

DATA AUXILIARY SET 801CR-L1/2 INSTALLATION AND CONNECTIONS

CONTENTS	PAGE
1. GENERAL	1
2. REMOVAL AND REPLACEMENT	2
A. Circuit Pack	2
B. Interface Assembly	2
3. OPTIONS	2
4. INTERFACE LEADS	6
5. INSTALLATION	6
A. General	6
B. Procedure	10
6. CONNECTIONS	10
7. REFERENCES	20

1. GENERAL

1.01 This section contains information needed to install options and to install and connect a data auxiliary set (DAS) 801CR-L1/2 in a single housing. For installation with nonregistered data sets in a multiple housing, refer to Section 590-010-202. For installations with registered data sets in a multiple housing, refer to Section 590-011-202.

1.02 When this section is reissued, the reason for reissue will be contained in this paragraph.

1.03 Data auxiliary set 801CR-L1/2 replaces DAS 801C-list type and meets the requirements of the FCC Registration Program for use with data sets in registered arrangements. Data auxiliary set 801CR-L1/2 provides automatic calling capability

for a data station and is referred to in this section as an ACU (automatic calling unit).

1.04 General information concerning registered ACUs and arrangements follows.

- Registered versions of Bell System ACUs include an "R" in the ACU code.
- Bell System switched network ACUs not having an "R" in the ACU code are "grandfathered."
- "Grandfathered" DAS 801C-type may be connected in registered arrangements provided the interface with the switched network is made with the proper cord as shown in the connection diagrams in this section.
- Data auxiliary set 801CR may be connected in "grandfathered" arrangements provided the interface with the switched network is made with the proper cord as shown in the connection diagrams in this section.
- Connection to the telephone line in registered arrangements must be made with the proper cord to the proper voice or data jack as shown in the connection diagrams in this section.
- In arrangements of one to five ACUs and data sets, a mixture of "new-family" data sets may be used. "New-family" data sets are 103JR, 113CR, 201CR, 202SR, 208BR, and 212AR.

1.05 This section does not include specific installation information on associated data sets. Refer to the installation BSP of the associated data set for this information. Any additional information required due to differences between this ACU and earlier models is contained in this section.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

SECTION 598-088-200

1.06 Before starting installation, verify that the telephone (data) line is arranged for TOUCH-TONE® service. If a ground-start telephone line is required, verify that the line to be used has been arranged for ground-start operation.

1.07 When a ground-start telephone line is used and a power failure has occurred, a momentary ground must be applied to the telephone (data) line when initiating a call. The ground is applied by depressing the button labeled DIAL TONE on the associated data set, telephone set, or data auxiliary set (when provided). Consult the applicable data set BSP to verify that the necessary momentary ground option is provided.

Note: Ground-start ACUs are not compatible with central offices with step-by-step common control or step-by-step arranged for TOUCH-TONE service. If ground-start ACUs are used in these locations, incomplete dialing may result. In these situations, remote exchange loops or loop-start ACUs are recommended.

1.08 Verify that overall facilities have been tested and meet the transmission requirements specified in Section 314-205-501. Loops engineered to the normal limits required by the associated data set are adequate for proper operation of the ACU.

2. REMOVAL AND REPLACEMENT

A. Circuit Pack

2.01 To remove circuit pack from housing, proceed as follows.

- (1) Remove front cover by gently squeezing cover at top to disengage top hooks, then rotate cover down and out of housing.

Caution: *Use hands only. No special tools are required. Excessive force may crack cover.*

- (2) Remove circuit pack from housing by gently pulling out on handle on faceplate.

Caution: *When circuit pack is removed from housing, circuit pack should be placed on a clean, dry, nonconductive surface.*

2.02 To access option switches, remove four retaining screws and fold back CM1 circuit module, which will remain attached to circuit pack by two flexible tapes. Figure 1 shows CM1 completely unfolded. After options are installed, fold CM1 into place and install four retaining screws.

2.03 To replace circuit pack in housing, proceed as follows.

- (1) Slide circuit pack into housing.
- (2) Replace front cover by hooking tabs on bottom of cover into detents in bottom of housing, then gently pressing top of cover into housing until cover snaps into place.

B. Interface Assembly

2.04 To remove interface assembly (backplane) from housing, proceed as follows.

- (1) Remove rear cover by gently squeezing cover at top to disengage top hooks, then rotate cover down and out of housing.

Caution: *Use hands only. No special tools are required. Excessive force may crack cover.*

- (2) Remove two retaining screws under rear of housing and slide interface assembly out of housing.

2.05 To replace interface assembly (backplane) in housing, proceed as follows.

- (1) Slide interface assembly into housing and install two retaining screws.
- (2) Replace rear cover by hooking tabs on bottom of cover into detents in bottom of housing, then gently pressing top of cover into housing until cover snaps into place.

3. OPTIONS

3.01 The ACU is provided with options that must be installed prior to placing the ACU in service. The options to be installed should be specified on the service order.

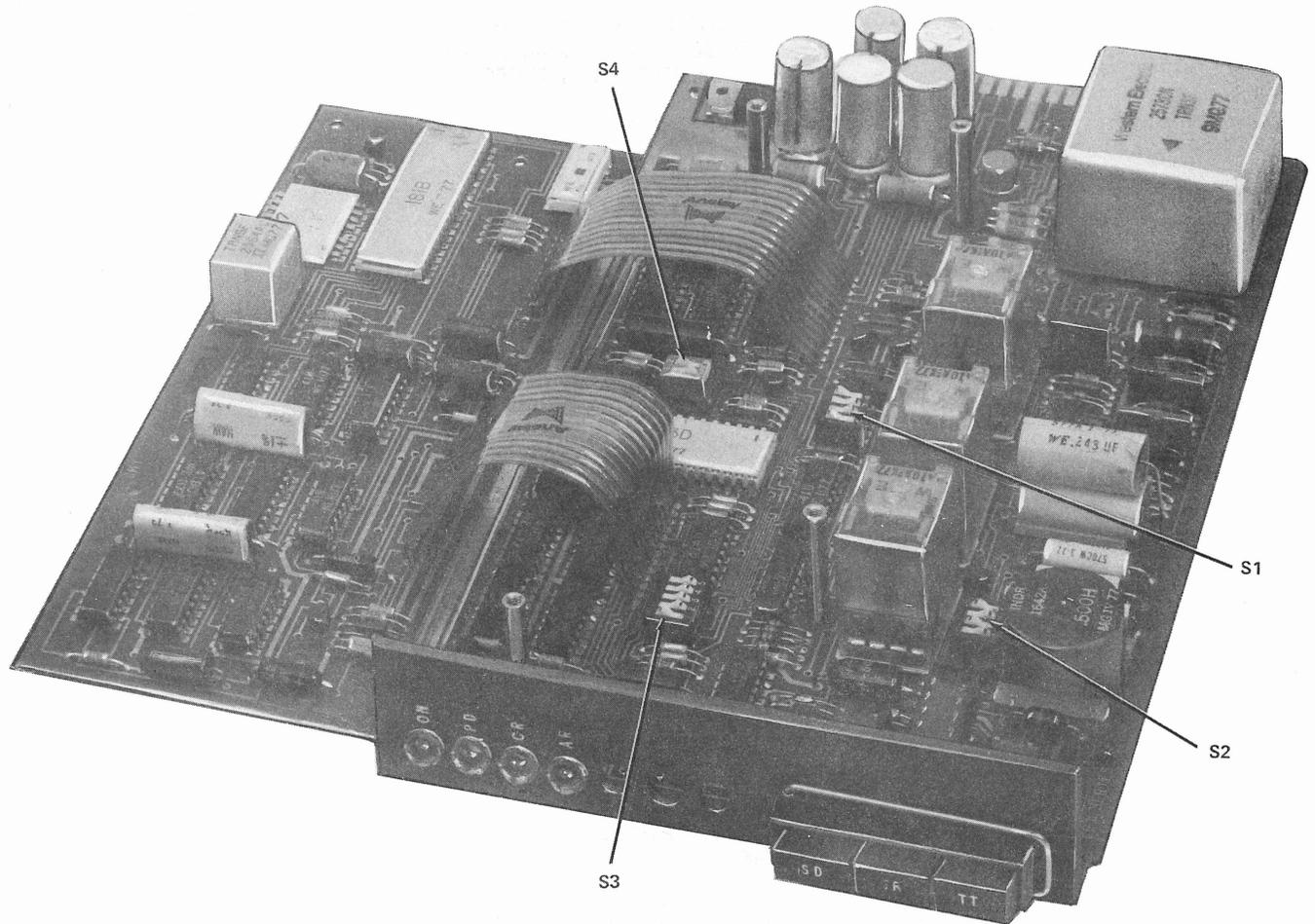


Fig. 1—DAS 801CR-L1 Unfolded for Access to Option Switches

3.02 The options are installed by setting the positions of individual switches on four multiple-section switch assemblies. These switches are set in accordance with Table A. Refer to Fig. 2 for a detailed view of the multiple-section option switch assembly.

3.03 The following is a description of the options available with the ACU and recommendations for their use.

(a) **Ground Start or Loop Start:** Loop start (option Y) is the preferred operating method, as it does not require any special circuits at the central office (CO). It is always recommended on lines that are used for originating traffic only (or that receive few incoming calls). Loop start is required if the second dial tone detection feature is to be used. At locations

with heavy incoming traffic, ground start (option V) may be an advantage. However, some central offices such as step-by-step common control or step-by-step arranged for TOUCH-TONE service may return the tip-ground indication prematurely during peak traffic loads, causing the ACU to dial before a register has been connected. This results in incomplete dialing as one or more initial digits are lost.

(b) **Detect Beginning or End of Answer Tone:** Upon receipt of a valid answer tone, the ACU transfers the line to the data set and places the data set in the data mode. To allow for the characteristics of various data sets, the answer tone detector can be arranged to transfer the line to the data set at the beginning (option X) or at the end (option W) of answer tone. Option X is required for data sets 103A3, 103J, 103JR,

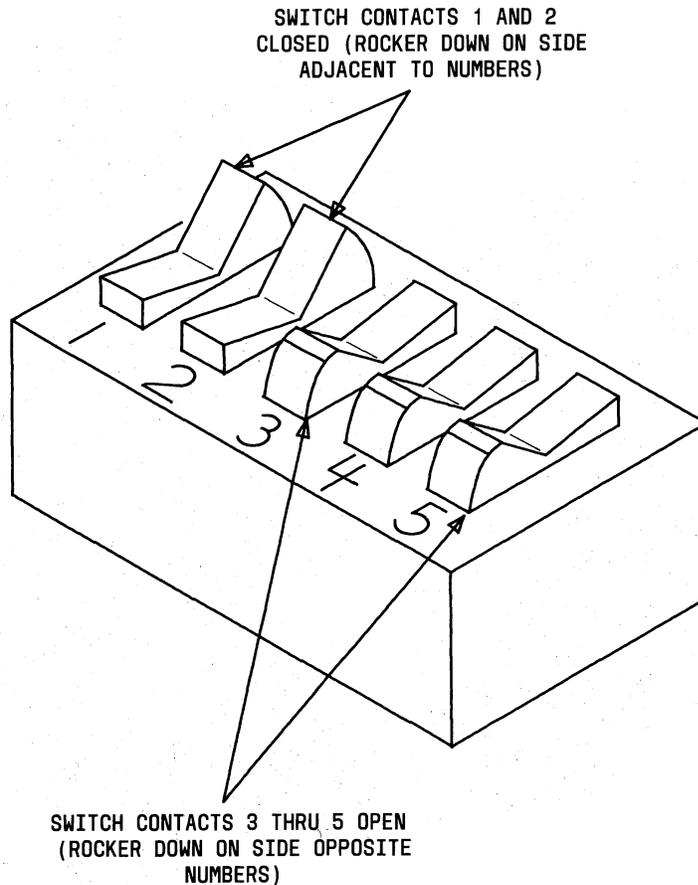


Fig. 2—Details of Option Switch Assembly

113C, 113CR, 212A, and 212AR. Option W is required for data sets 200-type (except 212A and 212AR), 400-type, and 600-type.

