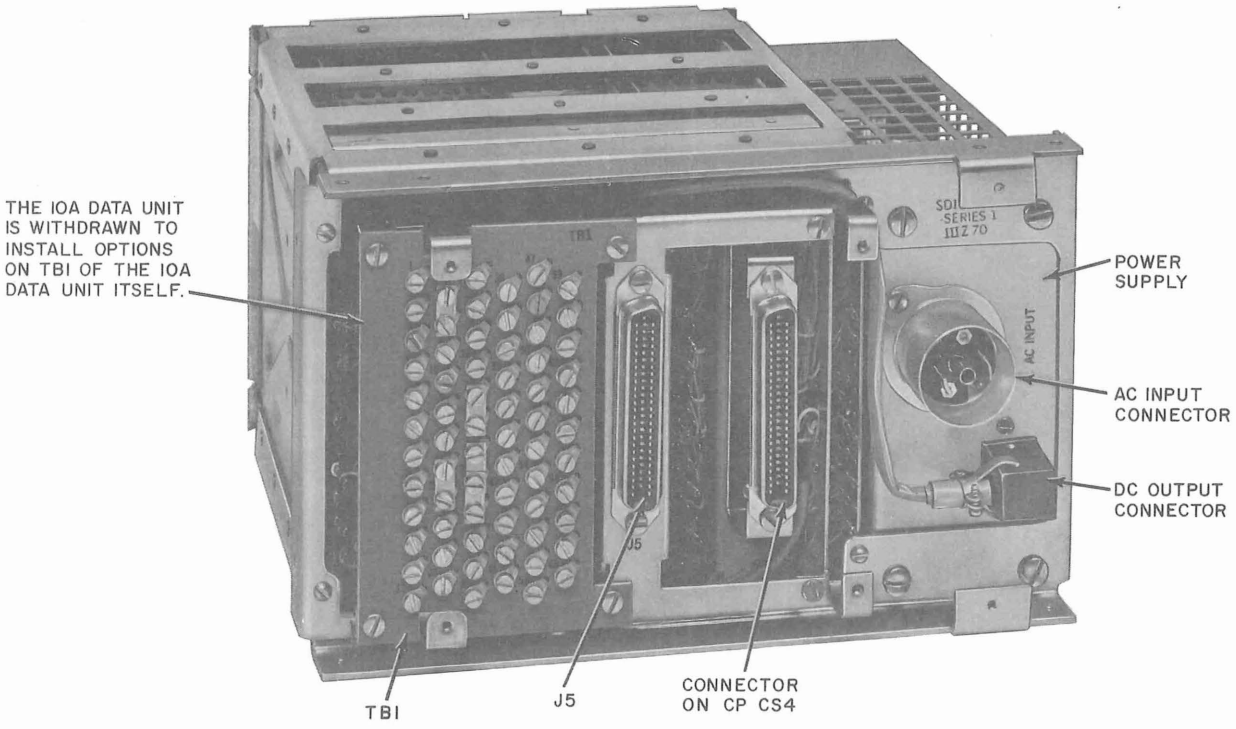
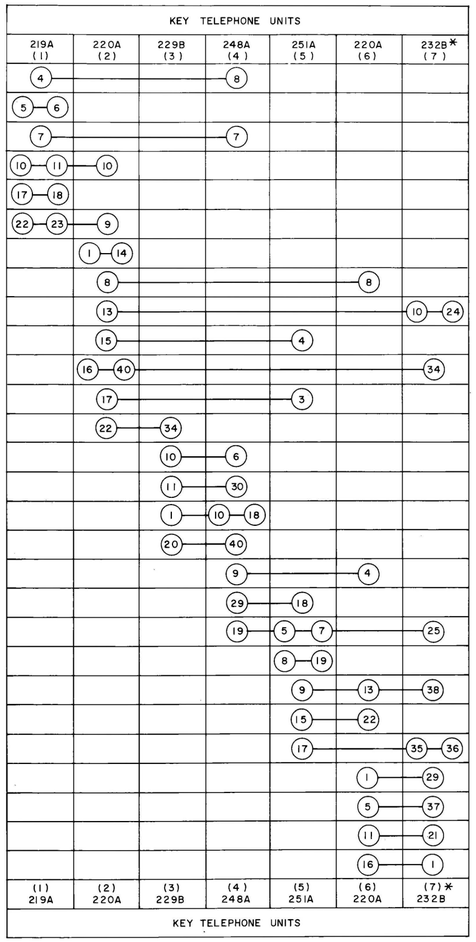
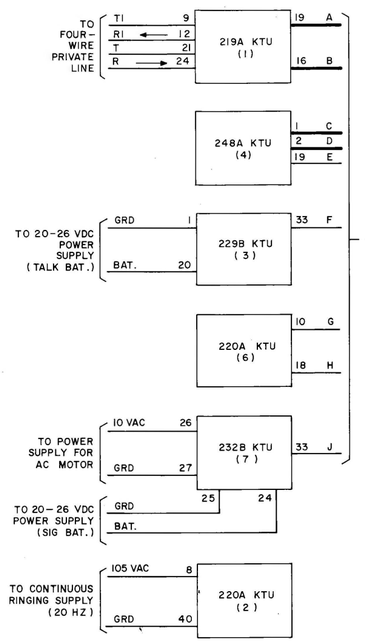
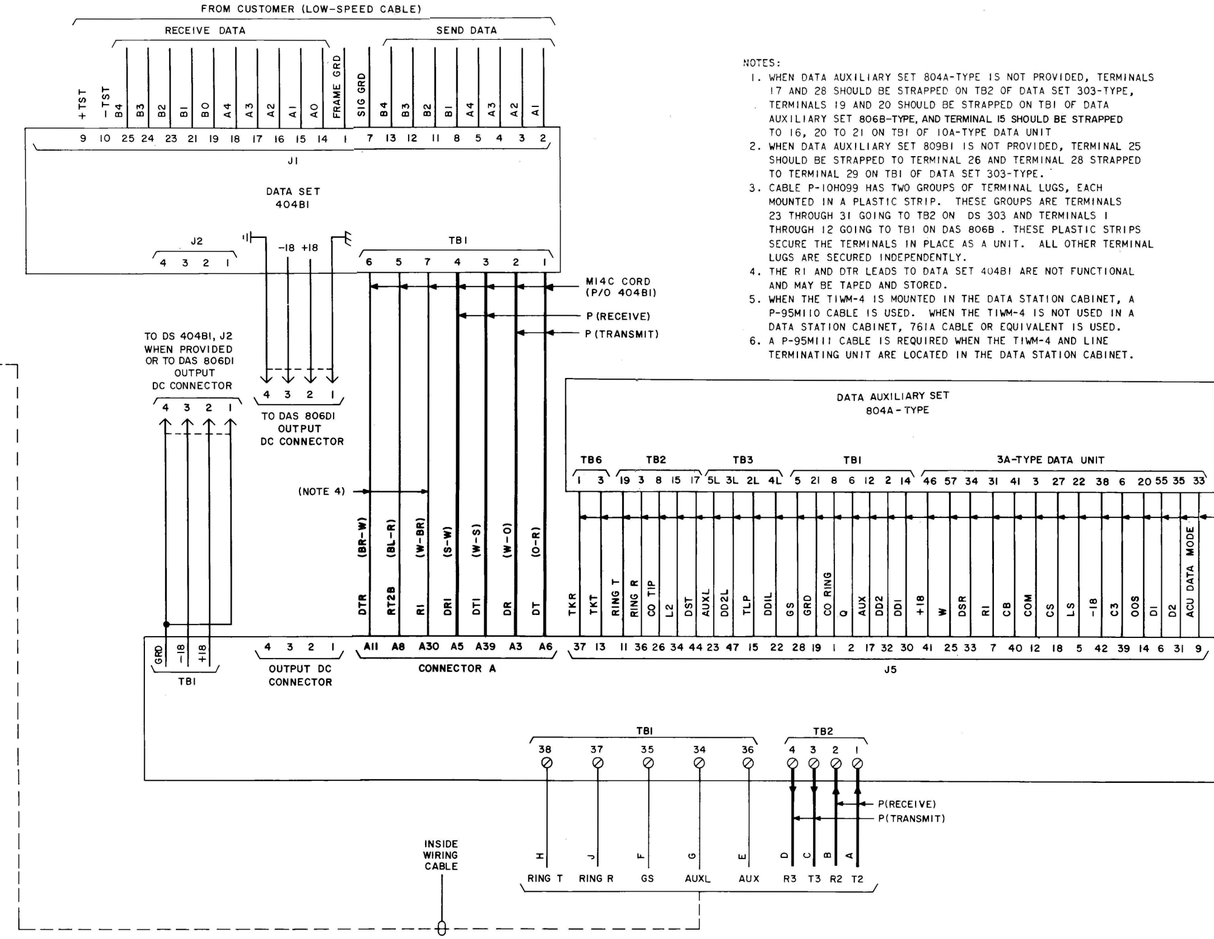


