60475033

CONTROL DATA CORPORATION

CDC® LINE PRINTER SUBSYSTEM

CT103, CT105, CT106, FC109, FC539, FH301

GENERAL DESCRIPTION
OPERATION
INSTALLATION AND CHECKOUT
THEORY OF OPERATION
DIAGRAMS
MAINTENANCE
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FIELD REPAIR GUIDE

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REVISION RECORD

REVISION	DESCRIPTION
A	Manual released per ECO DS019002. This manual supersedes the applicable information in former publications
(8/78)	96768681, 96768682, and 96768683, which are obsolete.
B	Manual revised; includes ECO DS021331, providing new CR/LP/CLA controller equipment and part numbers.
(3/79)	
C	Manual revised; includes ECO DS021461, providing new equipment under test instructions.
(9/79)	
D	Manual revised; includes ECO DS021668, providing new switch setting information.
(9/79)	
E	Manual revised; includes ECO DS021723, providing new CRECO diagnostic reject instructions.
(9/79)	
F	Manual revised; includes ECO DS021731, providing new products and revised diagnostic decision logic tables. This
(3/80)	revision obsoletes all previous editions.
G	Manual revised; includes ECO DS021985, providing a corrected CT106 line printer DDLT.
(10/80)	
H	Manual revised; includes ECO DS022009, providing CC628 display terminal information.
(10/80)	
J	Manual revised; includes ECO DS022074, providing revised switch setting information.
(5/81)	
K	Manual revised; includes ECO DS022116, providing revised band line printer information.
(8/81)	
L	Manual revised; includes ECO DS022120, providing revised FC539 parts data.
(12/81)	
M	Manual revised; includes ECO DS022166, providing revised DDLT's.
(6/82)	
N	Manual revised; includes ECO DS022210, providing new cables to meet FCC EMI requirements and an FCC EMI
(2/83)	tested/complies warning label.
P	Manual revised; includes ECO DS022245, providing a new printer print band.
(2/83)	
R	Manual revised; includes ECO DS022295, providing corrections to the CT103, CT105 line printer DDLT.
(5/83)	

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or use Comment Sheet in the back of this manual.

MANUAL TO EQUIPMENT LEVEL CORRELATION SHEET

This manual reflects the equipment configurations listed below.

EXPLANATION: Locate the equipment type and series number, as shown on the equipment FCO log, in the list below. Immediately to the right of the series number is an FCO number. If that number and all of the numbers underneath it match all of the numbers on the equipment FCO log, then this manual accurately reflects the equipment.

EQUIPMENT TYPE	SERIES	WITH FCOs	COMMENTS
CT103-B	01-08		
CT105-B	01-09		
CT106-A	01		
FC109-A	01-03		
FC539-A	01		
FC539-B	02		
FH301-A	01-04		

New features, as well as changes, deletions, and additions to information in this manual, are indicated by bars in the margins or by a dot near the page number if the entire page is affected. A bar by the page number indicates pagination rather than content has changed.

PAGE	REV
Cover	--
Title Page	--
ii	R
iii/iv	R
v/vi	R
vii/viii	N
ix/x	J
1-1	F
1-2	F
2-1 thru 2-3	F
3-1	F
4-1	J
4-2	K
4-3	J
4-4	J
4-5 thru 4-13	F
5-1 thru 5-6	F
6-1	F
6-2	H
6-3 thru 6-7	F
6-8	R
6-9	R
6-10 thru 6-16	F
6-17	M
6-18 thru 6-22	F
6-23	M
6-24 thru 6-34	F
6-35	M
6-36 thru 6-40	F
6-41	M
6-42 thru 6-47	F
6-48	M
6-49	M
6-50 thru 6-54	F
7-1	P
Comment Sheet	R
Cover	--

PAGE	REV

PAGE	REV

PAGE	REV

PAGE	REV

PREFACE

This manual provides maintenance information for the Control Data® CYBER 18 Band Line Printer Subsystem. The information contained herein supports maintenance of the band line printer subsystem when it is incorporated in the CYBER 18 systems. The subsystem includes either the FH301 Card Reader/Line Printer Controller or the FC109 or FC539 Card Reader/Line Printer/ Communication Line Adapter (CR/LP/CLA) Controller. It also includes either the CT105 300-Line-Per-Minute (LPM), CT103 600 LPM or CT106 900 LPM Band Line Printer.

This publication contains information to aid maintenance personnel in carrying out onsite maintenance tasks. The maintenance approach is to fault isolate using the diagnostic decision logic tables (DDLTs) and to make repairs by using the removal/replacement procedures. Corrective action is accomplished by exchanging replaceable subassemblies rather than components. When repair cannot be accomplished by exchanging replaceable subassemblies, a support customer engineer is required.

The publications listed below provide other detailed information relative to equipments, systems, and subsystems and are available from Control Data Literature and Distribution Services.

Publication	Publication Number
AA132, AA133, AA153, DT120, FC402 CYBER 18 Computer Systems Central Processor Field Repair Guide	60475001
CT103/CT105 Line Printer Equipment Parts Identification Manual	95445067
CT103-A/B, CT105-A/B, CT106-A Line Printer Equipment Field Service Manual	44677818
CT103-A/B, CT105-A/B, CT106-A Preparation/Instruction Manual	44677817
CT106 Line Printer Equipment Parts Identification Manual	95445050
CYBER 18 Computer Systems Overview Manual	60475000
CYBER 18 Computer Systems with MOS Memory Installation Manual	96768360
FC109, FC539 Card Reader/Line Printer/ Communication Line Adapter Controller Hardware Reference/Maintenance Manual	60475830
FH301 Card Reader/Line Printer Controller Hardware Reference/Maintenance Manual	96728800
Line Printer Equipment Special Option Manual	95445077
Operational Diagnostic System (ODS) Version 2 Reference Manual	96768410

WARNING

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions manual, may cause interference with radio communications. It has been tested to comply with the limits for Class A peripheral computing device pursuant to Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

CONTENTS

FIGURES

TABLES

The line printer provides printed output of alphanumeric characters on forms from 4.0 inches (102 millimeters) to 16.75 inches (426 millimeters) in width. Figure 1-1 is an illustration of the line printer. The line printer can print 132, 136, or 204 (compressed pitch except CT106) columns (characters) per line at 720 to 350 lines per minute for the 600-line-per-minute device and 360 to 175 lines per minute for the 300-line-per-minute device, or 1130 to 500 lines per minute for the 900 line-per-minute device, depending on band size. The compressed pitch capability requires the installation of a 64-character compressed-pitch print band (not normally supplied). Either single or multiple layer forms may be used. Physically moving the code disk reader up or down selects six or eight lines per inch.

An operators control panel on the printer provides pushbutton control for start/stop, single line space, page eject (top-of-form), and test print along with paper out, runaway, and parity error indicators.

A single line of data is printed on a form by shifting a 68-hammer-column printing mechanism in two horizontal positions for the 600-line-per-minute device and by shifting a 34-hammer-column mechanism in four positions for the 300-line-per-minute device. The 900 line-per-minute printer contains 136 hammers and requires no shifting.

The card reader/line printer controller (see the board (logic) removal procedure in the processor manual for location) provides the data and control signals to communicate with the line printer. A single interconnect cable is used between the line printer and the controller.

CONTROLLER

The band line printer subsystem requires either a card reader/line printer controller or a card reader/line printer/communication line adapter (CR/LP/CLA) controller. Each controller is an 11- by 14-inch (279- by 356-millimeter) printed wiring assembly. The board is cooled by forced air circulating through the cabinet. The CR/LP/CLA board is always supplied with one communication line adapter to the operators panel cable. This cable is connected to the processor control panel and the processor backplane connector of the CR/LP/CLA.

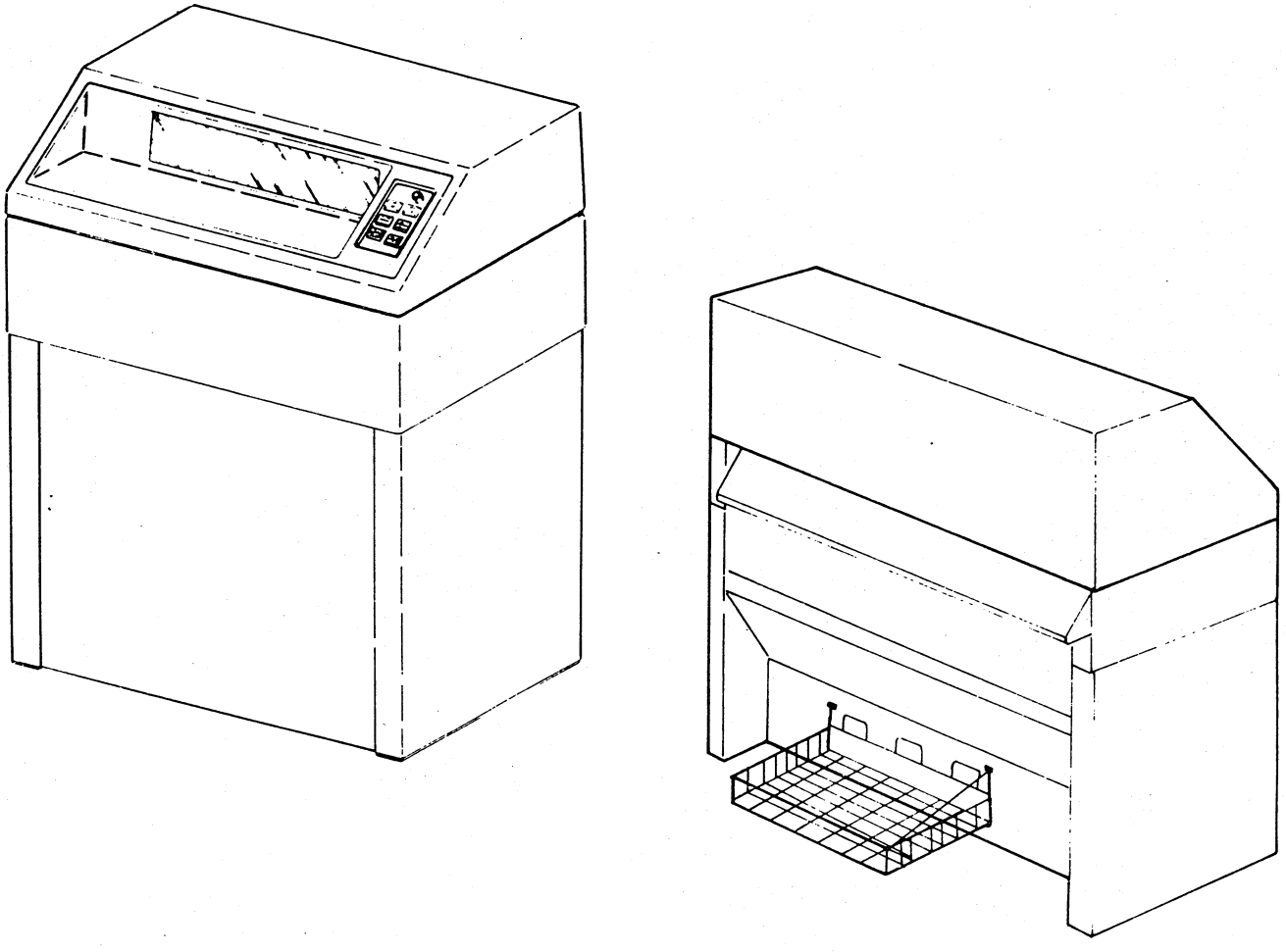

Figure 1-1. Line Printer Configuration

The communication line adapter contains the necessary logic circuitry to control one synchronous/asynchronous modem operating in either a two-way alternate or two-way simultaneous mode under control of the micro processor.

The operating speeds of the communication line adapter are 110, 150, 300, 600, 1200, 2400, 4800, 9600, baud in asynchronous mode and 1200, 2400, 4800, 9600, and 19,200 baud in synchronous mode. Data transmission is program-controlled and can be five, six, seven, or eight bits for synchronous or asynchronous operation, with even, odd, or no parity.

Signals on the internal TTL A/Q channel of the processor provide the data and control signals needed to communicate with the models and to do the cyclic encoding.

The card reader protion of the controller contains the necessary logic circuitry to control the standard system card reader. A single interface cable assembly connects the controller interface board to the card reader.

The line printer portion of the controller provides the data and control signals to communicate with a line printer. A single interconnect cable is used between the line printer and the controller.

This section contains descriptions of the operator and maintenance controls and indicators contained on the band/line printer equipment. The switch and jumper settings for the controller are contained in section 4.

Figure 2-1 shows the location and identifies the controls and indicators on the top panel of the line printer.

Table 2-1 describes the function of each control and indicator used by the operator during printer operation.

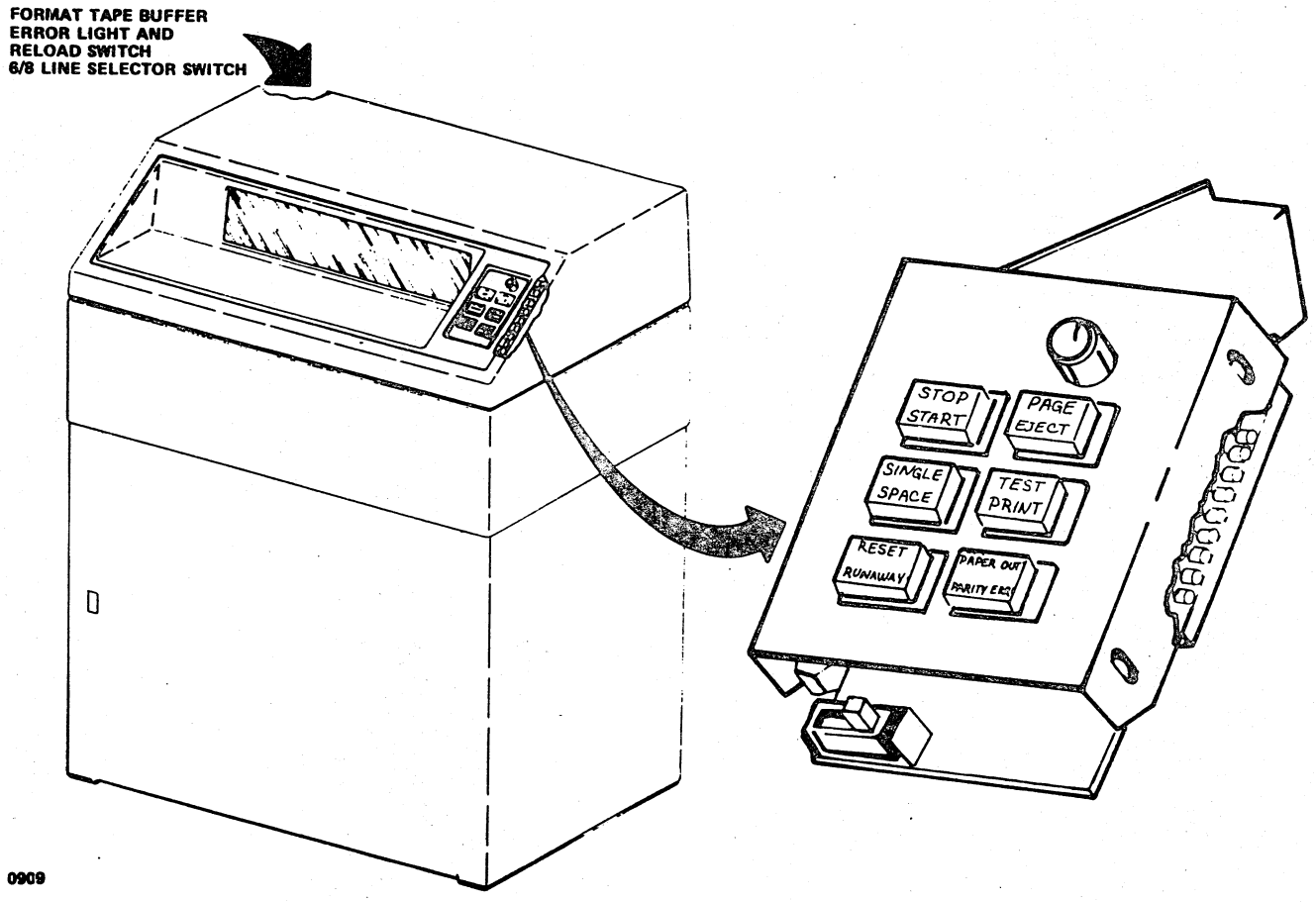

Figure 2-1. Line Printer Controls and Indicators

TABLE 2-1. LINE PRINTER CONTROLS AND INDICATORS

Controls and Indicators	Type	Location	Function
MAIN POWER ON/OFF	Switch-type circuit breaker	Lower front chassis - below print gate	Used to turn printer on/off
START	Pushbutton indicator/switch	Control panel	After completion of the clear cycle and detection of the band, the switch may be depressed to place the unit in START (ready) if no fault conditions exist. When in START, the unit is conditioned to accept print data and paper motion commands. The start section of the indicator is illuminated while in START.
STOP	Pushbutton indicator/switch	Control panel	When the unit is in START, depression of the switch causes the unit to go to STOP at the completion of the cycle in process. Fault conditions causing the printer to go NOT READY also cause the STOP condition to be entered.
PAGE EJECT	Pushbutton indicator/switch	Control panel	Advances forms to the top of the next page. Active only when printer is NOT READY (STOP mode). Top-of-page is detected as a channel in the EVFU (electronic vertical format unit). Button lights to indicate vertical forms error.
SINGLE SPACE	Pushbutton indicator/switch	Control panel	Moves paper one line space. This switch is operational only when the printer is in STOP mode.
TEST PRINT	Pushbutton indicator/switch Toggle switch	Control panel 7PC5 adapter board	Depressing the TEST PRINT switch prints full lines of the character whose code is selected by the 7-position DIP switch on the adapter board (7PC5). Depressing the switch again terminates the operation.
RESET	Pushbutton switch	Control panel	Used to initialize the controller logic. Depression of the switch takes the printer out of START, clears the buffer if a load is in process, and clears certain error conditions.
RUNAWAY	Indicator	Control panel	Lights when a paper RUNAWAY is detected by the EVFU.
PAPER OUT	Indicator	Control panel	Lights when the last line on the last form has been printed upon.
PARITY ERR	Indicator	Control panel	Lights when a transmission parity error occurs. The indicator remains lit until the parity error condition is removed by a buffer clear or master clear from the interface or until the control panel reset switch is depressed.

