DATA SET 103A-TYPE

INSTALLATION AND CONNECTIONS

CONTENTS PAGE

1. GENERAL

1.01 This section covers the procedures to be followed for the installation and connections of data set 103A-type, data auxiliary set (DAS) 804B1 and, if provided, DAS 801A-type or 801C-type. automatic calling units (ACUs). Information concerning customer-provided data terminals is not included in this section.

1.02 This section is reissued to include instructions for modifying data set 103A2 to provide originate-only data service similar to that provided by data set 113A-type. Since this reissue is a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 A DAS 804B1 or 567PB-61 telephone set (MD) is required for external control of the data set and to establish the data set transmission path. Information on these sets is contained in Sections 598-031-100 and 502-501-122 respectively.

2. INSTALLATION

2.01 Data set 103A-type (Fig. 1) must be installed in conformance with the section entitled Data Sets and Data Access Arrangements—General Installation and Connection Information (590-010-200).

Do not install data set 103A2 at DATA-PHONE® stations in systems providing communications with 3-row 60-wpm teletypewriter equipment.

2.02 The data set must be located within range of the interface connector cord supplied by the customer. This cord should not exceed 50 feet in length.

Data line must not appear on key telephone systems having "A" lead control such as 1A1 Key Telephone Systems.

2.03 The customer must furnish a 3-wire ac outlet that is not under control of a switch.

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

To prevent damage to transistor circuits, disconnect data set power cords until all connection work is completed or when making any wiring changes.

2.05 When the DAS 801A-type is used, the telephone line must be arranged for ground-start operation. When DAS 801C-type is used, the telephone line must be arranged for TOUCH-TONE® signaling.

3. CONNECTIONS

3.01 Figure 2 shows connections between the data set and 567PB-61 telephone set (MD). See Fig. 3 for connections between data set and DAS 804B1. Connection to DAS 801A-type or 801C-type is made as shown in Fig. 4 or Fig. 5.

These figures show connections made using the D25C-61 cord (MD).

