DATA SET 212AR-L1A/2A

INSTALLATION AND CONNECTION

1. GENERAL

1.01 This section contains information needed to install options and to install and connect data set (DS) 212AR-L1A/2A. The data set should be installed in conformance with the general instructions given in Section 590-010-200. Refer to Section 590-011-202 for installation of multiset arrangements in 40A-type data mountings.

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

1.03 Data set 212A has been replaced by DS 212AR which is the registered version of the data set. The DS 212AR meets the requirements of the FCC registration program. The registration number for DS 212AR is AS593M-67742-DM-E. The ringer equivalence number of the DS 212AR is 1.3A.

1.04 General information concerning registered data sets and arrangements follows:

- Registered versions of data sets are coded with an "R" in the data set code.

- All Bell System switched network data sets not coded with an "R" in the data set code are grandfathered.

- Grandfathered DS 212A may be connected in registered arrangements provided the interface with the network is made with the appropriate jack and cord as shown in the connection diagrams in this section.

- Data set 212AR may be connected in grandfathered arrangements provided the interface with the network is made using the appropriate cords as shown in the connection diagrams in this section.

- Connections to the telephone lines must be made via the proper cords to the voice or data jack as shown in the connection diagrams in this section.

- In the one-to-five data set arrangements a mixture of new-family data sets (103JR, 113CR, 113DR, 201CR, 202SR, 208BR, and 212AR) may be used as shown in the connection diagrams in this section.

1.05 Prior to installing the data set, verify that the overall facilities meet type 2 requirements specified in the section entitled Data Systems—DATAPHONE® Service—Direct Distance Dialing Network—Test Requirements for Subscriber, Foreign Exchange, and Remote Exchange Lines (314-205-501).

1.06 The DS 212AR-L1A/2A should be located near the customer-provided equipment (CPE) because the interface cord provided by the customer must not exceed 50 feet in length (to reduce stray capacitance and conform to Electronic Industries Association [EIA] standards). To minimize inductive interference to data signals on the telephone (data) line, the line should not be carried in the same run as the cable between the data set and CPE

or lines connected to teletypewriter services. If this condition cannot be met, it will be necessary to run the telephone (data) line in type SK (shielded), or equivalent, station wire between the data jack and cable distribution terminal or building entrance. Ground the shield at one end only, preferably the distribution terminal end.

1.07 Low voltage alternating current is supplied to the data set by the KS-21239-L5 plug-mounted transformer. The customer must provide a standard 3-wire, grounded 105 to 129 volts at 57 to 63 Hz, power receptacle that is easily accessible to the data set. The receptacle must not be under control of a switch. The power required is approximately 9 watts.

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

1.08 A 25-pin female connector is provided at the rear of the data set for connection to the CPE. The customer must provide a cord terminated with a Cinch or Cannon DB-19604-432 plug equipped with a DB-51226-1 hood (or equivalent). Data set connections to the CPE are in accordance with Table A.

1.09 A 25-pin male connector is provided at the rear of the data set for connection to telephone company (telco) equipment via the M13F cord. Data set connections to telco equipment are in accordance with Table B.

1.10 To gain access to the circuit packs and option switches, it is necessary to remove the data set from the mounting:

(a) Remove the front cover by gently depressing it at the top and rotating it down and out of the mounting.

(b) Remove the data set from the mounting by pulling on the wire handle on the faceplate.

Note: Figure 1 shows the data set unfolded for locating option switches. Change options without unfolding CM1.

1.11 To reassemble the data set, proceed as follows:

(a) Slide the data set into the mounting. Ensure that the data set is completely plugged into the connector in the rear of the mounting.

(b) Replace the front cover by hooking the tabs on the bottom of the cover into the detents in the bottom of the mounting.

(c) Gently rotate the top of the front cover into the mounting until it snaps into place.

1.12 A label (E-6550) and holder (841 788 292) are available for use with DS 212AR-L1A/2A to permit identification of the circuit number and trouble call number. The label has a pressure sensitive adhesive which can be used to adhere to the bottom of the front cover. Mount the holder below the center of the front cover and flush with the front edge.

2. OPTIONS

2.01 Before the data set is placed in service, it should be disassembled and checked to make sure proper options are installed. The options shown as factory-provided in Table C will be the most commonly used.

2.02 Options are installed and removed by means of multiple section rocker assemblies (Fig. 2), strapping plugs, and by a screw switch on the backplane (signal ground to frame ground connection). A long screwdriver (6-inch) is needed to operate the screw switch that controls the grounding option. If the appropriate screwdriver is not available, the backplane may be taken out of the housing by removing the two screws on the bottom of the housing.

2.03 Refer to Table C for a summary of data set options.

2.04 *Tip, Ring Make Busy:* When option F (IN) is selected, a resistor is connected from tip to ring when the data set is made busy. It is recommended for use on terminate-only lines used behind line hunting equipment.

2.05 *CC Indication for Analog Loop:* When option ZF (ON) is selected, the CPE receives

TABLE A

CUSTOMER INTERFACE

PIN NO.	EIA DESIG	FUNCTION	SIGNAL ORIGINATED BY CPE OR BY DS
1	—	Not Connected	
2	BA	Send Data (SD) (Note 1)	CPE
3	BB	Receive Data (RD) (Note 1)	DS
5	CB	Clear-to-Send (CS) (Note 2)	DS
6	CC	Data Set Ready (DSR) (Note 2)	DS
7	AB	Signal Ground (SG)	Ground
8	CF	Received Line Signal Detector (RLSD) (Note 2)	DS
9	—	+P	DS
10	—	−P	DS
12	CI	Speed Indication (CI) (Note 3)	DS
15	DB	Transmit Clock (SCT)	DS
17	DD	Receive Clock (SCR)	DS
18	(CN)	Make Busy/Analog Loop (Optional Pin)	DS
20	CD	Date Terminal Ready (DTR) (Note 2)	CPE
22	CE	Ring Indicator (RI) (Note 5)	DS
23	CH	Speed Select Originate	DS
24	DA	External Transmit Clock (SCTE)	CPE
25	CN or TM	Make Busy/Analog Loop or Test Mode (Note 4)	CPE

Note 1: Space = +V; Mark = −V

Note 2: ON = +V; OFF = −V

Note 3: High Speed = +V; Low Speed = −V

Note 4: Loopback = +V; Normal Use = -V

Note 5: Ringing = +V; No Ringing = −V

a CC (data set ready) *on* indication while the data set is in the analog loop mode.

2.06 *Speed Control:* When option XJ (interface) is selected, it enables high-speed or low-speed operation of an originating data set to be controlled through pin 23 of the customer's interface. When option XK (HS button) is selected, high-speed or low-speed operation is controlled by the front panel HS button.

2.07 *Interface Controlled Make Busy/Analog Loop-CN:* When option YE (IN) is selected, the CN (make busy/analog loop) interface lead from the CPE can be used to make the telephone line appear busy; or if the data terminal ready lead is

TABLE B

TELEPHONE AND ACU INTERFACE

PIN NO.	DESIGNATION	FUNCTION
1	L	Telephone set line lamp control from data set
2	MB1	Make busy relay contact in data set
3	MB	
4	LG	Ground from data set for telephone set line lamp
5	TD	Talk/data lead from telephone set to data set
7	T	Telephone line tip
8	R	Telephone line ring
12	RD	Data set ring detector contact closure to ground
14	C	Data mode indication contact closure to ground for DAS 801C
16	D1	Data mode contact closure to ground to data set from DAS 801-type
21	T1	Tip of telephone set
22	R1	Ring of telephone set
23	A	"A" lead control for KTU or ACU applications
24	A1	
25	TDG	Data set ground return for TD control signal

on, to place the data set in the analog loop test mode.

2.08 *Transmitter Timing:* This option must be selected when the data set is to be used in the high-speed mode. The option selects one of three possible sources for the transmitter timing signal. The state of this option does not affect operation in the low-speed mode.

- YC (INTERNAL)—The transmitter clock is derived from a master oscillator within the data set. This option is recommended for 1200-bps character-asynchronous operation.

- YD (EXTERNAL)—The transmitter clock is phase-locked to an external source provided by the CPE on the DA circuit (transmit signal element timing, data terminal equipment source).

- WI (SLAVE)—The transmit clock is phase-locked to the DD (receive clock) interface circuit. This option is provided for possible use with multiplexers or other systems requiring slave timing.