(c) **Detect 2025- or 2225-Hz Answer**

Tone: Option S causes the answer tone detector to respond only to 2025-Hz answer tone. Option S is required for data sets 200-type (except 212A and 212AR), 400-type, and 600-type. Option T causes the answer tone detector to respond only to 2225-Hz answer tone. Option T is required for data sets 103A3, 103J, 103JR, 113C, 113CR, 212A, and 212AR.

(d) **Data Set to Data Mode by Contact to DT or by Grounded Contact:**

Option Q connects one side of the AN (answer) relay contact to the DT (data tip lead). Option Q is required for data sets 201A3, A4, B3, B4, 201A, B list-type, 202C, and 402C. Option ZG provides a grounded AN relay contact. Option

ZG is required for data sets 103A3, 103J, 103JR, 113C, 113CR, 201C, 201CR, 202S, 202SR, 208B, 208BR, 212A, and 212AR, and the 1001A data coupler.

(e) **Clear Signal to Data Set, or No**

Clear Signal to Data Set: Option ZP (clear signal to data set) is required for data sets 103A3, 103E, 103G, 103H, 103J, 103JR, 113C, 113CR, 212A, and 212AR. Option ZN (no clear signal, no talk signal to data set) should be specified for all other data sets. On data sets 201-type, 202-type, 208B, 208BR, and 402C, the CL and TK contacts are not used by the data set. Option ZN is selected to provide for uniformity of installation.

(f) **Terminate Call via Data Set or**

ACU After DSS On: Option G (terminate call via data set after DSS on) provides for the data set to terminate the call when the CPE

TABLE A

DAS 801CR-L1/2 ACU OPTIONS

OPTION		SWITCH SETTINGS ON CP1	
DESCRIPTION	DESIG	CLOSED	OPEN
Ground Start Loop Start	V* Y	S1-2, S2-1 S2-4, S4-1	S2-4, S4-1 S1-2, S2-1
Detect End of Answer Tone Detect Beginning of Answer Tone	W X	S3-3 —	— S3-3
Detect 2025-Hz Answer Tone Detect 2225-Hz Answer Tone	S T	S2-3 S2-2	S2-2 S2-3
Data Set to Data Mode by Contact to DT Data Set to Data Mode by Grounded Contact	Q ZG	S1-3 S1-1	S1-1 S1-3
Clear Signal to Data Set No Clear Signal; No TK Contact	ZP ZN	S1-4 —	— S1-4
Terminate Call Via Data Set After DDS <i>on</i> Terminate Call Via ACU After DSS <i>on</i>	G Z	S4-2 —	— S4-2
Stop ACR Timer When DSS Goes <i>on</i> Do Not Stop ACR Timer When DSS Goes <i>on</i>	R H	S3-1, S3-2 —	— S3-1, S3-2
ACR Timing Interval 7 Sec ACR Timing Interval 14 Sec ACR Timing Interval 28 Sec ACR Timing Interval 56 Sec	ZQ ZR ZS ZT	S3-5 S3-4, S3-5 — S3-4	S3-4 — S3-4, S3-5 S3-5
Signal Grd Connected to Frame Grd Signal Grd Not Connected to Frame Grd	ZU ZV	Close Screw Switch on 52A2 Data Mounting. Open Screw Switch on 52A2 Data Mounting	

* Also install option ZU.

turns **off** the CD (data terminal ready) lead to the data set. Option Z (terminate call via ACU after DSS **on**) provides for the ACU to terminate the call when the CPE turns **off** the CRQ (call request) lead to the ACU.

(g) **Stop or Do Not Stop ACR Timer When DSS Goes On:** With option R (stop ACR timer when DSS goes **on**), the ACR timer, which ranges from 7 to 56 seconds, is stopped when the data set is on-line and in the data mode. The ACU takes no action when the ACR lead comes **on**. This option is recommended

when the CPE wishes to use the **on** condition of the ACR lead to begin some program subroutine. With option H (do not stop ACR timer when DSS goes **on**), the ACR timer continues to run after the data set is on-line and in the data mode. When the ACR timer times out, the ACR lead turns **on** and remains **on** until the CRQ lead turns **off**. The ACU does not respond to the **on** condition of the ACR lead. This option is recommended when the CPE uses an end-of-number (EON) code to indicate busy conditions, wrong numbers, or other conditions that would prevent completion of a call. The

SECTION 598-088-200

CPE must interpret the indication and decide whether to take any further action.

(h) **ACR Timing Interval:** The ACU is equipped with four ACR timing intervals. These timing intervals are 7 seconds (option ZQ), 14 seconds (option ZR), 28 seconds (option ZS), and 56 seconds (option ZT). Unless specified otherwise by the customer, the 56-second timing interval (option ZT) should be installed in the ACU. The use of the shorter ACR timing intervals may result in ACR time-out during call setup.

(i) **Signal Ground Connected to or Not Connected to Frame Ground:** The ACU is factory-shipped with signal ground connected to frame ground (option ZU). This option is a screw switch on the backplane of the housing. Unless requested by the customer, the grounds should remain connected (option ZV not used).

Note: Option ZU is required if option V (ground start) is used.

3.04 Table A summarizes the options available in the ACU.

3.05 Table B contains a cross-reference between options available in this ACU and earlier models. When an ACU is being replaced or exchanged, verify that the replacing ACU is equipped with the same or equivalent options as the one being replaced. It should be noted that the same option may be designated differently for different models. For information needed to select the options required for use with a specific data set, refer to paragraphs 6.02 and 6.03 or to the applicable BSP for that data set.

Note: Data auxiliary set 801CR-L1/2 cannot be substituted for a DAS 801A unless the service order authorizes TOUCH-TONE service.

4. INTERFACE LEADS

4.01 Data auxiliary set 801CR-L1/2 provides the customer with the interface leads listed in Table C. These leads conform to EIA Standard RS-366.

4.02 The telephone line interface leads are listed in Table D and described as they are used in DAS 801CR-L1/2 installations.

5. INSTALLATION

A. General

5.01 The ACU should be installed in conformance with existing practices covering installation of station sets. Section 590-010-200 provides standard installation information.

5.02 The ACU must be installed within reach of the interface cord from the data set and the interface cable from the customer-provided equipment (CPE). The CPE interface cable is provided by the customer and should not exceed 50 feet in length. The cable must be equipped with a Cinch or Cannon DB-19604-432 plug (or equivalent).

Note: The ACU can be wall-mounted either vertically or horizontally by using a 193A backboard.

5.03 The customer must furnish a standard 3-wire grounded, 117-Vac, 60-Hz, power outlet within reach of the ACU power cord. To prevent the ACU from being turned off accidentally, the outlet must not be under control of a switch. The KS-21239-L5 transformer used with the ACU mounts directly to the outlet and must be attached securely. If more than one 3-prong plug-mounted transformer is associated with the installation, a separate power outlet is required for each transformer.

Caution: Do not connect more than one piece of equipment to the same transformer.

5.04 To avoid the possibility of data errors due to a potential difference between ACU or data set ground and CPE, ground power should be supplied to all data sets and ACUs from the same ac distribution panel used to supply power to the CPE. If these units are not served from the same distribution panel, a test should be made to detect excessive noise. Refer to Section 598-088-500 for a ground noise test using a 6H impulse counter.

TABLE B

EQUIVALENT OPTIONS OF ALL AVAILABLE ACUS

DESCRIPTION		DATA AUXILIARY SETS					
		801CR-L1/2	801C-L1/2	801C1 & 2	801C3 & 4	801A1, 2, 3, 4	801A5 & 6
	Ground Start (4-Wire) Ground Start (2-Wire) Without Ground Start (Loop Start)	Not Avail. V Y	Not Avail. V Y	Not Avail. V Y	ZK V Y	Not Avail. Fac. Wired Not Avail.	Not Avail. Fac. Wired Not Avail.
Options Depend on Data Set Used	Detect End of Answer Tone Detect Beginning of Answer Tone	W X	W X	W X Note 1	W X Note 2	W X Note 3	W X Note 5
	Detect 2025-Hz Answer Tone Detect 2225-Hz Answer Tone	S T	S T	S T Note 1	S T Note 2	S T Note 3	S T Note 5
	Data Set to Data Mode by Contact to DT Data Set to Data Mode by Isolated Contact Data Set to Date Mode by Grounded Contact	Q Not Avail. ZG	Q Not Avail. ZG	Q Remove Q Not Avail.	Q F ZG	Q Remove Q Not Avail.	Q F ZG
	Data Set Answer Detection Without End of Number ACU Answer Detection or End of Number	Not Avail. Fac. Wired	E B	Not Avail. Fac. Wired	E B	Not Avail. Fac. Wired	E B
	Isolated TK Contact Isolated CL Contact Grounded TK and CL Contacts	Not Avail. Not Avail. Use ZP	ZA Not Avail. Use ZP	Fac. Wired Not Avail. Not Avail.	ZA ZC ZB	Fac. Wired Not Avail. Not Avail.	ZA ZC ZB
	No Clear Signal, No TK Contact Clear Signal to Data Set	ZN ZP	ZN ZP	Not Avail.			
Customer Options	Terminate Call Via Data Set After DSS on (line transfer in test)	G	G	Remove Z	G	Z	G
	Terminate Call Via Data Set After DSS on (CL contact in test)	G	G	Not Avail.	ZD	Not Avail.	ZD
	Terminate Call Via ACU After DSS on (line transfer)	Z	Z	Z	Z	Remove Z	Z
	Terminate Call Via ACU After DSS on (CL contact)	Z	Z	Not Avail.	A	Not Avail.	A
	Stop ACR Timer When DSS Goes on Do Not Stop ACR Timer When DSS Goes on	R H	R H	R Remove R	R H	Y Remove Y	R H
	7-Second ACR Timing 14-Second ACR Timing 28-Second ACR Timing 56-Second ACR Timing	ZQ ZR ZS ZT	ZQ ZR ZS ZT	Screwdriver Adjustment			
	SG Connected to FG SG Not Connected to FG	ZU ZV	ZU ZV	Strap No Strap	Strap No Strap	Strap No Strap	Strap No Strap
2-Wire 4-Wire	Fac. Wired Not Avail.	Fac. Wired Not Avail.	Fac. Wired Not Avail.	ZH ZJ	Fac. Wired Not Avail.	Fac. Wired Not Avail.	