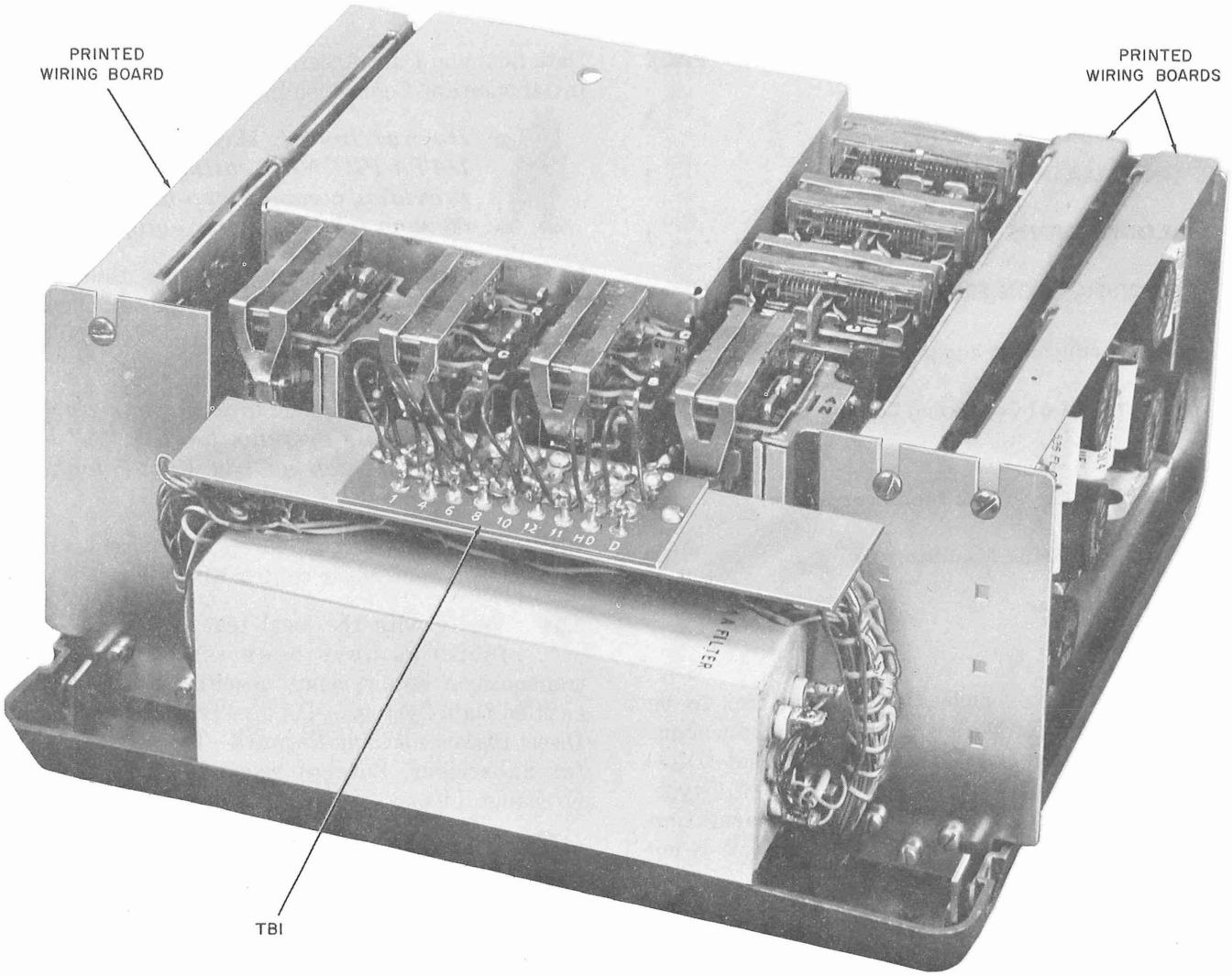
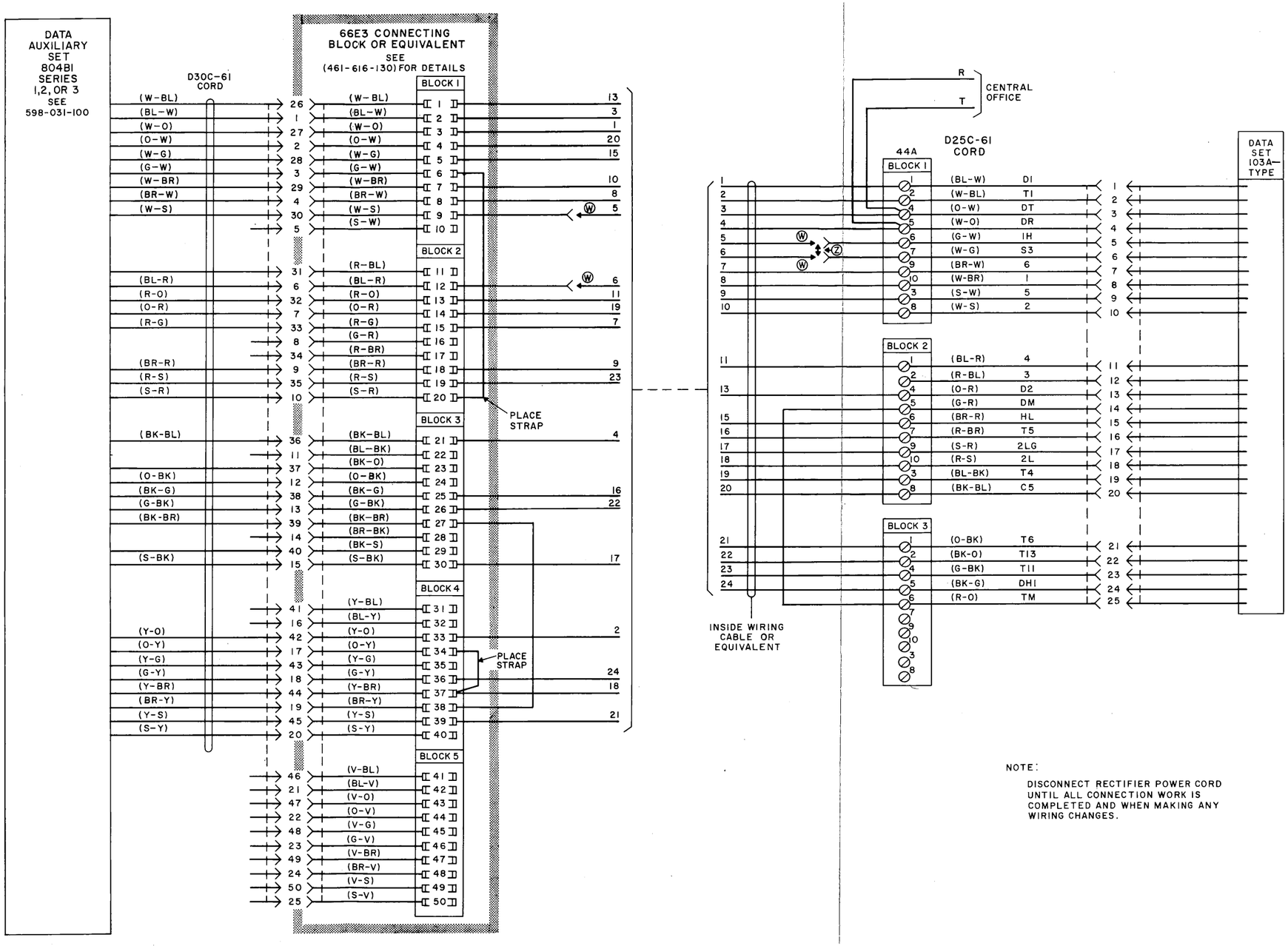