Fig. 9—Option Board and Connector Identification on Data Auxiliary Set 806D1



* THE 232B KEY TELEPHONE UNIT IS NOT EQUIPPED WITH A KS-15900-L1 INTERRUPTER UNIT. THE INTERRUPTER UNIT MUST BE ORDERED SEPARATELY.





NOTES:

1. WHEN DATA AUXILIARY SET 804A-TYPE IS NOT PROVIDED, TERMINALS 17 AND 28 SHOULD BE STRAPPED ON TB2 OF DATA SET 303-TYPE, TERMINALS 19 AND 20 SHOULD BE STRAPPED ON TBI OF DATA AUXILIARY SET 806B-TYPE, AND TERMINAL 15 SHOULD BE STRAPPED TO 16, 20 TO 21 ON TBI OF 10A-TYPE DATA UNIT
2. WHEN DATA AUXILIARY SET 809BI IS NOT PROVIDED, TERMINAL 25 SHOULD BE STRAPPED TO TERMINAL 26 AND TERMINAL 28 STRAPPED TO TERMINAL 29 ON TBI OF DATA SET 303-TYPE.
3. CABLE P-10H099 HAS TWO GROUPS OF TERMINAL LUGS, EACH MOUNTED IN A PLASTIC STRIP. THESE GROUPS ARE TERMINALS 23 THROUGH 31 GOING TO TB2 ON DS 303 AND TERMINALS 1 THROUGH 12 GOING TO TBI ON DAS 806B . THESE PLASTIC STRIPS SECURE THE TERMINALS IN PLACE AS A UNIT. ALL OTHER TERMINAL LUGS ARE SECURED INDEPENDENTLY.
4. THE RI AND DTR LEADS TO DATA SET 404BI ARE NOT FUNCTIONAL AND MAY BE TAPED AND STORED.
5. WHEN THE TIWM-4 IS MOUNTED IN THE DATA STATION CABINET, A P-95MII0 CABLE IS USED. WHEN THE TIWM-4 IS NOT USED IN A DATA STATION CABINET, 761A CABLE OR EQUIVALENT IS USED.
6. A P-95MIII CABLE IS REQUIRED WHEN THE TIWM-4 AND LINE TERMINATING UNIT ARE LOCATED IN THE DATA STATION CABINET.

