WIDEBAND DATA STATION USING DATA SET 303-TYPE 50-KBPS GOVERNMENT SECURE SPEECH SERVICE INSTALLATION AND CONNECTIONS

CONTENTS PAGE

1. GENERAL

1.01 This practice describes the equipment combinations, installations and connections, and options for a wideband data station for 50 kilobit per second (kbps) government secure speech service. Information pertaining to external customer-owned and maintained (COAM) equipment will not be included in this section.

1.02 This section is reissued for the following reasons:

- To recommend the substitution of Data Auxiliary Set (DAS) 806D1 for DAS 806B7 which is rated Manufacture Discontinued. Due to extensive field use of DAS 806B7, its reference will remain in this section.
- To recommend cabinet change from KS-20018-L4 to KS-20018-L7.
- To combine strapping tables of options Z, Y, W, and V into Table D.

Since this issue is a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 Information is provided for both the restored polar and dc-coupled line signals for Data Set (DS) 303-type. The T1WM-4 wideband modem and T1 carrier line terminating unit (LTU) are used only with the dc-coupled line signal interface. Additional descriptive information is available in Sections 365-121-100 and 365-200-103.

1.04 For general information concerning data set installation and connections, refer to sections entitled Data Set, General Installation and Connection Information (590-010-200) and Data Sets, Multiple Installation Information (590-010-201).

2. PHYSICAL ASSEMBLY

2.01 This part describes the physical assembly of a wideband data station (Fig. 1) using Data Set 303-type with data recognition for either restored polar or dc-coupled balanced line signals.

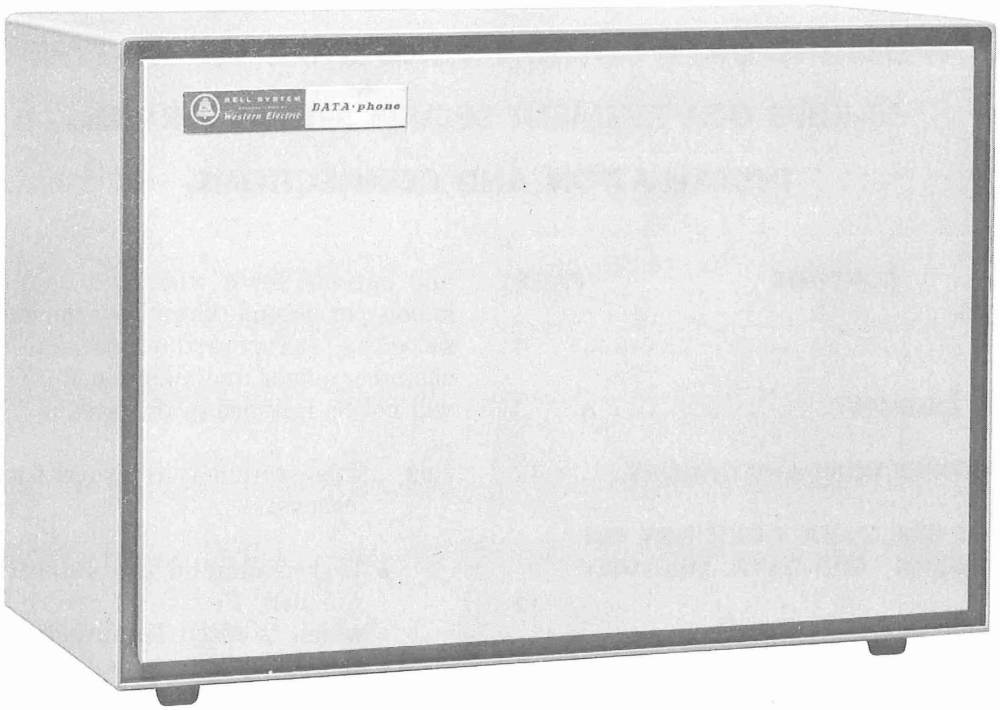


Fig. 1—Wideband Data Station Cabinet

2.02 The station may be installed in KS-20018 or KS-20093 type cabinets or rack mounted on 19-inch, 23-inch, or 25-inch Bell System type relay racks. However, when combined with coded T1 carrier equipment, the station can be mounted in a KS-20018 type cabinet with a 26-inch minimum vertical mounting space or on a 23-inch relay rack. Table A shows the mounting hardware required for assembling and mounting the components in the cabinet and on relay racks. The bracket code provides all hardware required to assemble and mount the specified unit. Descriptions of cabinets and other equipment are found in the section entitled Wideband Data Station Using Data Set 303-Type, 50-KBPS Government Secure Speech Service, Description and Operation (593-800-101).

2.03 The station components for restored polar line signals consist of DS 303-type, DAS 806B7 or 806D1, DAS 824A1, power panel or box, and cabinet.

2.04 The wideband data station using restored polar DS 303-type can be installed in the KS-20018-L2 cabinet (Fig. 2 and 3). If additional mounting space is required, other lists of the KS-20018 type cabinet may be utilized (590-010-201).

2.05 The data set should be checked to verify that the circuit packs are placed in their proper slots for the proper data set code. Refer to the section entitled Data Set 303-Type, Description (593-012-100).

2.06 The chassis of DS 303 (Fig. 4 and 5) with its mounting bracket attached is fastened to the mounting strips located on the side of the cabinet by four or eight bolts. They screw into prethreaded holes with a minimum of two on each side directly above the power panel. When viewing the station from the front, the 26A power unit is to be located on the left side. When DS 303-type is mounted together with a T1WM-4 or with a T1WM-4 and T1 carrier LTU in the same cabinet (KS-20018-L7), the T1WM-4 and T1 carrier LTU will be located in the lower portion of the cabinet. Power panel 590B will be replaced by outlet box KS-20598-L1 mounted on the 87T mounting bracket attached to DS 303-type.

2.07 The DAS 806B7 or 806D1 (Fig. 6, 7, 8, and 9) used as a part of a wideband data station will be mounted directly above the DS 303. The 26A power unit is part of DAS 806B7 or 806D1.

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	DS 303-TYPE	DAS 806B7 OR DAS 806D1	DAS 806B7 OR 806D1 AND DAS 824A*
	CODE OF MOUNTING BRACKETS REQUIRED		
#5 Crossbar-Type Frame (23″ Mtg. Plates)	87T†	87B	87D
KS-20018-Type Cabinet (23″ Mtg. Plates)			
Bulb Angle-Type Frame (23″ Mtg. Plates)	87U†	87F	87H
Bulb Angle-Type Frame (19″ Mtg. Plates)	87J	87K	—
KS-20093-Type Cabinet (25″ Mtg. Plates)	87W†	87N	87R

* Indicates units mounted adjacent to each other in the same horizontal space. Two P-46M668 brackets (included in 87-type code) are used to fasten the two sets together.

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

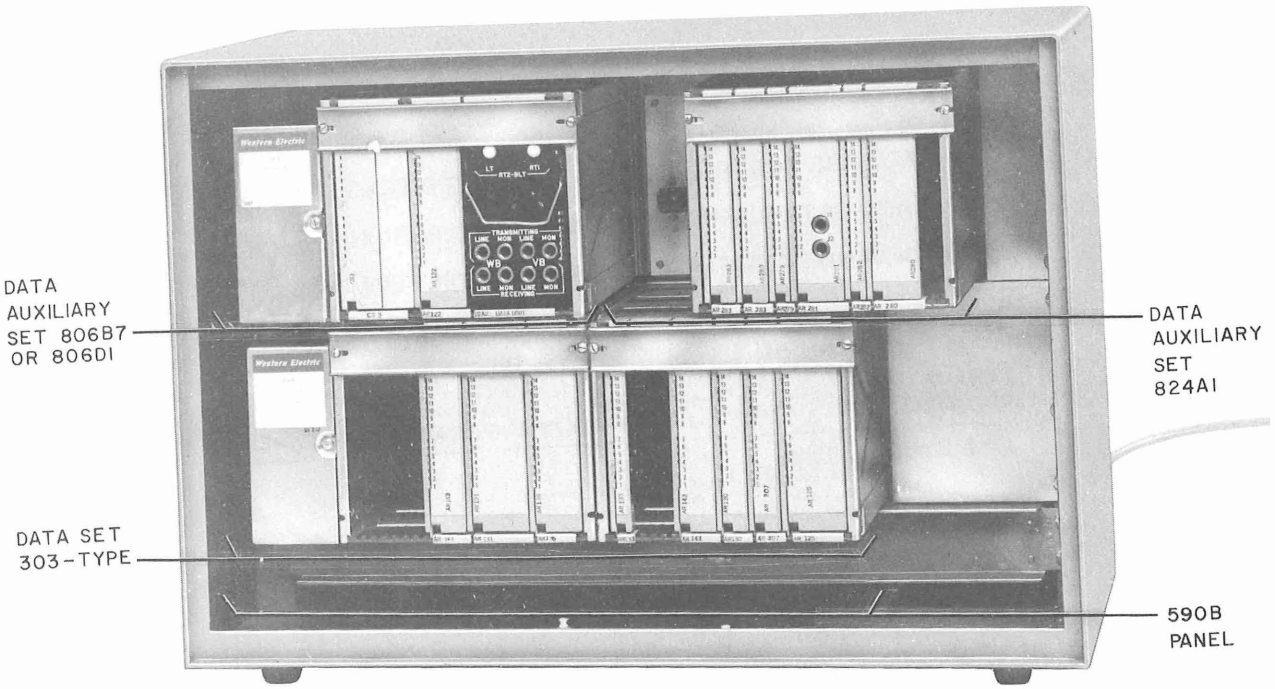
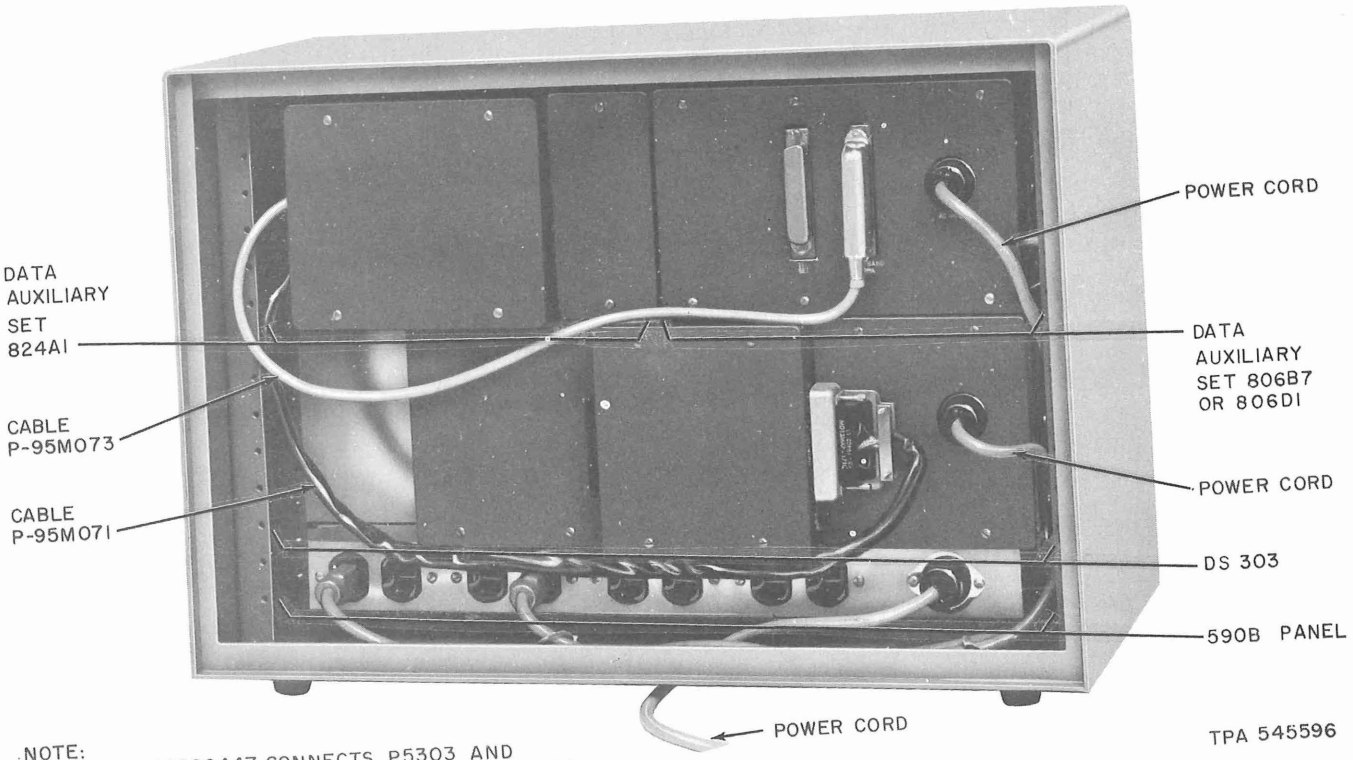