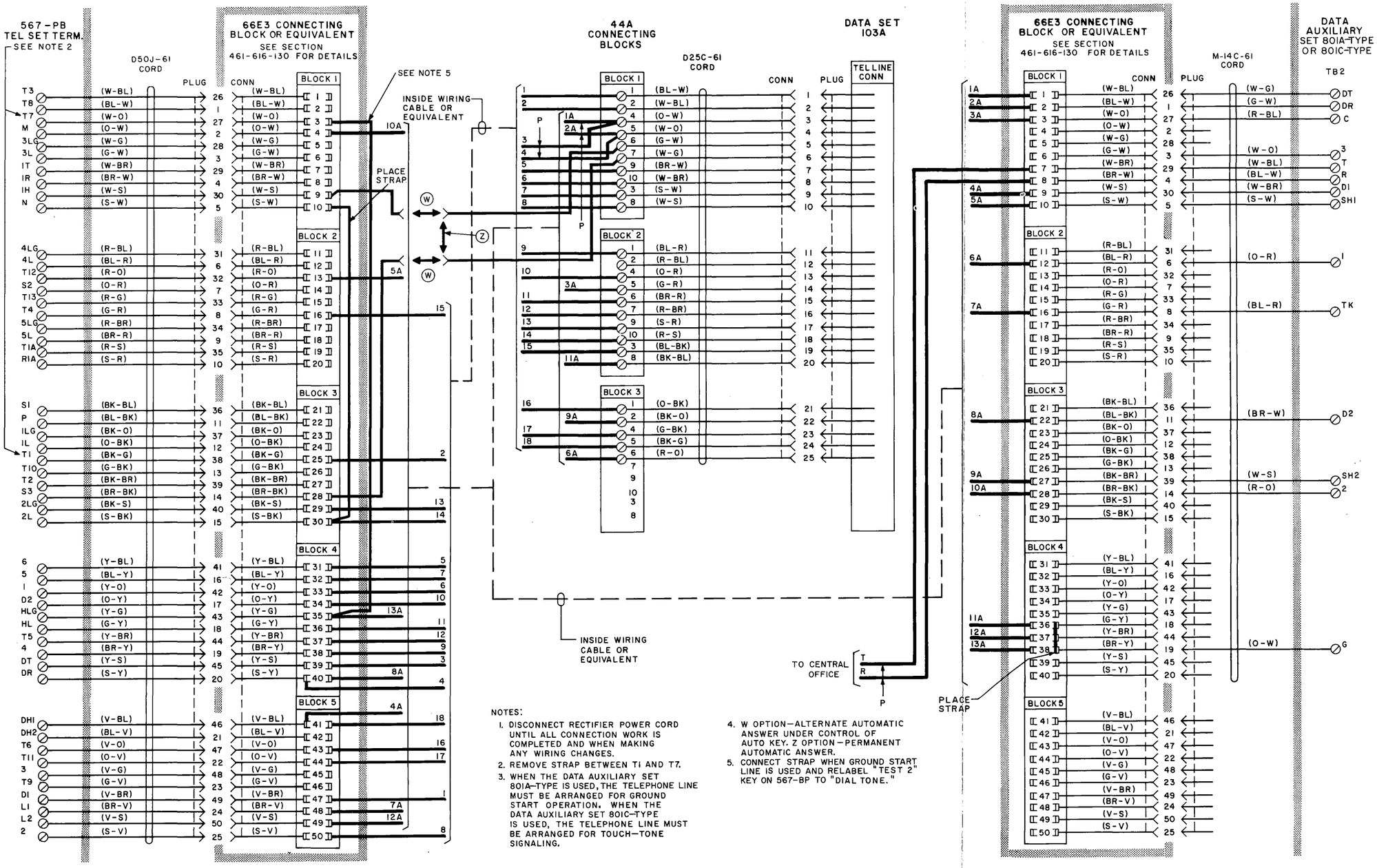
Fig. 1—Data Set 103A-Type—Front View—Cover Removed



NOTE:

DISCONNECT RECTIFIER POWER CORD UNTIL ALL CONNECTION WORK IS COMPLETED AND WHEN MAKING ANY WIRING CHANGES.

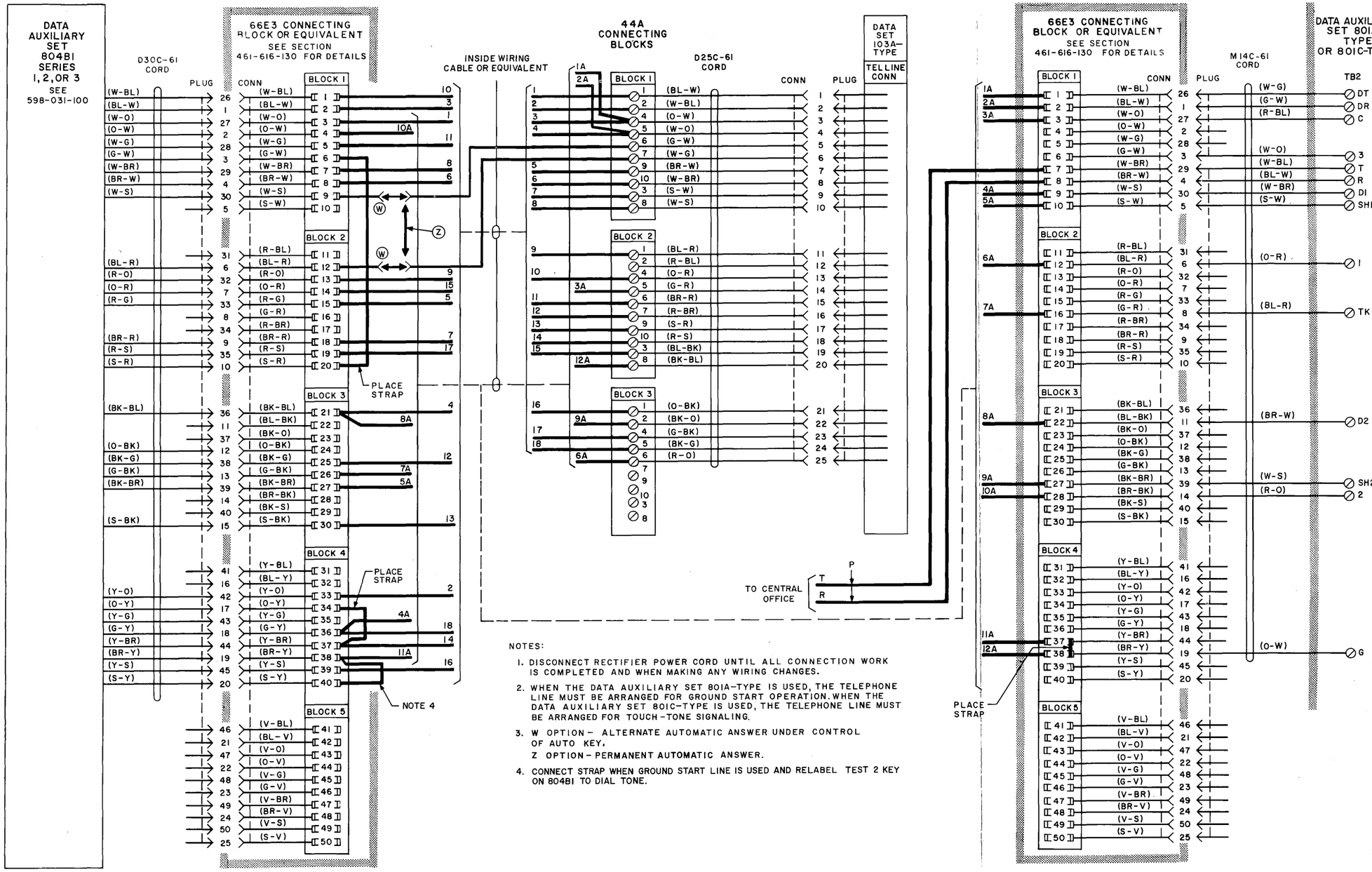
Fig. 3—Data Set 103A-Type—External Connections Between Data Set and Data Auxiliary Set 804B1 Using D25C-61 Cord (MD)



