

**2200A-L1A DATA CONTROL UNIT
(NETWORK CONTROLLER)
INSTALLATION AND CONNECTIONS
"DATAPHONE®" II SERVICE**

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1. GENERAL

1.01 This section contains the information needed to install and connect the DATAPHONE® II service 2200A-L1A data control unit (DCU) shown in Fig. 1.

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

1.03 The 2200A-L1A DCU, hereafter referred to as the network controller (NC), can be mounted in a customer or Bell System provided rack or cabinet with 19- or 23-inch mounting. A Bell System provided KS-20018 type cabinet with multiple data set mountings is shown in Fig. 2.

1.04 The NC operates over an ambient temperature range of +40 to +120°F and a relative humidity of 5 to 95 percent noncondensing.

1.05 The NC requires a power source that provides 105 to 129 volts, up to 200 watts, at 57 to 63 Hz. The customer must supply a power outlet that will

accept the 3-prong ac power plug. A KS-14532, L24 power cord is provided with each NC.

1.06 The NC may be connected to, and used in conjunction with, other NCs or a 2100A-L1 diagnostic console (DC). The NC and DC are referred to jointly as diagnostic control devices (DCDs).

Note: Paragraphs 1.07 through 1.16 describe the various physical connections to the NC. Refer to Part 3, CONNECTIONS for illustrations of the recommended connections.

1.07 Communication between the NC and DATAPHONE II data set is carried over a control channel cable. Connection to a DATAPHONE II data set (either stand alone or multiple mounting) is made from the NC control channel-out (CC-OUT) connector (Table A, Fig. 3) via a 10-pin M9G cord to the data set mounting control channel in (CC-IN) connector (Table B, Fig. 3).

1.08 Connection to a remotely located data set (either stand alone or multiple mounting) is made from the NC CC-OUT connector (Fig. 3) via a 10- to 25-pin M4BB cord and a data set (DS) 212AR. At the remotely located site, connection is made to the data mounting via a DS 212AR and a 25- to 10-pin M4BA cord.

1.09 The control channel, CC-IN and CC-OUT connectors may be "daisy chained" through another DCD to connect to a data set mounting. This connection makes use of the CC-IN and CC-OUT connectors.

1.10 The LOCAL TERMINAL (LT) connector (Table C, Fig. 3) provides local access for the DATASPEED 40/2® terminal set (or equivalent). A KS-22636, L1 adapter is provided with each NC and

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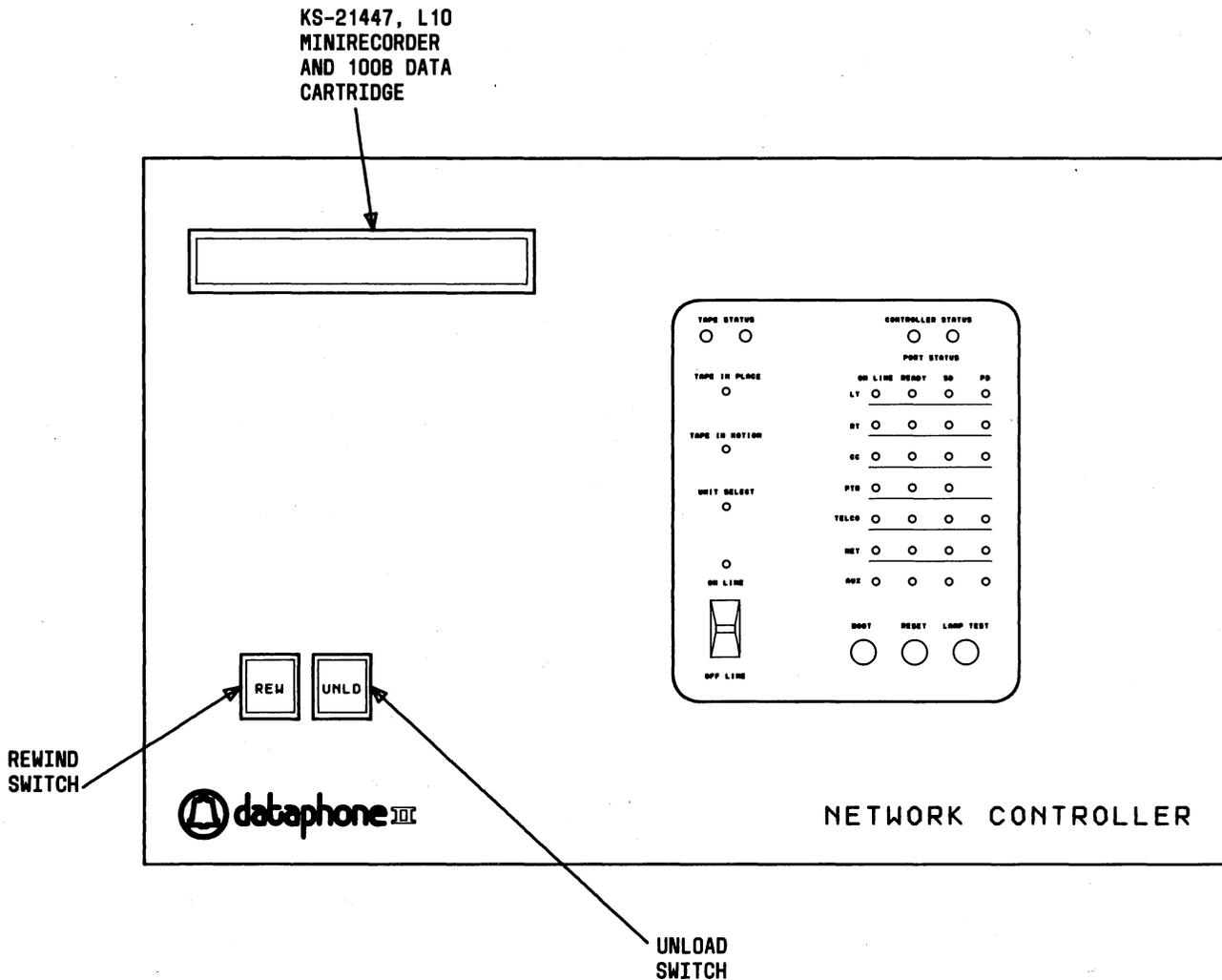


Fig. 1—2200A-L1A Data Control Unit

used to connect the RS-449 interface with RS-232-C interface on the data terminal equipment (DTE). An M25A cord is also needed.

1.11 The PRINTER (PTR) connector (Table C, Fig. 3) allows a Model 43 teleprinter (or equivalent) receive-only printer to be attached to the network controller for operation at 300 bps. A 37- to 25-pin adapter KS-22636, L1 is provided with each NC and is used to connect the RS-449 interface with RS-232-C interface on the DTE. An M25A cord is also needed.

1.12 The REMOTE TERMINAL (RT) connector (Table D, Fig. 3) provides a remote terminal access to the NC and the associated network via a 25-

pin M25A cord and a DS 212AR (for 2-wire switched network facilities) or a DS 202T (for 4-wire private line facilities), connected to a DATASPEED 40/2 terminal set.

1.13 The NETWORK (NET) connector (Table D, Fig. 3) provides access to a remotely located NC or DC via a 25-pin M25A cord and a DS 212AR (for 2-wire switched network facilities) or a DS 202T (for 4-wire private line facilities).

1.14 The TELEPHONE COMPANY (TELCO) connector (Table D, Fig. 3) allows access by a remotely located telephone company NC via a 25-pin M25A cord and a DS 212AR (for 2-wire switched network facilities) or a DS 202T (for 4-wire private line