2.09 *1200-bps Operation:* When option YG (ASYNC/START-STOP) is selected, the data set operates in the 1200-bps character-asynchronous format. When option YH (SYNC) is selected, the data set operates in the 1200-bps synchronous format. Transmit and receive clocks which are provided for synchronous operation are not provided for character-asynchronous operation. The state of this option must be the same for any pair of DSs 212AR-L1A/2A which communicate with each other. The state of this option does not affect operation in the low-speed mode.

> *Note:* When option YH is selected, the 1200-bps transmit and receive clocks are present on the DB (pin 15) and DD (pin 17) circuits at all times, even when the data set is in the low-speed mode.

2.10 *Character Length:* A decision must be made on this option whenever option YG (1200-bps operation-ASYNC/START-STOP) is selected. The state of this option does not affect operation in the low-speed mode.

- YI (Character length 9)—When this option is selected, the total number of bits per character (including start and stop bits) must be nine.

- YJ (Character length 10)—When this option is selected, the total number of bits per character (including start and stop bits) must be 10.

The bits between the start and stop bits do not have to conform to any coding system. The setting of this option must be the same for any pair of DSs 212AR-L1A/2A which communicate with each other. If option YH (SYNC) is selected, the character length option has no effect on data set operation.

2.11 *Receiver Responds to Digital Loop:* This option is active only when the data set is in the high-speed (1200-bps) mode. When option YK (IN) is selected, the data set responds to a request for a digital loop from the distant data station. When option YK (OUT) is selected, the data set cannot be put into the digital loop test mode remotely. This option does not affect the
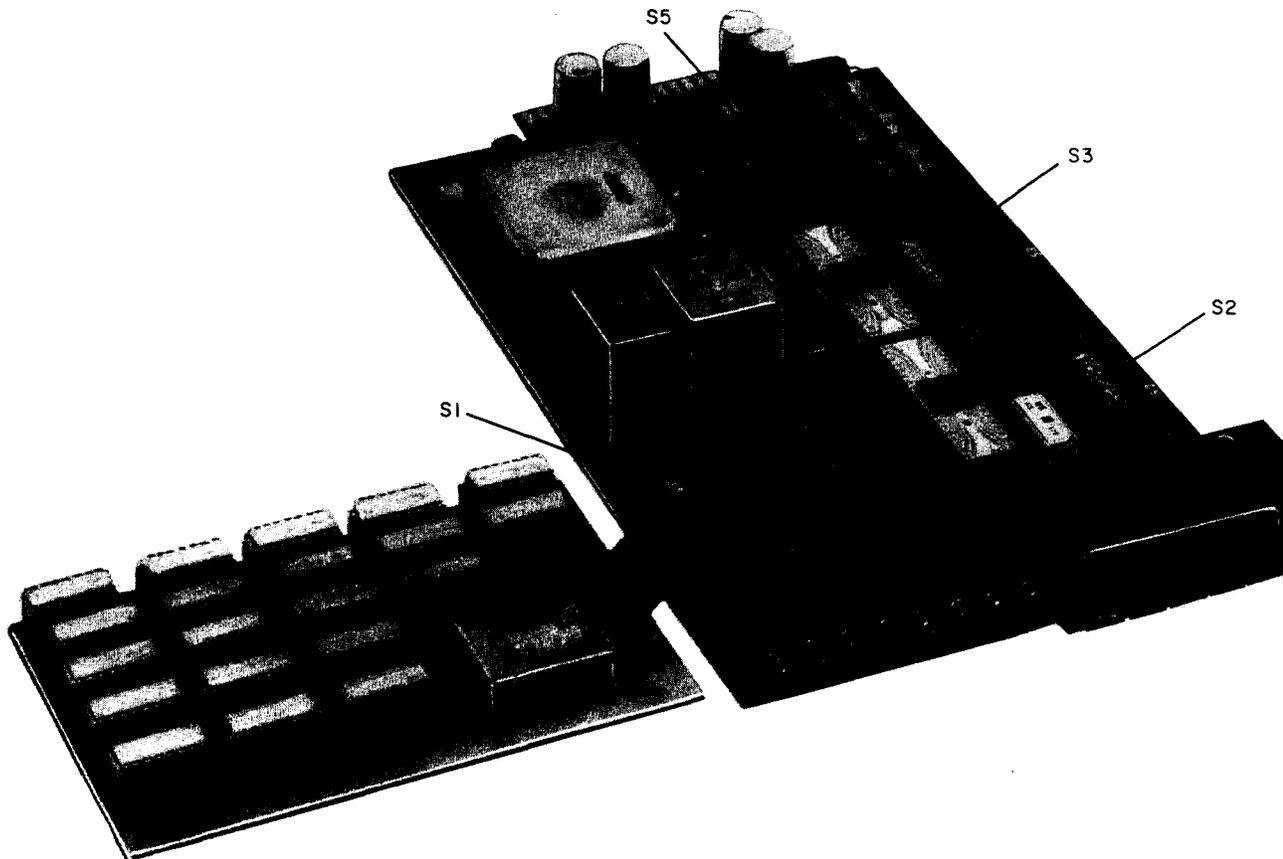
Fig. 1—Data Set Unfolded

operation of the DL switch on the front panel and does not affect operation in the low-speed mode.

2.12 Interface Controlled Remote Digital Loop (RDL): When option XL (IN) is selected, a positive voltage on pin 21 will enable the RDL circuitry the same as depressing the RDL button on the front panel. When option XM (OUT) is selected, the RDL circuitry can be enabled only by depressing RDL button on the front panel.

2.13 Loss of Carrier Disconnect: When option S (IN) is selected, the data set terminates the call if carrier disappears from the line for approximately 350 ms.

2.14 Receive Space Disconnect: When option V (IN) is selected, the data set terminates the call upon receiving approximately 1.6 seconds of spacing signal.

2.15 CB and CE Indications: When option A (COMMON) is selected, the CB (clear-to-send) interface lead is forced *off* whenever the CF (received line signal detector) lead goes *off*. When option B (SEPARATE) is selected, the state of the CF lead has no effect on the state of the CB lead.

2.16 Send Space Disconnect: When option T (IN) is selected, the data set transmits approximately 4 seconds of spacing signal at the end of a data call. This causes the distant data set to disconnect if it is equipped with option V (receive space disconnect—IN).

2.17 Automatic Answer: If option ZH (IN) is selected, the data set answers a telephone call without manual assistance if the CD (data terminal ready) interface lead is *on.* This feature is disabled when the AL switch on the front panel is pressed or when the CN (make-busy/analog loop)

TABLE C

DATA SET 212AR OPTIONS

FEATURE	OPTION	DESCRIPTION	SWITCH SETTING S1 SWITCH CONTACTS 1	2	3	PROVIDE
Tip, Ring Make Busy	F	IN	X	—	—	One per set
	E*	OUT	O	—	—	
CC Indication for Analog Loop	ZF*	ON	—	—	X	One per set
	ZE	OFF	—	—	O	

FEATURE	OPTION	DESCRIPTION	S2 1	2	3	4	5	6	7	8	9	S5 1	2	PROVIDE
Speed Control	XJ	INTERFACE	O	—	—	—	—	—	—	—	—			One per set
	XK*	HS BUTTON	X	—	—	—	—	—	—	—	—			
Interface Controlled Make Busy/Analog Loop-CN	YE	IN	—	O	—	—	—	—	—	—	—			One per set
	YF*	OUT	—	X	—	—	—	—	—	—	—			
Transmitter Timing	YC*	INTERNAL	—	—	O	O	—	—	—	—	—			One per set
	YD	EXTERNAL	—	—	O	X	—	—	—	—	—			
	WI	SLAVE	—	—	X	O	—	—	—	—	—			
1200-bps Operation	YG*	ASYNC/START-STOP	—	—	—	—	O	—	—	—	—	O	O	One per set
	YH	SYNC	—	—	—	—	X	—	—	—	—	X	X	
Character Length (Use With YG)	YI	9-BIT	—	—	—	—	—	O	—	—	—			One per set
	YJ*	10-BIT	—	—	—	—	—	X	—	—	—			
Receiver Responds to Digital Loop	YK*	IN	—	—	—	—	—	—	O	—	—			One per set
	YL	OUT	—	—	—	—	—	—	X	—	—			
Interface Controlled Remote Digital Loop	XL	IN	—	—	—	—	—	—	—	X	—			One per set
	XM*	OUT	—	—	—	—	—	—	—	O	—			