Fig. 2—Restored Polar Secure Speech Wideband Data Station—Front View, Cover Removed



NOTE:
CABLE 840286447 CONNECTS P5303 AND
DAS 806 AND IS LOCATED BEHIND COVER PLATES

Fig. 3—Restored Polar Line Signal Secure Speech Wideband Data Station—Rear View, Cover Removed

2.08 When the DAS 824A1 (Fig. 10 and 11) is mounted adjacent to DAS 806B7 or 806D1 in the same horizontal mounting space, two mounting bars (P-46M668) and eight screws, supplied as part of the 87-type mounting brackets, are used to fasten the two sets together (Fig. 12). After the two sets have been connected together, the mounting brackets are attached and the sets are mounted in the cabinet.

2.09 In applications where the T1 line is available at the customer's location, a T1WM-4 and a T1 carrier LTU combined with a DS 303-type of the appropriate code (dc-coupled balanced line signal) and associated apparatus will compose the wideband station (Fig. 13 and 14).

2.10 The T1WM-4 modem and the T1 carrier LTU can be mounted together with the DS 303 in a KS-20018 type cabinet or at a remote location within specified limits. In certain installations, the T1WM-4 modem may be mounted in the data station cabinet and the T1 carrier LTU may be at a separate location.

2.11 When the T1WM-4 and the T1 carrier LTU are installed at a remote location, the maximum limit between the T1WM-4 and the DS 303-type should not exceed 1000 cable feet. The maximum limit between the T1 carrier LTU and the T1WM-4 is 750 cable feet.

2.12 When the T1WM-4 and LTU are mounted with DS 303, the T1WM-4 modem is mounted below the DS 303-type with the T1 carrier LTU mounted between them. The same general arrangement should be utilized when all components are rack-mounted. This arrangement will best utilize the cables furnished with the various components of a wideband data station.

2.13 Before attempting to install the LTU in the cabinet, attach the side mounting brackets which are 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. The KS-15620-L14 power supply, used with the LTU, requires two adapter brackets (P-426535 adapters) before it can be mounted in the wideband data station cabinet.

2.14 Description, installation, and testing of the T1WM-4 modem and the T1 carrier LTU are explained in Sections 365-121-100, -200, -500 and 365-200-103, -203, -503, respectively.