TABLE 2-1. LINE PRINTER CONTROLS AND INDICATORS (Contd)

Controls and Indicators	Type	Location	Function
CHARACTER POSITION (Phasing control)	Potentiometer	Control panel	Allows the operator to compensate for changing thickness of forms. To adjust, a full line of M's should be printed. The control is then adjusted until the character is printed evenly, right and left, across the entire page.
FORM REL	Slide	Control panel	When positioned to the left and held, it allows the operator to manually advance the paper via the manual vertical adjust knob.
Fuse	LED	Under hood	Fault for +36 volts for H-switches and ribbon motor
12V	LED	Under hood	12-volt power supply failure
HME	LED	Under hood	Horizontal motion failure overcurrent fault
Band motor	LED	Under hood	Overcurrent fault
HSW	LED	Under hood	H-switches overcurrent fault
Ribbon motor	LED	Under hood	Overcurrent fault
Home	LED	Under hood	Horizontal home position detetion fault
Stop	LED	Under hood	Horizontal end stop detection fault
HMR	LED	Under hood	Print hammer circuit failure fault

Refer to the installation manual listed in the preface for information applicable to installing the band line printer subsystem. Detailed instructions on initial system installation or on adding new equipment to the system may be found in that manual.

This section contains a list of replaceable assemblies for the band line printer subsystem and a brief description of each replaceable assembly.

Illustrations of switch and jumper locations on the printed wiring assemblies are provided. Tables are also included that list the switch and jumper selections available and that designate the switch settings and jumper connections for normal operation.

LINE PRINTER REPLACEABLE ASSEMBLIES

Refer to the reference and field service manual listed in the preface for a list of replaceable assemblies.

SWITCH/JUMPER SETTINGS, NORMAL OPERATION

LINE PRINTER SWITCH SETTINGS

Switch settings for the 300, 600 and 900-line-per-minute printers are shown in figure 4-1.

LINE PRINTER JUMPER SETTINGS

Jumper settings are shown in tables 4-1 and 4-2.

CARD READER/LINE PRINTER CONTROLLER JUMPER SETTINGS

To verify the normal operating positions of jumpers on the controller, the board must be removed from the chassis (see the board (logic) replacement procedure in the processor manual).

Equipment Select/Line Printer Enable

Figure 4-4 illustrates the location and the normal operating positions of the equipment address select and line printer enable jumpers on the controller.

Interrupt Select

Figure 4-5 illustrates the location and normal operating positions of the interrupt select jumpers on the controller.

Protect Select

Figure 4-6 illustrates the location and normal operating positions of the program protect select jumper on the controller.

Parity Select

Figure 4-7 illustrates the location and normal operating positions of the parity select jumper on the controller.

After verifying the normal operating positions of the controller jumpers, return the board to the chassis in the following manner:

1. Orient the position of the board so that the components on the board face to the left of the chassis.
2. Carefully insert the board into the chassis. Check that the board is properly seated in the upper and lower chassis guide rails.
3. Ensure that the board is fully seated within the chassis backplane connector by applying firm thumb pressure at the upper and lower corners of the front of the board.
4. Replace the chassis cover plate.

CR/LP/CLA CONTROLLER JUMPER AND SWITCH SETTINGS

Several jumpers and a test switch define the normal operation of the controller. The jumpers are defined in table 4-3.

Interrupt Jumpers

There are six backplane jumper wires for the controller, macro and micro interrupts.

CAUTION

Refer to the board (logic) replacement procedure in the processor manual for normal position. Check the configuration before making wiring changes. Do not install the controller in a DMA slot, as this will damage the card.

These backplane jumper wires are connected from pins 48, 77, 249 (macro interrupt) and pins 50, 250, 277 (micro interrupt) of the cable interface to the interrupt line inputs on the status mode interrupt (SMI).

Verify that the wires are connected as shown in table 4-4 and figure 5-3 and that there are no shorted or bent pins in the vicinity of those listed.

Equipment and Station Select Jumpers

Figure 4-8 illustrates the location of the equipment and station select jumpers on the controller PWA. The PWA

ASSEMBLY NUMBER DIP SWITCH POSITIONS
LOCATION 7PC5 (CDC INTERFACE PWA)

SWITCH NO.	ON	OFF	
SWN1-1	X		ON SELECTS BUFFER CLEAR OPTION
SWN1-2	X		ON SELECTS ODD PARITY
SWN1-3		X	ON SELECTS EVEN PARITY
SWN1-4	X		ON SELECTS 7 DATA BIT I/O
SWN2-1		X	OFF WITH CONTROL PANEL TEST PRINT SWITCH
SWN2-2		X	ON FOR BAND DETECT STATUS
SWN2-3		X	ON FOR BAND DETECT STATUS
SWN2-4		X	ON FOR COMPRESSED PITCH STATUS
SWN2-5		X	ON FOR BUFFER OVERFLOW STATUS
SWN2-6	X		ON FOR OUT OF PAPER STATUS
SWN2-7		X	ON FOR DATA SEQUENCE OPTION
SWN2-8	X		ON FOR CHARACTER REQUEST/DATA STROBE, OFF - INFORMATION READY
SWN2-9		X	OFF WITH CONTROL PANEL SINGLE SPACE SWITCH
SWN3-1	X		ON FOR USING EVFU CHANNELS (4 CHANNEL STANDARD)
SWN3-2	X		LINE COUNTER - OFF FOR 2 OR 4 BIT, ON FOR 6 BIT
SWN3-3	X		ON FOR 12 EVFU CHANNELS
SWN3-4	X		ON FOR 8 OR 12 EVFU CHANNELS
SWN3-5	X		LINE COUNTER - OFF FOR 2 BIT, ON FOR 4 OR 6 BIT
SWN3-6		X	ON - POSTPRINT, OFF - PREPRINT (CHECK PROGRAM)
SWN3-7		X	ON FOR NO EVFU CHANNELS
SWN3-8		X	ON TO ENABLE COMPRESSED PITCH OPTION
SWN-3-9		X (136)	PRINTED LINE COLUMNS, OFF FOR 136-COLUMN STANDARD.
SWN4-1	X		BIT 1
SWN4-2		X	BIT 2
SWN4-3	X		BIT 3
SWN4-4	X		BIT 4 — TEST MODE CHARACTER PRINTED (ASCII M)
SWN4-5		X	BIT 5
SWN4-6		X	BIT 6
SWN4-7	X		BIT 7

DIP SWITCH POSITIONS FOR 7PC1 PWA

SWITCH NO.	ON	OFF	
SWN3-1	900	300/600	PRINTER SPEED SELECTION
SWN3-2	300	600/900	
SWN3-3	300/900	600	

LOCATION 7PC6 (EVFU PWA)

SWITCH NO.	ON	OFF	
SWN1-1		X	ON FOR I/O LOAD MODE
SWN1-2		X	ON REMOVES AUTO PERF SKIP OPTION
SWN1-3		X	INTERNAL EVFU TEST PROGRAM SPACING ON (6 LINES/INCH), OFF (8 LINES/INCH)
SWN1-4		X	ON FOR I/O EVFU LOAD ERROR DETECTION
SWN1-5	X		ON FOR TAPE READER OR I/O LOAD MODE
SWN1-6		X	ON FOR 12 BOTTOM OF FORM CHANNEL
SWN1-7		X	ON FOR 8 BOTTOM OF FORM CHANNEL
SWN1-8	X		ON FOR 2 BOTTOM OF FORM CHANNEL

NOTE: DIP SWITCHES MAY BE MARKED ON/OFF OR OPEN/CLOSED.

ON - CLOSED
OFF - OPEN

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Figure 4-1. Band Printer Switch Settings

Figure 4-2. DELETED

TABLE 4-1. INPUT PRINT ASSEMBLY JUMPER SETTINGS

40_8 Code (Blank Code)		Control Code Jumper Configuration			Character Size Jumper Configuration		
		Control Code	Jumper Setting		Character Set	Jumper Setting	
Jumpers In	Jumpers Out		J8	J9		J13	J14
J1A, J2A J4A, J5A J6A, J7A, J3B	J3A, J1B, J2B, J4B, J5B, J6B, J7B	ASCII LF,CR,FF	In†	Out†	48, 64 96, 128	Out†	Out†
		ASCII LF,CR, FF,VT	Out	Out	48, 64, 128	Out	In
		EVFU Option	Out†	In†	48, 96 128	In	Out
					48, 128	In†	In†

†Standard CDC setting for board in location 7PC1.

TABLE 4-2. OSCILLATING HORIZONTAL AND VERTICAL MOTION ASSEMBLY JUMPER SETTINGS

Start/Stop Control			Vertical Advance Control			3-Channel EVFU Option			AUTO PERF Option	
	Jumper Setting			Jumper Setting			Jumper Setting		Jumper Setting	
	J1A, J2A	J1B, J2B		J3A	J3B		J4A, J5A	J4B, J5B	J6 Out†	
Local control	In	Out	12-Channel EVFU or Non-ASCII	In†	Out†	Standard (without option)	In†	Out†	Form Feed Control	
									J7	
Remote control	Out†	In†	Without external advance except with CR	Out	In	With 3-channel option	Out	In	Out†	EVFU option on
									In	No EVFU

†Standard CDC setting for board in location 7PC2.

can be used as equipment numbers 0 through 15 and station numbers 0 through 7. In the CYBER 18 configuration, the normal equipment code and communication line adapter station are:

	Equipment Code (Hex)
CR	11 (B)
LP	4
CLA	
CLA Station	0

Refer to the equipment/interrupt assignment procedure in the processor manual.

See table 4-5 for proper equipment code and station number selection.

Before removing a board to inspect or replace it, it is good practice to turn off the power to the processor.

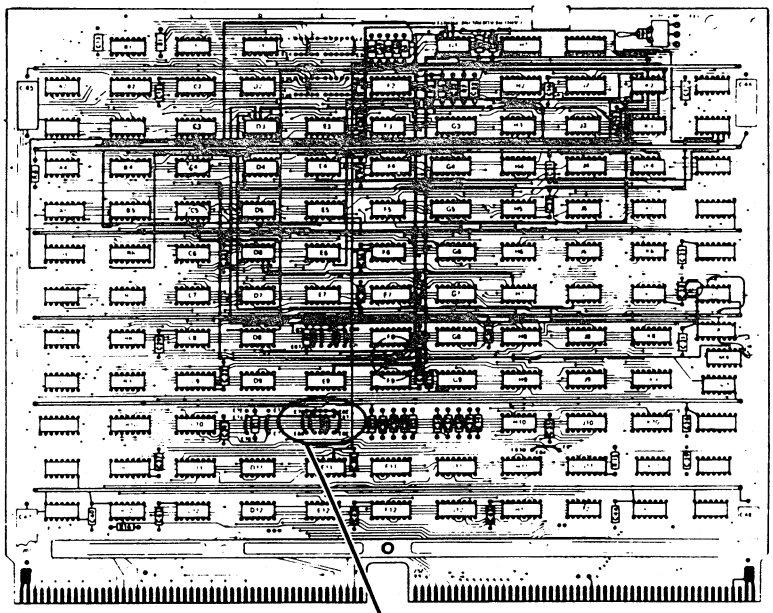
CAUTION

Always re-insert the board in the correct slot and verify the proper orientation of the board before turning the power back on. Board insertion in the wrong slot may cause damage.

Baud Rate/DTR/RTS Jumpers

For information on the baud rate/DTR/RTS jumpers, refer to the terminal equipment subsystem hardware maintenance manual listed in the preface.

CARD READER/LINE PRINTER CONTROLLER (COMPONENT SIDE)



LOCATION E10

LINE PRINTER EQUIPMENT CODE SELECT TABLE

EQUIPMENT CODE (HEXADECIMAL)	INSTALL JUMPER			
	E88 TO	E89 TO	E90 TO	E92 TO
1	E83	E79	E80	E82
2	E78	E84	E80	E82
3	E83	E84	E80	E82
4†	E78	E79	E85	E82
5	E83	E79	E85	E82
6	E78	E84	E85	E82
7	E83	E84	E85	E82
8	E78	E79	E80	E87
9	E83	E79	E80	E87
A	E78	E84	E80	E87
B	E83	E84	E80	E87
C	E78	E79	E85	E87
D	E83	E79	E85	E87
E	E78	E84	E85	E87
F	E83	E84	E85	E87

†NORMAL SYSTEM CONFIGURATION: EQUIPMENT SELECT 4_{16}. LINE PRINTER ENABLE/DISABLE IS ENABLED.

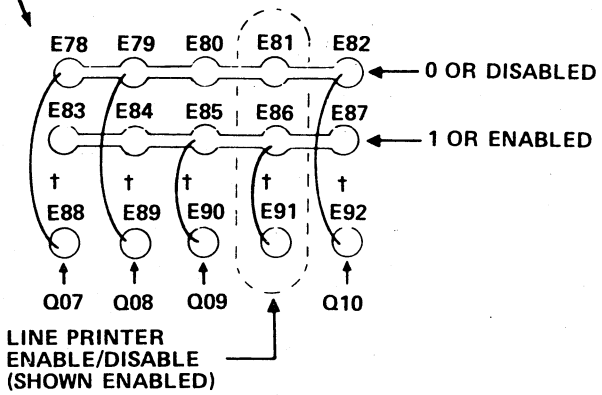


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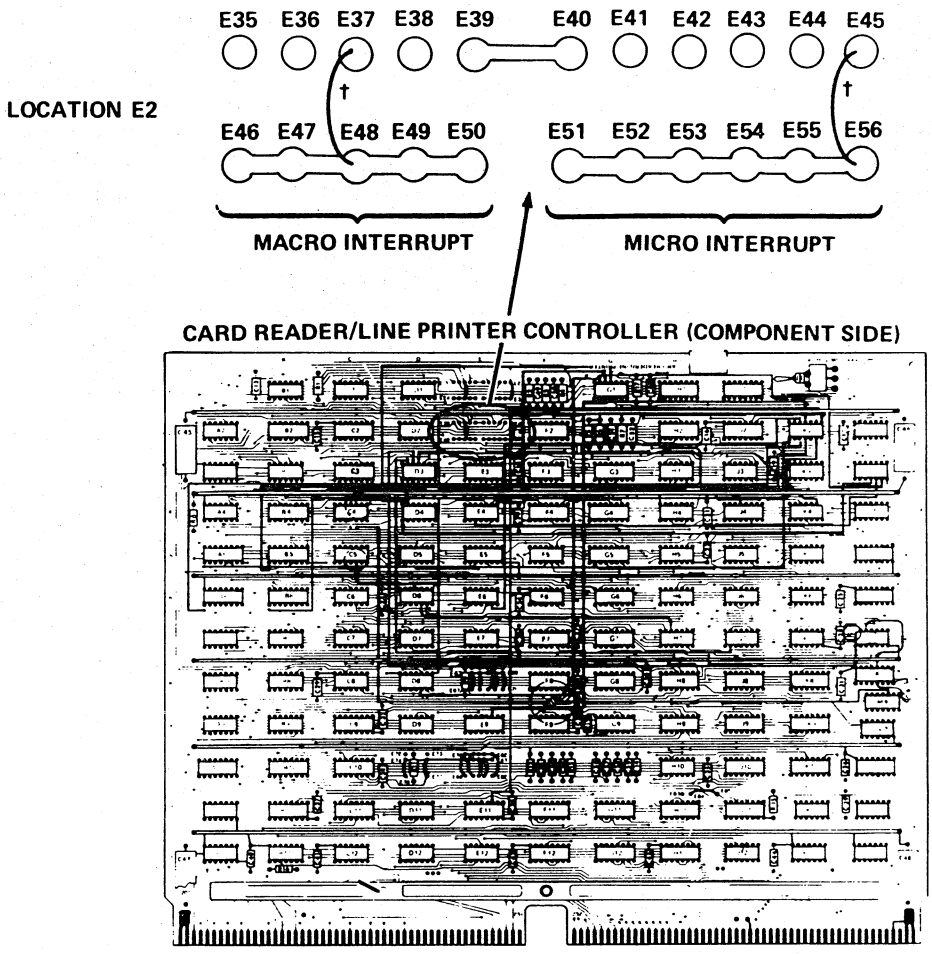
Figure 4-4. Card Reader/Line Printer Controller Equipment Jumpers