NOTES:

1. DISCONNECT RECTIFIER POWER CORD UNTIL ALL CONNECTION WORK IS COMPLETED AND WHEN MAKING ANY WIRING CHANGES.
2. REMOVE STRAP BETWEEN TI AND T7.
3. WHEN THE DATA AUXILIARY SET 801A-TYPE IS USED, THE TELEPHONE LINE MUST BE ARRANGED FOR GROUND START OPERATION. WHEN THE DATA AUXILIARY SET 801C-TYPE IS USED, THE TELEPHONE LINE MUST BE ARRANGED FOR TOUCH-TONE SIGNALING.
4. W OPTION—ALTERNATE AUTOMATIC ANSWER UNDER CONTROL OF AUTO KEY. Z OPTION—PERMANENT AUTOMATIC ANSWER.
5. CONNECT STRAP WHEN GROUND START LINE IS USED AND RELABEL "TEST 2" KEY ON 567-BP TO "DIAL TONE."

Fig. 4—Interconnections—Data Auxiliary Set 801A-Type 801C-Type, and Data Set 103A-Type Using 567PB Telephone Set (MD) and D25-61 Cord (MD)



NOTES:

1. DISCONNECT RECTIFIER POWER CORD UNTIL ALL CONNECTION WORK IS COMPLETED AND WHEN MAKING ANY WIRING CHANGES.
2. WHEN THE DATA AUXILIARY SET 801A-TYPE IS USED, THE TELEPHONE LINE MUST BE ARRANGED FOR GROUND START OPERATION. WHEN THE DATA AUXILIARY SET 801C-TYPE IS USED, THE TELEPHONE LINE MUST BE ARRANGED FOR TOUCH-TONE SIGNALING.
3. W OPTION – ALTERNATE AUTOMATIC ANSWER UNDER CONTROL OF AUTO KEY,
   Z OPTION – PERMANENT AUTOMATIC ANSWER.
4. CONNECT STRAP WHEN GROUND START LINE IS USED AND RELABEL TEST 2 KEY ON 804B1 TO DIAL TONE.

Fig. 5—Interconnection—Data Auxiliary Set 801A-Type or 801C-Type Used With Data Auxiliary Set 804B1 Using D25C-61 Cord (MD)

3.02 A D35C-61 cord is furnished with the data set. This cord replaces the D25C-61 cord (MD). The physical arrangement using the new type cord is shown in Fig. 6. The details of the connections at the 1044A connecting block differ for the following arrangements:

- Data set 103A-type and DAS 804B1. See Fig. 7 and 8.
- Data set 103A-type, DAS 804B1, and DAS 801A-type; data set 103A-type, DAS 804B1, and DAS 801C (ground start). See Fig. 7 and 9.
- Data set 103A-type, DAS 804B1, and DAS 801C (loop start). See Fig. 7 and 10.
- Modified data set 103A2 and DAS 804B1. See Fig. 7 and 11.

3.03 Options shown in Tables A and B or C should be specified on the service order. The data set should be arranged accordingly.

3.04 The data set is factory-strapped to provide:

- Initiate Disconnect
- Respond to Disconnect
- Mark-Hold.

3.05 The data set is factory-strapped to provide a transmission level of 0 dBm on both channels. Levels may be changed in 2-dB steps by rearranging spade-tipped straps on TB1. The transmit levels to be provided at time of installation should be specified on the service order. Using Table D, restrap TB1 accordingly. If the service order does not specify the transmit levels to be used, adjust for equal transmit levels on both channels as follows:

(a) Place a call to the 1000-Hz, 1-mW terminal in the serving central office.

(b) Using a transmission measuring set, measure the level of the received tone (dB loss).

(c) Subtract 12 dB from the measured loop loss. The number obtained equals the transmit level to be used. Locate in Table D the entry which provides for that transmit level on both frequency channels. Restrap TB1 per that entry.

Example: If the loop loss at 1000 Hz is 6 dB:

Data set transmit level = 6 dB −12 dBm

= −6 dBm

The desired transmit level equals −6 dBm for both f_1 and f_2.

Strap TB1 as follows: (1-11), (2-12), (3-4), (5-6), (7-8), (9-10).

3.06 The DAS 804B1 or 567PB-61 telephone set (MD) associated with the data set is factory-wired for voice communication.

3.07 Three answering options are available as shown in Table B or C.

4. MODIFICATION PROCEDURES

Note: This modification is to be performed on data set 103A2 and DAS 804B1 so that the data set may be used to provide originate-only data service similar to that provided by data set 113A-type.

A. Modification Equipment

4.01 The following equipment is required to convert data set 103A2 and associated DAS 804B1.

- One F44542 connecting cord or one M25A-61 connecting cord modified as described in 4.02
- up to four relay blocking wedges
- one control key blocking ring
- two P-43P364 spacers.

B. M25A-61 Connecting Cord Modifications

4.02 The M25A-61 cord, if used in place of the F44542 connecting cord, must be modified at the data terminal end (KS-19087-L2 female connector) in order to simulate the interface of data set 113A-type.

(1) Unscrew and remove the two screws holding the KS-19087-L2 (female) connector.

(2) Remove the vinyl housing from both sides of the KS-19087-L2 connector.