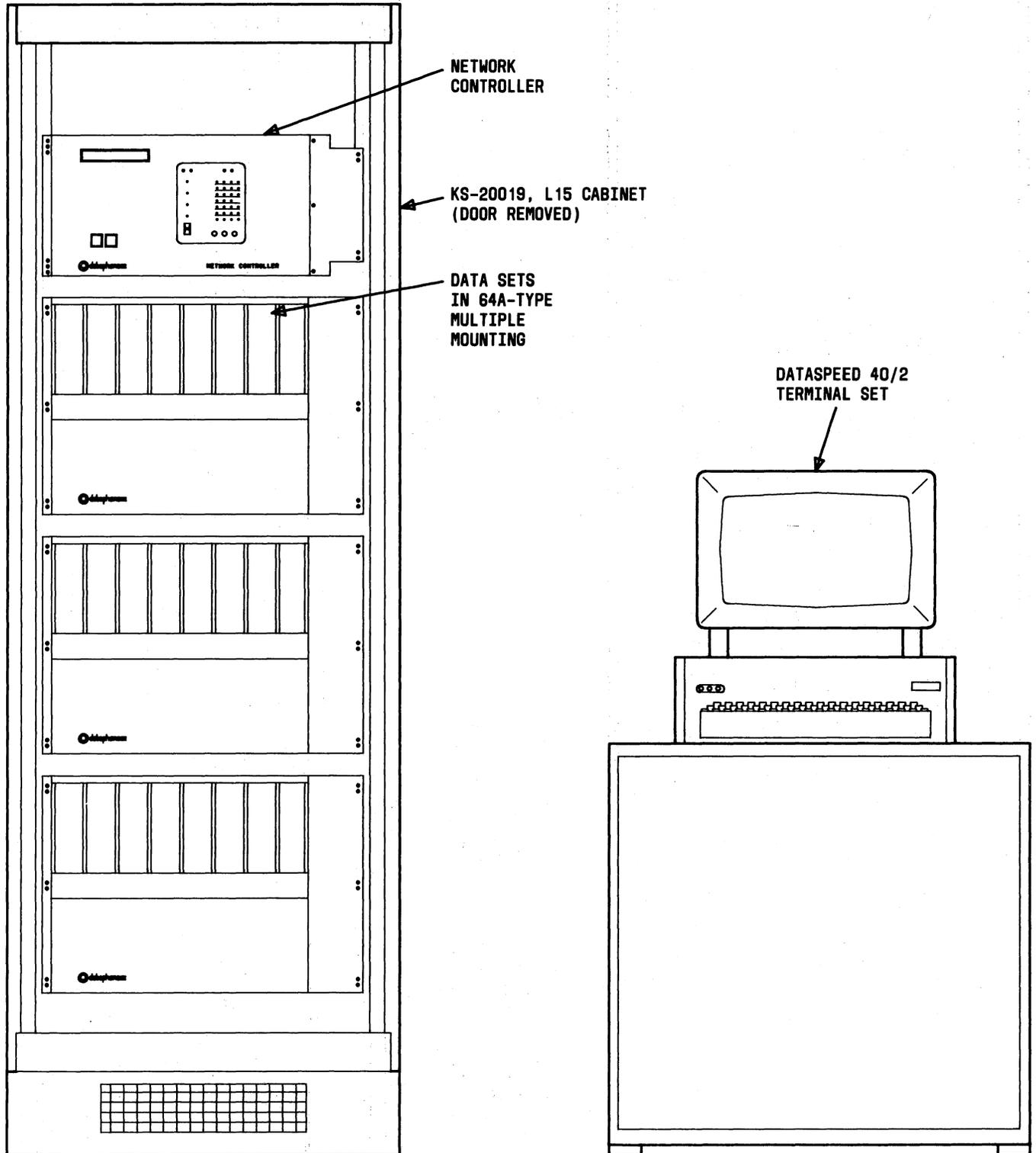


Fig. 2—Network Controller Installed in a 23-Inch Rack (Front Door Removed)

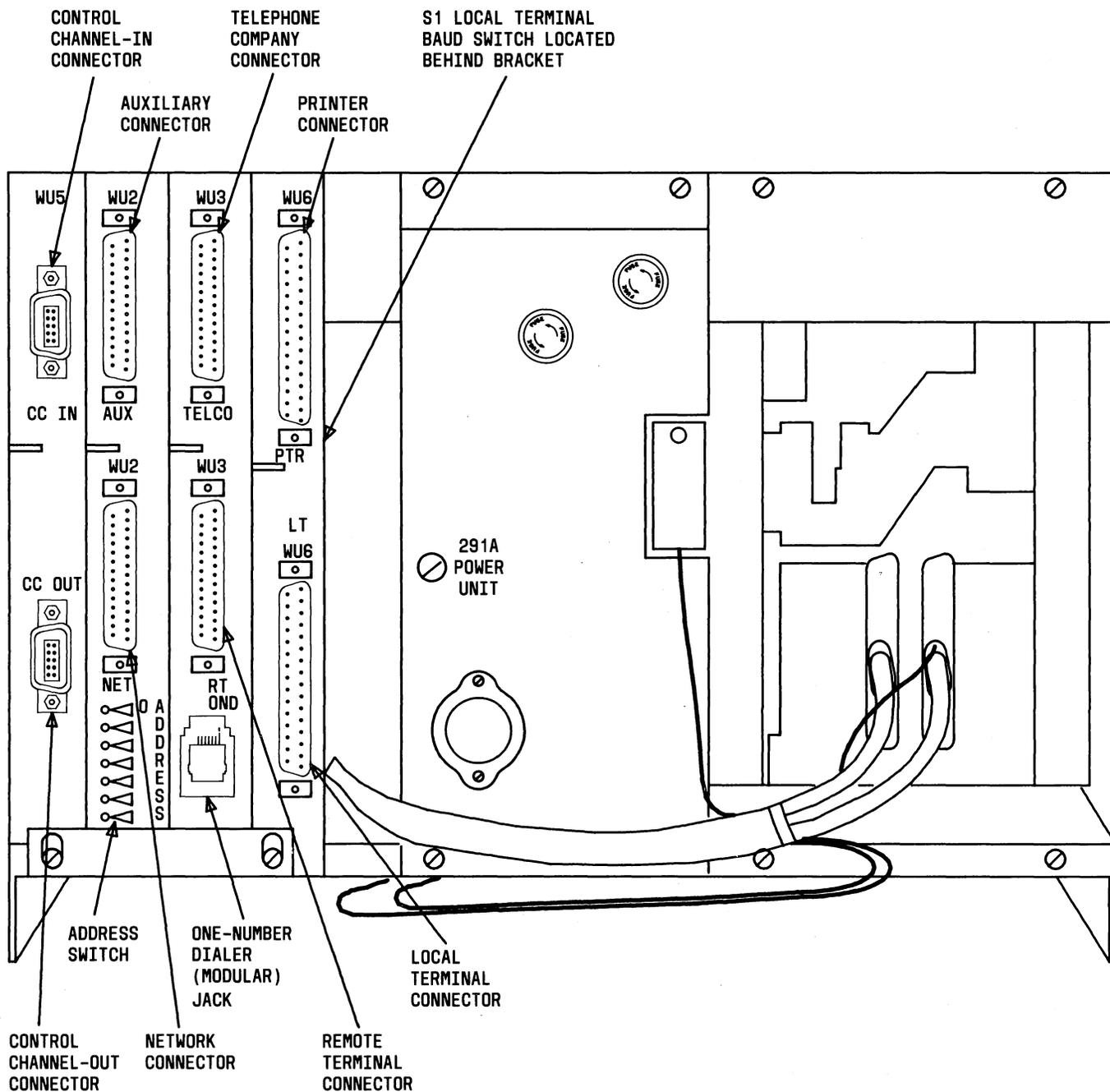


Fig. 3—Network Controller Rear View

TABLE A

LOCAL CONTROL CHANNEL-OUT (CC-OUT)

PIN NO.	LEAD DESIGNATION	FUNCTION
1	FG	Fixed Ground
3	SDO	Send Data Out
4	RDO	Receive Data Out
5	SG	Signal Ground
6	RCO	Receive Common Out
7	RSO	Request-to-Send Out
8	CSO	Clear-to-Send Out
9	SCO	Send Common Out

TABLE B

LOCAL CONTROL CHANNEL-IN (CC-IN)

PIN NO.	LEAD DESIGNATION	FUNCTION
3	SDI	Send Data In
4	RDI	Receive Data In
5	SG	Signal Ground
6	RCI	Receive Common In
7	RSI	Request-to-Send In
8	CSI	Clear-to-Send In
9	SCI	Send Common In

facilities). The same connection arrangement can be made to a remotely located customer NC.

1.15 The ONE-NUMBER DIALER (OND) modular jack connector (Fig. 3) provides the control leads for activating the OND via a M4AS cord through a 325B adapter used in conjunction with the optional automatic trouble reporting (ATR) feature.

1.16 The AUXILIARY (AUX) connector is not used.

1.17 The physical characteristics of the above connectors are described in Table E.

2. INSTALLATION

2.01 It is desirable to mount the NC in such a way as to allow visual monitoring and convenient operation of the front panel. When rack-mounting the NC, the NC must be installed in a controlled environment with filtered air.

Warning: *When the NC is installed in cabinets with a diagnostic console or data sets, start the mounting from the top of the cabinet towards the bottom to avoid static discharge.*

2.02 The NC should be placed at least 30 inches above the floor in a dust-free environment for trouble-free operation of the tape drive unit and cartridge.

2.03 The NC comes with factory-mounted brackets to fit in a 19-inch relay rack. The right side bracket can be rearranged to fit a 23-inch relay rack by removing the right side bracket, rotating it and fastening it on the NC mounting, with the short side of the mounting bracket against the NC mounting.

2.04 In addition to the standard installation tools, installation of the NC may require the following additional tools:

12-inch screwdriver

A screw starter, Kedman Co. No. 1736, or equivalent.

2.05 For a one-person installation perform the following:

- For 23-inch mounting space, insert the furnished 12-24 by 1/2-inch long screws 3-1/2 inches from the bottom of the mounting.
- For the 19-inch mounting space, insert the furnished 12-24 by 1/2-inch long screws 4-3/4 inches from the bottom of the mounting.
- Hook the NC mounting onto these starter screws and then insert the remaining mounting screws in position using the screw starter and making minor position changes if necessary.

TABLE C

LOCAL TERMINAL (LT) AND PRINTER (PTR) PORT CONNECTORS

RS-449			APPLIES TO:	
PIN NO.	MNEMONIC	NAME	LT CONNECTOR	PTR CONNECTOR
4, 22	SD	Send Data	yes	no
6	RD	Receive Data	yes	yes
9	CS	Clear-to-Send	yes	yes
11	DM	Data Mode	yes	yes
12, 30	TR	Terminal Ready	yes	yes
13	RR	Receive Ready	yes	yes
19	SG	Signal Ground	yes	yes
20	RC	Receive Common	yes	no
37	SC	Send Common	yes	yes

2.06 Slide the 291A power unit into the NC housing from the rear and attach to the NC housing by using the four screws furnished with the NC.

2.07 Connect the plug marked P1 from the NC to the connector marked J3 on the back of the power unit.

2.08 Connect the plug marked P2 from the NC fan assembly to the connector marked OUTPUT 117 Vac on the back of the power unit.

DANGER: Do not power-up the NC at this time.

2.09 Connect the KS-14532, L24 power cord (provided) to the power connector on the back of the 291A power unit.

2.10 Set the NC address specified as diagnostic apparatus address (DAA) on the service order using the dual in-line package (DIP) address switch located on the WU2 circuit pack (Fig. 3). The procedure for setting the NC address switch is shown in Fig. 4.

2.11 The position of the S1 switch on the WU6 circuit pack determines the baud rate of the local terminal (LT) port (300 or 1200 bps). Refer to Fig. 5 for the location of the S1 switch on the WU6 circuit

pack. With the rocker down on the side opposite the white dot, the LT baud rate is 1200 bps.

2.12 Plug in the M9G cord from the data set mounting or DCD into the CC-OUT connector on the WU5 circuit pack. This connection is made per station equipment configuration (Fig. 6 through Fig. 12).