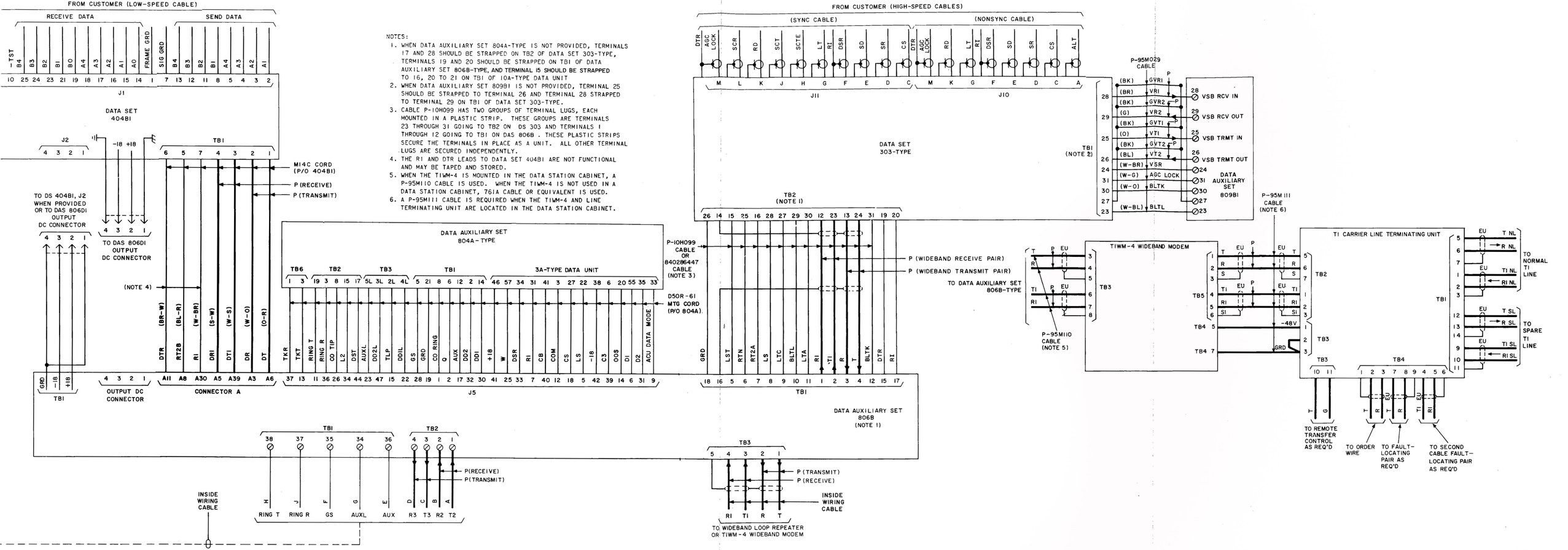
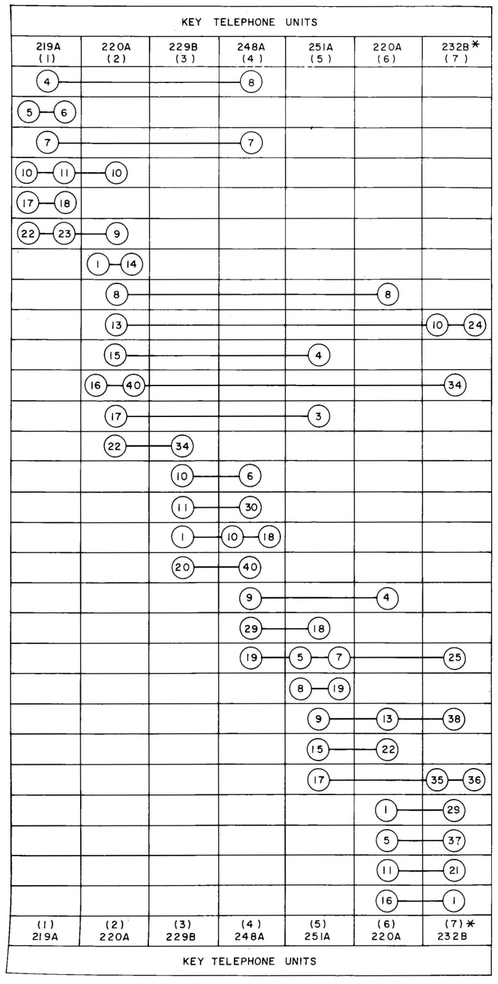
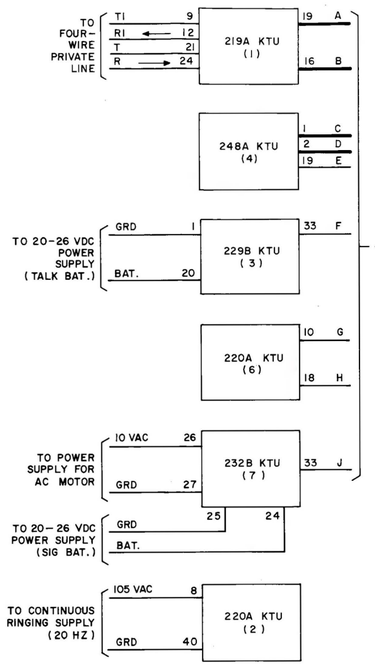
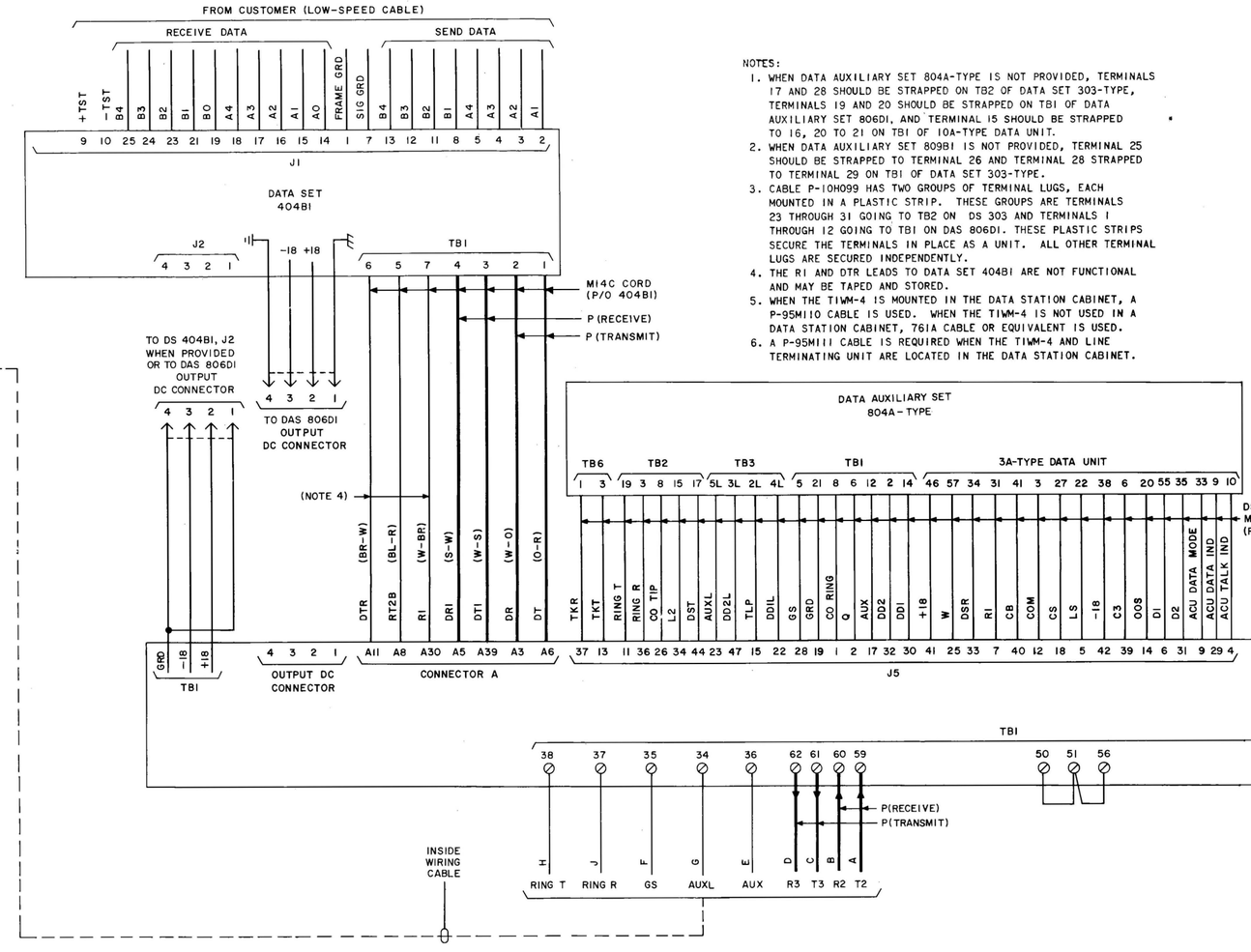