LINE PRINTER MACRO INTERRUPT CONFIGURATIONS (LOCATION E2)

OPTION	JUMPER ONLY
NO MACRO INTERRUPTS	E39 TO E50
ENABLE ALL MACRO INTERRUPTS	E37 TO E48†
INTERRUPT ONLY ON:	
DATA AVAILABLE	E35 TO E46
END OF OPERATION	E36 TO E47
ALARM	E38 TO E49

LINE PRINTER MICRO INTERRUPT CONFIGURATIONS (LOCATION E2)

OPTION	JUMPER ONLY
NO MICRO INTERRUPTS	E40 TO E51
AUTO-DATA TRANSFER	E45 TO E56†
ENABLE ALL OF THE BELOW	E42 TO E53
INTERRUPT ONLY ON:	
DATA AVAILABLE	E44 TO E55
END OF OPERATION	E43 TO E54
ALARM	E41 TO E52

†NORMAL SYSTEM CONFIGURATION

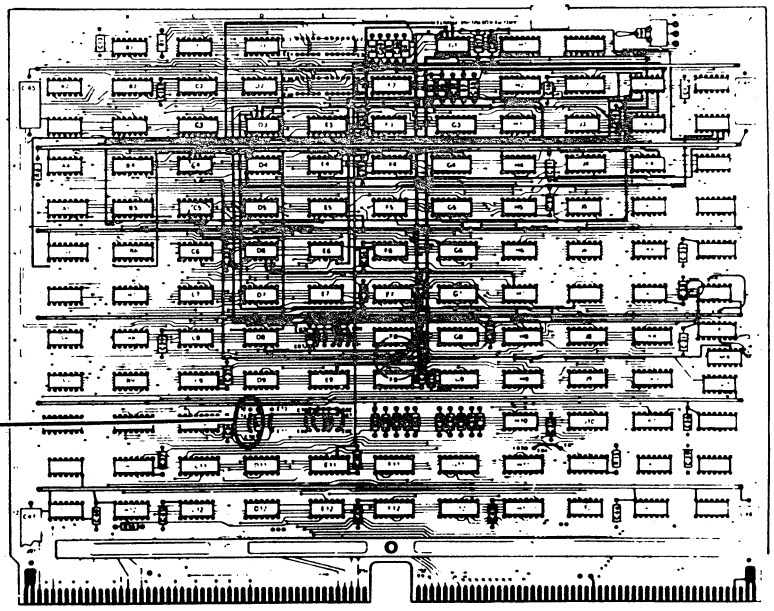
0976

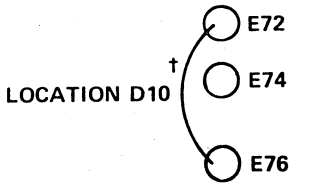
Figure 4-5. Card Reader/Line Printer Controller Interrupt Jumpers

LINE PRINTER PROTECT OPTION
(LOCATION D10)

PROTECTED	UNPROTECTED
E72 TO E74	E72 TO E76†

CARD READER/LINE PRINTER CONTROLLER (COMPONENT SIDE)



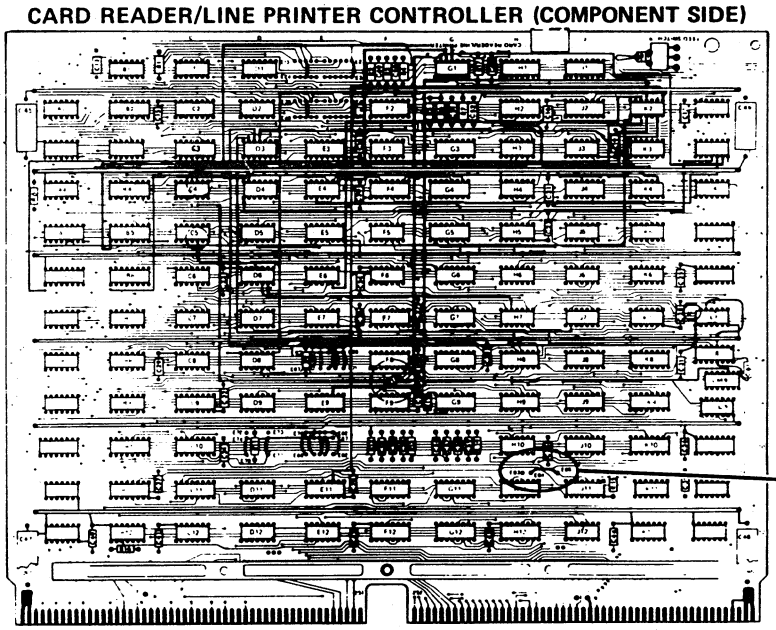


†NORMAL SYSTEM CONFIGURATION

0977

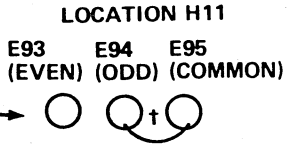
Figure 4-6. Card Reader/Line Printer Controller Protect Jumpers

CARD READER/LINE PRINTER CONTROLLER (COMPONENT SIDE)



PARITY GENERATION (LOCATION H11)

EVEN	ODD
E95 TO E93	E95 TO E94†



†NORMAL SYSTEM CONFIGURATION

0978

Figure 4-7. Card Reader/Line Printer Controller Parity Jumpers

TABLE 4-3. CR/LP/CLA JUMPER DEFINITION

Jumper Name	PWA Location	Jumper Setting	Function
CREQ-Q7 CREQ-Q8 CREQ-Q9 CREQ-Q10	T9	See table 4-4.	Card reader equipment code select jumpers
LPEQ-7 LPEQ-Q8 LPEQ-Q9 LEPQ-Q10	T8	See table 4-4.	Line printer equipment code select jumpers
CLEQ-Q7 CLEQ-Q8 CLEQ-Q9 CLEQ-10	T8	Refer to the terminal equipment subsystem hardware maintenance manual listed in the preface.	CLA equipment select jumpers
CLST-Q4 CLST-Q5 CLST-Q6	T4	Refer to the terminal equipment subsystem hardware maintenance manual.	CLA station number select jumpers
CRP LPP CLP	J2 D1 D1	In Not protected†† Out Protected	Card reader program protect Line printer program protect CLA program protect
CRE LPE CLE	T9	In Disable†† Out Enable	Card reader controller enable Line printer controller enable CLA enable
LPR EVEN LPR ODD	J9	In Even parity In Odd parity††	Line printer parity†
SA SB SC	C2	Refer to the terminal equipment subsystem hardware maintenance manual.	CLA internal baud rate
ENDS NM SRLIT NM ENDS TM SRLIT TM DNM DTM	L1 R8 M1 R8 A1 B1	Out Out In In Out In } Deadstart test mode	Deadstart test mode
ENDS NM SRLIT NM ENDS TM SRLIT TM DNM DTM	L1 R8 M1 R8 A1 B1	In In Out Out In Out } Normal mode††	Normal mode
DTR	R7	In Constant DTR†† Out Programmed DTR	Constant DTR signal

†Operation with both jumpers out is illegal

††Normal configuration

TABLE 4-3. CR/LP/CLA JUMPER DEFINITION (Contd)

Jumper Name	PWA Location	Jumper Setting	Function
RTS		R7 In Constant RTS† Out Programmed RTS	Constant RTS signal
TSTCK	1 2 3	B1 In 9600 b/s C1 In 4800 b/s C1 In 2400 b/s	Clock rate select for test mode†
†Operation with all jumpers out is illegal			

TABLE 4-4. CR/LP/CLA CONTROLLER BACKPLANE JUMPER CONNECTIONS

CR/LP/CLA Controller	Processor Interrupt	Interrupt Line
From		--
J49		CR RPINT
J50		CR RDINT
J249	Refer to	LP RPINT
J250	the processor	LP RDINT
J77	manual	CLA RPINT
J277		CLA RDINT

Protect and Enable Jumpers

Figure 4-8 illustrates the location of the protect and enable jumpers. In the CYBER 18 system, the protect option is not used; therefore, the protect jumpers should be in (not protected).

Deadstart, SRLIT, ENDS, Normal/Test Mode Jumpers

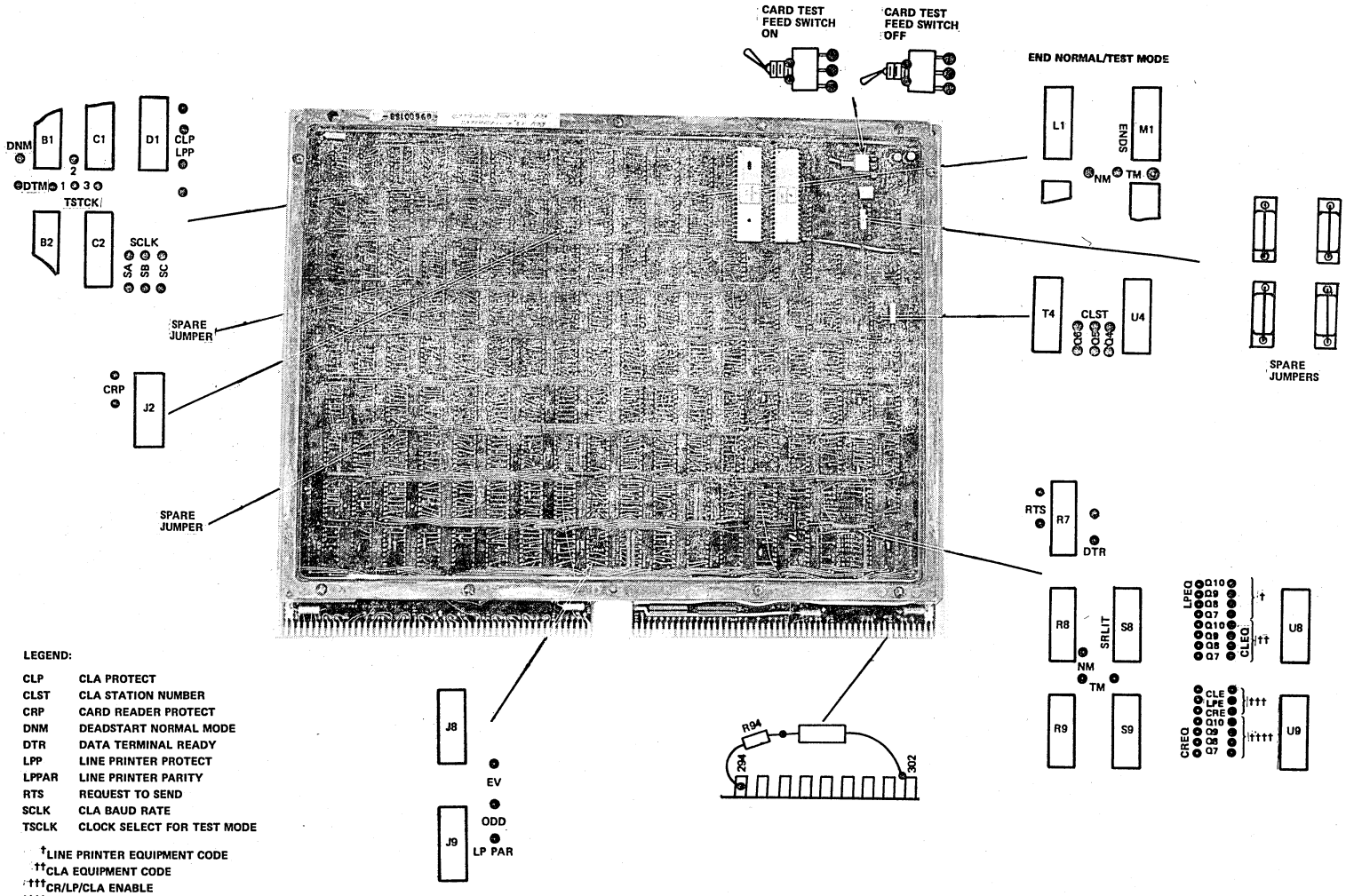
Figure 4-8 illustrates the location of these jumpers. They should be in the normal mode position for standard operation.

Line Printer Parity Jumper

Figure 4-8 illustrates the location of the line printer parity jumper. Parity is normally odd.

Card Reader Feed Test Switch

The feed test switch (see figure 4-8) causes an external feed signal to the card reader when depressed.



LEGEND:

CLP	CLA PROTECT
CLST	CLA STATION NUMBER
CRP	CARD READER PROTECT
DNM	DEADSTART NORMAL MODE
DTR	DATA TERMINAL READY
LPP	LINE PRINTER PROTECT
LPPAR	LINE PRINTER PARITY
RTS	REQUEST TO SEND
SCLK	CLA BAUD RATE
TSCLK	CLOCK SELECT FOR TEST MODE

†LINE PRINTER EQUIPMENT CODE
††CLA EQUIPMENT CODE
†††CR/LP/CLA ENABLE
††††CARD READER EQUIPMENT CODE

Figure 4-8. CR/LP/CLA Jumper Locations

TABLE 4-5. CR/LP/CLA EQUIPMENT CODE, STATION NUMBER, AND JUMPER SELECTION

Controller Equipment Code†					Controller Equipment Select Jumper			
Q10	Q9	Q8	Q7	No.	Q10	Q9	Q8	Q7
0	0	0	0	0	In	In	In	In
0	0	0	1	1	In	In	In	Out
0	0	1	0	2	In	In	Out	In
0	0	1	1	3	In	In	Out	Out
0	1	0	0	4†	In	Out	In	In
0	1	0	1	5	In	Out	In	Out
0	1	1	0	6	In	Out	Out	In
0	1	1	1	7	In	Out	Out	Out
1	0	0	0	8	Out	In	In	In
1	0	0	1	9	Out	In	In	Out
1	0	1	0	10	Out	In	Out	In
1	0	1	1	11†	Out	In	Out	Out
1	1	0	0	12	Out	Out	In	In
1	1	0	1	13	Out	Out	In	Out
1	1	1	0	14	Out	Out	Out	In
1	1	1	1	15	Out	Out	Out	Out

CLA Station Number				CLA Station Select Jumper		
Q6	Q5	Q4	No.	CLQ6	CLQ5	CLQ4
0	0	0	0	In	In	In††
0	0	1	1	In	In	Out
0	1	0	2	In	Out	In
0	1	1	3	In	Out	Out
1	0	0	4	Out	In	In
1	0	1	5	Out	In	Out
1	1	0	6	Out	Out	In
1	1	1	7	Out	Out	Out

†A separate equipment code is provided for each controller:

Equipment	Equipment Code No.
Line printer	4
Communication line adapter	2
(Refer to the processor manual)	
Card reader	11

††Normal configuration

TABLE 4-6. CR/LP/CLA BAUD RATE JUMPER SELECTION

Baud Rate	SC	SB	SA
19.2K	Out	Out	Out
9.6K	Out	Out	Out
4.6K	Out	Out	In
2.4K	Out	In	Out
1.2K	Out	In	In
600	In	Out	Out
300	In	Out	In
150	In	In	Out
110	In	In	In

9.2K baud operation requires the same baud rate jumper settings as 9.6K baud opera- tion. For 19.2K baud, the clock rate is programmed to be 32 times the baud rate instead of 64 times the baud rate.

This section contains diagrams illustrating the band line printer subsystem interconnections and the subsystem connection to the processor.

Refer to the reference and field service manual listed in the preface for further illustrations of the band line printer.

CARD READER/LINE PRINTER CONTROLLER

Figure 5-1 illustrates the cable assembly connection between the line printer and the card reader/line printer controller.

CR/LP/CLA CONTROLLER

Figure 5-2 illustrates the line printer cable assembly connection to the CR/LP/CLA controller. Figure 5-3 illustrates the backplane cable interface adapter.