2.13 Install and power-up the DATASPEED 40/2 terminal set (or equivalent). Refer to Section 582-200-202 for the installation of the DATASPEED 40/2 terminal set.

2.14 Ensure that proper options (per service order) have been installed and the line speed switch on the DATASPEED 40/2 terminal set is set for the same baud rate as the S1 switch on the WU6 circuit pack of the NC.

2.15 Install and power-up the Model 43 teleprinter or equivalent (optional). Refer to Section 574-500-200 for installation instructions.

2.16 Plug in the M25A cord to the DATASPEED 40/2 terminal set (or equivalent) and to the local terminal (LT) connector located on the WU6 circuit pack using a KS-22636, L1 adapter provided with each NC.

2.17 Plug in the M25A cord to the Model 43 teleprinter (or equivalent) and to the printer

TABLE D

**NETWORK (NET), REMOTE TERMINAL (RT),
TELEPHONE COMPANY (TELCO) CONNECTORS**

PIN NO.	FUNCTION	LEAD DESIGNATION RS-232-C
1	Protective Ground	AA
2	Transmitted Data	BA
3	Received Data	BB
4	Request-to-Send	CA
5	Clear-to-Send	CB
6	Data Set Ready	CC
7	Signal Ground	AB
8	Received Line Signal Detector	CF
12	Data Signal Rate Selector (DCE Source)	CI*
14	Auxiliary Received Line Signal Detector	ACF*
18		CN*
20	Data Terminal Ready	CD
21	Remote Digital Loopback	RL*
22	Ring Indicator	CE
23	Data Signal Rate Selector (DTE Source)	CH
25		TN*

* Non-EIA RS-232-C lead.

(PTR) connector located on the WU6 circuit pack using a KS-22636, L1 adapter provided with each NC.

3. CONNECTIONS

3.01 The recommended connections for the various NC installations are shown in Fig. 6 through Fig. 16. The figure numbers and titles of the connection diagrams are given below:

Fig. 6—Connection Diagram for Single NC Without Remote Access

Fig. 7—Connection Diagram for NC Colocated With Another DCD Without Remote Access

Fig. 8—Connection Diagram for NC Colocated With Another DCD Without Remote Access (Alternate Method)

Fig. 9—Connection Diagram for NCs With Remote Access via Switched Network Telephone Facilities

Fig. 10—Connection Diagram for NC and DC With Remote Access via Switched Network

Fig. 11—Connection Diagram for NC With Remote Access via Private Line Telephone Facilities

Fig. 12—Connection Diagram for NC and DC With Remote Access via Private Line Telephone Facilities

Fig. 13—Connection Diagram for NC Using Switched Network Telephone Facilities for Control Channel Interface With Remote Access

TABLE E

INTERFACE CONNECTORS PHYSICAL CHARACTERISTICS

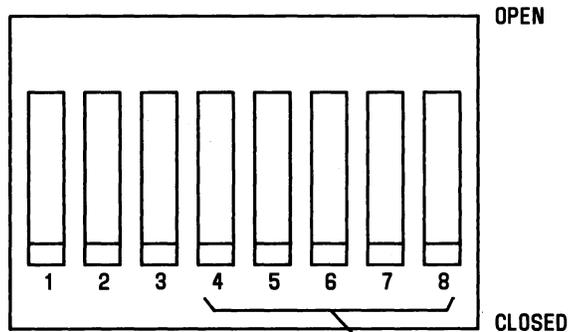
CONNECTOR	FUNCTION	SEX	NUMBER PINS	REMARKS
CC-IN	Control Channel-In	Male	10	
CC-OUT	Control Channel-Out	Female	10	
AUX	Auxiliary	Male	25	RS-232-C DTE
NET	Network	Male	25	RS-232-C DTE
TELCO	Telephone Company	Male	25	RS-232-C DTE
RT	Remote Terminal	Male	25	RS-232-C DTE
OND	One-Number Dialer	Female	4	Modular Jack
PTR	Printer	Female	37	RS-449 DCE, RS-423
LT	Local Terminal	Female	37	RS-449 DCE, RS-423

THE POSITION OF SWITCHES
1, 2 & 3 DETERMINES THE
NC ADDRESS

NC ADDRESS	SW1	SW2	SW3
1	X	X	X
2	0	X	X
3	X	0	X
4	0	0	X
5	X	X	0
6	0	X	0
7	X	0	0
8	0	0	0

0 = OPEN
X = CLOSED

THE NC ADDRESS SHOWN BY THE DIP
(BAT HANDLE) SWITCH ABOVE IS 1.



UNUSED SWITCHES
(MUST BE IN
CLOSED POSITION)

Fig. 4—Network Controller Address Switch and Setting

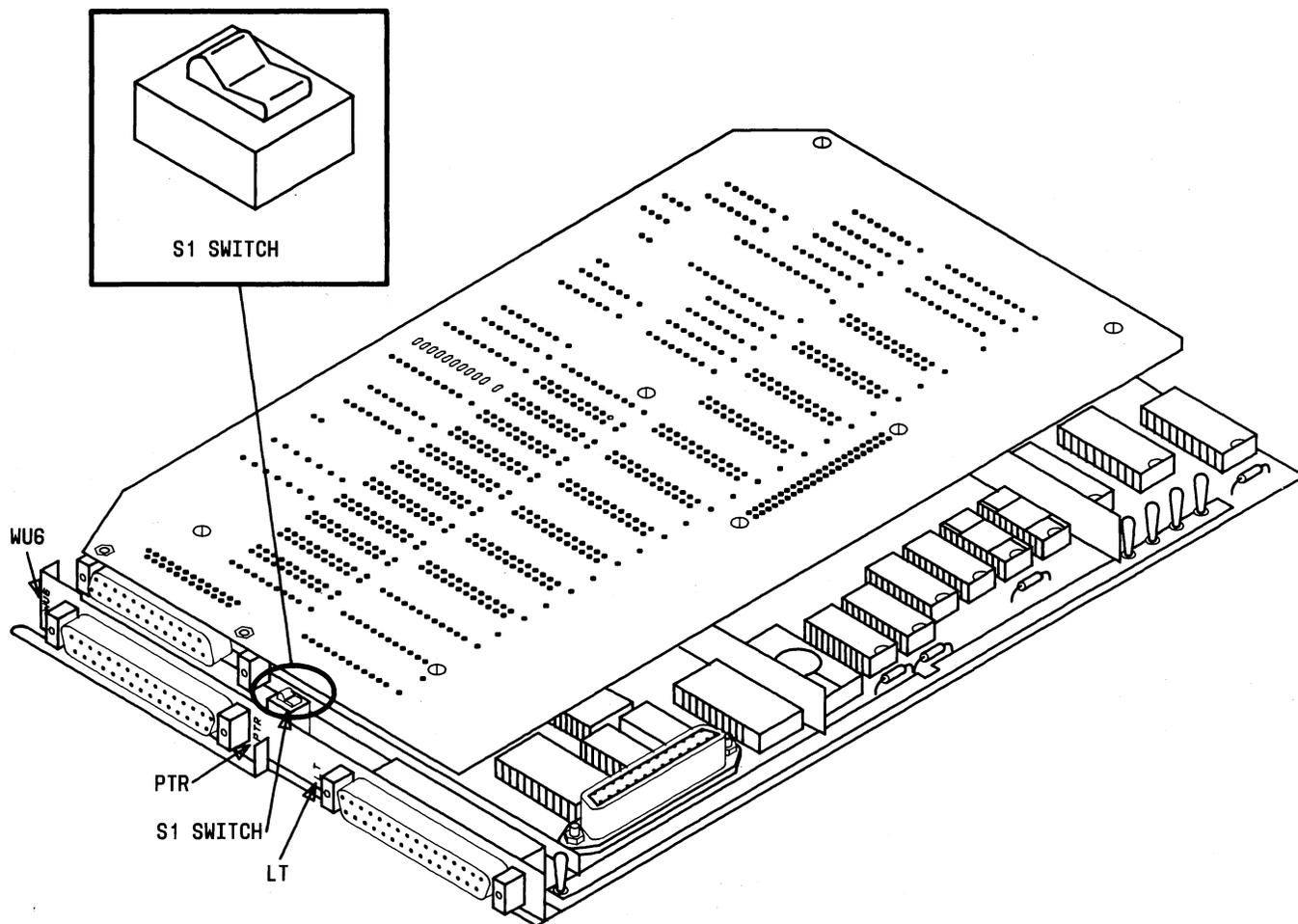


Fig. 5—Location of S1 Switch on the WU6 Circuit Pack

Fig. 14—Connection Diagram for NC Using Private Line Telephone Facilities for Control Channel Interface With Remote Access

Fig. 15—Connection Diagram for NC Using 43A One-Number Dialer for Automatic Trouble Reporting (ATR)

Fig. 16—Connection Diagram for NC Using 53A One-Number Dialer for Automatic Trouble Reporting (ATR)

4. START-UP PROCEDURE

4.01 The start-up procedure requires operation from the front panel of the NC and from the DATASPEED 40/2 terminal set (or equivalent). The procedure is explained in the following paragraphs.