TABLE B (Contd)

EQUIVALENT OPTIONS OF ALL AVAILABLE ACUS

DESCRIPTION	DATA AUXILIARY SETS					
	801CR-L1/2	801C-L1/2	801C1 & 2	801C3 & 4	801A1, 2, 3, 4	801A5 & 6
DLO Controlled by ACU DLO Controlled by ACU and Data Set	Fac. Wired Not Avail.	Fac. Wired Not Avail.	Fac. Wired Not Avail.	ZM ZL	Fac. Wired Not Avail.	Fac. Wired Not Avail.
Contact Interface Voltage Interface	Not Avail. Fac. Wired	Not Avail. Fac. Wired	Not Avail. Fac. Wired	Not Avail. Fac. Wired	U Note 6 V Note 7	ZE ZF
Mounting Cord — 13-Conductor Mounting Cord — 10-Conductor Mounting Cord — 14-Conductor Mounting Cord — 15-Conductor	Not Avail. Not Avail. Not Avail. M15H	M13G Not Avail. Not Avail. Not Avail.	Not Avail. M N Note 4 Not Avail.	Not Avail. M N Not Avail.	Not Avail. K M Not Avail.	Not Avail. M N Not Avail.

Note 1: Available only in 801C2

Note 2: Available only in 801C4

Note 3: Available only in 801A1 and 2

Note 4: P in early production sets

Note 5: Available only in 801A6

Note 6: Available only in 801A2 and 3

Note 7: Available only in 801A1 and 4

TABLE C
CUSTOMER INTERFACE

PIN NO.	LEAD	EIA LEAD DESIG	SIGNAL PRESENTED TO CPE OR ACU	FUNCTION
	Frame Ground	AA	Ground	Ground (Note 1)
2	Digit Present	DPR	ACU	Controls when ACU may read signals presented on digit signal circuits
3	Abandon Call and Retry	ACR	CPE	Indicates to abandon call and retry at a later time
4	Call Request	CRQ	ACU	Requests ACU to originate a call
5	Present Next Digit	PND	CPE	Controls presentation of digits on digit signal circuits
6	Power Indication	PWI	CPE	Indicates if power is available in ACU
7	Signal Ground	AB	Ground	Common ground reference for all circuits except AA
9	Reserved for Testing (+ Power)			+ Power for testing
10	Reserved for Testing (- Power)			- Power for testing
13	Call Origination Status	COS (Note 2)	CPE	Indicates status of automatic call origination procedures
14	Digit Signal Circuit - Low Order	Number Bit NB1	ACU	Parallel binary signals (eg, digits of the called number) are presented to the ACU
15	Digit Signal Circuit - Second Order Bit	Number Bit NB2	ACU	
16	Digit Signal Circuit - Third Order Bit	Number Bit NB4	ACU	
17	Digit Signal Circuit - High Order Bit	Number Bit NB8	ACU	
22	Data Line Occupied	DLO	CPE	Indicates if tel line is in use

Note 1: If Frame Ground is required, connect connect to ground at transformer.

Note 2: Previously called Data Set Status (DSS).

TABLE D

TELEPHONE LINE INTERFACE

PIN NO.	DESIGNATION	FUNCTION
4	SH2	Switchhook 2
7	T	Tip
8	R	Ring
12	SP2	Speaker 2
14	C	Control to indicate data set is off-hook
16	D1	Control to place data set off-hook
21	DT	Data tip
22	DR	Data ring
23	TK	Talk
24	SP1	Speaker 1
25	GRD	Ground

B. Procedure

5.05 The procedure for installing an ACU is as follows.

- (1) Unpack ACU and remove protective covering from housing.
- (2) Remove circuit pack from housing as described in paragraph 2.01.
- (3) Install options specified on service order as described in paragraph 2.02. Refer to Table A. If ACU is used to replace an existing ACU, convert old model ACU options to new model ACU options by using Table B.
- (4) If a loudspeaker set is required, proceed as follows.
 - (a) Remove interface assembly (backplane) from housing as described in paragraph 2.04.

(b) Connect loudspeaker set to backplane as shown in Fig. 3 through 8.

(c) In nonregistered arrangements, provide strain relief for loudspeaker set mounting cord by tying a string around cord and securing cord to hole in 40-pin connector on backplane. Assure that metal clip on cord does not make contact with circuitry on backplane.

(d) Replace backplane in housing as described in paragraph 2.05.

(5) Replace circuit pack in housing as described in paragraph 2.03.

(6) Connect data set or data coupler to ACU as shown on appropriate connection diagrams.

(7) Connect ACU power cord to KS-21239-L5 transformer as shown in Fig. 3 through 8 and plug transformer into outlet.

(8) If local regulations permit, use lug on transformer and an attached 6-32 by 1/2-inch oval head machine screw to secure transformer to outlet.

Caution: *If the outlet has a metal cover, do not remove the center screw to mount the transformer. When this screw is removed, the metal cover can fall across the prongs of the transformer.*

(9) Perform installation tests as described in Section 598-088-500.

6. CONNECTIONS

6.01 Earlier Model ACUs: When DAS 801CR-L1/2 ACU is used to replace an earlier model ACU in nonregistered arrangements, an M13G cord is required to replace the existing cord. Table E shows the color codes for the cords used with earlier models and the color code for the M13G cord. Disconnect the old cord and connect the M13G cord according to Table E.

6.02 Registered Arrangements: Figures 4 through 8 provide connection information for the ACU when used with registered data sets 103JR, 113CR, 201CR, 202SR, 208BR, or 212AR. Table F provides option information for the ACU

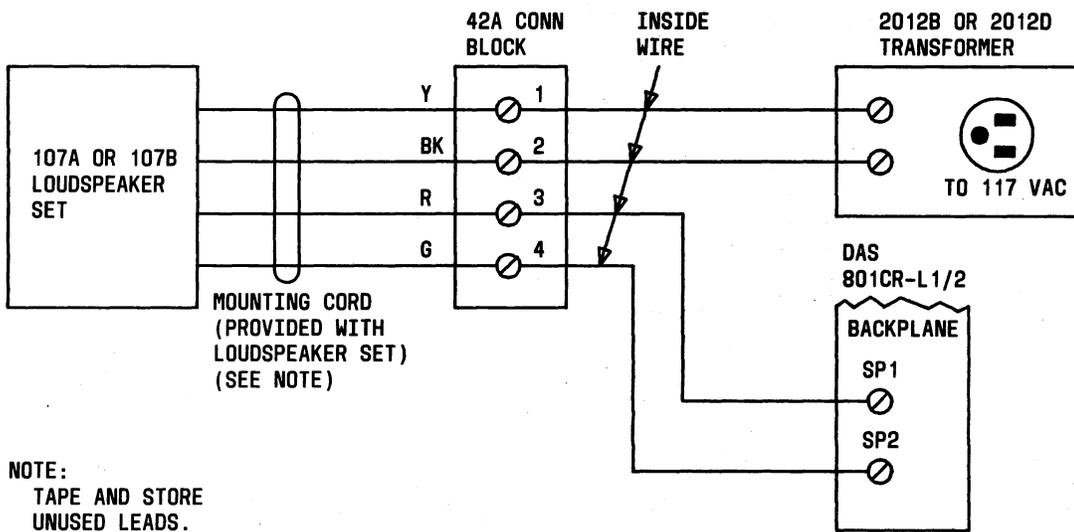
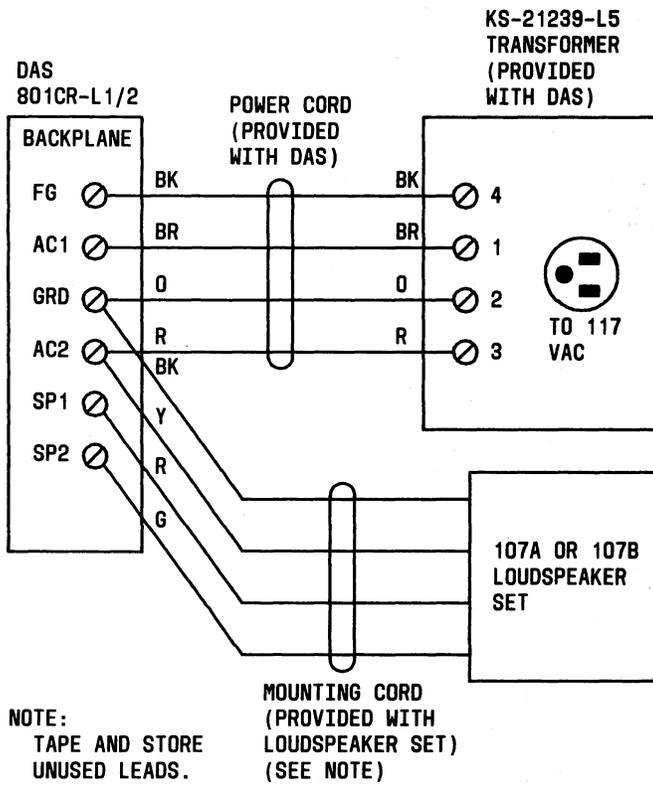


Fig. 3—Two Methods of Connecting 107A or 107B Loudspeaker Set to ACU for Nonregistered Arrangements

NOTES:

1. IF REQUIRED; 60 FEET MAXIMUM.
2. TAPE AND STORE UNUSED LEADS.
3. DISCONNECT D6AR MOUNTING CORD SUPPLIED WITH 107B LOUDSPEAKER SET AND RETURN CORD TO STOCK.
4. FOR DAS OPTIONS, REFER TO TABLE F.
5. FOR REQUIRED CORD AND JACK COMBINATION, REFER TO TABLE G.
6. FOR CONNECTIONS TO 153A ADAPTER, REFER TO TABLE H.

