CONTROL DATA CORPORATION

CDC® CYBER 18- COMPUTER SYSTEMS

MAINTENANCE
DDLTs

Volume 2 of 3

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HARDWARE MAINTENANCE MANUAL

96768682

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Volume 2 of 3

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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 thru	
viii	03
6-1/6-2	03
6-3 thru	
6-8	01
6-9/6-10	04
6-11 thru	
6-18	02
6-19	01
6-20	04
6-21/6-22	03
6-23/6-24	01
6-25 thru	
6-26.4	04
6-27/6-28	02
6-29 thru	
6-44	01
6-45/6-46	04
6-47 thru	
6-50	02
6-51	01
6-52 thru	
6-54	04
6-55 thru	
6-68	01
6-69	02
6-70/6-71	04
6-72 thru	
6-97	01
6-98	04
6-99 thru	
6-102	01
6-103	04
6-104	01
6-105 thru	
6-109	04
6-110/6-111	01
6-112	04
6-113 thru	
6-115	01
6-116 thru	
6-119	04
6-120	01
6-121	04
6-122	01
6-123 thru	
6-128	04
6-129	01
6-130 thru	
6-132	04
6-133 thru	
6-170	01
6-171	03
6-172 thru	
6-172.3	04
6-172.4	02
6-173	04
6-174	03
6-175	01
6-176	04
6-177/6-178	02
6-179	01
6-180	04
6-181 thru	
6-184	02
6-185 thru	
6-188	01
6-189 thru	
6-193	04
6-194	02
6-195 thru	
6-203	03
6-204	04
6-205 thru	
6-214	03
6-214.1 thru	
6-216.2	04
6-217 thru	
6-222	01
6-223/	
6-224	02
6-225	04
6-226 thru	
6-231	02
6-232 thru	
6-232.22	04
6-233 thru	
6-244	02
6-245	04
6-246	02
6-247 thru	
6-252	03
6-253/	
6-254	02
6-255 thru	
6-280	03
6-281	04
6-282/	
6-283	03
6-284	04
6-285 thru	
6-289	03
6-290	04
6-292	04
6-293 thru	
6-298	03
6-299/	
6-300	04
Comment Sheet	
Cover	

PAGE	REV

PAGE	REV

PAGE	REV

PREFACE

This manual provides general information maintenance of the CDC® CYBER 18 Computer Systems. The CYBER 18 System consists of a 1700 enhanced micro-programmable processor with controllers and peripheral options. This manual supports maintenance of the CYBER 18-20 System and the CYBER 18-30 Timeshare System only and is applicable only to systems having a minimum configuration of a MOS processor, card reader or cassette, and a console display.

This manual contains information to aid maintenance personnel in carrying out onsite maintenance activities. Volume 1 contains overall system introductory material, and volume 2, publication no. 96768682 and volume 3, publication number 96768683 contain detailed system maintenance information. The maintenance approach is to fault isolate using the diagnostic decision logic tables (DDLTs) contained in volume 2, and to make repairs through the use of corrective procedures. Corrective action is accomplished by exchanging replaceable subassemblies rather than replacing components. When repair cannot be accomplished by exchanging a replaceable subassembly, a support customer engineer and additional documentation, including volume 2, is required

The publications listed below provide more detailed information of each equipment comprising the CYBER 18 System:

Equipment	Title	Publication Number
MOS Micro Processor	CYBER 18 MOS Memory Processor Reference Manual	96768300
	CYBER 18-05/10/20/30 Site Preparation Manual	96728500
	CYBER 18 Computer Systems Installation Manual	39451500
	MOS Memory and Interface Hardware Maintenance Manual	96768600
	DE402-A 1700 Transform with Micro Memory Hardware Maintenance Manual	96728700
	GD122-B, GD122-E, XA148-A Power Supply System Hardware Reference/Maintenance Manual	96729200
Card Reader	CB104/105/106, CB202/203 Card Reader Hardware Reference/Maintenance Manual	49757900
	FH301-A Card Reader/Line Printer Controller Hardware Reference/Maintenance Manual	96728800
Line Printer	Line Printer Reference Manual	59709100
	FH301-A Card Reader/Line Printer Controller Hardware Reference/Maintenance Manual	96728800
	Line Printer Field Service Manual, Volume 1	91858400
	Line Printer Field Service Manual, Volume 2	91858500
	Line Printer Parts Identification Manual	91859100
Console Display	92450 Terminal Subsystem Hardware Maintenance Manual	62961200
	92450 Terminal Subsystem Operators Guide	62961400
	CC555 HMM	62957400
	CW212-A I/O-TTY Controller Hardware Maintenance Manual	96728900
PBS Printer	CT104 HMM	95445060
Matrix Printer	Printer HMM	95445028
	Printer RS232 I/F	95445069
Cartridge Disk Drive	FA111 Controller	89601485
	BR704 Drive	77834675

Equipment	Title	Publication Number
Magnetic Tape Transport	FA464 Controller HMM	89600866
	LCTT Reference Manual	49756300
	DZ101 Formatter HMM	49760400
	Magnetic Tape Transport Reference/Maintenance Manual	49756400
	FA107-A Magnetic Tape Controller Hardware Reference/ Maintenance Manual	96728600
	Magnetic Tape Transport Field Service Manual	49756900
	Magnetic Tape Transport Parts Identification Manual	49756500
Communications Line Adapter	FJ441-A Dual-Channel Communications Line Adapter Hardware Reference/Maintenance Manual	39452000
	GH508-A Basic Operators Panel Hardware Reference/ Maintenance Manual	39451800
	Communications Handbook	60405100
Breakpoint Panel	Breakpoint Controller and Breakpoint Panel Hardware Maintenance Manual	96729000
Tape Cassette Transport	FA104-A Tape Cassette Controller Hardware Reference/ Maintenance Manual	96711900
Software/ Diagnostics	Operational Diagnostic System (ODS) Reference Manual	96764410
	Instant Operational Diagnostic System (ODS)	39451600
Storage Module Drive	BJ701/BJ7B1 Storage Module Drive Hardware Reference Manual	83317300
	BJ701/BJ7B1 Storage Module Drive Hardward Maintenance Manual	83311300
	GB138-A Storage Module Drive Interface Hardware Reference/Maintenance Manual	96761300
Storage Module Control Unit	FA7A8/FA727 Storage Module Drive Controller/ Formatter Hardware Maintenance Manual	83312400
Flexible Disk Drive	Flexible Disk Drive Field Service Manual	75736120
	FA730-A Flexible Disk Drive Controller Hardware Reference/Maintenance Manual	96768800
	Product Specification for FDD Disk Cartridge	75270400
	9400 Flexible Disk Drive Format Compatibility	75735700
All Equipment	CYBER 18-20/30 Computer Systems Hardware Maintenance Manual, Volume 1	96768681
	CYBER 18-20/30 Computer Systems Hardware Maintenance, Manual, volume 3	96768683
	CYBER 18 Compuer Systems Installation Manual	39451500

CONTENTS

VOLUME 1

VOLUME 2

TABLES

VOLUME 2 (Cont.)

FIGURES

VOLUME 3

This section provides procedures to identify and isolate equipment malfunctions in a replaceable assembly. It also lists corrective actions in step-by-step procedures and, where applicable, indicates required preventive maintenance. The main diagnostic tools used in this section to detect and correct equipment malfunctions are the diagnostic decision logic tables (DDLTs).

This section is divided into subsections that deal with each equipment in the CYBER 18-20/30 Timeshare System. The codes used to identify each subsection are as follows:

Subsection	Equipment
6A	Processor, equipment cabinet, and operators panel
6B	Breakpoint panel and controller
6C	Communications line adapter
6D	Card reader and controller
6E	Console display (conversational display terminal) and controller
6F	Line printer and controller
6G	Magnetic tape transport and controller
6H	Tape cassette transport and controller
6J	Storage module drive, drive interface, and control unit
6K	Flexible disk drive and controller
6L	Keyboard display terminal
6M	Communication Multiplexer
6N	1x8 Channel communications line adapter
6P	CT104 Matrix Printer
6Q	Cartridge Disk Drive
6R	Magnetic tape transport
6S	Card reader/line printer/ communication line adapter
6T	PBS Printer

Figure 6-1 shows the arrangement of the diagnostic and corrective maintenance information throughout this section.

ON-SITE SERVICE APPROACH

1. Before going to the customer's site, the customer engineer should be sure he has the necessary documentation and should know what spare parts may be required at the site.

2. Upon arriving at the customer's site, the customer engineer should talk to the customer contact to ottain as much information as possible about the nature of the system failure. The customer engineer should find out whether or not the customer can identify specifically what is wrong with the system.

3. Regardless of how the customer describes the malfunction, the customer engineer should always check that all cables are connected securely and check that all printed circuit boards are properly seated in the processors.

4. If the malfunction is in a peripheral unit, the customer engineer should first run the DDLT tests in tables 6-3 and 6-4 and then proceed to test the known bad device (see table 6-5) This is illustrated by figure 6-2. If a fault exists but the customer cannot identify what is wrong, then a complete system verification test should be run. This is accomplished by running all DDLTs in sequence as illustrated in figure 6-3.

5. Whenever there are multiple devices on a subsystem (more than one magnetic tape transport or storage module drive), start at the beginning of the respective table to test these units. If all devices are tested, then go to the next table in sequence. If card decks are the load media, the deck must be reinserted in the card reader and made ready by pressing RESET. If the tape cassette drive is used, lift the lid and tnen close it. The operator must then wait for the cassette READY light to illuminate before continuing. For either device, begin at the start of the particular device table and continue normally.

   If a device does not exist on a system, ignore that DDLT and go to the next table.

   The expected execution time for each diagnostic (assuming there are no problems) is shown in table 6-1.

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

7. After testing is complete, the customer engineer should perform any required preventive maintenance as described in table 6-2. Be sure to leave all switches used during testing set to the proper position for customer use of the system.

8. Finally, before leaving the customer site, the customer engineer should talk to the customer contact and, more importantly, never leave the site without first receiving assurance that the customer is satisfied.

PREVENTIVE MAINTENANCE

Preventive maintenance is a scheduled maintenance routine performed to keep the equipment operating at its optimal level. The maintenance index (table 6-2) describes the time interval of preventive maintenance activity for specific equipments in a typical CYBER 18 Computer System.

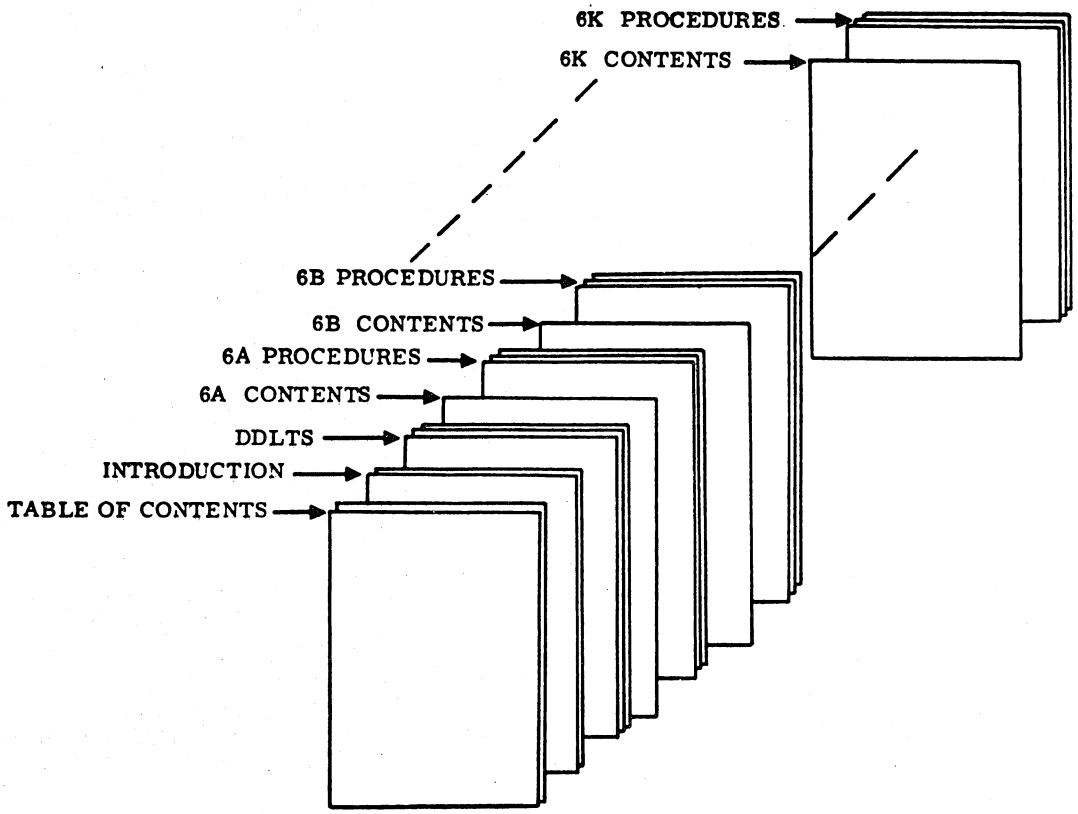

Figure 6-1. Organizational Structure of Section 6

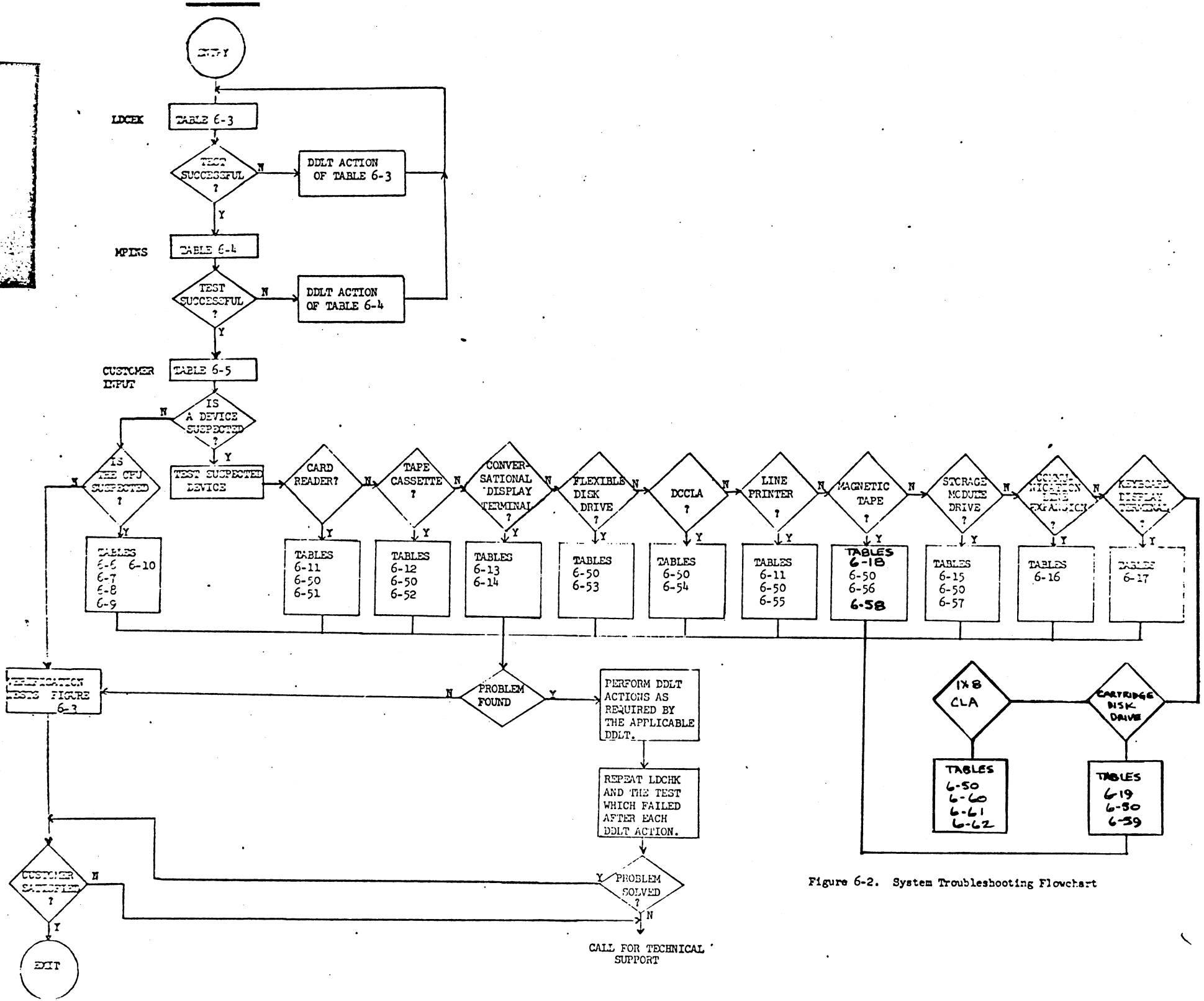

Figure 6-2. System Troubleshooting Flowchart

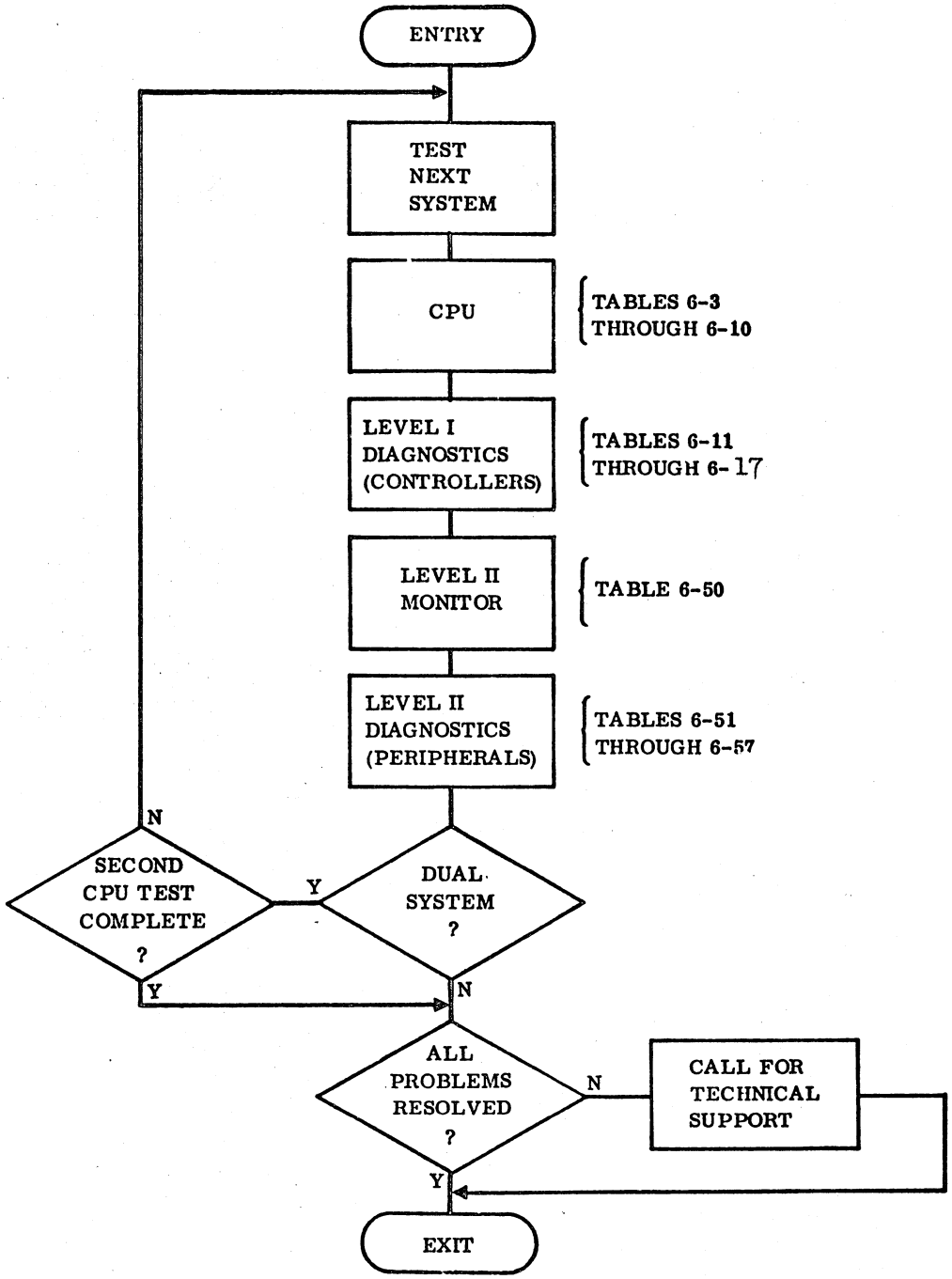

Figure 6-3. Flow Chart for System Verification Test Sequence

TABLE 6-1. DIAGNOSTIC/DDLT EXECUTION TIMES

DDLT Name	DDLT Table Number	Test Time (Minutes)	Timeshare System Verification Run Time (Minutes)
Loadcheck	6-3	5	10
Command	6-4	3	6
Customer Input	6-5	1	1
MOS Main Memory	6-6		46
16K		7	
65K		19	
96K		27	
131K		35	
Memory Protect and Interrupt System	6-7	5	10
Micro Memory	6-8	5	5
MOS Memory Paging File Test	6-9	5	10
Dual CPU	6-10	5	5
Card Reader/Line Printer Controller Echo Test	6-11	1	1
Tape Cassette Echo	6-12	2	2
Conversational Display Terminal Off-Line Test	6-13	5	5
Conversational Display Terminal Diagnostic	6-14	10	10
Storage Module Drive	6-15	10	10
Communication Multiplexer Off-Line Test	6-16	3+1 min. per card	19
Keyboard Display Terminal Diagnostic Test	6-17	10	10
Total level I			2 hours, 29 minutes
Level II Monitor	6-50	1	1
Card Reader	6-51	5	5
Tape Cassette	6-52	5	10
Flexible Disk Drive	6-53	6	
Communications Line Adapter Diagnostic	6-54	5	5
Line Printer	6-55	10	10
Magnetic Tape Transport	6-56	3 plus 10 per drive	23
Storage Module Drive Level II	6-57	10	10
Total level II			64 minutes
MST 41			20
Total			3 hours, 53 minutes

TABLE 6-2. PREVENTIVE MAINTENANCE PLAN FOR CYBER 18 PROCESSOR

Equipment	Level† 1	2	3	4	5	Action	Procedure	Time Required (Minutes)
Processor	X					Visual inspection	A1	15
		X				Clean fan filter	A2	10
		X				Check fans	A5	15
Breakpoint panel		X				Visual inspection and removal of accumulated dust from panel surfaces	None	2
Communications line adapter						None required		
Card reader	X					Visual inspection	D19 (step 2)	3
		X				Inspection/cleaning	D19	15
			X			Vacuum inside card reader	None	10
				X		Throat gap setting, check	D23	30
				X		Head skew check	D18	40
				X		Drive belt inspection	D30	20
				X		Timing disk inspection	D29	45
Console display		X				Visual inspection and removal of dust accumulation from keyboard and exposed surfaces	None	2
Line printer	X					Inspection/cleaning	F3	15
		X				Print drum cleaning	F4	30
			X			Lubrication	F5	15
Magnetic tape transport	X					Inspection/cleaning	G1	15
			X			Blower check	G14	20
		X				Operators panel light bulb check	G22	15
Tape cassette transport		X				Cleaning	B4††	10
					X	Lubrication	B3††	15
Storage module drive				X		Actuator assembly inspection	J6	2
				X		Power supply voltage test	J21	5
				X		Shroud and spindle cleaning	J8	5
				X		Lockshaft cleaning/lubrication	J9	5
				X		Carriage rails and bearings cleaning	J7	5
					X	Absolute filter replacement††	J5	20
		X				Control unit air filter cleaning	J32	10
Flexible disk drive				X		Read/write head cleaning	K8	30
Keyboard display terminal		X				Visual inspection and removal of dust accumulation from keyboard and exposed surfaces	NONE	2
		X						
Communication Multiplexer	X					Visual inspection	L16	10
		X				Clean fan filters	L17	5
		X				Check fans	L18	5

†Level 1 – Before power-up after sustained shutdown
Level 2 – 150 hours or weekly
Level 3 – 700 hours or monthly
Level 4 – 2100 hours or quarterly
Level 5 – 6000 hours or annually

††May require more or less frequent replacement depending upon the environmental conditions.