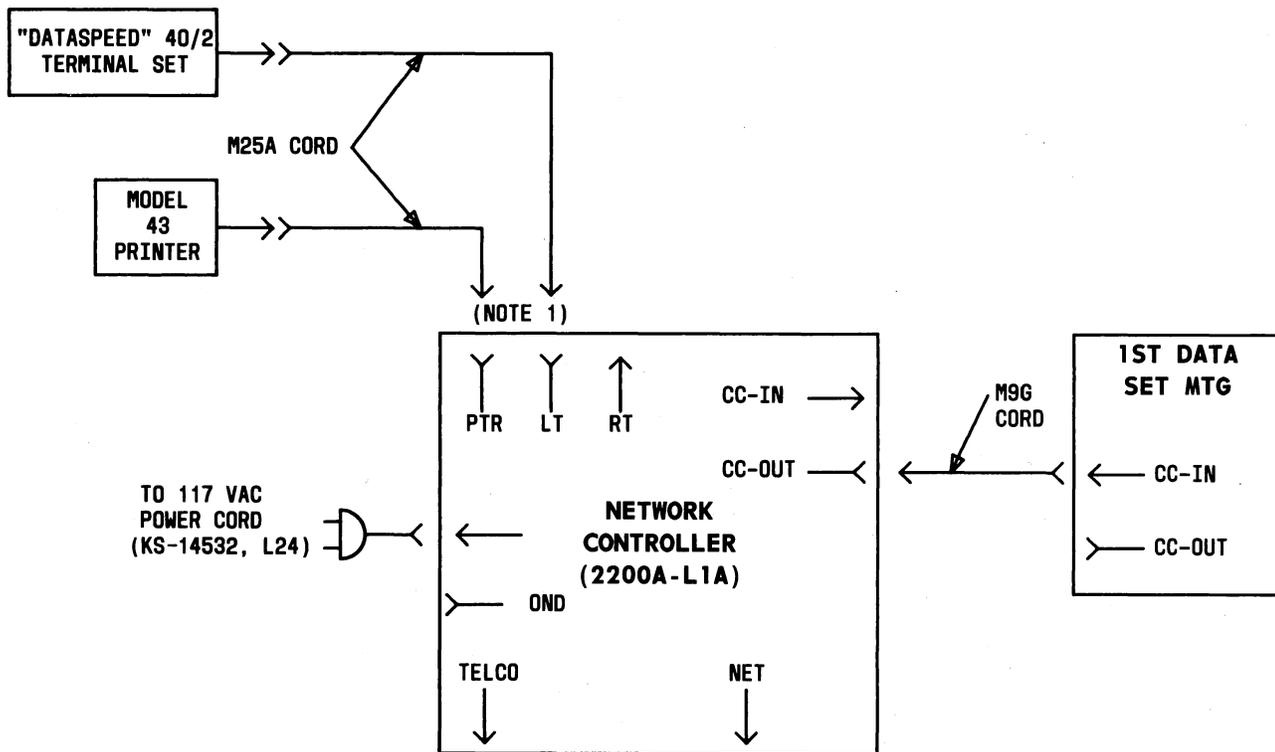
4.02 Connect the NC ac power cord KS-14532, L24 to a customer provided 3-prong power outlet.

Note: The ac outlet must not be under control of a switch.

4.03 Depress the momentary contact LAMP TEST switch to check all LEDs on the front panel of the NC. All LEDs should turn ON.

4.04 The 100B data cartridge should be inspected to make sure that the tape is *not* in the "SAFE" position. In the upper left hand corner of the data cartridge is a slotted key with an arrow. This arrow should point *away* from the word "SAFE."

4.05 Turn the ON LINE/OFF LINE switch to OFF LINE. Insert the program cartridge (100B data cartridge) into the tape drive unit in the NC. Turn the ON LINE/OFF LINE switch to ON LINE. The ON LINE, UNIT SELECT, and TAPE IN PLACE LEDs should turn *on*.



NOTE:

1. A KS-22636, L1 ADAPTER IS USED TO CONNECT THE 37 PIN CONNECTOR TO THE 25 PIN CONNECTOR.

Fig. 6—Connection Diagram for Single NC Without Remote Access

4.06 While holding the BOOT button depressed, momentarily depress and release the RESET button. Release the BOOT button.

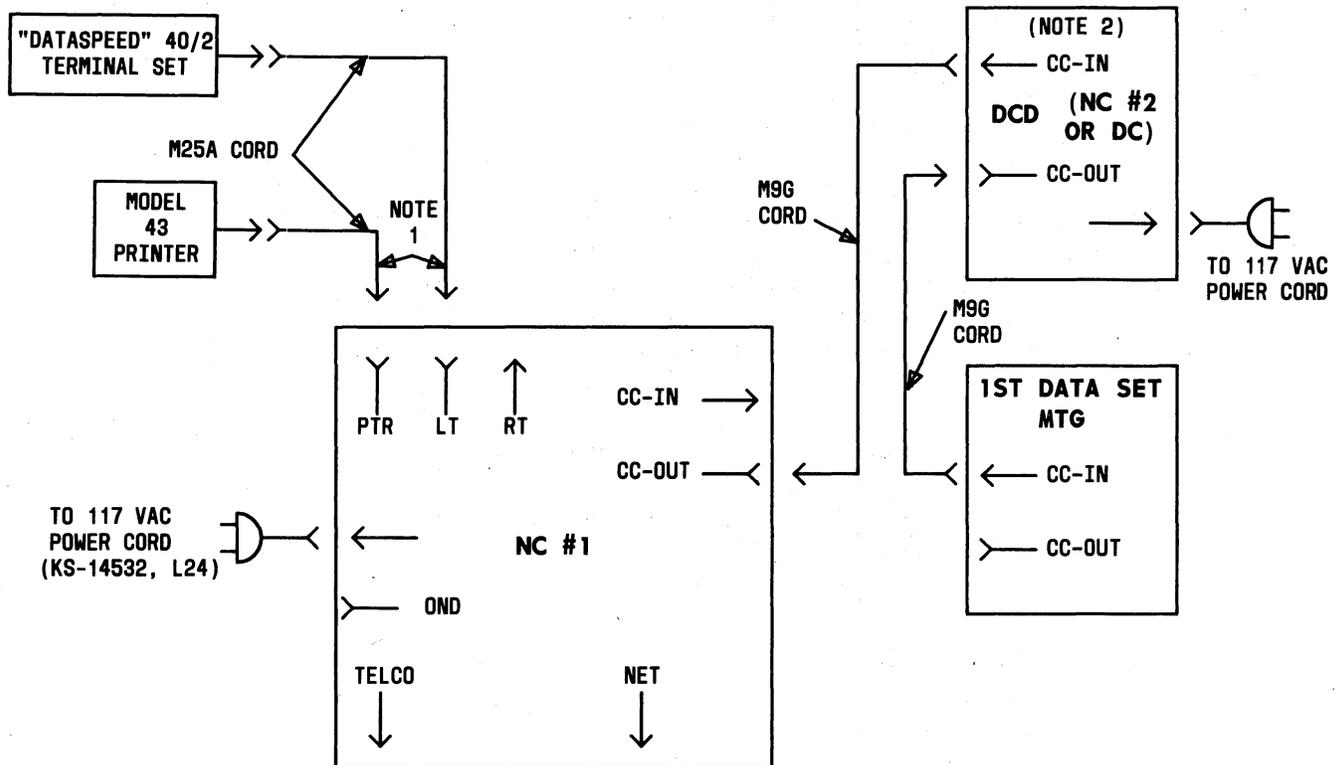
4.07 The tape status LEDs (red and green) will come **on** and the controller status red LED will come **on**. The message SYSTEM TEST then is displayed on the local terminal (LT) followed by "loading" and the system software version numbers. After about 10 seconds the TAPE STATUS green LED will light. Then the CONTROLLER STATUS green LED will light.

4.08 After about 35 seconds, the ringer in the DATASPEED 40/2 terminal set will ring at 1-second intervals for about 2 minutes, as the cursor moves across the screen. Then the NC identity and operation information will be displayed on the terminal screen.

4.09 Depress NEW LINE key on the DATASPEED 40/2 terminal set. A real time fault display will appear followed by **enter selection**. Refer to Fig. 17 for a display of the screen.

Note: Refer to Section 592-102-101 for detailed description of NC operating procedures, NC commands operations, and NC displays described in the following paragraphs.

4.10 Unlock the NC by entering the password (pw) selection. Enter **pw;plato;u;** and then depress the NEW LINE key on the DATASPEED 40/2 terminal set (each system program 100B data cartridge is shipped from the factory with **plato** as password).



NOTES:

1. A KS-22636, L1 ADAPTER IS USED TO CONNECT THE 37 PIN CONNECTOR TO THE 25 PIN CONNECTOR.
2. ENSURE THAT EACH DCD HAS A UNIQUE ADDRESS.

Fig. 7—Connection Diagram for NC Colocated With Another DCD Without Remote Access

Note: Every time BOOTING is done, the password reverts back to factory installed password *plato*. The date and time must be reset, and the queue must be re-established.

4.11 Enter *chdt* (change date and time) from the DATASPEED 40/2 terminal set and then enter the desired month/day/year; hour:min. Depress the NEW LINE key or RETURN key. The screen will show *enter selection*.

4.12 Enter *chncop*; (Change NC options) and depress the NEW LINE key or RETURN key on the DATASPEED 40/2 terminal set. The present NC options will appear on the DATASPEED 40/2 terminal set display screen followed by the NC option choices, followed by *enter choice*. Refer to Fig. 18 for a display of the screen.

4.13 Read service order and decode the universal suffix for the network controller (Table F), the decision matrix for the network controller (Table G), and the port configurations of the network controller (Table H). Set NC options as specified on the service order by choosing each option separately, and then depressing the NEW LINE key or RETURN key. After all the NC options have been set as per service order, choose exit (*x*) and depress the NEW LINE key. The screen will show *enter selection*.