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

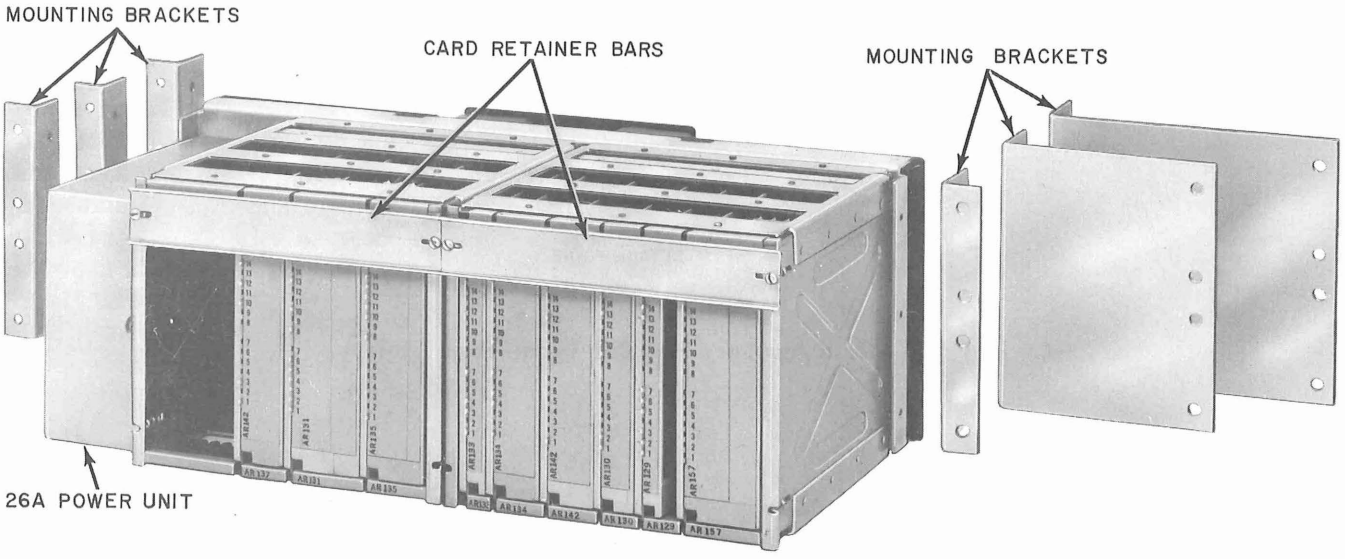


Fig. 4—Data Set 303-Type—Front View

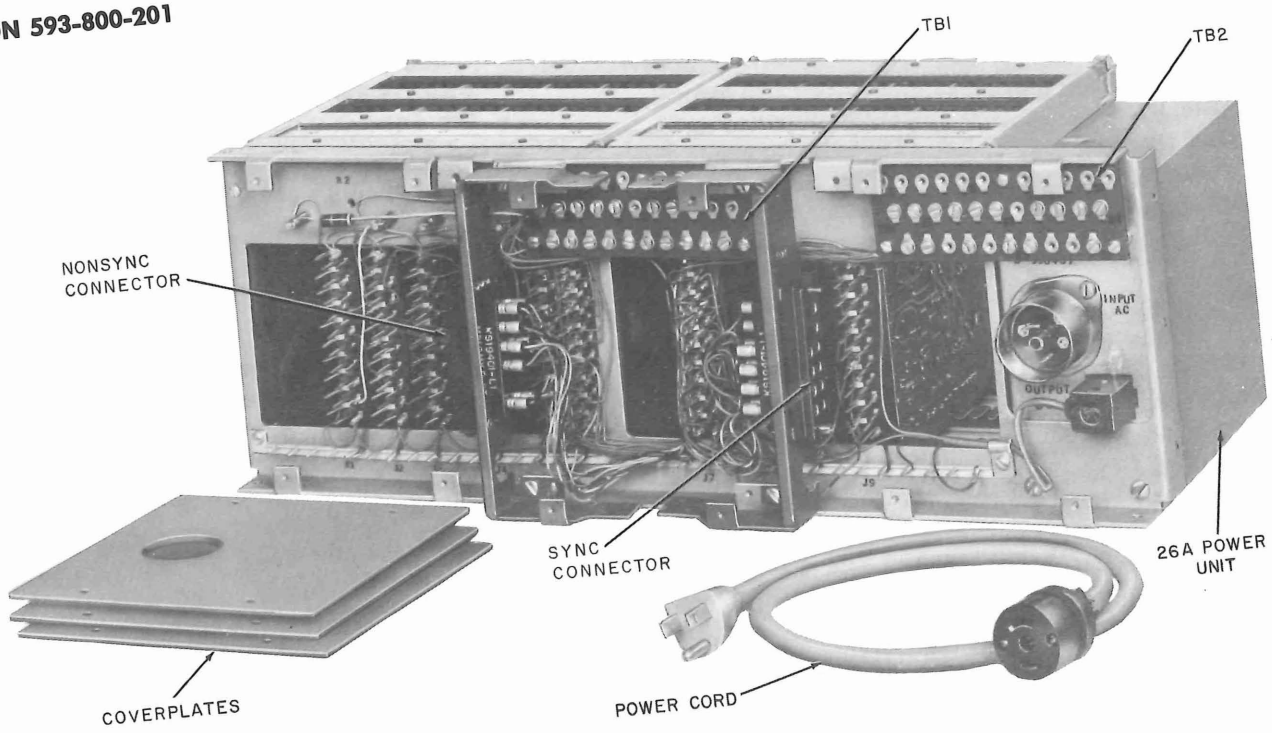


Fig. 5—Data Set 303-Type—Rear View

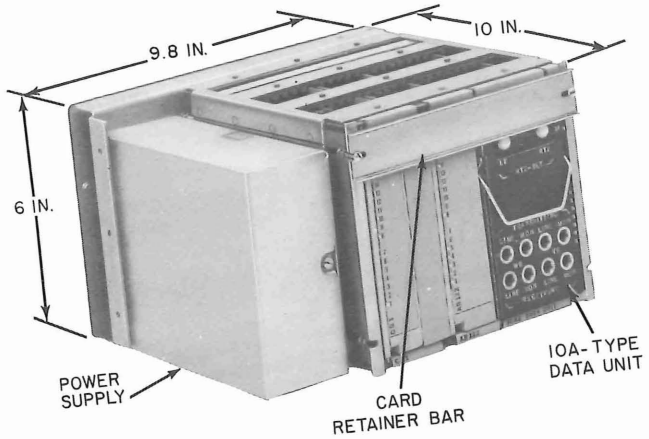


Fig. 6—Data Auxiliary Set 806B-Type—Front View

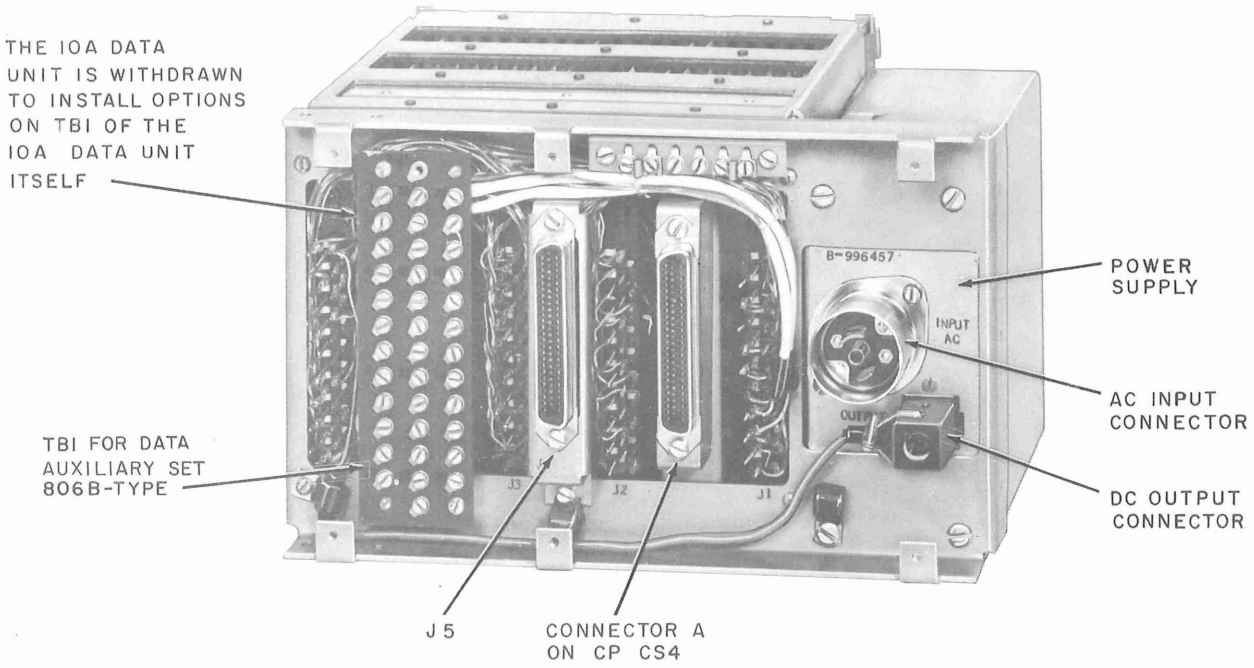


Fig. 7—Data Auxiliary Set 806B7—Rear View

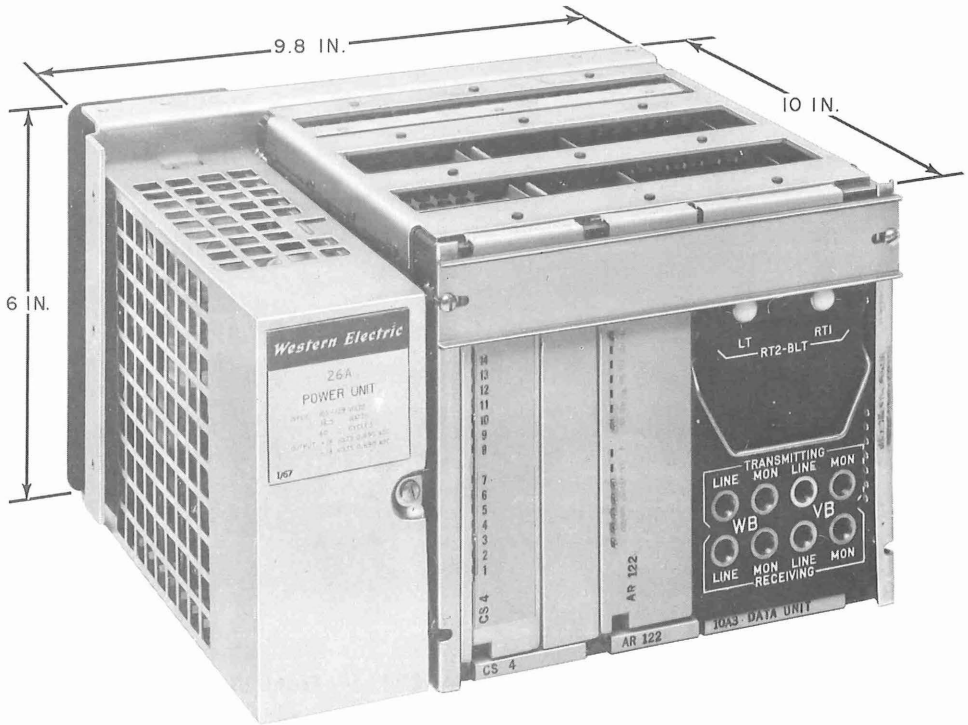


Fig. 8—Data Auxiliary Set 806D1—Front View

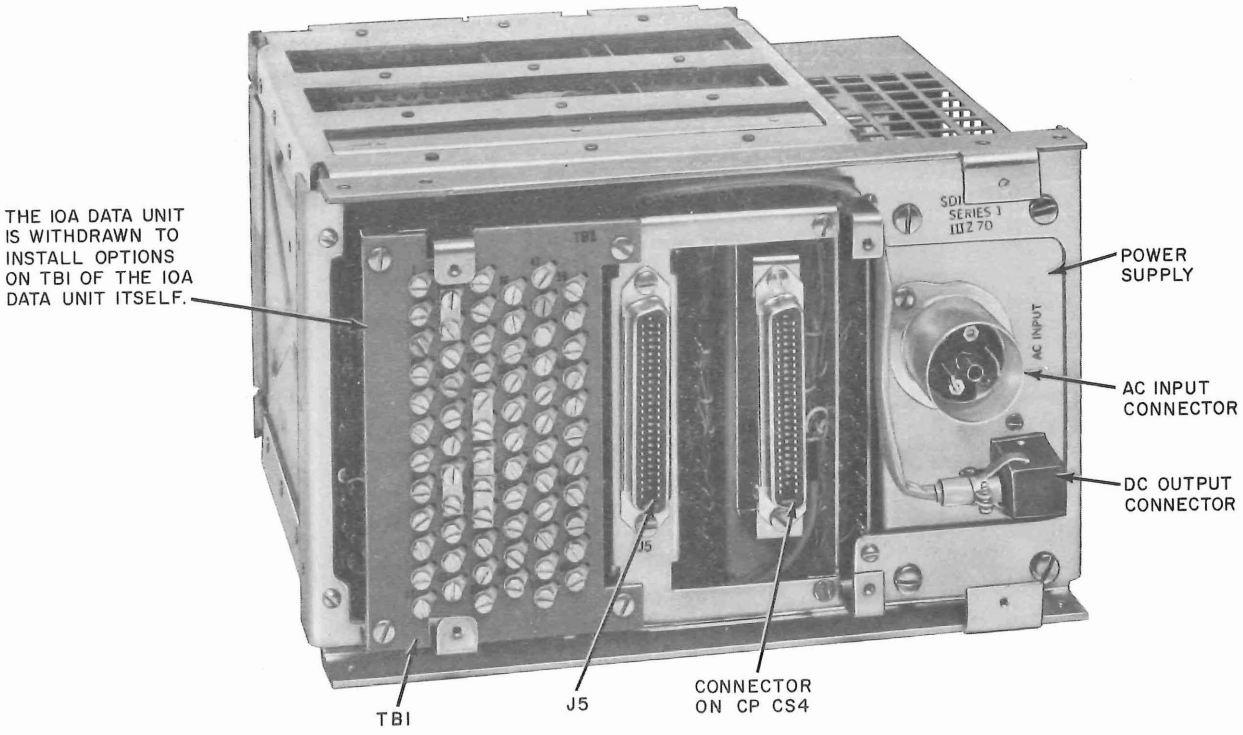


Fig. 9—Data Auxiliary Set 806D1—Rear View

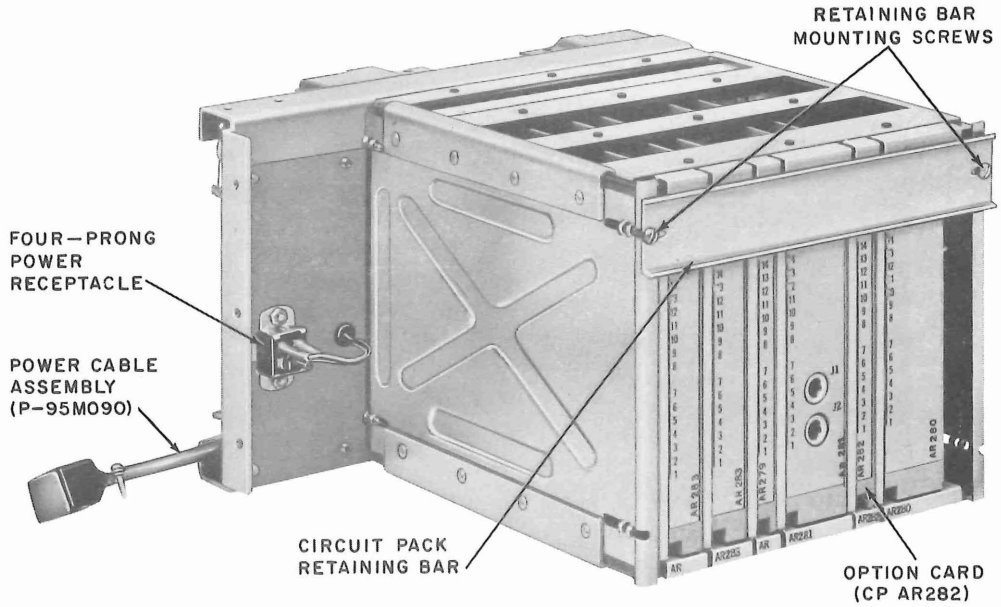


Fig. 10—Data Auxiliary Set 824A1—Front View

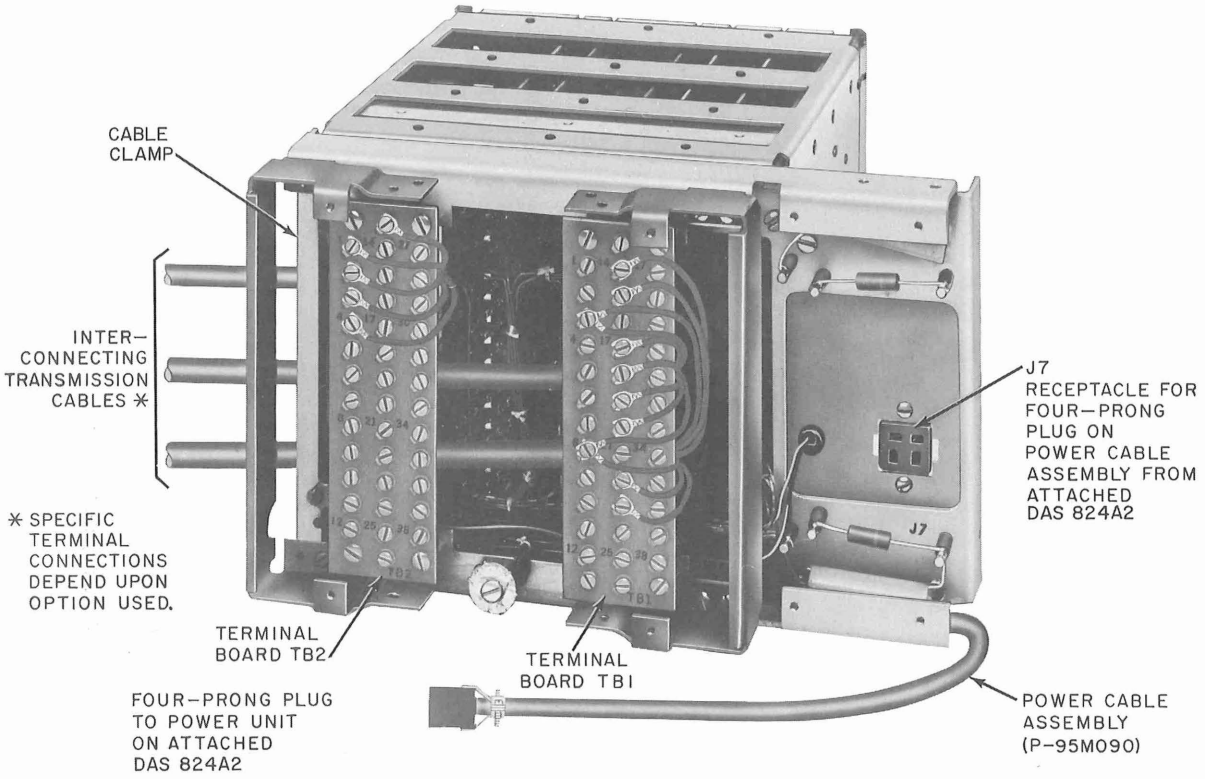


Fig. 11—Data Auxiliary Set 824A1—Rear View (Cover Removed)