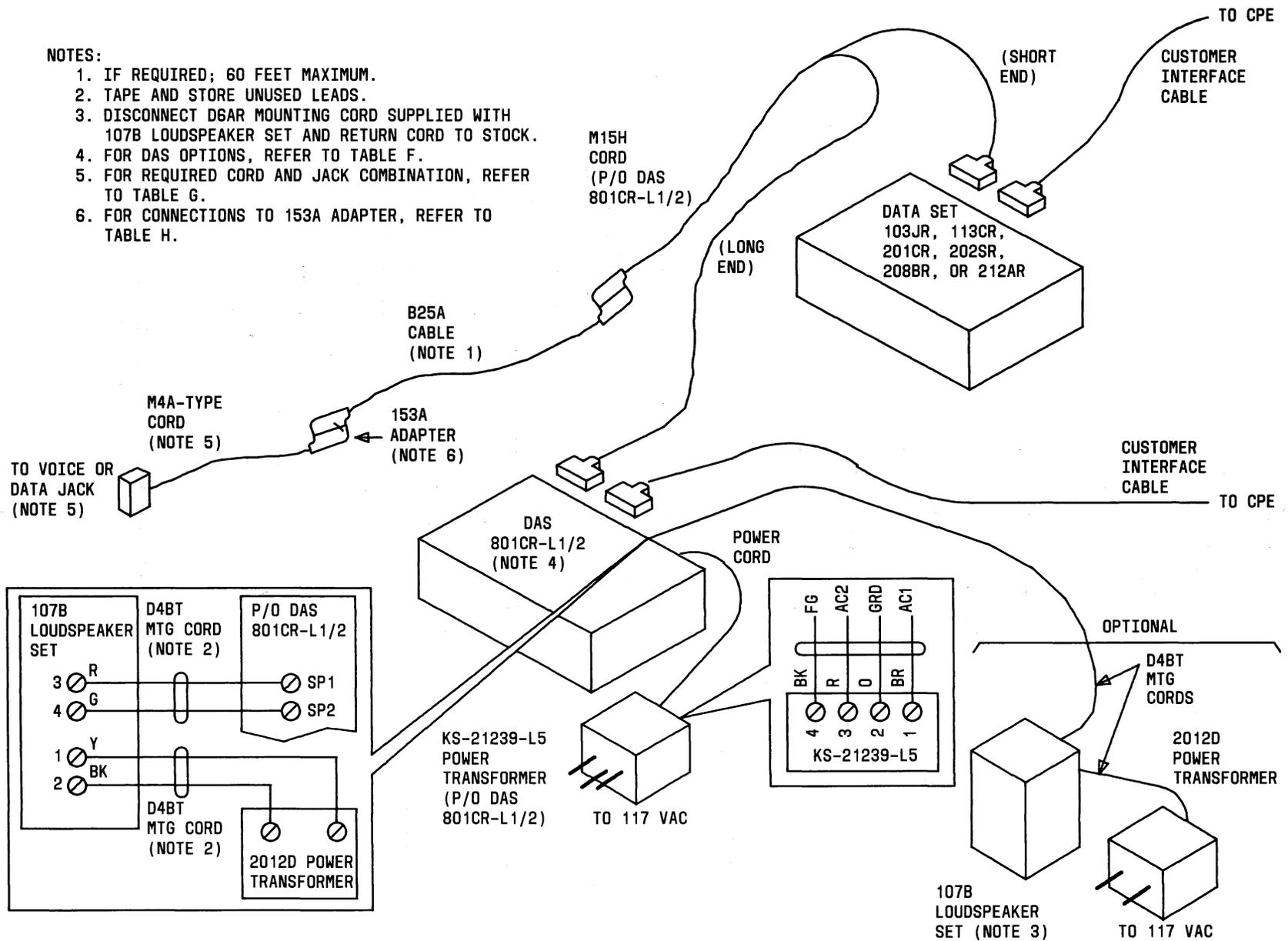


Fig. 4—Single ACU With Data Set 103JR, 113CR, 201CR, 202SR, 208BR, or 212AR

NOTES:

1. IF REQUIRED; 60 FEET MAXIMUM.
2. TAPE AND STORE UNUSED LEADS.
3. DISCONNECT D6AR MOUNTING CORD SUPPLIED WITH 107B LOUDSPEAKER SET AND RETURN CORD TO STOCK.
4. FOR DAS OPTIONS, REFER TO TABLE F.
5. FOR REQUIRED CORD AND JACK COMBINATION, REFER TO TABLE G.
6. FOR CONNECTIONS TO TELEPHONE SET, REFER TO TABLE H.

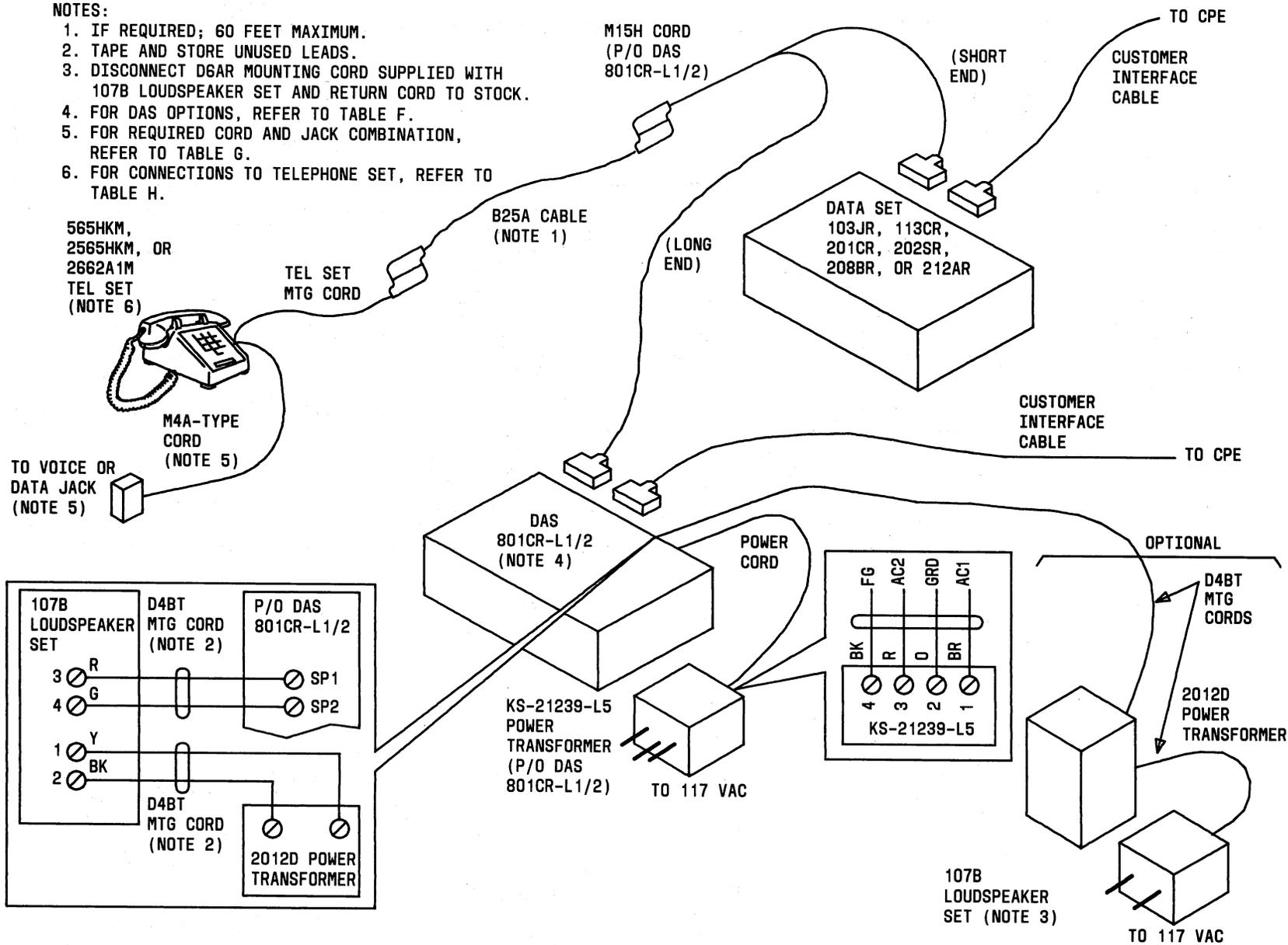


Fig. 5—Single ACU With Data Set 103JR, 113CR, 201CR, 202SR, 208BR, or 212AR and Telephone Set

NOTES:

1. IF REQUIRED; COMBINED TOTAL 60 FEET MAXIMUM.
2. TAPE AND STORE UNUSED LEADS.
3. DISCONNECT D6AR MOUNTING CORD SUPPLIED WITH 107B LOUDSPEAKER SET AND RETURN CORD TO STOCK.
4. FOR DAS OPTIONS, REFER TO TABLE F.
5. FOR REQUIRED CORD AND JACK COMBINATION, REFER TO TABLE G.
6. FOR CONNECTIONS TO 153A ADAPTER, REFER TO TABLE H.

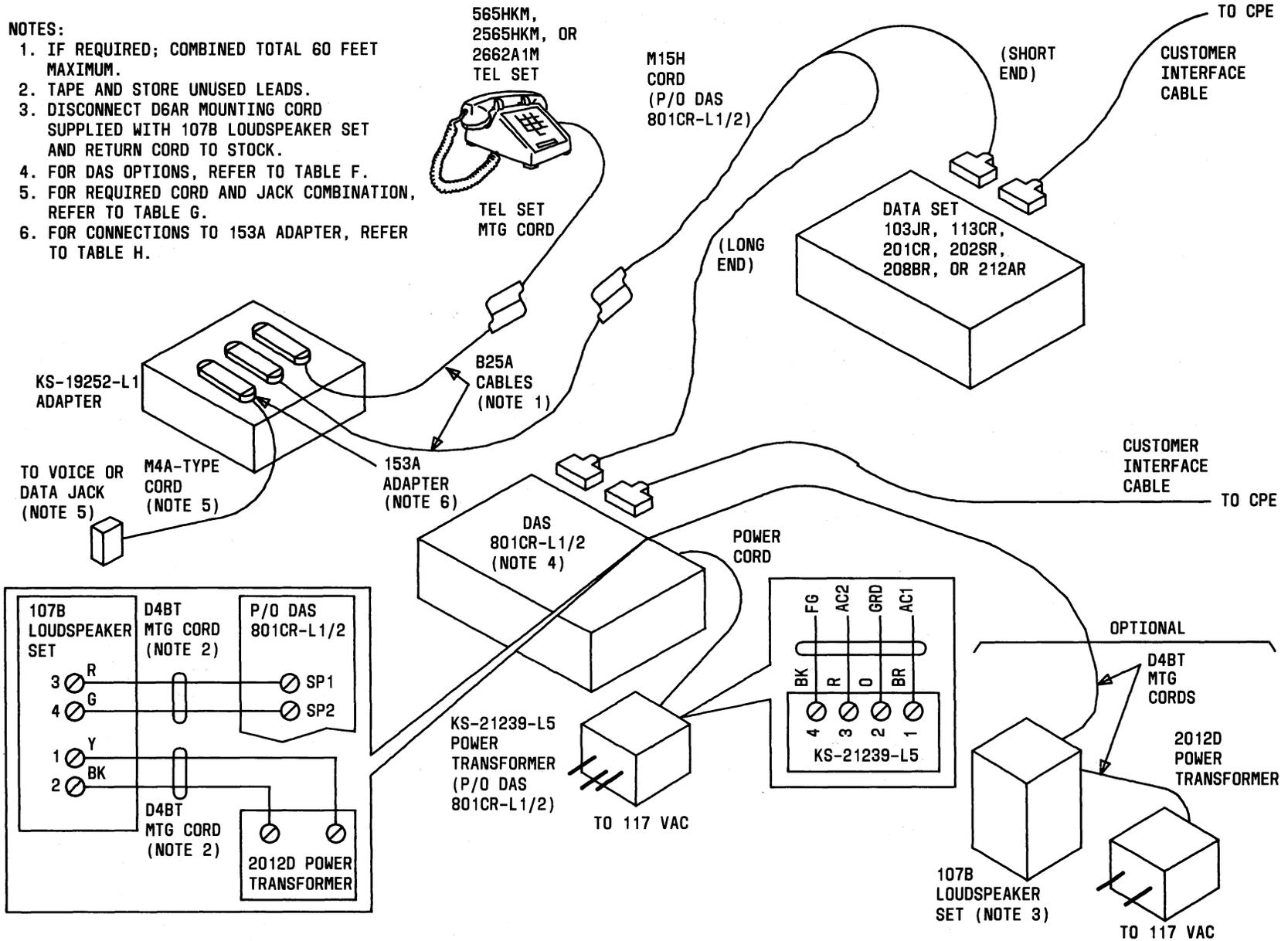


Fig. 6—Single ACU With Data Set 103JR, 113CR, 201CR, 202SR, 208BR, or 212AR and Telephone Set (Alternate Method)