4.14 Enter *chnopl*; (change NC poll list) from the DATASPEED 40/2 terminal set, followed by *a*; (add), then enter local address(es) as in service order with a comma between each local address. After all the data set addresses have been entered,

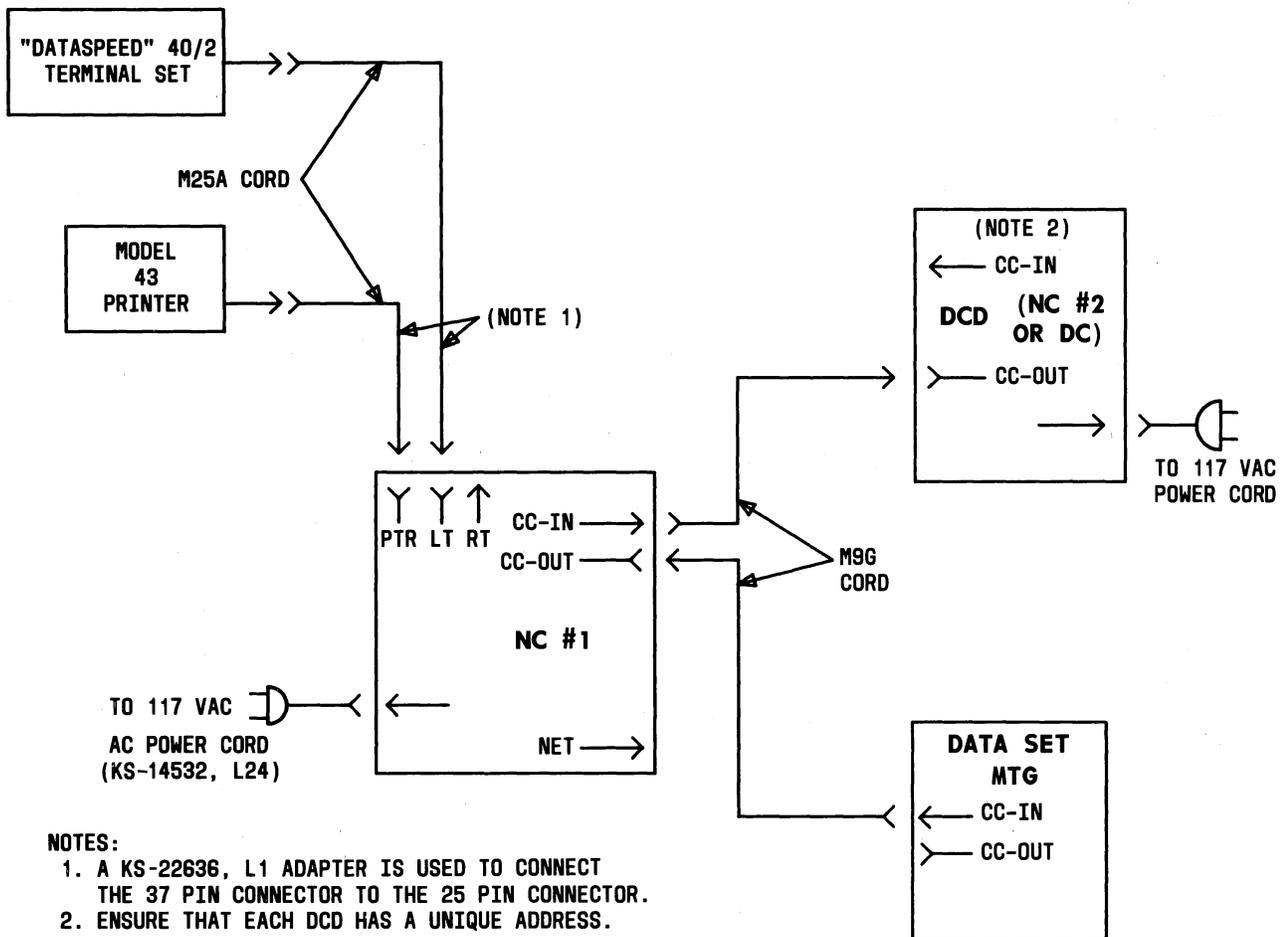


Fig. 8—Connection Diagram for NC Colocated With Another DCD Without Remote Access (Alternate Method)

choose exit (x) and depress NEW LINE key. The screen will show **enter selection**.

Note: If instead of *a* (add) choice, *aq* (acquire) is selected and then NEW LINE key is depressed, all the data sets will be added in the NC poll list automatically, but the NC will poll all 256 possible local addresses which will take several minutes. To stop NC from acquiring a poll list, simultaneously depress the CONTROL and F key on the DATASPEED 40/2 terminal set and then release.

4.15 Enter *dsncpl* (display NC poll list) from the DATASPEED 40/2 terminal set and then depress NEW LINE key or RETURN key. The NC poll list will be displayed. When a DS 2096A is used, the local address is followed by a number from 1 to 4

which indicates the number of active ports. Refer to Fig. 19 for a display of the screen. Check that the NC poll list is according to service order.

Caution: In case of power failure after the NC has been installed, follow installation instructions beginning with the start-up procedure.

5. INSTALLATION TEST

5.01 After installation is completed, the NC should be tested to determine if it is operating properly.

5.02 Execute several nondisruptive tests or commands on local data sets in the control channel network. Some examples of tests or commands

that may be used are: EIA status (eia), identity (id). Refer to Section 592-102-101 for result indications. Refer to Table I or J to determine whether a test or command is disruptive.

6. REFERENCES

6.01 Additional information concerning DATAPHONE II service network controller, diagnostic control, and data sets is contained in the following Bell System Practices:

SECTION	TITLE
501-165-101	Station Dial-43A
501-165-110	Station Dial-53A
574-500-200	43 Basic Teleprinter—Installation and Removal
582-200-202	Teletypewriter Compatible DATASPEED® 40/2—Installation
592-031-200	Data Set 202T-Type—Transmitter-Receiver—Installation and Connections
592-039-200	Data Set 212AR-L1A/2A Installation and Connections
592-040-120	Private Line Data Sets 2024, 2048, and 2096—Description and Operation—Stand Alone-Multiple DATAPHONE® II Service
592-040-220	Private Line Data Sets 2024, 2048, and 2096,—Installation and Connections—Stand Alone-Multiple—DATAPHONE® II Service
592-040-520	Private Line Data Sets 2024, 2048, and 2096—Test Procedures—Stand Alone-Multiple—DATAPHONE® II Service
592-101-100	2100A Data Control Unit (Diagnostic Console)—Description and Operation—DATAPHONE® II Service
592-101-200	2100A Data Control Unit (Diagnostic Console)—Installation and Connections—DATAPHONE® II Service
592-101-500	2100A Data Control Unit (Diagnostic Console)—Test Procedures—DATAPHONE® II Service
592-102-101	2200A-L1A Data Control Unit (Network Controller)—Description and Operation—DATAPHONE® II Service
592-102-501	2200A-L1A Data Control Unit (Network Controller)—Test Procedures—DATAPHONE® II Service

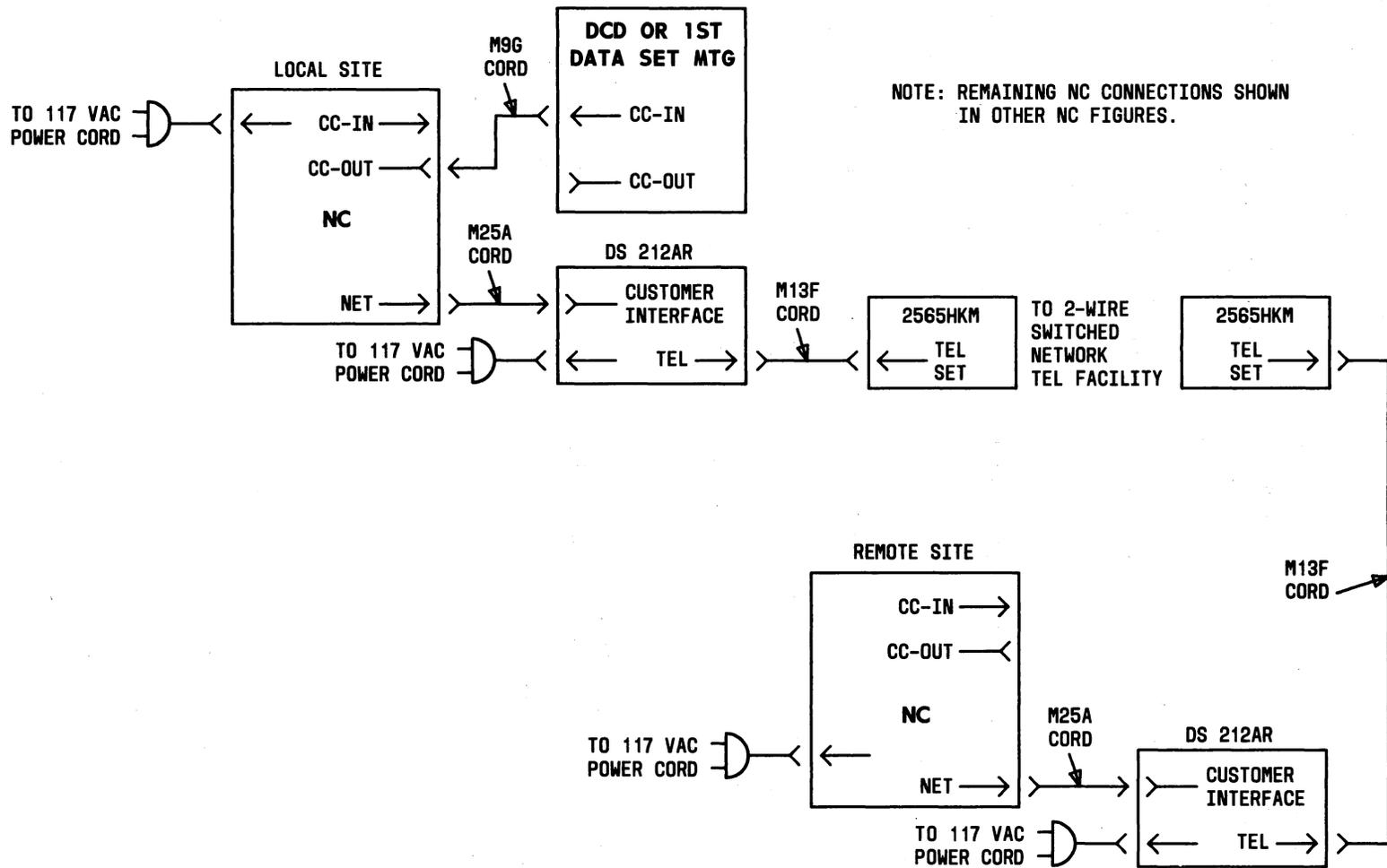


Fig. 9—Connection Diagram for NC With Remote Access via Switched Network Telephone Facilities