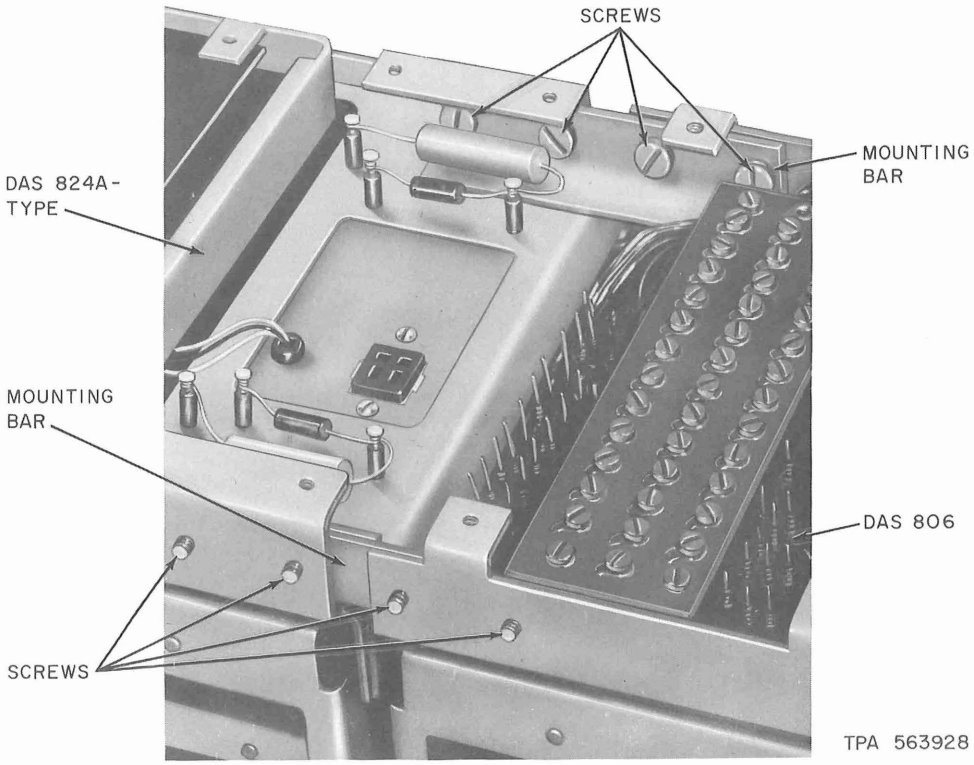


Fig. 12—Assembly of Data Auxiliary Set 824A1 and Data Auxiliary Set 806B7 or 806D1

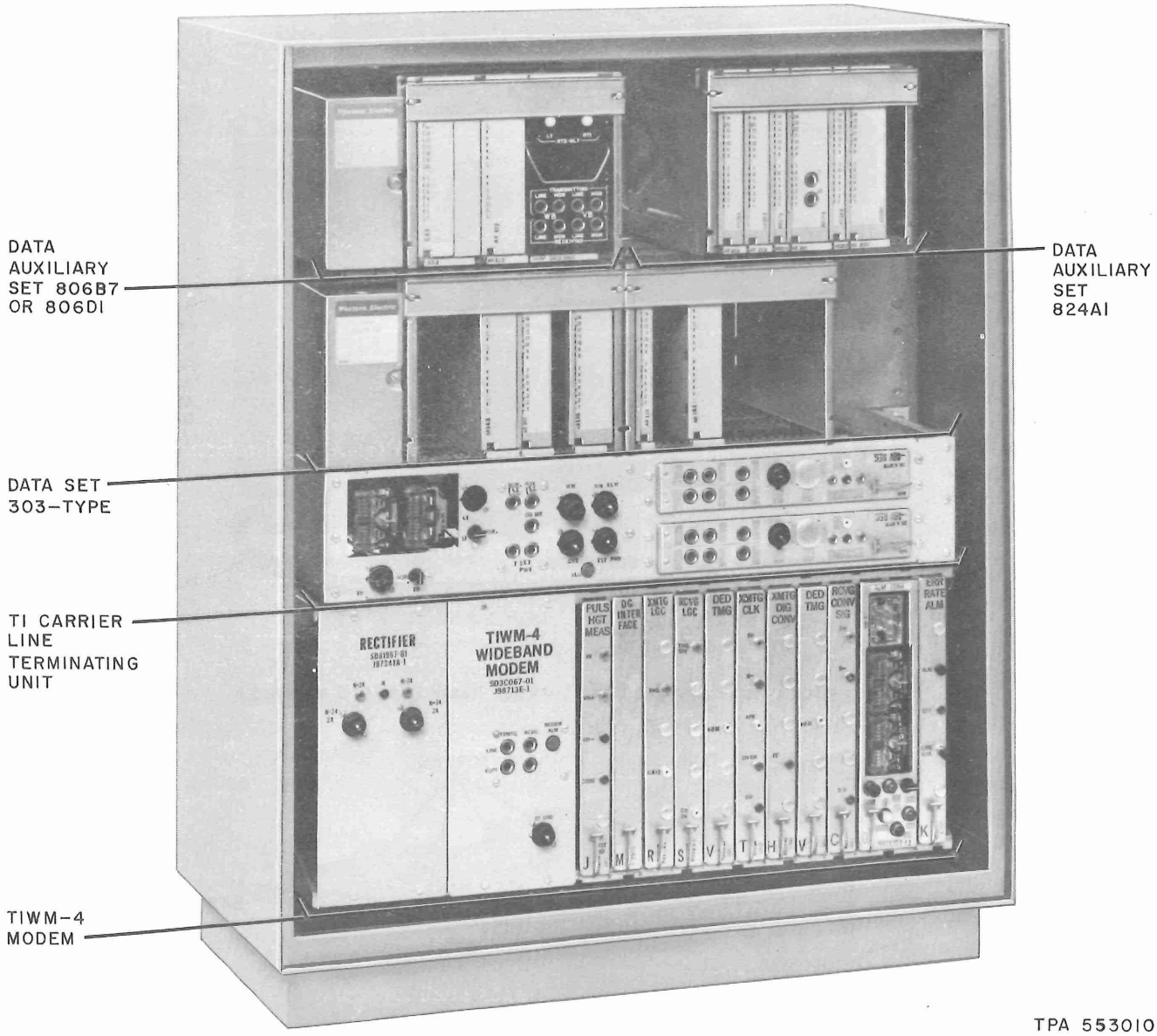
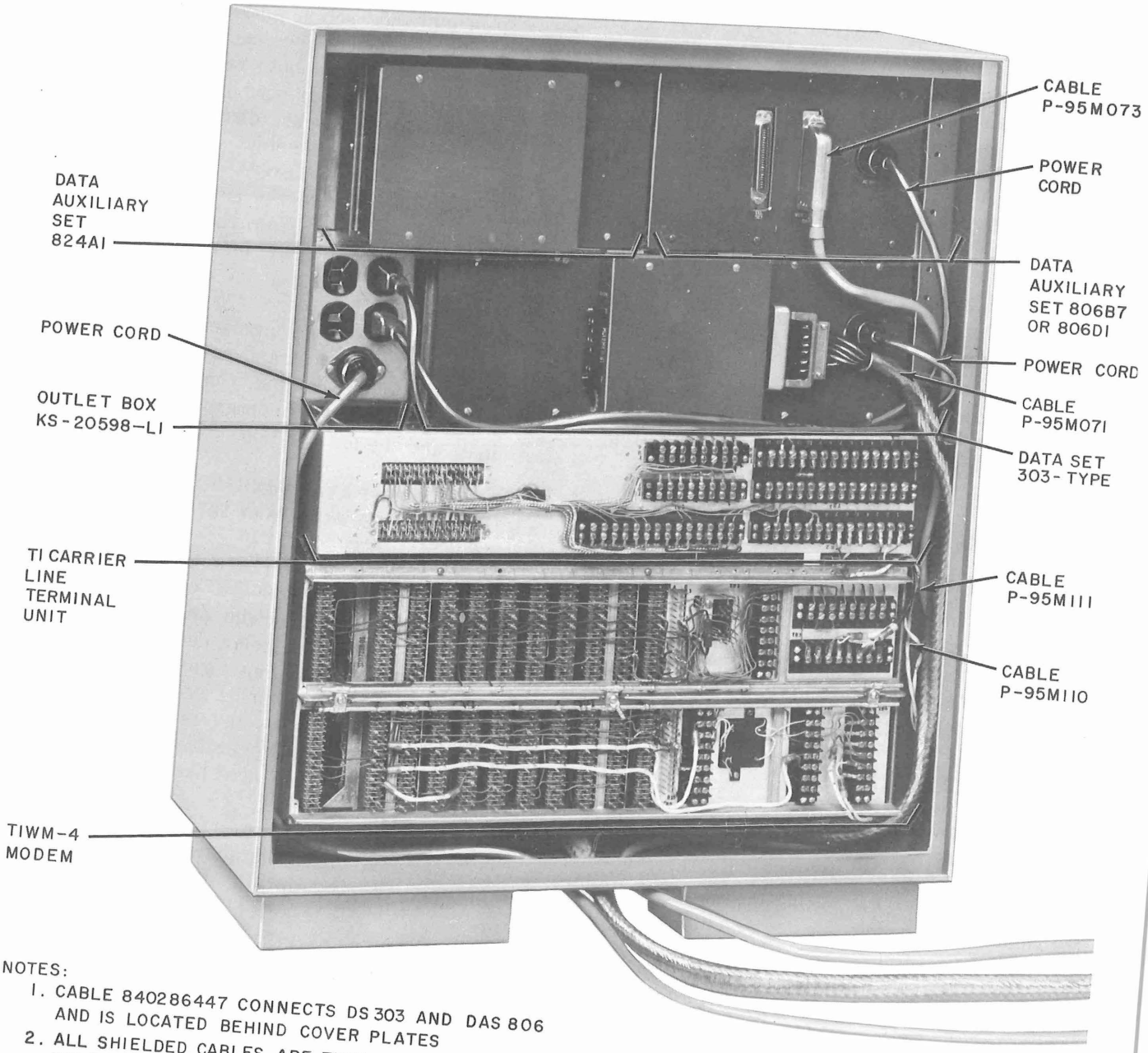


Fig. 13—DC-Coupled Balanced Line Signal Secure Speech Wideband Data Station—Front View, Cover Removed



NOTES:
1. CABLE 840286447 CONNECTS DS 303 AND DAS 806 AND IS LOCATED BEHIND COVER PLATES
2. ALL SHIELDED CABLES ARE TYPE 76IA OR EQUIVALENT UNLESS OTHERWISE SPECIFIED.