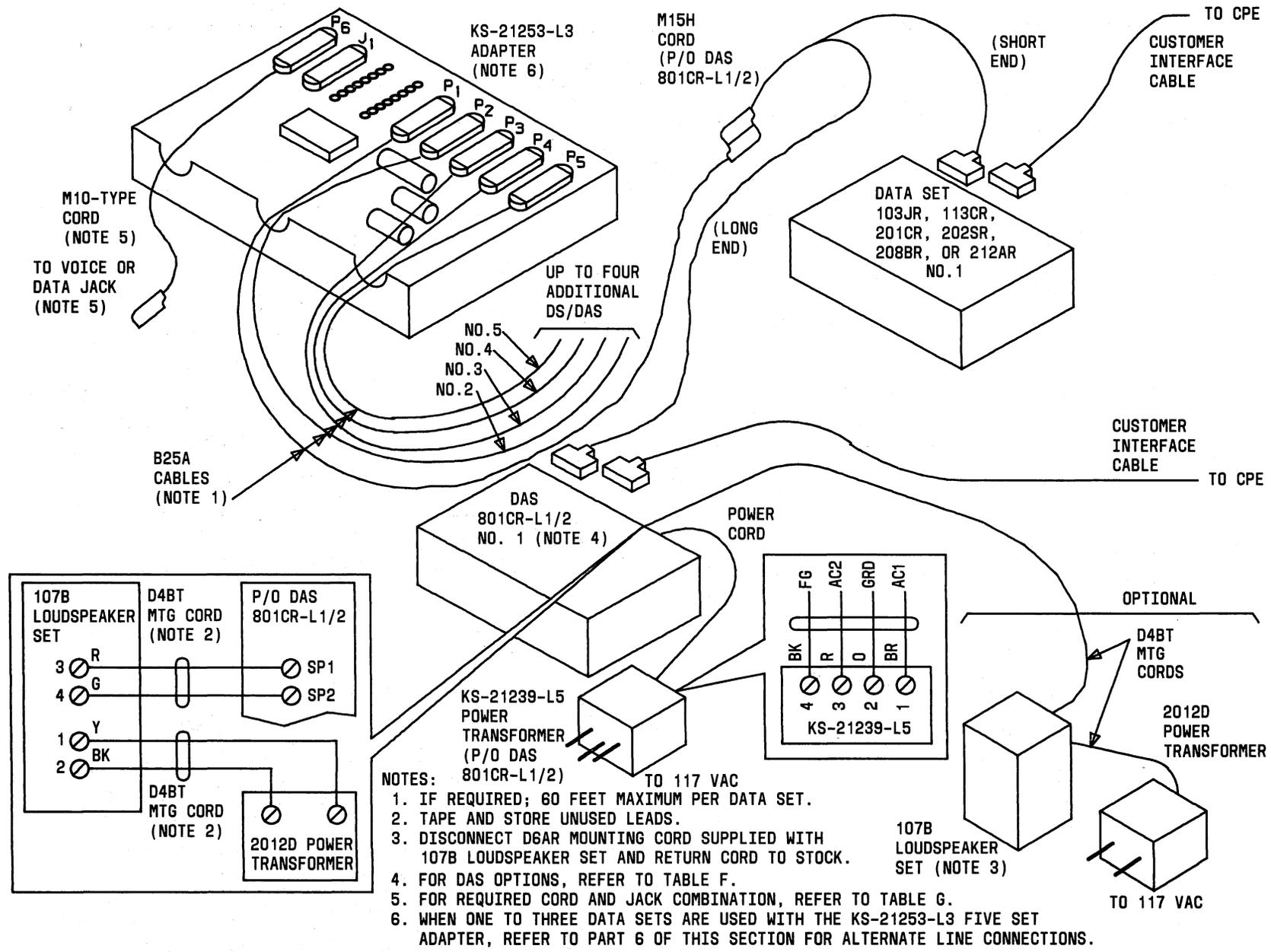


Fig. 7—One to Five ACUs With Data Sets 103JR, 113CR, 201CR, 202SR, 208BR, or 212AR

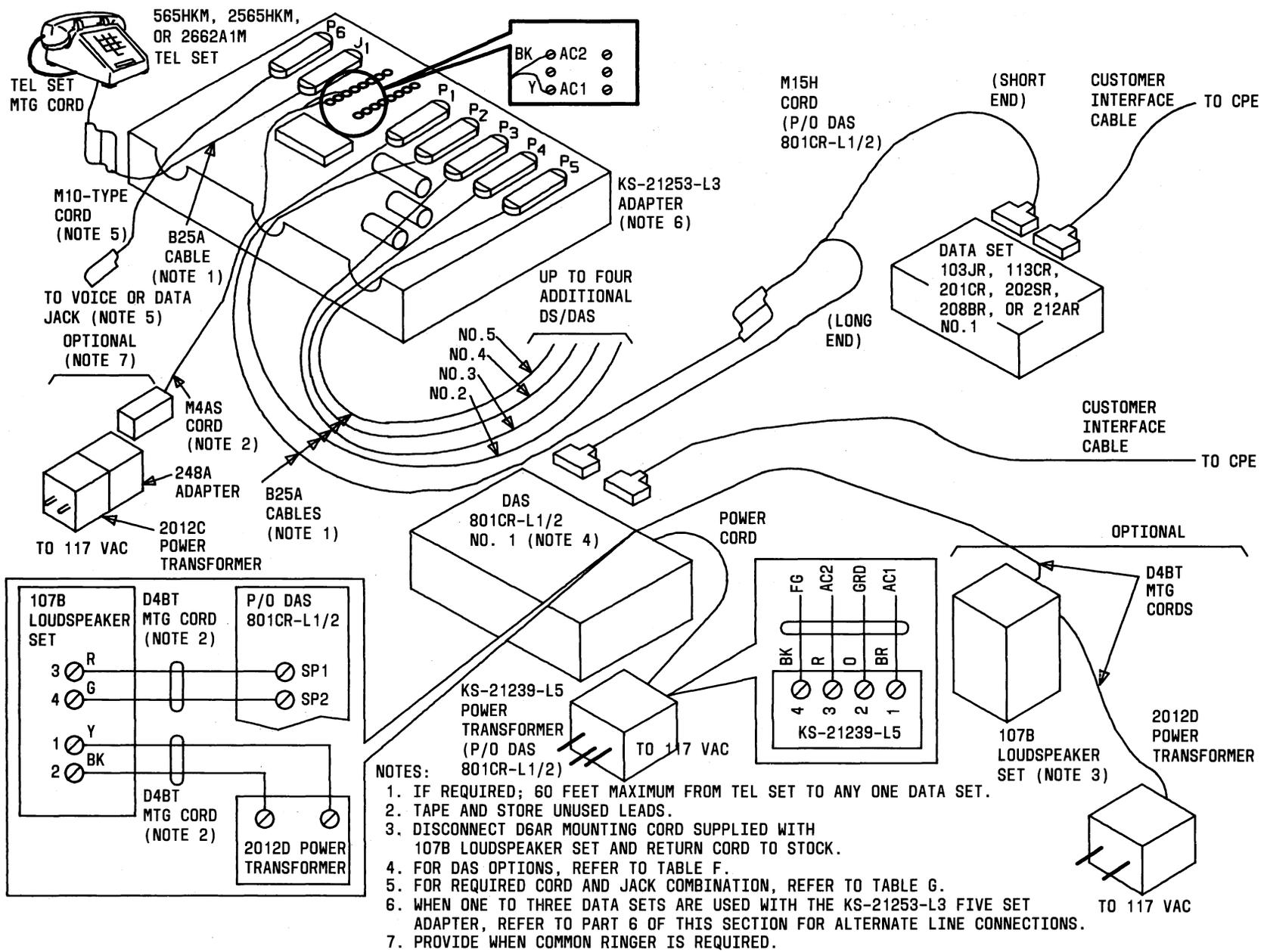


Fig. 8—One to Five ACUs With Data Sets 103JR, 113CR, 201CR, 202SR, 208BR, or 212AR and Shared Telephone Set

TABLE E
CORDS USED WITH DAS 801A-
AND 801C-TYPE ACUS

ACU LEAD DESIGNATION	COLOR CODE			
	M13G CORD	D10P CORD	M14C CORD	D10H CORD
D1	W-BR	W-BR	W-BR	W
D2	—	—	BR-W	—
DT	W-G	W-G	W-G	BR-G
T	W-BL	W-BL	W-BL	G
DR	G-W	G-W	G-W	BR-R
R	BL-W	BL-W	BL-W	R
TK	W-O	W-O	BL-R	BR-BK
C	BR-W	BR-W	R-BL	BK
SH1	S-W	S-W	S-W	BL
SH2	W-S	W-S	W-S	BR-Y
1	—	—	O-R	—
2	—	—	R-O	—
GRD	O-W	O-W	O-W	Y
3	O-R	—	W-O	—
SP1	BL-R	—	—	—
SP2	R-BL	—	—	—

Note 1: All unused leads must be individually taped and stored.

Note 2: At installations involving data set 103E, G, or H, tape and store S-W lead of the M13G cord and connect O-R lead of the M13G cord to the terminal where S-W lead of the replaced ACU was connected.

when used with these registered data sets. Table G provides the required cord and jack combination for registered arrangements. Table H provides the connections for the M4AS and M4AU cords when used in registered arrangements.

6.03 Nonregistered Arrangements: Figures 9 through 16 provide connection and option information for the ACU when used with the following nonregistered data sets and data coupler.

- Fig. 9—Data Set 103A3
- Fig. 10—Data Set 201A3, A4, B3, B4 or 201A, B List-Type
- Fig. 11—Data Set 202C
- Fig. 12—Data Set 402C

TABLE F

DAS 801CR-L1/2 ACU OPTIONS FOR DATA SET
103JR, 113CR, 201CR, 202SR, 208BR, OR 212AR

103JR, 113CR, OR 212AR			201CR, 202SR, OR 208BR		
REQUIRED	NOT USED	CHOOSE	REQUIRED	NOT USED	CHOOSE
X	W	V* or Y	W	X	V* or Y
T	S	R or H	S	T	R or H
ZG	Q	G or Z	ZG	Q	G or Z
ZP	ZN	ZQ, ZR, ZS, or ZT ZU or ZV	ZN	ZP	ZQ, ZR, ZS, or ZT ZU or ZV

* If option V is installed, also install option ZU.