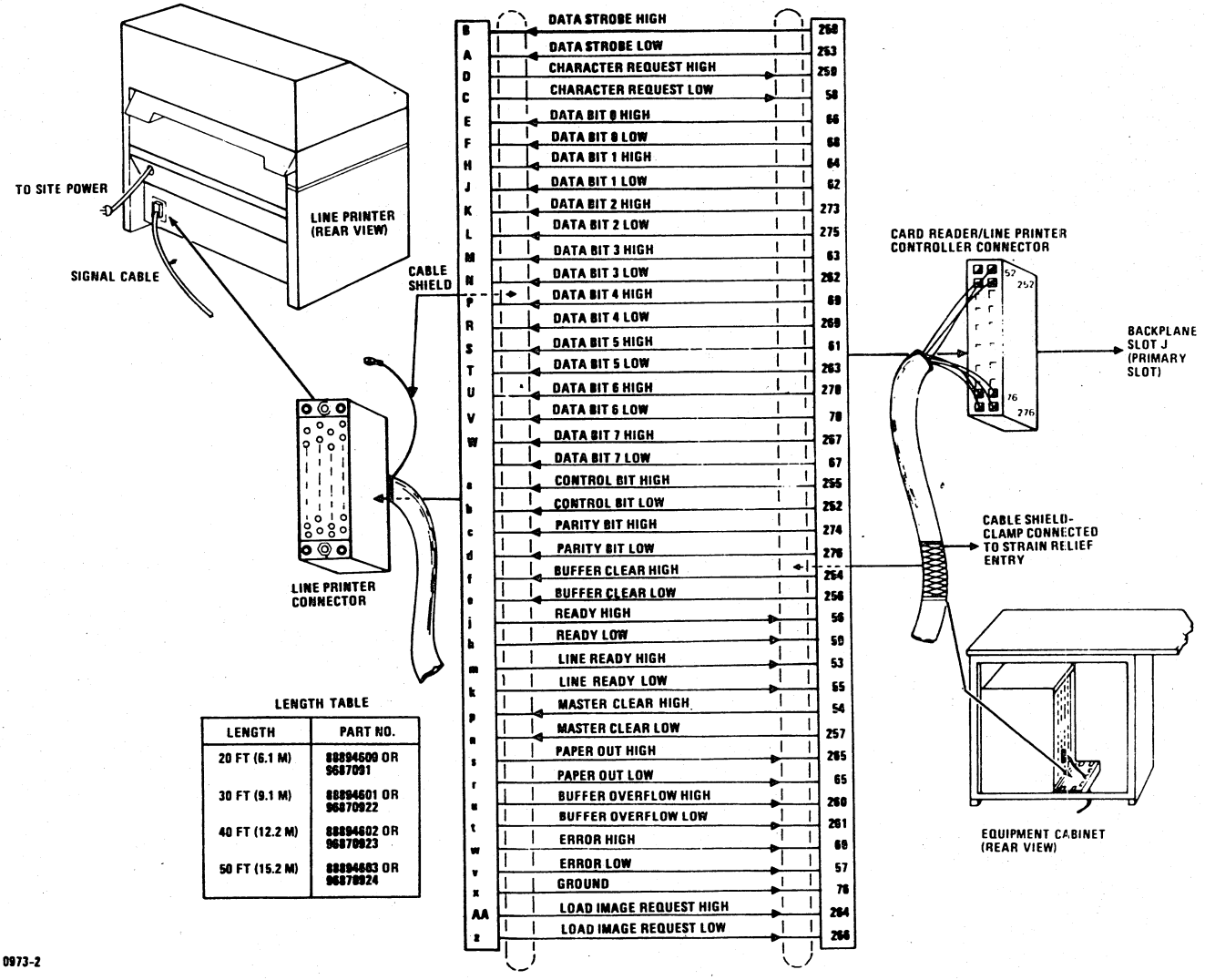


Figure 5-1. Card Reader/Line Printer Controller to Line Printer Cable

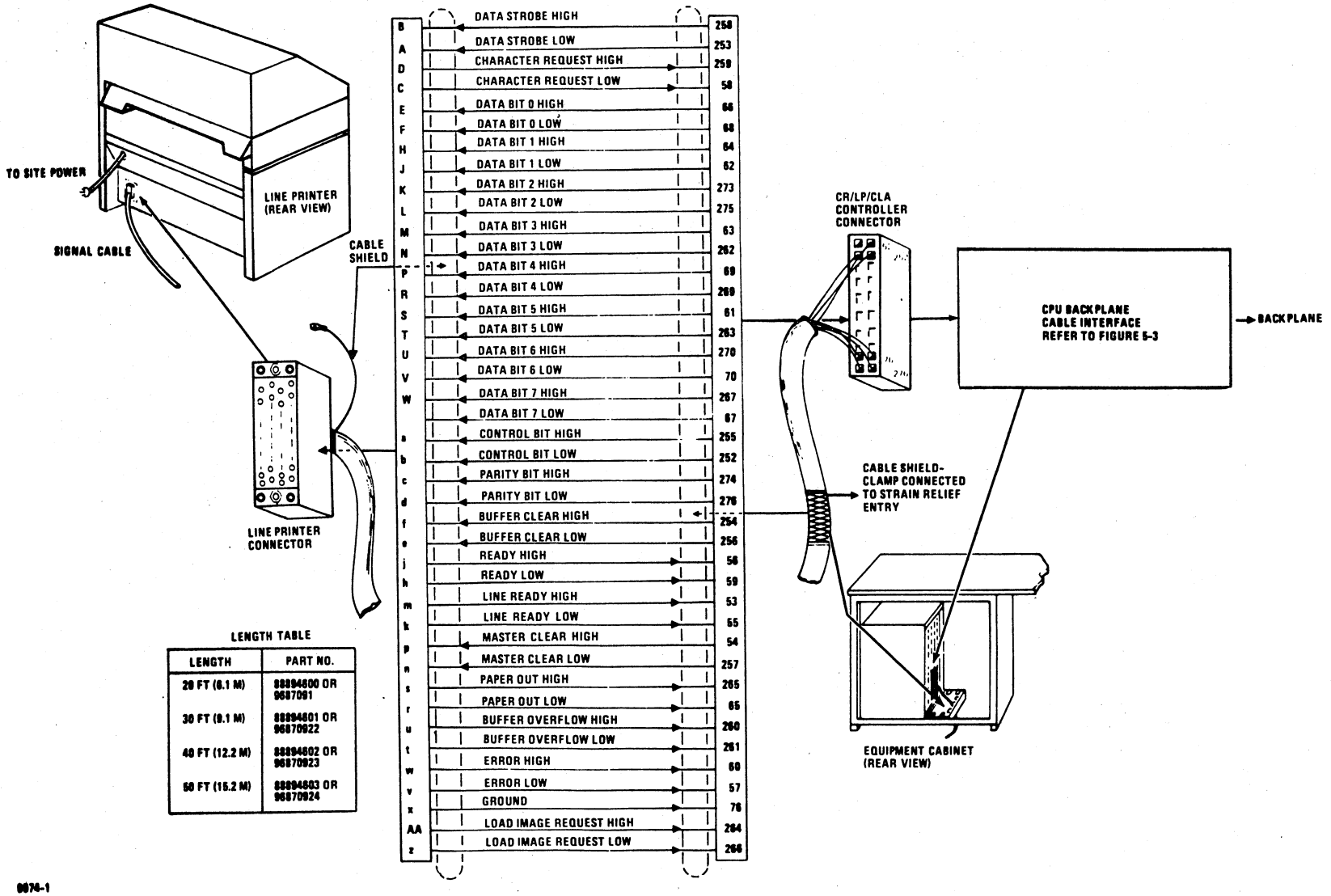


Figure 5-2. CR/LP/CLA Controller to Line Printer Cable

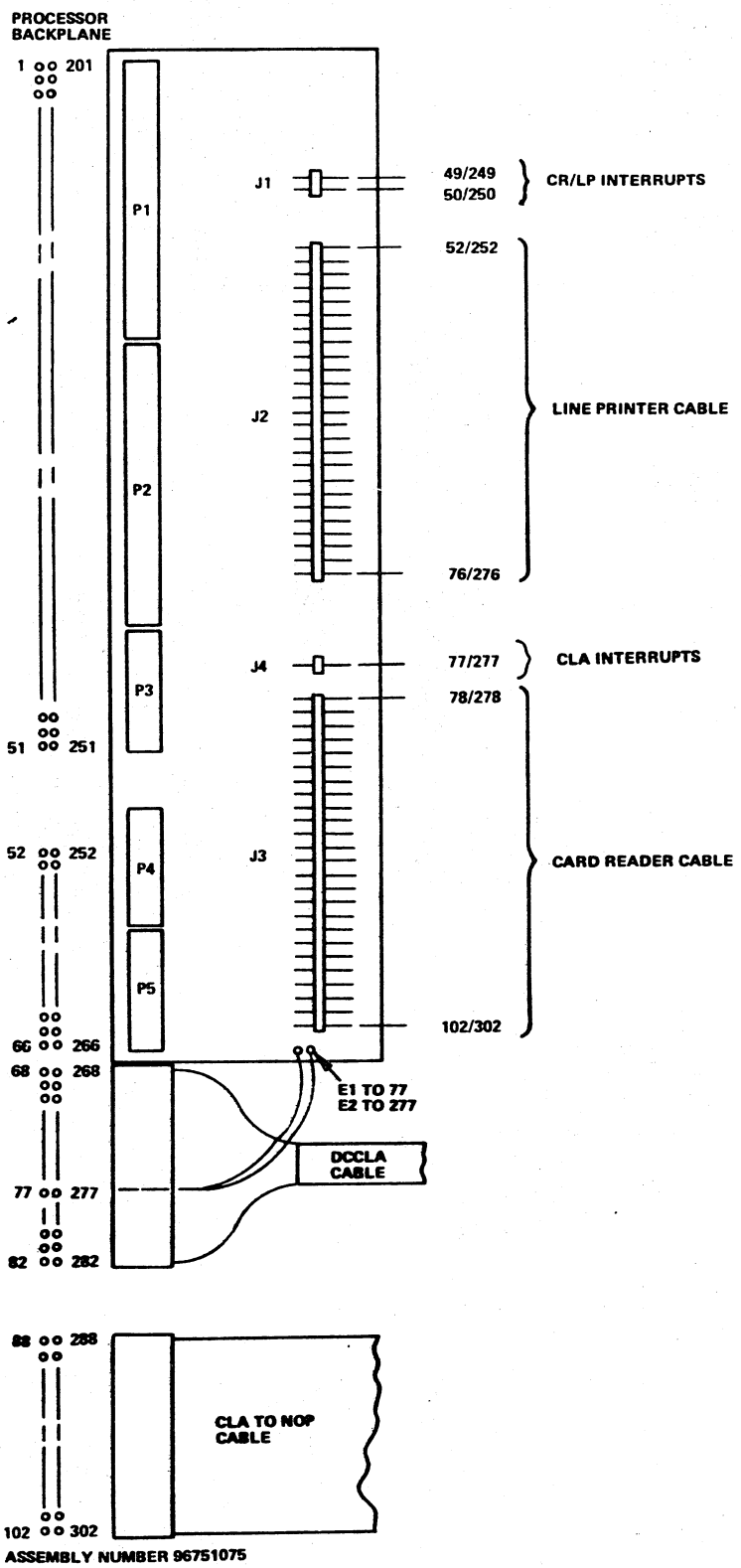


Figure 5-3. CR/LP/CLA Controller Cable Interface (Sheet 1 of 4)

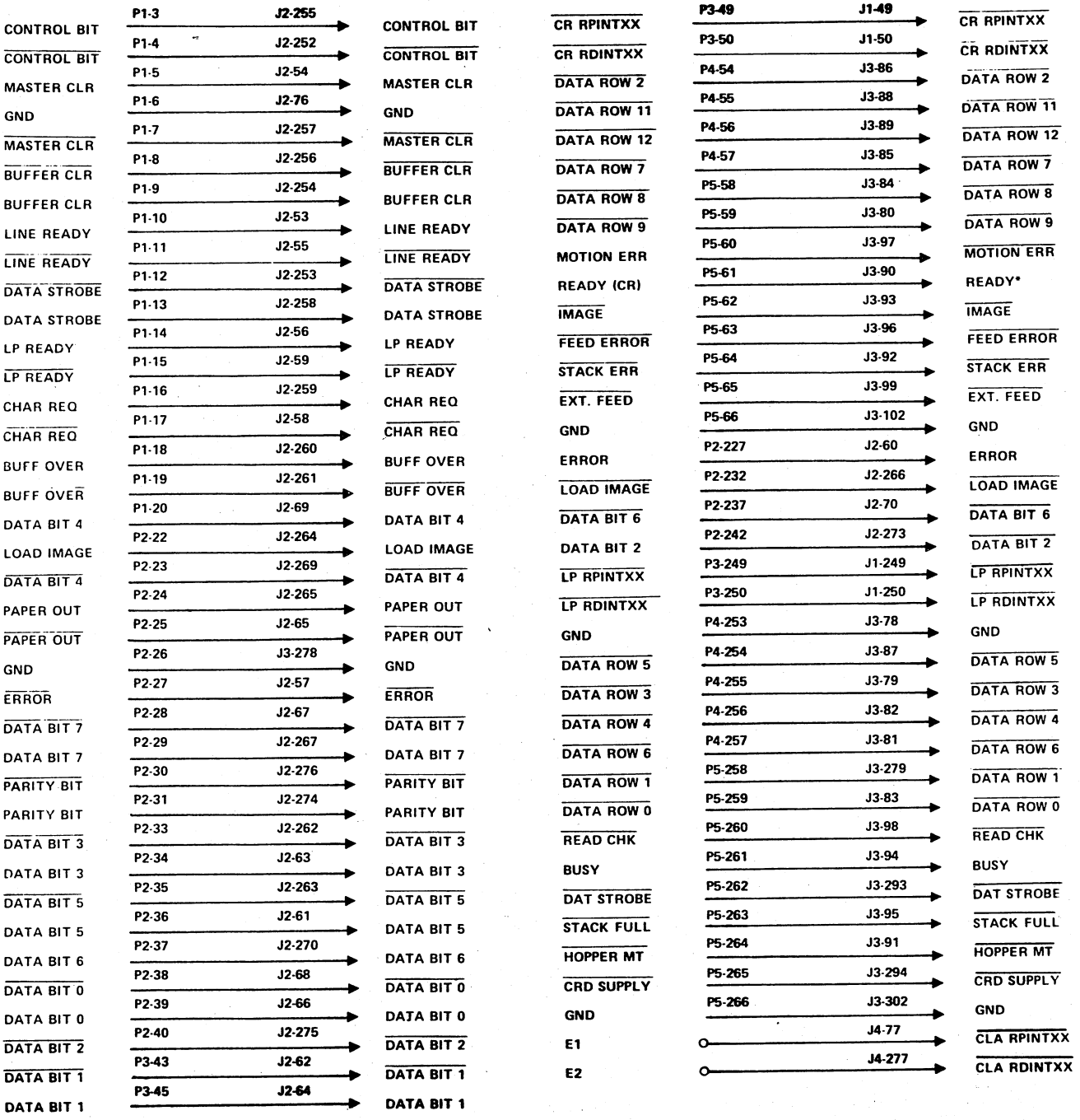


Figure 5-3. CR/LP/CLA Controller Cable Interface (Sheet 2 of 4)

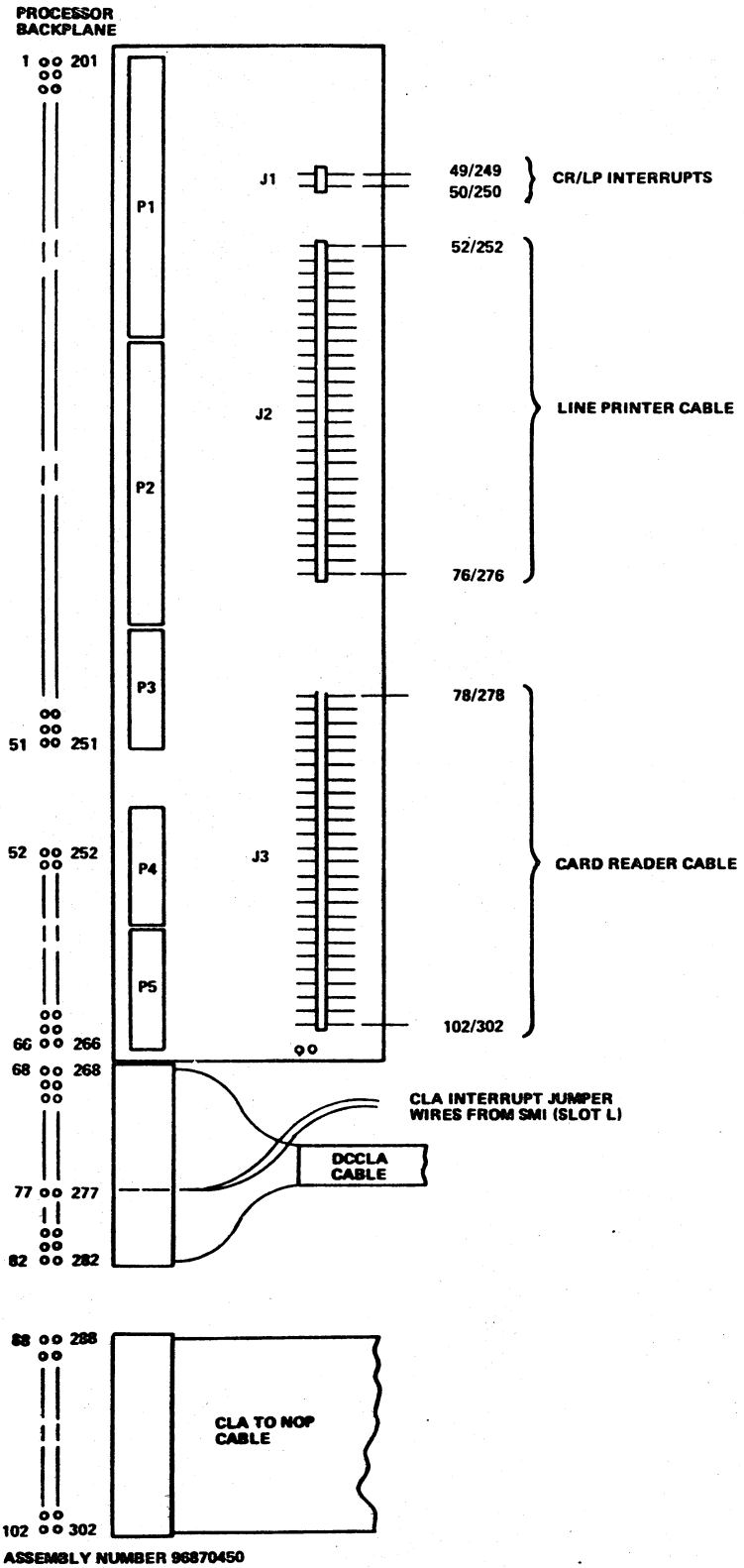


Figure 5-3. CR/LP/CLA Controller Cable Interface (Sheet 3 of 4)