FEATURE	OPTION	DESCRIPTION	S3 SWITCH SETTINGS 1	2	3	4	5	6	7	8	PROVIDE
Loss of Carrier Disconnect	S*	IN	X	—	—	—	—	—	—	—	One per set
	R	OUT	O	—	—	—	—	—	—	—	
Receive Space Disconnect	V*	IN	—	X	—	—	—	—	—	—	One per set
	Y	OUT	—	O	—	—	—	—	—	—	
CB and CF Indications	A*	COMMON	—	—	X	—	—	—	—	—	One per set
	B	SEPARATE	—	—	O	—	—	—	—	—	
Send Space Disconnect	T*	IN	—	—	—	X	—	—	—	—	One per set
	U	OUT	—	—	—	O	—	—	—	—	
Automatic Answer	ZH*	IN	—	—	—	—	O	—	—	—	One per set
	ZG	OUT	—	—	—	—	X	—	—	—	
Answer Mode Indication	X	CE ON	—	—	—	—	—	X	—	—	One per set
	W*	CE OFF	—	—	—	—	—	O	—	—	
Speed Mode	YO	HIGH	—	—	—	—	—	—	X	—	One per set
	YP*	DUAL	—	—	—	—	—	—	O	—	
Interface Speed Indication - CI	YQ	IN	—	—	—	—	—	—	—	X	One per set
	YR*	OUT	—	—	—	—	—	—	—	O	

FEATURE	OPTION	DESCRIPTION	STRAPPING OPTIONS	PROVIDE
CN and TM Assignments	XO*	CN 25, TM NC	INSTALL E1 - E2, E3 - E4	One per set
	XN	CN 18, TM NC	INSTALL E1 - E2, E4 - E5	
	XR	CN 18, TM 25	INSTALL E2 - E3, E4 - E5	
Signal Ground to Frame Connection	Q*	IN	S1 CLOSED	One per 47D2 DM
	P	OUT	S1 OPEN	

X = Contact Closed   — = Contact Not Applicable   O = Contact Open   * = Factory-Provided

OPTION SWITCHES I THRU 5
OPEN (ROCKER DOWN ON SIDE
OPPOSITE THE NUMBERS)

OPTION SWITCHES 6 THRU
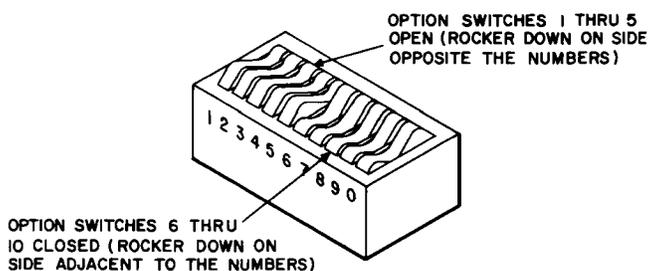IO CLOSED (ROCKER DOWN ON
SIDE ADJACENT TO THE NUMBERS)

Fig. 2—Option Switch

interface circuit is *on* and option YE (CN circuit—IN) is installed.

2.18 *Answer Mode Indication:* This option provides a means whereby the user can determine if the data set answered or originated the call. When option X (ON) is selected, the CE (ring indicator) lead at the answering station remains *on* after the call has been answered. This option does not affect normal operation of the CE lead. For the originating data set, the CE circuit remains *off* regardless of the state of the option.

2.19 *Speed Mode:* If option YO (HIGH) is selected, low-speed operation is prevented because the BB (received data), CB (clear-to-send), and CF (received line signal detector) leads are clamped *off* if an attempt is made to operate in the low-speed mode. If option YP (DUAL) is selected, the data set operates normally for both speed modes.

2.20 *Interface Speed Indication:* When option YQ (IN) is selected, the data set provides an indication of the data set speed mode on the CI (speed mode indicator) lead. The high-speed mode is indicated by an *on* condition on the CI lead. It is *off* in the low-speed mode and at all other times. The CI lead is disconnected from the CPE interface when option YR (OUT) is selected.

2.21 *CN and TM Assignments:* This group of options is provided by strapping plugs. They allow the user to configure the customer interface to be compatible with the ISO standard or to be compatible with data set interfaces that use the CN function on pin 25. When option XO is selected, the CN function is assigned to pin 25, but the TM function is not available. When option XN is selected, the CN function is assigned to

pin 18, but the TM function is not available. When option XR is selected, the CN function is assigned to pin 18, and the TM function is assigned to pin 25.

> *Note:* If analog loop control through the customer interface is required, option YE must be selected.

2.22 *Signal Ground to Frame Ground Connection:* When option Q is selected, (signal ground) interface lead is connected to frame ground. This arrangement provides additional margin against longitudinal power line noise. When option P is selected, the AB (signal ground) interface lead is disconnected from the frame ground. Due consideration should be given to possible noise conditions, ground potential differences, safety conditions, local electrical codes, and the data terminal manufacturer's recommendations.

3. INSTALLATION

3.01 The procedure for installing a DS 212AR-L1A/2A is as follows:

(1) Unpack the data set and remove the protective covering from the housing.

 This is important to prevent damage due to overheating.

(2) Disassemble the data set as directed in paragraph 1.08.

(3) Install the required options called for on the service order. Refer to Table C.

(4) Mark the installed options on the option label (E-6898) and attach it to the bottom of the housing.

(5) Reassemble the data set as directed in paragraph 1.09.

(6) Connect the data set to the telephone line and to power as directed on the appropriate connection diagram.

(7) Perform installation tests as directed in Section 592-039-500.

4. CONNECTIONS

4.01 The DS 212AR-L1A/2A is designed to be connected to a fixed loss loop circuit (see connecting wiring in Fig. 3) and requires no additional loop treatment. In cases where trouble is suspected to be caused by excessive transmission levels at the central office, refer to "Jacks for Registered Data Sets," Section 590-101-103 for installation of loss pads.

5. STATION ARRANGEMENTS

5.01 The station arrangements described in this part comply with the FCC registration program and are the only allowed installation for DS 212AR-L1A/2A. Section 590-011-202 describes installation of data stations using DS 212AR-L1A and 40A3 data mountings.

5.02 Since this is a modularized installation, connections are made, in general, by connecting cables and cords. In certain installations individual leads must be connected. In either case, refer to the illustration for that station arrangement for installation instructions. The registered FCC station arrangements are as follows:

Single Data Set Without Telephone (Fig. 4)

The following parts are required:

DS 212AR-L1A
47D2 Data Mounting ⎫ Order as
M4AU Cord   ⎭ DS 212AR-L1A/2A
153A Adapter
B25A Cable, as needed up to length shown in Fig. 4

> *Note:* An M4AU cord must be used for connection to a data jack (USOC RJ41S). A 7-foot cord is supplied with the data set.

Single Data Set With Telephone (Fig. 5)

The following parts are required:

DS 212AR-L1A
47D2 Data Mounting ⎫ Order as
M4AU Cord   ⎭ DS 212AR-L1A/2A
Telephone Set 565HKM, 2565HKM, or 2662A1M
B25A Cable, as needed up to length shown in Fig. 5

> *Note:* An M4AU cord must be used for connection to a data jack (USOC RJ41S). A 7-foot cord is supplied with the data set.

Single Data Set With Telephone (Alternate Arrangement) (Fig. 6)

The following parts are required:

DS 212AR-L1A
47D2 Data Mounting ⎫ Order as
M4AU Cord   ⎭ DS 212AR-L1A/2A
Telephone Set 565HKM, 2565HKM, or 2662A1M
B25A Cable, as needed up to length shown in Fig. 6
153A Adapter
KS-19252,L1 Adapter

> *Note:* An M4AU cord must be used for connection to a data jack (USOC RJ41S). A 7-foot cord is supplied with the data set.