Fig. 10—Wideband Data Station Using Data Set 303-Type Four-Wire Point-to-Point Private Line (Commerical Service) With Data Auxiliary Set 806B-Type



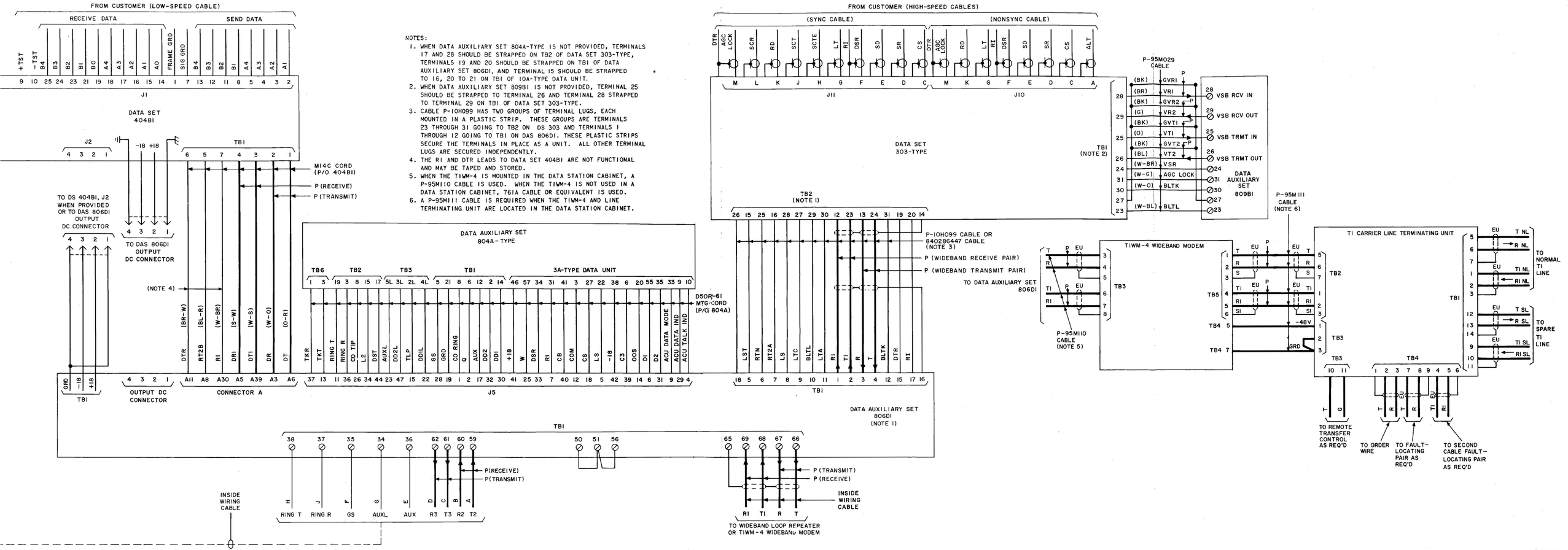
* THE 232B KEY TELEPHONE UNIT IS NOT EQUIPPED WITH A KS-15900-L1 INTERRUPTER UNIT. THE INTERRUPTER UNIT MUST BE ORDERED SEPARATELY.