TABLE G

CORD AND JACK COMBINATION FOR REGISTERED ARRANGEMENTS

FIG. NO.	TYPE OF DATA SETS INSTALLED	JACK USOC NO.	JACK SWITCHES SET TO	CORD CODE
4, 5, and 6	100 Series Only	RJ11C	(None)	M4AS
		RJ41S	PROG	M4AS
		RJ45S	(None)	M4AS
	200 Series Only	RJ41S	FLL	M4AU
7 and 8	100 Series Only	RJ21X	(None)	M10J
		RJ26X	PROG	M10H
		RJ27X	(None)	M10H
	200 Series Only	RJ26X	FLL	M10G
	100 Series Mixed With 200 Series	RJ26X	FLL	M10G

TABLE H

M4AS AND M4AU CORDS CONNECTIONS

M4AS CORD				
LEAD		CONNECT TO SCREW TERMINALS		
FUNCTION	COLOR	565HKM OR 2565HKM TELEPHONE SET	2662A1M TELEPHONE SET	153A ADAPTER
Tip	G	RT	TB1-7	B
Ring	R	RR	Tel Net. A	R
*	Y	LG	†	2T
*	BK	LH	†	2R
M4AU CORD				
LEAD		CONNECT TO SCREW TERMINALS		
FUNCTION	COLOR	565HKM OR 2565HKM TELEPHONE SET	2662A1M TELEPHONE SET	153A ADAPTER
Tip	O	RT	TB1-7	B
Ring	BL	RR	Tel Net. A	R
*	Y	LH	†	2T
*	BK	LG	†	2R

* These leads are not used and are terminated for storage only.

† Tape and store.

- Fig. 13—Data Set 103J, 113C, or 212A Using M13G Cord
- Fig. 14—Data Set 201C, 202S, or 208B Using M13G Cord
- Fig. 15—Data Set 103J, 113C, 201C, 202S, 208B, or 212A Using M15H Cord
- Fig. 16—1001F Data Coupler

6.04 Multiple Power Outlets: To eliminate the need for several 110 Vac outlets, the individual KS-21239-L5, 2012C, and 2012D transformers can be plugged into a multiple power outlet strip. A 602-15 Waber Electric power outlet strip accommodates three transformers. A 1A2 power panel accommodates eight transformers. If there

is interference, the spade lugs must be bent upward. A KS-14532-L20 or equivalent cord is required with the 1A2 power panel.

6.05 KS-21253-L3 Five Set Adapter—Alternate Line Connections: When one to three data sets are used with the KS-21253-L3 five set adapter, the following line connections may be used in place of the M10-type cord. Connect the appropriate M4A-type cord to one of the terminal pairs T1-R1, T2-R2, or T3-R3 of the adapter, as described below.

Connections for 100-Type Data Sets

Connect the green and red leads of an M4AS cord to the T and R terminals, respectively, of one terminal pair. Plug the cord into a voice jack

USOC RJ11C, a data jack USOC RJ41S, with the switch set to the PROG position, or a data jack USOC RJ45S. Tape and store the unused leads of the cord.

Connections for 200-Type Data Sets

Connect the orange and blue leads of an M4AU cord to the T and R terminals, respectively, of one terminal pair. Plug the cord into a data jack USOC RJ41S, with the switch set to the FLL position. Tape and store the unused leads of the cord.

7. REFERENCES

7.01 The following Bell System Practices contain additional information that may be useful when installing an ACU.

SECTION	TITLE
591-041-200	Data Set 113C-L1/2—Transmitter-Receiver—Single Set—Installation and Connections
591-044-200	Data Set 103JR-L1/2—Transmitter-Receiver—Single Set—Installation and Connections
591-046-200	Data Set 113CR-L1A/2—Transmitter-Receiver—Single Set—Installation and Connections
592-011-201	Data Sets 201A3, A4, and 201B3, B4—Transmitter-Receiver— Installation and Connections
592-011-202	Data Sets 201A- and 201B-List Type—Transmitter-Receiver— Installation and Connections
592-015-200	Data Set 202C-Type—Transmitter-Receiver—Installation and Connections
592-028-200	Data Set 202S—Transmitter-Receiver—Installation and Connections
592-029-200	Data Set 201C—Transmitter-Receiver—Installation and Connections
592-030-200	Data Set 208B-Type—Transmitter-Receiver—Installation and Connections
592-034-200	Data Set 212A—Transmitter-Receiver—Installation and Connections
592-036-200	Data Set 201CR-L1C—Transmitter-Receiver—Single Set—Installation and Connections
592-037-200	Data Set 202SR—Transmitter-Receiver—Single Set—Installation and Connections
592-038-200	Data Set 208BR-L1C—Transmitter-Receiver—Installation and Connections
314-205-501	Data Systems—DATAPHONE® Service and Data Access Arrangements on Direct Distance Dialing Network—Test Requirements for Subscriber, Foreign Exchange, and Remote Exchange Lines
590-010-200	Data Sets and Data Access Arrangements—General Installation and Connection Information
590-010-202	Data Sets—Station Arrangements For Mixed Data Sets in 40A-Type Data Mountings
590-011-202	Registered Data Sets—Station Arrangements for Registered Data Sets in 40A3 Data Mountings
590-103-111	1001F Data Coupler—Description, Installation, Maintenance, and Tests
591-014-201	Data Set 103A3—Installation and Connections
591-039-200	Data Set 103J-L1/2—Transmitter-Receiver—Single Set—Installation and Connections

SECTION	TITLE	SECTION	TITLE
592-039-200	Data Set 212AR-L1A/2A—Transmitter-Receiver—Installation and Connections	598-088-100	Data Auxiliary Set 801CR-L1/2—Description and Operation
594-019-200	Data Set 402C-Type—Transmitter—Installation and Connections	598-088-500	Data Auxiliary Set 801CR-L1/2—Test Procedures