Single Data Set, Data Auxiliary Set Without Telephone (Fig. 7)

The following parts are required:

DS 212AR-L1A
47D2 Data Mounting ⎫ Order as
M4AU Cord   ⎭ DS 212AR-L1A/2A
DAS 801CR-L1   ⎫ Order as
52A2 Data Mounting ⎭ DAS 801CR-L1/2
B25A Cable, as needed up to length shown in Fig. 7
107B Loudspeaker Set⎫
2012D Transformer   ⎬ optional
D4BT Cords   ⎭

> *Note:* An M4AU cord must be used for connection to a data jack (USOC RJ41S). A 7-foot cord is supplied with the data set.

Single Data Set, Data Auxiliary Set With Telephone (Fig. 8)

The following parts are required:

DS 212AR-L1A
47D2 Data Mounting ⎫ Order as
M4AU Cord   ⎭ DS 212AR-L1A/2A
DAS 801CR-L1   ⎫ Order as
52A2 Data Mounting ⎭ DAS 801CR-L1/2
Telephone Set 565HKM, 2565HKM, or 2662A1M
B25A Cable, as needed up to length shown in

Fig. 3—Connecting Wiring for DS 212AR-L1A/2A Without ACU

NOTES:
1. RT AND RR ARE LOCATED ON THE KEY TERMINAL BOARD NEAR THE LAMP STRIP.
2. L2 IS LOCATED ON THE TEL SET NETWORK.
3. THIS CORD IS SHIPPED WITH DATA SET 212AR-L1A/2.
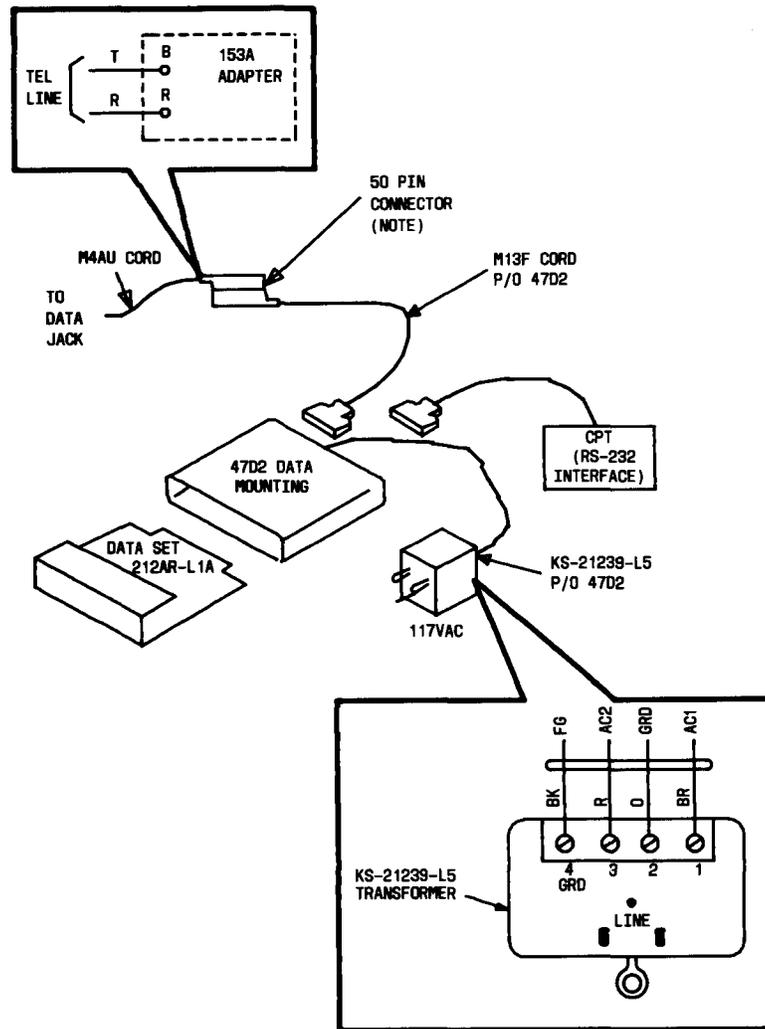
NOTE:
THE CONNECTOR MAY BE EXTENDED WITH B25A CABLES UP TO 60 FEET.

Fig. 4—Installation of DS 212AR-L1A/2A Without Telephone Set

Fig. 8
107B Loudspeaker Set ⎤
2012D Transformer   ⎬ optional
D4BT Cords   ⎦

> *Note:* An M4AU cord must be used for connection to a data jack (USOC RJ41S). A 7-foot cord is supplied with the data set.

*Single Data Set, Data Auxiliary Set With Telephone (Alternate Method) (Fig. 9)*

The following parts are required:

DS 212AR-L1A   ⎤ Order as
47D2 Data Mounting ⎬ DS 212AR-L1A/2A
M4AU Cord   ⎦

DAS 801CR-L1   ⎤ Order as
52A2 Data Mounting ⎦ DAS 801CR-L1/2
Telephone Set 565HKM, 2565HKM, or 2662A1M
B25A Cable, as needed up to length shown in Fig. 9
107B Loudspeaker Set ⎤
2012D Transformer   ⎬ optional
D4BT Cords   ⎦
153A Adapter
KS-19252,L1 Adapter
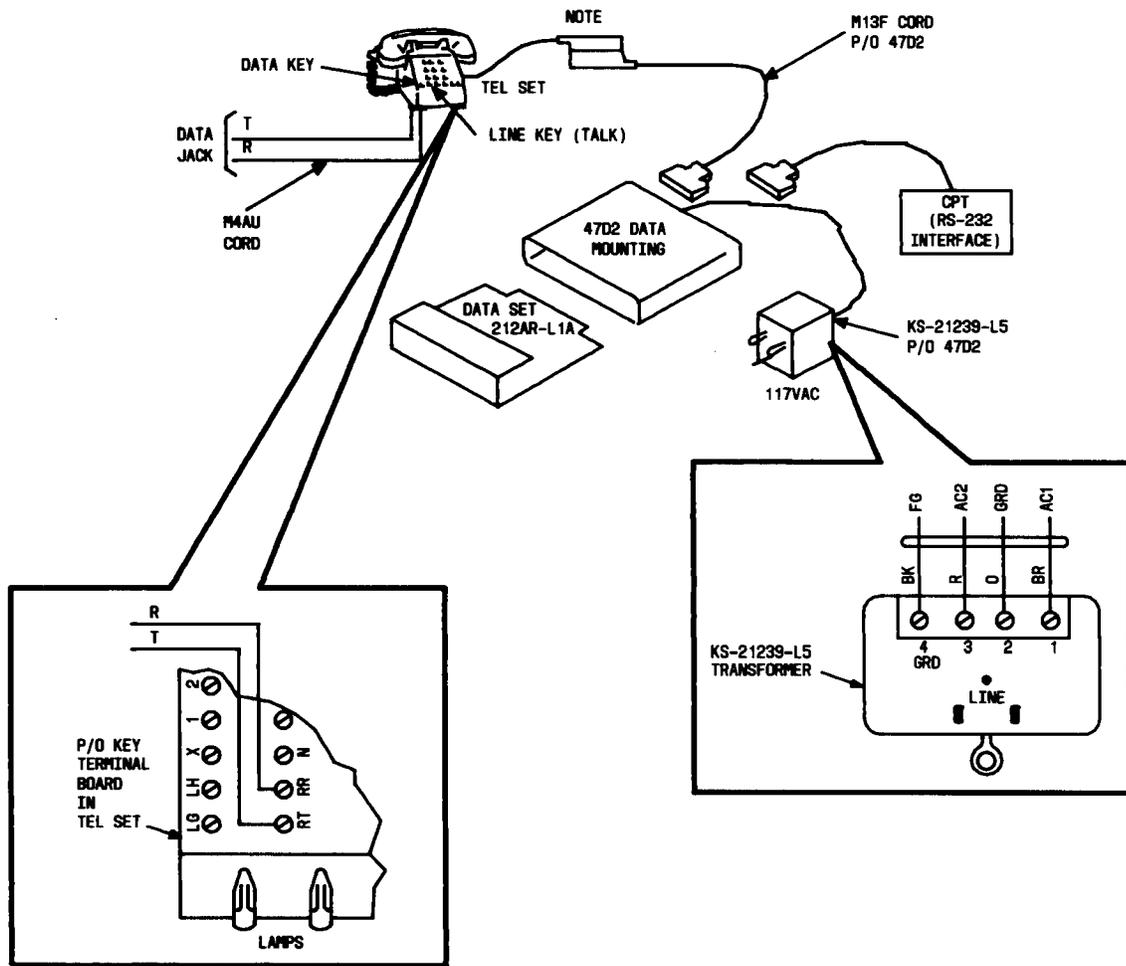
> *Note:* An M4AU cord must be used for connection to a data jack (USOC RJ41S). A 7-foot cord is supplied with the data set.