(3) Open leads 4 (W-OR), 5 (G-W), 8 (W-BR), and 22 (BK-BL). Insulate or cut back each lead opened.

(4) Connect terminal 4 to terminal 5.

(5) Replace the vinyl housing on both sides of the KS-19087-L2 connector.

(6) Replace the two screws removed in Step (1) and tighten securely.

(7) Add two P-43P364 spacers to the KS-19087-L2 connector.

C. Data Set 103A2 Modifications

4.03 The data set is equipped with several features that must be disabled in order to provide originate-only data service. Depending upon the option to be installed in the data set, the features and the methods to disable them are as follows:

Option X

(1) Remove data set cover as described in Section 591-014-300.

(2) Insert a KS-16887-L1 wedge into the R relay to hold it in the nonoperated position.

Note: This disables the automatic answer feature and the answer mode of operation of the data set.

(3) Insert a KS-16887-L1 wedge into the MD and CN relays to hold them in the operated position.

Note: This reduces the single frequency guard and connects (CN timer) timing intervals to zero.

(4) Install the Does-Not-Respond-to-Disconnect option by connecting TI to NO on TB1.

(5) Install the Mark-Hold option on TB1 by disconnecting the strap from HD to SH (if connected) and connecting a strap from HD to MH.

(6) Replace the data set cover as described in Section 591-014-300.

Options W or V

(1) Perform the requirements of 4.03 [option X, Steps (1) through (5)].

(2) Insert a KS-16887-L1 wedge into the RR relay to hold it in the operated position.

Note: This disables the data-terminal-ready circuit.

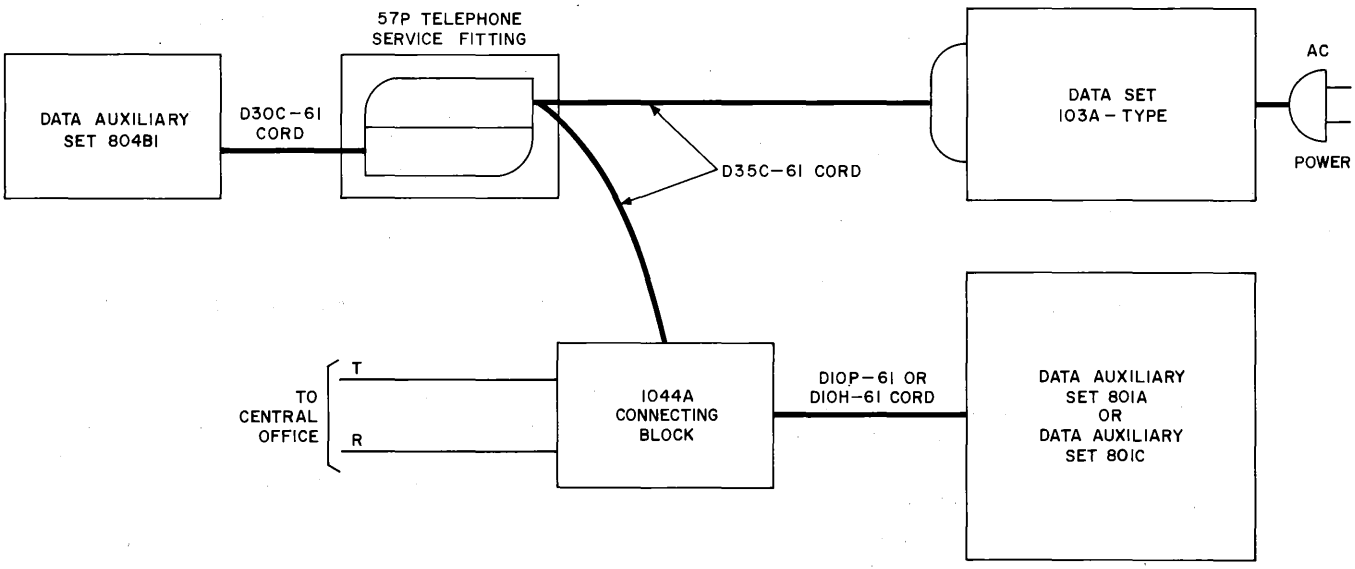


Fig. 6—Physical Arrangement Using D35C-61 Cord

(3) Replace the data set cover as described in Section 591-014-300.

D. DAS 804B1 Modifications

4.04 The DAS 804B1 must be modified as described in (a) or (b) depending upon the series number of the DAS 804B1 being used with the data set.

(a) **DAS 804B1, Series 1 and 2**

Steps (1) through (8) are to be performed when installing option X or V. Steps (1) through (9) are to be performed when installing option W.

(1) Move the G-Y lead on TB1 from terminal 17 to terminal 21.

Note: This provides for manual disconnect via the TALK/CLEAR key.

(2) Move the O-W lead on TB2 from terminal 15 to terminal 9.

(3) Move the Y-BR lead on TB2 from terminal 8 to terminal 9.

(4) On TB2 strap terminal 8 to terminal 15.

(5) Strap terminal 16 on TB1 to terminal 8 on TB2.

(6) Strap terminal 19 on TB1 to terminal 1 on TB2.

Note: After Steps (2) through (6) have been performed, entry into the test mode no longer depends upon the status of the CD lead.

(7) Block the LOCAL key with a P-12A858 blocking ring.

Note: This disables the local mode feature.

(8) Remove the AUTO lamp and relabel the control keys as shown in Table E.

(9) When installing option W, remove the DATA lamp.

(b) **DAS 804B1, Series 3**

Steps (1) through (8) are to be performed when installing option X or V. Steps (1) through (9) are to be performed when installing option W.

(1) Connect the SL switchhook lead (previously taped and stored) to TB1 terminal 5.

Note: This provides for manual disconnect via the TALK/CLEAR key.

