# DATA SET 201CR-L1C
# TRANSMITTER-RECEIVER
# SINGLE SET
# INSTALLATION AND CONNECTIONS

CONTENTS PAGE



## 1. GENERAL

**1.01** This section contains the installation and connection information for data set (DS) 201CR-L1C. Data set 201CR-L1C should be installed in conformance with the general instructions contained in Section 590-010-200. Data set 201CR-L1C is the registered version of DS 201C-L1C and meets all requirements of the FCC Registration Program. The registration number for DS 201CR-L1C is AS593M-70105-DM-E. Station components for a registered arrangement of DS 201CR-L1C with an automatic calling unit (ACU) and a telephone set are shown in Fig. 1.

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

**1.03** The following rules apply to the registration program.

- Registered versions of Bell System data sets include an "R" in the data set code.
- Bell System switched network data sets not having an "R" in the data set code are "grandfathered."
- "Grandfathered" DS 201C-type may be connected in registered arrangements provided the transmit line signal level is set to -4 dBm and the interface with the switched network is made with the proper cord and jack as shown in the connection diagrams in this section.
- Data set 201CR-L1C may be connected in "grandfathered" arrangements provided the transmit line signal level is adjusted so that the level of the signal reaching the serving central office does not exceed -12 dBm.
- Connection to the telephone line in registered arrangements must be made with the proper cord to the proper data jack as shown in the connection diagrams in this section.
- In arrangements of one to five data sets, a mixture of "new-family" data sets may be used. "New-family" data sets are 103JR, 113CR, 113DR, 201CR, 202SR, 208BR, and 212AR.

**1.04** The data set should be installed apart from the customer-provided equipment (CPE) on a nearby desk, table, stand, or in an equipment cabinet. The data set operates in an ambient temperature range of 40 to 120°F and a relative humidity range of 20 to 95 percent.

**1.05** The data set must be located near the CPE since the interface cord supplied by the customer should not exceed 50 feet in length [to reduce stray capacitance and to conform to Electronic Industries Association (EIA) standards]. In order to minimize inductive interference with data signals, the telephone line should not be carried in the same cable run as cable between the data set and CPE

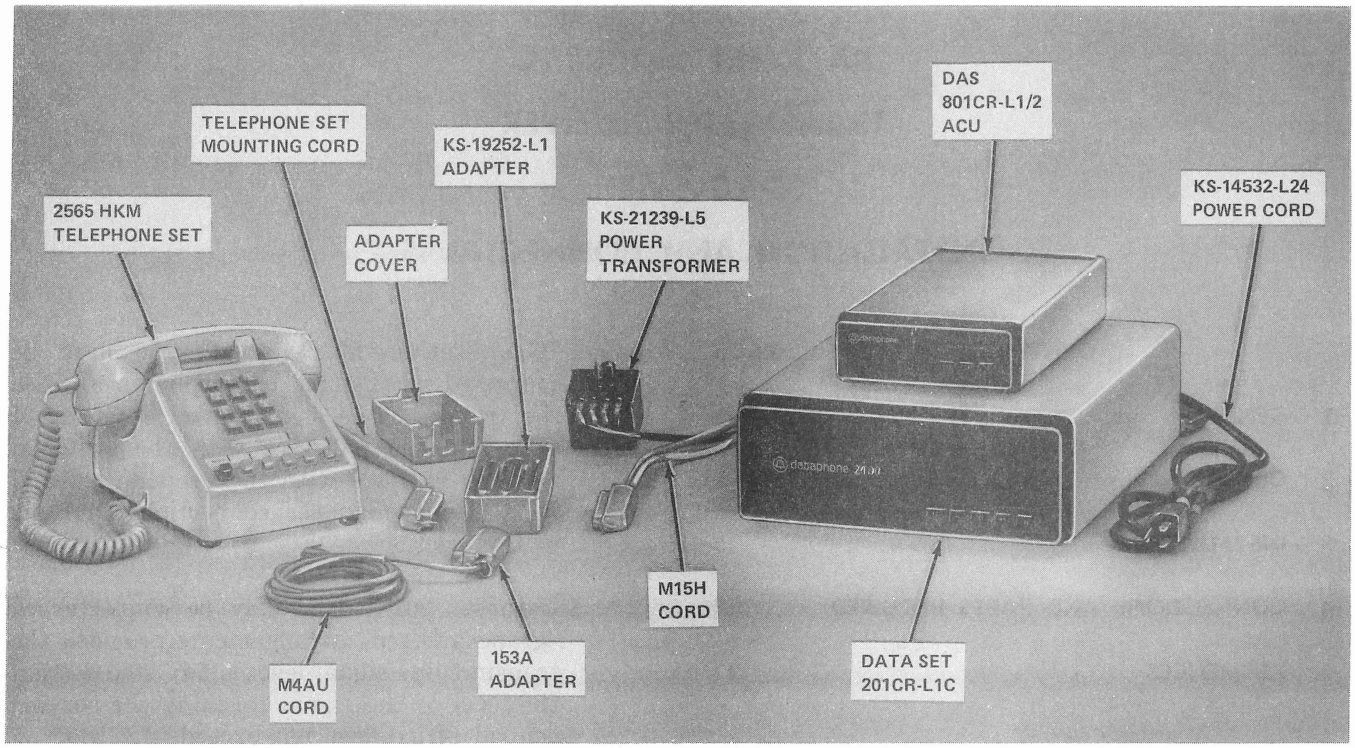



**Fig. 1—Data Set 201CR-L1C With ACU and Telephone Set—Station Components**

or lines connected to teletypewriter services. If this condition cannot be met, the telephone line must be run in type SK (shielded) station wire between the data set and the cable distribution terminal or building entrance. The shield should be grounded at one end only, preferably at the distribution terminal end.

**1.06** The data set requires a power source that provides 105 to 129 volts, 12 watts, at 57 to 63 Hz. The customer must supply an outlet that will accept the 3-prong plug on the KS-14532-L24 power cord provided with the data set. To prevent the data set from being turned off accidently, this outlet should not be under the control of a switch. To avoid the possibility of data errors due to a potential difference between data set ground and CPE ground, the outlet for the data set power cord should be served from the same ac distribution panel as the CPE. If this condition cannot be met, a ground noise test using the 6H impulse counter should be performed. This test is described in Section 592-036-500. If test requirements are not met, data set and CPE grounds must be bonded together in accordance with local instructions.

**1.07** A 25-pin female connector is provided at the rear of the data set for connection to the CPE. The customer must provide an interface cable terminated with a 25-pin Cinch or Cannon DB-19604-432 (male) plug with a Cinch DB-51226-1 hood (or equivalents). The interface cable should not exceed 50 feet in length. Data set connections to the CPE are in accordance with Table A.

**1.08** 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 supplied with the data set. Data set connections to telco equipment are in accordance with Table B.

**1.09** To access the data set option straps, disassemble the data set as follows.

(1) Disconnect three cords from rear of data set.

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

TABLE A

CUSTOMER INTERFACE

| PIN NO. | FUNCTION | DATA SET MNEMONIC | EIA DESIGNATION (RS-232-C) |
|---|---|---|---|
| 2 | Transmitted Data | SD | BA |
| 3 | Received Data | RD | BB |
| 4 | Request to Send | RS | CA |
| 5 | Clear to Send | CS | CB |
| 6 | Data Set Ready | DSR | CC |
| 7 | Signal Ground | SG | AB |
| 8 | Received Line Signal Detector | CO | CF |
| 9 | Test Voltage | +12V | --- |
| 10 | Test Voltage | —12V | --- |
| 15 | Transmitter Signal Element Timing | SCT | DB |
| 16 | Dibit Clock Transmitter | DCT (Non-EIA) | --- |
| 17 | Receiver Signal Element Timing | SCR | DD |
| 18 | Dibit Clock Receiver* or<br>Local Analog Loopback † | DCR (Non-EIA)<br>LL (Non-EIA) | ---<br>--- |
| 19 | Remote Release (+5V) | RR (Non-EIA) | --- |
| 20 | Data Terminal Ready | DTR | CD |
| 21 | Ready | RDY (Non-EIA) | --- |
| 22 | Ring Indicator | RI | CE |
| 24 | Transmitter Signal Element Timing (External) | SCTE | DA |

* Option YT

† Option YS

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

(3) Loosen two retaining screws at rear bottom of housing.

(4) Slide data set out front of housing. Refer to Fig. 2 for location of the option straps.

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

**1.10** To reassemble the data set, proceed as follows.

(1) Slide data set into housing.

(2) Replace two retaining screws at rear bottom of housing.

(3) 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.

**1.11** A label (E6550) and holder (841 788 292) are available for use with DS 201CR-L1C to permit identification of the circuit number and

TABLE B

TELEPHONE LINE INTERFACE

| PIN NO. | DESIG-NATION | FUNCTION |
|---|---|---|
| 1 | L | Line status lamp control from data set to telephone set |
| 2 | —12V | Test voltage |
| 3 | +5V | Test voltage |
| 4 | LG | Line status lamp control ground |
| 5 | TD | Talk/data control from telephone set to data set |
| 7 | T | Telephone line tip |
| 8 | R | Telephone line ring |
| 12 | RNG | Common ringer control for multiple data sets |
| 14 | C | Data mode status from data set to ACU |
| 16 | D1 | Data mode control from ACU to data set |
| 20 | +12V | Test voltage |
| 21 | T1 | Telephone set tip |
| 22 | R1 | Telephone set ring |
| 23 | A | Telephone line status from data set to ACU |
| 25 | TDG | Talk/data control ground |

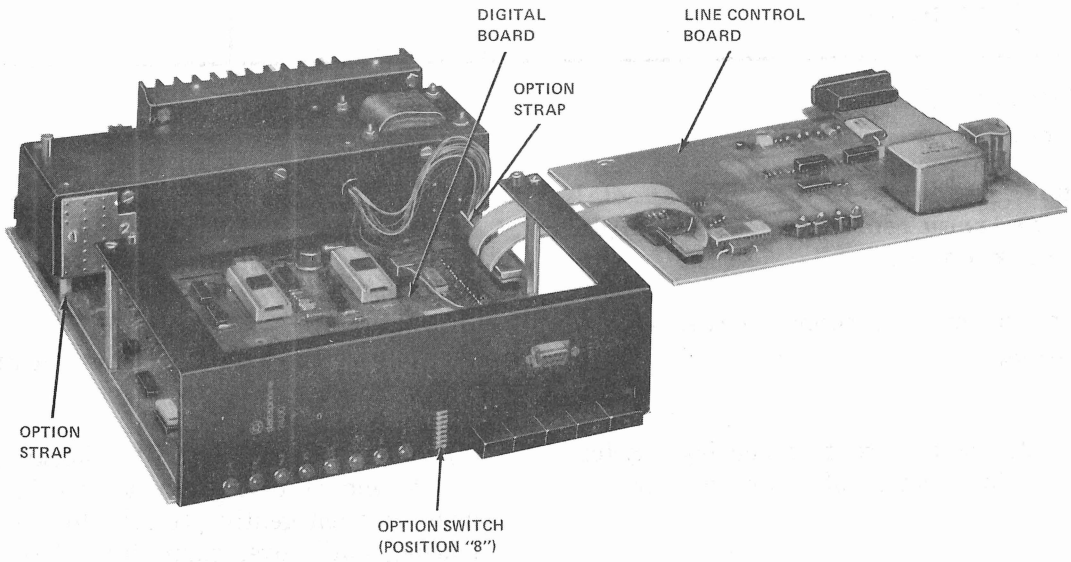



**Fig. 2—Data Set 201CR-L1C Unfolded to Show Location of Option Straps**

trouble call number. The label holder is backed with pressure-sensitive adhesive so the label can be affixed to the bottom of the housing. Mount the holder below the center of the housing and flush with the front edge.