Fig. 5—Typical Installation of DS 212AR-L1A/2A With Telephone Set

NOTE:
THE CONNECTOR MAY BE EXTENDED WITH B25A CABLES UP TO 60 FEET.

Five Data Sets, Without ACU and With Telephone (Fig. 10)

The following parts are required:

DSs 212AR-L1A (up to five) ⎫ Order as
47D2 Data Mountings ⎬ DS 212AR-L1A/2A
(one per data set) ⎭
KS-21253,L3 Adapter
M10G Cord
B25A Cable, as needed up to length shown in Fig. 10
Telephone Set 565HKM, 2565HKM, or 2662A1M
M4AS Cord
248A Adapter
2012D Transformer

> *Note:* An M10G cord is required for connection to a data jack (USOC RJ26X).

Five Data Sets, Without ACU and Without Telephone (Fig. 11)

The following parts are required:

DSs 212AR-L1A (up to five) ⎫ Order as
47D2 Data Mountings ⎬ DS 212AR-L1A/2A
(one per data set) ⎭
KS-21253,L3 Adapter
M10G Cord
B25A Cable, as needed up to length shown in Fig. 11

> *Note:* An M10G cord is required for connection to a data jack (USOC RJ26X).

Five Data Sets, With Data Auxiliary Sets and Without Telephone (Fig. 12)

The following parts are required:

DSs 212AR-L1A (up to five) ⎫ Order as
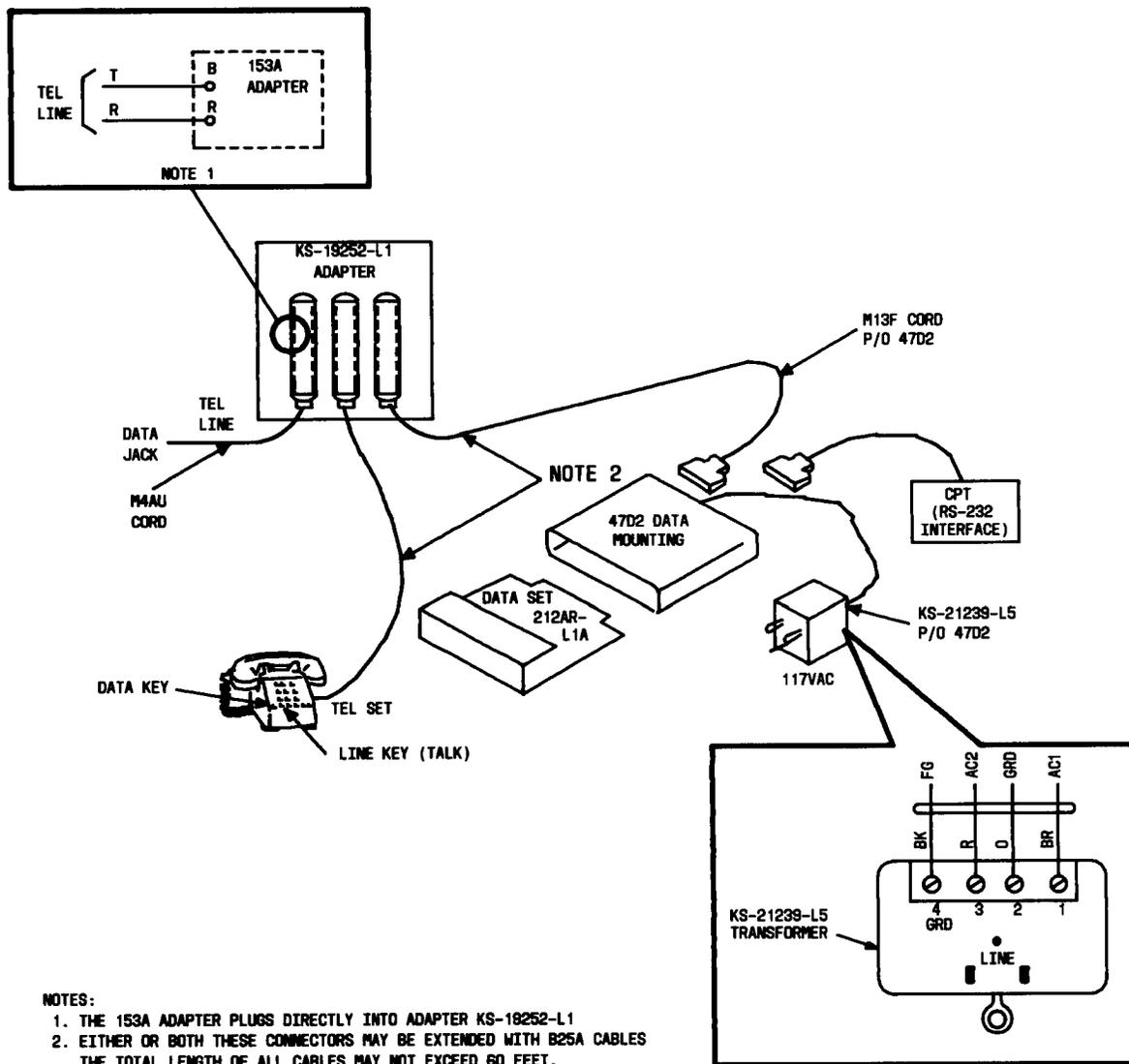47D2 Data Mountings ⎬ DS 212AR-L1A/2A
(one per data set) ⎭

Fig. 6—Installation of DS 212AR-L1A/2A With Telephone Set (Alternate Arrangement)

DASs 801CR-L1
(one per data set)
52A2 Data Mountings
(one per 801CR) } Order as
DAS 801CR-L1/2

M10G Cord
KS-21253,L3 Adapter
B25A Cable, as needed up to length shown in
Fig. 12.

107B Loudspeaker Set
2012D Transformer
D4BT Cords } optional
—one per 801CR

Note: An M10G cord is required for connection to a data jack (USOC RJ26X).
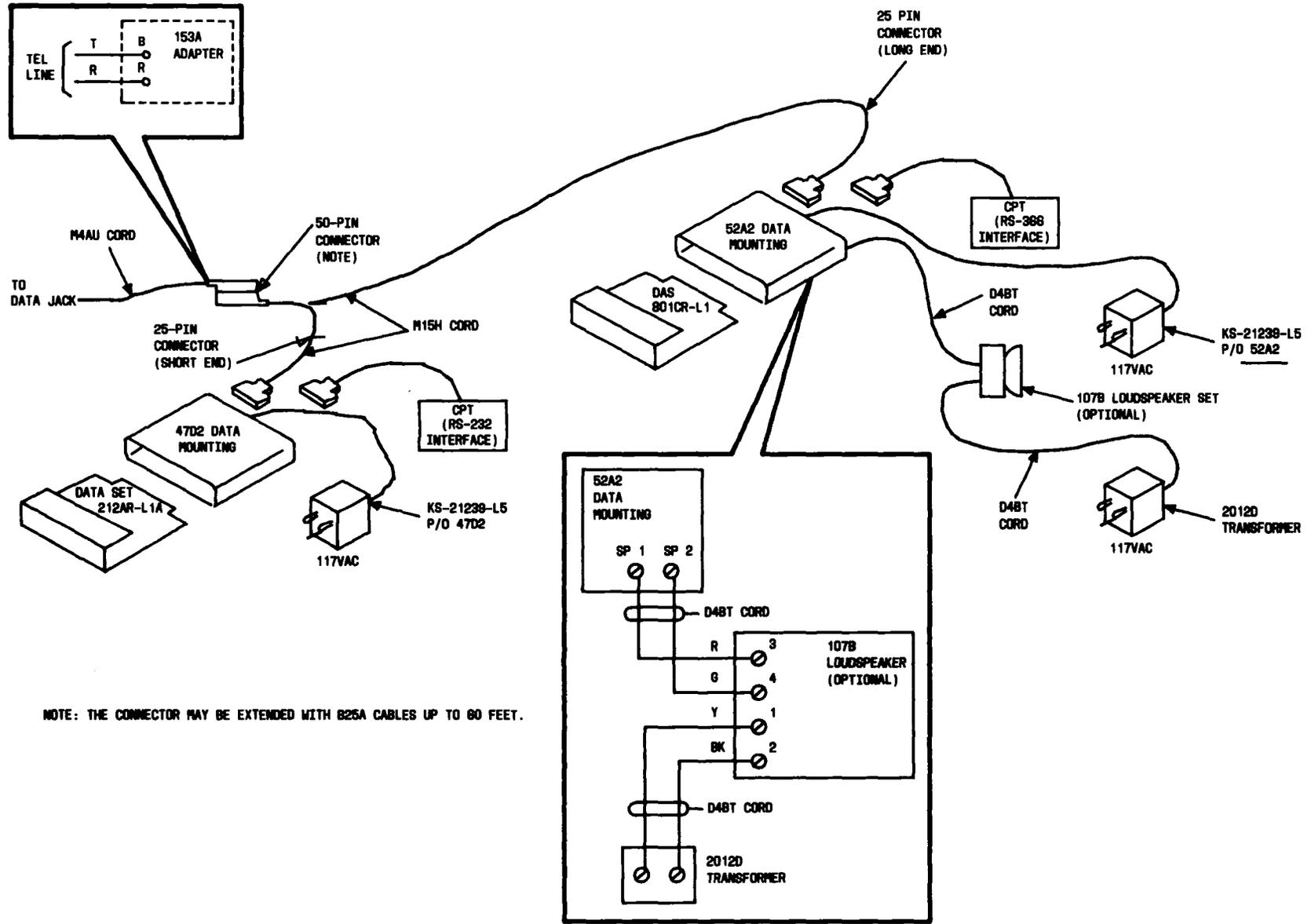
Fig. 7—Single Set Installation Without ACU Without Telephone Set