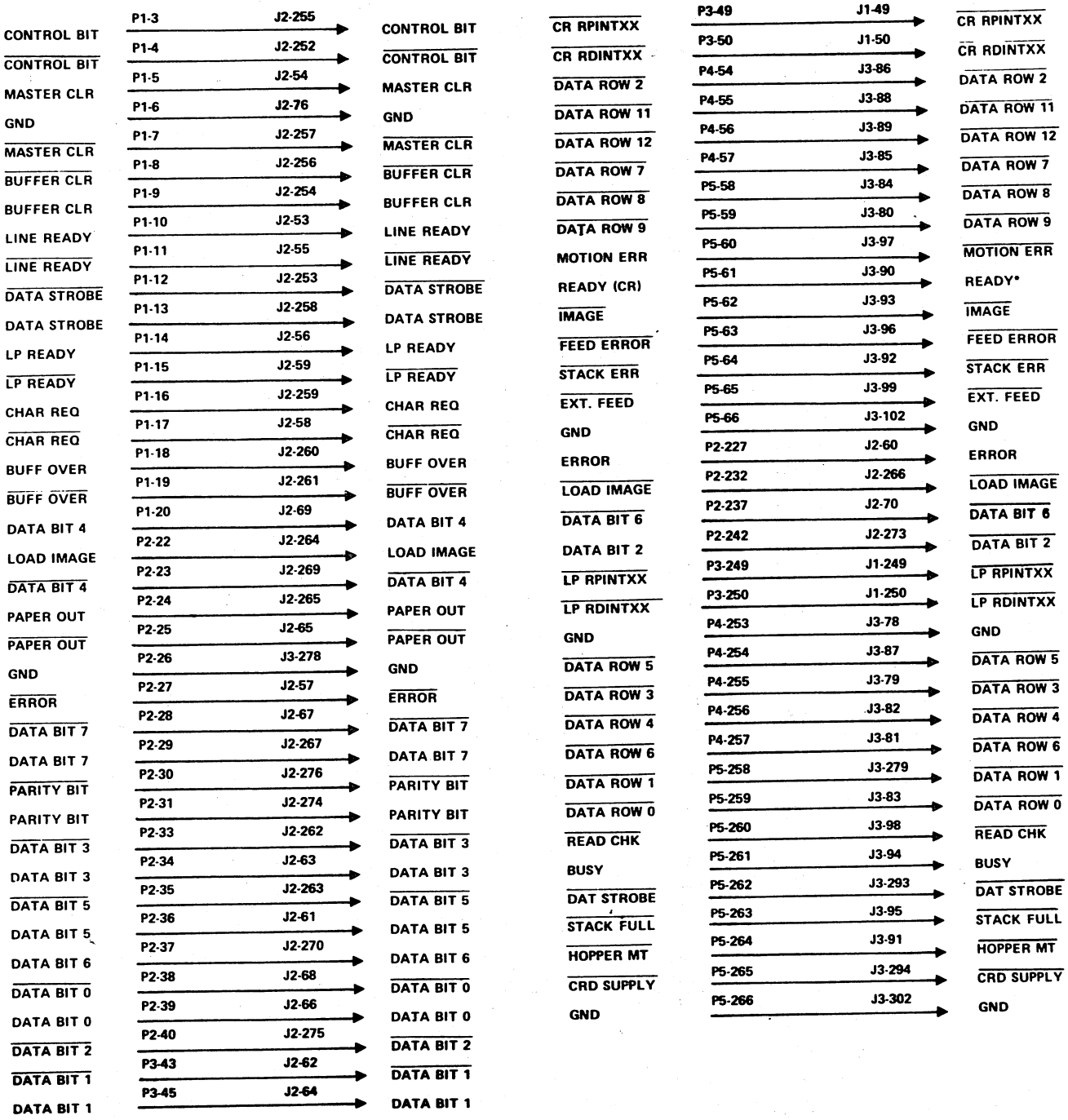


Figure 5-3. CR/LP/CLA Controller Cable Interface (Sheet 4 of 4)

This section contains diagnostic decision logic tables (DDLTs) and corrective action procedures applicable to the band line printer subsystem. The DDLTs contain troubleshooting procedures that provide fault isolation of equipment malfunctions. The corrective action procedures provide for step-by-step removal and replacement of defective subassemblies.

The DDLT procedures consist of offline test sequences and/or the operational diagnostic system (ODS) tests contained on diskettes or cassette tapes. The ODS tests are used in conjunction with the DDLTs applicable to the subsystem. All ODS tests for a subsystem must use ODS programs contained on the same test medium, either diskettes or cassette tapes. Do not intermix test media during a system checkout.

MAINTENANCE AIDS

Operational diagnostic system (ODS) programs required to test the band line printer subsystem are:

CRECO
LDCHK
LP408
L408M
MONITOR

For part numbers of the ODS test programs, refer to the processor manual listed in the preface.

EQUIPMENT REQUIRED

The following standard maintenance tools are required:

- Digital voltmeter - Four-digit
- Screwdriver assortment - Flat blade and Phillips
- Soldering iron - 6-watt or 15-watt recommended
- Vacuum cleaner - With hand-held brush and nozzle
- Wrench assortment - Open-end American sizes through 9/16 inch
- Hex key wrench set - 0.050 through 0.184 inch
- Ruler - 6-inch (152-millimeter)
- Square - Small right angle
- Torque wrench - 0 to 50 in/lb (0 to 7 m/kg)
- Oscilloscope-Dual, dc to 10 MHz minimum, calibrated triggered sweep (Tektronix model 546)

The following maintenance materials are required:

- Alchohol for general cleaning
- GE silicon grease for print gate
- Bearing tape and adhesive for platen

The following special maintenance tools are required:

- Band tracking/flight time tool (part no. 44670888), master band (part no. 44674186) - This tool is required to:
  - Adjust the print hammer actuator assemblies for proper print hammer flight time.
  - Adjust the left and right band drive pulley upper bearing locations for correct band tracing using a master band.
- Connector pin extractor (AMP no. 458994-1, CDC part no. 94806769) - This tool is used to remove connector pins from the connector block that plugs into the ac select board used in a special configuration (universal power supply). This tool is optional and is required only when an ac select board is used.
- Connector pin extractor AMP no. 465644-1, CDC part no. 94806768) - This tool is used to remove circular-type pins from connector blocks attached to the ribbon motor cable connectors and the paper motion verification sensor cable connector.
- Connector pin extractor (AMP no. 91065-1, CDC part no. 94806770) - This tool is used to remove square-type pins from connector blocks attached to circuit board dc power cables; dc power and signal connector cables 2PC2-P1, 2PC2-P2, and 2PC2-P4 on the servo amplifier board; and dc power connector 2PC1-P1 on the power supply board.
- Connector pin extractor (AMP no. 91052-1, CDC part no. 94806771) - This tool is used to remove pins from the hammer striker harness connectors that plug into the hammer driver circuit boards.
- Connector pin extractor (AMP no. 457241-1, CDC part no. 94806776) - This tool is used to remove pins from the hammer striker harness connectors that plug into the hammer driver circuit boards.
- Spring scale (McMaster Carr no. 136Y25 or acceptable alternate 20-lb no. 12210947, CDC part no. 94806772) - This tool is used to adjust belt and band tensions. It is a push-pull gauge that measures to 5 pounds or 3 kilograms.

DESCRIPTION OF DIAGNOSTIC DECISION LOGIC TABLES

The DDLTs identify and isolate equipment malfunctions in the replaceable assemblies. The DDLT analyzes a situation down to specific conditions and then directs the customer engineer to those actions that will correct the situation, with the most likely action listed first. The table is arranged in five sections: assumptions, conditions, responses, actions, and sequence of actions (see the DDLT example in figure 6-1).

ASSUMPTIONS

The upper section of the DDLT contains the prerequisites for the specific tests to be performed. The DDLT is valid only if all assumptions are true.

CONDITIONS

The center left section of the DDLT contains the conditions or tests to be made. They are in the form of questions that can be answered by yes or no.

RESPONSES

The center right section of the DDLT contains the response to the question asked in the Conditions section. Note that each condition, or question, can be answered with a yes (Y) or a no (N). The example chosen for figure 6-1 has 10 unique situations, numbered from 1 to 10, left to right. The shaded area in the example shows the conditions that define situation 9. That is, the POWER ON indicator does not illuminate, all other indicators do not illuminate when the READ CHECK indicator/switch is pressed, and no single indicator illuminates.

The first condition should be examined for a yes or no response. The applicable response directs the operator to the next condition in the column until all conditions in that column have been analyzed. In figure 6-1, column 1 identifies an everything-is-normal situation for the tests made. Therefore, the Actions section in the lower left of the table directs the customer engineer: Go to sheet 2 of this table. The customer engineer then goes to sheet 2 of the table and does not waste time with further examination of sheet 1.

ACTIONS

The lower left quadrant lists actions to correct a situation.

SEQUENCE OF ACTIONS

The lower right section lists the sequence of the actions required to correct a situation, with each succeeding action being performed only if a previous action failed to correct the condition under test. The sequential numbering of actions reflects the probability of the corresponding action correcting the problem, with the most likely listed first. An X indicates that no sequence of actions is necessary, but the single action listed must be performed. Both actions and conditions may refer to other specific procedures to follow (for example, when checking and adjusting the power supply voltages). The customer engineer must exit from the table to perform the other procedure and then return to the same point in the table to answer any questions that are related to the procedure. He also continues from this point in the table if the fault still persists. The same is true if the customer engineer exits to another table or sheet of the same table but does not find the fault, and the action that called for the exit is not the last action in the sequence. The customer engineer must return to his original DDLT exit point and continue testing from there.

After taking corrective action, the customer engineer should rerun the DDLT starting at sheet 1 to make sure that the fault has been corrected.

USER NOTES

The following are precautions the customer engineer should keep in mind while performing diagnostic testing:

- If the DDLTs are run using a CC628 display terminal, observe the following functional changes when entering information through the keyboard:

To Enter	Press Simultaneously
ETX	CONTROL and C
CLEAR	CONTROL and X
ENTER-	CONTROL and \
ENTER+	CONTROL and [
LINE FEED	SHIFT and ↓
CARRIAGE RETURN	CR or NEW LINE
RESET	SHIFT and HOME
RUBOUT	DEL
BEL	CONTROL and G

- After any power to the computer is turned on or off, the computer should be master cleared.
- Power to the peripherals should be turned off before the power to the computer is turned off.
- Printed wiring assemblies may be removed from or installed in the processor with the power on.
- Do not press any key on the keyboard while diagnostic media is being loaded.

Whenever the ESC key on the keyboard is pressed, the computer is placed into panel mode. This prevents further messages from being displayed on the screen. To a user it appears that the system is hung up. If the ESC key is accidentally pressed, the condition can be rectified by pressing the @character on the keyboard.

The DDLTs presume all operator inputs are entered correctly. Any incorrect entry may cause the DDLT to direct an incorrect action. Hence, if any doubt exists about the accuracy of the operator entry, always repeat the sequence of DDLT steps that led up to an action before taking further actions.

If any characters are accidentally pressed on the keyboard, the KEYBOARD LOCK and ALERT lights on the display illuminate. If this occurs, the BREAK key must be pressed to continue.

ODS SOFTWARE

For additional information regarding the use of the ODS diagnostic tests, refer to the Operational Diagnostic System Reference Manual. Excerpts from this manual are listed below.

TABLE 6-51. CARD READER DDLT

Power On — Sheet 1 of 6

ASSUMPTIONS:

1. If card reader is load device, go to sheet 2 of this table.
2. Card reader power cord is connected to ac outlet.
3. Power is on (procedure 1).
4. Ensure card reader is not ready by pressing RESET.

(1)

CONDITIONS: (2)	1	2	3	4	5	6	7	8	9	10
1. Is POWER ON indicator on card reader illuminated/	Y						N			
2. Press READ CHECK switch/indicator. Do all other indicators illuminate?	Y				N		Y	N		
3. Do any indicators illuminate?					Y	N		Y	N	
4. Press and release RESET switch/indicator. Does RESET indicator illuminate?	Y			N					(3)	
5. When RESET switch/indicator is pressed, do stacker springs and/or card drum turn?	Y		N							
6. Did motor power come up and then drop within 10 to 30 seconds after releasing RESET switch/indicator?	Y	N								
ACTIONS:										
1. Go to sheet 2 of this table.	X									
2. Check that toggle switch S1 (rear panel) is up. (5)							(4)			
3. Check that removable power cord is connected securely to card reader.									2	
4. Check fuses (rear panel) and ac power.									3	
5. Check switch board and associated cabling (procedure 9). Replace if requred (procedure 10).				3	2	2	2		4	
6. Check +17-volt power supply (procedure 6).								1		
7. Check for +17 vdc between ground and control board connector P2, pins 2 and 3, and between ground and switch board connector, pins 2 and 3 (two pins joined by foil).								2		
8. Check cable between control board and switch board.								3		
9. Replace lamp in failing indicator (procedure 9).							1			

RESPONSES

SEQUENCE OF ACTIONS

NOTE: ARROWS AND CIRCLED NUMBERS INDICATE SEQUENTIAL FLOW OF ANALYSIS PROCEDURE.

Figure 6-1. Example of a Diagnostic Decision Logic Table

If an erroneous test entry is made and executed during a level II† test, perform the following:

1. Simultaneously press the CONTROL and BEL keys on the keyboard.
2. Type In:

   ODS,ABRT,xxxxx

   where xxxxx is the five-digit ODS test mnemonic.
3. Press the CARRIAGE RETURN key. The remainder of the test loads.
4. Reload the test and return to the DDLT (sheet 1) of the device under test.

NOTE

If step 2 above cannot be performed, restart the Loadcheck diagnostic (in the processor manual listed in the preface).

For error code typeouts not listed in the DDLTs, refer to the following:

Typeout	Description
GHOST INTERRUPT LINES xxxx	Level I tests. An unexpected interrupt was received. xxxx = A bit mask indicating which line was interrupted
MI	Level II tests. A manual interrupt (CONTROL and BEL) has been received, and the system is waiting for the ODS level II command.
MI INPUT ERROR	Level II tests. The command did not begin with ODS. Press CONTROL and BEL and then re-enter the command.
ODS BUSY	Level II tests. ODS is currently processing the last command entered. Re-enter the command.
ODS ERROR xx	Level II tests. An operator command input error occurred during loading of the test or while the test was not processing. Re-enter the command correctly. xx = 01 Invalid command mnemonic 02 Third field must be entered 03 Invalid test availability 04 Command is not valid for the master parameter list 05 Too many field inputs for the command 06 Nonhexadecimal input 07 Invalid parameter 08 Invalid parameter index 09 Test not currently suspended 10 No change in parameter data input 11 Available memory has been exceeded 12 Test not found on library unit.
OV	Level II tests. An overflow of the monitor's usable memory has occurred. Reload the system
PE	Level II tests. A macro memory parity fault interrupt has occurred. Reload the system.
PF	Level II tests. A protect fault interrupt has occurred. Reload the system.
PW	Level II tests. A power failure protect interrupt has occurred. Reload the system.

Tables 6-1 thru 6-4 are the DDLTs for the band line printer subsystem. The removal/replacement procedures immediately follow the DDLTs.

† Level II tests are subsystem diagnostic programs that run under the ODS monitor test and are loaded by the Level II Monitor DDLT contained in the processor manual listed in the preface.

TABLE 6-1. CONTROLLER ECHO TEST (CRECO) DDLT

ASSUMPTIONS:

1. The Loadcheck and Instruction Test DDLTs (in the processor manual listed in the preface) were successfully completed.

2. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to the Loader Fault DDLT in the processor manual):

   Type in CRECO
   Press CARRIAGE RETURN

   NOTE: xxxxx = test name

3. The diagnostic stops with the message CRECO SUSPENDED BOT displayed. If more than one controller is present in the system, go to the multiple subsystem testing procedure in the processor manual. If only one controller is present, enter the following at the keyboard.

   Type in GO
   Press CARRIAGE RETURN

4. Observe the console display for the following conditions.

CONDITIONS:	1	2	3	4	5	6
1. Is CRECO TERMINATED displayed?	Y			N		
2. Is an action code displayed?				Y	N	
3. Is RUN indicator illuminated?					N	Y
4. Is there another controller to be tested?	N		Y			
5. Is line printer suspected by the customer, or does it require testing.	Y	N				
ACTIONS:						
1. Go to table 6-2 (CT103 and CT105) or table 6-3 (CT106).	X					
2. Go to the Loader Fault DDLT in the processor manual.					X	
3. Replace controller logic (refer to the board (logic) replacement procedure in the processor manual).				2		
4. Replace I/O-TTY logic (refer to the board (logic) replacement procedure in the processor manual).				3		
5. Replace ALU logic (refer to the board (logic) replacement procedure in the processor manual).				4		
6. Replace SMI logic (refer to the board (logic) replacement procedure in the processor manual).				5		
7. Replace transform logic (refer to the board (logic) replacement procedure in the processor manual).				6		
8. Replace control 1 logic (refer to the board (logic) replacement procedure in the processor manual).				7		
9. Replace control 2 logic (refer to the board (logic) replacement procedure in the processor manual.				8		
10. Go to the System Fault DDLT in the processor manual.				9		X
11. Verify the interrupt/equipment number according to tables 4-4 and 4-5. Restart this page.			X	1		
12. Go to next subsystem to be tested.		X				

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT

ASSUMPTIONS:

1. Entry is made from table 6-1.
2. Printer under test is either a CT103 or CT105.
3. Forms are properly installed.
4. Line printer cord is connected to ac outlet.
5. Band is properly installed.
6. Format tape (CDC no. 50370404) is properly installed.
7. Switch settings are correct (see section 4).
8. Interface cable is securely connected at both ends.