## 2. OPTIONS

**2.01** Before the data set is placed in service, check to make sure that the proper options are installed as specified on the service order. A summary of the data set options is contained in Table C.

**2.02** Options are installed and removed by means of a multiple-section rocker switch on the faceplate and by plug-in straps on the line control and digital boards. Refer to Fig. 3 for a detailed sketch of the option switch.

**2.03** ***Transmit Line Signal Level:*** This option allows adjustment of the data set transmitted power output level and receiver sensitivity in order to compensate for line losses introduced by the local loop to the serving central office. Options ZE through ZP provide a power output level of -4 through -15 dBm in 1-dB steps. Option ZE (-4 dBm) should be used for all registered installations.

> ***Note:*** The option is "strap out" when the plug-in strap is parallel (horizontal) to the edge of the line control board.

**2.04** ***Transmitter Timing:*** This option allows synchronization of the transmitter internal clock to the external bit clock from the CPE. With option YC (internal timing), transmitter signal element timing external (DA) has no effect on operation of the data set, and the transmitter serial clock (DB) runs freely at its nominal rate of 2400 Hz (±0.005) percent. With option YD (external timing), application of a 2400 Hz (±0.01) percent square-wave to transmitter signal element timing external (DA) causes transmitter serial clock (DB) to phase-lock to the external clock.

**2.05** ***Automatic Answer:*** This option enables or disables the automatic answer and answer tone generation of the data set internal line control. Two modes of operation are provided.

- Option YE provides automatic answer controlled by the CPE through contact interface leads data terminal ready (CD) and ready (RDY). Both leads must be ***on*** (contact closure to +5 volt supply or EIA ***on*** voltage) for automatic answer to occur.
- Option YF provides automatic answer controlled by the CPE through EIA interface lead data terminal ready (CD). Data terminal ready must be ***on*** for automatic answer to occur.

**2.06** ***Grounding:*** Option YK straps signal ground (AB) to frame ground inside the data set. Option YL separates these grounds.

**2.07** ***Function of EIA Interface Pin 18:*** Option YS allows analog loopback to be under the control of the CPE through interface pin 18. An EIA ***on*** voltage on pin 18 (LL) has the same effect on the data set as operating the AL switch, except that data set ready (CC) is conditioned ***on.*** Option YT disables the electrically activated analog loopback, and pin 18 becomes an output that provides dibit clock receiver (DCR).

**2.08** ***Continuous Receiver Bit Clock:*** Option YO allows receiver signal element timing (DD) to be present even when there is no received carrier signal. This is done by connecting DD to transmitter signal element timing (DB), which is always present. Option YP allows receiver signal element timing (DD) to be derived from the received data signal and to be changed to spacing (positive voltage) when received line signal detector (CF) is ***off.***

**2.09** ***Satellite:*** Option YQ allows the data set to operate over satellite links in the switched network. This option inhibits request to send (CA) at the called data set for 275 ms after the end of answer tone. This silent interval allows echo suppresors that have been disabled by the answer tone frequency to enable. Subsequent turnarounds are not affected by this option. Option YR allows the data set to only operate over the portion of the switched network that does not contain satellite links.

## 3. INSTALLATION

**3.01** The procedure for installing a DS 201CR-L1C is as follows.

## TABLE C

## DATA SET 201CR-L1C OPTIONS

| OPTION | | | LINE CONTROL BOARD (TP1B) | | PROVIDE |
|---|---|---|---|---|---|
| DESCRIPTION | | DESIG | STRAP IN (VERTICAL) | STRAP OUT (HORIZONTAL) | |
| Transmit Line Signal Level † | - 4 dBm | ZE* | | 1, 2, 4, 8 | One Per Station |
| | - 5 dBm | ZF | 1 | 2, 4, 8 | |
| | - 6 dBm | ZG | 2 | 1, 4, 8 | |
| | - 7 dBm | ZH | 1, 2 | 4, 8 | |
| | - 8 dBm | ZI | 4 | 1, 2, 8 | |
| | - 9 dBm | ZJ | 1, 4 | 2, 8 | |
| | - 10 dBm | ZK | 2, 4 | 1, 8 | |
| | - 11 dBm | ZL | 1, 2, 4 | 8 | |
| | - 12 dBm | ZM | 8 | 1, 2, 4 | |
| | - 13 dBm | ZN | 1, 8 | 2, 4 | |
| | - 14 dBm | ZO | 2, 8 | 1, 4 | |
| | - 15 dBm | ZP | 1, 2, 8 | 4 | |

| | | | SWITCH SETTING | | | | | | | | DIGITAL BOARD (JB4B) | PROVIDE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| Transmitter Timing | Internal | YC* | | | | | X | | | | | One Per Station |
| | External | YD | | | | | O | | | | | |
| Automatic Answer | RDY & DTR Controlled or Not Provided | YE | | | | | | | | O | | One Per Station |
| | DTR Controlled Only | YF* | | | | | | | | X | | |
| Grounding | Signal Ground Connected to Frame Ground | YK* | | | | | | | | | Install E1-E2 | One Per Station |
| | Signal Ground Not Connected to Frame Ground | YL | | | | | | | | | Remove E1-E2 | |
| Function of EIA Interface Pin 18 | Initiates Analog Loopback | YS | | | | X | | | | | Install E3-E4 | One Per Station |
| | Provides Dibit Clock Receiver | YT* | | | | O | | | | | Install E4-E5 | |
| Continuous Receiver Bit Clock | In | YO | | | | | | | O | | | One Per Station |
| | Out | YP* | | | | | | | X | | | |
| Satellite | In | YQ* | | | X | | | | | | | One Per Station |
| | Out | YR | | | O | | | | | | | |

* Factory-furnished

† Use option ZE for all data sets in registered installations. For "grandfathered" installations, select the appropriate transmit line signal level for each data set so that the level of the signal reaching the serving central office does not exceed -12 dBm.

X = Closed (switch contacts are closed when rocker is down on side adjacent to numbers).

O = Open

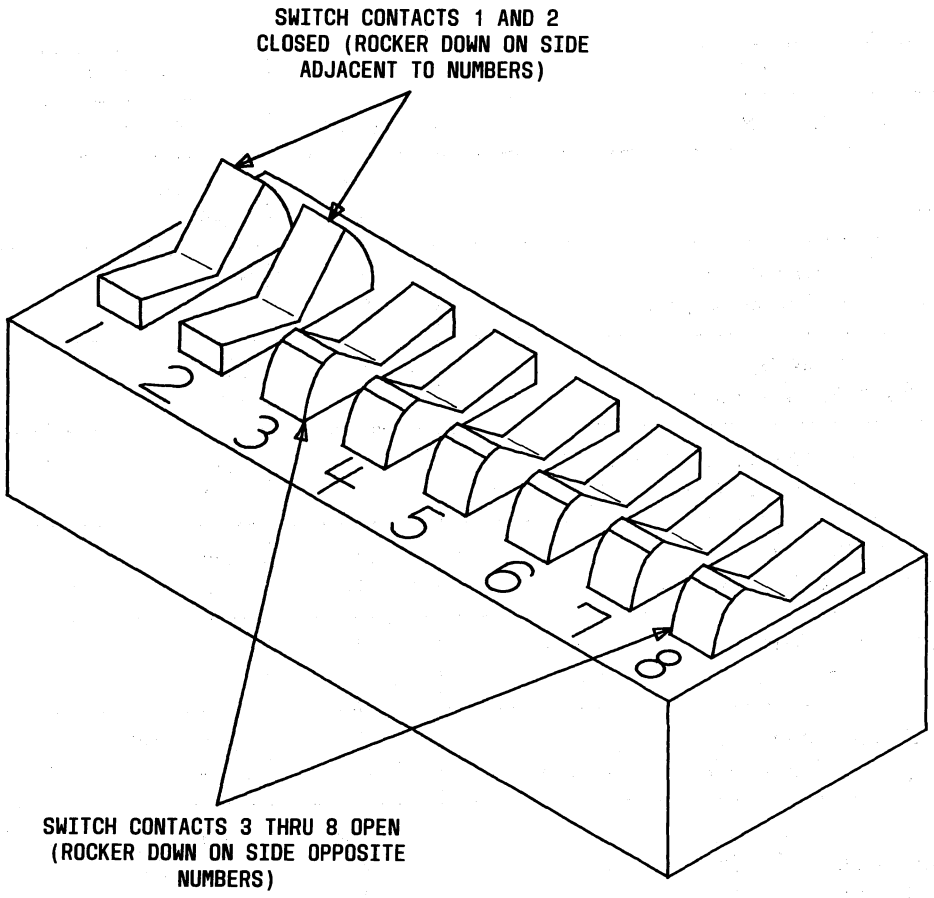



**Fig. 3—Details of Option Switch**

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

(2) Disassemble data set as described in paragraph 1.08.

(3) Install options specified on service order. Refer to Table C.

(4) Mark installed options on option label (E6550) and attach label to bottom of housing.

(5) Reassemble data set as described in paragraph 1.09.

(6) If data auxiliary set 801CR-L1/2 (ACU) is required, install options specified on service order. Refer to Table D.

(7) Make all connections to data set and auxiliary apparatus as shown on appropriate connection diagrams.

(8) Perform installation tests as described in Section 592-036-500.

## 4. CONNECTIONS AND PARTS REQUIRED

**4.01** The station arrangements in paragraphs 4.02 through 4.11 comply with the FCC Registration Program. A connection diagram (Fig. 4 through 13) and a list of parts required are provided for each arrangement. Figures 14 through 18 are provided to aid troubleshooting of the arrangements.

**4.02** ***Single Data Set:*** The connection diagram for this arrangement is Fig. 4.

## TABLE D

## DATA AUXILIARY SET 801CR-L1/2 (ACU) OPTIONS

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

* Also install option ZU.