NOTE: THE CONNECTOR MAY BE EXTENDED WITH B25A CABLES UP TO 60 FEET.
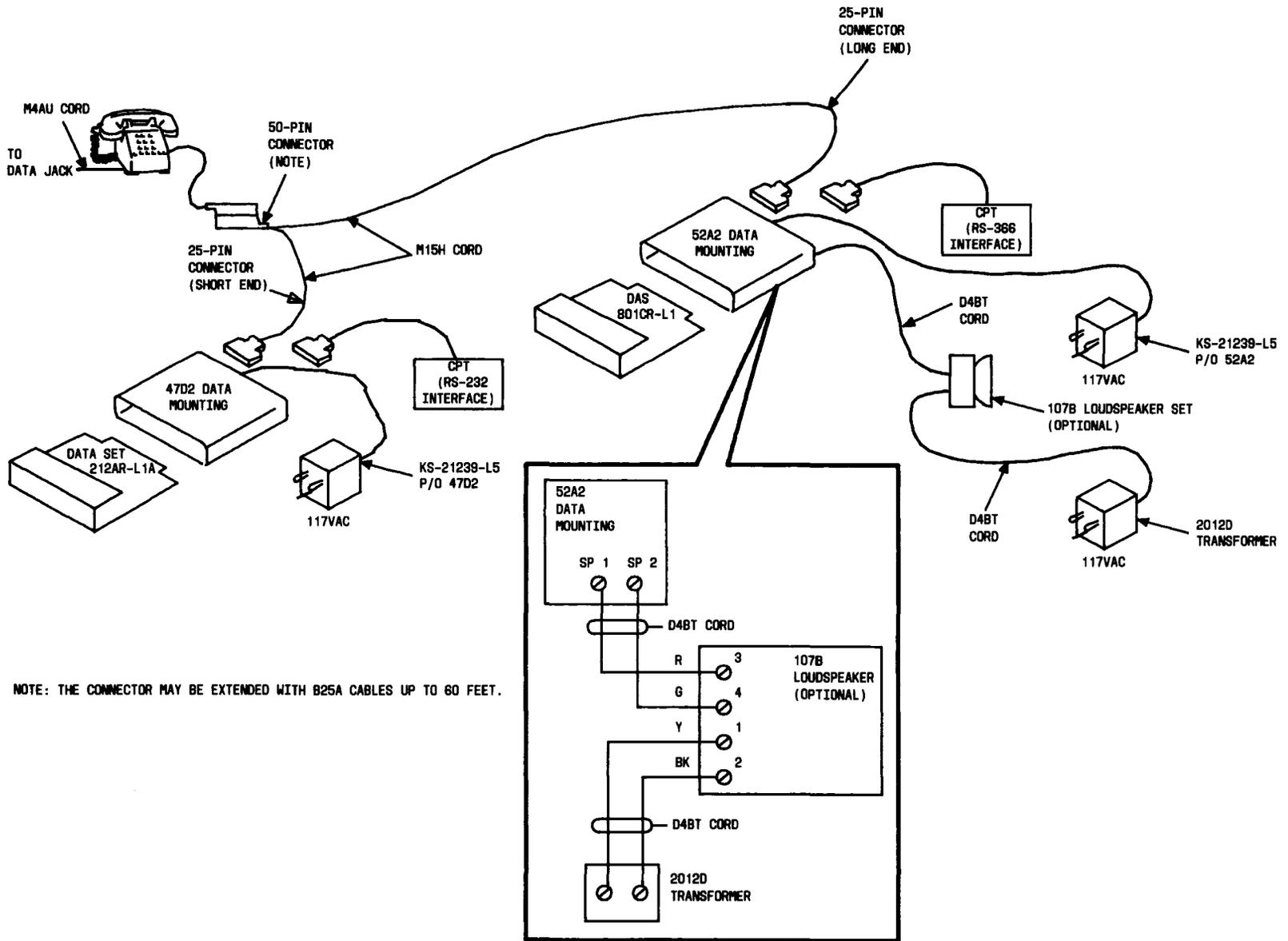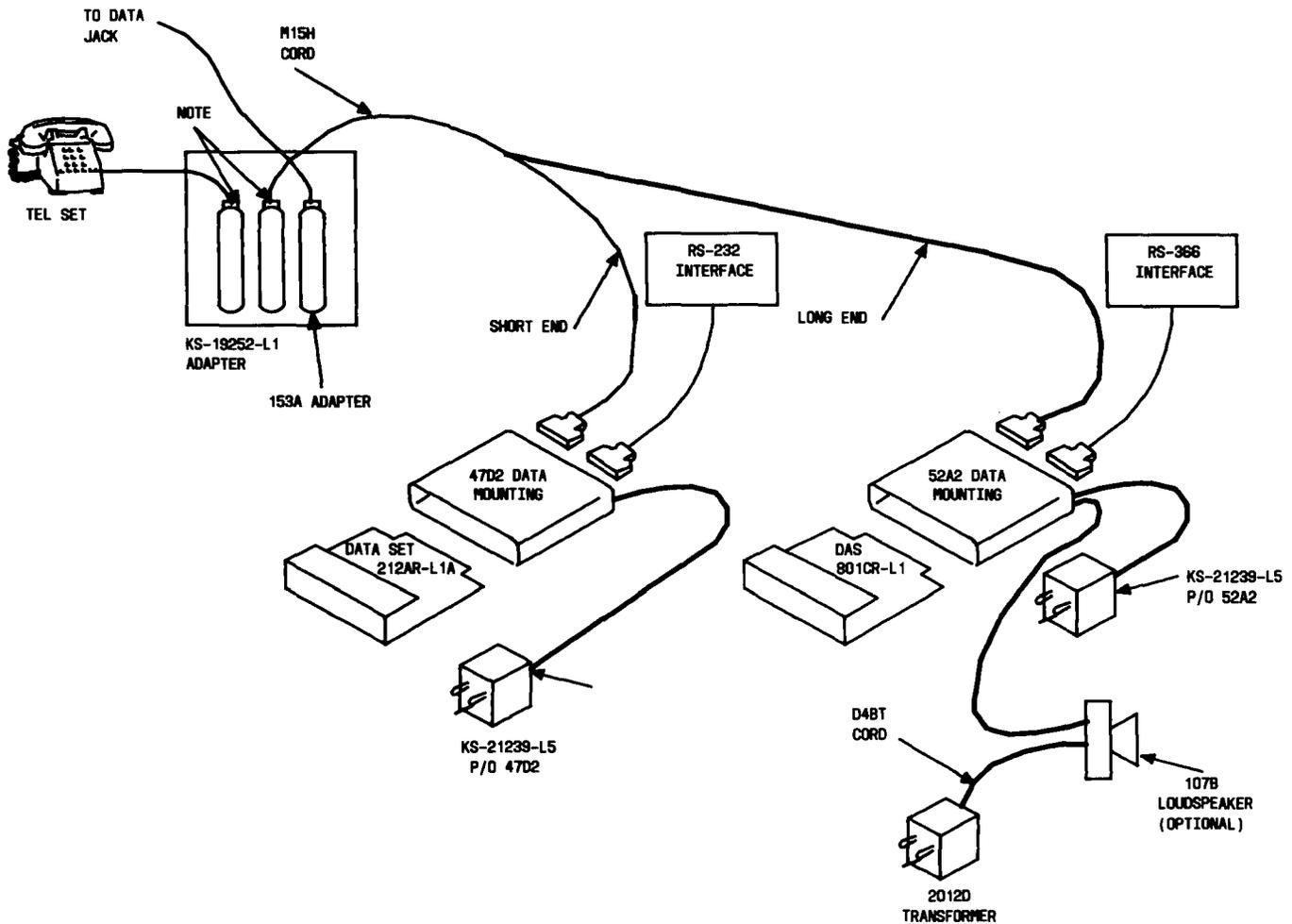
Fig. 8—Single DS 212AR-L1A/2A Installation With ACU and Telephone Set