CONDITIONS:	1	2	3	4	5	6	7
1. Turn power on. Does circuit breaker trip with ac power loss?	Y	N					
2. Does a paper runaway condition occur?		Y	N				
3. Is the blower running?			N	Y			
4. Will the printer power on?				N	Y		
5. Is the stop light indicator flashing?					Y	N	
6. Does the stop light indicator remain on after START is depressed? (The printer will not go ready.)						Y	N
ACTIONS:†							
1. Perform the ac power check procedure.	1			2			
2. Perform the ac input check procedure.			2	3			
3. Perform the 5 V dc check procedure.				1			
4. Perform the 36 V dc check procedure.			1				
5. Go to sheet 2.						X	
6. Go to sheet 3.					X		
7. Go to sheet 4.							X
8. Replace 2PC3.		1					
9. Replace 2PC2.		2					
10. Replace vertical servo tachometer.		3					
11. Call next level of support.	2	4	3	4			

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. Ribbon is properly installed.
3. Printer will not go ready.
4. Gate switch is closed.
5. Band cover is properly installed.
6. Ribbon fold-over detect switches are closed.

CONDITIONS:		1	2	3	4	5
1.	Does the READ LED go out?	N	Y			
2.	Does the band come up to speed and then stop?		N	Y		
3.	Press the PAGE EJECT button. Does the page eject?			N	Y	
4.	Press the TEST PRINT button, then turn test print off. Does test print perform correctly?				N	Y
ACTIONS:†						
1.	Replace the format tape.	1				
2.	Replace the GATE CLOSED switch.		3			
3.	Replace the GATE COVER switch.		2			
4.	Replace 7PC2.			2	3	
5.	Replace 7PC6.	2		5		
6.	Check the print band assembly for binding or misalignment.		1		1	
7.	Replace the ribbon fold switch.				2	
8.	Replace the control panel printed wiring assembly.			4	4	
9.	Replace 7PC1.			1		
10.	Replace 7PC5.			3		1
11.	Replace 7PC3.			6		
12.	Replace the line counter PWB and reset the circuit breaker.	3	4			
13.	Replace the tape reader assembly.	4				
14.	Call next level of support.	5	5	7	5	2

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. When the power was turned on, the STOP light came up flashing.
3. A customer engineer fault light is illuminated. When more than one LED is on, the one that came on first should be considered first. When two or more come on or simultaneously, consider them in the order they are listed under Conditions. After making fault checks, the power ON/OFF circuit breaker must be turned off and then on to power the printer. Pause in the OFF position at least 30 seconds before turning the printer on again.
4. Gate is closed.
5. Gate cover is on.
6. Ribbon is properly installed.

CONDITIONS:	1	2	3	4	5	6	7	8
NOTE More than one fault may exist at the same time.								
1. Is +12 V fault LED lit?	Y	N						
2. Is hammer fault LED lit?		Y	N					
3. Is H-switch fault LED lit?			Y	N				
4. Is band motor fault LED lit?				Y	N			
5. Is ribbon motor fault LED lit?					Y	N		
6. Is horizontal home fault LED lit?						Y	N	
7. Is horizontal end stop fault LED lit?							Y	N
8. Is horizontal motion fault LED lit?			Y	N				
9. Is +36 V fuse fault LED lit?		Y						N
ACTIONS:†								
1. Replace 7PC3.	6	6	5	7	4	6	6	
2. Replace 2PC1.	4	7						
3. Turn 1CB1 off, then on after 30 seconds.	1	1	1	1	1	1	1	
4. Perform the 36 V dc check procedure.		2						
5. Check fuse F1 on 2PC2. If it is blown, replace 2PC2.	2	3						
6. Check fuse F2 on 2PC2. If it is blown, replace the paper clamp solenoid.	3	4						
7. Check the thermal fuse and connector.		5						
8. Perform horizontal servo adjustment.			2			2	2	
9. Replace 7PC2 and adjust the paper rate limiter.					5			

† Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ACTIONS (Contd):†		1	2	3	4	5	6	7	8
10.	Replace 2PC2.	5	9	4	6	3	5	5	
11.	Check the vertical motion motor and the horizontal voice coil for binding. Replace as required.			3					
12.	Check the band for binding. Replace the band if necessary.				2				
13.	Replace the band motor.				5				
14.	Clear the ribbon jam and adjust the tracking or replace ribbon motor.					2			
15.	Replace the hammer driver board with the LED lit.		8						1
16.	Check for a short or open on the armature coil lines to the hammer cards. Replace them if necessary.								2
17.	Replace the horizontal position reader.			6			4	4	
18.	Replace 7PC6.	7							
19.	Replace the vertical position reader.	8							
20.	Replace the horizontal voice coil and tachometer.						3	3	
21.	Perform band tension adjustment.				4				
22.	Clean platen and pulley with alcohol. Replace platen wear strip and adhesive (44673510) if used on printer.				3				
23.	Call next level of support.	9	10	7	8	6	7	7	3

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. The proper band, ribbon and format tape (CDC no. 50370404) are properly installed.
3. Press test print. Observe printer performance until printer fails or prints two full pages. Press test print again, thus making printer not ready. If print performance is acceptable, go to sheet 8.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11
1. Does a paper jam occur?	Y	N									
2. Does PAGE EJECT illuminate together with one of the following symptoms? -Paper tear -Prints 11 lines and stops -Prints 17 lines and stops -Prints 26 lines and stops -Either prints a repeatable or an unrepeatable number of lines and stops		Y	N Y	N Y	N Y	N Y	N				
3. Does the printer drop columns in patterns?							Y	N			
4. Does the printer drop columns in no pattern?								Y	N		
5. Are columns displaced?									Y	N	
6. Are some columns intermittently displaced?										Y	N
ACTIONS:†											
1. Visually inspect the mylar shield. Replace if damaged.	1	1									
2. Visually inspect the tractor assembly. Replace if damaged.	2										
3. Adjust the paper clamp assembly.		2									
4. Replace the check strobe reader.			3								
5. Replace the vertical position reader.			4								
6. Replace the paper motion verification sensor.					1	4					
7. Replace 7PC6.				1		3					
8. Replace the 6/8 lines per inch switch.				2							
9. Visually inspect the hammers and plungers. Replace if damaged.							7			1	

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

Sheet 4 of 12 (Contd)

ACTIONS (Contd):†	1	2	3	4	5	6	7	8	9	10	11
10. Perform flight time adjustment.							1		1		
11. Visually inspect the pushrods and pivot pins. Replace if worn or damaged.							6			2	
12. Clean, visually inspect, and if necessary replace or adjust character and home pulse pickups.			5	4	4		4	1			
13. Make character and home pulse pickup adjustment on 7PC3.			6	5	5			2			
14. Check hammer connectors at boards.								3			
15. Replace 7PC5.							2	5			
16. Replace 7PC3.			2		3	2		6			
17. Replace 7PC2.			1	3	2	1		4			
18. Check for static problem due to improper contact between forms, static eliminator, and paper bail.								7			
19. Replace 7PC1.							5				
20. If printer is a CT105, replace 5PC1. Otherwise, refer to field service manual column reference chart and replace board associated with column(s) being dropped.							3				
21. Perform 7PC3 vertical setup procedure.											
22. Go to sheet 5.											X
23. Go to sheet 7.			7	6	6	5					
24. Call next level of support.	3	3					8	8	2	3	

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 4.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Does displacement of random columns occur?	Y	N							
2. Do intermittent wrong, missed, or overprinted characters occur?		Y	N						
3. Does the printer print wrong characters or garbage and possibly skips lines?			Y	N					
4. Does the printer either print when out of paper or does the PAPER OUT light come on when not out of paper?				Y	N				
5. Does ribbon fold or fail to move?					Y	N			
6. Does ink smear or is print quality poor?						Y	N		
7. Do wavy print lines or random vertically displaced (up or down) characters occur?							Y	N	
8. Is repeated flight timing necessary for the same column?								Y	N
ACTIONS:†									
1. Clean, visually inspect, and if necessary replace or adjust character and home pulse pickups.		1							
2. Make character and home pulse pickup adjustment on 7PC3.		2							
3. Replace 7PC5.			4	4					
4. Replace 7PC3.		3	7	3					
5. Replace 7PC2.			6						
6. Replace 7PC1.		5	2						

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

Sheet 5 of 12 (Contd)

ACTIONS (Contd): †		1	2	3	4	5	6	7	8	9
7.	Replace 5PC1 and if printer is a CT103, replace 5PC2 and check for correct jumper plug P2.		4	5						
8.	Check band pully for binding.	1								
9.	Replace 7PC6.			3	5					
10.	Adjust P1 on 7PC3 if print is off one or two characters on the band.			1						
11.	Replace PAPER OUT switch.				1					
12.	Check for correct format tape.				2					
13.	Check for programming error.									
14.	Adjust ribbon tracking.					1				
15.	Replace ribbon drive motor.					4				
16.	Replace ribbon.						1			
17.	Adjust paper clamp assembly.							1		
18.	Replace pivot module assembly.								1	
19.	Replace ribbon fold switch.					2				
20.	Replace 2PC2.					3				
21.	Perform band tension adjustment.						2			
22.	Perform band pulley height adjustment.						3			
23.	Perform band tracking adjustment.						4			
24.	Perform inner and outer paper guide adjustments.					5				
25.	Perform print quality adjustments.					6				
26.	Call next level of support.	2	6	8	6	7	5	2	2	
27.	Go to sheet 6.									X

† Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

Entry is made from sheet 5.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Does paper move but printer does not print?	Y	N							
2. Are entire lines of print off by one or two characters on the band?		Y	N						
3. Will printer not go to the stop mode?			Y	N					
4. Does test print button not function properly, or will printer not move paper or print in test print mode?				Y	N				
5. Are one or more data bits in the data bit pattern (ASCII) always wrong, revealed by incorrect printed characters and possibly a vertical motion error?					Y	N			
6. Does printer print a line, then skip an incorrect number of lines continuing to print or stopping?						Y	N		
7. Does printer print in compressed pitch mode (line is squeezed) and print is garbage?							Y	N	
8. Press single space button. Does printer not skip a space?								Y	N
ACTIONS:†									
1. Replace 7PC2				2					
2. Replace 7PC5.			1	1	3	3		1	
3. Replace 5PC1, and if printer is a CT103, replace 5PC2.	3				4				
4. Replace 7PC1.	2				1				
5. Check connectors on 5PC1, 5PC2.	1					1			
6. Adjust 7PC3, P-1.		1							
7. Replace 7PC3.		2					1		
8. Replace 7PC6.					2	2			
9. Check the print band assembly for binding.							2		

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

Sheet 6 of 12 (Contd)

ACTIONS (Contd):†		1	2	3	4	5	6	7	8	9
10.	Replace the controller board.	4								
11.	Call next level of support.	5	3	2	3	5	4	3	2	
12.	Go to sheet 7.									X

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT

ASSUMPTIONS:

1. Entry is made from sheet 4 or 6.

CONDITIONS:	1	2	3	4	5	6
1. Does the printer stop and is the enable print cycle LED always on, without CE faults?	Y	N				
2. Does the printer stop and is the enable print cycle LED always on, with CE fault?		Y	N			
3. Does the printer stop and are the horizontal motion and vertical advance LEDs always on?			Y	N		
4. Does the printer stop and is the VA LED always on?				Y	N	
5. Does the printer stop with no pattern to LEDs, or are no LEDs on (LEDs on 7PC1 and 7PC2)?					Y	N
ACTIONS:†						
1. Replace 2PC2.		2	3	1		
2. Replace 7PC1.	2					
3. Replace 7PC2.	1	3	1	2		
4. Replace 7PC3.	3	1	2	4		
5. Replace 7PC5.				5		
6. Replace 7PC6.				3		
7. Replace the line counter board and reset the circuit breaker.	4	4	4	7	2	
8. Replace the control panel (6PC1).					3	
9. Check for a static problem with the paper bail and the static eliminator.					1	
10. Replace vertical servo motor.				6		
11. Go to sheet 8.						X
12. Call next level of support.	5	5	5	8	4	

† Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 4 or 7.
2. Perform a Master Clear and a Deadstart with ODS Level II volume I at release level 128 or later.
   Type CONTROL and BELL simultaneously.
   Type ODS, LOAD, LP408.
   Press CARRIAGE RETURN and wait for "LP408 SUSPENDED LOAD".
3. Option Selection
   If you are testing a 132 column printer;
   Press CONTROL and BELL simultaneously.
   Type ODS,CPAR,LP408,B,184.
   Press CARRIAGE RETURN.
   Press CONTROL and BELL simultaneously.
   Type ODS,CPAR,LP408,D,84.
   Press CARRIAGE RETURN.
   If you want to test the EVFU and have installed a format tape with all channels punched;
   Press CONTROL and BELL simultaneously.
   Type ODS,CPAR,LP408,4,5678.
   Press CARRIAGE RETURN.
4. Press CONTROL and BELL simultaneously.
   Type ODS, GO, LP408.
5. Observe the console display for operator action.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does PAGE EJECT illuminate together with one of the following symptoms? • Paper jam • Paper tear • Either prints a repeatable or an unrepeatable number of lines, skips spaces, and stops	Y	N	N	N								
		Y	Y									
2. Does printer drop columns in pattern?				Y	N							
3. Does printer print wrong characters or garbage and possibly skip lines?					Y	N						
4. Does a paper runaway occur?						Y	N					
5. Does ribbon fold or fail to move?							Y	N				
6. Does autoperf skip, not function properly, or is the bottom-of-form not recognized?								Y	N			
7. Does paper move but printer not print?									Y	N		
8. Will printer not go to the stop mode?										Y	N	
9. Are one or more data bits in the data bit pattern (ASCII) always wrong, revealed by incorrect printed characters and possibly a vertical motion error?											Y	N
ACTIONS:												
1. Visually inspect the mylar shield. Replace if damaged.	1	1										
2. Visually inspect the tractor assembly. Replace if damaged.	2											
3. Replace 7PC2.			2									
4. Replace 7PC3.			3		3	3						
5. Perform flight time adjustment.				1								
6. Perform 7PC3 vertical setup procedure.			1									

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

Sheet 8 of 12 (Continued)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12
7. Replace 7PC5.				2						1	3	
8. Replace hammer driver boards associated with respective columns. Refer to field service manual hammer driver column reference chart. If printer is a CT105, replace 5PC1. Check jumper P2.				3	4				1		4	
9. Clean, visually inspect, and if necessary, replace or adjust character and home pulse pickups.				4	1							
10. Replace 7PC1.				5					2			
11. Visually inspect the pushrods and pivot pins. Replace if worn or damaged.					6							
12. Visually inspect the hammers and plungers. Replace if damaged.				6								
13. Make character and home pulse pickup adjustments on 7PC3.					2							
14. Replace 7PC1.					5						1	
15. Check for programming error.						1						
16. Check for correct format tape.						2		1				
17. Replace 2PC2.						4	3					
18. Replace vertical tachometer and servo motor.						5						
19. Adjust ribbon tracking if necessary.							1					
20. Replace ribbon fold switch.							2					
21. Replace ribbon drive motor.							4					
22. Perform inner and outer paper guide adjustments.							5					
23. Perform print quality adjustments.							6					
24. Replace 7PC6.								2			2	

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12
25. Check hammer driver board connectors.									3			
26. Replace the controller board.									4			
27. Adjust the paper clamp.		2										
28. Call next level of support.	3	3		7	7	6		3	5	2	5	
29. Go to sheet 9.			4				7					X

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 8.