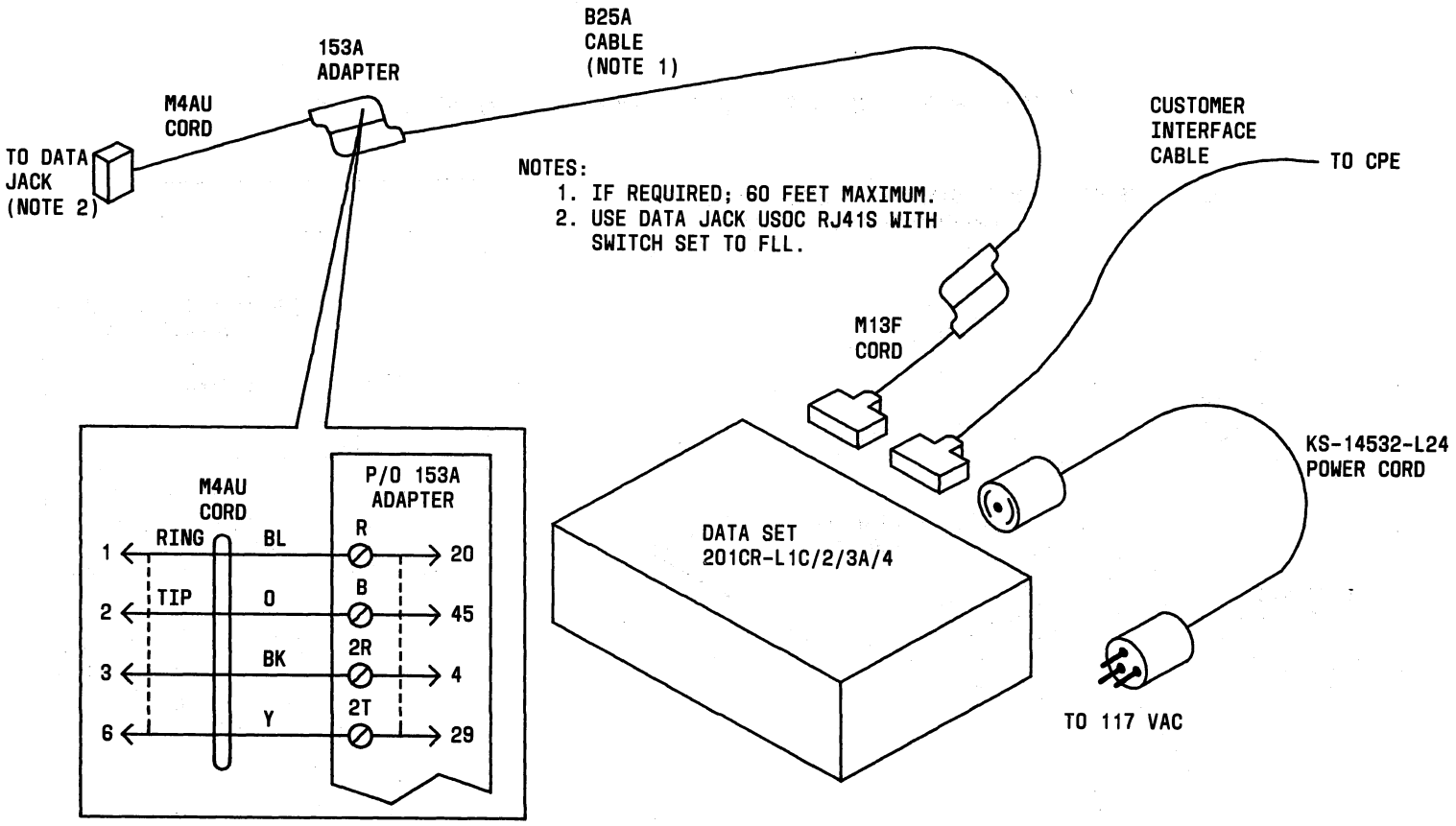



**Fig. 4—Single Data Set—Connection Diagram**

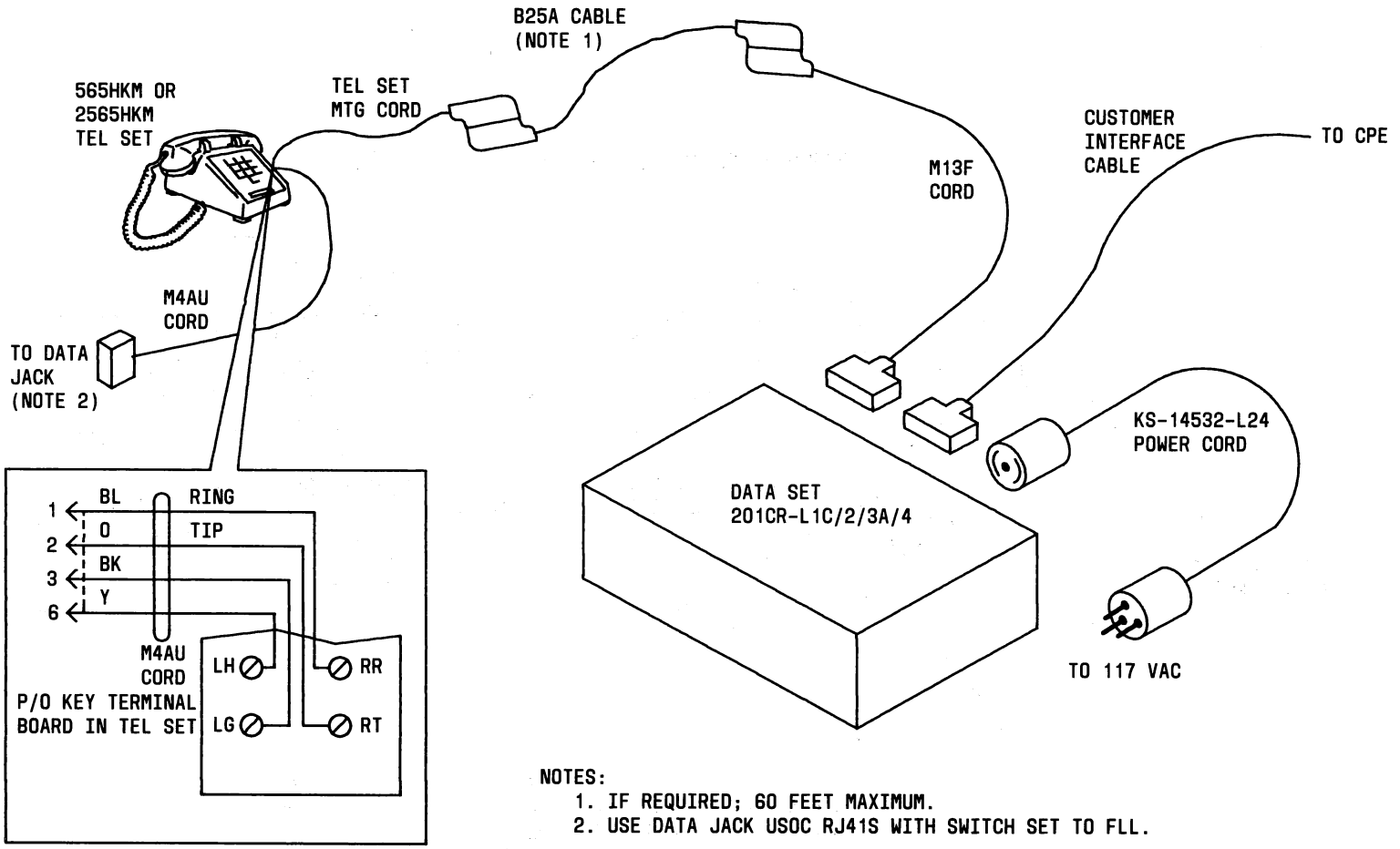



**Fig. 5—Single Data Set With Telephone Set—Connection Diagram**

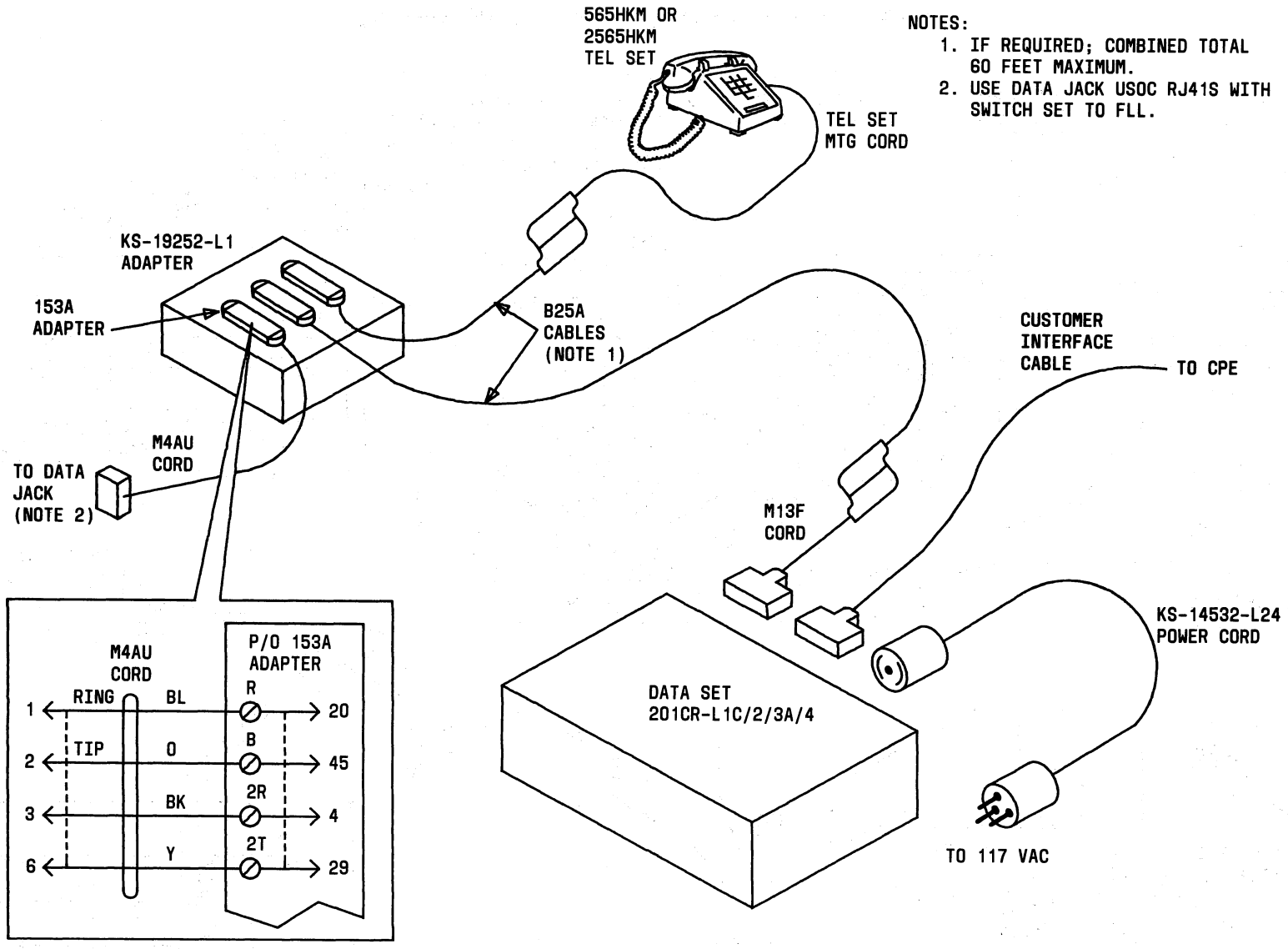



**Fig. 6—Single Data Set With Telephone Set (Alternate Method)—Connection Diagram**

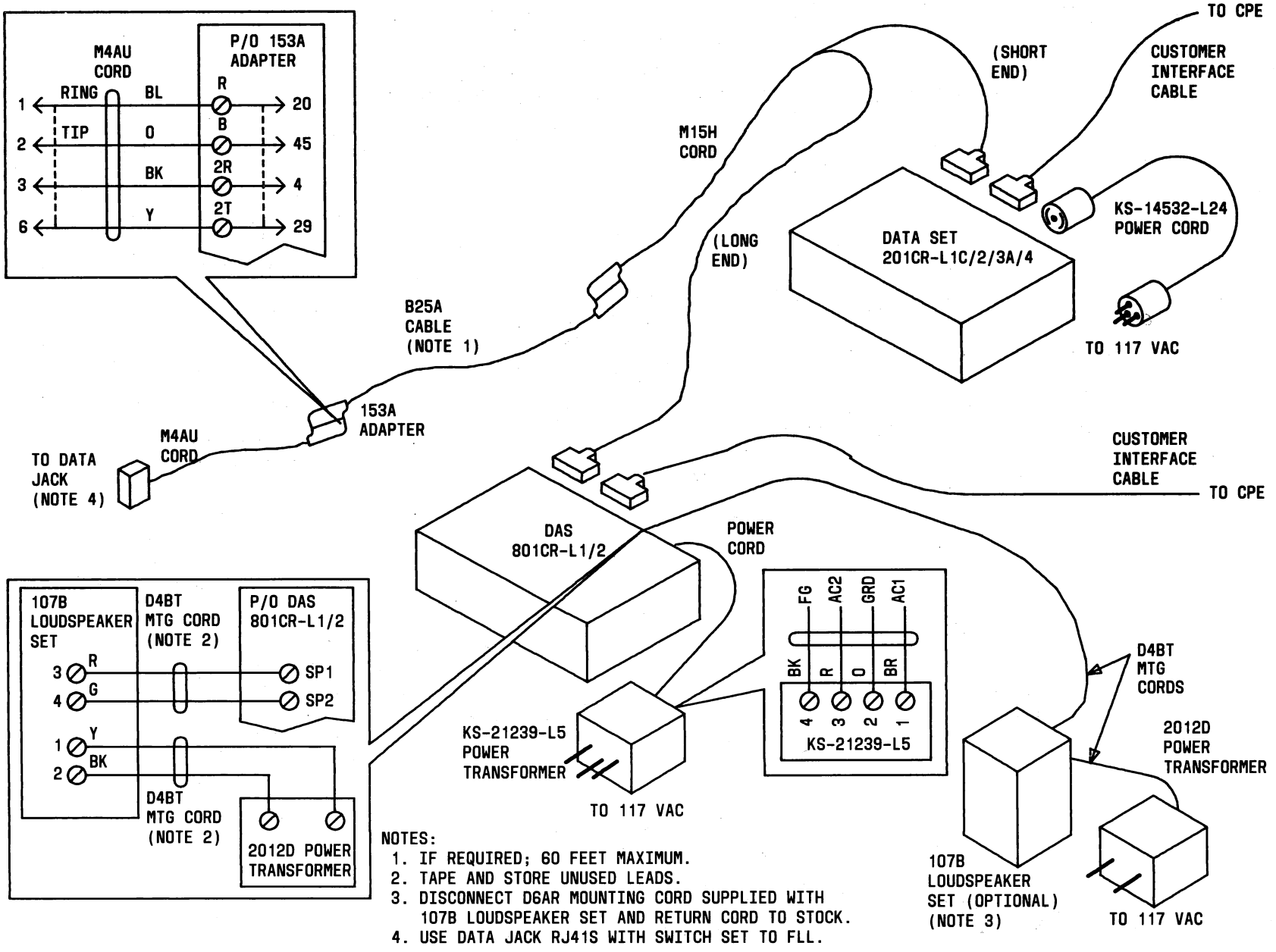
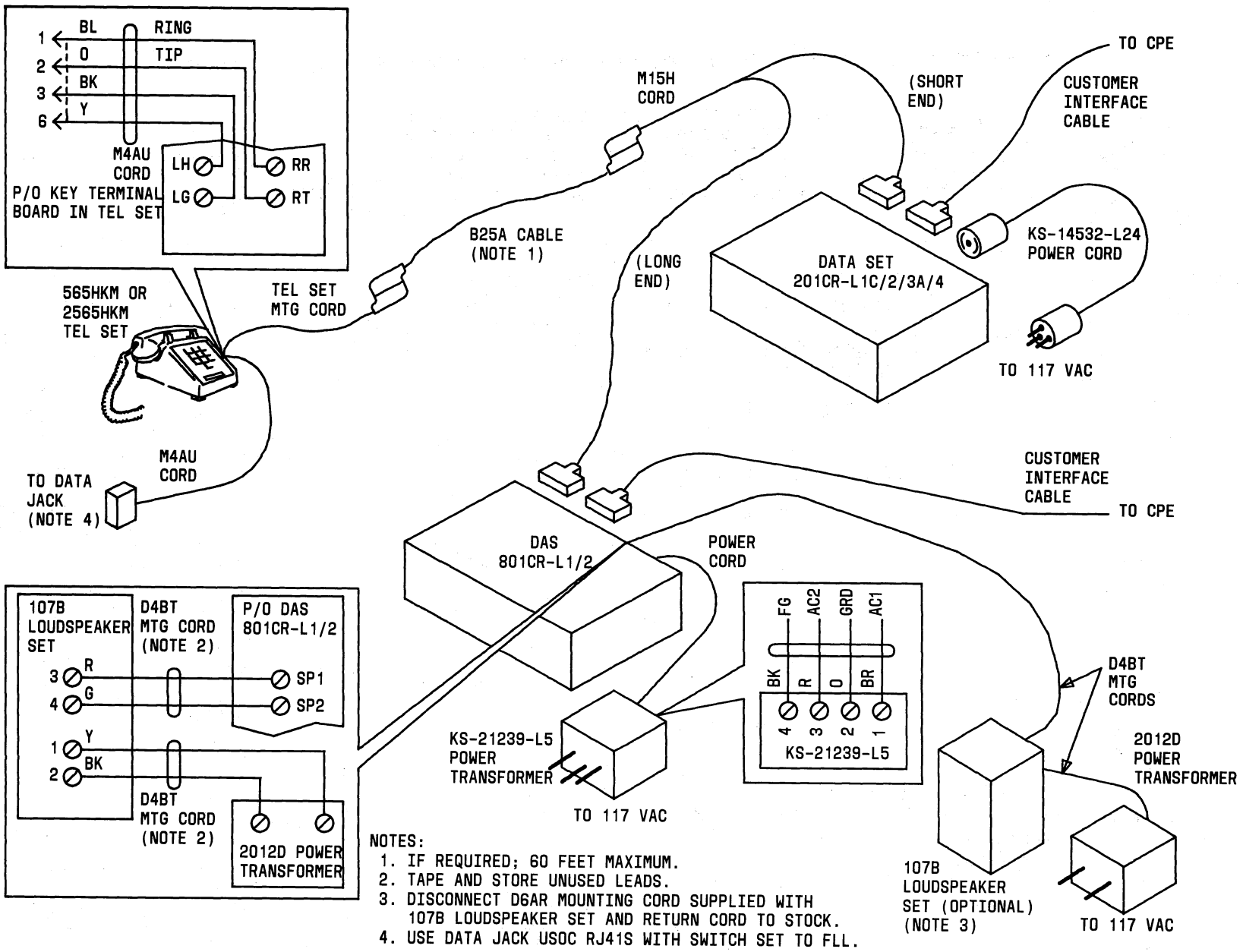



**Fig. 7—Single Data Set With ACU—Connection Diagram**




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. USE DATA JACK USOC RJ41S WITH SWITCH SET TO FLL.