DESCRIPTION OF DIAGNOSTIC DECISION LOGIC TABLES (DDLTs)

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 6-4).

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 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 6-4 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 6-4, 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.

Periodically throughout the DDLTs and procedures, reference is made to level I or level II diagnostics. Level I diagnostics are those DDLTs whose table numbers are smaller than 6-50 and level II diagnostics are tables numbered 6-50 and larger.

USER NOTES

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

- 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 circuit boards may be removed from or installed in the processor with the power on.
- Do not press any key on the console display while diagnostic card decks are being loaded.

Whenever the ESC key on the console display terminal is pressed, the computer is placed into panel mode. This prevents further messages from being displayed on the console display. 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.

Any accidental pressing of characters on the console display may result in the KEYBOARD LOCK and ALERT lights on the display illuminating. If this occurs, the BREAK key must be pressed to continue.

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 D1).
4. Ensure card reader is not ready by pressing RESET.

① → ②

CONDITIONS:	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		1	
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 D9). Replace if required (procedure D10).				3	2	2	2		4	
6. Check +17-volt power supply (procedure D6).								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 D9).							1			

RESPONSES

SEQUENCE OF ACTIONS

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

Figure 6-4. Example of a Diagnostic Decision Logic Table (DDLT)

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 console display.
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 card deck will load.
4. Reload the test deck and return to the DDLT (sheet 1) of the device under test.

NOTE

If step 2 above cannot be performed, restart the diagnostic at table 6-3.

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. xx = 01 Invalid command mnemonic 02 Third field must be entered
ODS ERROR xx (contd)	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 parameter data input 11 Available memory has been exceeded 12 Test not found on Library unit.
	Re-enter the command correctly.
OV	Level II tests. An overflow of the monitor's volatile core has occurred. Reload the system.
PE	Level II tests. A macro core 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.

DIAGNOSTIC DECISION LOGIC TABLES

Tables 6-3 through 6-103 are the diagnostic decision logic tables (DDLTs) for the CYBER 18-20/30 Timeshare Computer System.

† Level II tests are diagnostic programs that run under the ODS monitor and are loaded by table 6-50. These are programs with table numbers of 6-50 are larger.

ASSUMPTIONS:

1 - System is plugged into power outlet
2 - CDT is plugged into power outlet
3 - Power is turned on at each device

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Is this a CYBER 18-10M or CYBER 18-20 system?	Y	N										
2 - Is this a CYBER 18-30 Timeshare system		Y	N									
ACTIONS:												
1 - Go to sheet 2 of this Table	X											
2 - Go to sheet 3 of this Table		X										
3 - This Hardware Maintenance Manual is applicable only to the CYBER 18-10M CYBER 18-20, or CYBER 18-30 Timeshare systems. Use the correct manual for the system under test.			X									

[redacted]

ASSUMPTIONS

1 - Entry is made from sheet 1 of this table.
2 - This is a CYBER 18-10M or CYBER 18-20 system.
3 - MASTER CLEAR on operators panel is pressed.
4 - CLEAR key on keyboard is pressed to master clear the display (If KEYBOARD LOCK indicator is illuminated, press BREAK key to unlock)
5 - The following is entered at the keyboard
ESC key is pressed.
J58G is typed in.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1- Did CDT screen clear when CLEAR key on the keyboard was pressed?	Y							N				
2- Does the CDT display: J000008x0 or J000008x8	Y	N										
Jxxxxxxx1		Y	N									
Jxxxxxxx2			Y	N								
Jxxxxxxx4				Y	N							
Jxxxxxx8x					Y	N						
Jxxxxxxxx or *Jxxxxxxxx						Y	N					
Where x may equal any number												
ACTIONS:												
1 - Go to sheet 4 of this table	X											
2 - Replace ALU, slot M.		1	7	7	5	6	3					
3 - Replace panel interface, slot U		2	6	5	3	2	9					
4 - Replace SMI, slot L.		3	8	8	4	7	8					
5 - Replace transform, slot R.		4	1	1	6	5	6					
6 - Replace memory interface, slot V.		5	2	2	9	10	10					
7 - Replace memory interface, slot W.		6	3	3	10	11	11					
8 - Replace control 1, slot P.		7	9	9	1	4	4					
9 - Replace Control 2, slot N.		8	10	10	7	3	5					
10 - Replace memory , slot X		9	5	6	8	9	12					
11 - Replace I/O - TTY, slot K		10	4	4	2	8	7	3				
12 - Go to table 6-101		11	11	11	11	12	13					

	1	2	3	4	5	6	7	8	9	10	11	12
ACTIONS (Continued):												
13. Verify the power supplies (Procedures A7, A9, & A11)							2					
14. Ensure shiftlock on keyboard is released. Restart this page.						1						
15. Check cabling to operator's panel and multiplexer (figure 5A-2 and 5A-3).								1				
16. Replace operator's panel board (procedure A20)								4				
17. Run CDT off-line test: Table 6-13 if CDT is a CC614; if CDT is a CC555, go to Table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.							1	2				
18. Call next level of support.								5				

ASSUMPTIONS:

1 - Entry is made from Sheet 1 of this table.
2 - This is a CYBER 18-30 Timeshare system.
3 - CPU to be tested is selected by pressing PANEL SELECT on operator's panel.
4 - Tests are preformed first on CPU 1. After completion of all Level I tests on CPU 1, tests must be performed on CPU 2.
5 - MASTER CLEAR on operators panel is pressed
6 - CLEAR key on keyboard is pressed to master clear the display. (If KEYBOARD LOCK indicator is illuminated, press BREAK key to unlock).
7 - The following is entered at the keyboard:
ESC key is pressed.
J58G is typed in.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Can CPU be selected as in assumption 3	Y								N			
2 - Did CDT screen clear when CLEAR key on the keyboard was pressed?	Y							N				
3 - Does the CDT display J000008x0 or J000008x8	Y	N										
Jxxxxxxx1		Y	N									
Jxxxxxxx2			Y	N								
Jxxxxxxx4				Y	N							
Jxxxxxx8x					Y	N						
Jxxxxxxxx or *Jxxxxxxxx						Y	N					
where x may equal any number												
ACTIONS:												
1 - Go to sheet 4 of this table.	X											
2 - Replace ALU, slot M		1	7	7	5	6	3					
3 - Replace panel interface, slot U		2	6	5	3	2	9					
4 - Replace SMI, slot L.		3	8	8	4	7	8					
5 - Replace transform, slot R		4	1	1	6	5	6					
6 - Replace memory interface, slot V		5	2	2	9	10	10					
7 - Replace memory interface, Slot W.		6	3	3	10	11	11					
8 - Replace control 1, slot P.		7	9	9	1	4	4					
9 - Replace control 2, slot N.		8	10	10	7	3	5					
10 - Replace memory, slot X.		9	5	6	8	9	12					
11 - Replace I/O TTY, slot K.		10	4	4	2	8	7	4				
12 - Go to table 6-101.		11	11	11	11	12	13					
13 - Ensure SHIFT LOCK on keyboard is released. Restart this page.						1						
14 - Verify the power supplies (procedures A7, A9, and A11)							2					
15 - Check cabling to operators panel and multiplexer (figures 5A-2 and 5A-3).								1	1			
16 - Replace dual-CPU multiplexer board (procedure A22)								2	2			
17 - Replace operators panel board (procedure A20)								3	3			

Continued next page

ACTIONS:	1	2	3	4	5	6	7	8	9	10	11	12
18. Run CDT off-line test: Table 6-13 if CDT is a CC614; if CDT is a CC555, go to Table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.							1					
19. Call next level of support.								5	4			

[redacted]

ASSUMPTIONS:

Entry is made from sheet 2 or sheet 3 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Is the Load Device a flexible disk?	Y	N										
2 - Is the Load Device a cassette?		Y	N									
3 - Is the Load Device a card reader?			Y	N								
ACTIONS:												
1 - Go to sheet 5 of this table	X											
2 - Go to sheet 6 of this table		X										
3 - Go to sheet 7 of this table			X									
4 - Loadcheck diagnostic Load device must be either flexible disk, cassette, or card reader. Restart this page with one of these load devices.				X								

ASSUMPTIONS:

1 - Entry is made from sheet 4 of this table.
2 - Insert the ODS Level I diskette into the unit 0 flexible disk drive (procedure K3)
3 - Close the door of the unit.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Is the UNIT REV. indicator on the operators panel illuminated?	Y	N										
2 - Is the WRITE ENAB. indicator on the operators panel illuminated?		Y	N									
3 - Press DEADSTART switch. Does the DEADSTART indicator illuminate?			Y	N								
ACTIONS:												
1 - Press UNIT REV. switch. Return to condition 1 if UNIT REV. indicator is now extinguished.	1											
2 - Check cabling to operators panel (figure 5A-2)	2	2										
3 - Replace operators panel (procedure A20)	3	3										
4 - Press WRITE ENAB. switch. Return to condition 2 if WRITE ENAB. indicator is now extinguished.		1										
5 - Go to sheet 8 of this table.			X									
6 - Restart this page. Probably an operator error has occurred				1								
7 - Use another diskette, if available				2								
8 - Use another load device, if available (Go to sheet 1 of this table)				3								
9 - Replace flexible disk controller, slot E				4								
10 - Replace SMI board, slot L.				5								
11 - Replace panel interface, slot U				6								
12 - Replace flexible disk drive (procedure K9)				7								
13 - Call next level of support	4	4		8								

ASSUMPTIONS:

1 - Entry is made from sheet 4 of this table.
2 - Read the conditions below before going to the next assumption.
3 - Insert the level I cassette tape into the respective unit if this is dual CPU system. Otherwise, insert tape into unit 0.
4 - Close the lid and observe whether the cassette spools move in both directions, first rewinding and then loading to beginning of tape.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Did the tape move in both directions?	Y				N							
2 - Did the tape move in only one direction					Y	N						
3 - After approximately five seconds, did the cassette READY indicator illuminate?	Y			N								
4 - Press DEADSTART switch. Does the DEADSTART indicator illuminate?	Y	N										
5 - Did tape attempt to load?		Y	N									
ACTIONS:												
1 - Go to sheet 8 of this table.	X											
2 - Use another tape, if available.		3	2	2	1	1						
3 - Check cassette power supply voltages (procedure H8)					2	2						
4 - Replace the cassette drive (procedure H7)		6	7	5	3	6						
5 - Replace the cassette controller, slot E		4	3	4	4	5						
6 - Restart this page. Probably an operator error has occurred.		1										
7 - Verify that system is 9600 baud (See figures 4E-3 and 4E-4). If system is not 9600 baud, set system to 9600 baud. If system is 9600 baud, continue to next action.		2										
8 - Replace I/O TTY board, slot K.		5										
9 - Replace SMI board, slot L.		7	4									
10 - Replace panel interface, slot U.		8										
11 - Check power distribution box(procedure A13)						3						
12 - Verify the processor power supplies (procedures A7, A7.1, A9, A11)						4						
13 - Call next level of support		9	9	7	5	7						
- Ensure that the cassette tape has been inserted into the correct drive unit and the CPU selected is correct.			1	1								

Continued next page

	1	2	3	4	5	6	7	8	9	10	11	12
ACTIONS:												
15 - Check that cables on operators panel and multiplexer board, if present, are properly connected (figures 5A-2 and 5A-3) and that LOCAL/REMOTE switch on operators panel is set to REMOTE.			5	3								
16 - Replace dual-CPU multiplexer (procedure A22), if present.			8	6								
17 - Replace operators panel (procedure A20)			6									

ASSUMPTIONS:

1 - Entry is made from sheet 4 of this table
2 - Card reader hopper is loaded with loadcheck card deck (procedure A33).
3 - Card reader/line printer controller card cycle switch is off (the lever in card slot J pointing to the operator).

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Press card reader RESET. Does motor come on?	Y					N						
2 - Do any cards feed after step 1 above?	N				Y							
3 - Press the DEADSTART switch. Do one or more of the loadcheck cards feed?	Y			N								
4 - Does the DEADSTART indicator illuminate?	Y		N									
- Is the READ CHECK light on?	N	Y										
ACTION:												
1 - Go to sheet 8 of this table	X											
2 - Replace I/O-TTY, slot K.			6	1	1							
3 - Replace SMI, slot L.			7	2	2							
4 - Go to table 6-102.		X	8		3	X						
5 - Go to table 6-101				4								
6 - Restart sheet 1 of this table. Probably an operator error has occurred.			1									
7 - Use another card deck, if available.			3									
8 - Verify that system is 9600 baud (see figures 4E-3 and 4E-4). If system is not 9600 baud, set system to 9600 baud. If system is 9600 baud, continue to next action.			2									
9 - Replace card reader controller, slot J.			4									
10 - Replace panel interface, slot U.			5	3								

ASSUMPTIONS:
Entry is made from sheet 5,6 or 7 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Does the CDT display the following (after approximately two minutes): 123456 DPSR Level XX Released date MM/DD/YY 12345 1234 123 12 1	Y						N	N Y	N Y	N Y	N Y	
2 - Have all other deadstartable devices on the system for which diagnostic load media are available been used?	Y	N										
3 - Is the deadstart capability of the card reader being tested?	N		Y									
ACTIONS:												
1 - Go to Table 6-4.	X											
2 - Set up and deadstart system using another load device, if available. Return to table 6-3, sheet 1.		X					2	2	2	2	2	2
3 - Card reader deadstart testing is now complete. Set up and deadstart system using a diskette or cassette tape as the diagnostic load device. Return to sheet 1 of this table.			X									
4 - Use another diskette or cassette tape or card deck, if available, and restart.							1	1	1	1	1	1
5 - Replace memory, slot X.							3	7	3		3	
6 - Replace memory interface, slot V.							4	8	4		4	
7 - Replace memory interface, slot W.							5	9	5		5	
8 - Replace ALU, slot M.							6	6	7		7	
9 - Replace transform, slot R.							7	5	10		8	
10- Replace SMI, slot L.							8	10	8		6	

ACTIONS: Continued.	1	2	3	4	5	6	7	8	9	10	11	
11 - Replace I/O-TTY, slot K.												
12 - Replace panel interface, slot U.							9	3	9		9	
13 - Replace load device controller: card reader (slot J) or cassette (slot E) or flexible disk controller (slot E).								4				3
14 - Go to sheet 9 of this table.												
15 - Go to table 6-101 & replace any controller not replaced by a prior action.										3		6
16 - Call next level of support.							10	11	14		10	
17 - Check cables on operators panel printed wiring assembly and multiplexer printed wiring assembly (figure 5A-3 sheet 1).								12				
18 - Replace multiplexer printed wiring assembly (procedure A22).									11			
19 - Replace operators panel printed wiring assembly (procedure A20).									12			
20 - Replace ECC array board, slot AC.									13			
21- Run CDT off-line test: Table 6-13 if CDT is a CC614; if CDT is a CC555, go to Table CRT1 of the Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.									6			5
												4

TABLE 6-3 LDCHK: LOADCHECK DDLT

ASSUMPTIONS:

1 - Entry is made from sheet 8 of this table

2 - The following is entered on the keyboard:
ESC Key is pressed.
J11G is typed in.

(If the amber KEYBOARD LOCK indicator is on, press the blue BREAK key before completing the above)

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Is RUN indicator illuminated?	Y	N										
2 - Does the CDT display:												
Jxxxxxxx0 or Jxxxxxxx1		Y	N									
Jxxxxxxx2 or Jxxxxxxx4			Y	N								
Jxxxxxxx6				Y	N							
Jxxxxxxx8 or JxxxxxxxC or Jxxxxxxx9					Y	N						
JxxxxxxxE						Y	N					
where x may equal any number.												
ACTIONS:												
1 - Go to sheet 10 of this table.		X										
2 - Replace transform, slot R.	1		3	1	8	3	1					
3 - Replace memory interface, slot V.	5		4	2	3	1	4					
4 - Replace memory interface, slot W.	6		5	3	4	2	5					
5 - Replace memory, slot X.	4		8	5	2	4	3					
6 - Replace ALU, slot M.	3		1	6	7	7	6					
7 - Replace SMI, slot L.	2		2	7	5	6	2					
8 - Replace control 1, slot P.	8		6	8	9	8	7					
9 - Replace control 2, slot N.	9		7	9	10	9	8					
10 - Replace I/O-TTY, slot K.	7		9	4	6	5	9					
11 - Go to procedure A34.					1							
12 - Replace micro-memory, slot T.	10		10	10	11	10	10					
13 - Replace micro-memory, slot S.	11		11	11	12	11	11					
14 - Check cables on operators panel printed wiring assembly and multiplexer printed wiring assembly (Figure 5A-3, sheet 1)	12		12	12	13	12	12					
15 - Replace multiplexer printed wiring assembly (procedure A22)	13		13	13	14	13	13					
16 - Replace operators panel printed wiring assembly (procedure A20)	14		14	14	15	14	14					
17 - Go to table 6-101.	15		15	15	16	15	15					

ASSUMPTIONS:

1 - Entry is made from sheet 9 of this table.

2 - KG is typed in at the keyboard.

3 - Observe the CDT display for one of the following conditions.

Does the CDT display:	1	2	3	4	5	6	7	8	9	10	11	12
1. K0056 or K0059 or K005C	Y	N	N	N	N	N	N	N	N	N	N	N
2. K1003 or K1006 or K1009		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
3. K100C												
4. K100F or K1011 or K1013 or K1015												
5. K101A												
6. K101C or K101E or K1020 or K1022 or K1024 or K1026												
K1029												
8. K102C												
9. K102F												
10. K1032												
11. K1035												
ACTIONS:												
1 - Replace memory, slot X (power down micro processor)	1	6	6	4	5	7	6	6	6	6	6	
2 - Replace memory interface, slot V	2	7	7	8	8	4	8	7	8	7	7	
3 - Replace memory interface, slot W	3	8	8	9	9	5	9	8	9	8	8	
4 - Replace SMI, slot L	4	5	5	2	2	2	4	4	4	5	4	
5 - Replace ALU, slot M.	5	2	3	3	3	3	3	3	3	3	3	
6 - Replace transform, slot R.	6	1	4	5	4	6	1	5	1	4	5	
7 - Replace control 2, slot N.	7	3	2	7	7	9	7	2	7	1	2	
8 - Replace control 1, slot P.	8	4	1	6	6	8	2	1	2	2	1	
9 - Replace I/O-TTY, slot K.	9	9	9	1	1	1	5	9	5	9	9	
10 - Replace micro - memory slot T.	10	10	10	10	10	10	10	10	10	10	10	
11- Replace micro-memory slot S.	11	11	11	11	11	11	11	11	11	11	11	
12- Check cables on operators panel printed wiring assembly and multiplexer printed wiring assembly (figure 5A-3, sheet 1)	12	12	12	12	12	12	12	12	12	12	12	
13- Replace multiplexer printed wiring assembly (procedures A22)	13	13	13	13	13	13	13	13	13	13	13	
14- Replace operators panel printed wiring assembly (procedure A20)	14	14	14	14	14	14	14	14	14	14	14	
Go to table 6-101	15	15	15	15	15	15	15	15	15	15	15	
16- Go to sheet 11 of this table												X

[redacted]

ASSUMPTIONS:
Entry is made from sheet 10 of this table

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - K1038 or K103B or K103E or K1041	Y	N										
2 - K1044		Y	N									
3 - K1047 or K104A or K104D or K1050 or K1053			Y	N								
4 - K1056 or K1059 or K105C				Y	N							
5 - K1073 or K1076 or K1079 or K107B or K107C or K107E or K107F					Y	N						
6 - K1081 or K1082 or K1084 or K1085 or K1087 or K1088 or K108A						Y	N					
7 - K108C							Y	N				
8 - K108D or K1090								Y	N			
9 - K1094 or K10DA									Y	N		
10 - K10D5										Y	N	
11 - K10D7 or K10E0 or K10E2											Y	N
ACTIONS:												
1- Replace transform, slot R.	1	5	1	6	1	1	4	1	4	3	4	1
2- Replace control 1, slot P.	2	1	2	8	4	4	3	4	1	2	1	3
3- Replace ALU, slot M.	3	3	3	5	2	2	2	2	2	1	2	4
4- Replace SMI, slot L.	4	4	4	4	5	5	5	5	5	5	5	5
5- Replace I/O-TTY, slot K.	5	9	5	9	9	9	9	9	9	9	9	9
6- Replace memory, slot X.	6	6	6	1	6	6	6	6	6	6	6	6
7- Replace control 2, slot N	7	2	7	7	3	3	1	3	3	4	3	2
8- Replace memory interface, slot V.	8	7	8	2	7	7	7	7	7	7	7	7
9- Replace memory interface, slot W.	9	8	9	3	8	8	8	8	8	8	8	8
10- Replace micro memory, slot T	10	10	10	10	10	10	10	10	10	10	10	10
11- Replace micro memory, slot S	11	11	11	11	11	11	11	11	11	11	11	11
12- Check cables on operators panel printed wiring assembly and multiplexer printed wiring assembly (figure 5A-3, sheet 1)	12	12	12	12	12	12	12	12	12	12	12	12
13- Replace multiplexer printed wiring assembly (procedure A22)	13	13	13	13	13	13	13	13	13	13	13	13
14- Replace operators panel printed wiring assembly (procedure A20)	14	14	14	14	14	14	14	14	14	14	14	14
15- Go to table 6-101.	15	15	15	15	15	15	15	15	15	15	15	15

TABLE 6-4. MPINS: INSTRUCTION TEST DDLT

ASSUMPTIONS:

1. For the remaining testing in tables 6-4 through 6-103, all tests must be loaded from the same load device that loadcheck is loaded from. This recuires a full set of diagnostics on either diskette or cassette.
2. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):
   MPINS is typed in.
   CARRIAGE RETURN is pressed.
   NOTE: xxxxx = test name
3. Observe the CDT display for the following conditions.