NOTES:

1. WHEN DATA AUXILIARY SET 804A-TYPE IS NOT PROVIDED, TERMINALS 17 AND 28 SHOULD BE STRAPPED ON TB2 OF DATA SET 303-TYPE, TERMINALS 19 AND 20 SHOULD BE STRAPPED ON TBI OF DATA AUXILIARY SET 806DI, AND TERMINAL 15 SHOULD BE STRAPPED TO 16, 20 TO 21 ON TBI OF 10A-TYPE DATA UNIT.
2. WHEN DATA AUXILIARY SET 809BI IS NOT PROVIDED, TERMINAL 25 SHOULD BE STRAPPED TO TERMINAL 26 AND TERMINAL 28 STRAPPED TO TERMINAL 29 ON TBI OF DATA SET 303-TYPE.
3. CABLE P-10H099 HAS TWO GROUPS OF TERMINAL LUGS, EACH MOUNTED IN A PLASTIC STRIP. THESE GROUPS ARE TERMINALS 23 THROUGH 31 GOING TO TB2 ON DS 303 AND TERMINALS 1 THROUGH 12 GOING TO TBI ON DAS 806DI. THESE PLASTIC STRIPS SECURE THE TERMINALS IN PLACE AS A UNIT. ALL OTHER TERMINAL LUGS ARE SECURED INDEPENDENTLY.
4. THE RI AND DTR LEADS TO DATA SET 404BI ARE NOT FUNCTIONAL AND MAY BE TAPED AND STORED.
5. WHEN THE TIWM-4 IS MOUNTED IN THE DATA STATION CABINET, A P-95MIIO CABLE IS USED. WHEN THE TIWM-4 IS NOT USED IN A DATA STATION CABINET, 761A CABLE OR EQUIVALENT IS USED.
6. A P-95MIII CABLE IS REQUIRED WHEN THE TIWM-4 AND LINE TERMINATING UNIT ARE LOCATED IN THE DATA STATION CABINET.



TPA 570286

Fig. 11—Wideband Data Station Using Data Set 303-Type, Four-Wire Point-to-Point Private Line (Commerical Service) With Data Auxiliary Set 806D1

3.32 The DAS 804A-type contains a 589AA key unit with six illuminating keys that provide the control functions shown below. The key marked WB DATA should be blocked by inserting bushing P-12A858. The TEST and AUTO keys should be made locking by installing a P-12A892 screw. Figure 12 shows terminal boards on DAS 804A5.

LABEL	○ RING	○ TEST	○ AUTO	○ WB DATA	○ TALK	○ VB DATA
KEYS	Non-locking	Locking	Locking per Option G	Blocked	Locking	Non-locking

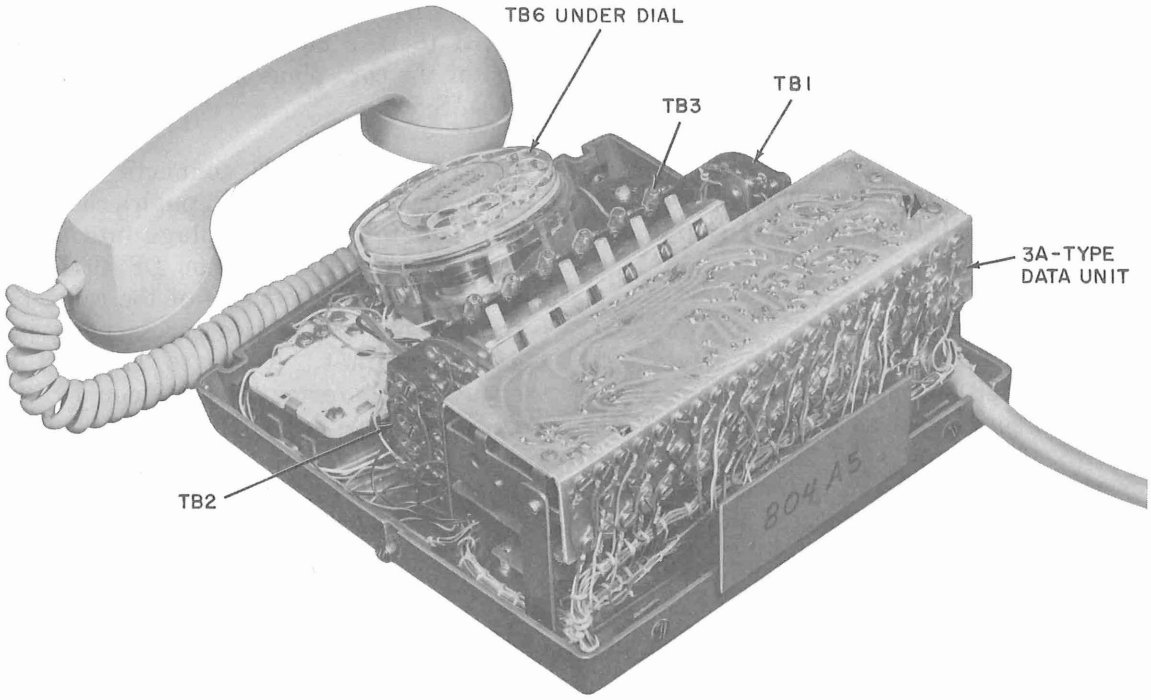


Fig. 12—Data Auxiliary Set 804A5—Cover Removed

3.33 The same code of DAS 806-type should be used at both station locations because the operating procedure for DAS 806B-type is different from the operating procedure for DAS 806D1 when the simultaneous wideband data and talking feature is incorporated in the station. Where a mix in codes of DAS 806-type is unavoidable and the resulting difference in operating procedure is intolerable, the station using DAS 806D1 can be modified so that the operating procedure at this station is similar to that of a station using DAS 806B7. The modification consists of adding a lead

from TB1-8 to TB1-25 in DAS 806D1. When this lead is installed, options N and S in DS 303-type should be omitted.