NOTE:
EITHER OR BOTH THESE CONNECTORS MAY BE EXTENDED WITH B25A CABLES
THE TOTAL LENGTH OF ALL CABLES MAY NOT EXCEED 60 FEET.

**Fig. 9—Single Set Installation With ACU and Telephone Set (Alternate Arrangement)**

Five Data Sets, With Data Auxiliary Sets With Telephone (Fig. 13)

The following parts are required:

DSs 212AR-L1A (up to five)
47D2 Data Mountings (one per data set)
} Order as DS 212AR-L1A/2A

DASs 801CR-L1 (one per data set)
52A2 Data Mountings (one per 801CR)
} Order as DAS 801CR-L1/2

M10G Cord
KS-21253,L3 Adapter

B25A Cable, as needed up to length shown in Fig. 13

107B Loudspeaker Set
2012D Transformer
D4BT Cords
} optional —one per 801CR

Telephone Set 565HKM, 2565HKM, or 2662A1M
M4AS Cord
248A Adapter
2012C Transformer

Note: An M10G cord is required for connection to a data jack (USOC RJ26X).
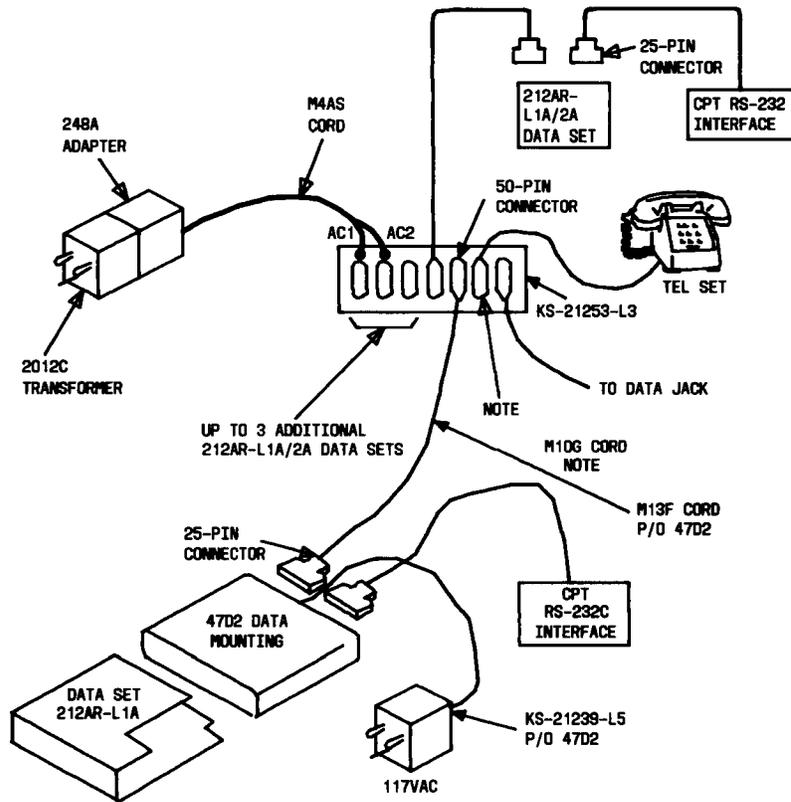
NOTE:
THESE CONNECTORS MAY BE EXTENDED WITH B25A CABLES.
THE MAXIMUM EXTENSION CABLE LENGTH BETWEEN TELEPHONE SET AND
EACH DATA SET WILL BE 60 FEET.

Fig. 10—Five Data Set Installation Without ACU With Telephone Set
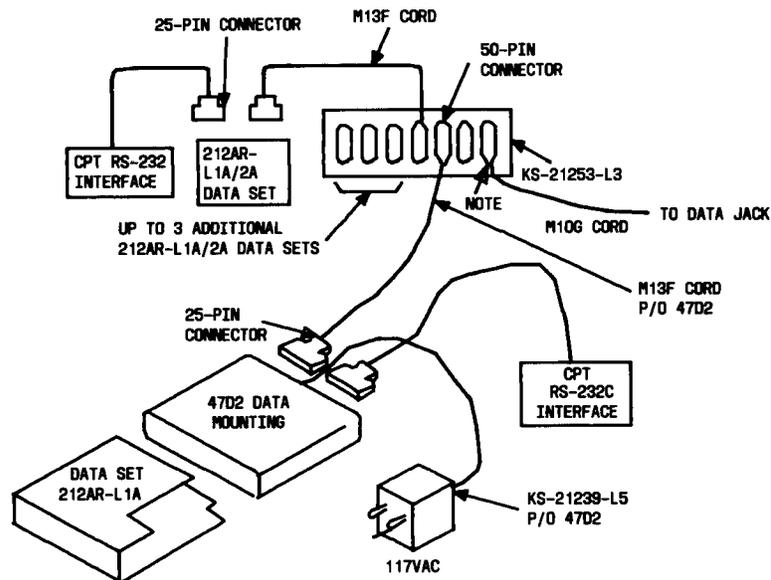
NOTE:
THESE CONNECTORS MAY BE EXTENDED WITH B25A CABLES.
THE MAXIMUM LENGTH FOR EACH EXTENSION IS 60 FEET.

Fig. 11—Five Data Set Installation Without ACU and Without Telephone Set

NOTE:
BOTH THESE CONNECTORS MAY BE EXTENDED WITH 825A CABLES.
THE MAXIMUM LENGTH FOR EACH EXTENSION IS 60 FEET.