CONDITIONS:	1	2	3	4
1. Does the CDT display: MPINS EXECUTING / MPINS SUSPENDED BOT	Y		N	
2. Is RUN indicator illuminated?			N	Y
3. Is the equipment one of the following? a. AA132-A or AA133-A with ST010428-1 installed or b. AA132-B or AA133-B	Y	N		
ACTIONS:				
1. Go to sheet 2.	X			
2. Enter the following at the keyboard: 5,9000 (CR) / B,0 (CR) / GO (CR)		1		
3. Go to sheet 3.		2		
4. Go to table 6-101.			2	X
5. Replace operator's panel.			1	

TABLE 6-4. MPINS: INSTRUCTION TEST DDLT

ASSUMPTIONS:

1. Entry was made from sheet 1.
2. System under test has 1700 Emulator Version D.
3. MPINS SUSPENDED BOT is displayed on the CDT.
4. Enter the following at the keyboard -

   GO (CR)
5. Observe that the following is displayed on the CDT -

   SET MULTI-LEVEL INDIRECT SWITCH OFF {ESC J40 @ GO CR}

   MPINS SUSPENDED SELF
6. Enter the following at the keyboard -

   ESCAPE {KEY} J40 @ GO (CR)

   Observe the CDT for the following conditions -

CONDITIONS:	1	2	3	4
1. Is the RUN indicator illuminated?	Y	N		
2. Is the following displayed after approximately 10 seconds:	Y		N	
MPINS SECTION 0001				
MPINS SECTION 0002				
MULTILEVEL INDIRECT SWITCH IS EXPECTED TO BE OFF				
MPINS SECTION 0003				
MPINS SECTION 0004				
MPINS SECTION 0005				
MPINS SECTION 0006				
MPINS SECTION 0007				
MPINS SECTION 0008				
MPINS SECTION 0009				
MPINS SECTION 000A				
MPINS SECTION 000B				
MPINS COMPLETED 0001 PASSES				
SET MULTILEVEL INDIRECT SWITCH ON {ESC J42 @ GO CR}				
MPINS SUSPENDED SELF				
3. Is an action code displayed?			Y	N
ACTIONS:				
1. Enter the following at the keyboard -	X			
ESCAPE {KEY} J42 @ GO (CR) and proceed to table 6-5.				

TABLE 6-4. MPINS: INSTRUCTION TEST DDLT

SHEET 2 of 3 (cont)

ACTIONS (CONTINUED):	1	2	3	4
2. Replace operators panel (procedures A20 & A21)		1		
3. Replace Transform, slot R.			1	
4. Replace ALU, slot M.			2	
5. Replace Control 1, slot P.			3	
6. Replace Control 2, slot N.			4	
7. Replace SMI, slot L.			5	
8. Replace Memory Data I/F, slot V.			6	
9. Replace Memory Address I/F, slot W.			7	
10. Replace I/O-TTY, slot K.			8	
11. Replace MOS Memory array (s), slot (s) X, (Y, Z, AC)			9	
12. Go to Table 6-101.		2	10	X

TABLE 6-4. MPINS: INSTRUCTION TEST DDLT

ASSUMPTIONS:

1. Entry was made from sheet 1.
2. System under test does not have 1700 Emulator Version D.
3. MPINS SUSPENDED BOT is displayed on the CDT.
4. Enter the following at the keyboard -

   GO (CR)
5. Observe that the following is displayed on the CDT -

   SET MULTI-LEVEL INDIRECT SWITCH OFF {ESC J40 @ GO CR}

   MPINS SUSPENDED SELF
6. Enter the following at the keyboard -

   ESCAPE {KEY} J40 @ GO CR

   Observe the CDT for the following conditions -

CONDITIONS	1	2	3	4	5	6	7	8	9	10
1. Is the RUN indicator illuminated?	Y									N
2. Is the following displayed after approximately 10 seconds: MPINS SECTION 0001 MPINS SECTION 0002 MULTILEVEL INDIRECT SWITCH IS EXPECTED TO BE OFF MPINS SECTION 0003 MPINS SECTION 0004 MPINS SECTION 0005 MPINS SECTION 0006 MPINS SECTION 0007 MPINS SECTION 0008 MPINS SECTION 0009 MPINS COMPLETED 0001 PASSES SET MULTILEVEL INDIRECT SWITCH ON {ESC J42 @ GO CR} MPINS SUSPENDED SELF	Y	N								
3. Are any of the following action codes displayed? xx11 or xx12 or xx13 or xx14 xx11 or xx21 xx12 or xx22 xx13 or xx23		Y Y	N Y	N Y	N Y	N Y	N Y	N Y	• N	N

TABLE 6-4. MPINS: INSTRUCTION TEST DDLT

SHEET 3 of 3 (Continued)

ACTIONS:	1	2	3	4	5	6	7	8	9	10
1. Enter the following at the keyboard - ESCAPE (KEY) J42 @ GO (CR) and proceed to table 6-5.	X									
2. Go to table 6-101.										
3. Replace operators panel (procedures A20 and A21).										1
4. Replace transform, slot R.		1	1	1	1	2	2	2	2	
5. Replace ALU, slot M.		2	2	2	2	1	1	1	1	
6. Replace control 1, slot P.		5	5	3	3	5	5	3	3	
7. Replace control 2, slot N.		4	4	5	4	4	4	5	4	
8. Replace SMI, slot L.		3	6	4	5	3	6	4	5	
9. Replace memory, slot X.		6	7	6	6	6	7	6	6	
10. Replace I/O-TTY, slot K.		9	3	9	9	9	3	9	9	
11. Replace memory interface, slot V.		7	8	7	7	7	8	7	7	
12. Replace memory interface, slot U.		8	9	8	8	8	9	8	8	
13. Go to table 6-101.		10	10	10	10	10	10	10	10	2

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TABLE 6-5. CUSTOMER INPUT

Sheet 1 of 1

ASSUMPTIONS:

Customer engineer discusses nature of problems with customer.

CONDITIONS:	1	2	3
1. Does customer suspect a particular device or retest after an action?	N	Y	
2. Is the computer suspected of having the failure?		N	Y
ACTIONS:			
1. Go to table 6-6.	X		X
2. Select the suspected device from the list below and go to the designated table number.		X	

DEVICE	TABLE
CARD READER	6-11
LINE PRINTER	6-11
CASSETTE	6-12
CDT-CC614 (as console)	6-14
STORAGE MODULE DRIVE	6-15
COMMUNICATION MULTIPLEXER	6-16
KEYBOARD DISPLAY TERMINAL-CC555 (as console)	6-17
DUAL MODE LCTT	6-18
CARTRIDGE DISK DRIVE	6-19
ALL OTHER	6-50

TABLE 6-6. MPMOS and MOSMA: MOS MAIN MEMORY DDLT

ASSUMPTIONS:

1. If this test is not to be run, go to table 6-7.
2. The loadcheck test (table 6-3) and the instruction test (table 6-4) run successfully (in both CPUs if dual processor system).
3. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):

   MPMOS is typed in.
   CARRIAGE RETURN is pressed.

   NOTE: xxxxx = test name
4. Observe the CDT display for the following conditions.

CONDITIONS:	1	2	3
1. Does the CDT display: MPMOS EXECUTING MPMOS SUSPENDED BOT	Y		N
2. Is this CPU 2 of a dual-CPU system?	Y	N	
ACTIONS:			
1. Go to table 6-100.			X
2. At the CDT keyboard enter parameter for executing out of CPU 1. Fill in the spaces below with run parameters as directed in procedure A26. Type in A, — — — Press CARRIAGE RETURN Type in D, — , — — — — Press CARRIAGE RETURN		1	
3. At the CDT keyboard enter parameter for executing out of CPU 2. Fill in the spaces below with run parameters as directed in procedure A26. Type in A, — — — Press CARRIAGE RETURN Type in D, — , — — — — Press CARRIAGE RETURN	1		
4. At the CDT keyboard: Type in GO Press CARRIAGE RETURN	2	2	
5. Go to sheet 2 of this table.	3	3	

TABLE 6-6. MPMOS and MOSMA: MOS MAIN MEMORY DDLT (Contd)

ASSUMPTIONS:

Observe CDT display for the following conditions.

CONDITIONS:		1	2
1.	Does the CDT display: SET MULTI-LEVEL INDIRECT SWITCH OFF (ESC J40 @ GO CR) MPMOS SUSPENDED SELF	Y	N
ACTIONS:			
1.	At the CDT keyboard: Press ESC key Type in J40 @ GO Press CARRIAGE RETURN	1	
2.	Go to sheet 3 of this table.	2	
3.	Repeat the loadcheck test (table 6-3) and repeat this test. Operator error is suspected.		1
4.	Call next level of support.		2

TABLE 6-6. MPMOS AND MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 2 of this table.

CONDITIONS:	1	2
After several minutes delay does the CDT display:	Y	N
MPMOS SECTION 0001 MPMOS SECTION 0003 MPMOS SECTION 0004 MPMOS SECTION 0005 MPMOS SECTION 0006 MPMOS COMPLETED 0001 PASSES SET MULTI-LEVEL INDIRECT SWITCH ON (ESC J42 @ GO CR) MPMOS SUSPENDED SELF		
ACTIONS:		
1. At the CDT keyboard: Press ESC key Type in J42 @ GO Press CARRIAGE RETURN	1	
2. Go to sheet 4 of this table.	2	
3. Go to sheet 5 of this table.		X

TABLE 6-6. MPMOS AND MOSMA: MOS MAIN MEMORY DDLT (Contd)

Sheet 4 of 14

ASSUMPTIONS:

Entry is made from sheet 3 of this table.

CONDITIONS:	1	2	3
1. Does the CDT display: MPMOS TERMINATED 0000 ERRORS	Y	N	
2. Is an error code displayed?		Y	N
ACTIONS:			
1. Go to sheet 8 of this table.	X		
2. Repeat the loadcheck test (table 6-3) and repeat this test. Operator error is suspected.			1
3. Call next level of support.			2
4. Go to sheet 5 of this table		X	

TABLE 6-6. MPMOS AND MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 4 of this table.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7
1. 04E7	Y	N					
2. 04E8		Y	N				
3. 04E9			Y	N			
4. 04D0				Y	N		
5. xxx0 through xxx7					Y	N	
6. xxx8 through xxxF						Y	N
ACTIONS:							
1. Repeat the loadcheck test (table 6-3) and repeat this test. Run parameters are incorrect.	1	1	1				
2. Replace memory interface, local slot V.	2	3		1			3
3. Replace memory interface, local slot W.	3	4		2			2
4. Replace MOS array, local slot X.	4						
5. Replace MOS array, local slot Y.	5						
6. Replace MOS array, local slot Z.	6						
7. Replace MOS array, local slot AC.	7						
8. Replace ECC array, local slot AC.	8						
9. Replace 1700 transform, local slot R.	9			3			
10. Replace control 2, local slot N.	10			4			9
11. Replace control 1, local slot P.	11			5			10
12. Replace I/O-TTY, local slot K.	12			6			11
13. Replace panel interface, local slot U.	13			7			12

Continued on next page

TABLE 6-6. MPMOS AND MOSMA: MOS MAIN MEMORY DDLT (Contd)

Sheet 5 of 14 (Contd)

ACTIONS (Continued):		1	2	3	4	5	6	7
14.	Replace SMI, local slot L.	14			8			13
15.	Replace ALU, local slot M.	15			9			14
16.	Run the loadcheck test (table 6-3) and run this test in alternate CPU.		2					1
17.	Replace memory interface, remote slot V.		5					5
18.	Replace memory interface, remote slot W.		6					4
19.	Replace cable at local slot V, pin 228.		7					
20.	Replace cable at local slot V, pin 240.		8					
21.	Replace cable at local slot W, pin 53.		9					6
22.	Replace cable at local slot W, pin 77.		10					7
23.	Verify proper placement of MOS address connectors at local slots Y through AC and reseat each one. See procedure A21.	16						
24.	Verify proper placement of array boards in local slots X through AC. See procedure A21.	17						
25.	Call next level of support.	18	11	2	10			15
26.	Go to sheet 6 of this table.					X		
27.	Go to sheet 7 of this table.						X	

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12	13
Does the CDT display:													
1. xxx0	Y	N											
2. xxx6 or xxx7		Y	N										
3. xxx1			Y	N									
4. xxx2					Y	N							
5. xxx3							Y	N					
6. xxx4										Y	N		
7. Are there any 32K boards in the local CPU?			Y	N	Y	N	Y		N				
8. Is there only one 32K board in the local CPU?							Y	N		Y	N		
9. Are there only two 32K boards in the local CPU?												Y	N
ACTIONS:													
1. Replace MOS array board in one of the following local slots:													
X	1	4	1	5	5	5	5	5	5	5	5	5	5
Y	5	5	5	1	1	6	6	1	6	6	6	6	6
Z	6	6	6	6	6	1	1	6	7	7	1	7	1
AC	7	1	7	7	7	7	7	7	1	1	7	1	7
2. Replace ECC array board (if present), local slot AC.	2		2	2	2	2	2	2	2	2	2	2	2
3. Replace memory interface board, local slot V.	3	2	3	3	3	3	3	3	3	3	3	3	3
4. Replace memory interface board, local slot W.	4	3	4	4	4	4	4	4	4	4	4	4	4
5. Call next level of support.	8	7	8	8	8	8	8	8	8	8	8	8	8

TABLE 6-6. MPMOS and MOSMA: MOS MAIN MEMORY DDLT (Contd)

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12	13
Does the CDT display:													
1. xxx8	Y	N											
2. xxxE or xxxF		Y	N										
3. xxx9			Y		N								
4. xxxA					Y		N						
5. xxxB							Y			N			
6. xxxC										Y		N	
7. Are there any 32K boards in the remote CPU?			Y	N	Y	N	Y		N				
8. Is there only one 32K board in the remote CPU?							Y	N		Y	N		
9. Are there only two 32K boards in the remote CPU?												Y	N
ACTIONS:													
1. Replace MOS array board in one of the following remote slots:													
X	1	10	1	11	11	11	11	11	11	11	11	11	11
Y	11	11	11	1	1	12	12	1	12	12	12	12	12
Z	12	12	12	12	12	1	1	12	13	13	1	13	1
AC	13	1	13	13	13	13	13	13	1	1	13	1	13
2. Replace ECC array board, remote slot AC.	2		2	2	2	2	2	2	2	2	2	2	2
3. Replace memory interface board, remote slot V.	3	2	3	3	3	3	3	3	3	3	3	3	3
4. Replace memory interface board, remote slot W.	4	3	4	4	4	4	4	4	4	4	4	4	4
5. Replace memory interface board, local slot V.	5	4	5	5	5	5	5	5	5	5	5	5	5
6. Replace memory interface board, local slot W.	6	5	6	6	6	6	6	6	6	6	6	6	6

Continued on next page

TABLE 6-6. MPMOS and MOSMA: MOS MAIN MEMORY DDLT (Contd)

Sheet 7 of 14 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12	13
7. Replace cable at local slot V, pin 228.	7	6	7	7	7	7	7	7	7	7	7	7	7
8. Replace cable at local slot V, pin 240.	8	7	8	8	8	8	8	8	8	8	8	8	8
9. Replace cable at local slot W, pin 53.	9	8	9	9	9	9	9	9	9	9	9	9	9
10. Replace cable at local slot W, pin 77.	10	9	10	10	10	10	10	10	10	10	10	10	10
11. Call next level of support.	14	13	14	14	14	14	14	14	14	14	14	14	14

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

1. Entry is made from sheet 4 of this table.
2. If this test is not to be run, go to table 6-7.
3. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):

   MOSMA is typed in.
   CARRIAGE RETURN is pressed.

   NOTE: xxxxx = test name
4. Observe the CDT display for the following conditions.

CONDITIONS:	1	2	3
1. Does the CDT display: MOSMA EXECUTING MOSMA SUSPENDED BOT	Y		N
2. Is this CPU 2 of a dual CPU system?	Y	N	
ACTIONS:			
1. Go to table 6-100.			X
2. At the CDT keyboard enter parameters for executing out of CPU 1. Fill in the spaces below with run parameters as directed in procedure A26. Type A, _ _ _ Press CARRIAGE RETURN Type D, _ , _ _ _ _ , _ Press CARRIAGE RETURN Type 3, _ _ _ _ Press CARRIAGE RETURN		1	
3. At the CDT keyboard enter parameters for executing out of CPU 2. Fill in the spaces below with run parameters as directed in procedure A26. Type A, _ _ _ Press CARRIAGE RETURN Type D, _ , _ _ _ _ , _ Press CARRIAGE RETURN Type 3, _ _ _ _ Press CARRIAGE RETURN	1		
4. At the CDT keyboard: Type GO Press CARRIAGE RETURN	2	2	
5. Go to sheet 9 of this table.	3	3	

TABLE 6-6. MPMOS and MOSMA: MOS MAIN MEMORY DDLT (Contd)

ASSUMPTIONS:

Observe CDT display for the following conditions.

CONDITIONS:		1	2
1.	Does the CDT display: SET MULTI-LEVEL INDIRECT SWITCH OFF (ESC J40 @ GO CR) MOSMA SUSPENDED SELF	Y	N

ACTIONS:			
1.	At the CDT keyboard: Press ESC key Type J40 @ GO Press CARRIAGE RETURN	1	
2.	Go to sheet 10 of this table.	2	
3.	Repeat the loadcheck test (table 6-3) and repeat this test (from sheet 8). Operator error is suspected.		1
4.	Call next level of support.		2

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 9 of this table.

CONDITIONS: After several minutes delay does the CDT display:	1 (Y)	2 (N)
MOSMA SECTION 0007 MOSMA SECTION 0008 MOSMA SECTION 0009 (optional) MOSMA SECTION 000A MOSMA COMPLETED 0001 PASSES SET MULTI-LEVEL INDIRECT SWITCH ON (ESC J42 @ GO CR) MOSMA SUSPENDED SELF		

ACTIONS:			
1.	At the CDT keyboard: Press ESC key Type J42 @ GO Press CARRIAGE RETURN	1	
2.	Go to sheet 11 of this table.	2	
3.	Go to sheet 12 of this table.		X

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 10 of this table.

CONDITIONS: Does the CDT display: MOSMA TERMINATED 0000 ERRORS	1 Y	2 N
ACTIONS:		
1. Go to table 6-7.	X	
2. Repeat the loadcheck test (table 6-3) and repeat this test (from sheet 8). Operator error is suspected.		1
3. Call next level of support.		2

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 10 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8
Does the CDT display:								
1. 24CO or 24CE	Y	N						
2. 24DO		Y	N					
3. 24E4, 24E5, 24E6, or 24E9			Y	N				
4. 24E7, 24EA, or 24EC				Y	N			
5. 24E8					Y	N		
6. xxx0 through xxx7						Y	N	
7. xxx8 through xxxF							Y	N
ACTIONS:								
1. Repeat the loadcheck test (table 6-3) and repeat this test (from sheet 8). Run parameters are incorrect.			1	1	1			
2. Replace memory interface, local slot V.	5	1		2	3			3
3. Replace memory interface, local slot W.	6	2		3	4			2
4. Replace MOS array, local slot X.	1			4				
5. Replace MOS array, local slot Y.	2			5				
6. Replace MOS array, local slot Z.	3			6				
7. Replace MOS array, local slot AC.				7				
8. Replace ECC array, local slot AC.	4			8				
9. Replace 1700 transform, local slot R.		3		9				8
10. Replace control 2, local slot N.		4		10				9
11. Replace control 1, local slot P.		5		11				10
12. Replace I/O-TTY, local slot K.		6		12				11

Continued on next page

TABLE 6-6. VPMCS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

Sheet 12 of 14 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8
13. Replace panel interface, local slot U.		7		13				12
14. Replace SMI, local slot L.		8		14				13
15. Replace ALU, local slot M.		9		15				14
16. Run the loadcheck test (table 6-3), and run this test in the alternate CPU.					2			1
17. Replace memory interface, remote slot V.					5			5
18. Replace memory interface, remote slot W.					6			4
19. Replace cable at local slot V, pin 228.					7			
20. Replace cable at local slot V, pin 240.					8			
21. Replace cable at local slot W, pin 53.					9			6
22. Replace cable at local slot W, pin 77.					10			7
23. Call next level of support.	7	10	2	16	11			15
24. Go to sheet 13 of this table.						X		
25. Go to sheet 14 of this table.							X	

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

Sheet 13 of 14

ASSUMPTIONS:

Entry is made from sheet 12 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12	13
Does the CDT display:													
1. xxx0	Y	N											
2. xxx6 or xxx7		Y	N										
3. xxx1			Y		N								
4. xxx2					Y		N						
5. xxx3							Y			N			
6. xxx4										Y		N	
7. Are there any 32K boards in the local CPU?			Y	N	Y	N	Y		N				
8. Is there only one 32K board in the local CPU?							Y	N		Y	N		
9. Are there only two 32K boards in the local CPU?												Y	N
ACTIONS:													
1. Replace MOS array board in local slot:													
X	1	4	1	5	5	5	5	5	5	5	5	5	5
Y	5	5	5	1	1	6	6	1	6	6	6	6	6
Z	6	6	6	6	6	1	1	6	7	7	1	7	1
AC	7	1	7	7	7	7	7	7	1	1	7	1	7
2. Replace ECC array board if present, local slot AC.	2		2	2	2	2	2	2	2	2	2	2	2
3. Replace memory interface board, local slot V.	3	2	3	3	3	3	3	3	3	3	3	3	3
4. Replace memory interface board, local slot W.	4	3	4	4	4	4	4	4	4	4	4	4	4
5. Call next level of support.	8	7	8	8	8	8	8	8	8	8	8	8	8

TABLE 6-6. MPMOS and MOSMA: **MOS MAIN MEMORY DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 12 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12	13
Does the CDT display:													
1. xxx8	Y	N											
2. xxxE or xxxF		Y	N										
3. xxx9			Y		N								
4. xxxA					Y		N						
5. xxxB							Y			N			
6. xxxC										Y		N	
7. Are there any 32K boards in the remote CPU?			Y	N	Y	N	Y		N				
8. Is there only one 32K board in the remote CPU?							Y	N		Y	N		
9. Are there only two 32K boards in the remote CPU?												Y	N
ACTIONS:													
1. Replace MOS array board in remote slot:													
X	1	10	1	11	11	11	11	11	11	11	11	11	11
Y	11	11	11	1	1	12	12	1	12	12	12	12	12
Z	12	12	12	12	12	1	1	12	13	13	1	13	1
AC	13	1	13	13	13	13	13	13	1	1	13	1	13
2. Replace ECC array board, remote slot AC.	2		2	2	2	2	2	2	2	2	2	2	2
3. Replace memory interface board, remote slot V.	3	2	3	3	3	3	3	3	3	3	3	3	3
4. Replace memory interface board, remote slot W.	4	3	4	4	4	4	4	4	4	4	4	4	4
5. Replace memory interface board, local slot V.	5	4	5	5	5	5	5	5	5	5	5	5	5

Continued on next page

TABLE 6-6. MPMOS and MOSMA: MOS MAIN MEMORY DDLT (Contd)

Sheet 14 of 14 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12	13
6. Replace memory interface board, local slot W.	6	5	6	6	6	6	6	6	6	6	6	6	6
7. Replace cable at local slot V, pin 228.	7	6	7	7	7	7	7	7	7	7	7	7	7
8. Replace cable at local slot V, pin 240.	8	7	8	8	8	8	8	8	8	8	8	8	8
9. Replace cable at local slot W, pin 53.	9	8	9	9	9	9	9	9	9	9	9	9	9
10. Replace cable at local slot W, pin 77.	10	9	10	10	10	10	10	10	10	10	10	10	10
11. Call next level of support.	14	13	14	14	14	14	14	14	14	14	14	14	14

TABLE 6-7. MPRTC: MEMORY PROTECT AND INTERRUPT SYSTEM TEST DDLT

ASSUMPTIONS:

1. If this test is not to be run, go to next table.

2. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):

   MPRTC is typed in.
   CARRIAGE RETURN is pressed.