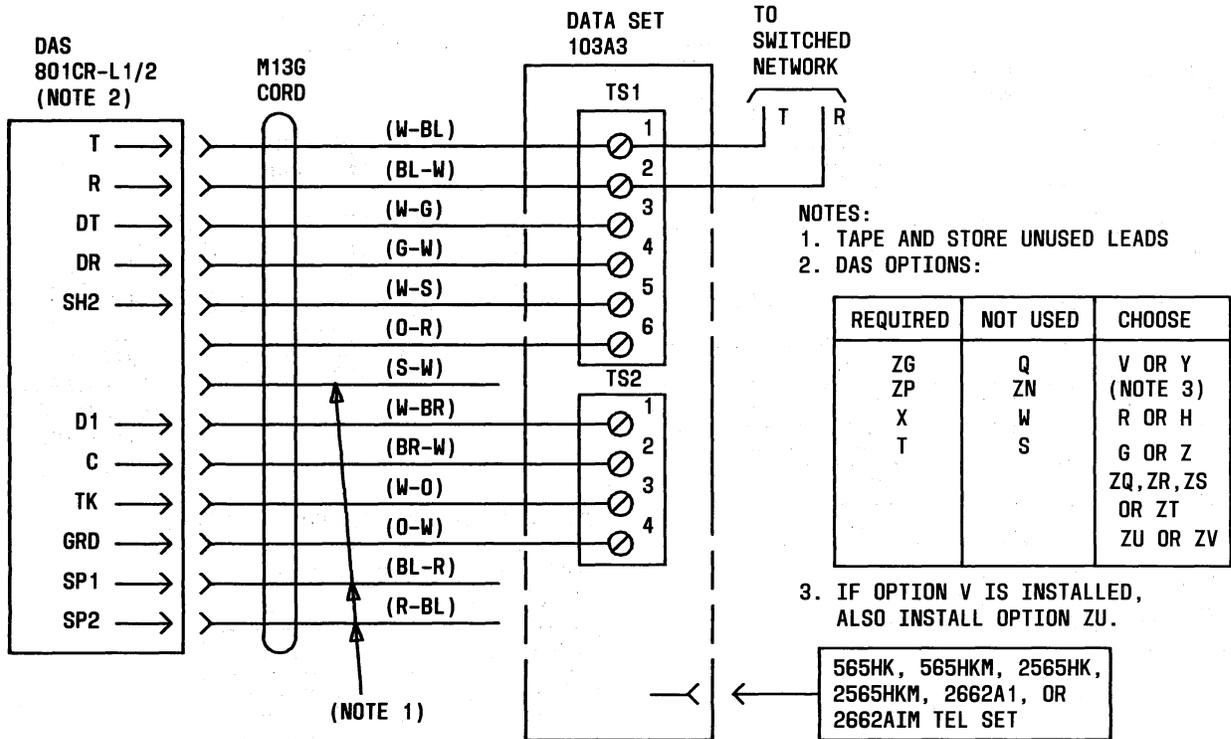


Fig. 9—ACU With Data Set 103A3

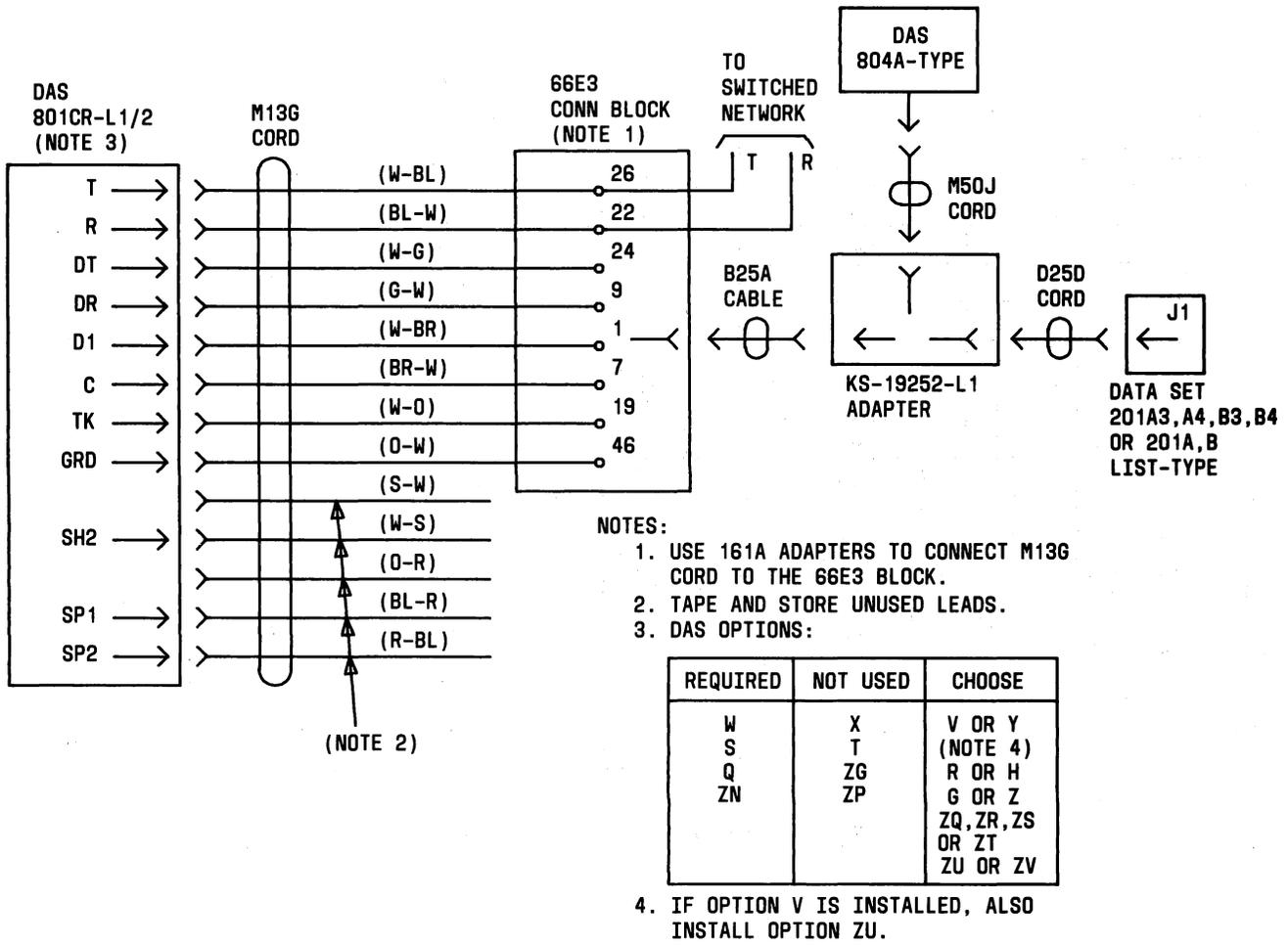
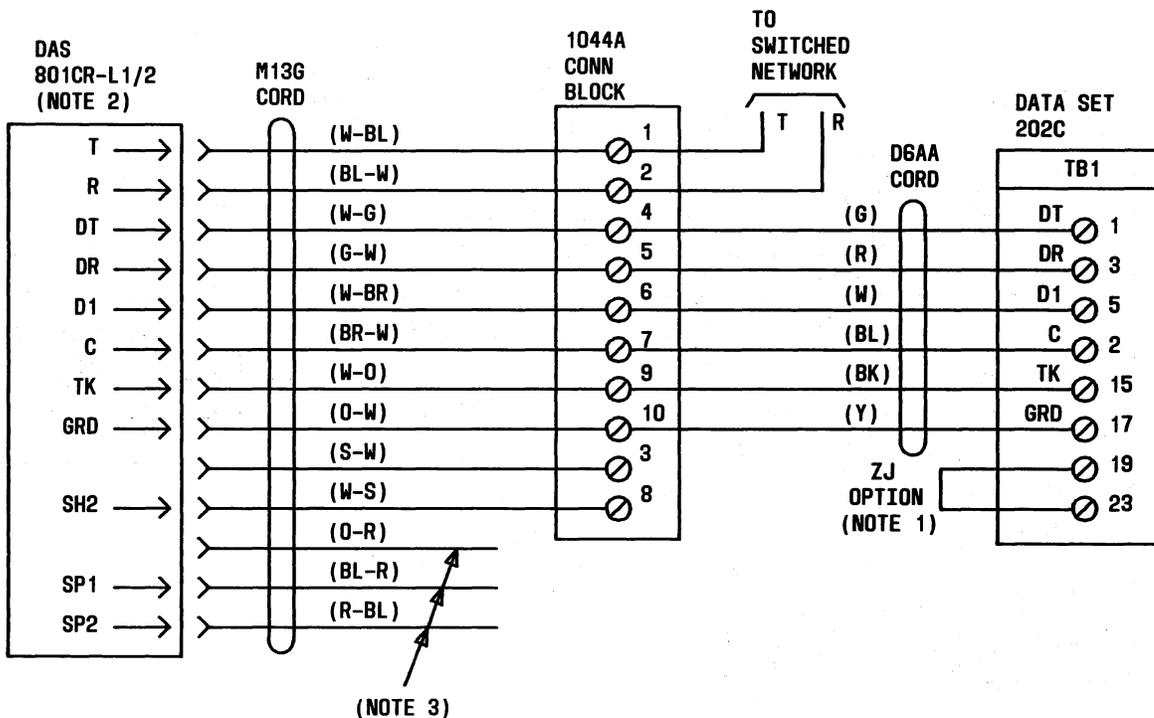


Fig. 10—ACU With Data Set 201A3, A4, B3, B4, or 201A, B List-Type



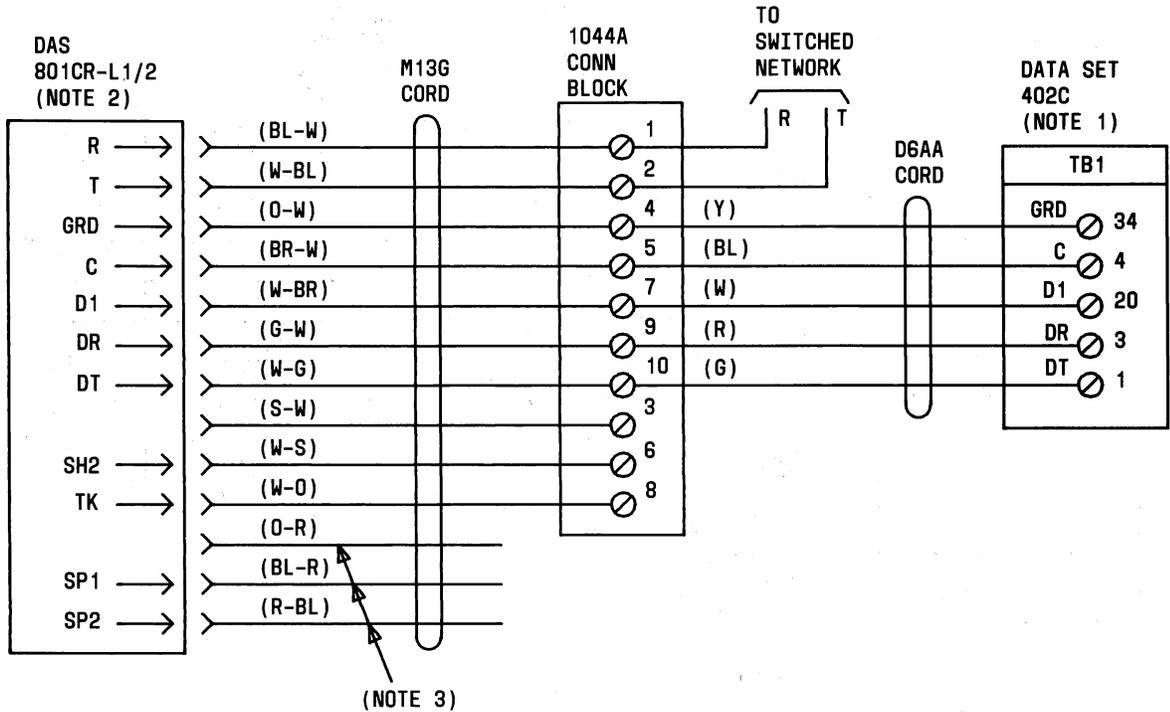
NOTES:

1. ZJ OPTION IS REQUIRED FOR GROUND START ACU. IN ADDITION, ADD DESIGNATION DIAL TONE - IN SPARE 1 POSITION ON KEY DESIGNATION STRIP, THE STRAP IS NOT REQUIRED FOR LOOP START ACU AND IS STORED AT TB1-17 AND 20.
2. DAS OPTIONS:

REQUIRED	NOT USED	CHOOSE
W	X	V OR Y
S	T	(NOTE 4)
Q	ZG	R OR H
ZN	ZP	G OR Z
		ZQ, ZR, ZS
		OR ZT
		ZU OR ZV

3. TAPE AND STORE UNUSED LEADS.
4. IF OPTION V IS INSTALLED, ALSO INSTALL OPTION ZU.

Fig. 11—ACU With Data Set 202C



NOTES:

- ON DS 402C, TB2, STRAP THE FOLLOWING TERMINALS: 40 TO 41, 43 TO 44, 46 TO 47, 49 TO 50, 53 TO 54, 56 TO 57, 59 TO 60, 62 TO 63.
- DAS OPTIONS:

REQUIRED	NOT USED	CHOOSE
S	T	V OR Y
R	H	(NOTE 4)
Q	ZG	G OR Z
W	X	ZQ,ZR,ZS OR ZT
ZN	ZP	ZU OR ZV

- TAPE AND STORE UNUSED LEADS.
- IF OPTION V IS INSTALLED, ALSO INSTALL OPTION ZU.