DATA SET 303, DATA AUXILIARY SET 806, DATA AUXILIARY SET 804A, PLUS DATA SET 404B1

A. General

3.34 With the DS 404B1 installation and cable connections to the wideband data station, voiceband data capability is provided on the voice-frequency coordination channel.

3.35 All installation information and option tables pertaining to DS 303-type, DAS 806, and DAS 804A can be found in the preceding parts of this section.

3.36 A description of the options and option strappings in DS 404B1 is given in Table G. Strappings for the option are found on CP AR99. Option Y is required and option W will usually be used in normal installations. Option changes are not required in DS 303-type, DAS 806, or DAS 804 for this installation unless otherwise specified.

B. Installation

3.37 The DS 404B1 is mounted on the inside of the data set cabinet as shown in Fig. 4 and 5. Both DS 404B1 and DAS 806 are fastened together as a unit by means of mounting bars (Fig. 13). After the two sets are connected, the mounting brackets are attached and the sets are mounted in the cabinet directly above DS 303-type. Refer to Table A for mounting bracket hardware codes.

3.38 Key telephone units may be added to provide a 4-wire private-line termination for the voice and low-speed data control function of a wideband data station. Figures 10 and 11 show the connections required and the units involved to complete the termination. Identification and description of the key telephone units and their use can be found in CD-69288 and SD-69288-01. For additional information on key telephone units, refer to Sections 519-YYY-ZZZ.

C. Connections

3.39 An M14C cord, terminated at one end on TB1 of the data set, is used to connect DS 404B1 to DAS 806. A plug located on the other end of the cord plugs into connector A on the rear of DAS 806.

3.40 The DS 404B1 connects to the customer business machine through a customer-provided 25-conductor cord that plugs into the low-speed connector (KS-19087-L2) on DS 404B1. The cord is dressed to the left side of the cabinet and down through one of the two access ports in the base of the cabinet. Refer to Table H for cable connection information between DS 404B1 and DAS 806B-type or 806D1.

3.41 Power for the DS 404B1 is obtained from a 26A power unit (part of 806) located at the

TABLE G

OPTIONS FOR DATA SET 404B1

FUNCTION		OPTION	CONNECT TERMINALS ON CP AR99
Receiver Input Impedance	900Ω	Z	5 to 6
	600Ω	Y*	6 to 7
Receiver Input Attenuator	6 dB	X	1 to 3
			2 to 4
	0 dB	W*	1 to 2
			3 to 4

Note: When installing Z and X options, remove Y and W options, respectively.