(2) Move the O-W lead on TB2 from terminal 29 to terminal 30.

(3) Move the Y-BR lead on TB2 from terminal 26 to terminal 30.

(4) On TB2 strap terminal 26 to terminal 29.

(5) Strap terminal 2 on TB1 to terminal 26 on TB2.

(6) Strap terminal 4 on TB1 to terminal 25 on TB2.

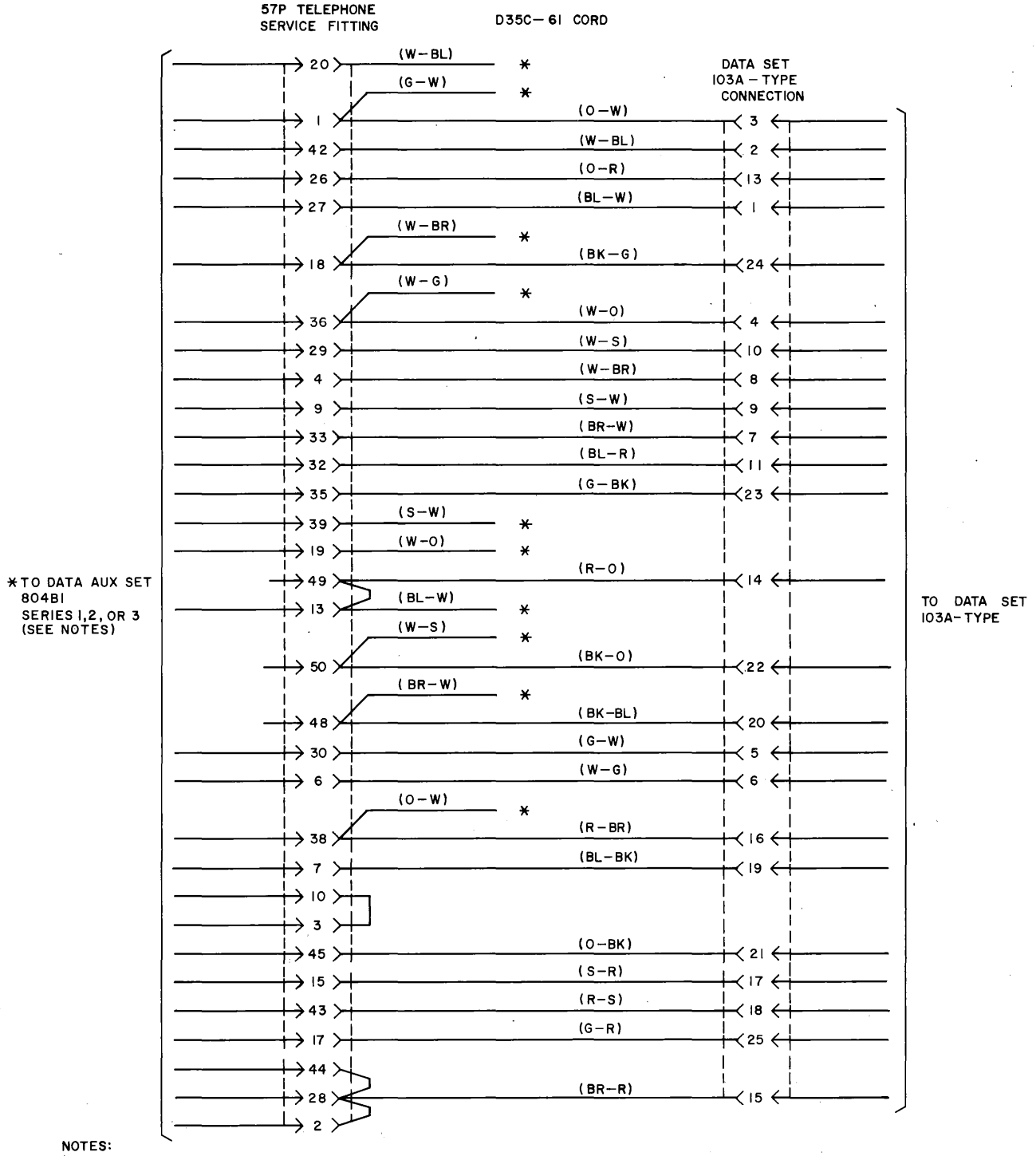
Note: After Steps (2) through (6) have been performed, entry into the test mode no longer depends upon the status of the CD lead.

(7) Block the LOCAL key with a P-12A858 blocking ring.

Note: This disables the local mode feature.

(8) Remove the AUTO lamp and relabel the control keys as shown in Table E.

(9) When installing option W, remove the DATA lamp.



NOTES:
1. IN DATA AUX SET 804B1 SERIES 1 OR 2, MOVE THE ORANGE LEAD ON TB2-8 TO TB2-1.
2. IN DATA AUX SET 804B1 SERIES 3, REMOVE THE R OPTION (TB2-25 TO TB2-26).
* TO 1044A CONNECTING BLOCK, SEE FIG. 8, 9, OR 10 FOR DETAILS.