CONDITIONS:	1	2	3	4	5
1. Does the printer not respond to the processor and do the hammers or the paper not move?	Y	N			
2. Does the printer print a line, then skip an incorrect number of lines, continuing to print or stopping?		Y	N		
3. Does the printer stop with the input cycle LED on 7PC1, always on?			Y	N	
4. Does the printer stop with no pattern to the LEDs on 7PC1 and 7PC2?				Y	N
ACTIONS:					
1. Replace 7PC5.	1	3	2		
2. Check connectors on hammer driver boards.		1			
3. Replace 7PC6.		2			
4. Replace 7PC1.			1		
5. Check for static problem with paper bail and the static eliminator.				1	
6. Replace the line counter board and reset the circuit breaker.				2	
7. Replace the control panel.				3	
8. Go to sheet 10.	2	4	3	4	X

ASSUMPTIONS:

1. Entry is made from sheet 9.

CONDITIONS:	1	2	3	4
1. Is LP408 TERMINATED displayed without action codes?	Y	N		
2. Are the action codes displayed?		Y	N	
3. Is RUN on the CPU operators panel illuminated?			Y	N
ACTIONS:†				
1. Refer to the LP408 diagnostic error code explanation on sheet 11 of this table		2		
2. Repeat loadcheck and restart the test.			1	
3. Go to the Loader Fault DDLT in the processor manual.			2	X
4. Verify the equipment code and interrupt assignments according to tables 4-4 and 4-5.		1		
5. Go to sheet 12.	X			

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-2. CT103, CT105 LINE PRINTER DDLT (Contd)

Sheet 11 of 12

ASSUMPTIONS:

1. Entry is made from sheet 10.
2. Observe the action codes.

CONDITIONS:	1	2	3	4	5
Does the screen display:					
1. 1211, 1221, 1224, 1231, 1241, 1244, or 1251?	Y				
2. 1254 (BDBT = 0021, 0022)?		Y			
3. 1254 (busy error, BDBT = 0012)?			Y		
4. 1254 (parity error), 1271 (BDBT = 0041, 0042)?				Y	N
ACTIONS:†					
1. Replace 7PC1.		3	1		
2. Replace 7PC2.			2		
3. Replace 7PC5.	1	1	3	1	
4. Replace 7PC6.		2			
5. Replace 5PC1 and if printer is a CT103, replace 5PC2.		4			
6. Call next level of support.	2	5	4	2	
7. Go to sheet 12.					X

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

ASSUMPTIONS:

1. Entry is made from sheet 10 or 11 of this table.
2. Refer to the following sample printouts in table 6-4.

CONDITIONS:	1	2	3	4	5
1. Did the printer print pages exactly like the sample (table 6-4).	N	Y			
2. Was section 8 selected?		N	Y		
3. Check the number of lines skipped between each line printed. Was the sequence of successive lines skipped 1, 2, 4, 8, 16, 32, 63?			N	Y	
4. Check the number of lines skipped between each line printed. Were all 12 channels exercised according to the format tape?				N	Y
ACTIONS:†					
1. Check the cabling between the line printer and the micro processor.	1				
2. Replace the controller logic (refer to the board/logic replacement procedure in the processor manual).	2				
3. Replace 7PC5.	3		2		
4. Replace 7PC6.			1	1	
5. Check for the proper format tape.				2	
6. OIDS LP408 is complete. If a problem still exists, call the next level of support.	4	X	3	3	X

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT

ASSUMPTIONS:

1. Entry is made from table 6-1.
2. Printer under test is a CT106.
3. Forms are properly installed.
4. Line printer cord is connected to ac outlet.
5. Band is properly installed.
6. Format tape (CDC no. 50370404) is properly installed.
7. Switch settings are correct (see section 4).
8. Interface cable securely connected at both ends.

CONDITIONS:	1	2	3	4	5	6	7
1. Turn power on. Does circuit breaker trip with ac power loss?	Y	N					
2. Does a paper runaway condition occur?		Y	N				
3. Is the blower running?			N	Y			
4. Will the printer power on?				N	Y		
5. Is the stop light indicator flashing?					Y	N	
6. Does the stop light indicator remain on after START is depressed? (The printer will not go ready.)						Y	N
ACTIONS:†							
1. Perform the ac power check procedure.	1			2			
2. Perform the ac input check procedure.			2	3			
3. Perform the 5 V dc check procedure.			1	1			
4. Perform the 36 V dc check procedure							
5. Go to sheet 2.						X	
6. Go to sheet 3.					X		
7. Go to sheet 4.							X
8. Replace 2PC3.		1					
9. Replace 2PC2.		2					
10. Replace vertical servo tachometer.		3					
11. Call next level of support.	2	4	3	4			

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. Printer will not go ready.
3. Ribbon is properly installed.
4. Gate is closed.
5. Band cover is properly installed.
6. Ribbon fold over detect switches are closed.

CONDITIONS:	1	2	3	4	5
1. Does the READ LED go out?	N	Y			
2. Does the band come up to speed and then stop?		N	Y		
3. Press the PAGE EJECT button. Does the page eject?			N	Y	
4. Press the TEST PRINT button, then turn test print off. Does test print perform correctly?				N	Y
ACTIONS:†					
1. Replace the format tape.	1				
2. Replace the GATE CLOSED switch.		3			
3. Replace the GATE COVER switch.		2			
4. Replace 7PC2.			2	3	
5. Replace 7PC6.	2		5		
6. Check the print band assembly for binding or misalignment.		1		1	
7. Replace the ribbon fold switch.				2	
8. Replace the control panel printed wiring assembly.			4	4	
9. Replace 7PC1.			1		
10. Replace 7PC5.			3		1
11. Replace 7PC3.			6		
12. Replace line counter PWB and reset the circuit breaker.	3	4			
13. Replace the tape reader assembly.	4				
14. Call next level of support.	5	5	7	5	2

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. When the power was turned on, the STOP light came up flashing.
3. A customer engineer fault light is illuminated. When more than one LED is on, the one that came on first should be considered first. When two or more come on simultaneously, consider them in the order they are listed under Conditions. After making fault checks, the power ON/OFF circuit breaker must be turned off then back on to power the printer back on. Pause in the OFF position at least 3 seconds before turning the printer back on.
4. Gate is closed.
5. Gate cover is on.
6. Ribbon is properly installed.

CONDITIONS:	1	2	3	4	5	6	7
NOTE More than one fault may exist at the same time.							
1. Is the +12 V fault LED lit?	Y	N					
2. Is hammer fault LED lit?		Y	N				
3. Is H-switch fault LED lit?			Y	N			
4. Is band motor fault LED lit?				Y	N		
5. Is ribbon motor fault LED lit?					Y	N	
6. Is +36 V fuse fault LED lit?						Y	N
ACTIONS:†							
1. Replace 7PC3.	1					5	
2. Replace 2PC1.	2					6	
3. Turn 1CB1 off. Turn back on after 30 seconds.						1	
4. Perform the 36 V dc check procedure.						2	
5. Check fuse F2 on 2PC2. If it is blown, replace 2PC2.						3	
6. Check the thermal fuse and connector.						4	
7. Replace 2PC2.			1	4	2	8	
8. Check the vertical motion motor for binding. Replace as required.			2				
9. Replace the band motor.				5			
10. Clear the ribbon jam and adjust the tracking.					1		
11. Check the fault indicator LEDs on the hammer driver boards. Replace the board if the LED is illuminated.		1				7	

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

Sheet 3 of 12 (Contd)

ACTIONS (Cont'd):†	1	2	3	4	5	6	7
12. Check for a short or open circuit on the armature coil lines to the hammer cards. Replace the coil if necessary.		2					
13. Replace 7PC6.	3						
14. Replace the vertical position reader.	4						
15. Check the band for binding. Replace the band if necessary.				1			
16. Perform band tension adjustment.				3			
17. Clean platen and pulley with alcohol.				2			
18. Call next level of support.	5	3	3	6	3	9	X

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. The proper band, ribbon and format tape (CDC no. 50370404) are properly installed.
3. Press test print. Observe printer performance until printer fails or prints two full pages. Press test print again, thus making printer not ready. If print performance is acceptable, go to sheet 8.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11
1. Does a paper jam occur?	Y	N									
2. Does PAGE EJECT illuminate together with one of the following symptoms? -Paper tear -Prints 11 lines and stops -Prints 17 lines and stops -Prints 26 lines and stops -Either prints a repeatable or an unrepeatable number of lines and stops		Y	N Y	N Y	N Y	N					
3. Does the printer drop columns in repetitive patterns?						Y	N Y	N			
4. Does the printer drop columns in random pattern?								Y	N Y	N	
5. Are columns displaced?										Y	N
6. Are some columns intermittently displaced?											
ACTIONS:†											
1. Visually inspect the mylar shield. Replace if damaged.	1	1									
2. Visually inspect the tractor assembly. Replace if damaged.	2										
3. Replace the check strobe reader.			3								
4. Replace the vertical position reader.			4								
5. Replace the paper motion verification sensor.					1	4					
6. Visually inspect the pushrods. Replace if worn or damaged.							6			2	
7. Clean, visually inspect, and if necessary replace or adjust character and home pulse pickups.			5	4	4			1	1		
9. Make character and home pulse pickup adjustment on 7PC3.			6	5	5		4	2			

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ACTIONS (Contd):†	1	2	3	4	5	6	7	8	9	10	11
10. Check hammer connectors at boards.								3			
11. Replace 7PC5.							2	5			
12. Replace 7PC3.			2		3	2		6			
13. Replace 7PC2.			1	3	2	1		4			
14. Check for static problem due to improper contact between forms, static eliminator, and paper bail.								7			
15. Replace 7PC1.							5				
16. Replace hammer driver boards associated with respective columns. Refer to Field Service Manual hammer driver column reference chart.							3				
17. Adjust exit roller belt tracking and tension if exit rollers are not turning.	3										
18. Adjust paper exit ramp.	4										
19. Check drag roller position and adjust if necessary.	5	2									
20. Adjust drag roller brake shoe.	6	3									
21. If motor is not running, replace 1K01. If motor is still not running, replace 2PC2 and the motor, in that order.	7										
22. Make outer and inner paper guide adjustments.		4									
23. Visually inspect hammers, pivot pins, and plungers. Replace if damaged.							7			1	
24. Perform flight time adjustment.							1				
25. Replace 7PC6.				1		3					

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

Sheet 4 of 12 (Contd)

ACTIONS (Contd):†		1	2	3	4	5	6	7	8	9	10	11
26.	Replace the 6/8 line per inch switch.				2							
27.	Perform the 7PC3 vertical setup procedure.											
28.	Go to sheet 7.			7	6	6	5					
29.	Go to sheet 5.											X
30.	Call next level of support.	8	5					8	8	2	3	

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 4.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Does displacement of random columns occur?	Y	N							
2. Do intermittent wrong, missed, or overprinted characters occur?		Y	N						
3. Does the printer print wrong characters or garbage and skips lines?			Y	N					
4. Does the printer either print when out of paper or does the PAPER OUT light come on when not out of paper?				Y	N				
5. Does the ribbon fold or fail to move?					Y	N			
6. Does ink smear, or is print quality poor?						Y	N		
7. Do wavy print lines or random vertically displaced (up or down) characters occur?							Y	N	
8. Is repeated flight timing necessary for the same column?								Y	N
ACTIONS:†									
1. Clean, visually inspect, and if necessary replace or adjust character and home pulse pickups.		1							
2. Make character and home pulse pickup adjustment on 7PC3.		2							
3. Replace 7PC5.			3	4					
4. Replace 7PC3.		3	7	3					
5. Replace 7PC2.		·	6						
6. Replace 7PC1.		5	1						
7. Replace 5PC1, 5PC2, 5PC3, 5PC4, and check for correct jumper plug P2.		4	4						
8. Check band pully for binding.	1								

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

Sheet 5 of 12 (Contd)

ACTIONS (Contd): †		1	2	3	4	5	6	7	8	9
9.	Replace 7PC6.			2	5					
10.	Adjust P1 on 7PC3 of print is off by one or two characters either way on the band.			5						
11.	Replace PAPER OUT switch.				1					
12.	Check for correct format tape.				2					
13.	Check for programming error.									
14.	Adjust ribbon tracking.					1				
15.	Replace ribbon drive motor.					4				
16.	Replace ribbon.						1			
17.	Adjust paper clamp assembly.							1		
18.	Replace pushrod assembly.								1	
19.	Replace ribbon fold switch.					2				
20.	Replace 2PC2.					3				
21.	Perform band tension adjustment.						2			
22.	Perform band pulley height adjustment.						3			
23.	Perform band tracking adjustment.						4			
24.	Perform inner and outer paper guide adjustment.					5				
25.	Perform print quality adjustment.					6				
26.	Call next level of support.	2	6	8	6	7	5	2	2	
27.	Go to sheet 6.									X

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

Entry is made from sheet 5.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Does paper move but printer does not print?	Y	N							
2. Are entire lines of print off by one or two characters on the band?		Y	N						
3. Will printer not go to the stop mode?			Y	N					
4. Does test print button not function properly, or will printer not move paper or print in test print mode?				Y	N				
5. Are one or more data bits in the data bit pattern (ASCII) always wrong, revealed by incorrect printed characters and possibly a vertical motion error?					Y	N			
6. Does printer print a line, then skip an incorrect number of lines, continuing to print or stopping?						Y	N		
7. Press the single space button. Does printer fail to skip a space?							Y	N	
8. Does the paper exit motor continue to run after the printer goes to not ready condition?								Y	N
ACTIONS:†									
1. Replace 7PC2				2					
2. Replace 7PC5.			1	1	3	3	1		
3. Replace 5PC1, 5PC2, 5PC3, 5PC4.	3				4				
4. Replace 7PC1.	2				1				
5. Check connectors on 5PC1, 5PC2, 5PC3, 5PC4.	1					1			
6. Adjust 7PC3, P-1.		1							
7. Replace 7PC3.		2							
8. Replace 7PC6.					2	2			
9. Replace the controller board.	4								
10. Replace 1K01.								1	
11. Go to sheet 7.									X
12. Call next level of support.	5	3	2	3	5	4	2	2	

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 4 or 6.

CONDITIONS:	1	2	3	4	5
1. Does the printer stop and is the enable print cycle LED always on, without CE faults?	Y	N			
2. Does the printer stop and is the enable print cycle LED always on, with CE fault?		Y	N		
3. Does the printer stop and is the VA LED always on?			Y	N	
4. Does the printer stop with no pattern to LEDs , or are no LEDs on? (LEDs on 7PC1 and 7PC2)				Y	N
ACTIONS:†					
1. Replace 2PC2.		2	1		
2. Replace 7PC1.	2				
3. Replace 7PC2.	1	3	2		
4. Replace 7PC3.	3	1	4		
5. Replace 7PC5.			5		
6. Replace 7PC6.			3		
7. Replace the line counter board and reset the circuit breaker.	4	4	7	2	
8. Replace the control panel (6PC1).				3	
9. Check for a static problem with the paper bail and static eliminator.				1	
10. Replace vertical servo motor.			6		
11. Go to sheet 8.					X
12. Call next level of support.	5	5	8	4	

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 4 or 7.
2. Perform a Master Clear and a Deadstart with ODS Level II volume I at release level 128 or later.
   Type CONTROL and BELL simultaneously.
   Type ODS, LOAD, LP408.
   Press CARRIAGE RETURN and wait for "LP408 SUSPENDED LOAD."
3. Option Selection
   If you are testing a 132 column printer;
   Press CONTROL and BELL simultaneously.
   Type ODS,CPAR,LP408,B,184.
   Press CARRIAGE RETURN.
   Press CONTROL and BELL simultaneously.
   Type ODS,CPAR,LP408,D,84.
   Press CARRIAGE RETURN.
   If you want to test the EVFU and have installed a format tape with all channels punched;
   Press CONTROL and BELL simultaneously.
   Type ODS,CPAR,LP408,4,5678.
   Press CARRIAGE RETURN.
4. Press CONTROL and BELL simultaneously.
   Type ODS, GO, LP408.
5. Observe the console display for operator action.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does PAGE EJECT illuminate together with one of the following symptoms? • Paper jam • Paper tear • Either prints a repeatable or an unrepeatable number of lines, skips spaces, and stops.	Y	N										
2. Does printer drop columns in patterns?		Y	N									
3. Does printer print wrong characters or garbage and possibly skips lines?			Y	N								
4. Does a paper runaway occur?				Y	N							
5. Does ribbon fold or fail to move?					Y	N						
6. Does autoperf-skip not function properly, or is the bottom-of-form not recognized?						Y	N					
7. Does paper move but printer not print?							Y	N				
8. Will printer not go to the stop mode?								Y	N			
9. Are one or more data bits in the data bit pattern (ASCII) always wrong, revealed by incorrect printed characters and possibly a vertical motion error?											Y	N
ACTIONS:												
1. Visually inspect the mylar shield. Replace if damaged.	1	1										
2. Visually inspect the tractor assembly. Replace is damaged.	2											
3. Replace 7PC2.			2									

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

Sheet 8 of 12 (Contd)

ACTIONS (Contd):	1	2	3	4	5	6	7	8	9	10	11	12
4. Replace 7PC3.			3		3	3						
5. Perform flight time adjustment.				1								
6. Perfrom 7PC3 vertical setup procedure.			1									
7. Replace 7PC5.				2						1	3	
8. Replace hammer driver boards associated with respective columns. Refer to Field Service Manual hammer driver column reference chart. Check jumper P2.				3	4				1		4	
9. Clean, visually inspect, and if necessary replace or adjust character and home pulse pickups.				4	1							
10. Replace 7PC1.				5					2			
11. Visually inspect the pushrods and pivot pins. Replace if worn or damaged.					6							
12. Visually inpect the hammers and plungers. Replace if damaged.				6								
13. Make character and home pulse pickup adjustment on 7PC3.					2							
14. Replace 7PC1.					5						1	
15. Check for programming error.						1						
16. Check for correct format tape.						2		1				
17. Replace 2PC2.						4	3					
18. Replace vertical tachometer and servo motor.						5						
19. Adjust ribbon tracking if necessary.							1					
20. Replace ribbon fold switch.							2					
21. Replace ribbon drive motor.							4					
22. Perform inner and outer paper guide adjustments.							5					

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

Sheet 8 of 12 (Contd)

ACTIONS (Contd):		1	2	3	4	5	6	7	8	9	10	11	12
23.	Perform print quality adjustments.							6					
24.	Replace 7PC6.								2			2	
25.	Check hammer driver board connectors.									3			
26.	Replace the controller board.									4			
27.	If paper is jammed at the exit rollers, check if exit motor is running. If motor is still not running, replace 2PC2 and the motor, in that order.	3											
28.	Adjust exit roller belt tracking and tension if exit rollers are not turning.	4											
29.	Adjust paper exit ramp.	5											
30.	Check drag roller position and adjust if necessary.	6	2										
31.	Adjust drag roller brake shoe.	7	3										
32.	Replace 1K01.	8											
33.	Make inner and outer paper guide adjustments.		4										
34.	Call next level of support.	9	5		7	7	6		3	5	2	5	
35.	Go to sheet 9.			4				7					X

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 8.