* Factory-wired

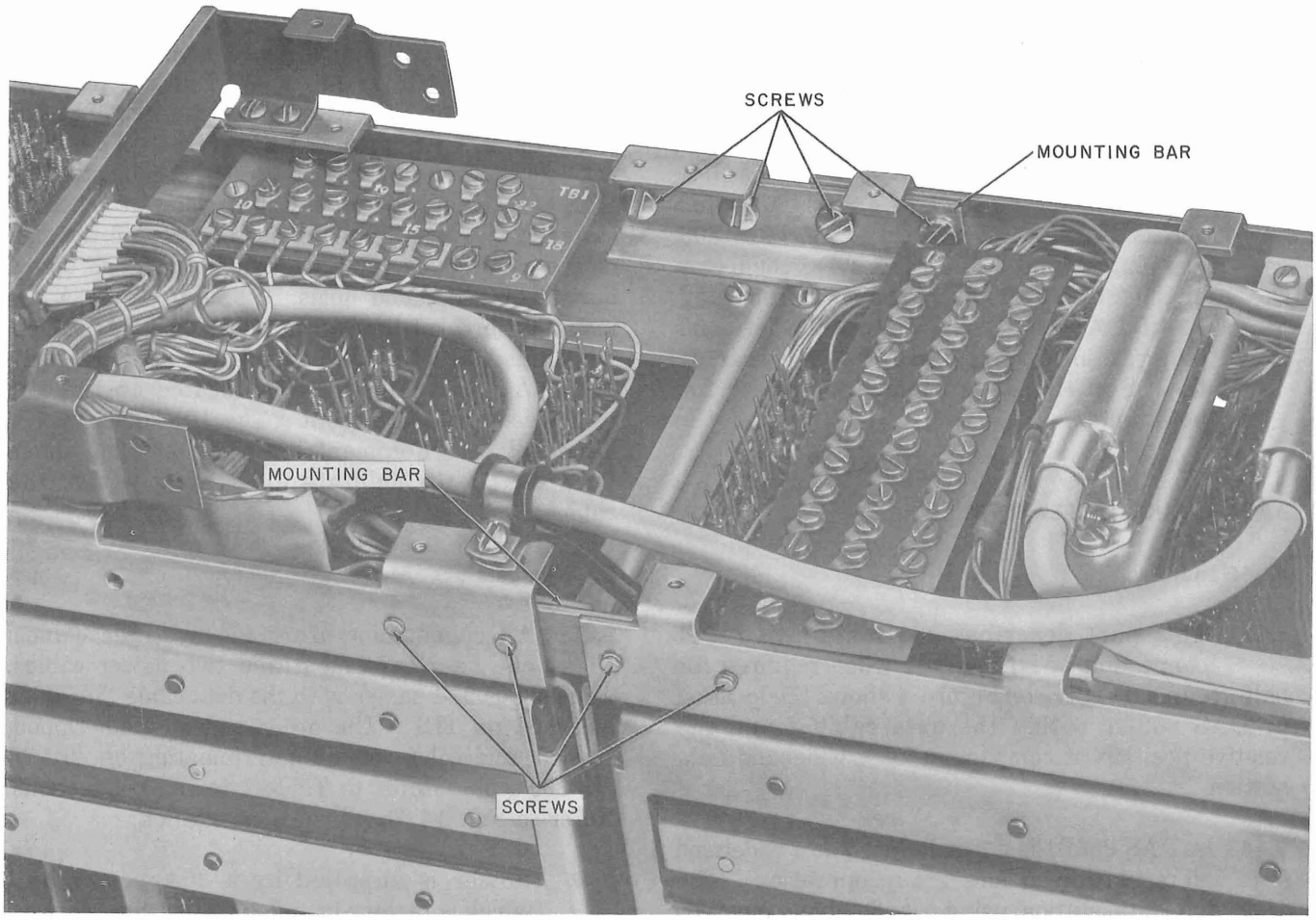


Fig. 13—Assembly of Data Set 404B1 and Data Auxiliary Set 806

TABLE H

CABLE CONNECTIONS BETWEEN DATA SET 404B1
AND DATA AUXILIARY SET 806B-TYPE OR 806D1

TERMINAL ON TB1	DESIGNATION	FUNCTION	CONNECTOR PIN NUMBER
1	DT	Data Tip Transmitting	6
2	DR	Data Ring Transmitting	3
3	DT1	Data Tip Receiving	39
4	DR1	Data Ring Receiving	5
5	R2TB	Remote Test	8
6	DTR	Data Terminal Ready*	11
7	RI	Ring Indicator*	30

* Not functional at the 404B1 customer interface when DS 404B1 is used as part of wideband data station using DS 303-type.

lefthand side of the DAS 806, as viewed from the front.

3.42 When DS 404B1 is used in conjunction with a DAS 806, power for both sets is obtained in the following manner:

- The cord from plug P1 of DS 404B1 is fed across the lower rear section of DAS 806 and plugged into the OUTPUT DC connector of the 26A power unit. The cord from plug P1 of DAS 806 is fed toward the left and plugged into connector J2 on the rear of the DS 404B1, thus completing power for both units.

DATA AUXILIARY SET 809B1

A. General

3.43 This part describes the installation and connection of DAS 809B1 when required for half-group data service. Figure 4 shows the location of DAS 809B1 within the data cabinet and the relative position of components of a wideband data station.

3.44 A DAS 809B1 is normally used at a wideband data station in half-group operation. The wideband data station using DS 303-type must be the restored polar line signal type.

B. Mechanical Assembly

3.45 All data set equipment previously described will remain in the same relative position except for relocation within the cabinet. The DS 303-type, DAS 806, and DS 404B1 will now be relocated to the upper section of the cabinet. The DAS 809B1, with its mounting bracket attached, is fastened to the mounting strips (located on the side of the cabinet) by four or eight bolts which screw into the prethreaded holes. Refer to Table A for mounting bracket hardware codes. The DAS 809B1 is mounted directly above the power panel (Fig. 4). The 26A power unit is to be located on the left as viewed from the front. The DS 303-type and other related equipment are mounted just above DAS 809B1 to facilitate all cabling within the cabinet.

C. Connections

3.46 All connections are made by three cables: one data equipment and two power cables. The DAS 809B1 comes with the data cable P-95M029 attached on TB1. The other end is spade-tipped, fanned, and color-coded for terminating on TB1 of DS 303-type. Refer to Table I for all connections. Refer to Fig. 14 for physical orientation.

3.47 Power is supplied by a 26A power unit which is factory-installed on the same chassis. Two cables are used: one low-voltage cable to

TABLE I

CABLE CONNECTIONS BETWEEN DAS 809B1 AND DS 303-TYPE

DAS 809B1 TERMINAL ON TB1	DESIGNATION	FUNCTION	COLOR	DS 303 TERMINAL ON TB1
23	BLTL	Baseband Local Test Lock	W-BL	23
24	VSR	VSB Send Request	W-BR	24
25	VT1	VSB Transmitter In	O	25
26	VT2	VSB Transmitter Out	BL	26
27	CKT GRD	CKT Ground	W-BK	13,17,27
28	VR1	VSB Receiver In	BR	28
29	VR2	VSB Receiver Out	G	29
30	BLTK	Baseband Local Test Key	W-O	30
31	AGC Lock	Automatic Gain Control Lock	W-G	31