TPA 553011

Fig. 14—DC-Coupled Balanced Line Signal Secure Speech Wideband Data Station—Rear View, Cover Removed

2.15 The data sets, data auxiliary sets, and coded equipment in the station derive their ac power from a 590B panel mounted in the bottom of the cabinet or from a KS-20598-L1 outlet box mounted at the left side of DS 303-type, depending upon the equipment arrangement. The panel and outlet box derive their power from the ac service outlet. The power panel or outlet box can be used with the KS-20018 type cabinets or on relay racks. The panel is fastened to the mounting strips located on the sides of the cabinet by four bolts which screw into prethreaded holes with two on each side. Panel 590B may also be used on 23-inch relay racks. For 19-inch racks, a 591A panel is used. The KS-20598-L1 outlet box must be used when a T1WM-4 and T1 carrier LTU are part of the station and are mounted in the KS-20018-L7 cabinet. Outlet box KS-20598-L1 is mounted on the 87-type bracket.

2.16 Power is supplied to DAS 824A1 by the 26A power unit which is part of DAS 806B7 or 806D1. The factory-installed power cable assembly (P-95M090), which is part of DAS 824A1, provides the connection between DAS 824A1 and the dc output connector of the 26A power unit on the DAS 806B7 or 806D1. The 4-prong power receptable (J7) located on the right rear apron of DAS 824A1 provides access for the power cable from the adjacent DAS 806B7 or 806D1 (Fig. 15).

2.17 The power outlet should be equipped with a 3-wire, U-ground duplex receptacle that is UL approved and rated at 60 Hz, 117 volts ac at 15 amperes. This outlet is not to be under the control of a switch.

3. SIGNAL CONNECTIONS AND OPTIONS

3.01 Part 3 of this section will describe the signal connections and options for the secure speech station using DS 303 for both restored polar line signals and dc-coupled balanced line signals. The power cable connections are discussed under the part heading Physical Assembly.

3.02 All connections to the components in the station are made from the rear. Options wired into the sets are made on an option card or on terminal boards located at the rear of the sets.

3.03 To minimize signal interference, cable runs with other services and power cables should be avoided. Shielding continuity must be maintained in cabling between the underground or extension terminals and the data station.

DATA SET 303, DATA AUXILIARY SET 806B7 OR 806D1, AND DATA AUXILIARY SET 824A1

3.04 The chassis of Data Set 303-type is factory-wired with ZK wiring (9A3 data mounting) as standard. The ZK wiring provides connections for restored polar, dc-coupled balanced, and PICTUREPHONE line signals. The ZD and ZC wiring are Manufacture Discontinued with the ZC wiring applicable to only restored polar line signals and ZD wiring applicable to both restored polar and dc-coupled balanced line signals.

3.05 Location of the interface connectors and terminal blocks is shown in Fig. 5 for DS 303-type. Wiring options for DS 303-type are

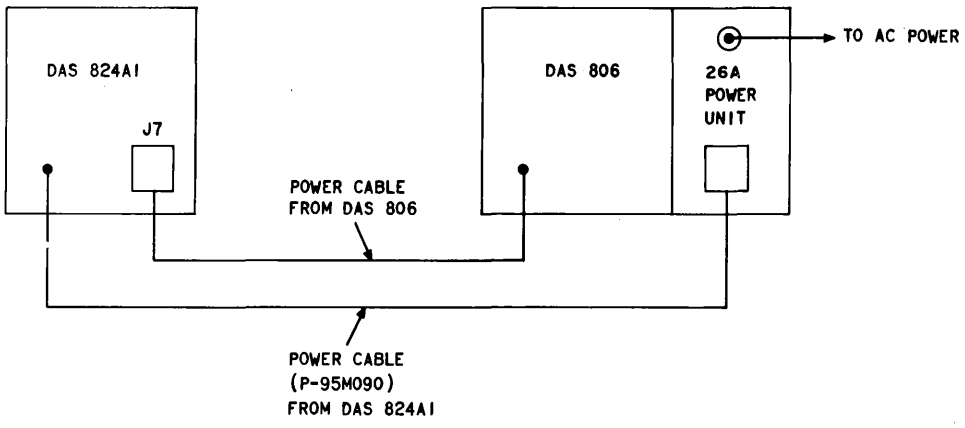


Fig. 15—Power Cable Connection Between Data Auxiliary Set 824A1 and Data Auxiliary Set 806B7 or 806D1

found in Table B and, if more information is required, refer to Section 593-800-101.

3.06 Options wired into DS 303-type and associated apparatus should be recorded on the label placed in the data station cabinet. If circuit packs are changed, this should be noted. Such notations will aid in identifying options and changes on subsequent repair visits.

3.07 After all terminal board and power cable connections have been made, replace the rear covers and secure with the screws supplied.

3.08 A cable (840286447), furnished with DS 303 for signals, is required to connect the DS 303 to DAS 806B7 or 806D1. A coax cable, P-95M071 (ordered separately), provides the high-speed data input connection to the DS 303-type at the synchronous jack connector from the DAS 824A1. A preformed cable, P-95M073 (ordered separately), provides the 4-wire voice circuit and RT2B connection between the DAS 824A1 (data recognizer) and the DAS 806B7 or 806D1. Another preformed cable, P-95M072 (ordered separately), provides the 4-wire VB-WB circuit and terminates on a 1044A connecting block as a demarcation point for the customer. All shielded cabling not part of a coded cable shall be 761A or equivalent. All cables should be located and dressed to the sides of the cabinet near the mounting strip.

3.09 DAS 806B7 and DAS 806D1 provide terminal board(s) and connections at the rear. The options pertaining to the 10A2 Data Unit used in the DAS 806B7 are made directly on the 10A2 Data Unit and not on the DAS 806B7 chassis. If the DAS 806B7 is equipped with a 10A3 Data Unit, the B option must be installed on terminal board 1 (TB1) of the 10A3 Data Unit. Table C shows the options for the line and test circuit equipment.

3.10 All connections to DAS 824A1 are made at the rear. Access to the customer's interface cables is made through one of two rectangular access ports in the front and rear center of the base of the cabinet. Interface cables should be dressed neatly up the rear of the cabinet. The customer-provided high-speed data cable is connected to the terminal boards (TB1 and TB2). Specific terminal connections depend on the option installed on circuit pack AR282 (Fig. 16). Each option is assigned a letter (V, W, X, Y, or Z) designated for reference purposes and each results in a different station arrangement.

Strapping Procedure

3.11 ***To Remove the Option Card:***

(a) Remove the circuit pack retaining bar by unscrewing the two mounting screws which fasten it to the front of the unit (Fig. 10). The retaining bar has notches at its ends for the purpose of removing circuit packs.

(b) Pull out the option card (CP AR282).

(c) "Set" all strapping clips necessary for the desired option. Refer to the appropriate title for the option strapping in Table D and block wiring diagram.

TABLE B

OPTIONS FOR DATA SET 303-TYPE

WIRING OPTIONS	FEATURES	TERMINAL BLOCK CONNECTIONS (Note 1)	
		TB1	TB2
Z	Internal Transmitter Clock	—	10-11
J	Sync Logic Normal	4-13	—
Q	Free-Running Scrambler	17-19	—
V (Note 2)	No VSB (no DAS 809B1)	25-26 28-29	—

Note 1: See Fig. 5 for option terminal boards on DS 303-type.
Note 2: Option V not required on DC-Coupled Line Signal DS 303 codes.

TABLE C

OPTIONS FOR LINE AND TEST CIRCUIT EQUIPMENT

WIRING OPTIONS	FEATURES	CONNECTIONS		
		DAS 806B7 OR 806D1 (NOTE 1) TB1	10A-TYPE DATA UNIT TB1	COORDINATION CHANNEL ADAPTER UNIT CP CS3 (IN DAS 806B7) CP CS4 (IN DAS 806D1)
G	Connects voice transmit pair 4-wire to voiceband data connector	—	—	6-7 8-9
V	For 4-wire voice circuit. Factory installed.	31-32	1-2 4-5 9-10 12-13	—
Z	Power for remote test when DAS 804A5 is not provided	19-20	—	—
X 0 dB	Wideband transmit line pad. Factory-installed plug-in.	—	—	—
S (Note 2)	DTR signal provided by customer's data terminal. Factory installed.	28-29	—	—
J (Note 2)	Answer-back tone and data path continuity when no reverse channel is provided. Factory installed.	30-31-32	—	—
B (Note 3)	WB line circuit through test relay contacts. Factory installed.	—	22-23 25-26 28-29 31-32	—

Note 1: See Fig. 7 and 9 for location of terminal boards.

Note 2: Options S and J are not required; however, they are factory-installed.

Note 3: Wired only in 10A3 Data Unit which is part of DAS 806D1.

3.12 ***To Install a Strap:***

(a) Loosen each screw on the two terminals that are to be strapped together.

(b) Slide the slotted end of the clip under one screwhead and the other end of the clip under the remaining screwhead.

(c) Tighten both screws.

3.13 When all straps necessary for the desired option have been installed, carefully slide the option card back into the set and fasten the circuit pack retaining bar to the unit with the retaining bar mounting screws.

3.14 The block wiring diagrams between DS 303-type and DAS 806B7 or 806D1 are shown in Fig. 17 and 18, respectively. One of these diagrams, along with one of the station option diagrams of DAS 824A1, will make up a wideband data station for restored polar line signals.

A. Four-Wire Voice Frequency—Wideband Circuit to Eight-Wire Line (Option Z)

3.15 The Z option type of station arrangement provides an interface between the customer's 4-wire facility and the Bell System 8-wire facility. Table D provides the strapping option on CP AR282 and a block wiring diagram is shown in Fig. 19 which is connected to either Fig. 17 or 18, depending on the DAS 806B7 or 806D1 used.