CONDITIONS:	1	2	3	4	5
1. Does the printer not respond to the processor and do the hammers or the paper not move?	Y	N			
2. Does the printer print a line, then skip an incorrect number of lines, continuing to print or stopping?		Y	N		
3. Does printer stop with the input cycle LED on 7PC1 is always on?			Y	N	
4. Does printer stop with no pattern to the LEDs on 7PC1 and 7PC2?				Y	N
ACTIONS:					
1. Replace 7PC5.	1	3	2		
2. Check connectors on hammer driver boards.		1			
3. Replace 7PC6.		2			
4. Replace 7PC1.			1		
5. Check for static problem with paper bail and the static eliminator.				1	
6. Replace the line counter board and reset the circuit breaker.				2	
7. Replace the control panel.				3	
8. Go to sheet 10.	2	4	3	4	X

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 9.

CONDITIONS:	1	2	3	4
1. Is LP408 TERMINATED displayed without action codes?	Y	N		
2. Are the action codes displayed?		Y	N	
3. Is RUN on the CPU operators panel illuminated?			Y	N
ACTIONS: †				
1. Refer to the LP408 diagnostic error code explanation on sheet 11 of this table.		2		
2. Repeat loadcheck and restart the test.			1	
3. Go to the Loader Fault DDLT in the processor manual.			2	X
4. Verify the equipment code and interrupt assignments according to tables 4-4 and 4-5.		1		
5. Go to sheet 12.	X			

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 10.
2. Observe the action codes.

CONDITIONS:	1	2	3	4	5
Does the screen display:					
1. 1211, 1221, 1224, 1231, 1241, 1244, or 1251?	Y	N			
2. 1254 (BDBT = 0021, 0022)?		Y	N		
3. 1254 (busy error, BDBT = 0012)?			Y	N	
4. 1254 (parity error), 1271 (BDBT = 0041, 0042)?				Y	N
ACTIONS: †					
1. Replace 7PC1.		3	1		
2. Replace 7PC2.			2		
3. Replace 7PC5.	1	1	3	1	
4. Replace 7PC6.		2			
5. Replace 5PC1, 5PC2, 5PC3, 5PC4.		4			
6. Call next level of support.	2	5	4	2	
7. Go to sheet 12.					X

† Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-3. CT106 LINE PRINTER DDLT (Contd)

ASSUMPTIONS:

1. Entry is made from sheet 10 or 11 of this table.
2. Refer to the sample printouts in table 6-4.

CONDITIONS:	1	2	3	4	5
1. Did the printer print pages exactly like the sample (table 6-4.	N	Y			
2. Was section 8 selected?		N	Y		
3. Check the number of lines skipped between each line printed. Was the sequence of successive lines skipped 1, 2, 4, 8, 16, 32, 63?			N	Y	
4. Check the number of lines skipped between each line printed. Were all 12 channels exercised according to the format tape?				N	Y
ACTIONS: †					
1. Check the cabling between the line printer and the processor.	1				
2. Replace the controller logic (refer to the board/logic replacement procedure in the processor manual).	2				
3. Replace 7PC5.	3		2		
4. Replace 7PC6. Refer to the replacement procedure.			1	1	
5. Check for the proper format tape.				2	
6. ODS LP408 is complete. If a problem still exists, call the next level of support.	4	X	3	3	X

†Refer to the reference and field service manual listed in the preface for adjustment and replacement procedures.

TABLE 6-4. PRINTOUT ANALYSIS OF LINE PRINTER DIAGNOSTIC

Sheet 1 of 12

```
TOP OF FORM - SECTION 2
         1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456
ARDHP ARDHP ARDHP ARDHP
 ARDHP ARDHP ARDHP ARDHP                                                                                                  PHDBA PHDRA PHDBA PHDRA
  ARDHP ARDHP ARDHP ARDHP                                                                                                 PHDBA PHDRA PHDBA PHDRA
   ABDHP ARDHP ARDHP ARDHP                                                                                                PHDRA PHDRA PHDRA PHDBA
    ARDHP ARDHP ARDHP ARDHP                                                                                               PHDRA PHDRA PHDPA PHDRA
     ARDHP ARDHP ARDHP ARDHP                                                                                              PHDBA PHDRA PHDRA PHDBA
      ABDHP ARDHP ARDHP ABDHP                                                                                             PHDRA PHDBA PHDRA PHDRA
       ABDHP ARDHP ARDHP ARDHP                                                                                            PHDRA PHDRA PHDBA PHDRA
        ABDHP ARDHP ARDHP ARDHP                                                                                           PHDBA PHDRA PHDBA PHDRA
         ARDHP ARDHP ARDHP ARDHP                                                                                          PHDRA PHDRA PHDRA PHDRA
          ABDHP ARDHP ARDHP ABDHP                                                                                         PHDRA PHDBA PHDRA PHDBA
           ARDHP ARDHP ARDHP ARDHP                                                                                        PHDRA PHDBA PHDRA PHDPA
            ARDHP ARDHP ARDHP ARDHP                                                                                       PHDRA PHDRA PHDBA PHDBA
             ARDHP ARDHP ARDHP ARDHP                                                                                      PHDRA PHDRA PHDRA PHDBA
              ABDHP ARDHP ARDHP ARDHP                                                                                     PHDRA PHDRA PHDBA PHDBA
               ABDHP ARDHP ARDHP ABDHP                                                                                    PHDRA PHDBA PHDBA PHDBA
                ABDHP ABDHP ARDHP ARDHP                                                                                   PHDRA PHDBA PHDBA PHDBA
                 ARDHP ARDHP ABDHP ARDHP                                                                                  PHDRA PHDRA PHDBA PHDBA
                  ARDHP ARDHP ARDHP ARDHP                                                                                 PHDRA PHDRA PHDRA PHDBA
                   ARDHP ARDHP ABDHP ARDHP                                                                                PHDRA PHDRA PHDRA PHDRA
                    ARDHP ARDHP ARDHP ARDHP                                                                               PHDBA PHDRA PHDBA PHDBA
                     ABDHP ARDHP ARDHP ARDHP                                                                              PHDRA PHDRA PHDRA PHDRA
                      ABDHP ABDHP ARDHP ARDHP                                                                             PHDRA PHDRA PHDBA PHDRA
                       ABDHP ABDHP ARDHP ARDHP                                                                            PHDRA PHDRA PHDBA PHDBA
                        ABDHP ARDHP ARDHP ABDHP                                                                           PHDRA PHDRA PHDRA PHDRA
                         ARDHP ABDHP ARDHP ARDHP                                                                          PHDBA PHDRA PHDRA PHDRA
                          ARDHP ARDHP ARDHP ARDHP                                                                         PHDRA PHDRA PHDRA PHDBA
                           ARDHP ARDHP ARDHP ARDHP                                                                        PHDBA PHDRA PHDRA PHDBA
                            ABDHP ARDHP ARDHP ARDHP                                                                       PHDRA PHDRA PHDRA PHDRA
                             ARDHP ARDHP ARDHP ABDHP                                                                      PHDRA PHDRA PHDRA PHDRA
                              ARDHP ARDHP ARDHP ARDHP                                                                     PHDRA PHDBA PHDRA PHDBA
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PHDBA PHDBA PHDBA PHDBA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA
ABDHP ARDHP ARDHP ABDHP
PHDRA PHDRA PHDRA PHDRA
ABDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDBA PHDBA PHDBA
ABDHP ARDHP ARDHP ARDHP
PHDRA PHDBA PHDBA PHDBA
ABDHP ABDHP ARDHP AHDHP
PHDRA PHDRA PHDRA PHDRA
ARDHP ARDHP ARDHP ARDHP
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ARDHP ARDHP AHDHP ARDHP
PHDRA PHDRA PHDRA PHDRA
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PHDRA PHDRA PHDRA PHDBA
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PHDRA PHDRA PHDRA PHDBA
ARDHP ABDHP AHDHP ARDHP
PHDBA PHDRA PHDBA PHDBA
ABDHP ABDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDBA
ARDHP ARDHP ARDHP ABDHP
PHDRA PHDRA PHDRA PHDBA
ARDHP ABDHP ARDHP ABDHP
PHDBA PHDRA PHDRA PHDRA
ARDHP ARDHP ARDHP ARDHP
PHDHA PHDRA PHDRA PHDRA
ABDHP ABDHP ARDHP AHDHP
PHDRA PHDRA PHDBA PHDBA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDBA PHDRA PHDRA
ABDHP ARDHP ARDHP AHDHP
PHDHA PHDRA PHDRA PHDRA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA
ABDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDBA
ARDHP ARDHP AHDHP AHDHP
PHDRA PHDRA PHDRA PHDRA
ARDHP AHDHP AHDHP ARDHP
PHDRA PHDRA PHDRA PHDBA
ARDHP AHDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDBA
ARDHP ARDHP ARDHP AHDHP
PHDHA PHDRA PHDRA PHDRA
ARDHP ARDHP ARDHP ARDHP
PHDHA PHDRA PHDRA PHDRA
ARDHP ARDHP AHDHP AHDHP
PHDHA PHDRA PHDHA PHDRA
AHDHP AHDHP AHDHP AHDHP
PHDRA PHDRA PHDHA PHDRA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDHA PHDHA PHDRA
AHDHP ARDHP ARDHP ARDHP
PHDRA PHDHA PHDHA PHDHA
ARDHP AHDHP ARDHP ARDHP
PHDRA PHDRA PHDHA PHDHA
ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA
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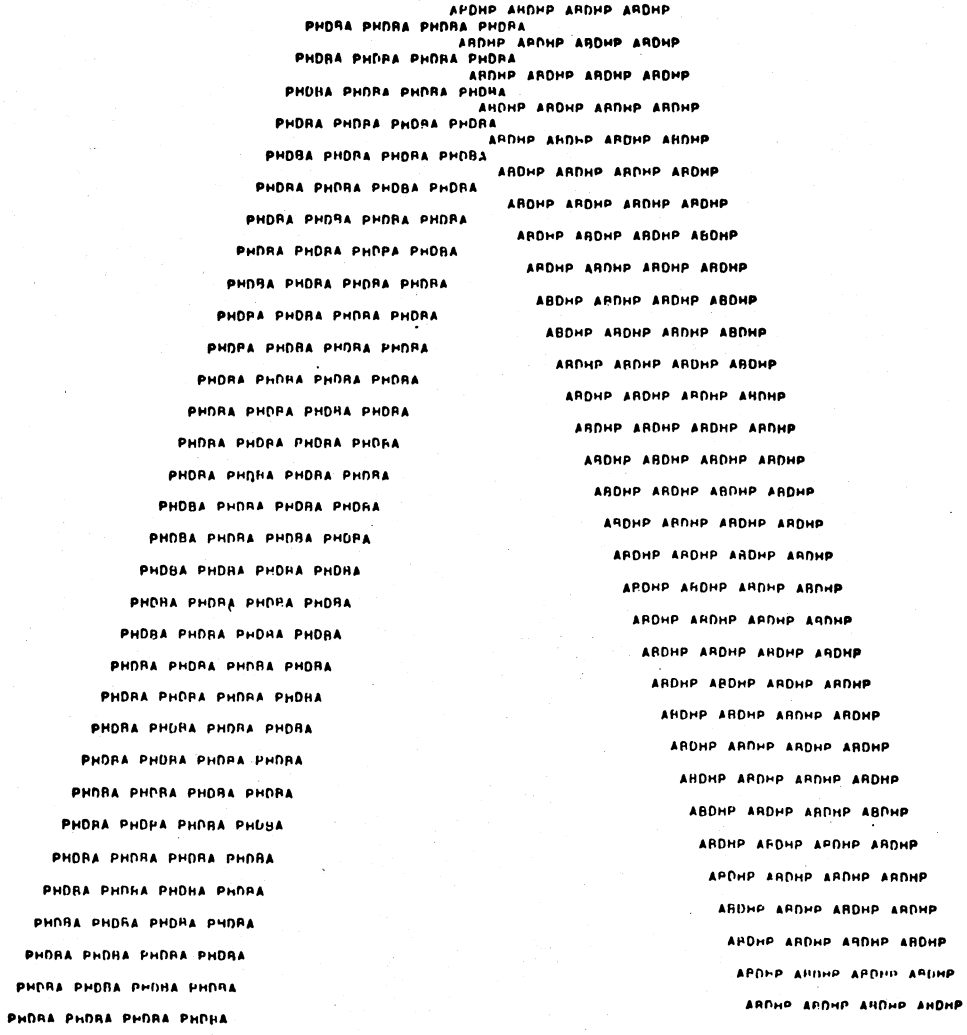
TABLE 6-4. PRINTOUT ANALYSIS OF LINE PRINTER DIAGNOSTIC (Contd)

Sheet 3 of 12



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PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDHP
HDRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARDH
DRA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP ARD
RA PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP AR
A PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP A
PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP
PHDRA PHDRA PHDRA	ARDHP ARDHP ARDHP
HDRA PHDRA PHDRA	ARDHP ARDHP ARDH
DRA PHDRA PHDRA	ARDHP ARDHP ARD
RA PHDRA PHDRA	ARDHP ARDHP AR
A PHDRA PHDRA	ARDHP ARDHP A
PHDRA PHDRA	ARDHP ARDHP
PHDRA PHDRA	ARDHP ARDHP
HDRA PHDRA	ARDHP ARDH
DRA PHDRA	ARDHP ARD
RA PHDRA	ARDHP AR
A PHDRA	ARDHP A

Continued next page

TABLE 6-4. PRINTOUT ANALYSIS OF LINE PRINTER DIAGNOSTIC (Contd)

PHDRA	ARDHP
PHDRA	ARDHP
HDRA	ARDH
DRA	ARD
RA	AR
A	A

Continued next page

TABLE 6-4. PRINTOUT ANALYSIS OF LINE PRINTER DIAGNOSTIC (Contd)


```
TOP OF FORM - SECTION 3
      SINGLE  SPACE
      SINGLE  SPACE
      SINGLE  SPACE
      SINGLE  SPACE

      DOUBLE  SPACE

      DOUBLE  SPACE

      DOUBLE  SPACE

      DOUBLE  SPACE


      TRIPLE  SPACE


      TRIPLE  SPACE


      TRIPLE  SPACE


      TRIPLE  SPACE
      SUPPRESS SPACE -1234









   BOTTOM OF FORM
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TABLE 6-4. Sheet 7 Deleted

TABLE 6-4. Sheet 8 Deleted

```
 TOP OF FORM - SECTION 4
          1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ !"#$%&'
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_ !"#$%&'()
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TABLE 6-4. PRINTOUT ANALYSIS OF LINE PRINTER DIAGNOSTIC (Contd)


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PROCEDURES

For detailed information on band line printer installation and replacement procedures, refer to the reference and field service manual listed in the preface.

To install or replace the controller, perform the following:

1. The printed wiring assembly may be installed while the system power is still on; however, it is a good practice to turn the processor power off while inserting the board (refer to the processor manual listed in the preface).

2. Open the panel of the processor cabinet.

3. Remove the processor cover plate by rotating the captive fasteners counterclockwise.

4. The controller printed wiring assembly is located in the chassis (refer to the board (logic) replacement procedure in the processor manual).

5. Using the extractor tool, remove the printed wiring assembly from the chassis.

6. Before installing the new printed wiring assembly, verify that the switches are set up to correspond to the normal operating positions shown in section 4.

7. Position the board in its assigned location with proper orientation of the component side.

8. Seat the board into the backpanel connector by applying firm thumb pressure at the upper and lower corners of the board.

9. Replace the extractor tool and the panels. Turn on the power (refer to the processor manual listed in the preface) and execute the diagnostic tests.

Table 7-1 lists the replaceable assemblies and their part numbers for the band line printer subsystem.

TABLE 7-1. PARTS DATA FOR LINE PRINTER

Assembly	Equipment No.	Spare Part	Part No.
Line printer†	CT103-A/B CT105-B CT106-A	Refer to the reference and field service manual and the parts identification manual listed in the preface.	
CR/LP controller	FH301-A	Printed wiring assembly	88788600
		Cable assembly, line printer	88894600 or 96870921 or 96870925††
CR/LP/CLA controller	FC109-A	Printed wiring assembly	89600188
		Cable assembly, line printer	88894600 or 96870921 or 96870925††
		Cable interface, paddle board	96751075 or 96870450†††
CR/LP/CLA controller	FC539-A	Printed wiring assembly	96870400
		Cable interface, paddle board	96751075 or 96870450†††
	FC539-B	Printed wiring assembly	96870400
		Cable interface, paddle board	96870450

†Prior to system installation, it is recommended that the customer order a spare printer band, part number 95461811.

Print Paper: 1 to 4 part forms - use utility grade or better

5 to 6 part forms - use premium grade paper, such as standard register stock number 1471 or equivalent.

††FCC EMI qualified

†††Preferred part

COMMENT SHEET

MANUAL TITLE CDC® CT103, CT105, CT106, FC109, FC539, FH301 Line Printer Subsystem

Field Repair Guide

PUBLICATION NO. 60475033 REVISION R

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