   NOTE: xxxxx = test name

3. See the table below for operator actions as directed by diagnostic. Then observe the CDT display for the following conditions after approximately two minutes. Following program input requests, observe conditions.

Display message directive	Operator response
1. Clear protect and stop switches	1. Press ESC key 2. Type in J20@GO 3. Press CARRIAGE RETURN
2. Set protect and clear stop switches	1. Press ESC key 2. Type in J28@GO 3. Press CARRIAGE RETURN
3. Set protect and stop switches	1. Press ESC key 2. Type in J2A@GO 3. Press CARRIAGE RETURN
4. Verify CPU is halted at xxxx and restart CPU.	1. Press ESC key 2. Type in J11GKG 3. Observe the value Knnnn, where nnnn portion equals the xxxx value in message. If not equal, go to next page and assume code 0651. If equal, type in I@ at the keyboard.
5. Set protect and clear stop switches	1. Press ESC key 2. Type in J28@GO 3. Press CARRIAGE RETURN
6. Clear protect and set stop switches	1. Press ESC key 2. Type in J22@GO 3. Press CARRIAGE RETURN

Continued on next page

TABLE 6-7. MPRTC: MEMORY PROTECT AND INTERRUPT SYSTEM TEST (Contd)

Sheet 1 of 2 (Contd)

CONDITIONS:	1	2	3	4	5	6	7	8
1. Is MPRTC EXECUTING displayed?	Y						N	
2. Is RUN indicator illuminated?							N	Y
3. Is micro processor halted at address displayed in display message directive 4 (see previous page)?	Y				N			
4. Is MPRTC TERMINATED displayed?	Y		N					
5. Are action codes displayed?			Y	N	Y	N		
6. Is there a ghost interrupt message?	N	Y						
ACTIONS:								
1. Go to next table.	X							
2. Go to table 6-100.							X	
3. Go to sheet 2 of this table.			X		X			
4. Go to sheet 2 of this table and assume action code 0651.						X		
5. Go to sheet 2 of this table and assume action code 0657.								X
6. Replace SMI board, slot L.		1						
7. Go to table 6-101.		2						
8. Go to sheet 2 of this table and assume action code 0652.				X				

TABLE 6-7. MPRTC: MEMORY PROTECT AND INTERRUPT SYSTEM TEST (Contd)

Sheet 2 of 2

ASSUMPTIONS:

1. A failure has been detected. The following analyzes and isolates the detected failure.
2. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9
Does the CDT display:									
1. 0641 or 0642	Y	N							
2. 0651 or 0654 or 0656		Y	N						
3. 0652 or 0653			Y	N					
4. 0655				Y	N				
5. 0657 or 0621					Y	N			
6. 0661 or 06B2 or 06B3						Y	N		
7. 0671 or 0672							Y	N	
8. 06A1								Y	N
9. 06B1									Y
ACTIONS:									
1. Replace memory interface, slot V.	2	2	1		4		3	2	3
2. Replace memory interface, slot W.	3	3	2		5		4	3	4
3. Replace transform, slot R.	5	1	4	2	3	1	5	6	1
4. Replace SMI, slot L.	4	4	3	1	2	2	6	5	5
5. Replace memory, slot X.	1	5	5				2	4	2
6. Replace I/O-TTY, slot K.		6			1				
7. Go to procedures A7, A9, and A11.							1		
8. Restart this test (go back to sheet 1 of this table).								1	
9. Go to table 6-101.	6	7	6	3	6	3	7	7	6

TABLE 6-8 MIMEM AND MIINS: MICRO MEMORY AND MICRO INSTRUCTION TESTS DDLT

MIMEM TEST

ASSUMPTIONS:

1. If this test is not to be run, go to next table.

2. After XXXXX? is displayed, the following is entered at the keyboard:
   MIMEM is typed in
   CARRIAGE RETURN is pressed
   NOTE: If XXXXX? is not displayed, go to Table 6-100.
3. Observe the CDT for the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does the CDT display: MIMEM EXECUTING MIMEN SUSPENDED BOT	Y	N										
2. Is RUN indicator illuminated?		N	Y									
ACTIONS:												
1. Fill in the spaces below with the run parameters as directed in procedure A35. At the CDT keyboard: Type D,__ Press CARRIAGE RETURN Type 11,__ Press CARRIAGE RETURN Type GO Press CARRIAGE RETURN	1											
2. Go to sheet 2 of this table	2											
3. Replace operator's Panel (Procedures A20 & A21)		1										
4. Go to Table 6-101		2	X									

TABLE 6-8 MIMEM AND MIINS: MICRO MEMORY AND MICRO INSTRUCTION TESTS DDLT (Cont)

MIMEM TEST — Sheet 2 of 6

ASSUMPTIONS:

Entry is made from Sheet 1 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
Within approximately 3 minutes does the CDT display:	Y	N										
MIMEM Section 0001												
MIMEM Section 0002												
MIMEM Section 0003												
MIMEM Section 0004												
MIMEM Completed 0001 Passes												
MIMEM Terminated 0000 Errors												
ACTIONS:												
1. Go to sheet 4 of this table.	X											
2. Go to sheet 3 of this table.		X										

MIMEM TEST

ASSUMPTIONS:

Entry is made from Sheet 2 of this table.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9	10	11	12
1. 02A4 or 0244	Y	N										
2. 02A5 or 0245		Y	N									
3. 02A6 or 0246			Y	N								
4. 02A7 or 0247				Y	N							
5. 02A8 or 0248					Y	N						
6. 02A9 or 0249						Y	N					
7. 02AA or 024A							Y	N				
8. 02AB or 024B								Y	N			
9. 02AC through 02AF or 024C through 024F									Y	N		
10. 0201 through 0204										Y	N	
ACTIONS:												
1. Replace micro memory {Slot T}	1	1	1	1							2	
2. Replace micro memory {Slot S}		2	2	2	1	1	1	1			3	
3. Replace Control 2 {Slot N}	2	3	3	3	2	2	2	2				
4. Replace Control 1 {Slot P}	3	4	4	4	3	3	3	3				
5. Replace SMI {Slot L}	4	5	5	5	4	4	4	4				
6. Replace Transform {Slot R}	5	6	6	6	5	5	5	5				
7. Replace ALU {Slot M}	6	7	7	7	6	6	6	6				
8. Press MASTER CLEAR Press RUN Assure that run parameters are correct {Procedure A35} Restart test from page 1 of this table.									X	X	1	
9. Go to Table 6-100											4	
10. Call next level of support	7	8	8	8	7	7	7	7				

TABLE 6-8 MIMEM AND MIINS: MICRO INSTRUCTION TESTS DDLT (Cont)

MIINS TEST — Sheet 4 of 6

ASSUMPTIONS:

1. If this test is not to be run, go to the next table.
2. At least one optional micro memory board is installed in the processor to be tested. (either a BA209 or BA210)
3. Page selection has been made per table 4A-5.
4. After XXXXX? is displayed, the following is entered at the keyboard:
   MIINS is typed in
   CARRIAGE RETURN is pressed
   NOTE: If XXXX? is not displayed, go the Table 6-100
5. Observe the CDT for the following conditions:

CONDITIONS:	1	2	3	4	5	6
1. Does the CDT display: MIINS EXECUTING MIINS SUSPENDED BOT	Y				N	
2. Is RUN indicator illuminated?					N	Y
3. Is there 1 - BA209 Micro Memory Board in slot T and no board in Slot S? (Verify by removing the side panel of the CPU and examining the FCO tags for slots T and S)	N		Y			
4. Is the equipment under test one of the following: a. AA132-A or AA133-A with ST010428-1 installed or b. AA132-B or AA133-B	Y	N	Y	N		
ACTIONS:						
1. At the CDT keyboard: Type B, 0 Press CARRIAGE RETURN			1	1		
2. At the CDT keyboard: Type 5, 0 Press CARRIAGE RETURN Type C, 0 Press CARRIAGE RETURN		1		2		
3. At the CDT keyboard: Type G0 Press CARRIAGE RETURN	1	2	2	3		
4. Go to Sheet 5 of this table.	2		3			
5. Replace Operator's Panel (Procedures A20 and A21)					1	
6. Go to Table 6-101.					2	X
7. Go to Sheet 6 of this table.		3		4		

TABLE 6-8 MIMEM AND MIINS: MICRO MEMORY AND MICRO INSTRUCTION TESTS DDLT (Cont)

MIINS TEST												SHEET 6 of 7
ASSUMPTIONS: Entry is made from Sheet 4 of this Table.												
CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Within approximately 30 seconds does the CDT display: MIINS Section 0001 MINIS Section 0002 MINIS Section 0003 MINIS Section 0004 MINIS Section 0005 MINIS Section 0006 MINIS Section 0007 MINIS Section 0008 MIINS Completed 0001 Passes MIINS Terminated 0000 Errors	Y	N										
ACTION:												
1. Go to next table	X											
2. Go to Sheet 7 of this table		X										

TABLE 6-8. MIMEM AND MIINS: MICRO MEMORY AND MICRO INSTRUCTION TESTS DDLT {Cont'd}

MIINS TEST — SHEET 7 of 7

ASSUMPTIONS:

Entry is made from Sheet 5 or Sheet 6 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does the CRT display:												
0E81 or 0E83	Y	N										
0E82 or 0E84		Y	N									
0E85			Y	N								
0E86				Y	N							
0E87					Y	N						
0E88						Y	N					
0E01							Y	N				
0E89 or 0E8A or 0E8B or 0E8C or 0E8D									Y	N		
ACTIONS:												
1. Restart this test {from page 4} Run Parameters incorrect							X					
2. Replace ALU {Slot M}.	1	2	4	1	3	3		1	4	1		
3. Replace Control 1 {Slot P}.	2	3	2	3	2	4		2	3	2		
4. Replace Control 2 {Slot N}.	3	1	3	2	4	5		3	5	3		
5. Replace Transform {Slot R}.	4	7	1	4	5	6		4	1	4		
6. Replace SMI {Slot L}.	5	4	7		1			5	2	5		
7. Replace Memory Interface {Slot W}.	6	5	5			1		6		6		
8. Replace Memory Interface {Slot V}.	7	6	6			2		7		7		
9. Replace Micro Memory {Slot T}.	8	8	8	5	6	7		8		8		
10. Replace Micro Memory {Slot S}.	9	9	9	6	7	8		9		9		
11. Go to Table 6-100.	10	10	10	7	8	9		10	6	10		
12. Call next level of support.	11	11	11	8	9	10		11	7	11		

TABLE 6-9. PAGE1: MOS MEMORY PAGING FILE TEST DDLT

ASSUMPTIONS:

1. If this test is not to be run, go to table 6-10.
2. The MOS main memory test (table 6-6) runs successfully in both CPUs.
3. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx? is not displayed, go to table 6-100):
   PAGE1 is typed in.
   CARRIAGE RETURN is pressed.
   NOTE: xxxxx = test name
4. Observe the CDT display for the following conditions.

CONDITIONS:	1	2	3
1. Does the CDT display: PAGE1 EXECUTING PAGE1 SUSPENDED BOT	Y		N
2. Is this CPU 2 of a dual CPU system?	Y	N	

ACTIONS:			
1. Go to table 6-100.			X
2. At the CDT keyboard, enter parameters for executing out of CPU 1: Fill in the spaces below with run parameter A as directed in procedure A26. Type A, _ _ _ _ Press CARRIAGE RETURN Type GO Press CARRIAGE RETURN		1	
3. At the CDT keyboard, enter parameters for executing out of CPU 2: Fill in the spaces below with run parameter A as directed in procedure A26. Type A, _ _ _ _ Press CARRIAGE RETURN Type GO Press CARRIAGE RETURN	1		
4. Go to sheet 2 of this table.	2	2	

TABLE 6-9. PAGE1 : MOS MEMORY PAGING FILE TEST DDLT (Contd)

Sheet 2 of 7

ASSUMPTIONS:

Entry is made from sheet 1 of this table.

CONDITIONS:	1	2
1. Does the CDT display: SET MULTI-LEVEL INDIRECT SWITCH OFF (ESC J40 @ GO CR) PAGE 1 SUSPENDED SELF	Y	N
ACTIONS:		
1. At the CDT keyboard: Press ESC Type J40 @ GO Press CARRIAGE RETURN	1	
2. Go to sheet 3 of this table.	2	
3. Go to sheet 7 of this table.		X

TABLE 6-9. PAGE1 : MOS MEMORY PAGING FILE TEST DDLT (Contd)

ASSUMPTIONS:

Entry is made from sheet 2 of this table.

CONDITIONS:	1	2
1. After several seconds delay, does the CDT display: PAGE1 SECTION 0001 PAGE1 SECTION 0002 PAGE1 SECTION 0003 PAGE1 SECTION 0004 PAGE1 SECTION 0005 SET MULTI-LEVEL INDIRECT SWITCH ON (ESC J42 @ GO CR) PAGE1 SUSPENDED SELF	Y	N
ACTIONS:		
1. At the CDT keyboard: Press ESC Type J42 @ GO Press CARRIAGE RETURN	1	
2. Go to sheet 4 of this table.	2	
3. Go to sheet 7 of this table.		X

TABLE 6-9. PAGE1: MOS MEMORY PAGING FILE TEST DDLT (Contd)

Sheet 4 of 7

ASSUMPTIONS:

Entry is made from sheet 3 of this table.

CONDITIONS:	1	2
Does the CDT display: SET MULTI-LEVEL INDIRECT SWITCH OFF (ESC J40 @ GO CR) PAGE1 SUSPENDED SELF	Y	N

ACTIONS:			
1.	At the CDT keyboard: Press ESC Type J40 @ GO Press CARRIAGE RETURN	1	
2.	Go to sheet 5 of this table.	2	
3.	Go to sheet 7 of this table.		X

TABLE 6-9. PAGE1: MOS MEMORY PAGING FILE TEST DDLT (Contd)

Sheet 5 of 7

ASSUMPTIONS:

Entry is made from sheet 4 of this table.

CONDITIONS:	1	2
Does the CDT display: PAGE1 COMPLETED 0001 PASSES SET MULTI-LEVEL INDIRECT SWITCH ON (ESC J42 @ GO CR) PAGE1 SUSPENDED SELF	Y	N
ACTIONS:		
1. At the CDT keyboard: Press ESC Type J42 @ GO Press CARRIAGE RETURN	1	
2. Go to sheet 6 of this table.	2	
3. Go to sheet 7 of this table.		X

TABLE 6-9. PAGE1: **MOS MEMORY PAGING FILE TEST DDLT (Contd)**

			Sheet 6 of 7
ASSUMPTIONS: Entry is made from sheet 5 of this table.			
CONDITIONS: Does the CDT display: PAGE1 TERMINATED 0000 ERRORS		1 Y	2 N
ACTIONS:			
1.	Go to table 6-10.	X	
2.	Go to sheet 7 of this table.		X

TABLE 6-9. PAGE1 : MOS MEMORY PAGING FILE TEST DDLT (Contd)

Sheet 7 of 7

ASSUMPTIONS:

Entry is made from sheet 2, 3, 4, 5, or 6 of this table. An error has occurred.

CONDITIONS:	1	2	3
Does the CDT display:			
1. 0301 or 0302	Y	N	
2. 0303, 0304, 0306, 0351, 0352, or 0353		Y	N
ACTIONS:			
1. Return to sheet 1, action 2, of this table. Parameter A is incorrect.	1		
2. Repeat the loadcheck test (table 6-3) and this test. Run parameters are incorrect.	2	1	1
3. Replace memory interface, local slot V.			2
4. Replace memory interface, local slot W.			3
5. Replace transform, local slot R.			4
6. Replace control 2, local slot N.			5
7. Replace control 1, local slot P.			6
8. Replace I/O-TTY, local slot K.			7
9. Replace panel interface, local slot U.			8
10. Replace SMI, local slot L.			9
11. Replace ALU, local slot M.			10
12. Call next level of support.	3	2	11

TABLE 6-10. DUCPU: DUAL CPU DDLT

Sheet 1 of 7

ASSUMPTIONS:

1. If this test is not to be run, go to next table.
2. MOS main memory test (table 6-6), memory protect test (table 6-7), and micro memory test (table 6-8) run successfully in both CPUs.
3. Cassette drive for CPU 2 is empty.
4. CPU 1 is selected at the operators panel.

CONDITIONS:	1	2	3	4	5	6	7
1. Press MASTER CLEAR at operators panel. Press G at CDT. Does CDT display G?	Y						N
2. Select CPU 2 at operators panel. Press G at CDT. Does CDT display G?	Y					N	
3. Select CPU 1 at operators panel. Press G at CDT. Does CDT display H000000X0?	Y				N		
4. Select CPU 2 at operators panel. Press G at CDT. Does CDT display H000000X0?	Y			N			
5. Press DEADSTART at operators panel. Does DEADSTART indicator remain on?	Y		N				
6. Select CPU 1 and press MASTER CLEAR at the operators panel. Select CPU 2 at the operators panel. Is the DEADSTART indicator off?	Y	N					
ACTIONS:							
1. Go to sheet 2 of this table.	X						
2. Replace I/O-TTY, slot K (CPU 1).					1		1
3. Replace panel multiplexer board.		1		2	2		
4. Replace I/O-TTY, slot K (CPU 1).				1		1	
5. Call next level of support.		2	X	3	3	2	2

TABLE 6-10. DUCPU: DUAL CPU DDLT

ASSUMPTIONS:

1. CPU 1 is selected at operators panel and MASTER CLEAR button is pressed.

2. If load device is cassette:

   Level I tape is inserted into cassette drive for CPU 1.
   Cassette tape has rewound and READY indicator is on.

   DEADSTART button is pressed.

3. After xxxxx? is displayed, the following is entered at the CDT keyboard (if xxxxx? is not displayed, go to table 6-100):

   DUCPU is typed in.
   CARRIAGE RETURN is pressed.

   NOTE: xxxxx = test name

4. Observe the CDT display for the following conditions.

CONDITIONS:	1	2
1. Does the CDT display: DUCPU EXECUTING DUCPU SUSPENDED BOT	Y	N
ACTIONS:		
1. Go to table 6-100.		X
2. At the CDT keyboard: Type GO Press CARRIAGE RETURN	1	
3. Go to sheet 3 of this table.	2	

TABLE 6-10. DUCPU: DUAL CPU DDLT (Contd)

ASSUMPTIONS:

Entry is made from sheet 2 of this table.

CONDITIONS:	1	2
1. Does the CDT display: DUCPU SECTION 0001 DUCPU SECTION 0002 DUCPU SECTION 0003 DUCPU SECTION 0004 DUCPU SECTION 0005 DUCPU SECTION 0006 DUCPU SECTION 0007 DUCPU SECTION 0008 DUCPU SECTION 0009 SET PROTECT SWITCHES - PNL SEL - ESC - J28 @ - PNL SEL - J28 @ GO CR DUCPU SUSPENDED SELF	Y	N
ACTIONS:		
1. Press PANEL SELECT at the operators panel.	1	
2. At the keyboard: Press ESC Type J28 @	2	
3. Press PANEL SELECT at the operators panel.	3	
4. At the keyboard: Type J28 @ GO Press CARRIAGE RETURN	4	
5. Go to sheet 4 of this table.	5	
6. Go to sheet 6 of this table.		X

TABLE 6-10. DUCPU: DUAL CPU DDLT (Contd)

Sheet 4 of 7

ASSUMPTIONS:

Entry is made from sheet 3 of this table.

CONDITIONS:	1	2
Does the CDT display: RST PROTECT SWITCHES - PNL SEL - ESC - J20 @ - PNL SEL - J20 @ GO CR DUCPU SUSPENDED SELF	Y	N

ACTIONS:		
1. Press PANEL SELECT at the operators panel.	1	
2. At the keyboard: Press ESC Type in J20 @	2	
3. Press PANEL SELECT at the operators panel.	3	
4. At the keyboard: Type J20 @ GO Press CARRIAGE RETURN	4	
5. Go to sheet 5 of this table.	5	
6. Go to sheet 6 of this table.		X

TABLE 6-10. DUCPU: DUAL CPU DDLT (Contd)

Sheet 5 of 7

ASSUMPTIONS:

Entry is made from sheet 4 of this table.

CONDITIONS:	1	2
Does the CDT display: DUCPU COMPLETED 0001 PASSES DUCPU TERMINATED 0000 ERRORS	Y	N
ACTIONS:		
1. Go to next table.	X	
2. Repeat this test. Operator error is suspected.		1
3. Call next level of support.		2

TABLE 6-10: DUCPU: DUAL CPU DDLT (Contd)

ASSUMPTIONS:

Entry is made from sheet 3 or 4 of this table. An error has occurred.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10
Does the CDT display:										
1. 0D01	Y	N								
2. 0D02		Y	N							
3. 0D03			Y	N						
4. 0D04				Y	N					
5. 0D05					Y	N				
6. 0D06						Y	N			
7. 0D07							Y	N		
8. 0D08								Y	N	
9. 0D09									Y	N
ACTIONS:										
1. Repeat this test from sheet 2. Wrong parameter.	1									
2. Replace SMI, slot L, CPU 1.		1	1	1	2	2		2	1	
3. Replace SMI, slot L, CPU 2.				2	1	1	1	1	2	
4. Replace panel multiplexer board.		3		3	3	3		4	4	
5. Examine connectors at each end of panel multiplexer-CPU 1 and panel multiplexer-CPU 2 cable assemblies for loose fit or broken wire.		2						3	3	
6. Examine connector over backpanel pins 52-76 at slot K, CPU 2, for loose fit or broken wire.			2							
7. Examine interrupt jumper plug over back panel pins 70-81 at slot L, CPU 2, for loose fit or broken wire.							2			
8. Go to sheet 7 of this table.										X
9. Call next level of support.	2	4	3	4	4	4	3	5	5	

TABLE 6-10. DUCPU: **DUAL CPU DDLT (Contd)**

ASSUMPTIONS:

Entry is made from sheet 6 of this table. An error has occurred.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7
1. 0D0A	Y	N					
2. 0D0B		Y	N				
3. 0D0C			Y	N			
4. 0D0D				Y	N		
5. 0D10, 0D11, 0D14, 0D15, or 0D16					Y	N	
6. 0D12, 0D13, 0D17, 0D18, or 0D19						Y	N
ACTIONS:							
1. Replace memory interface, CPU 1, slot V.	1	1	11	3	1	1	4
2. Replace memory interface, CPU 1, slot W.	2	2	12	4	2	2	5
3. Replace memory interface, CPU 2, slot V.	3	11	1	1	3	3	1
4. Replace memory interface, CPU 2, slot W.	4	12	2	2	4	4	2
5. Replace transform, CPU 1, slot R.	6	4					13
6. Replace control 1, CPU 1, slot P.	7	5					14
7. Replace control 2, CPU 1, slot N.	8	6					15
8. Replace ALU, CPU 1, slot M.	9	7					16
9. Replace SMI, CPU 1, slot L.	10	8					17
10. Replace I/O-TTY, CPU 1, slot K.	11	9					18
11. Replace 2K RAM, CPU 1, slot S.	12	10					19
12. Replace MOS array, CPU 1, slot X.	13	3	13	5			20
13. Replace MOS array, CPU 2, slot X.	5	13	3	13			3
14. Replace transform, CPU 2, slot R.			4	6			6
15. Replace control 1, CPU 2, slot P.			5	7			7

Continued on next page

TABLE 6-10. DUCPU: DUAL CPU DDLT (Contd)

Sheet 7 of 7 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7
16. Replace control 2, CPU 2, slot N.			6	8			8
17. Replace ALU, CPU 2, slot M.			7	9			9
18. Replace SMI, CPU 2, slot L.			8	10			10
19. Replace I/O-TTY CPU 2, slot K.			9	11			11
20. Replace 2K RAM CPU 2, slot S.			10	12			12
21. Replace cable at slot W, pin 77, CPU 2.					5		
22. Replace cable at slot W, pin 53, CPU 2.					6		
23. Replace cable at slot V, pin 240, CPU 2.					7		
24. Replace cable at slot W, pin 77, CPU 1.						5	
25. Replace cable at slot W, pin 53, CPU 1.						6	
26. Replace cable at slot V, pin 240, CPU 1.						7	
27. Call next level of support.	14	14	14	14	8	8	21

TABLE 6-11. CRECO: CARD READER/LINE PRINTER CONTROLLER ECHO TEST DDLT

ASSUMPTIONS:

1. If this test is not to be run, go to the next table.

2. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):

   CRECO is typed in.
   CARRIAGE RETURN is pressed.