Fig. 7—P/O Connections Between Data Set 103A-Type and Data Auxiliary Set 804B1

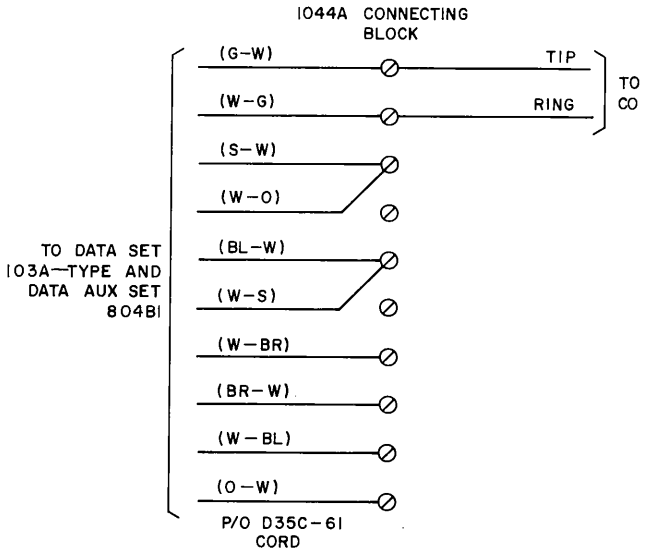
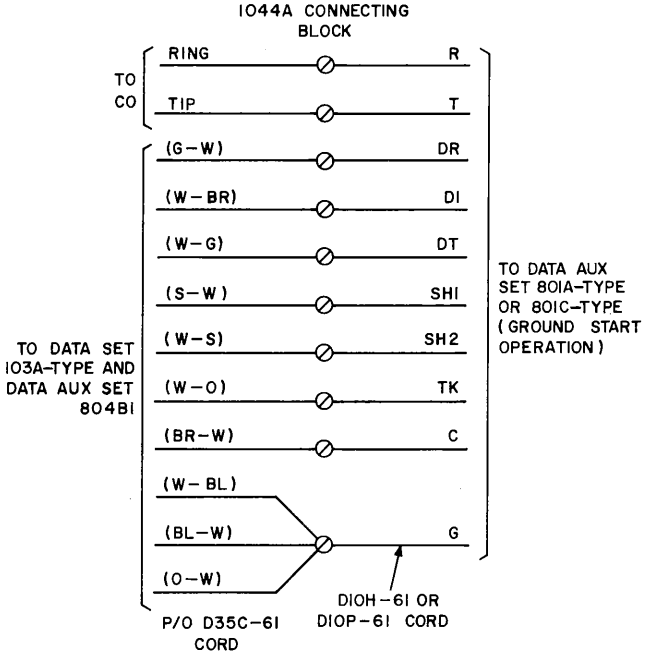


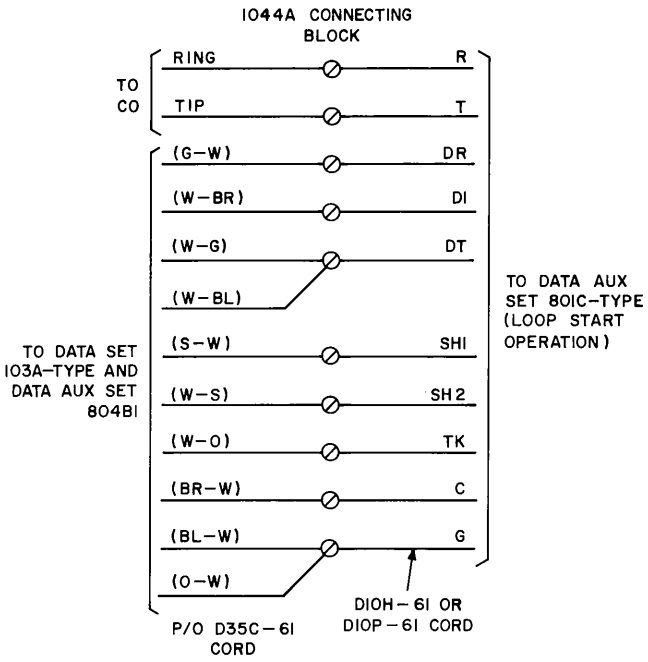
Fig. 8—P/O Connections Between Data Set 103A-Type and Data Auxiliary Set 804B1



ACU CORDS

DESIG	DIOP	DIOH
R	BL-W	R
T	W-BL	G
DR	G-W	BR-R
DI	W-BR	W
DT	W-G	BR-G
SHI	S-W	BL
SH2	W-S	BR-Y
TK	W-O	BR-BK
C	BR-W	BK
G	O-W	Y
	(STD)	(MD)

Fig. 9—P/O Connections Between Data Set 103A-Type, Data Auxiliary Set 804B1, and Data Auxiliary Set 801A-Type or 801C-Type (Ground Start)



ACU CORDS

DESIG	DIOP	DIOH
R	BL-W	R
T	W-BL	G
DR	G-W	BR-R
D1	W-BR	W
DT	W-G	BR-G
SHI	S-W	BL
SH2	W-S	BR-Y
TK	W-O	BR-BK
C	BR-W	BK
G	O-W	Y
	(STD)	(MD)

Fig. 10—P/O Connections Between Data Set 103A-Type, Data Auxiliary Set 804B1, and Data Auxiliary Set 801C-Type (Loop Start Operation)

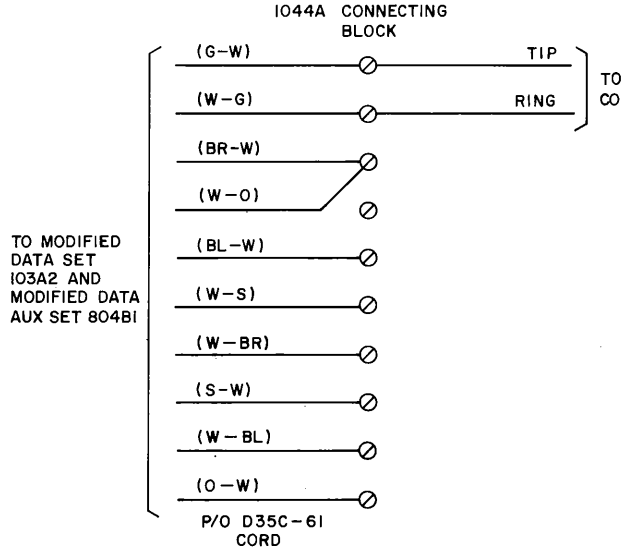


Fig. 11—P/O Connections Between Modified Data Set 103A2 and Modified DAS 804B1

TABLE A

SERVICE OPTIONS

OPTION	STRAP CONNECTION TB 1	PROVIDE
Responds to Disconnect*	TI to LS	1 Per Station
Does Not Respond to Disconnect	TI to NO	
Initiates Disconnect*	D to LD	1 Per Station
Does Not Initiate Disconnect	D to QD	
Mark-Hold*	HD to MH	1 Per Station
Space-Hold	HD to SH	