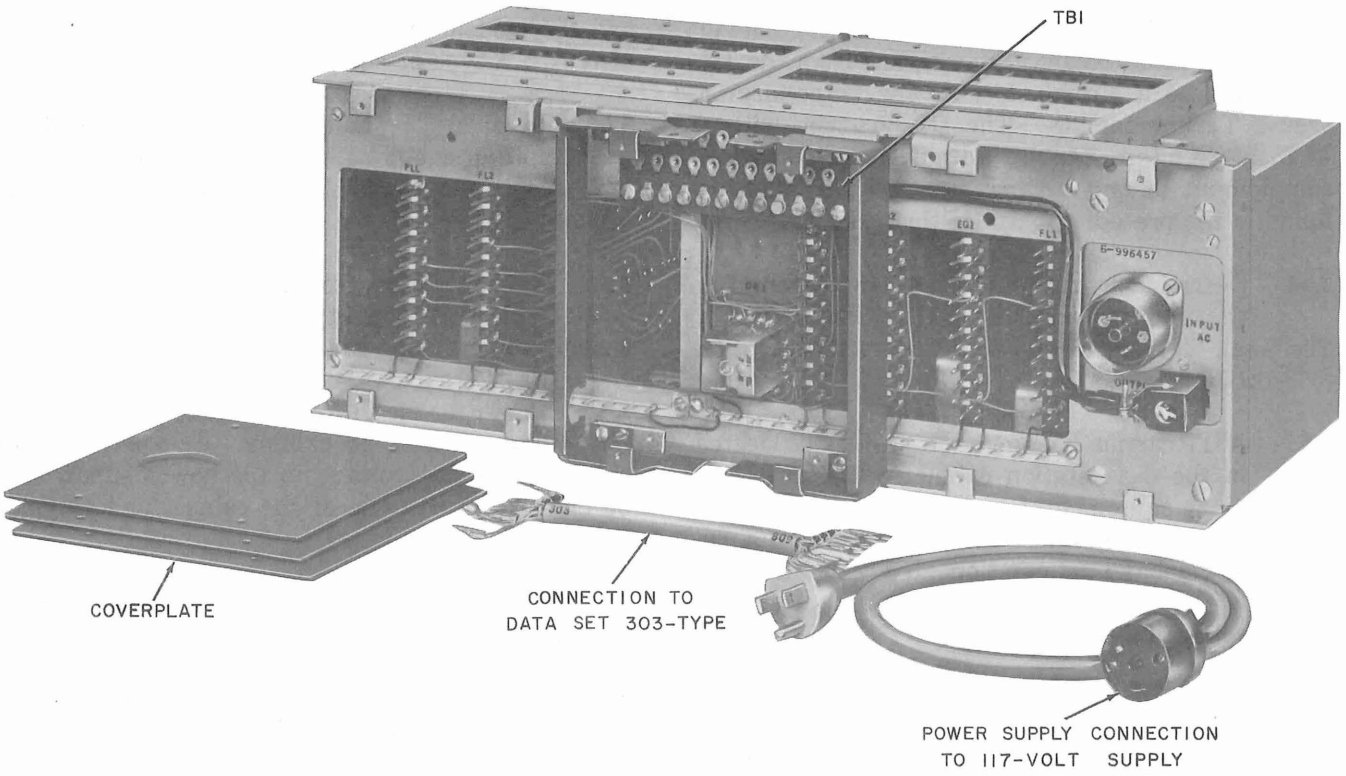


Fig. 14—Data Auxiliary Set 809B1—Rear View

feed ±18 vdc to DAS 809 and another cable to supply 117 vac 60-Hz to the 26A power unit.

3.48 The low-voltage cable, a 4-conductor cable, is terminated at one end with a 4-pin Jones plug (KS-8585-L5) and internally connected on TB1 of the data auxiliary set. The Jones plug is inserted in the OUTPUT DC connector of the 26A power unit. For connection functions, refer to Table J.

TABLE J

POWER CABLE CONNECTIONS FOR DAS 809B1

SCREW TERMINAL NUMBER ON TB1	DESIGNATION
27	Signal Ground
27	Frame Ground
8	+18 Volts
5	−18 Volts

3.49 The power cord that supplies commercial power to the 26A power unit is a 3-conductor cord equipped with a twist-lock connector on one end and a 2-blade (110 V) U-ground plug on the other end.

3.50 The DAS 809B1 has no options available in its operation; however, when DAS 809B1 is used, the V option must be removed in DS 303 for this installation. The R option in DS 303-type is not provided in stations used in a single point-to-point service. Refer to Table B.

3.51 Figures 10 and 11 give block diagrams of the interconnections for complete data stations using either DAS 806B-type or 806D1.

T1WM-4 WIDEBAND MODEM

A. General

3.52 When DS 303-type is to be used with a T1WM-4 modem, the DS 303 set must be a properly coded dc-coupled balanced line signal type.

3.53 The T1WM-4 modem converts the 2-level dc-coupled balanced line signal from the DS 303-type into a signal suitable for transmission over a T1 line facility. The DS 303-type with a T1WM-4 modem can be added to any station complement in any arrangement of DS 303-type found in the preceding parts of this practice.

3.54 Description of the T1WM-4 can be found in the section entitled T1 Carrier System Terminal, T1WM-4 Wideband Modem, Description (365-121-100).

3.55 A T1 carrier LTU may be physically located in the data station cabinet. It is required as terminal equipment for a repeatered line of a T1 Carrier System which provides access to a DS 303-type wideband data station.

B. Installation

3.56 A T1WM-4 modem is installed in the lower part of the standard Bell System cabinet KS-20018-L7 as shown in Fig. 3 and 5. The DS 303-type and other components are mounted above as described previously in this practice. The same general arrangement should be utilized when all components are rack-mounted. This arrangement can best utilize those cables furnished with the various components of a wideband data station.

3.57 If necessary, the T1WM-4 modem can be located away from the wideband data station. The distance between the modem and the wideband data station should not exceed 1000 cable feet.

C. Connections

3.58 All connections between the DS 303-type and the T1WM-4 modem are made in the rear of the equipment as shown in Fig. 3. When a T1WM-4 modem is externally mounted or installed in a wideband data station cabinet without the DAS 806, there is no prefabricated connecting cable available. Connections between the DS 303-type and the modem must be made with shielded cable of the 761A-type or equivalent.

3.59 When a T1WM-4 is mounted in the data station cabinet, the connection between the DAS 806 and the T1WM-4 modem is made by a separately ordered cable (P-95M110).

3.60 All connections to the T1WM-4, when used with DAS 806B-type and DAS 806D1, are shown in Fig. 10 and 11, respectively.

3.61 Power for the T1WM-4 modem is self-contained and requires no cabling. The power cable that supplies line voltage to the power supply will be dressed up the side of the cabinet and plugged into the outlet box.

D. T1 Carrier Line Terminating Unit—Installation and Connections

3.62 The T1 carrier LTU may be installed in the data station cabinet or located remotely. If the LTU is located outside of the data station cabinet, the spacing between the T1WM-4 and the LTU should not exceed 750 cable feet.

3.63 If the LTU is used in the data station cabinet, it should be mounted directly above the T1WM-4 modem as shown in Fig. 5.

Caution: Before attempting to install the LTU in the data station cabinet, attach the side mounting brackets (provided loose with the LTU). Use the set of four threaded holes located nearer the rear of the LTU chassis. If the wrong set of mounting holes is used, the rear cabinet cover may short out the terminals on the rear of the LTU.

3.64 Power for the LTU is obtained from the T1WM-4 power supply (−48 vdc). Cable 761A-type or equivalent should be used to connect the LTU to the T1 line.