   NOTE: xxxxx = test name

3. The diagnostic stops with the message CRECO SUSPENDED BOT displayed. If more than one card reader/line printer controller is present in the system, go to procedure A27. If only one controller is present enter the following at the keyboard:

   Type in GO
   Press CARRIAGE RETURN

4. Observe the CDT 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 card reader/line printer controller to be tested?	N		Y			
5. Is this device suspected by the customer?	N	Y				
ACTIONS:						
1. Go to next table.	X					
2. Go to table 6-100.					X	
3. Replace card reader/line printer controller, slot J (procedures D25,F24,S1).				2		
4. Replace I/O-TTY, slot K.				3		
5. Replace ALU, slot M.				4		
6. Replace SMI, slot L.				5		
7. Replace transform, slot R.				6		
8. Replace control 1, slot P.				7		
9. Replace control 2, slot N.				8		
10. Go to table 6-101.				9		X
11. Verify Interrupt / Equipment no. (per proc. A28.)			X	1		
12. Go to table 6-50.		X				

TABLE 6-12 CASEC: CASSETTE ECHO TEST DDLT

ASSUMPTIONS:

1. If this test is not to be run, go to the next table.
2. If there are two cassette transports (Unit 0 and Unit 1) in the system, tests are performed first on unit 0.
3. Interrupt/Equipment numbers are properly set (procedure A28)

4. After XXXXX? is displayed, the following is entered at the keyboard (if XXXXX is not displayed, go to Table 6-100):
   CASEC is typed in
   CARRIAGE RETURN is pressed
5. NOTE: XXXXX = test name
   Observe the CDT display for one of the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does the CDT display: CASEC EXECUTING READY SELECTED UNIT WITH WRITE ENABLED SCRATCH CASSETTE (UNLESS ONLY SECTION 2 CHOSEN) CASEC SUSPENDED SELF	Y	N										
2. Is the run indicator illuminated		Y	N									
ACTIONS												
1. Install a write enabled scratch cassette in each unit per procedure H1. (If scratch cassette cannot be installed because takeup and supply reels keep turning with the lid on the transport lifted, replace the cassette transport, procedure H7). Permit tape to rewind until READY indicator on operator panel illuminates.	1											
2. Type GO Press CARRIAGE RETURN	2											
3. Go to sheet 2 of this table	3											
4. Repeat Loadcheck and restart test. Probably an operator error has occurred.		1										
5. Go to table 6-100.		2	X									

ASSUMPTIONS:

1 - Entry is made from sheet 1 of this table

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Does the CDT Display:												
CASEC SECTION 1												
CASEC SECTION 2												
CASEC SECTION 3												
CASEC SECTION 4												
CASEC SECTION 5												
CASEC SECTION 6												
CASEC COMPLETED 0001 PASSES	Y			N								
CASEC SUSPENDED ENDP												
2 - Is there another cassette transport on this CPU which has not yet been tested?	Y	N										
3 - Does the customer suspect a cassette problem?		Y	N									
4 - Is an action Code displayed?				Y	N							
ACTIONS:												
1 - Press MASTER CLEAR Press RUN	1		2									
2 - Type A,1 Press CARRIAGE RETURN	2											
3 - Type GO Press CARRIAGE RETURN	3											
4 - Unit 1 has now been selected, Restart this page.	4											
5 - Remove scratch cassette(s)		1	1									
6 - Repeat Loadcheck			3									
7 - Go to Table 6-50		2										
8 - Go to next table			4									
9 - Go to sheet 3 of this table				X								
10 - Repeat Loadcheck and restart test. Probably an operator error has occurred.					1							
11 - Call next level of support					2							

[redacted]

ASSUMPTIONS:

Entry is made from sheet 2 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
Does the CDT display:												
1. 0C10	Y	N										
2. 0C11		Y	N									
3. 0C20			Y	N								
4. 0C21				Y	N							
5. 0C30					Y	N						
6. 0C40						Y	N					
7. 0C41							Y	N				
8. 0C50								Y	N			
9. 0C80									Y	N		
10. 0C81										Y	N	
ACTIONS:												
1. Replace cassette controller, slot E	1	1	1	1	1	1	1	1	1	2		
2. Replace I/O-TTY controller, slot K	2	2	2	2	2	2	2	2	2	3		
3. Replace Control 1, slot P	3	3	3	3	3	3	3	3	3	4		
4. Replace ALU, slot M	4	4	4	4	4	4	4	4	4	5		
5. Replace SMI, slot L	5	5	5	5	5	5	5	5	5	6		
6. Replace Control 2, slot N	6	6	6	6	6	6	6	6	6	7		
7. Replace Transform, slot R	7	7	7	7	7	7	7	7	7	8		
8. Replace cassette transport (Procedure H7)	8	8	8	8	8		8	8	8	9		
9. Repeat Loadcheck and restart test. Probably an operator error has occurred.										1		
10. Call next level of support	9	9	9	9	9	8	9	9	9	10	X	

TABLE 6-13:CC614 CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT

Read-Only Memory (ROM) Test (Test Section 0) — Sheet 1 of 6

ASSUMPTIONS:

1. Conversational display terminal (CDT) power cord is connected to ac outlet.
2. Circuit breaker CB1 (rear panel) is up.
3. POWER ON switch is in ON position.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10
1. Does circuit breaker CB1 remain up?	Y									N
2. Place TEST/NORMAL switch (rear panel) in NORMAL position. Place ON LINE/LOCAL switch in LOCAL position. Wait 30 seconds. Does blinking cursor appear on screen?	Y						N			
3. Place TEST/NORMAL switch in TEST position. Press MASTER CLEAR switch (rear panel). Does checksum display appear as shown in figure 6E-39?	Y	N								
4. Is ALERT indicator illuminated?	Y	N								
5. Turn up INTENSITY control. Is normal raster visible (figure 6E-45)?							Y	N		
6. Do any characters appear on screen?			Y			N				
7. Is anything visible?								Y	N	
8. Is a general checksum display format recognizable?			Y		N					
9. Does one or more of checksum digits have nonzero value (alarm sounds)?			Y	N						
ACTIONS:										
1. Go to sheet 2 of this table.	X									
2. Go to sheet 6 of this table and perform all voltage checks.								4	1	
3. Check printed-circuit boards for proper seating.		1	1	1	1	1	1	1	6	
4. Perform monitor adjustment and troubleshooting (procedure E26). If required, replace monitor board (procedure E11).							8	3	7	
5. Replace refresh board U6 (procedure E8).			4	2	6		2	2	4	
6. Check CDT cables and connections and CRT for lighted filament.								5	2	
7. Check back panel cable connector connection.		5	6	6	5	6	6	8	3	
8. Replace CRT (procedure E13).								7	11	

Continued on next page

TABLE 6-13:CC614 CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)

Read-Only Memory (ROM) Test (Test Section 0)										Sheet 1 of 6 (Contd)	
ACTIONS (Continued):		1	2	3	4	5	6	7	8	9	10
9.	Check yoke (procedure E14). Replace yoke, if required (procedure E15).								6	8	
10.	Check voltages: +5v, ±12v. and -9v (procedure E22).			7	7	7	5	7			
11.	Replace processor board 09 (procedure E8).		4	5	5	2	4	5			
12.	Replace ROM/RAM board 08 (procedure E8).		2	2	3	3	2	3			
13.	Replace extended memory board 05B (procedure E8).		3	3	4	4	3	4			
14.	Replace indicator-panel LED board (procedure E10).		6								
15.	Replace TEST/NORMAL and MASTER CLEAR switches (procedures E6 and E7).					8	7				
16.	Replace high-voltage transformer (procedure E3).									9	
17.	Check INTENSITY control and related cabling (procedure E23).									10	
18.	Check POWER ON/OFF switch (procedure E28).									12	3
19.	Replace +5v regulator board 03A (procedure E8).										1
20.	Replace circuit breaker (procedure E5).										2
21.	Call next level of support.		7	8	8	9	8	9	9	13	4

TABLE 6-13:CC614 CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)

Random-Access Memory (RAM) Test (Test Section 1)							Sheet 2 of 6
ASSUMPTIONS:							
1. Review conditions prior to next step.							
2. 9-key on keyboard is pressed.							
CONDITIONS:	1	2	3	4	5	6	
1. Does ALERT light blink off? (It must blink off to indicate start of RAM test.)	Y					N	
2. Does display cycle through full screen of all 128 displayable characters twice without halting? (Second pass displays blinking underline under alternate character positions.)	Y	N					
3. Did test halt before two complete passes?		Y		N			
4. Did alarm sound?		Y	N				
5. Is checksum display from ROM test (test section 0) still being displayed?				Y	N		
ACTIONS:							
1. Go to sheet 3 of this table.	X						
2. Check for proper printed-circuit board seating.		1	1	2	1	1	
3. Replace ROM/RAM board 08 (procedure E8).		2	2		2		
4. Replace extended memory board 05B (procedure E8).		3	3		3		
5. Replace processor board 09 (procedure E8).		6	4		4	2	
6. Check voltages: +5v, ±12v, and -9v (procedure E22).		4	5		5		
7. Check back cable connector.		5	6	4	6	4	
8. Check keyboard cable and connector.				1		3	
9. Replace keyboard (procedure E18).				3		5	
10. Call next level of support.		7	7	5	7	6	

NOTE: After completing any repairs and after performing any maintenance, verify that the system is fully operational by rerunning test mode.

TABLE 6-13:CC614 **CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)**

Shifting Pattern and I/O Test (Test Section 2)				Sheet 3 of 6
ASSUMPTIONS: 9-key on keyboard is pressed.				
CONDITIONS:	1	2	3	4
1. Is continuously shifting pattern of characters displayed on screen?	Y		N	
2. Did alarm sound?			Y	N
3. Are REC and TRANS indicators illuminated and do they blink occasionally?	Y	N		
ACTIONS:				
1. Go to sheet 4 of this table.	X			
2. Check for proper printed-circuit board seating.		1	1	1
3. Replace ROM/RAM board 08 (procedure E8).			6	2
4. Replace processor board 09 (procedure E8).		3	2	3
5. Check voltages: +5v, ±12v, and -9v (procedure E22).			3	5
6. Check back cable connection.		2	4	6
7. Replace TEST/NORMAL switch (procedure E6).			5	7
8. Replace LED board for indicator/switch (procedure E10).		4		
9. Replace extended memory board 05B (procedure E8).			7	4
10. Call next level of support.		5	8	8

NOTE: After completing any repairs and after performing any maintenance, verify that the system is fully operational by rerunning test mode.

TABLE 6-13:CC614 CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)

Keyboard and Display Quality Checks (Test Section 3)

ASSUMPTIONS:

9-key on keyboard is pressed.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Does shifting pattern of previous test halt?	Y								N
2. Remove hood (procedure E21). Perform keyboard checks (procedure E25). Was proper character displayed for each keyboard entry?	Y							N	
3. Place 64 CHAR/96 CHAR switch in 96 CHAR position. Press lowercase M key. Are Ms clear and well-defined over entire screen? (Upon completion of test, return switch to its original position.)	Y						N		
4. Press uppercase H key. Are all Hs same height and width?	Y					N			
5. Are Hs stable?	Y				N				
6. Press space bar once. Turn INTENSITY control until raster appears. Is CRT phosphor free of any objectionable burn spots or blemishes?	Y			N					
7. Are all four sides of raster rectangle straight?	Y		N						
8. Are height and width of display approximately 5.25 inches (13.3 cm) and 8 inches (20.3 cm), respectively?	Y	N							
ACTIONS:									
1. Press a character and return INTENSITY control to normal. Press space bar twice. Go the sheet 5 of this table.	X								
2. Check printed-circuit boards for proper seating.								4	1
3. Replace ROM/RAM board 08 (procedure E8).									2
4. Replace extended memory board 05B (procedure E8).									3
5. Replace processor board 09 (procedure E8).								5	4
6. Check voltages: +5v, ±12v, and -9v (procedure E22).									5
7. Check back panel connections.								2	6
8. Check keyboard cable and connector.								1	
9. Replace keyboard (procedure E18).								3	

Continued on next page

TABLE 6-13:CC614 **CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)**

Keyboard and Display Quality Checks (Test Section 3)									Sheet 4 of 6 (Contd)	
ACTIONS (Continued):	1	2	3	4	5	6	7	8	9
10. Replace refresh board 06 (procedure E8).								6	
11. Check 64 CHAR/96 CHAR switch (procedure E28).							1		
12. Perform adjustment and troubleshooting (procedure E26).		1			1	1			
13. Perform refresh stability adjustment and troubleshooting (procedure E30).					2				
14. Replace CRT (procedure E13) if spot interferes with character display.				1					
15. Perform horizontal and vertical alignment adjustment and troubleshooting (procedure E14).			1						
16. Call next level of support.		2	2	2	3	2	2	7	7

TABLE 6-13:CC61⅓ CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)

External Switch Checks (Test Section 7) — Sheet 5 of 6

ASSUMPTIONS:

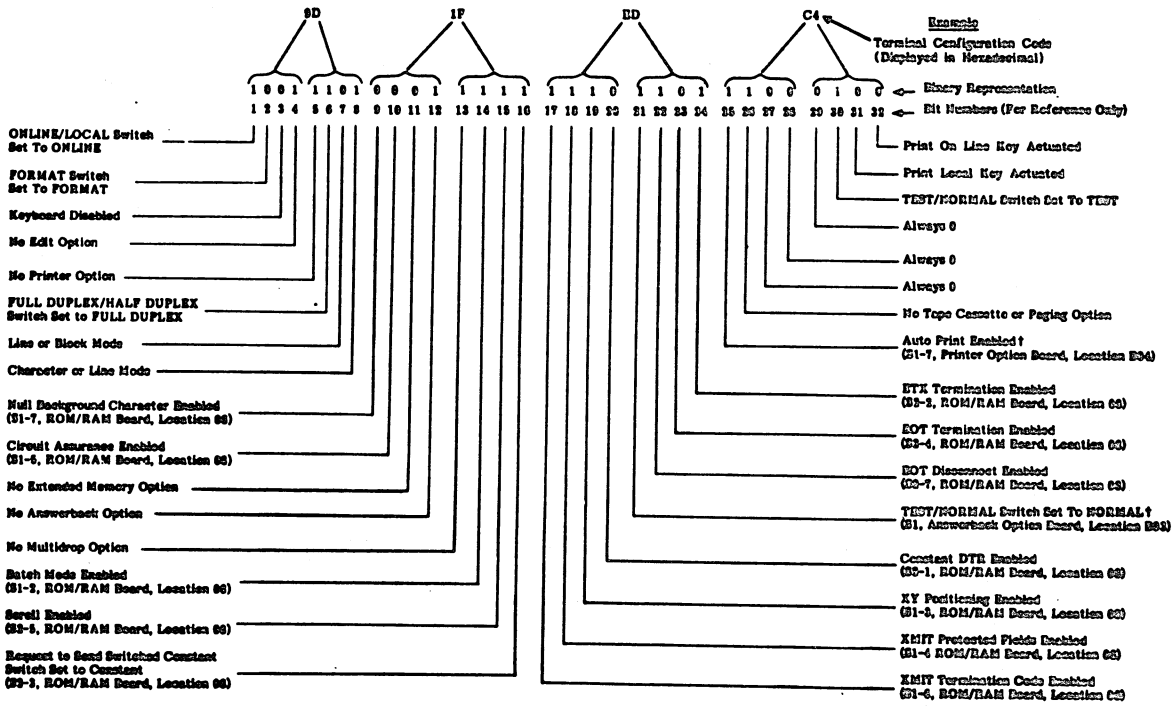
1. Record original position of switches listed in assumption 2 and upon completion of tests return them to these positions.
2. External switches are set to: 64 CHAR, non-format, ON LINE, CHARACTER, EVEN PAR, FULL DUPLEX, HIGH RATE.
3. CDT is in page mode (see table 7E-1).

CONDITIONS:	1	2	3	4	5	6	7
1. Is terminal configuration code displayed on screen? 9D 1F ED C4	Y					N	
2. Place CHARACTER/LINE/BLOCK switch in each of its positions while observing the code displayed above. Does CHARACTER = 9D 1F ED C4, LINE = 9F 1F ED C4, BLOCK = 9E 1F ED C4? (Return switch to CHARACTER.)	Y				N		
3. Place ON LINE/LOCAL switch to ON LINE and then to LOCAL while observing the code displayed above. Does ON LINE = 9D 1F ED C4, LOCAL = 1D 1F ED C4? (Return switch to ON LINE.)	Y			N			
4. Place FULL DUPLEX/HALF DUPLEX switch to FULL DUPLEX and then to HALF DUPLEX while observing code on display. Does FULL DUPLEX = 9D 1F ED C4, HALF DUPLEX = 99 1F ED C4? (Return switch to FULL DUPLEX.)	Y		N				
5. Place FORMAT switch in FORMAT position while observing code on display. Does FORMAT = DD 1F ED C4? (Return switch to alternate position.)	Y	N					
ACTIONS:							
1. (Return test mode to NORMAL.) Press red MASTER CLEAR button at rear of CDT. Replace cover. Go to sheet 1, table 6-3.	X						
2. Verify that printed circuit boards are properly seated.		2	2	2	2	2	
3. Replace ROM/RAM boards 08 amd 05 (procedure E8).		4	4	4	4	3	
4. Replace extended memory board 05B (procedure E8).		5	5	5	5	4	
5. Replace processor board 09 (procedure E8).					6	5	
6. Check voltages: +5v, +12v, and -9v (procedure E22).						6	
7. Observe back panel connections.		3	3	3	3	7	
8. Check CHARACTER/LINE/BLOCK switch and wiring (procedure E27).					1		
9. Check ON LINE/LOCAL switch and wiring (procedure E28).				1			

Continued on next page

TABLE 6-13:CC614 **CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)**

External Switch Checks (Test Section 7)	Sheet 5 of 6 (Contd)						
ACTIONS (Continued):	1	2	3	4	5	6	7
10. Check FULL DUPLEX/HALF DUPLEX switch and wiring (procedure E28).			1				
11. Check FORMAT switch and wiring (procedure E28).		1					
12. If the CDT display 9D IF ED C4 is not correct, see figures 4E-5 and 4E-6 for location and set switches as shown in the table below.						1	
13. Call next level of support.		6	6	6	7	8	



†Bit is set to 1 when option is not installed.

Terminal Configuration Display Bit Assignments

TABLE 6-13:CC614 CONVERSATIONAL DISPLAY TERMINAL OFF-LINE TEST DDLT (Contd)

Voltage Checks	Sheet 6 of 6

ASSUMPTIONS:

Voltage checks are performed (procedure E20).

CONDITIONS:	1	2	3	4	5
1. Were all voltage checks OK (procedure E20, steps 1 through 17)?	Y	N			
2. Where +15v and +5v checks OK (procedure E20, steps 18 through 26)?		Y	N		
3. Are LEDs illuminated on +5v regulator board 03 (figure 6E-33)?			Y	N	
4. Are LEDs illuminated on bulk power supply printed-circuit board (figure 6E-33)?				Y	N
ACTIONS:					
1. Replace high-voltage transformer (procedure E3).	1				
2. Replace video printed-circuit board (procedure E11).		1			
3. Check for +19 vdc on base of +15v regulator power transistor (figure 6E-4). Check for +15 vdc on emitter of +15v regulator power transistor (figure 6E-4). If +19 ±2v is found on base of transistor, but +15 ±2v is not found on emitter, replace power transistor (procedure E4). If voltages are OK, replace printed-circuit board.			1		
4. Replace +5v regulator board 03A (procedure E8).				1	
5. Check for 110 vac to 124 vac at wall outlet.					1
6. Check input power cabling from ac wall outlet to bulk power supply.					2
7. Replace bulk power supply (procedure E17).					3
8. Call next level of support.	2	2	2	2	4

NOTE: After completing any repairs and after performing any maintenance, verify that the system is fully operational by rerunning test mode.

TABLE 6-14 LIAT2: **CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT**

Diagnostic Test of CC614 when connected to I/O TTY Card

ASSUMPTIONS:

1. If this test is not to be run, go to next table.
2. **The CDT off-line test (table 6-13) has been performed. If not go to table 6-13, then return to this table. CDT is in page mode (see table 7E-1).**
3. **After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):**

   LIAT2 is typed in.
   CARRIAGE RETURN is pressed.

   NOTE: xxxxx = test name
4. **Observe the CDT display for the following conditions.**

CONDITIONS:	1	2	3
1. **Is LIAT2 EXECUTING displayed?**	Y	N	
2. **Is RUN indicator illuminated?**		N	Y
ACTIONS:			
1. **Go to sheet 2 of this table.**	X		
2. **Go to table 6-100.**		X	
3. **Go to table 6-101.**			X

TABLE 6-14. LIAT2:CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected toI/O TTY Card			Sheet 2 of 14
ASSUMPTIONS: Observe CDT display for any of the following conditions.			
CONDITIONS:	1	2	3
1. Is LIAT2 SUSPENDED ENDS displayed?	Y	N	
2. Is there an action code?		Y	N
ACTIONS:			
1. Go to sheet 3 of this table.	X		
2. Go to sheet 14 of this table.		X	
3. Call next level of support.			X

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card — Sheet 3 of 14

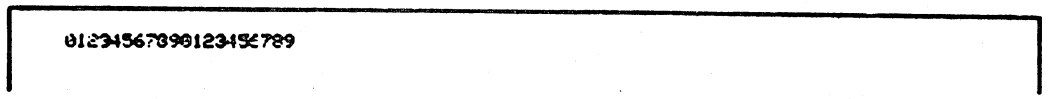
ASSUMPTIONS:

1. Conditions 1 through 6 below are understood before test execution.
2. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.
3. Observe CDT display for any of the following conditions.