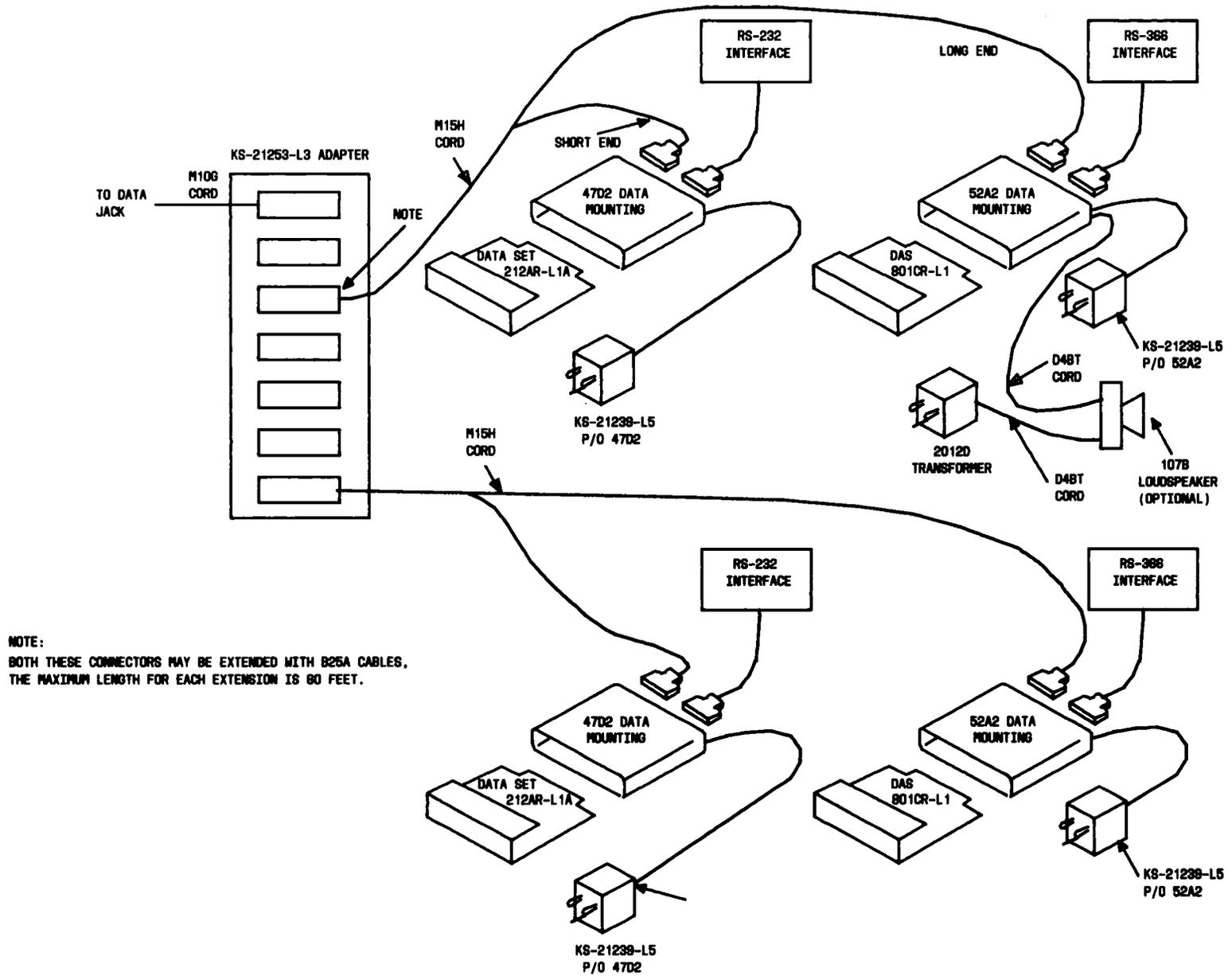Fig. 12—Five Data Set Installation With ACU and Without Telephone Set

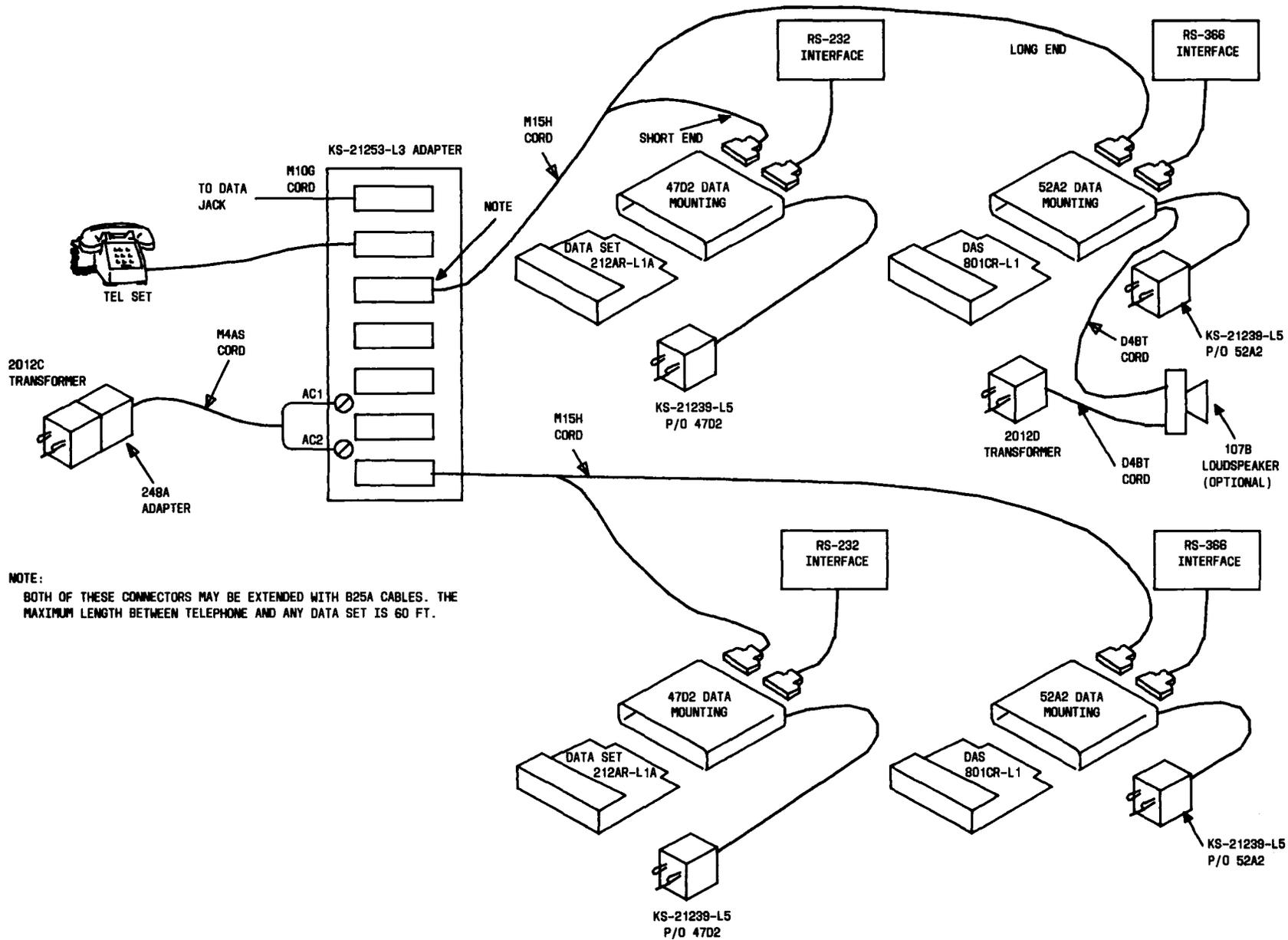Fig. 13—Five Data Set Installation With ACU and With Telephone Set

KS-21253-L3 ADAPTER

M10G CORD

TO DATA JACK

TEL SET

M4AS CORD

2012C TRANSFORMER

248A ADAPTER

AC1
AC2

M15H CORD

NOTE

M15H CORD

NOTE:
BOTH OF THESE CONNECTORS MAY BE EXTENDED WITH B25A CABLES. THE MAXIMUM LENGTH BETWEEN TELEPHONE AND ANY DATA SET IS 60 FT.

RS-232 INTERFACE

SHORT END

LONG END

RS-366 INTERFACE

47D2 DATA MOUNTING

DATA SET 212AR-L1A

KS-21239-L5 P/O 47D2

52A2 DATA MOUNTING

DAS 801CR-L1

D4BT CORD

KS-21239-L5 P/O 52A2

2012D TRANSFORMER

D4BT CORD

107B LOUDSPEAKER (OPTIONAL)

RS-232 INTERFACE

RS-366 INTERFACE

47D2 DATA MOUNTING

DATA SET 212AR-L1A

KS-21239-L5 P/O 47D2

52A2 DATA MOUNTING

DAS 801CR-L1

KS-21239-L5 P/O 52A2

6. REFERENCES

6.01 The following Bell System Practices contain additional information which may be useful when installing DS 212AR-L1A/2A.

SECTION	TITLE
502-500-120	Telephone Sets—540, 560, 1560, and 2560 Series—Common Installation and Maintenance Information

SECTION	TITLE
590-011-202	Registered Data Sets—Station Arrangements for Registered Data Sets in 40A3 Data Mounting
592-039-100	Data Set 212AR-L1A/2A— Transmitter- Receiver—Description and Operation
592-039-500	Data Set 212AR-L1A/2A Transmitter-Receiver—Test Procedure
598-012-102	Data Auxiliary Set 801CR— Description and Operation