Fig. 12—ACU With Data Set 402C

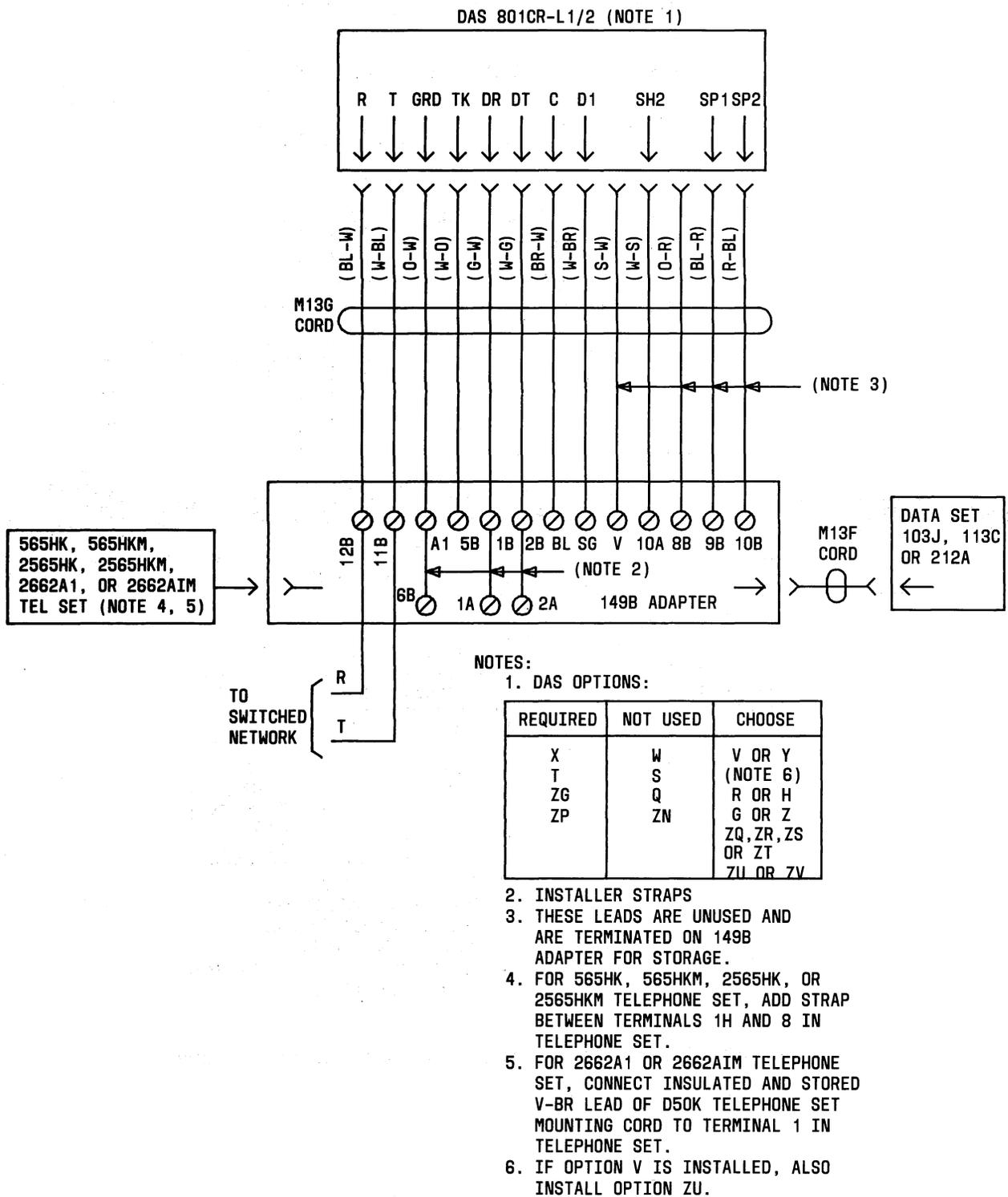


Fig. 13—ACU Using M13G Cord With Data Set 103J, 113C, or 212A

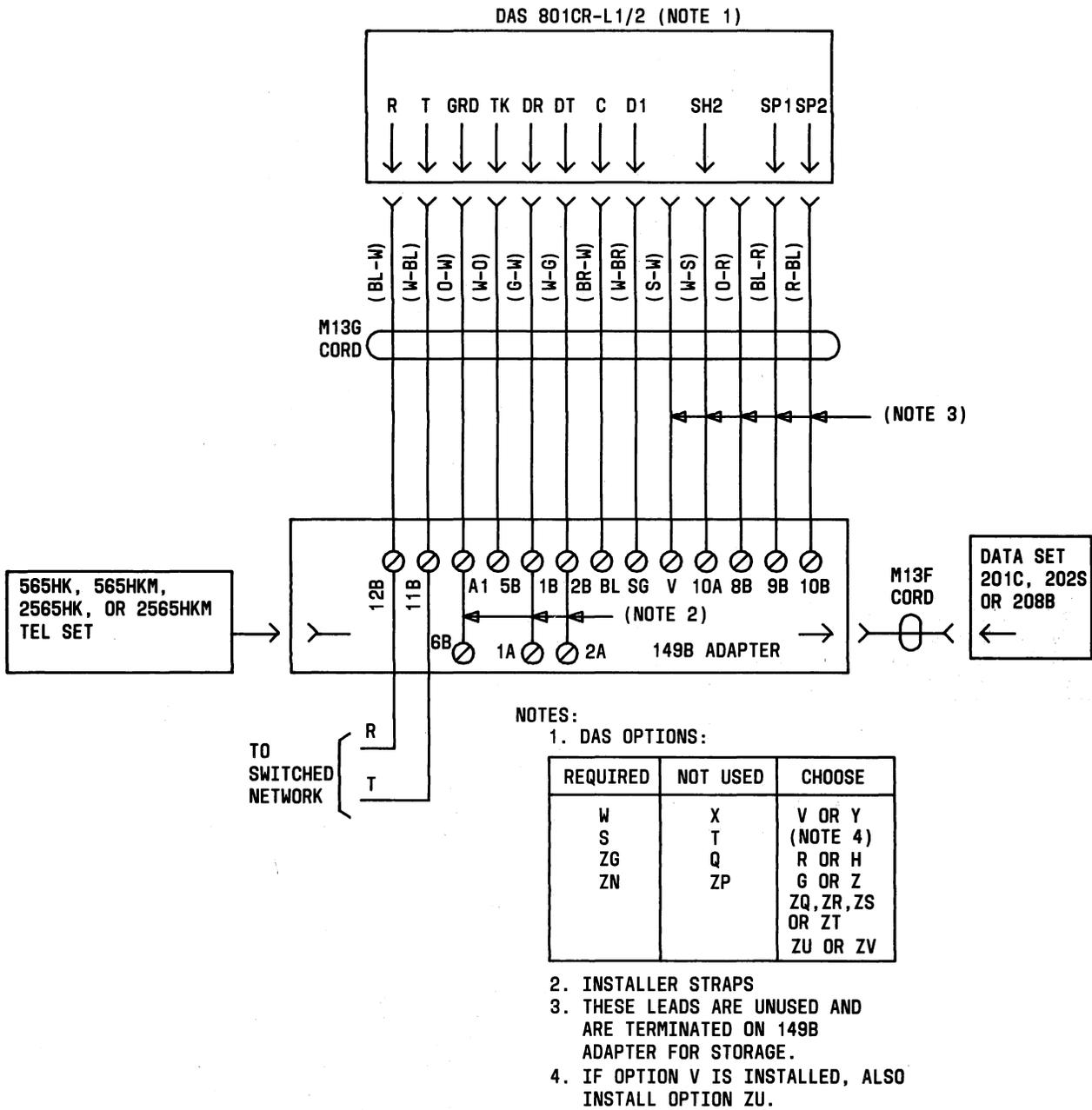
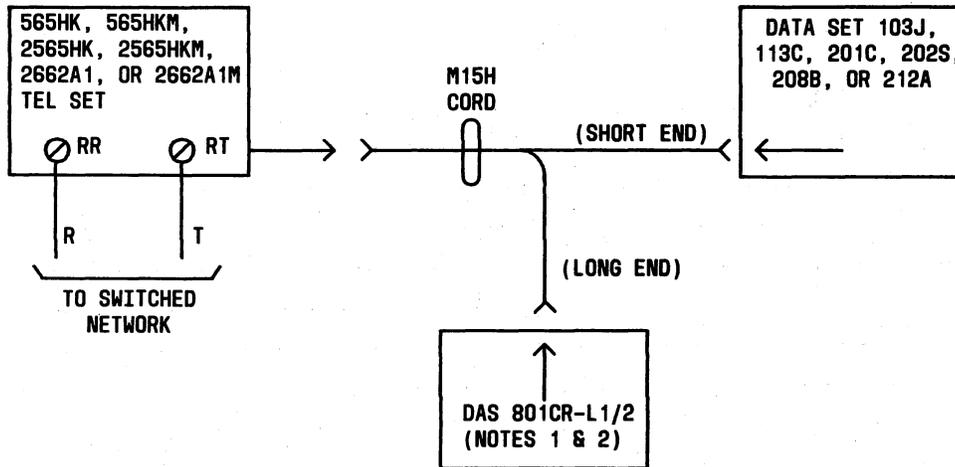


Fig. 14—ACU Using M13G Cord With Data Set 201C, 202S, or 208B



NOTES:

1. DAS OPTIONS FOR DATA SET 103J, 113C, OR 212A:

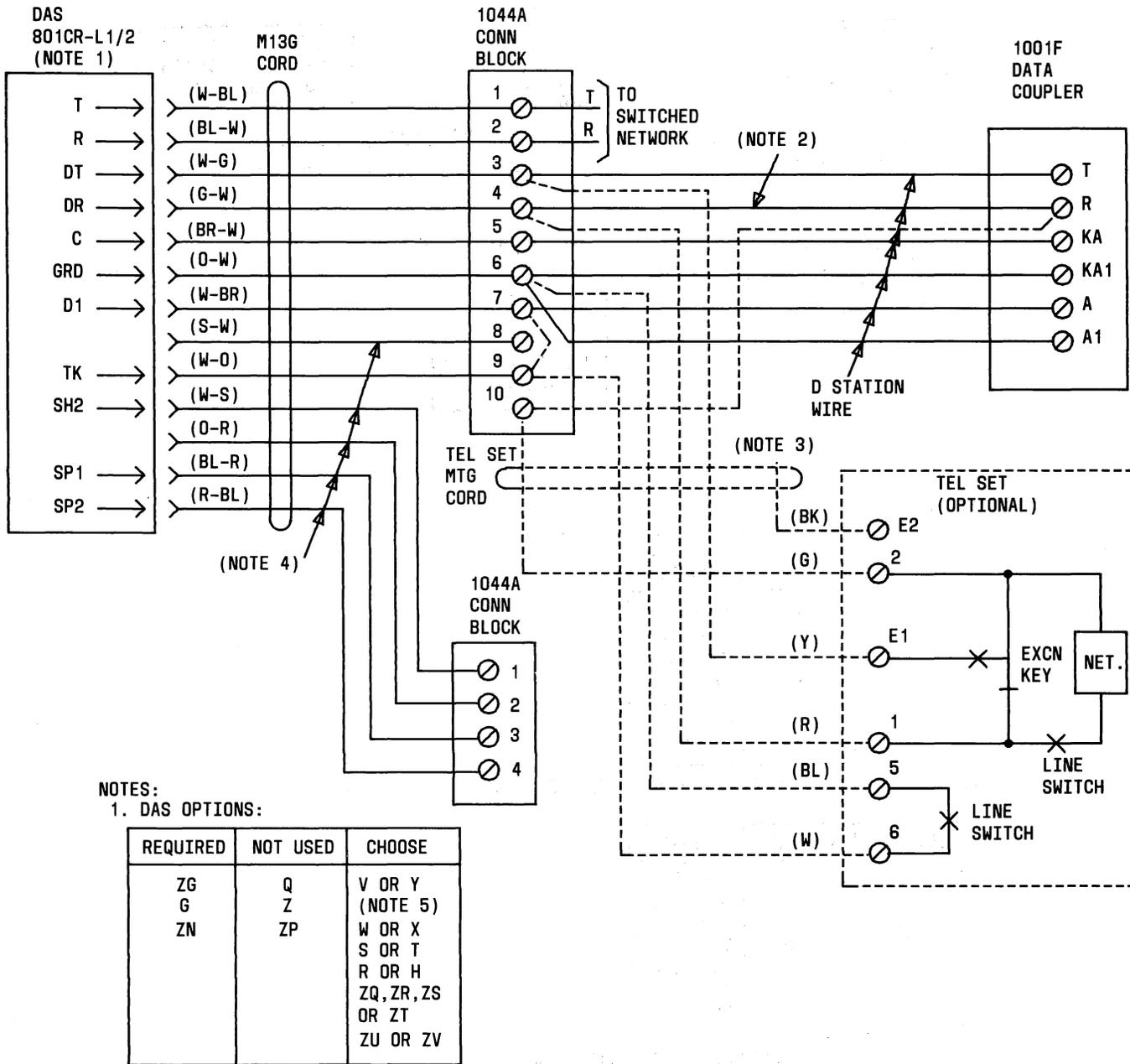
REQUIRED	NOT USED	CHOOSE
X	W	V OR Y
T	S	(NOTE 3)
ZG	Q	R OR H
ZP	ZN	G OR Z
		ZQ, ZR, ZS
		OR ZT
		ZU OR ZV

2. DAS OPTIONS FOR DATA SET 201C, 202S, OR 208B:

REQUIRED	NOT USED	CHOOSE
W	X	V OR Y
S	T	(NOTE 3)
ZG	Q	R OR H
ZN	ZP	G OR Z
		ZQ, ZR, ZS
		OR ZT
		ZU OR ZV

3. IF OPTION V IS INSTALLED, ALSO INSTALL OPTION ZU.

Fig. 15—ACU Using M15H Cord With Data Set 103J, 113C, 201C, 202S, 208B, or 212A



- WHEN TEL SET IS PROVIDED, DELETE THIS LEAD AND CONNECT DASHED WIRING.
- TAPE AND STORE.
- THESE LEADS ARE NOT USED AND ARE TERMINATED ON 1044A CONN BLOCKS FOR STORAGE.
- IF OPTION V IS INSTALLED, ALSO INSTALL OPTION ZU.

Fig. 16—ACU With 1001F Data Coupler