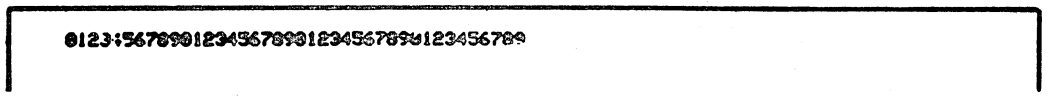
CONDITIONS:	1	2	3	4	5	6	7
1. Does sonic alarm sound three times?	Y						N
2. Does the screen clear?	Y					N	
3. Does the cursor move from position 0 to 80 and back across the screen several times?	Y				N		
4. Are the following test patterns displayed in order (see sheet 4 of this table)?	Y			N			
5. Does the screen clear?	Y		N				
6. Is LIAT2 SUSPENDED ENDS displayed?	Y	N					
ACTIONS:							
1. Go to sheet 5 of this table.	X						
2. Replace processor board, CDT, slot 9.			1	1	3		2
3. Replace refresh board, CDT, slot 6.			2	2		2	
4. Replace I/O-TTY, micro processor, slot K.					1		1
5. Replace SMI board, micro processor, slot L.					2		
6. Go to sheet 14 of this table.		X					
7. Check and replace audible alarm (procedure E29).							3
8. Call next level of support.			3	3	4	3	

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

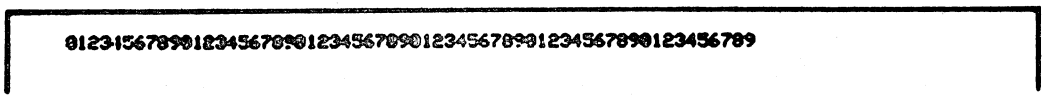
Diagnostic Test of CC614 when connected to I/O TTY Card — Sheet 4 of 14



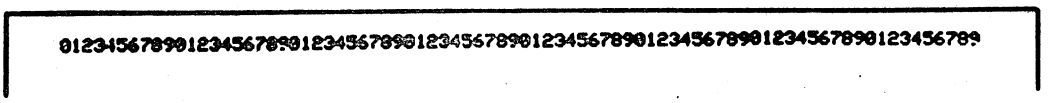
Test Pattern 1



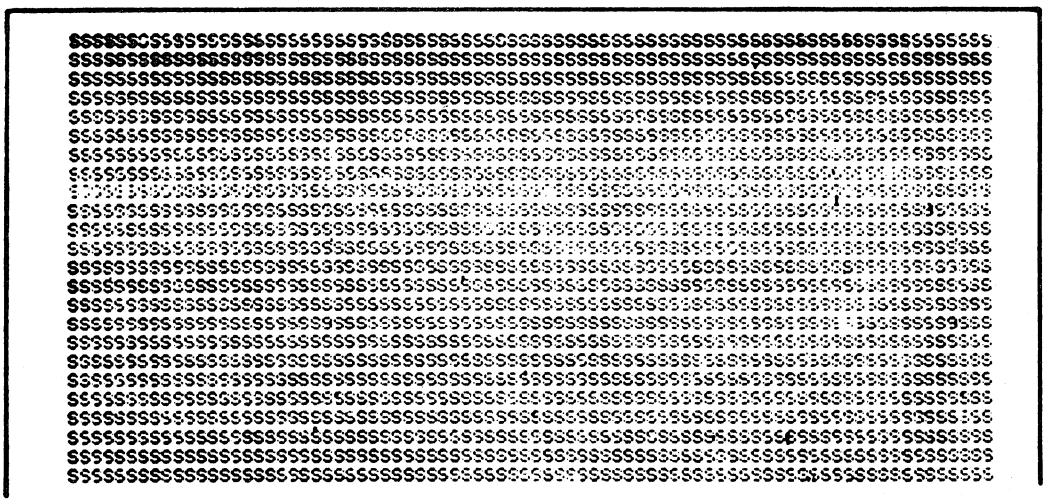
Test Pattern 2



Test Pattern 3



Test Pattern 4



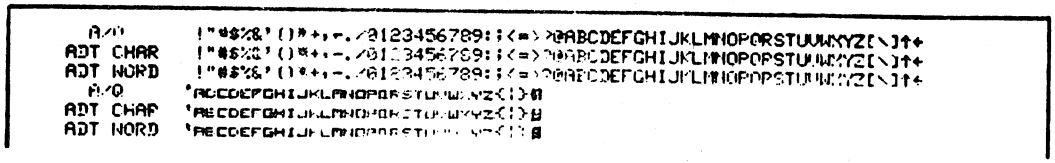
Test Pattern 5

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

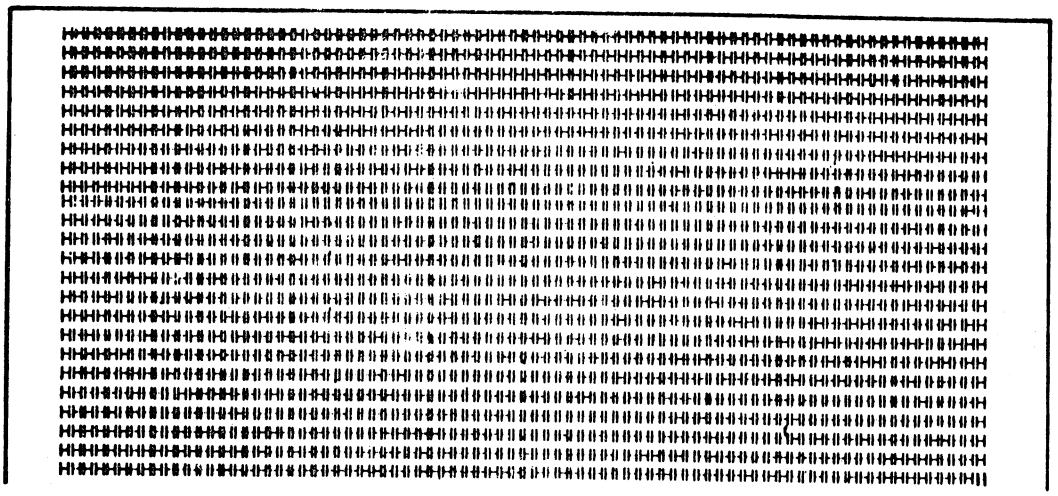
Diagnostic Test of CC614 when connected to I/O TTY Card				Sheet 5 of 14
ASSUMPTIONS:				
1. Conditions 1 and 2 are read to prepare for test execution.				
2. The following is entered at the keyboard: GO is typed in. CARRIAGE RETURN is pressed.				
3. Observe CDT display for any of the following conditions.				
CONDITIONS:	1	2	3	
1. Are test patterns on sheet 6 of this table displayed in order?	Y		N	
2. Is LIAT2 SUSPENDED ENDS displayed?	Y	N		
ACTIONS:				
1. Go to sheet 7 of this table.	X			
2. Go to sheet 14 of this table.		X		
3. Replace processor board, CDT, slot 9.			1	
4. Replace refresh board, CDT, slot 6.			2	
5. Call next level of support.			3	

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

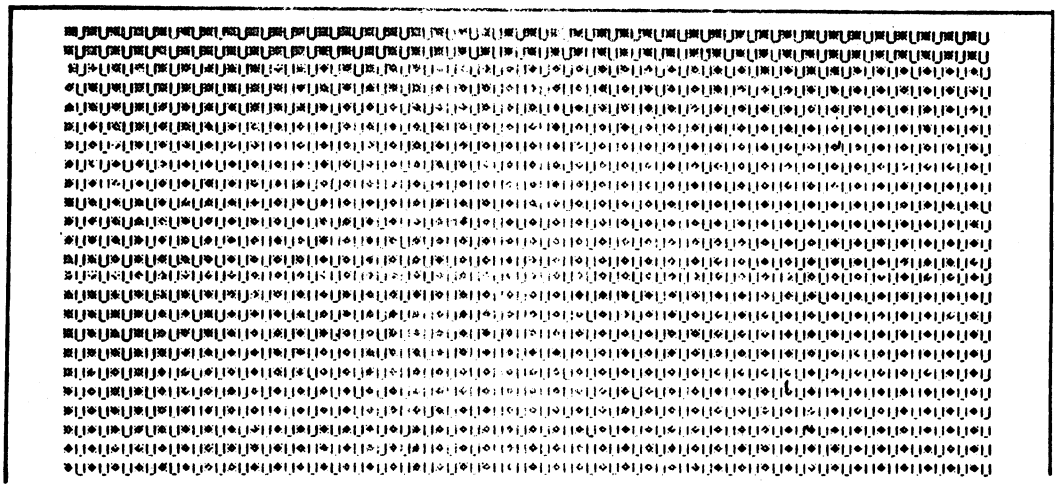
Diagnostic Test of CC614 when connected to I/O TTY Card



Test Pattern 6



Test Pattern 7



Test Pattern 8

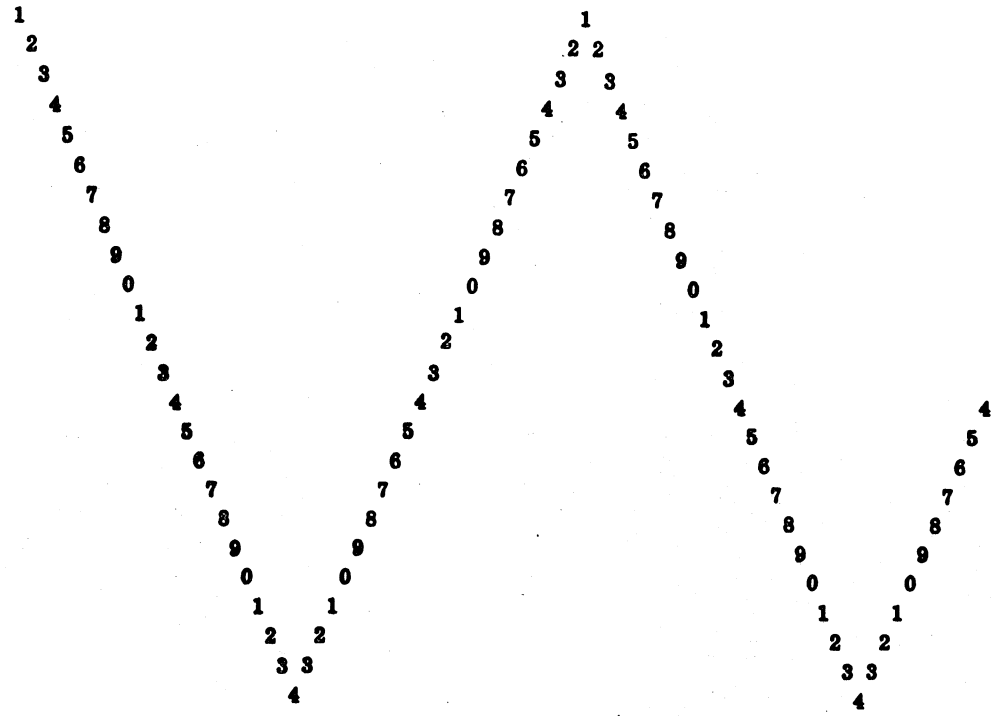
Test Pattern 9

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card			Sheet 7 of 14
ASSUMPTIONS: 1. The following is entered at the keyboard: GO is typed in. CARRIAGE RETURN is pressed. 2. Observe CDT display for test pattern 10 (next page) and for any of the following conditions.			
CONDITIONS:	1	2	3
1. Is LIAT2 SUSPENDED ENDS displayed?	Y	N	
2. Is there an action code?		Y	N
ACTIONS:			
1. Go to sheet 9 of this table.	X		
2. Go to sheet 14 of this table.		X	
3. Call next level of support.			X

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card



Test Pattern 10

TABLE 6-14. LIAT2: **CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)**

Diagnostic Test of CC614 when connected to I/O TTY Card				Sheet 9 of 14
ASSUMPTIONS: 1. The following is entered at the keyboard: GO is typed in. CARRIAGE RETURN is pressed. 2. Observe CDT display for any of the following conditions. NOTE: All indicators are illuminated except LINE, BLOCK MODE, ALERT and FORMAT MODE during the lamp test.				
CONDITIONS:	**1**	**2**	**3**	
1. Is LIAT2 SUSPENDED ENDS displayed?	Y	N		
2. Is there an action code?		Y	N	
ACTIONS:				
1. Go to sheet 10 of this table.	X			
2. Go to sheet 14 of this table.		X		
3. Call next level of support.			X	

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card — Sheet 10 of 14

ASSUMPTIONS:

1. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.
2. When requested by the display, 1234567890 is typed in on the keyboard.
3. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3
1. Is LIAT2 SUSPENDED ENDS displayed?	Y	N	
2. Is there an action code?		Y	N
ACTIONS:			
1. Go to sheet 11 of this table.	X		
2. Go to sheet 14 of this table.		X	
3. Call the next level of support.			X

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card — Sheet 11 of 14

ASSUMPTIONS:

1. The following is entered at the keyboard:

   GO is typed in.
   CARRIAGE RETURN is pressed.

2. When requested by display, the following is entered at the keyboard:

   ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890 is typed in.
   CARRIAGE RETURN key is pressed.

3. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4
1. Is LIAT2 SUSPENDED ENDS displayed?	Y		N	
2. Does the display repeat that data exactly below the input data?	Y	N		
3. Is there an action code?			Y	N
ACTIONS:				
1. Go to sheet 12 of this table.	X			
2. Replace processor board, CDT, slot 9.		2		
3. Replace I/O-TTY, micro processor, slot K.		1		1
4. Replace SMI board, micro processor, slot L.				2
5. Go to sheet 14 of this table.			X	
6. Call next level of support.		3		3

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card	Sheet 12 of 14		
ASSUMPTIONS:			
1. The following is entered at the keyboard: GO is typed in. CARRIAGE RETURN is pressed.			
2. Entries are made as directed by the display.			
3. Observe CDT display for any of the following conditions.			
CONDITIONS:	1	2	3
1. Is LIAT2 SUSPENDED ENDS displayed?	Y	N	
2. Is there an action code?		Y	N
ACTIONS:			
1. Go to sheet 13 of this table.	X		
2. Go to sheet 14 of this table.		X	
3. Call the next level of support.			X

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card — Sheet 13 of 14

ASSUMPTIONS:

1. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.
2. Entries and switch changes are made as directed by display.
3. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4
1. Is LIAT2 SUSPENDED ENDS displayed?	Y		N	
2. Is there an action code?			Y	N
3. Is this a verification run?	Y	N		
ACTIONS:				
1. At the keyboard: Type in GO Press CARRIAGE RETURN	1	1		
2. Go to next table.	3			
3. Go to sheet 14 of this table.			X	
4. Call next level of support.				X
5. Using notes prepared at the beginning of CDT testing, set switches to their original positions.	2	2		
6. Go to table 6-3 and begin verification run.		3		

TABLE 6-14. LIAT2: CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT (Contd)

Diagnostic Test of CC614 when connected to I/O TTY Card — Sheet 14 of 14

ASSUMPTIONS:

1. An action code is displayed on CDT screen.
2. Observe CDT display for the following conditions.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7
1. 0711 or 0731 or 0721 or 0722 or 0732	Y	N					
2. 0733		Y	N				
3. 0741			Y	N			
4. 0742				Y	N		
5. 0750					Y	N	
6. 0751						Y	N
ACTIONS:							
1. Replace processor board, CDT, slot 9.	1	1	3	1	1	1	
2. Replace refresh board, CDT, slot 6.				4		2	
3. Replace memory board, CDT, slot 8.			1	2			
4. Replace memory board, CDT, slot 5B.			2	3			
5. Replace I/O-TTY, micro processor, slot K.	2	3	4		2	3	
6. Replace SMI board, micro processor, slot L.		2			3		
7. Call next level of support.	3	4	5	5	4	4	1

TABLE 6-15 SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT

SMDDA Start-Up — **Sheet 1 of 23**

ASSUMPTIONS:

1. If this device is not part of the hardware system, go to the next table.
2. Storage Module Drive (SMD) power is on (procedure J1).
3. All SMDs are not ready and disk packs are removed (procedure J4).
4. MOS Main Memory Test (Table 6-6) has previously been run.
5. xxxxx? is displayed on the CDT. The following is entered at the keyboard:

   SMDDA is typed in.
   CARRIAGE RETURN is pressed.

6. The following is displayed on the CDT:

   SMDDA EXECUTING
   SET MULTI-LEVEL INDIRECT SWITCH OFF (ESC J40 @ GO CR)
   SMDDA SUSPENDED SELF

   The following is entered at the keyboard:

   ESC J40 @ GO is typed in.
   CARRIAGE RETURN is pressed.

7. Observe the CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4
1. Is the following displayed within four minutes: SET MULTI-LEVEL INDIRECT SWITCH ON (ESC J42 @ GO CR) SMDDA SUSPENDED SELF	Y	N		
2. Are any action codes displayed:		Y	N	
3. Is the RUN light illuminated on the operators panel?			Y	N
ACTIONS:				
1. Enter the following at the keyboard: Type in ESC J42 @ GO Press CARRIAGE RETURN	1			
2. Go to sheet 4 of this table.	2			
3. Go to sheet 2 of this table.		X		
4. Go to table 6-100.			X	
5. Call the next level of support.				X

TABLE 6-15. SMDDA, SMDCU and SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMDDA Action Codes					Sheet 2 of 23
ASSUMPTIONS: 1. Entry is made from sheet 1 of this table. 2. A failure has been detected. Observe the CDT display for any of the following action codes.					
CONDITIONS: Does the CDT display:	1	2	3	4	
1. 2001 or 2002 or 2003 or 2004	Y	N			
2. 2011 through 2016 or 2021 through 2026		Y	N		
3. 2038, 2039, 2040 through 2043, 2050, 2051, 2060, 2061 or 2080 through 209F			Y	N	
4. 2027 or 2028				Y	
ACTIONS:					
1. Replace the disk adapter board {procedure J26}.		1	1	1	
2. This is a parameter entry error. Go to sheet 1 of this table and restart.	1				
3. Verify the equipment number and interrupt line number {procedures J26 & A28}.	2	2			
4. Verify that no other devices have the same equipment code. Check the switches or jumpers of all other controllers. Refer to section 4 for each device.	3	3	2		
5. Check the SMD interface autoload connector and signal cables. Refer to figure 5J-1.		4	3		
6. Go to sheet 23 of this table.		5	4	2	
7. Call the next level of support.	4				

TABLE 6-15. SMDDA, SMDCU and SMDO1: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Retest	Sheet 3 of 23
ASSUMPTIONS:	
1. Entry may be made from sheets 6 through 9 of this table.	
2. A failure was detected and a procedure was performed on the control unit.	
ACTIONS:	1
1. Press the STOP button on the operators panel.	1
2. Press the MASTER CLEAR button on the operators panel.	2
3. Press the RUN button on the operators panel	3
4. Go to sheet 4 of this table.	4

Table 6-15. SMDDA, SMDCU and SMD01 STORAGE MODULE DRIVE DDLT (Contd)

Off-Line Control Unit Maintenance Panel Checks — Sheet 4 of 23

ASSUMPTIONS:

1. Entry may be made from sheet 1 or 3 of this table.
2. Control unit power is on (procedure J1).
3. Access to the control unit maintenance panel is gained (procedure J27, steps 1 and 2).
4. The CE DISPLAY selector switch has been set to BUS IN.
5. The MASTER CLEAR switch on the control unit maintenance panel has been pressed.
6. The Unit Select switch on card A05 of all drives has been switched to the on position (the handle toward the voice coil magnet assembly) (figure 6-J1).
7. Observe the CE display for any of the following conditions:

CONDITIONS:	1		2	3	4	5	6	7	8	9
1. Is the SELECT ACTIVE light off?	Y									N
2. Is the CHECK END light off?	Y								N	
3. Are all four TAG BUS lights on?	Y							N		
4. Are all eight CE DISPLAY lights off?	Y						N			
5. Switch CE DISPLAY to BUS OUT. Are all eight lights on?	Y					N				
6. Switch CE DISPLAY to PHYSICAL UNIT. Are all eight lights off?	Y				N					
7. Switch CE DISPLAY to STATUS CU. Are all eight lights off?	Y			N						
8. Switch CE DISPLAY to DRIVE STATUS 1. Are all eight lights off?	Y		N							
ACTIONS:										
1. Replace control unit logic board A11 (procedure J27).			2	3					1	1
2. Replace control unit logic board A09 (procedure J27).			3						3	2
3. Replace control unit logic board A08 (procedure J27).			4							3
4. Replace control unit logic board A07 (procedure J27).							4			4
5. Replace control unit logic board A13 (procedure J27).			1	2		7			2	
6. Replace control unit logic board A12 (procedure J27).								1		
7. Replace control unit logic board A10 (procedure J27).						1	1			
8. Replace control unit logic board A15 (procedure J27).			5	8						
9. Replace control unit logic board A24 (procedure J27).			6		5	4				
10. Replace control unit logic board A26 (procedure J27).			7		2					
11. Replace control unit logic board A29 (procedure J27).					1					

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMDO1: STORAGE MODULE DRIVE DDLT (Contd)

Off-Line Control Unit Maintenance Panel Checks										Sheet 4 of 23 (Contd)
ACTIONS (Continued):	1		2	3	4	5	6	7	8	9
12. Replace control unit logic board A22 (procedure J27).			8	6	3	6				
13. Replace control unit logic board A25 (procedure J27).			9	5	4				4	
14. Replace control unit logic board A30 (procedure J28).			10	4		2	2	2	5	5
15. Replace control unit logic board A18 (procedure J27).				7		5				6
16. Replace control unit logic board A19 (procedure J27).						3				7
17. Replace control unit logic board A23 (procedure J27).			11							
18. Replace control unit logic board A27 (procedure J27).					6					
19. Replace control unit logic board A16 (procedure J27).						8				
20. Replace the control unit power fail board (procedure J33).			12	9	7	9	3	3	6	8
21. Replace the SMD interface board (procedure J26).										9
22. Replace the SMD logic board A05 (procedure J18).				1						
23 Go to Conditions, step 3, of this sheet.									7	
24 Go to sheet 5 of this table.	X		13	10	8	10	5	4		
25 Call the next level of support.										10

TABLE 6-15 SMDDA, SMDCU and SMDO1: STORAGE MODULE DRIVE DDLT

SMDCU Start-Up	Sheet 5 of 23

ASSUMPTIONS:

1. Entry may be made from sheet 3 or 4 of this table.

2. SMDCU? is displayed. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.

3. SMDCU EXECUTING is displayed. Observe the CDT for any of the following conditions:

CONDITIONS:		1	2	3	4
1.	Is the following displayed within one minute: SMDCU TERMINATED	Y	N		
2.	Are any action codes displayed?		Y	N	
3.	Is the RUN light illuminated on the operators panel?			Y	N
ACTIONS:					
1.	Switch the Unit Select switch on all SMDs to the off position (the handle away from the voice coil - figure 6J-1).	1			
2.	Go to sheet 10 of this table.	2			
3.	Go to sheet 6 of this table.		X		
4.	Go to table 6-100.			X	
5.	Call the next level of support.				X

TABLE 6-15. SMDDA, SMDCU and SMDOL: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Action Codes — Sheet 6 of 23

ASSUMPTIONS:

1. Entry is made from sheet 5 of this table.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

NOTE

After replacing a subassembly within the control unit, it is not necessary to reload the diagnostic. Go to sheet 3 of this table. If the disk adapter board is replaced, go to table 6-3.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9
1. 2180 through 219F	Y	N							
2. 21A0 through 21AF		Y	N						
3. 2130 through 2139 or 21E0 through 21E7			Y	N					
4. 2101 or 2102 or 2103 or 2104				Y	N				
5. 2111 or 2121 or 2115 or 2125 or 2116 or 2126					Y	N			
6. 2150 through 2156 or 2158 through 215B						Y	N		
7. 2112 or 2122							Y	N	
8. 2144								Y	N
9. 213F or 2127 or 2128									Y
ACTIONS:									
1. This is a disk adapter status error. Go to sheet 7 of this table.	X								
2. This is a control unit status error. Go to sheet 8 of this table.		X							
3. This is a poll status error. Go to sheet 9 of this table.			X						
4. This is a parameter entry error. Go to sheet 5 of this table and restart.				1					
5. Verify that the equipment code and interrupt line are correct. Refer to (procedures J26 & A28.)				2		2			
6. Replace the disk adapter board (Proc. J26)					1	1	1	1	1
7. Replace control unit logic board A11 (procedure J27).						3	2	6	
8. Replace control unit logic board A09 (procedure J27).						4	3	3	
9. Replace control unit logic board A07 (procedure J27).						5	4	4	

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Action Codes		Sheet 6 of 23 (Contd)								
ACTIONS (Continued):		1	2	3	4	5	6	7	8	9
10.	Replace control unit logic board A08 (procedure J27).						6	5	2	
11.	Replace control unit logic board A30 (procedure J28).						7	6		
12.	Replace control unit logic board A13 (procedure J27).								8	
13.	Replace control unit logic board A10 (procedure J27).								5	
14.	Replace control unit logic board A12 (procedure J27).								7	
15.	Replace control unit logic board A15 (procedure J27).								9	
16.	Replace control unit logic board A19 (procedure J27).							8	10	
17.	Replace control unit logic board A14 (procedure J27).								11	
18.	Replace control unit logic board A18 (procedure J27).						8	7		
19.	Replace control unit logic board A20 (procedure J27).								12	
20.	Replace control unit logic board A22 (procedure J27).								13	
21.	Replace control unit logic board A24 (procedure J27).								14	
22.	Replace control unit logic board A26 (procedure J27).								15	
23.	Replace the control unit power fail board (procedure J33).						9	9		
24.	Go to sheet 23 of this table.				3	2				
25.	Call the next level of support.						10	10	16	2

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Disk Adapter Status Errors										Sheet 7 of 23

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of 2180 through 219F has been displayed on the CDT.