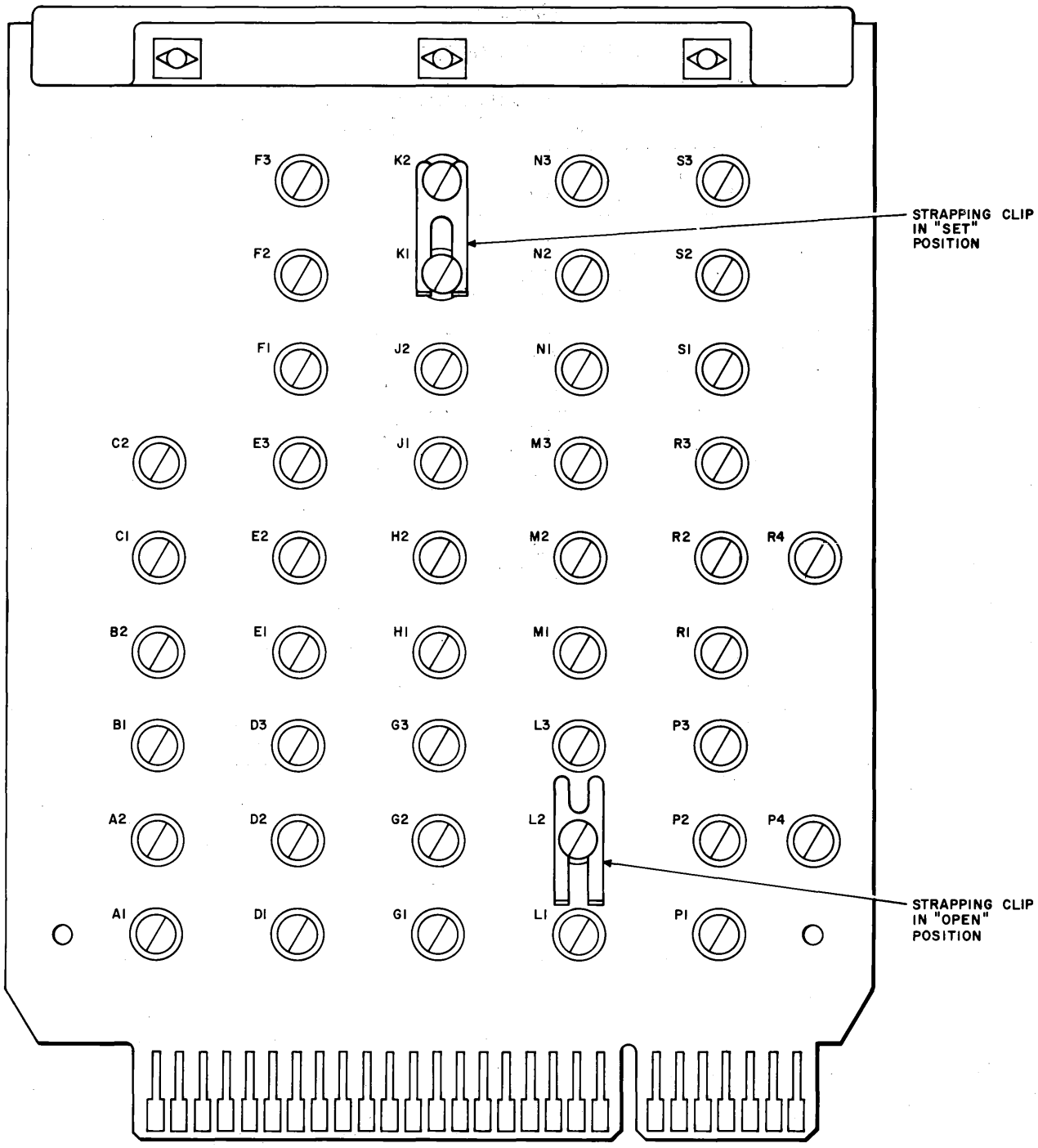


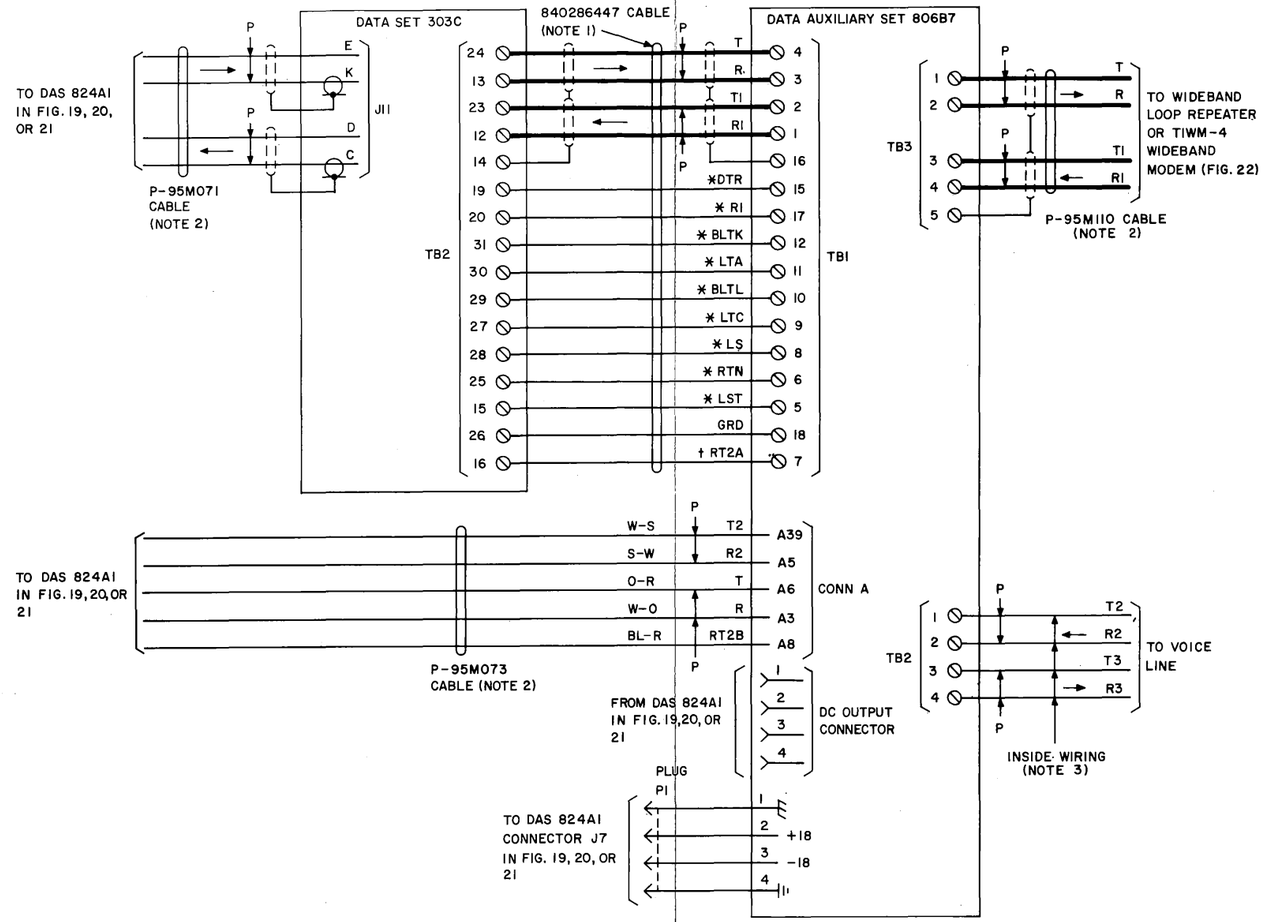
Fig. 16—Data Auxiliary Set 824A1 Option Card (CP AR282) With Strapping Clip Positions Shown

TABLE D

DAS 824A-TYPE OPTIONS

STRAP TERMINAL	TO TERMINAL FOR (Note 1)			
	OPTION Z	OPTION Y	OPTION W	OPTION V (Note 2)
(CP AR282) A1	A2	A2	A2	A2
B1	B2	B2	B2	B2
D1	D2	D2	—	D2
D2	—	—	D3	—
E2	E3	E3	E3	E3
F1	F2	F2	F2	F2
G1	G2	G2	G2	G2
H1	—	H2	H2(Note 3)	—
J1	—	J2	J2(Note 3)	—
L1	L2	L2	L2	—
M1	M2	M2	—	M2
M2	—	—	M3	—
N1	N2	N2	N2	N2
P1	P2	P2	P2	—
P2	—	—	—	P4
R1	R2	R2	R2	—
R2	—	—	—	R4
S1	S2	S2	S2	—
(TB1)	—	—	—	(TB1)
30	—	—	—	31
32	—	—	—	33
35	—	—	—	36
37				38

Note 1: Before strapping option, "open" *all* previously installed clips.
Note 2: The terminals on TB1 must be strapped in addition to options on AR282 in order to complete the relay contact paths.
Note 3: To disable the "fooler," these clips must remain "open."



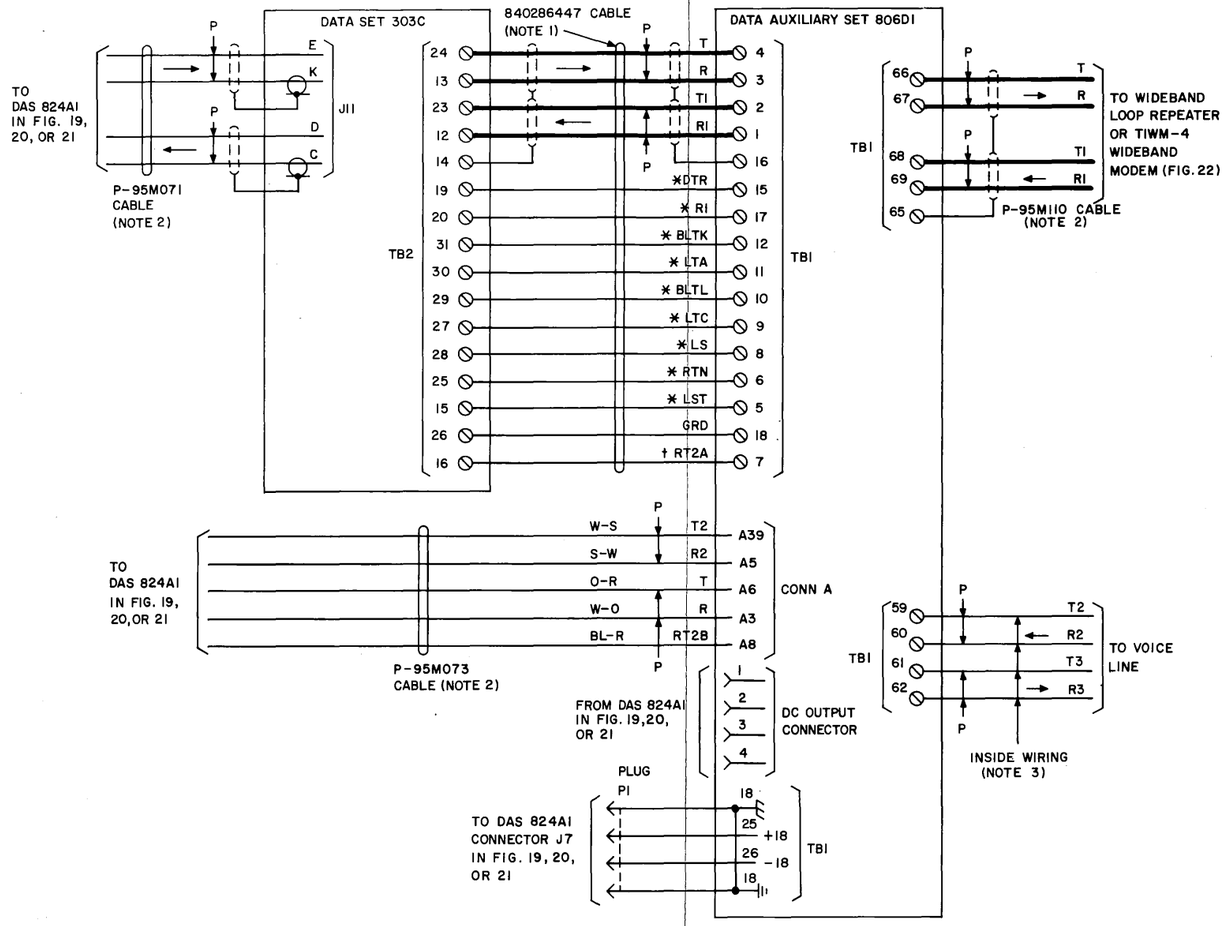
NOTES:

1. CABLE 840286447 HAS TWO GROUPS OF TERMINAL LUGS EACH MOUNTED IN A PLASTIC STRIP. THESE GROUPS ARE TERMINALS 23 THROUGH 31 GOING TO TB2 ON THE 303 AND TERMINALS 1 THROUGH 12 GOING TO TBI ON THE 806B7. THESE PLASTIC STRIPS SECURE THE TERMINALS IN PLACE AS A UNIT. ALL OTHER TERMINAL LUGS ARE SECURED INDEPENDENTLY.
2. CABLES P-95M07I, P-95M073, AND P-95MIIO MUST BE ORDERED SEPARATELY.
3. ALL SHIELDED CABLES ARE TYPE 761A OR EQUIVALENT UNLESS OTHERWISE SPECIFIED.