**Fig. 8—Single Data Set With ACU and Telephone Set—Connection Diagram**

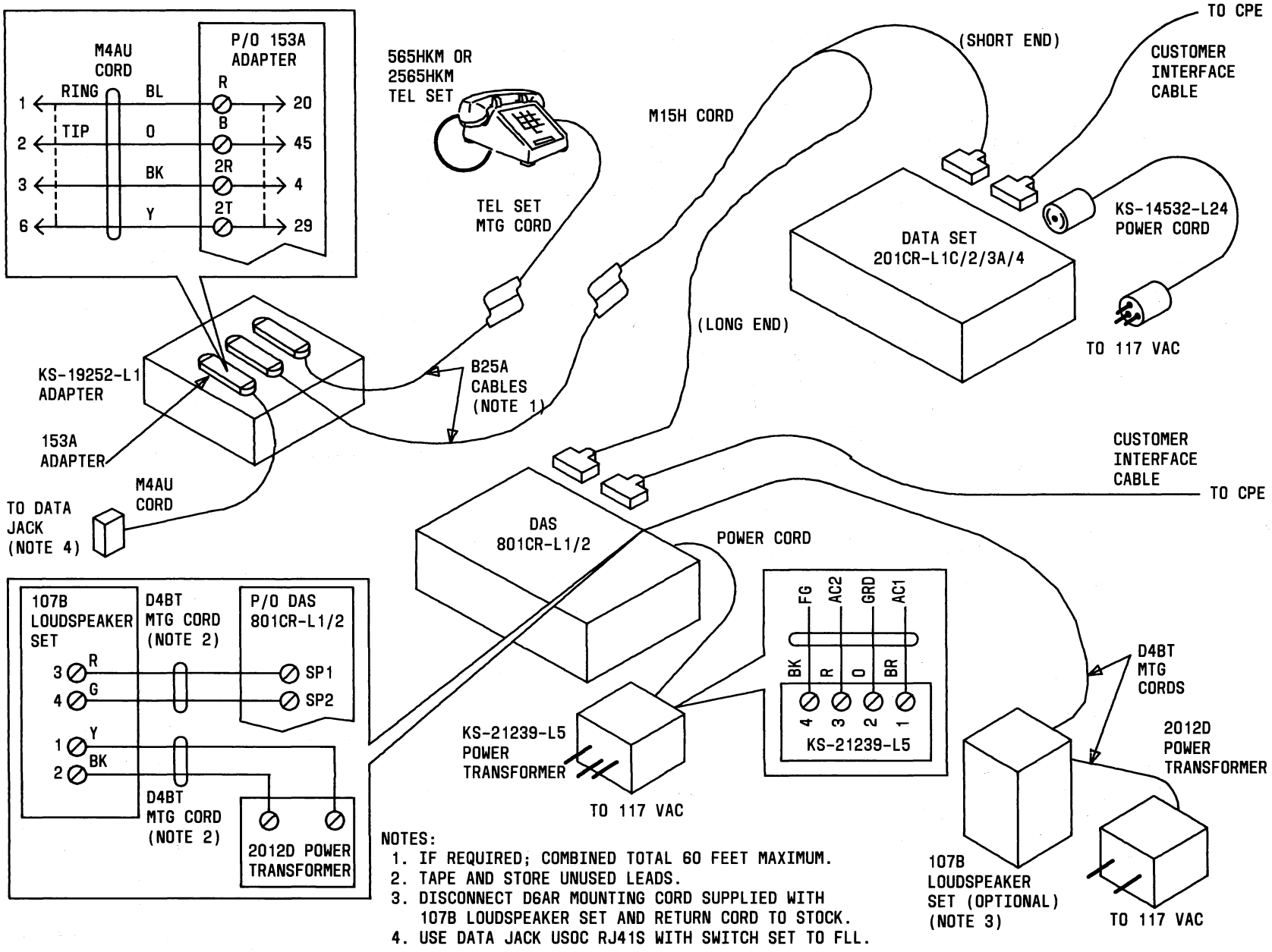
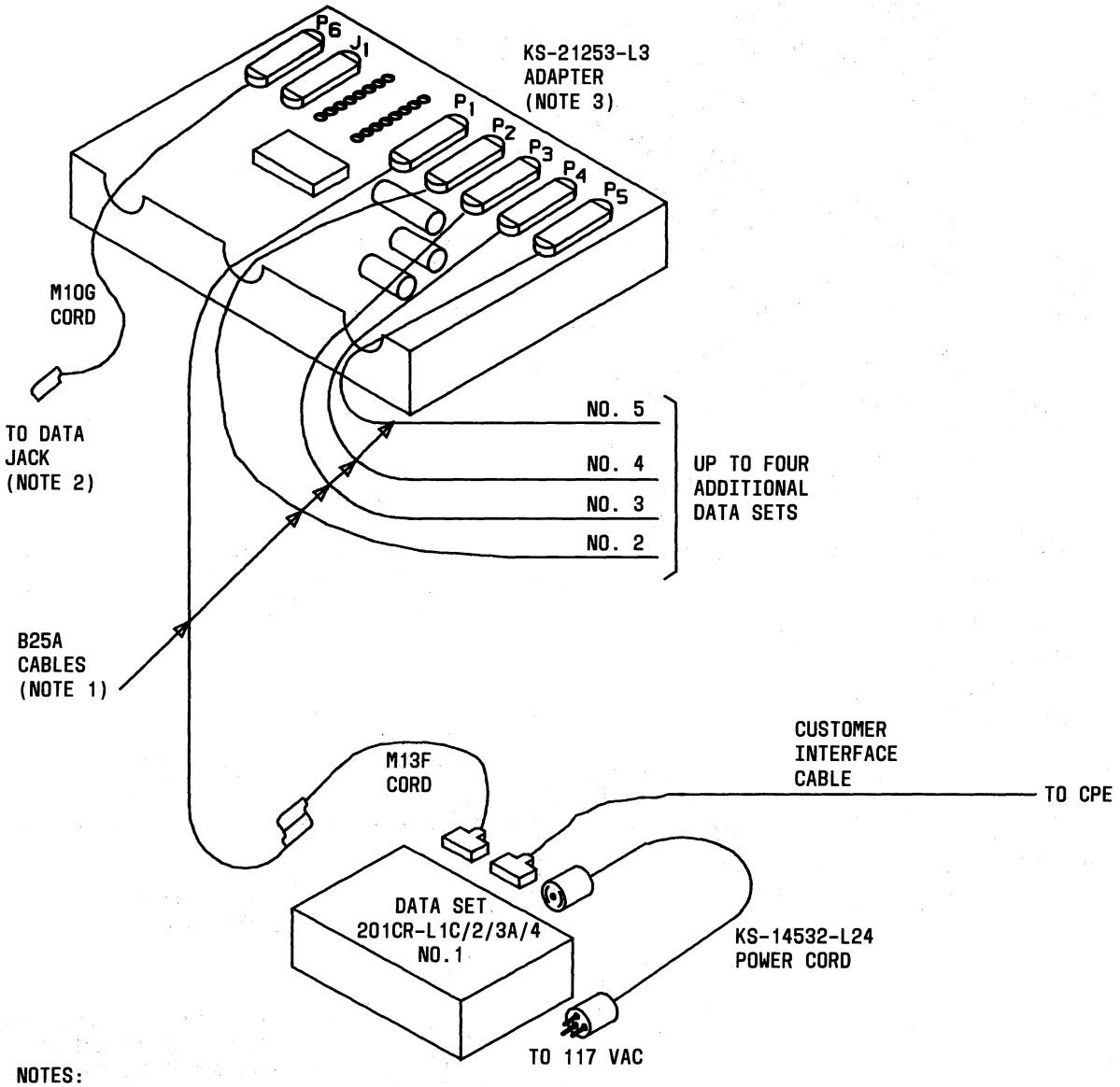



**Fig. 9—Single Data Set With ACU and Telephone Set (Alternate Method)—Connection Diagram**




NOTES:
1. IF REQUIRED; 60 FEET MAXIMUM PER DATA SET.
2. USE DATA JACK USOC RJ26X WITH SWITCH SET TO FLL.
3. WHEN ONE TO THREE DATA SETS ARE USED WITH THE KS-21253-L3 FIVE SET ADAPTER, REFER TO PART 4 OF THIS SECTION FOR ALTERNATE LINE CONNECTIONS.

**Fig. 10—One to Five Single Data Sets—Connection Diagram**

The following parts are required:

- Data set 201CR-L1C/2/3A/4
- KS-14532-L24 cord—supplied with data set
- M13F cord—supplied with data set
- M4AU cord—supplied with data set

***Note:*** A 7-foot cord is supplied. If needed, a longer cord (25 feet maximum) may be used.

- B25A cable (as needed up to length shown in connection diagram)
- 153A adapter.

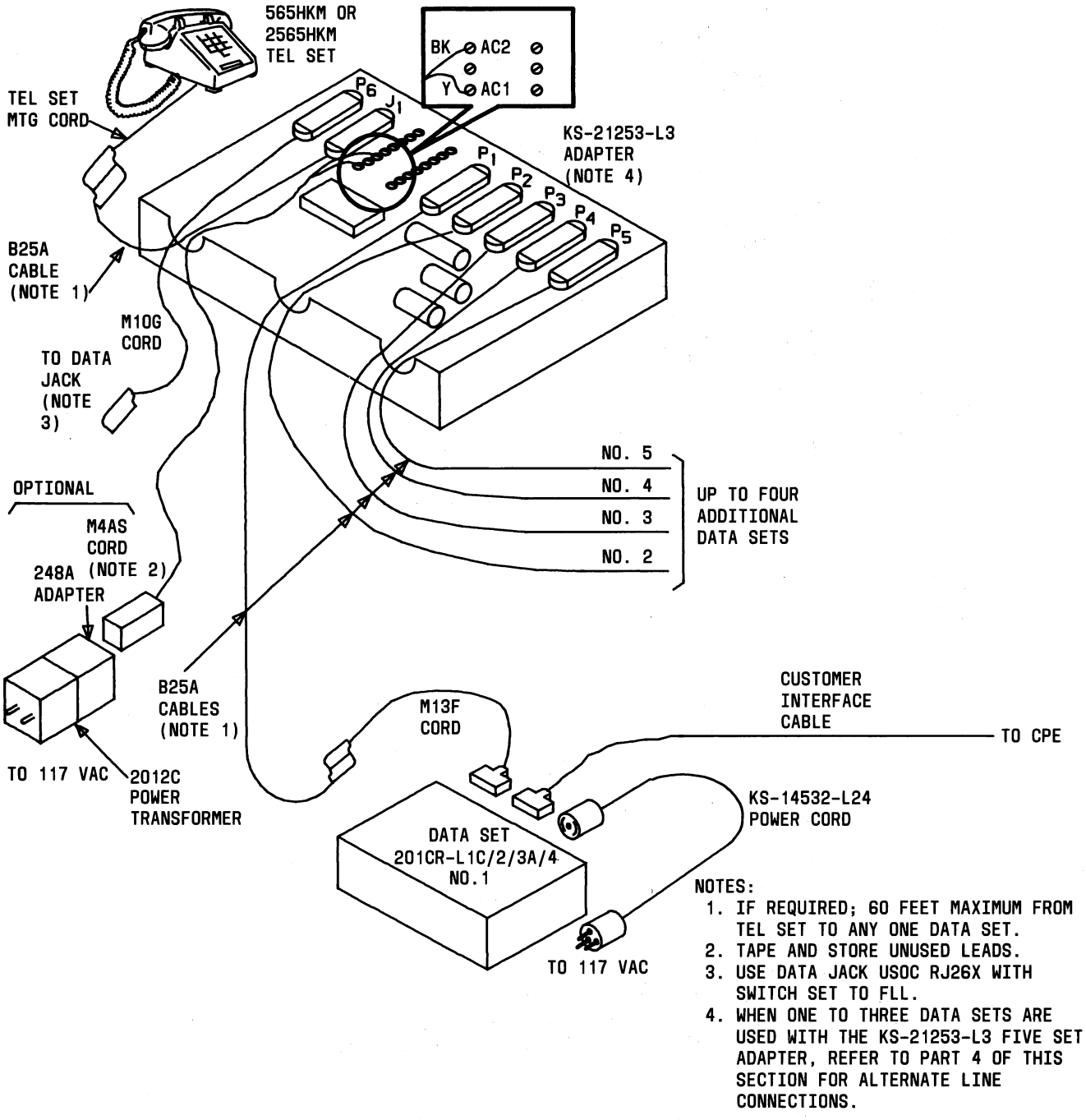



**Fig. 11—One to Five Single Data Sets With Shared Telephone Set—Connection Diagram**

**4.03** ***Single Data Set With Telephone Set:*** The connection diagram for this arrangement is Fig. 5.

The following parts are required:

- Data set 201CR-L1C/2/3A/4
- KS-14532-L24 cord—supplied with data set

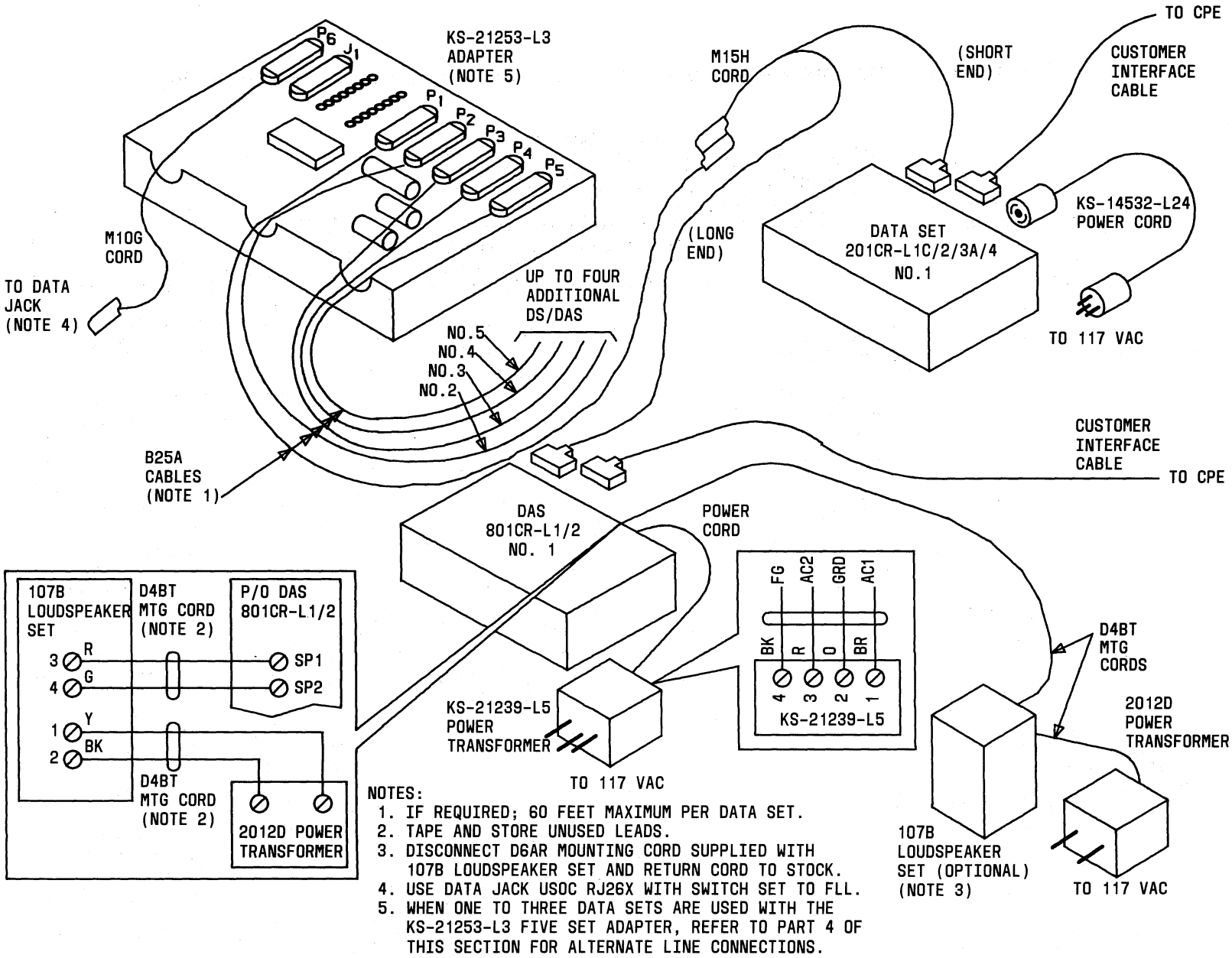



**Fig. 12—One to Five Single Data Sets With ACUs—Connection Diagram**

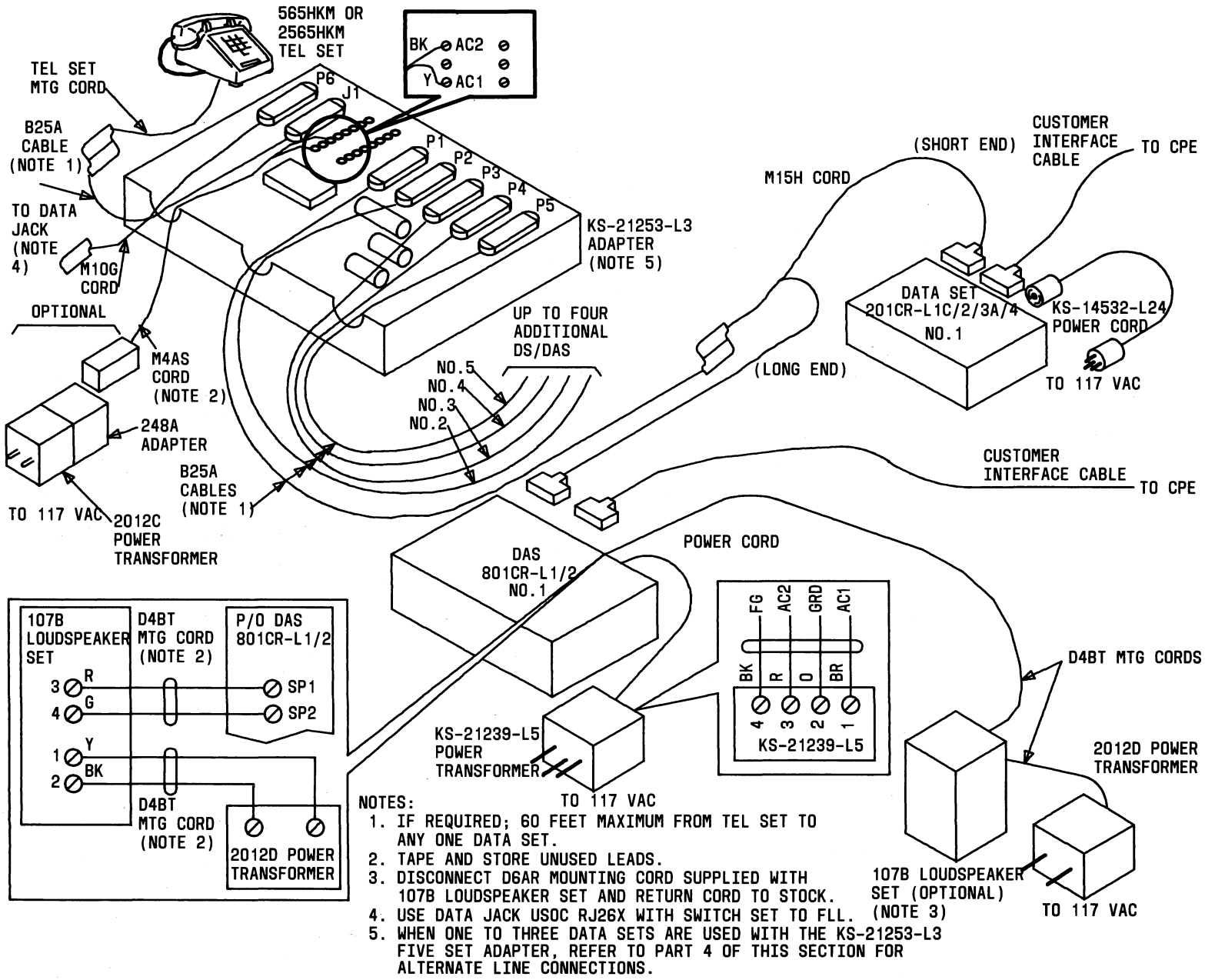



**Fig. 13—One to Five Single Data Sets With ACUs and Shared Telephone Set—Connection Diagram**

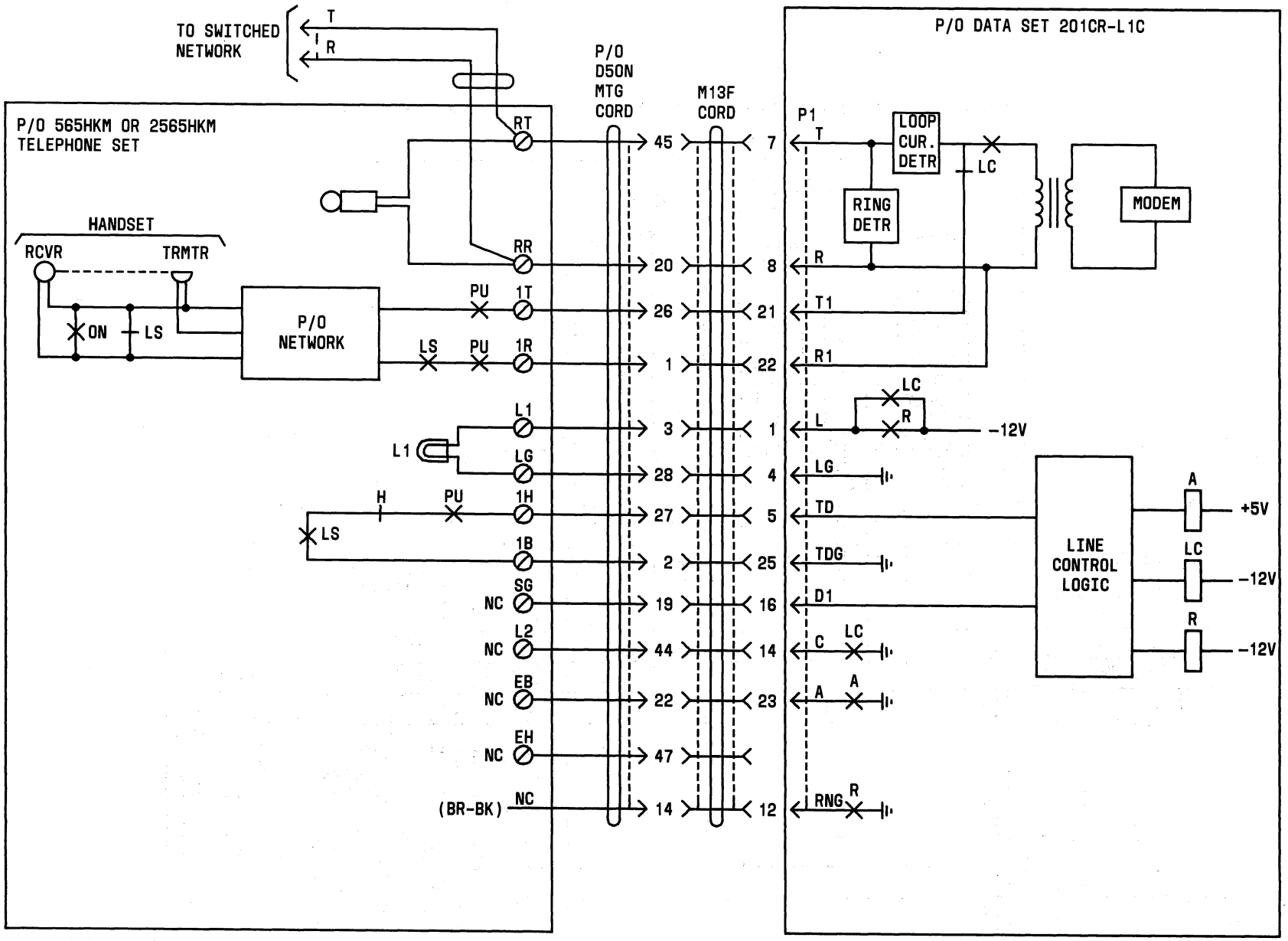



**Fig. 14—Single Data Set With Telephone Set—Interface Diagram**

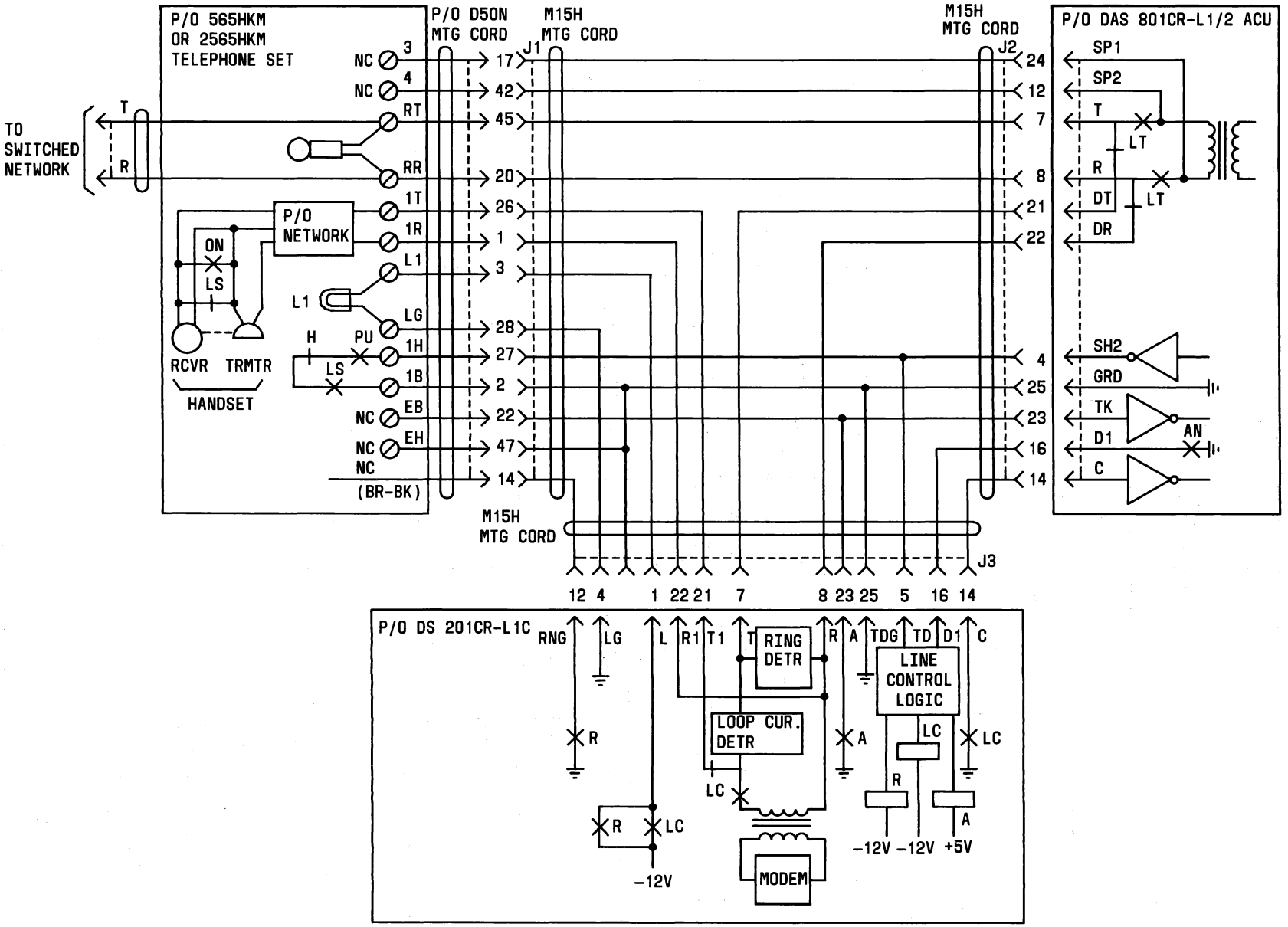



**Fig. 15—Single Data Set With ACU and Telephone Set—Interface Diagram**

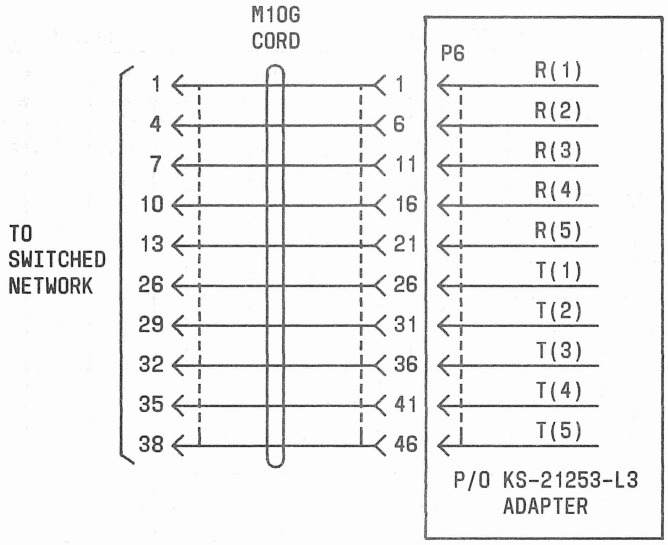



**Fig. 16—M10G Cord—Connection Diagram**

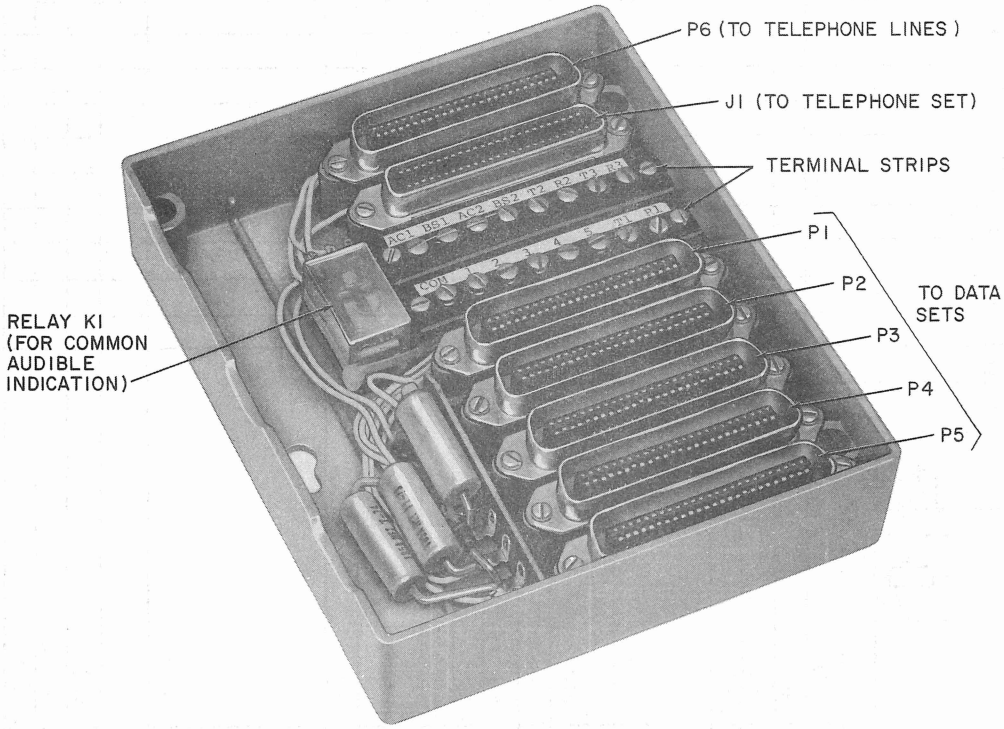



**Fig. 17—KS-21253-L3 Adapter—Cover Removed**

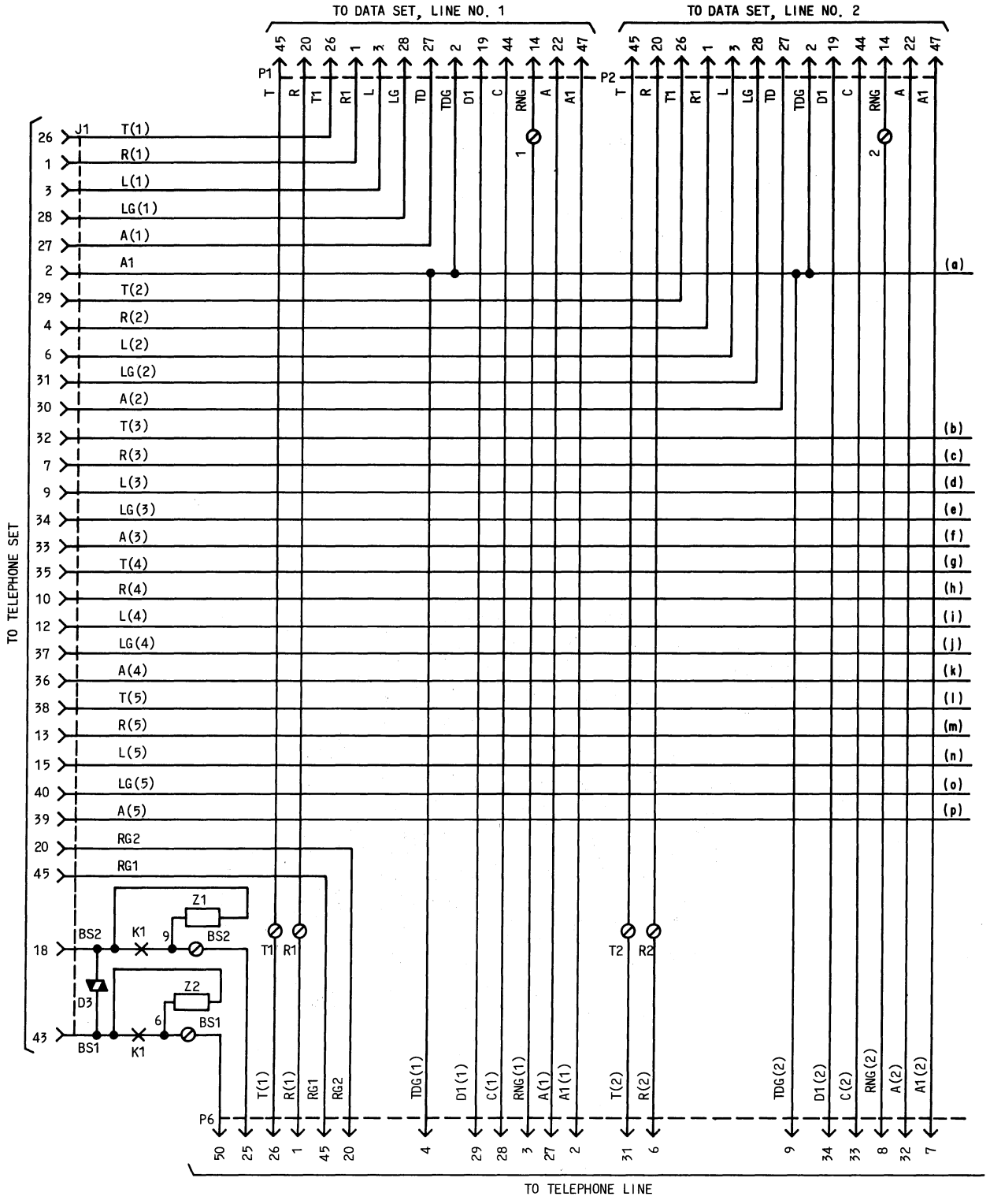



**Fig. 18—KS-21253-L3 Adapter—Wiring Diagram (Sheet 1 of 2)**

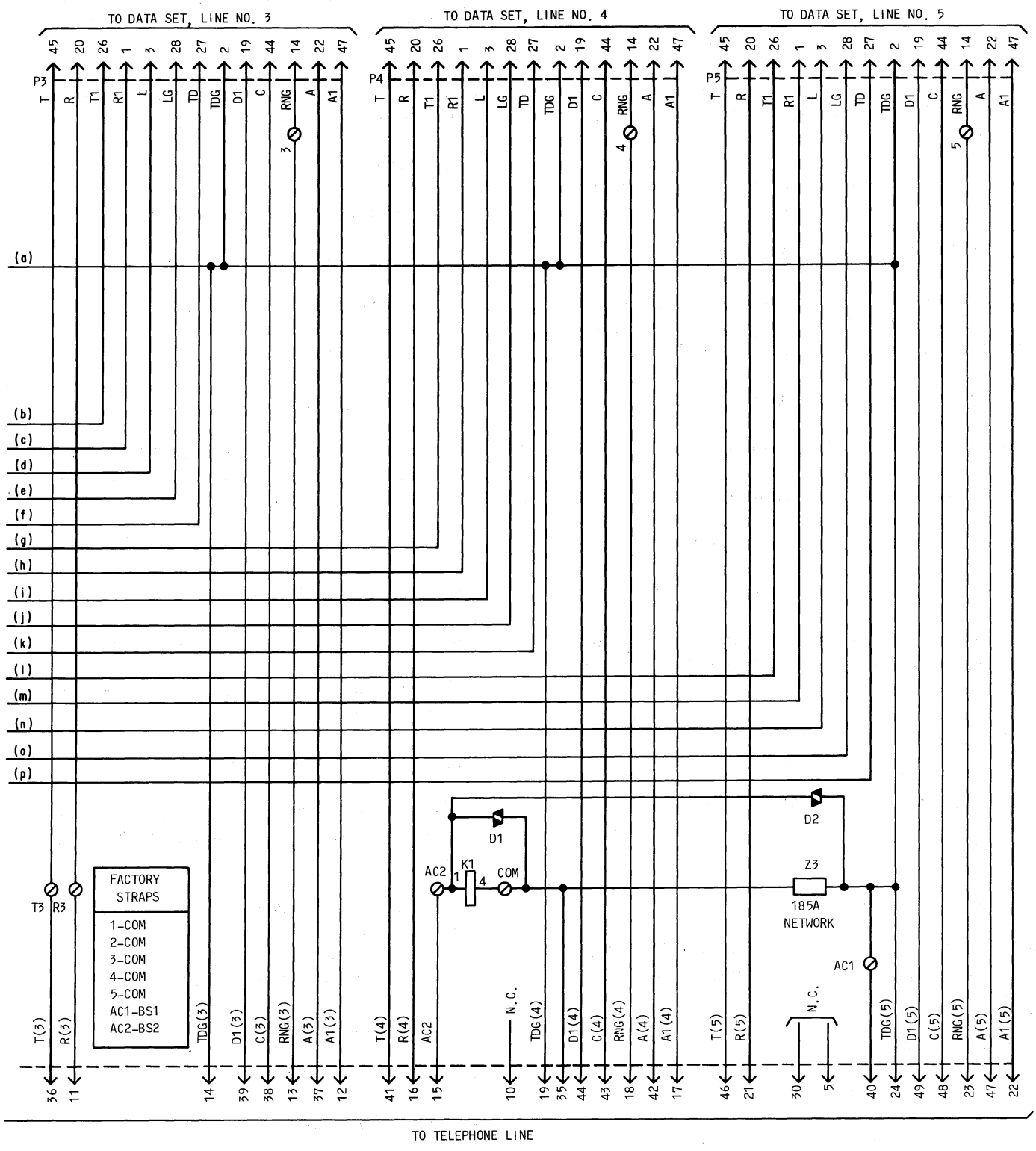



**Fig. 18—KS-21253-L3 Adapter—Wiring Diagram (Sheet 2 of 2)**

- M13F cord—supplied with data set
- M4AU cord—supplied with data set

  ***Note:*** A 7-foot cord is supplied. If needed, a longer cord (25 feet maximum) may be used.

- B25A cable (as needed up to length shown in connection diagram)
- 565HKM or 2565HKM telephone set.

**4.04** ***Single Data Set With Telephone Set (Alternate Method):*** The connection diagram for this arrangement is Fig. 6.

The following parts are required:

- Data set 201CR-L1C/2/3A/4
- KS-14532-L24 cord—supplied with data set
- M13F cord—supplied with data set
- M4AU cord—supplied with data set

  ***Note:*** A 7-foot cord is supplied. If needed, a longer cord (25 feet maximum) may be used.

- B25A cables (as needed up to length shown in connection diagram)
- 565HKM or 2565HKM telephone set
- 153A adapter
- KS-19252-L1 adapter.

**4.05** ***Single Data Set With ACU:*** The connection diagram for this arrangement is Fig. 7.

The following parts are required:

- Data set 201CR-L1C/2/3A/4
- KS-14532-L24 cord—supplied with data set
- M13F cord—supplied with data set (not used, return to stock)
- M4AU cord—supplied with data set

  ***Note:*** A 7-foot cord is supplied. If needed, a longer cord (25 feet maximum) may be used.

- B25A cable (as needed up to length shown in connection diagram)
- 153A adapter
- Data auxiliary set 801CR-L1/2 ACU
- M15H cord—supplied with ACU
- 107B loudspeaker set—optional
- D4BT cord (2)—optional
- 2012D transformer—optional.

**4.06** ***Single Data Set With ACU and Telephone Set:*** The connection diagram for this arrangement is Fig. 8.

The following parts are required:

- Data set 201CR-L1C/2/3A/4
- KS-14532-L24 cord—supplied with data set
- M13F cord—supplied with data set (not used, return to stock)
- M4AU cord—supplied with data set

  ***Note:*** A 7-foot cord is supplied. If needed, a longer cord (25 feet maximum) may be used.

- B25A cable (as needed up to length shown in connection diagram)
- 565HKM or 2565HKM telephone set
- Data auxiliary set 801CR-L1/2 ACU
- M15H cord—supplied with ACU
- 107B loudspeaker set—optional
- D4BT cord (2)—optional
- 2012D transformer—optional.

**4.07** ***Single Data Set With ACU and Telephone Set (Alternate Method):*** The connection diagram for this arrangement is Fig. 9.

The following parts are required:

- Data set 201CR-L1C/2/3A/4
- KS-14532-L24 cord—supplied with data set
- M13F cord—supplied with data set (not used, return to stock)
- M4AU cord—supplied with data set

  ***Note:*** A 7-foot cord is supplied. If needed, a longer cord (25 feet maximum) may be used.

- B25A cables (as needed up to length shown in connection diagram)
- 565HKM or 2565HKM telephone set
- 153A adapter
- KS-19252-L1 adapter
- Data auxiliary set 801CR-L1/2 ACU
- M15H cord—supplied with ACU
- 107B loudspeaker set—optional
- D4BT cord (2)—optional
- 2012D transformer—optional.

**4.08** ***One to Five Single Data Sets:*** The connection diagram for this arrangement is Fig. 10.

The following parts are required:

- Data set 201CR-L1C/2/3A/4 (1 to 5)
- KS-14532-L24 cord—supplied with each data set
- M13F cord—supplied with each data set
- M4AU cord—supplied with each data set (not used, return to stock)
- M10G cord (1)
- B25A cables (as needed up to length shown in connection diagram)
- KS-21253-L3 adapter (1).

**4.09** ***One to Five Single Data Sets With Shared Telephone Set:*** The connection diagram for this arrangement is Fig. 11.

The following parts are required:

- Data set 201CR-L1C/2/3A/4 (1 to 5)
- KS-14532-L24 cord—supplied with each data set
- M13F cord—supplied with each data set
- M4AU cord—supplied with each data set (not used, return to stock)
- M10G cord (1)
- B25A cables (as needed up to length shown in connection diagram)
- KS-21253-L3 adapter (1)
- 565HKM or 2565HKM telephone set (1)
- M4AS cord (1)—optional (used for common ringer)
- 248A adapter (1)—optional (used for common ringer)
- 2012C transformer (1)—optional (used for common ringer).

**4.10** ***One to Five Single Data Sets With ACUs:*** The connection diagram for this arrangement is Fig. 12.

The following parts are required:

- Data set 201CR-L1C/2/3A/4 (1 to 5)
- KS-14532-L24 cord—supplied with each data set
- M13F cord—supplied with each data set (not used, return to stock)

- M4AU cord—supplied with each data set (not used, return to stock)
- M10G cord (1)
- B25A cables (as needed up to length shown in connection diagram)
- KS-21253-L3 adapter (1)
- Data auxiliary set 801CR-L1/2 ACU (1 per data set requiring an ACU)
- M15H cord—supplied with each ACU
- 107B loudspeaker set (1 per ACU)—optional
- D4BT cord (2 per ACU)—optional
- 2012D transformer (1 per ACU)—optional.

**4.11** ***One to Five Single Data Sets With ACUs and Shared Telephone Set:*** The connection diagram for this arrangement is Fig. 13.

The following parts are required:

- Data set 201CR-L1C/2/3A/4 (1 to 5)
- KS-14532-L24 cord—supplied with each data set
- M13F cord—supplied with each data set (not used, return to stock)
- M4AU cord—supplied with each data set (not used, return to stock)
- M10G cord (1)
- B25A cables (as needed up to length shown in connection diagram)
- KS-21253-L3 adapter (1)
- 565HKM or 2565HKM telephone set (1)
- M4AS cord (1)—optional (used for common ringer)
- 248A adapter (1)—optional (used for common ringer)
- 2012C transformer (1)—optional (used for common ringer)
- Data auxiliary set 801CR-L1/2 ACU (1 per data set requiring an ACU)
- M15H cord—supplied with each ACU
- 107B loudspeaker set (1 per ACU)—optional
- D4BT cord (2 per ACU)—optional
- 2012D transformer (1 per ACU)—optional.

**4.12** ***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.

**4.13** ***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.

## 5. REFERENCES

**5.01** Additional information concerning DS 201CR-L1C and auxiliary apparatus is contained in the following publications:

| SECTION | TITLE |
|---|---|
| 502-500-120 | Telephone Sets—540, 560, 1560, and 2560 Series—Common Installation and Maintenance Information |
| 590-010-200 | Data Sets and Data Access Arrangements—General Installation and Connection Information |
| 590-101-103 | Jacks for Registered Data Equipment—Single and Multiline Installations |
| 592-036-100 | Data Set 201CR-L1C—Transmitter-Receiver—Single Set—Description and Operation |
| 592-036-500 | Data Set 201CR-L1C—Transmitter-Receiver—Single Set—Test Procedures Using 914-Type Data Test Set |
| 598-088-200 | Data Auxiliary Set 801CR-L1/2—Installation and Connections |

**5.02** Detailed information concerning DS 201CR-L1C is contained in CD- and SD-1D288-02.