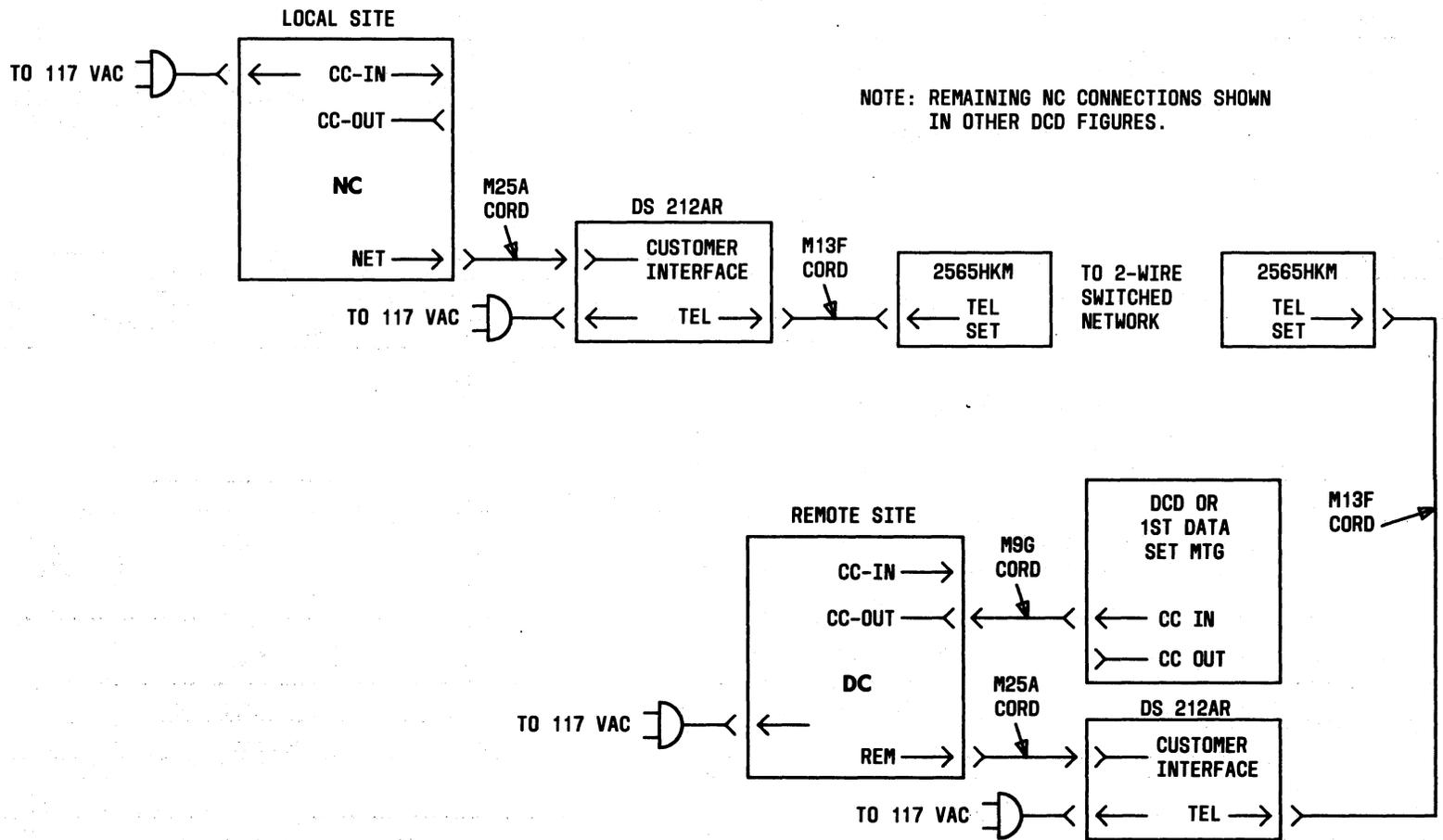


Fig. 10—Connection Diagram for NC and DC With Remote Access via Switched Network

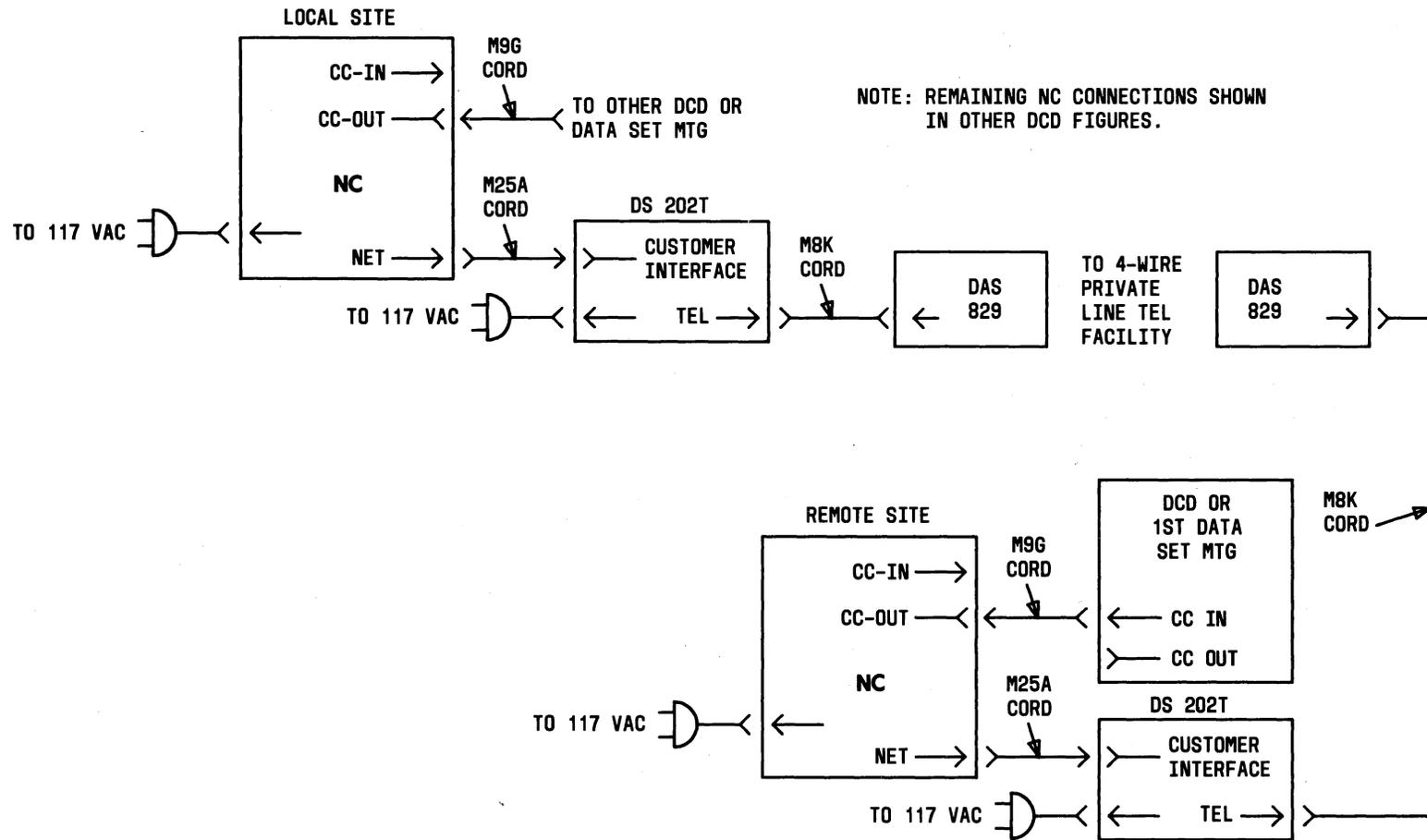


Fig. 11—Connection Diagram for NC With Remote Access via Private Line Telephone Facilities