* THESE LEADS ARE NOT FUNCTIONAL.
† TAPE AND STORE.

TPA 570232

Fig. 17—Block Wiring Diagram for Data Set 303-Type and Data Auxiliary Set 806B7



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2. CABLES P-95M071, P-95M073, AND P-95M110 MUST BE ORDERED SEPARATELY.
3. ALL SHIELDED CABLES ARE TYPE 761A OR EQUIVALENT UNLESS OTHERWISE SPECIFIED.

* THESE LEADS ARE NOT FUNCTIONAL.
† TAPE AND STORE.

TPA 570233

Fig. 18—Block Wiring Diagram for Data Set 303-Type and Data Auxiliary Set 806D1

B. Four-Wire Voice Frequency—Wideband Circuit to Eight-Wire Line With 50-KBPS Oscillator (Option Y)

3.16 The Y option provides an interface between the customer's 4-wire facility and the Bell System 8-wire facility while simulating a digital response necessary to keep certain customer equipment from timing-out until the far-end equipment begins transmitting. The circuit that simulates the data response is called a "fooler." Table D shows the strapping for option Y on circuit pack AR282 and the block wiring diagram is shown in Fig. 19.

C. Four-Wire Voice Frequency—Wideband Circuit to Four-Wire Voice Frequency—Wideband Circuit With Translator (Option X)

3.17 The X option is for connection with COAM equipment to COAM equipment (4-wire to 4-wire) either directly or over Bell System facilities. Since the X option does not involve Bell System equipment other than DAS 824A1, the X option is not described in this practice. Refer to Section 598-060-100, -200, and -500 for more information.

D. Four-Wire Voice Frequency—Wideband Circuit to Eight-Wire Line With Translator (Option W)

3.18 The W option provides the basic 4-wire to 8-wire interface conversion with the addition of a translator in the wideband path. Voice-frequency signals are switched to the Bell System voice channel, and digital signals are diverted through the COAM equipment. A simulated digital response is provided by the "fooler." Table D provides the strapping for option W on circuit pack AR282. The block wiring diagram is shown in Fig. 20 for the W option.

E. Eight-Wire Voice Frequency—Wideband Circuit to Eight-Wire Line (Option V)

3.19 The V option provides an interface between the customer's 8-wire and the Bell System 8-wire facility. The V option also provides the customer with a contact closure when digital signals are being transmitted and with another contact closure when digital signals are being received. These contact closures are necessary to activate switching on the customer's side of the interface when a signal format conversion is made (diphase to restored polar). The "fooler" is not used in this arrangement. Table D indicates the strapping for option V on circuit pack AR282 and additional strapping required on TB1. The block wiring diagram for option V is shown in Fig. 21.

DATA SET 303, DATA AUXILIARY SET 806B7 OR 806D1, DATA AUXILIARY SET 824A1, T1WM-4 WIDEBAND MODEM, AND T1 CARRIER LINE TERMINATING UNIT

3.20 This wideband data station is similar to restored polar operation but includes a T1WM-4 wideband modem and a T1 carrier line terminating unit. A block wiring diagram of the T1WM-4 and T1 carrier LTU is shown in Fig. 22 and is used in addition to the other discussed block wiring diagrams for dc-coupled line signal operation.

3.21 The DS 303 must be a properly coded dc-coupled balanced line signal type. The circuit packs assembled should be verified to ensure the proper position for the individual code of the data set. Circuit pack AR361 should be inspected to verify that the strapping shown in Table E has been incorporated for the dc-coupled line signal and not for PICTUREPHONE line signal.

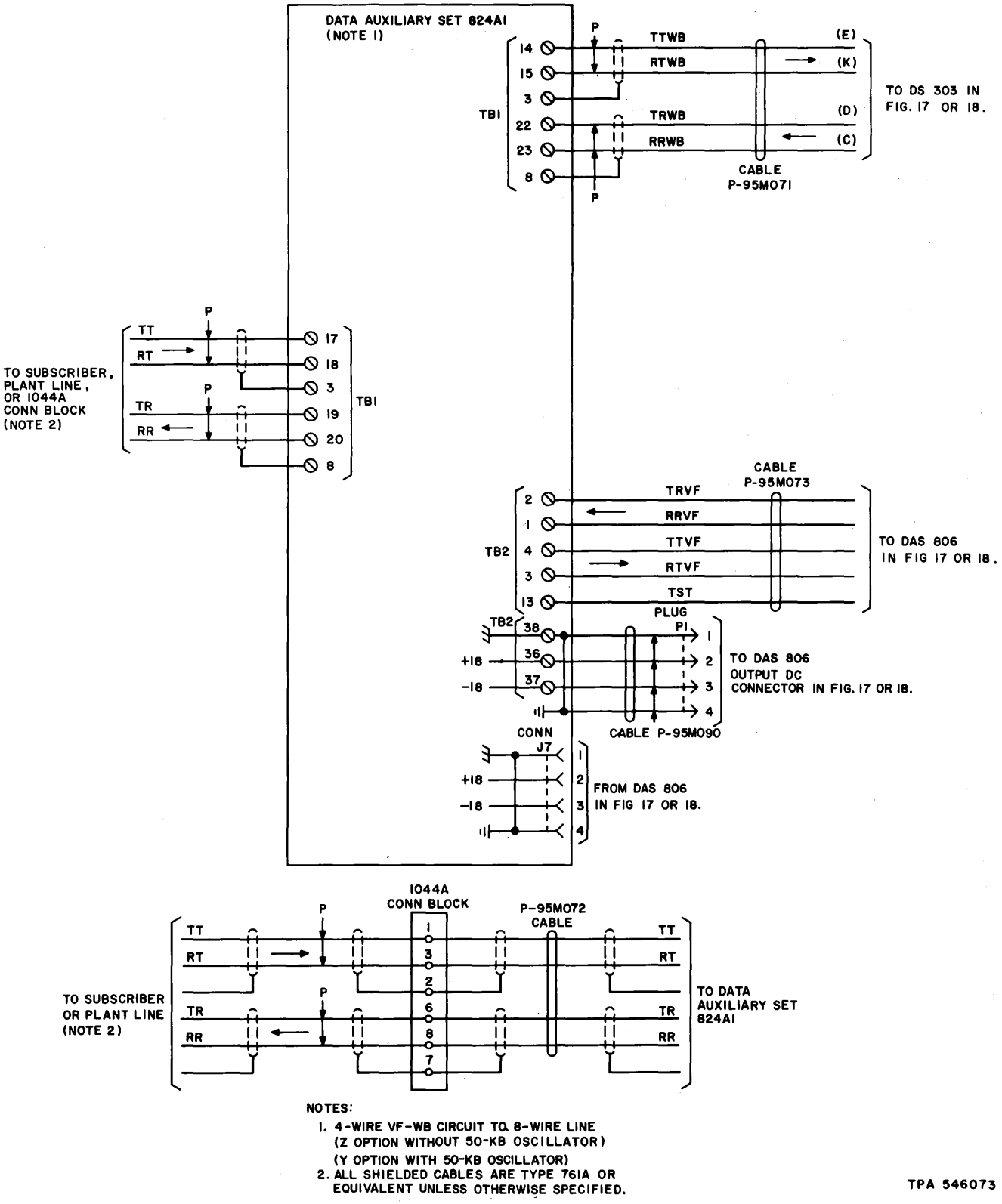
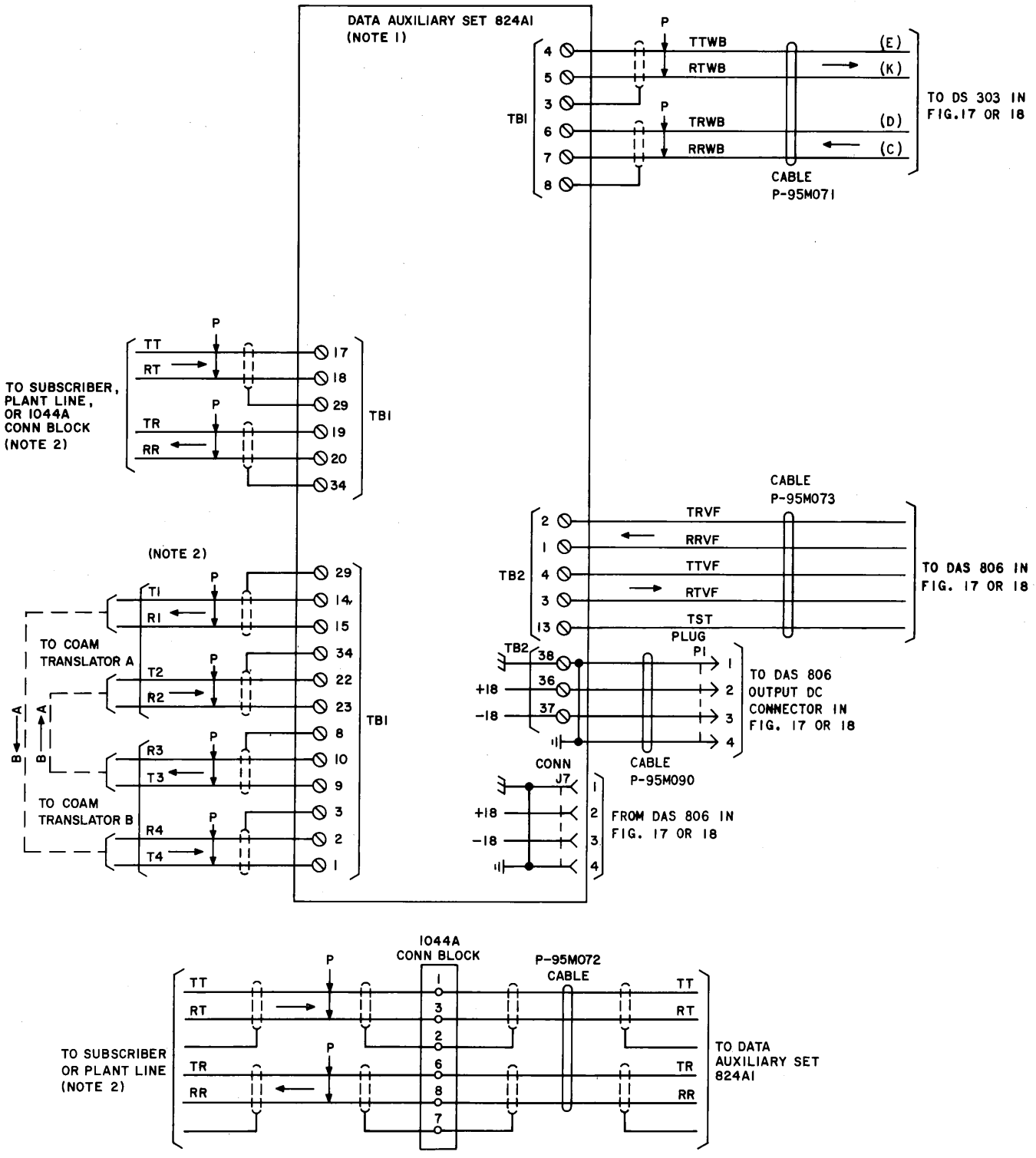


Fig. 19—Block Wiring Diagram of Data Auxiliary Set 824A1 for Z and Y Options



NOTES:
1. 4-WIRE VF-WB CIRCUIT TO 8-WIRE LINE WITH TRANSLATOR (W OPTION).
2. ALL SHIELDED CABLES ARE TYPE 761A OR EQUIVALENT UNLESS OTHERWISE SPECIFIED.