*Factory-wired option

TABLE B

ANSWERING OPTIONS
(D25C-61 CORD)

ANSWERING OPTION	WIRING* OPTION	DATA AUXILIARY SET MODIFICATION
Alternate Automatic or Manual	W	None
Manual (No Automatic Answer)	—	Block AUTO button using P-12A858 blocking ring.
Permanent Automatic Answer (No Manual Control)	Z	Block AUTO button using P-12A858 blocking ring.

*See Fig. 2, 3, 4, or 5.

TABLE C

ANSWERING OPTIONS
(D35C-61 CORD)

ANSWERING OPTION	DATA AUXILIARY OR TELEPHONE SET MODIFICATION
Alternate Automatic or Manual	None
Manual (No Automatic Answer)	Block AUTO button using P-12A858 blocking ring.
Permanent Automatic Answer (No Manual Control)	Block AUTO button using P-12A858 blocking ring. Strap terminals TB1-1 to TB1-2 (Series 1 & 2) Strap terminals TB2-15 to TB2-16 (Series 3)

TABLE D

CONNECTIONS FOR TRANSMIT LEVELS

TRANSMIT LEVELS DBM		TB1 STRAP CONNECTIONS					
HIGH CHANNEL f_2	LOW CHANNEL f_1						
0	0	(1-2)	(3-4)	(5-6)	(7-8)	(9-10)	(11-12)
0	−2	(1-2)	(3-6)	(4-5)	(7-8)	(9-10)	(11-12)
0	−4	(1-2)	(3-10)	(4-9)	(5-6)	(7-8)	(11-12)
0	−6	(1-2)	(3-12)	(4-11)	(5-6)	(7-8)	(9-10)
0	−8	(1-2)	(3-6)	(5-12)	(4-11)	(7-8)	(9-10)
0	−10	(1-2)	(3-10)	(9-12)	(4-11)	(5-6)	(7-8)
0	−12	(1-2)	(3-6)	(5-10)	(9-12)	(4-11)	(7-8)
0	−14	(1-2)	(3-6)	(5-8)	(7-10)	(9-12)	(4-11)
−2	−2	(1-5)	(2-6)	(3-4)	(7-8)	(9-10)	(11-12)
−2	−4	(1-5)	(2-6)	(3-8)	(4-7)	(9-10)	(11-12)
−2	−6	(1-5)	(2-6)	(3-10)	(4-9)	(7-8)	(11-12)
−2	−8	(1-5)	(2-6)	(3-12)	(4-11)	(7-8)	(9-10)
−2	−10	(1-5)	(2-6)	(3-8)	(7-12)	(4-11)	(9-10)
−2	−12	(1-5)	(2-6)	(3-10)	(9-12)	(4-11)	(7-8)
−2	−14	(1-5)	(2-6)	(3-8)	(7-10)	(9-12)	(4-11)
−4	−4	(1-9)	(2-10)	(3-4)	(5-6)	(7-8)	(11-12)
−4	−6	(1-9)	(2-10)	(3-6)	(4-5)	(7-8)	(11-12)
−4	−8	(1-9)	(2-10)	(3-6)	(5-8)	(4-7)	(11-12)
−4	−10	(1-9)	(2-10)	(3-12)	(4-11)	(5-6)	(7-8)
−4	−12	(1-9)	(2-10)	(3-6)	(5-12)	(4-11)	(7-8)
−4	−14	(1-9)	(2-10)	(3-6)	(5-8)	(7-12)	(4-11)
−6	−6	(1-11)	(2-12)	(3-4)	(5-6)	(7-8)	(9-10)
−6	−8	(1-11)	(2-12)	(3-6)	(4-5)	(7-8)	(9-10)
−6	−10	(1-11)	(2-12)	(3-10)	(4-9)	(5-6)	(7-8)
−6	−12	(1-11)	(2-12)	(3-6)	(5-10)	(4-9)	(7-8)
−6	−14	(1-11)	(2-12)	(3-6)	(5-8)	(7-10)	(4-9)
−8	−8	(1-5)	(6-11)	(2-12)	(3-4)	(7-8)	(9-10)
−8	−10	(1-5)	(6-11)	(2-12)	(3-8)	(4-7)	(9-10)
−8	−12	(1-5)	(6-11)	(2-12)	(3-10)	(4-9)	(7-8)
−8	−14	(1-5)	(6-11)	(2-12)	(3-8)	(7-10)	(4-9)
−10	−10	(1-9)	(10-11)	(2-12)	(3-4)	(5-6)	(7-8)
−10	−12	(1-9)	(10-11)	(2-12)	(3-6)	(4-5)	(7-8)
−10	−14	(1-9)	(10-11)	(2-12)	(3-6)	(5-8)	(4-7)
−12	−12	(1-5)	(6-9)	(10-11)	(2-12)	(3-4)	(7-8)
−12	−14	(1-5)	(6-9)	(10-11)	(2-12)	(3-8)	(4-7)
−14	−14	(1-5)	(6-7)	(8-9)	(10-11)	(2-12)	(3-4)

TABLE E

KEY DESIGNATIONS

DAS 804B1 DESIGNATION	MODIFIED DAS 804B1 DESIGNATION
DATA	DATA
TALK	TALK/CLEAR
TEST 1	TEST
TEST 2	————
LOCAL	————
AUTO	————