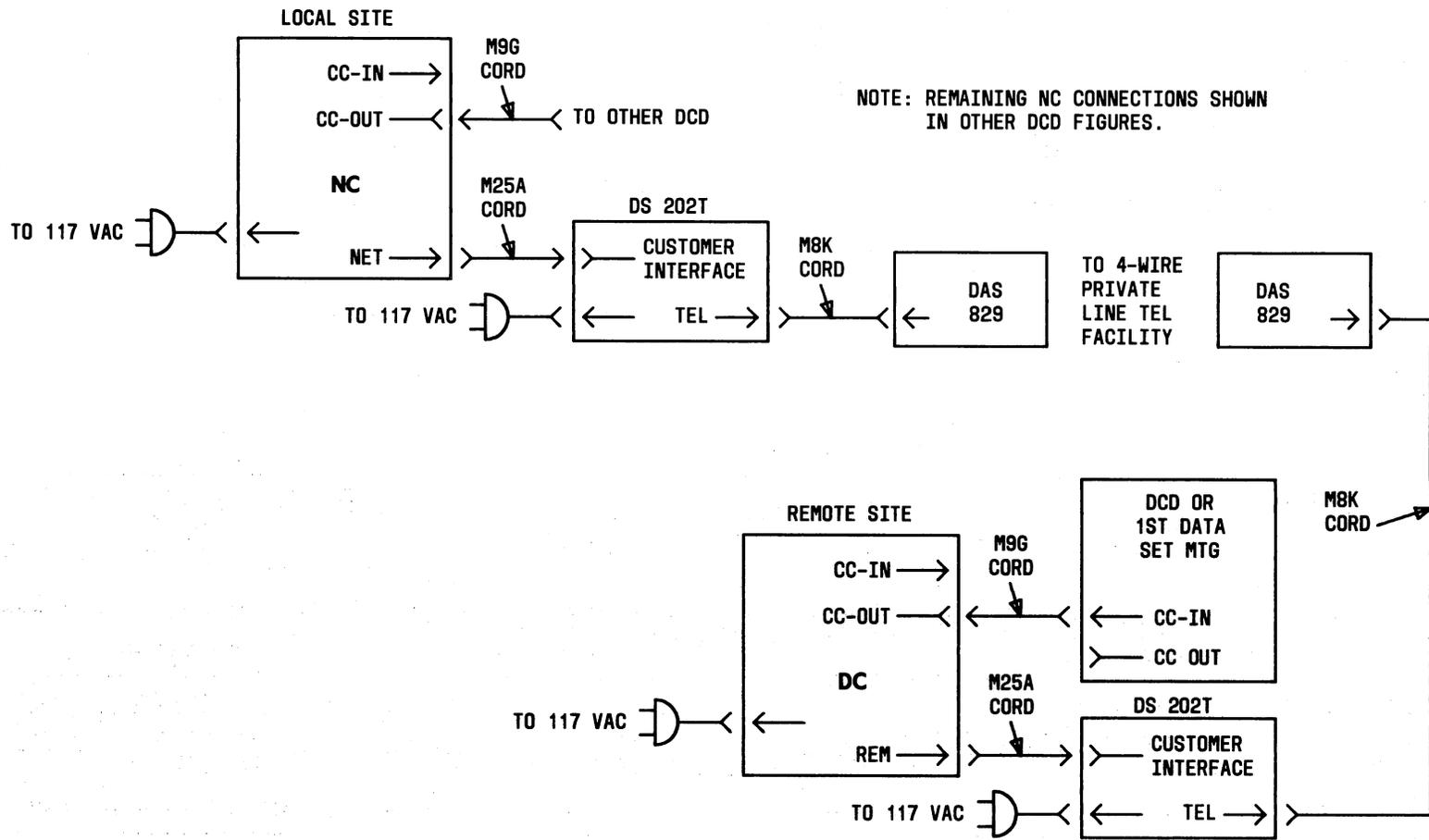
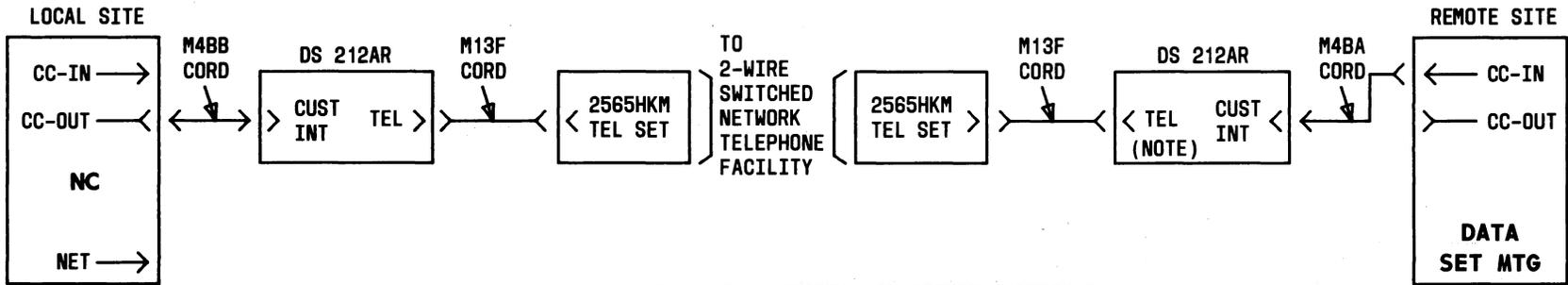


Fig. 12—Connection Diagram for NC and DC With Remote Access via Private Line Telephone Facilities



NOTE: LOSS OF CARRIER DISCONNECT-IN OPTION (OPTION S) MUST BE INSTALLED. REFER TO SECTION 592-039-200.

Fig. 13—Connection Diagram for NC Using Switched Network Telephone Facilities for Control Channel Interface With Remote Access

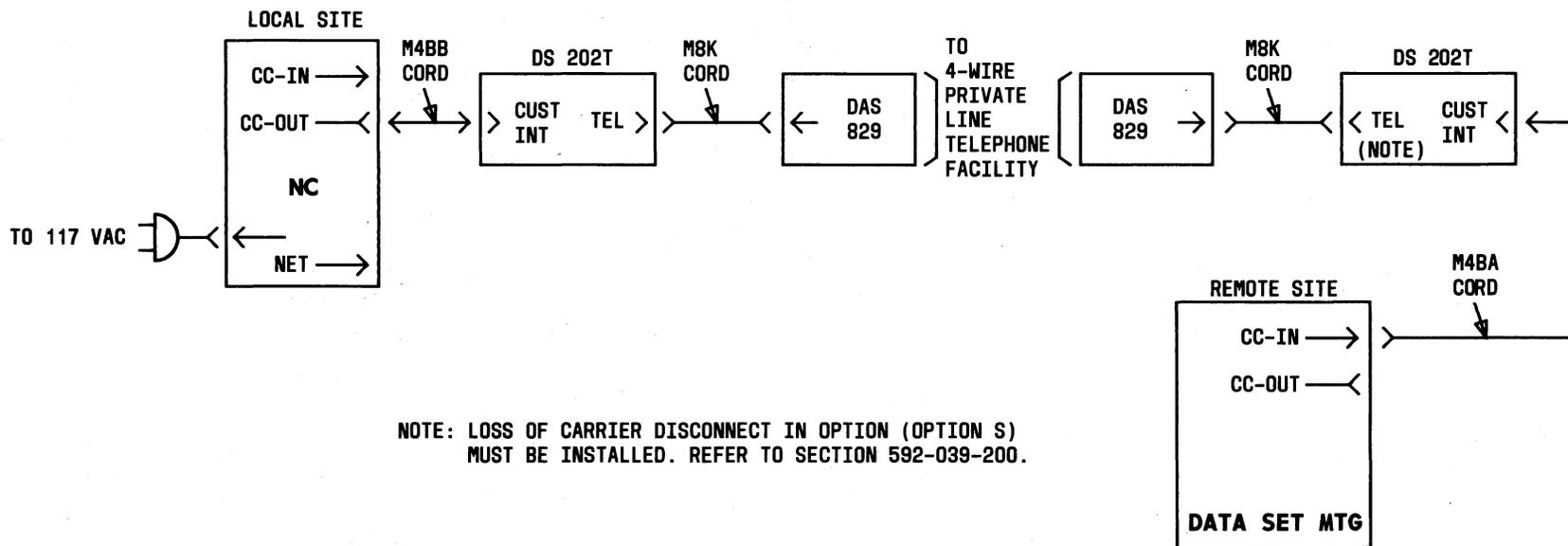


Fig. 14—Connection Diagram for NC Using Private Line Telephone Facilities for Control Channel Interface With Remote Access

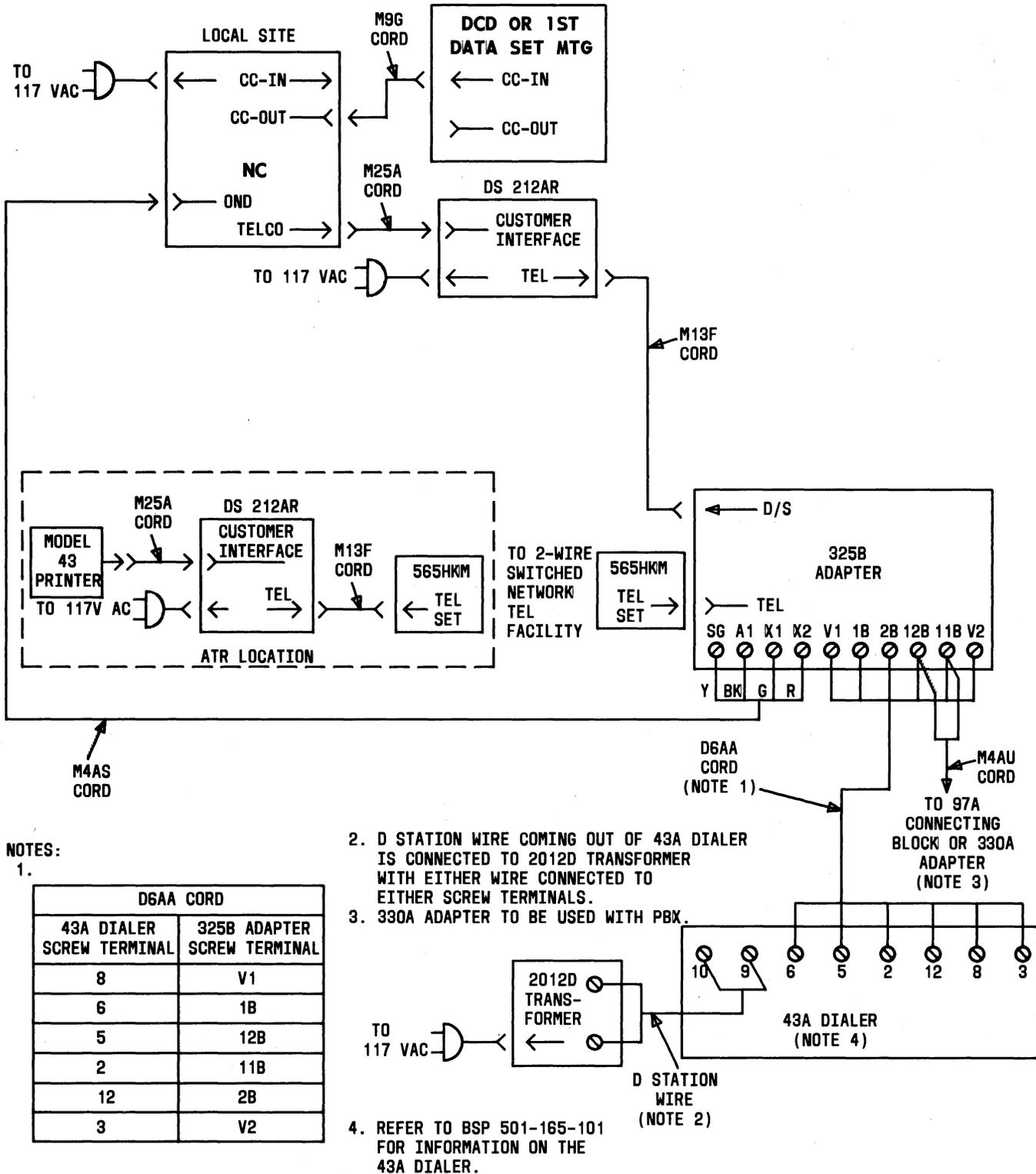


Fig. 15—Connection Diagram for NC Using 43A One Number Dialer for Automatic Trouble Reporting (ATR)