TPA 546073

Fig. 20—Block Wiring Diagram of Data Auxiliary Set 824A1 for W Option

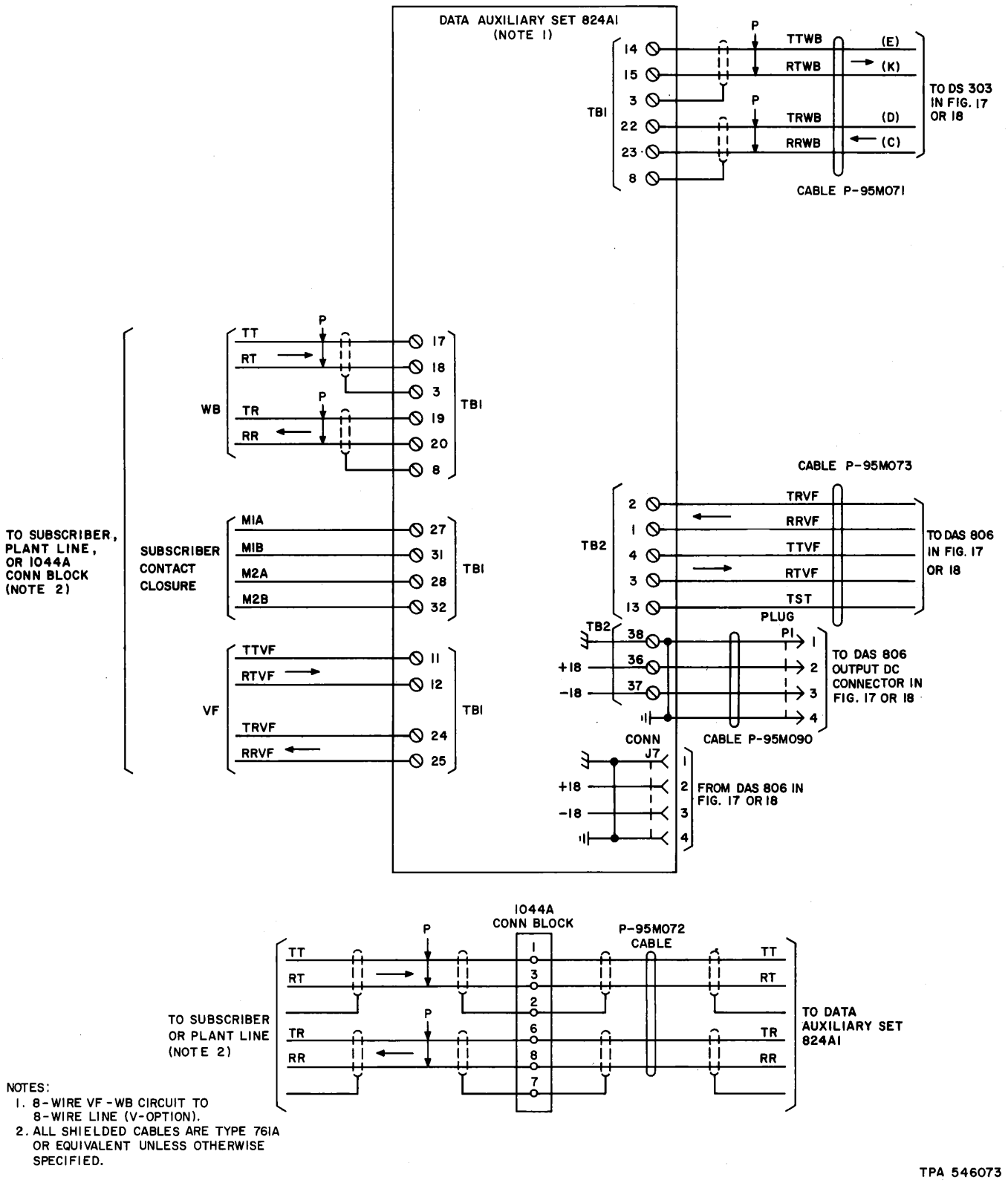
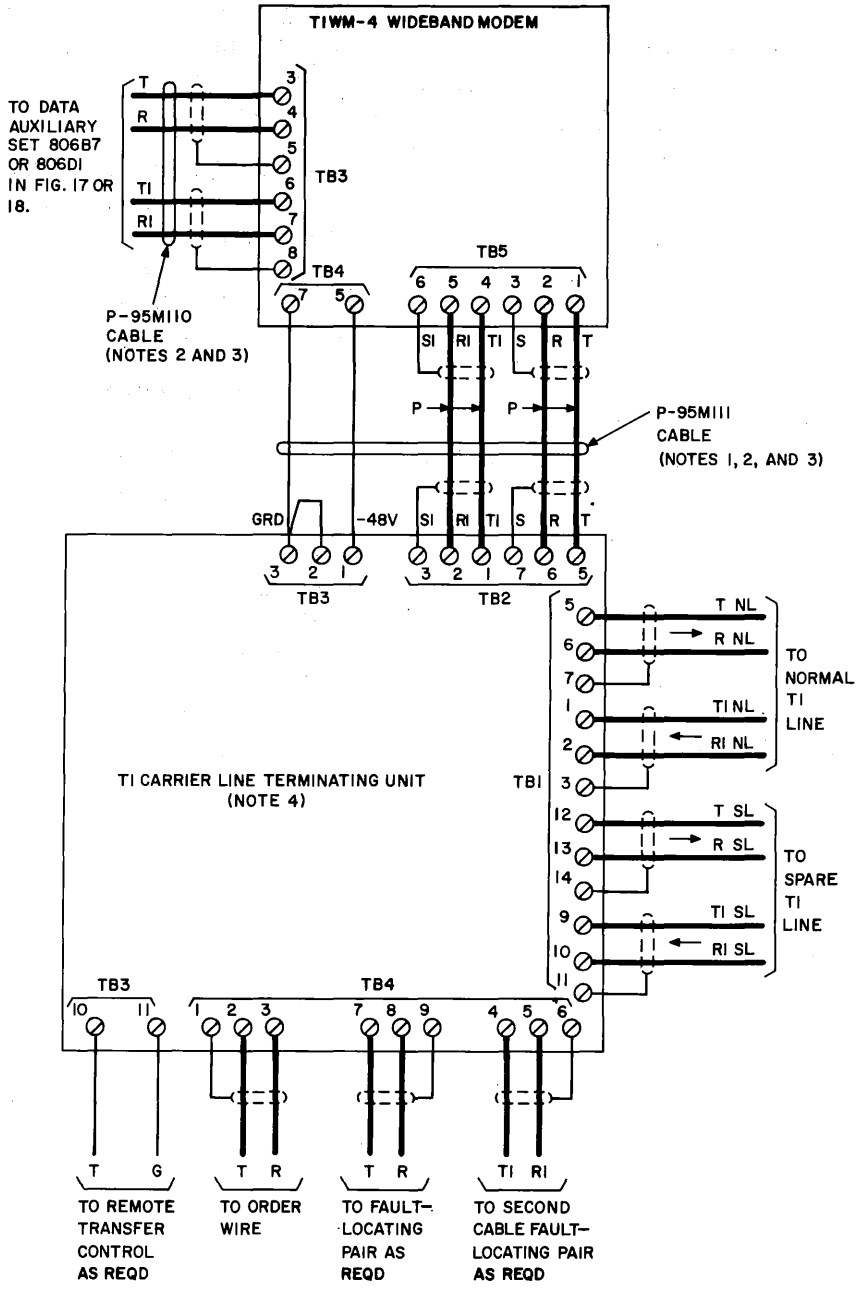


Fig. 21—Block Wiring Diagram of Data Auxiliary Set 824A1 for V Option



NOTES:

1. A P-95M111 CABLE IS REQUIRED WHEN THE T1WM-4 AND LINE TERMINATING UNIT ARE LOCATED IN THE DATA STATION CABINET.
2. CABLES P-95M110 AND P-95M111 MUST BE ORDERED SEPARATELY.
3. WHEN THE T1WM-4 IS MOUNTED IN THE DATA STATION CABINET, A P-95M110 CABLE IS USED. WHEN THE T1WM-4 OR LINE TERMINATING UNIT ARE NOT USED IN A DATA STATION CABINET, 761A CABLE OR EQUIVALENT IS USED.
4. WHEN THE LINE TERMINATING UNIT IS INCLUDED IN THE FAULT-LOCATING PLAN, THE 598-TYPE FILTER SHOULD BE CONNECTED AS SHOWN IN SD-3C089-01.

TPA 570234

Fig. 22—Block Wiring Diagram for T1WM-4 and T1 Carrier LTU

TABLE E

CIRCUIT PACK AR361 STRAPPING

TERMINAL	TO TERMINAL
A1	B1
A2	B2
D1	E1
D2	E2

3.22 All connections between the DS 303-type and the T1WM-4 modem are made in the rear of the equipment. The T1WM-4 may be remotely located up to 1000 feet from DS 303. All cabling and connections will be made as previously shown in Fig. 14. The arrangements may vary according to equipment location and application.

3.23 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 the station arrangement of DS 303-type found in the preceding parts of the section.

3.24 The T1 LTU is required as terminal equipment for a repeatered line of a T1 Carrier System. The T1 LTU may be remotely located up to 750 feet from the T1WM-4. Refer to Section 365-200-103 for the description and operation of the line terminating unit.

4. TEST REQUIREMENTS

4.01 When the installation of the data set and data auxiliary sets is completed, the station should be visually inspected to assure all cables are connected. Then ac power should be supplied and the applicable test of the section entitled Wideband Data Station Using Data Set 303-Type, 50-KBPS Government Secure Speech Service, Test Procedures (593-800-501) should be performed. Afterwards, actual data should be sent and received (dynamic test) over the system.