NOTE

After replacing a subassembly within the control unit, it is not necessary to reload the diagnostic. Go to sheet 3 of this table. If the disk adapter board is replaced, go to table 6-3.

CONDITIONS:	1	2	3	4	5	6	7	8	9
Does the CDT display:									
1. 2180 or 2181	Y	N							
2. 2182 or 2183		Y	N						
3. 2184 or 2185 or 2194 or 2195			Y	N					
4. 2188 or 2189 or 218C or 218D or 218E or 218F or 219E or 219F				Y	N				
5. 219C or 219D					Y	N			
6. 218A or 218B						Y	N		
7. 2186 or 2187							Y	N	
8. 2192 or 2193								Y	N
9. 2196 or 2197 or 2198 or 2199 or 219A or 219B									Y
ACTIONS:									
1. Replace disk adapter board (Proc. J26).	1	1	1	1	1	1	1	1	1
2. Replace control unit logic board A07 (procedure J27).	2		5		2				
3. Replace control unit logic board A09 (procedure J27).	3	2	3		3	2		2	
4. Replace control unit logic board A11 (procedure J27).	4		2		4				
5. Replace control unit logic board A12 (procedure J27).	5								
6. Replace control unit logic board A13 (procedure J27).	6				5				
7. Replace control unit logic board A08 (procedure J27).			4						
8. Replace control unit logic board A30 (procedure J28).			6						
9. Replace control unit logic board A18 (procedure J27).			7			3			
10. Replace control unit logic board A14 (procedure J27).								3	
11. Replace control unit logic board A19 (procedure J27)					6				

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Disk Adapter Status Errors	Sheet 7 of 23 (Contd)								
ACTIONS (Continued):	1	2	3	4	5	6	7	8	9
Replace the control unit power fail board 12. {procedure J33}.			A						
13. Go to sheet 23 of this table.									2
14. Call the next level of support	7	3	9	2	7	4	2	4	

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Control Unit Status Errors — Sheet 8 of 23

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of 21A0 through 21AF has been displayed on the CDT.

NOTE

After replacing a subassembly within the control unit, it is not necessary to reload the diagnostic. Go to sheet 3 of this table. If the disk adapter board is replaced, go to table 6-3.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8
1. 21AA or 21AB	Y	N						
2. 21AE or 21AF		Y	N					
3. 21A6 or 21A7			Y	N				
4. 21A8 or 21A9				Y	N			
5. 21A2 or 21A3					Y	N		
6. 21A0 or 21A1						Y	N	
7. 21AC or 21AD							Y	N
8. 21A4 or 21A5								Y
ACTIONS:								
1. Replace control unit logic board A13 (procedure J27).	1	1	2	1	1	1	1	1
2. Replace control unit logic board A11 (procedure J27).	2	2	3	2			2	
3. Replace control unit logic board A09 (procedure J27).		3				2		
4. Replace control unit logic board A12 (procedure J27).		4	5	3				
5. Replace control unit logic board A07 (procedure J27).		5						
6. Replace control unit logic board A10 (procedure J27).		6						
7. Replace control unit logic board A22 (procedure J27).					2			2
8. Replace control unit logic board A08 (procedure J27).						3		
9. Replace control unit logic board A15 (procedure J27).							3	
10. Replace control unit logic board A24 (procedure J27).							4	
11. Replace control unit logic board A26 (procedure J27).							5	
12. Replace the control unit power fail board (procedure J33).	3							

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU Control Unit Status Errors								Sheet 8 of 23 (Contd)	
ACTIONS (Continued):	1	2	3	4	5	6	7	8
13. Replace control unit logic board A14 (procedure J27).					3			
14. Replace the disk adapter board (procedure J26).		7	4					
15. Insure that the OFF LINE switch on SMD logic board A05 is in the "ON" position (handle toward the voice coil assembly)			1					
16. Call the next level of support.	4	8	6	4	4	4	6	3

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMDCU POLL STATUS ERRORS — Sheet 9 of 23

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of 2130 through 2139 or 21E0 through 21EF has been displayed on the CDT.

NOTE

After replacing a subassembly within the control unit, it is not necessary to reload the diagnostic. Go to sheet 3 of this table. If the disk adapter board is replaced, go to table 6-3.

CONDITIONS: Does the CDT display:	1	2	3
1. 2130 or 2135 or 2131 or 2136 or 2133 or 2138	Y	N	
2. 2132 or 2137 or 2134 or 2139		Y	N
3. 21E0 through 21EF			Y
ACTIONS:			
1. Replace control unit logic board A18 (procedure J27).	1	1	1
2. Replace control unit logic board A19 (procedure J27).	2	2	2
3. Replace control unit logic board A10 (procedure J27).	3	3	3
4. Replace control unit logic board A12 (procedure J27).		4	
5. Replace control unit logic board A23 (procedure J27).		10	
6. Replace control unit logic board A24 (procedure J27).		6	
7. Replace control unit logic board A25 (procedure J27).	4	7	
8. Replace control unit logic board A26 (procedure J27).		5	
9. Replace control unit logic board A27 (procedure J27).		9	
10. Replace control unit logic board A29 (procedure J27).		8	
11. Replace the disk adapter board (Procedure J26).	5	11	4
12. Call the next level of support.	6	12	5

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Power-Up and Manual Checks — **Sheet 10 of 23**

ASSUMPTIONS:

1. SMD power is on (procedure J1).
2. Disk pack is installed (procedure J3).

NOTE

It is good practice to inspect the surfaces of any packs removed from or believed to have been on the disk drive. Concentric marks on any surface usually indicate a head crash. If this condition exists, terminate testing and call the next level of support.

Insure the installed pack has no valuable information recorded. This diagnostic performs write operations that may be destructive.

3. The Fault Clear switch on logic card A05 has been momentarily pressed (figure 6-J1).
4. The Unit Select switch on logic card A05 is properly set (the handle away from the voice coil magnet assembly - figure 6J-1).
5. The FAULT button on the front control panel is pressed.
6. The START button on the SMD is pressed.
7. Observe the SMD for the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10
1. Is the START indicator illuminated?	Y									N
2. Wait 25 seconds. Is the READY indicator illuminated?	Y		N							
3. Has this sequence been performed on all drives?	Y	N								
4. Is the FAULT indicator illuminated?			Y						N	
5. Is the VOLTAGE FAULT indicator illuminated (see figure J1)?			Y	N						
6. Is the WRITE FAULT indicator illuminated (see figure J1)?				Y	N					
7. Is the HEAD SELECT FAULT indicator illuminated (see figure J1)?					Y	N				
8. Is the READ/WRITE FAULT indicator illuminated (see figure J1)?						Y	N			
9. Is the ON CYLINDER FAULT indicator illuminated (see figure J1)?							Y	N		

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Power-Up and Manual Checks		Sheet 10 of 23 (Contd)									
ACTIONS:		1	2	3	4	5	6	7	8	9	10
1.	Repeat this sheet for the next drive		X								
2.	If entry was made from sheet 12, return to sheet 12, action 2; otherwise go to sheet 11.	X									
3.	Check the SMD power supplies (procedure J21).			1							1
4.	Check the interlocks (procedure J10).								1	2	2
5.	Check the drive motor and belt (procedure J12).									3	
6.	Check the heads loaded switch (procedure J16).			3					2		
7.	Replace SMD logic board A05 (procedure J27).			2	1	1	1	1	3		
8.	Replace SMD logic board A09 (procedure J27).								6	4	
9.	Replace SMD logic board A03 (procedure J27).								4		
10.	Replace SMD logic board A04 (procedure J27).								5		
11.	Replace SMD logic board A10 (procedure J27).								7	5	
12.	Replace SMD logic board A02 (procedure J27).						2	2			
13.	Replace SMD logic board A01 (procedure J27).							3	8		
14.	Replace the read pre-amplifier board (procedure J24).					2		4	9		
15.	Replace the servo pre-amplifier board (procedure J19).								10	6	
16.	Replace the writer board (procedure J25).				2						
17.	Replace the control panel assembly (procedure J17).			4	3	3	3	5	11	7	
18.	Replace the interlock control board (procedure J22).			5					12	8	
19.	Replace the relay and brush control board (procedure J23).			6					13		
20.	Replace the hysteresis brake (procedure J14).									9	
21.	Insure that the REMOTE/LOCAL switch on the SMD interlock control board is in the local position.									1	
22.	Call the next level of support			7	4	4	4	6	14	10	3

SMD01 Start-Up Sequence — **Sheet 11 of 23**

ASSUMPTIONS:

1. **Entry may be made from sheet 10, 12, or 13 of this table.**

NOTE

SMD01 level I, volume 1 and SMD01 level 1, volume 2, DPSF level 93 and below will not execute on DA1 in the dual CPU configurations.

2. **SMD01? is displayed. The following is entered at the keyboard.**
   GO is typed in.
   CARRIAGE RETURN is pressed.

3. **SMD01 EXECUTING is displayed. SMD01 SUSPENDED BOT is displayed.**

CONDITIONS:	1	2	3	4
1. **Is the logical unit plug on the drive to be tested 0?**	Y		N	
2. **Is the drive to be tested a high density drive? (This is indicated by** an 1867-20/21 product label on the front of the drive.)	Y	N	Y	N
ACTIONS:				
1. **Enter the following at the keyboard:** **Type in GO** **Press CARRIAGE RETURN**	1	2	2	3
2. **Enter the following at the keyboard:** **Type in 9, ___ (Fill in the space with the drive logical unit number in hexadecimal. See the table below.** **Press CARRIAGE RETURN**			1	1

Logical Unit Plug to Hexadecimal Drive Number Conversion.

Logical Unit Plug	Hexadecimal Number
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C
13	D
14	E
15	F

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMD01 Start-Up Sequence	**Sheet 11 of 23 (Contd)**			
ACTIONS (Continued):	**1**	**2**	**3**	**4**
3. Enter the following at the keyboard: **Type in B, O** **Press CARRIAGE RETURN**		 **1**		 **2**
4. Go to sheet 13 of this table.	**2**	**3**	**3**	**4**

TABLE 6-15. SMDDA., SMDCU and SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMD01 Retest	**Sheet 12 of 23**
ASSUMPTIONS: 1. Entry may be made from sheets 14 through 21 of this table. 2. A failure was detected and a procedure was performed on a drive.	
ACTIONS:	1
1. Perform the SMD01 power-up and manual checks by going to sheet 10 of this table. Return to Action 2 after completing sheet 10.	1
2. Press the MASTER CLEAR switch on the control unit maintenance panel.	2
3. Press the STOP button on the operators panel.	3
4. Press the MASTER CLEAR button on the operators panel.	4
5. Press the RUN button on the operators panel.	5
6. Go to sheet 11 of this table.	6

TABLE 6-15. SMDDA., SMDCU and SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMD01 Run and Termination Sequence — **Sheet 13 of 23**

ASSUMPTIONS:

1. **Entry is made from sheet 11 of this table.**
2. **The following directive messages and operator responses are executed in section B. Observe the CDT for any action codes displayed before each message or operator response. If any action codes are displayed, go to condition 1 of this sheet.**

Directive Message	Operator Response
1. MAKE DRIVE NOT READY SMD01 SUSPENDED SELF	a. Press and release the START button on the drive being tested. b. The READY and START indicators will be extinguished. c. Wait 20 seconds. Open the pack access cover. Ensure the pack has stopped rotating. Close the pack access cover if the pack has stopped. If the pack is still rotating go to action 20, sheet 10 of this table. d. Type in GO e. Press CARRIAGE RETURN
2. MAKE DRIVE READY SMD01 SUSPENDED SELF	a. Press and release the START button on the drive being tested. b. Wait until the READY indicator is illuminated (approximately 25 seconds). c. Type in GO d. Press CARRIAGE RETURN
3. SET DRIVE WRITE PROTECT SMD01 SUSPENDED SELF	a. Press and release the PROTECT button on the drive being tested. The PROTECT indicator will illuminate. b. Type in GO c. Press CARRIAGE RETURN
4. CLEAR DRIVE WRITE PROTECT SMD01 SUSPENDED SELF	a. Press and release the PROTECT button on the drive being tested. The PROTECT indicator will be extinguished. b. Type in GO c. Press CARRIAGE RETURN
5. DRIVE IS PHYSICAL UNIT x	a. This an informative message only, to be used in cross-referencing the logical drive to the physical unit.

Continued on next page

TABLE 6-15. SMDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT {Contd}

SMD01 Run and Termination Sequence — Sheet 13 of 23 {Contd}

CONDITIONS:	1	2	3	4	5	6	7	8	
1. Is SMD01 SUSPENDED ENDP displayed?	Y					N			
2. Are any time range messages displayed?	N				Y				
NOTE A seek time range may be displayed if the heads are not returned to cylinder 0 prior to test execution.									
3. Are any action codes displayed?						Y	N		
4. Is the RUN light illuminated on the operators panel?							Y	N	
5. Is there another SMD subsystem to be tested?	N			Y					
6. Is there another drive in this subsystem to be tested?	N		Y						
7. Is this a verification run?	N	Y							
ACTIONS:									
1. Enter the following at the keyboard Type in 1, 40 Press CARRIAGE RETURN Type GO Press CARRIAGE RETURN	1	1							
2. Depress the Control Unit Master Clear switch. Slide the Control Unit in on it's Rails.	2	2							
3. Remove all disk packs {procedure J4}.		3							
4. Close the top cover of all drives.	3	4							
5. Go to table 6-50 and load the level II monitor {The SMD level II diagnostic will be executed}.	4								
6. Go to the next device to be tested.		5							
7. Go to Conditions, sheet 11 of this table.			X						
8. Go to procedure A28, Testing Multiple Subsystem.				X					
9. Go to sheet 14 of this table.						X			
10. Go to table 6-100.							X		
11. Call the next level of support.					X			X	

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Action Codes — Sheet 14 of 23

ASSUMPTIONS:

1. Entry is made from sheet 13 of this table.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

CONDITIONS:

Does the CDT display:

		1	2	3	4	5	6	7	8	9	10	11	12	13
1.	2201 or 2202 or 2203 or 2204 or 2205	Y	N											
2.	2212 or 2222		Y	N										
3.	2211 or 2221			Y	N									
4.	2215 or 2216 or 2225 or 2226				Y	N								
5.	2227 or 2228					Y	N							
6.	2280 through 229F						Y	N						
7.	22A0 through 22AF							Y	N					
8.	22B0 through 22BF								Y	N				
9.	22C0 through 22CF									Y	N			
10.	22D0 through 22DF										Y	N		
11.	223A through 223E or 22F1											Y	N	
12.	2230 through 2239 or 22E0 through 22EF												Y	N

ACTIONS:

		1	2	3	4	5	6	7	8	9	10	11	12	13
1.	This is a parameter entry error. Go to sheet 10 of this table and restart.	1												
2.	Verify that the equipment code, interrupt line, and logical unit number are correct. (procedures J26 & A28.)	2												
3.	This is a disk adapter status error. Go to sheet 16 of this table.						X							
4.	This is a control unit status error. Go to sheet 17 of this table.							X						
5.	This is a drive status 1 error. Go to sheet 18 of this table.								X					
6.	This is a drive status 2 error. Go to sheet 19 of this table.									X				

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Action Codes													Sheet 14 of 23 (Contd)
ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12	13
7. This is a drive fault status error. Go to sheet 20 of this table.										X			
8. This is a select acknowledge status error. Go to sheet 21 of this table.											X		
9. This is a poll status error. Go to sheet 22 of this table.												X	
10. Go to sheet 15 of this table.													X
11. Replace the disk adapter board {procedure J26}	3	1	1	1									
12. Go to sheet 23 of this table.	4	3	2	2	1								
13. Call the next level of support	5	4	3	3	2								
14. Replace control unit power fail card {procedure J34}		2											

TABLE 6-15. SMDDA, SMDCU and SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMD01 Action Codes — **Sheet 15 of 23**

ASSUMPTIONS:

Entry is made from sheet 14 of this table. Observe the CDT display for any of the following action codes.

NOTE

After replacing a subassembly within the control unit, it is not necessary to reload the diagnostic. Go to sheet 3 of this table. If the disk adapter board is replaced, go to table 6-3.

CONDITIONS:	1	2	3	4	5	6	7
Does the CDT display:							
1. 2244	Y	N					
2. 2250 through 2255 or 2258 or 2259		Y	N				
3. 2240 or 2245 or 2246 or 223F			Y	N			
4. 22F0 or 2268 through 226C				Y	N		
5. 2248 through 224C					Y	N	
6. 2264 through 2267						Y	N
7. 2268							Y
ACTIONS:							
1. Replace the disk adapter board (procedure J26).	1	1	1	1	1	1	1
2. Replace control unit logic board A12 (procedure J27).	2			8	19	2	2
3. Replace control unit logic board A14 (procedure J27).				9	2		
4. Replace control unit logic board A15 (procedure J27).				10	3		4
5. Replace control unit logic board A16 (procedure J27).				2	4		
6. Replace control unit logic board A17 (procedure J27).					5		
7. Replace control unit logic board A18 (procedure J27).	3	3					
8. Replace control unit logic board A19 (procedure J27).	4	7					5
9. Replace control unit logic board A20 (procedure J27).				3	6		
10. Replace control unit logic board A21 (procedure J27).				4	7		
11. Replace control unit logic board A22 (procedure J27).				5	8		
12. Replace control unit logic board A23 (procedure J27).	5						
13. Replace control unit logic board A24 (procedure J27).	6						6

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01 STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Action Codes		Sheet 15 of 23 (Contd)						
ACTIONS (Continued):		1	2	3	4	5	6	7
14.	Replace control unit logic board A25 (procedure J27).	7						7
15.	Replace control unit logic board A26 (procedure J27).	8	6					
16.	Replace control unit logic board A27 (procedure J27).	9	4					
17.	Replace control unit logic board A29 (procedure J27).	10	5					
18.	Replace control unit logic board A10 (procedure J27).				6	13		
19.	Replace control unit logic board A11 (procedure J27).		2		7	14		
20.	Replace control unit logic board A13 (procedure J27).							3
21.	Replace control unit logic board A09 (procedure J27).		8					8
22.	Replace control unit logic board A07 (procedure J27).				11			9
23.	Replace SMD logic board A01 (procedure J18).					9		
24.	Replace SMD logic board A02 (procedure J18).	11						
25.	Replace SMD logic board A03 (procedure J18).		11					
26.	Replace SMD logic board A04 (procedure J18).		10					
27.	Replace SMD logic board A05 (procedure J18).	12						
28.	Replace SMD logic board A06 (procedure J18).	13				15		
29.	Replace SMD logic board A07 (procedure J18).	14				10		
30.	Replace SMD logic board A09 (procedure J18).		12					
31.	Replace SMD logic board A10 (procedure J18).		13					
32.	Replace SMD logic board A11 (procedure J18).	15	14					
33.	Replace SMD logic board A12 (procedure J18).							
34.	Replace SMD logic board A13 (procedure J18).		15					
35.	Replace SMD logic board A14 (procedure J18).					11		
36.	Replace SMD logic board A15 (procedure J18).					12		
37.	Replace SMD control panel assembly (procedure J17).		9					
38.	Replace the SMD read pre-amplifier board (procedure J24).					16		
39.	Replace the SMD writer board (procedure J25).					17		
40.	Replace the disk pack (procedures J3 and J4).					18		
41.	Go to sheet 23 of this table.			2				
42.	Call the next level of support.	16	16		12	20	3	10

TABLE 6-15. SMDDA., SMDCU and SMD01 STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Disk Adapter Status Errors							Sheet 16 of 23
ASSUMPTIONS: 1. Entry is made from sheet 14 of this table. 2. An action code of 2280 through 229F has been displayed on the CDT. **NOTE** After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If the disk adapter board or a control unit board has been replaced, return to table 6-3.							
CONDITIONS:	1	2	3	4	5	6	
Does the CDT display:							
1. 2280 or 2281 or 2288 or 2289 or 228C or 228D or 228E or 228F or 229E or 229F	Y	N					
2. 2292 or 2293 or 2296 or 2297 or 2298 or 2299 or 229A or 229B		Y	N				
3. 2282 or 2283 or 228A or 228B			Y	N			
4. 2284 or 2285 or 2294 or 2295				Y	N		
5. 229C or 229D					Y	N	
6. 2286 or 2287						Y	
ACTIONS:							
1. Replace the disk adapter board (procedure J26).	1	1	1	1	1	1	
2. Replace control unit logic board A07 (procedure J27).			2	2			
3. Replace control unit logic board A09 (procedure J27).			3	3			
4. Replace control unit logic board A18 (procedure J27).			4				
5. Replace control unit logic board A19 (procedure J27).			5				
6. Replace control unit logic board A26 (procedure J27).			6		2	7	
7. Replace control unit logic board A27 (procedure J27).			7		3		
8. Replace control unit logic board A29 (procedure J27).			8		4		
9. Replace control unit logic board A11 (procedure J27).					5	2	
10. Replace control unit logic board A12 (procedure J27).					6	3	
11. Replace control unit logic board A14 (procedure J27).						4	
12. Replace control unit logic board A15 (procedure J27).						5	
13. Replace control unit logic board A17 (procedure J27).						6	
14. Replace control unit logic board A08 (procedure J27).				4	7		
15. Replace SMD logic board A02 (procedure J18).			9		8		