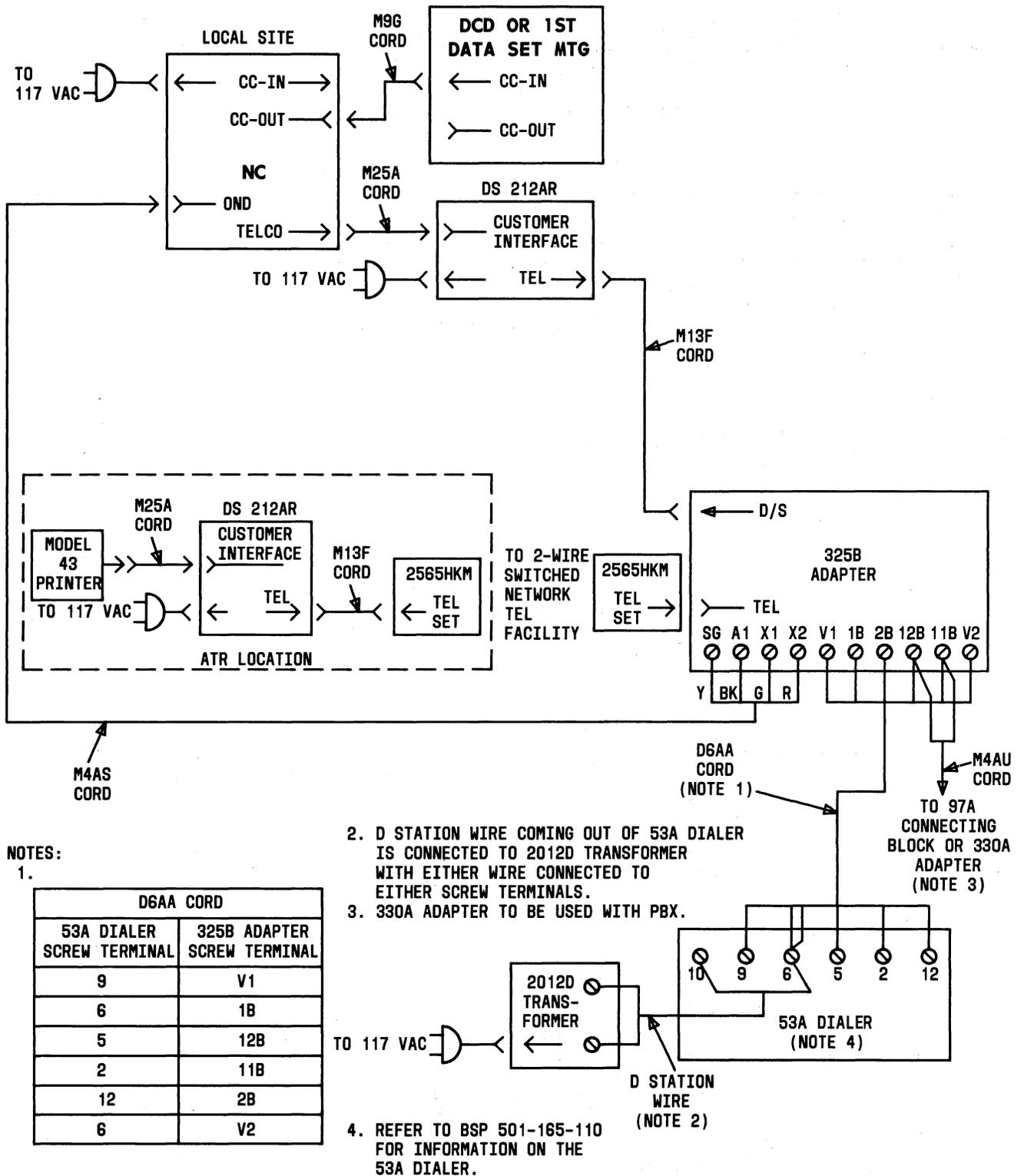


Fig. 16—Connection Diagram for NC Using 53A One Number Dialer for Automatic Trouble Reporting (ATR)

TIME _____ LOCAL_PORT_NET1_NET2_NET3 _____ FAULT_TYPE _____ TOTAL_SYSTEM_FAULTS:00

selection - function category
(dmr) diagnostic and maintenance routines
(md) modem tests and commands
(nc) network controller commands
enter selection:

Fig. 17—Real-Time Fault Display

TIME	LOCAL_PORT	NET1	NET2	NET3	FAULT_TYPE	TOTAL_SYSTEM_FAULTS
15:22	031	1			no response,	10
15:20	031	2			no response,	
15:19	021		06		no response,	
15:19	021		01		facility,	
15:19	021		05		no response	

selection-change NC options

accessing tape -- WAIT 0
Current NC Port Options

NC address: 7

Port	Status	Speed	PL/DDD
Local Terminal	On-Line	1200 bps	-
Remote Terminal	Off-Line		
Telco	Off-Line		
Network	Off-Line		
printer	Off-Line		

choose (r) Change Remote Terminal Port Options
(t) Change Telco Port Options
(n) Change Network Port Options
(p) Change Printer Port Options
(x) exit

enter choice: p

Change Printer Port Options

Port	Status	OUTPUT Speed	PL/DDD
Choose (1)	Off-Line		
(2)	On-Line	300bps	-
(c)	continuous		
(s)	selectable		
(x)	exit		

enter choice: 2

Fig. 18—Change NC Options Display

TABLE F

PARTIAL UNIVERSAL SUFFIX TABLE

SUFFIX	A	B
01	1	3
02	2	3
03	1	4
04	2	4

TABLE G

NC SUFFIX DECISION MATRIX

DECISION	DESCRIPTION
A1	23-inch rack mounting
A2	19-inch rack mounting
B3	With automatic trouble reporting
B4	Without automatic trouble reporting

TABLE H

NETWORK CONTROLLER CONFIGURATION FIELD IDENTIFIERS

DESCRIPTION	APPLIES TO:				
	LOCAL TERMINAL (LT)	REMOTE TERMINAL (RT)	TELCO PORT (TELCO)	NETWORK PORT (NET)	PRINTER PORT (PTR)
1. Off-line	no	yes	yes	yes	yes
2. On-line 300 PL	yes	yes	yes	yes	yes
3. On-line 300 DDD	no	yes	yes	yes	no
4. On-line 1200 PL	yes	yes	yes	yes	no
5. On-line 1200 DDD	no	yes	yes	yes	no

TIME	LOCAL	PORT	NET1	NET2	NET3	FAULT_TYPE	TOTAL_SYSTEM_FAULTS:10
15:22	031		1			no response,	
15:20	031		2			no response,	
15:19	021			06		no response,	
15:19	021			01		facility,	
15:19	021			05		no response,	

selection-display NC poll list

accessing tape -- WAIT 0

LOCAL	STATUS	LOCAL	STATUS	LOCAL	STATUS	LOCAL	STATUS
ADDRESS		ADDRESS		ADDRESS		ADDRESS	
011	skip	021	active	031 2	active	066	active

enter selection:

Fig. 19—Display NC Poll List

TABLE I

NETWORK CONTROLLER'S DATA SET TEST AND COMMAND MENU

TEST/COMMAND NAME	SELECTION DISPLAY	DISRUPTIVE/ NONDISRUPTIVE
Display modem status Display options Display poll list EIA status Identity Receive signal level Receive signal quality Report terminal power Signal profile	(dsms) (dsop) (dspl) (eia) (id) (rsl) (rsq) (rtp) (sp)	Nondisruptive
Abort test Automatic network test 2096 Change mux Change options Change poll list Circuit loss - inbound Circuit loss - outbound Disable/enable Digital test End-to-end block error test Loopback Make busy Modem test Standby facility Service line Send tone	(abt) (auto) (chmx) (chop) (chpl) (cli) (clo) (dsab) (dt) (ee) (lpbk) (mb) (mt) (sf) (sl) (st)	Disruptive

TABLE J

NETWORK CONTROLLER'S OPERATING COMMAND MENU

COMMAND NAME	SELECTION DISPLAY	DISRUPTIVE/ NONDISRUPTIVE
Directory modem profile	(drmp)	Nondisruptive
Display date and time	(dsdt)	
Display fault log	(dsfl)	
Display modem profile	(dsmp)	
Display NC identity	(dsncid)	
Display NC options	(dsncop)	
Display NC poll list	(dsncpl)	
Display network faults	(dsnf)	
Display network status	(dsns)	
Display queue	(dsq)	
Restore display heading	(rdh)	
Auto trouble report control	(atr)	Disruptive
Auto trouble report file	(atrf)	
Backup modem profile	(bump)	
Change date and time	(chdt)	
Change modem profile	(chmp)	
Change NC identity	(chncid)	
Change NC options	(chncop)	
Change NC poll list	(chncpl)	
Clear fault log	(clfl)	
Clear network faults	(clnf)	
Fault reporting/filtering	(fr)	
NC operating mode	(ncom)	
Password commands	(pw)	