Continued on next page

TABLE 6-15. SMDDA., SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Disk Adapter Status Errors		Sheet 16 of 23 (Contd)					
ACTIONS (Continued):		1	2	3	4	5	6
16.	Replace SMD logic board A03 (procedure J18).			10			
17.	Replace SMD logic board A06 (procedure J18).			11		9	
18.	Replace SMD logic board A07 (procedure J18).					10	
19.	Replace SMD logic board A14 (procedure J18).						8
20.	Replace SMD logic board A15 (procedure J18).						9
21.	Replace the SMD read pre-amplifier (procedure J24).						10
22.	Replace the SMD control panel (procedure J17).			12		11	
23.	Replace the SMD sector plug (procedure J35).			13			11
24.	Go to sheet 23 of this table.		2				
25.	Call the next level of support.	2	3	14	5	12	12

SMD01 Control Unit Status Errors — Sheet 17 of 23

ASSUMPTIONS:

1. Entry is made from sheet 14 of this table.
2. An action code of 22A0 through 22AF has been displayed on the CDT.

NOTE

After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If the disk adapter board or a control unit board has been replaced, return to table 6-3.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8
1. 22AA or 22AB	Y	N						
2. 22AE or 22AF		Y	N					
3. 22A6 or 22A7			Y	N				
4. 22A8 or 22A9				Y	N			
5. 22A2 or 22A3					Y	N		
6. 22A0 or 22A1						Y	N	
7. 22AC or 22AD							Y	N
8. 22A4 or 22A5								Y
ACTIONS:								
1. Replace the disk adapter board (procedure J26).		1			1			1
2. Replace the control unit power fail board (procedure J33).	1							
3. Replace control unit logic board A13 (procedure J27).	3	3	1	1	2	1	1	2
4. Replace control unit logic board A11 (procedure J27).	2	2	2	2	3		2	
5. Replace control unit logic board A25 (procedure J27).			3					
6. Replace control unit logic board A23 (procedure J27).			4	9			4	
7. Replace control unit logic board A10 (procedure J27).	4	4	5	4	9	5	7	3
8. Replace control unit logic board A12 (procedure J27).		5	6	5	10			
9. Replace control unit logic board A18 (procedure J27).			7			3		
10. Replace control unit logic board A19 (procedure J27).			8			4		
11. Replace control unit logic board A15 (procedure J27).			11	3			6	6
12. Replace control unit logic board A22 (procedure J27).			12	10	4			10

Continued on next page

TABLE 6-15 SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Cont)

SMD01 Control Unit Status Errors								Sheet 17 of 23 (Contd)	
ACTIONS (Continued):	1	2	3	4	5	6	7	8
13. Replace control unit logic board A14 (procedure J27).			10	6	8			7
14. Replace control unit logic board A20 (procedure J27).					5			11
15. Replace control unit logic board A21 (procedure J27).					6			12
16. Replace control unit logic board A16 (procedure J27).			13	7	7		8	5
17. Replace control unit logic board A08 (procedure J27).						2		
18. Replace control unit logic board A26 (procedure J27).			9	11	11		3	
19. Replace control unit logic board A24 (procedure J27).							5	
20. Replace control unit logic board A17 (procedure J27).				8				4
21. Replace control unit logic board A07 (procedure J27).		6						
22. Replace control unit logic board A09 (procedure J27).		7						
23. Replace control unit logic board A27 (procedure J27).			14		12		9	
24. Replace control unit logic board A29 (procedure J27).			15		13		10	
25. Replace SMD logic board A05. {Procedure J18}			16					
26. Replace SMD logic board A06 (procedure J18).			17				11	9
27. Replace SMD logic board A07 (procedure J18).			18				12	
28. Replace SMD logic board A02 (procedure J18).							13	
29. Replace SMD logic board A15 (procedure J18)								8
30. Replace SMD writer board {procedure J25}								13
31. Replace SMD read pre-amplifier board {procedure J24}								14
32. Replace SMD logic board A01 {procedure J18}								15
33. Call the next level of support	5	8	19	12	14	6	14	16

TABLE 6-15. SMDDA, SMDCU, SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMD01 Drive Status 1 Errors — **Sheet 18 of 23**

ASSUMPTIONS:

1. Entry is made from sheet 14 of this table.
2. An action code of 22B0 through 22BF has been displayed on the CDT.

NOTE

After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If a control unit board has been replaced, return to table 6-3.

CONDITIONS:	1	2	3	4	5	6	7
Does the CDT display:							
1. 22B2 or 22B3	Y	N					
2. 22BC or 22BD		Y	N				
3. 22BE or 22BF			Y	N			
4. 22B6 or 22B7 or 22B8 or 22B9				Y	N		
5. 22B0 or 22B1					Y	N	
6. 22B4 or 22B5						Y	N
7. 22BA or 22BB							Y
ACTIONS:							
1. Replace control unit logic board A13 (procedure J27).	1	1	1	1	1	1	1
2. Replace control unit logic board A11 (procedure J27).	2	2	2	2	2	2	2
3. Replace control unit logic board A10 (procedure J27).	3	3	3	3	3	3	3
4. Replace control unit logic board A26 (procedure J27).	4	8	4	18			
5. Replace control unit logic board A27 (procedure J27).	5	6	5	5			
6. Replace control unit logic board A29 (procedure J27).	6	7	6	6			
7. Replace control unit logic board A23 (procedure J27).		4			4	5	5
8. Replace control unit logic board A14(Procedure J27)				10			
9. Replace control unit logic board A15 (procedure J27)		5		4			
10. Replace control unit logic board A16 (procedure J27)				7			
11. Replace control unit logic board A17 (procedure J27)				9			
12. Replace control unit logic board A12 (procedure J27)				8	5	4	4
13. Replace control unit logic board A24 (procedure J27)							6
14. Replace SMD logic board A02 (procedure J18)		11		11	6	6	7
15. Replace SMD logic board A06 (procedure J18)	7	9	8	12	7		8

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Drive Status 1 Errors	Sheet 18 of 23 (Contd)						
ACTIONS (Continued):	1	2	3	4	5	6	7
16. Replace SMD logic board A07 (procedure J18).			7		8	7	9
17. Replace SMD logic board A05 (procedure J18).			9				10
18. Replace SMD logic board A01 (procedure J18).	8	14		13			11
19. Replace SMD logic board A04 (procedure J18).							12
20. Replace SMD logic board A03 (procedure J18).	9	10					
21. Replace SMD logic board A10 (procedure J18).		12					
22. Replace SMD logic board A11 (procedure J18).				14			
23. Replace SMD logic board A14 (procedure J18).					9		
24. Replace SMD logic board A15 (procedure J18).				15			
25. Replace the servo pre-amplifier board (procedure J19).	10						
26. Replace the writer board (procedure J25).				16.			
27. Replace the SMD control panel assembly (procedure J17).			10				
28. Replace the sector plug (procedure J35).		13					
29. Replace the read pre-amplifier board (procedure J24).				17			
30. Call the next level of support.	11	15	11	19	10	8	13

TABLE 6-15. SMDDA, SMDCU and SMD01: **STORAGE MODULE DRIVE DDLT (Contd)**

SMD01 Drive Status 2 Errors — **Sheet 19 of 23**

ASSUMPTIONS:

1. Entry is made from sheet 14 of this table.
2. An action code of 22C0 through 22CF has been displayed on the CDT.

NOTE

After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If a control unit board has been replaced, return to table 6-3.

CONDITIONS:	1	2	3	4	5	6
Does the CDT display:						
1. **22C8 or 22C9**	Y	N				
2. **22CA or 22CB**		Y	N			
3. **22C2 or 22C3**			Y	N		
4. **22C0 or 22C1**				Y	N	
5. 22CE or 22CF					Y	N
6. 22C4 or22C5 or22C6 or 22C7 or 22CC or 22CD						Y
ACTIONS:						
1. **Replace control unit logic board A10 (procedure J27).**	1	1	1	1	1	1
2. **Replace SMD logic board A02 (procedure J18).**	2	2	2	2	2	2
3. **Replace SMD logic board A07 (procedure J18).**	3	3	3	3	3	3
4. **Replace SMD logic board A06 (procedure J18).**	4	4	4	4	4	4
5. **Replace SMD logic board A05 (procedure J18).**	5			5		
6. **Replace SMD logic board A04 (procedure J18).**	6	5		6		
7. **Replace SMD logic board A03 (procedure J18).**	7	11				
8. **Replace SMD logic board A09 (procedure J18).**		6			5	
9. **Replace SMD logic board A13 (procedure J18).**		7				
10. **Replace SMD logic board A11 (procedure J18).**		8				
11. **Replace SMD logic board A10 (procedure J18).**		9				
12. **Replace SMD logic board A12 (procedure J18).**		10				
13. **Replace control unit logic board A15 (procedure J27).**					7	5
14. **Replace control unit logic board A14 (procedure J27).**					8	6
15. **Replace control unit logic board A17 (procedure J27).**					9	7
16. Replace SMD read pre-amplifier board (procedure J24)					6	
17. Call the next level of support.	8	12	5	7	10	8

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Drive Fault Status Errors — Sheet 20 of 23

ASSUMPTIONS:

1. Entry is made from sheet 14 of this table.
2. An action code of 22D0 through 22DF has been displayed on the CDT.

NOTE

After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If a control unit board has been replaced, return to table 6-3.

CONDITIONS:	1	2	3	4	5
Does the CDT display:					
1. 22D6 or 22D7	Y	N			
2. 22D2 or 22D3		Y	N		
3. 22D4 or 22D5 or 22DE or 22DF			Y	N	
4. 22D8 or 22D9 or 22DA or 22DB or 22DC or 22DD				Y	N
5. 22D0 or 22D1					Y
ACTIONS:					
1. Replace control unit logic board A12 (procedure J27).	1	1	1	1	1
2. Replace control unit logic board A27 (procedure J27).				8	
3. Replace control unit logic board A29 (procedure J27).				9	
4. Replace control unit logic board A15 (procedure J27).				10	
5. Replace control unit logic board A17 (procedure J27).				11	
6. Replace SMD logic board A02 (procedure J18).	2	2	2	2	2
7. Replace SMD logic board A05 (procedure J18).	3		3	3	3
8. Replace SMD logic board A07 (procedure J18).	5	3	4	5	
9. Replace SMD logic board A06 (procedure J18).	4		5		
10. Replace SMD logic board A01 (procedure J18).				7	
11. Replace SMD logic board A13 (procedure J18).	6	4			
12. Replace SMD logic board A04 (procedure J18).		5		4	
13. Replace SMD logic board A11 (procedure J18).		7			
14. Replace SMD logic board A14 (procedure J18).				6	

Continued on next page

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Drive Fault Status Errors		Sheet 20 of 23 (Contd)				
ACTIONS (Continued):		1	2	3	4	5
15.	Replace the read pre-amplifier board (procedure J24).			6		
16.	Replace the writer board (procedure J25).			7	12	
17.	Replace the SMD control panel assembly (procedure J17).					4
18.	Check the SMD power supplies (procedure J21).	7	8	8	13	5
19.	Replace SMD logic board A03 (procedure J18).		6			
20.	Call the next level of support.	8	9	9	14	6

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Select Acknowledge Status Errors Sheet 21 of 23

ASSUMPTIONS:

1. Entry is made from sheet 14 of this table.
2. An action code of 223A through 223E or 22F1 has been displayed on the CDT.

NOTE

After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If a control unit board has been replaced, return to table 6-3.

CONDITIONS:	1	2	3	4	5	6
Does the CDT display:						
1. 22F1	Y	N				
2. 223B		Y	N			
3. 223A			Y	N		
4. 223C				Y	N	
5. 223E					Y	N
6. 223D or 223F						Y
ACTIONS:						
1. Replace control unit logic board A10 (procedure J27).	1					
2. Replace control unit logic board A12 (procedure J27).		1	1	1	1	1
3. Replace control unit logic board A23 (procedure J27).		3	3	3	3	
4. Replace control unit logic board A24 (procedure J27).		4	4	4	4	
5. Replace control unit logic board A25 (procedure J27).	5	2	2	2	2	
6. Replace control unit logic board A26 (procedure J27).	2					
7. Replace control unit logic board A27 (procedure J27).	3	5	5	5	5	2
8. Replace control unit logic board A29 (procedure J27).	4	6	6	6	6	3
9. Replace SMD logic board A02 (procedure J18).		7	7	7	7	5
10. Replace SMD logic board A05 (procedure J18).	6		8			
11. Replace SMD logic board A06 (procedure J18).		8	9	8	8	6
12. Replace SMD logic board A07 (procedure J18).			10			4
13. Replace SMD logic board A11 (procedure J18).	7		11			
14. Replace the SMD control panel assembly (procedure J17).	8		12			
15. Call the next level of support.	9	9	13	9	9	7

TABLE 6-15. SMDDA., SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

SMD01 Poll Status Errors	Sheet 22 of 23

ASSUMPTIONS:

1. Entry is made from sheet 14 of this table.
2. An action code of 2230 through 2239 or 22E0 through 22EF has been displayed on the CDT.

NOTE

After replacing a subassembly within the drive, it is not necessary to reload the diagnostic, so go to sheet 12 of this table. If a control unit board has been replaced, return to table 6-3.

ACTIONS:	1
1. Replace control unit logic board A17 (procedure J27).	1
2. Replace control unit logic board A18 (procedure J27).	2
3. Replace control unit logic board A19 (procedure J27).	3
4. Replace control unit logic board A26 (procedure J27).	4
5. Replace control unit logic board A27 (procedure J27).	5
6. Replace control unit logic board A29 (procedure J27).	6
7. Replace SMD logic board A04 (procedure J18).	7
8. Replace SMD control panel assembly (procedure J17).	8
9. Call the next level of support.	9

TABLE 6-15. SMDDA, SMDCU and SMD01: STORAGE MODULE DRIVE DDLT (Contd)

CPU Exits

ASSUMPTIONS:

1. Entry may be made from sheets 2, 4, 6, 7, 14, 15, and 16.
2. A failure has been detected that was not correctable by replacing subassemblies in the storage module drive subsystem.

NOTE

This DDLT replaces subassemblies within the central processor. If the defective component is isolated to the processor, a complete verification must be performed by going to table 6-103.

CONDITIONS:	1	2	3
Does the CDT display:			
1. xx01 or xx02 or xx03 or xx04 or xx11 through xx28 or xx80 through xx95 or xx9C through xx9F	Y	N	
2. 2040 through 2043 or xx50 through xx61 or 2038 or 2039 or 213F or 223F		Y	N
3. xx96 through xx9B or 2240 or 2244 or 2248 or 2249.			Y
ACTIONS:			
1. Replace the status mode interrupt board {procedure A23}.	1		
2. Replace the I/O-TTY board {procedure A23}.	2	1	1
3. Replace the panel interface board {procedure A23}.	3	2	
4. Run the MOS protect test. Go to table 6-9.		3	2
5. Replace the MOS memory data board {procedure A25}.		4	
6. Replace the MOS memory address board {procedure A25}.		5	
7. Replace the MOS memory array {procedure A24}.		6	
8. Call the next level of support.	4	7	3

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

[redacted]SUMPTIONS:

1. Mainframe power is turned on.
2. Loop Mux subassembly's power supply turned on.
3. All CLA's being tested have their enable switches turned on.
4. All CLA's not being tested have their enable switches turned off.
5. All Loop Multiplexers have their power switches turned on.
6. All Loop Multiplexer cables to the Loop Mux Assemblies being tested are connected.
7. Any CLA's that are to have their RS-232 Modem Drivers tested have their proper external test connector installed:
   2560-1 use 74715000 connector
   2561-1 use 74715600 connector
   2563-1 use 74870830 connector
8. System contains at least one Loop Multiplexer Card Cage and may contain two. If only one, it resides in the Magnetic Tape Transport Cabinet.
9. The Maintenance Panel Local/Remote switch is set to remote.
10. The tape cassette transport is connected.
11. MLIA cards are plugged in slots E, F and G in Processor Card Cage Assembly.
12. The Maintenance Panel Protect System switch is off (down).
13. There must not be any duplicated CLA address numbers.
14. After each corrective action, the program must be reloaded before retesting.
15. Only try to correct the first error condition encountered, other errors may be caused as a result of the first error.
16. The tape cassette being used is the special UTOPIA formatted MSMP17 cassette.
17. Switches on Cassette Controller card are correct (Slot H). Switches at SW1 have switch #1 on and switches #2, #3, and #4 off; while switches at SW2 have switches #1 and #2 on, and switches #3 and #4 off).

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 1 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Place cassette in Cassette Drive, close cover and wait for cassette to finish rewinding. Did Cassette Rewind and the Cassette Ready light turn on?	Y					N						
2. Press Master Clear, then press DEADSTART. Did the Deadstart Active light turn on and off, and did the cassette start moving?	Y				N							
3. Wait 25 seconds for cassette to stop moving. Did cassette stop?	Y			N								
4. Did the console start to display the following: CYCLIC ENCODER TEST 42	Y		N									
5. Press Master Clear, then press Deadstart. Did the Deadstart Active light turn on and off, and did the cassette start moving?	Y	N										
ACTIONS:												
1. Go to sheet 3.	X											
2. Go run ODS Load Check and Cassette Tests.		1	1	1	1	2						
3. Call next level of support.		2	2	2	2	3						
4. Replace Cassette Controller card, slot H. (procedure A23)						1						

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 2 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Wait 45 seconds for the cassette to stop moving. Did the cassette stop?	Y						N					
2. Did the console display the following lines: "MST041 MULTIPLEXER SUBSYSTEM TEST 41 031776 IA=0A00, FC = 01"?	Y					N						
3. Did the console display an additional message within five seconds?	Y				N							
4. Were the next two lines displayed on the console the following: "CLA PRODUCT ADDRESS NO __"?	Y			N								
5. Were the next group of lines displayed on the console a list of the enabled CLA's addresses and Product Numbers?	Y		N									
6. Were the CLA's addresses and Product Numbers all as shown on the individual CLA handles with all CLA's with external test connectors printing "External Connector"; and were there no other information listed, no disabled CLA's listed, and no enabled CLA's missing from the list?	Y	N										
ACTIONS: 1. Go to sheet 4.	X											
2. Go run ODS Load Check, Memory, and Cassette Tests					1	1	1					
3. Call next level of support					3	3	3					
4. Go to sheet 5.			X	X								
5. Go to sheet 12.		X										
6. Check +5, +12, and -12 voltages at Loop Mux Card Cage (procedure M6).					2	2	2					

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 3 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Wait approximately 10 seconds for each Sync CLA and approximately 30 seconds for each Async CLA under test, or until another printout occurs (while testing is going on, the CLA under test will be flashing it's send and receive data indicators). Did another printout occur?	Y		N									
2. Did the next console printout after the list of CLA addresses and Product Numbers start with "4134"?	Y	N										
ACTIONS:												
1. This shows a successful completion of the MST041 test. The test can be run again by entering CARRIAGE RETURN on the console, or the test parameters may be changed and the test run again (see the MSMP Diagnostic Reference Manual 96700000 for directions).	X											
2. Go to sheet 5.		X										
3. Replace MLIA card #1, slot E (procedure M1)			1									
4. Replace MLIA card #2, slot F (procedure M1)			2									
5. Replace MLIA card #3, slot G (procedure M1)			3									
6. Run ODS Load Check and Mainframe diagnostics			4									
7. Call next level of support.			6									
8. Check +5, +12, and -15 voltages at Loop Mux Card Cage (procedure M6)			5									

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 3 or 4 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Were the first four characters of the console printout 0028 or 0038?	Y	N										
2. Were the first four characters of the console printout 4168?		Y	N									
3. Was the first part of the console printout "EXCESSIVE ODD INTERRUPTS"?			Y	N								
4. Was the first part of the console printout "EXCESSIVE L F INTERRUPTS"?				Y	N							
5. Was the first part of the console printout "UNEXPECTED INTERRUPT"?					Y	N						
ACTIONS:												
1. This shows a monitor error, see the MSMP Diagnostic Reference Manual (96700000) for the significance of the entire message. Run the ODS Load Check test and any other appropriate test.	1											
2. This shows the Multiplexer Subsystem Test has detected a hardware error. GO TO SHEET 18 for more details on the error.		X										
3. Go to sheet 15.			X									
4. Go to sheet 16.				X								
5. Go to sheet 17.					X							
6. Go to sheet 6.						X						
7. Call next level of support.	3											
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	2											

[redacted]

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Was the first part of the console printout "EXCESSIVE MLIA ERROR INTERRUPTS DETECTED--"?	Y		N									
2. Was the next two numbers of the console printout "00", or "01", or "02"?	Y	N										
ACTIONS:												
1. Check the power indicator on the MLIA card's (slots E, F, and G) lower edges. (procedure M9)	1											
2. Replace MLIA card #1, slot E. (procedure M1)	2											
3. Replace MLIA card #2, slot F (procedure M1)	3											
4. Replace MLIA card #3, slot G (procedure M1)	4											
5. Run ODS Load Check and Mainframe diagnostics	5											
6. Call next level of support	7											
7. Go to sheet 7.		X										
8. Go to sheet 23.			X									
9. Check +5. +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	6											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 6 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does this system have only one Loop Multiplexer Card Cage?	Y	N										
2. Are all the Loop Multiplexer Clock and Data indicators lit (input and output loops)?		Y	N									
3. Does one of the Loop Multiplexers have all its indicators off?			Y	N								
CTIONS:												
1. The last two characters of the first line of the Excessive MLIA Error message are the address of the CLA being tested. Replace that CLA. (procedure M2)		1										
2. Replace the Loop Multiplexer of the Loop Mux Cage that the CLA resides in. (If the CLA address = 00, replace each of the Loop Multiplexers one at a time). (procedure M2)		2										
3. Replace MLIA card #1, slot E (procedure M1)		3										
4. Replace MLIA card #2, slot F (procedure M1)		4										
5. Replace MLIA card #3, slot G (procedure M1)		5										
6. Check +5, +12 and -12 voltages at Loop Multiplexer Cage (procedure M6)		6	3									
7. Run ODS Load Check and Mainframe diagnostics.		7										
8. Call next level of support		8	4									
9. Check that the Loop Mux power switch is on for the Loop Multiplexer that has no indicators lit (procedure M10).			1									
). Replace the Loop Multiplexer Card. (procedure M2)			2									
11. Go to sheet 8.				X								
12. Go to sheet 24.	X											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

1. Entry is made from sheet 7 of this table.
2. There are two Loop Multiplexer Card Cages in the system.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Find the Loop Multiplexer whose bottom cable goes directly to the MLIA. Are only the two Output **Loop** indicators lit?	Y	N										
2. Follow the top cable on the **Loop** Multiplexer to the next Loop Multiplexer. Are only the two Output Loop indicators lit?		Y	N									
ACTIONS:												
1. Replace the top cable on the Loop Multiplexer (procedure M7)	1											
2. Replace the Loop Multiplexer (procedure M2)	2	1										
3. Follow the top cable on the Loop Multiplexer to the next Loop Multiplexer and replace it. If the cable goes to the MLIA, replace MLIA card #1, slot E (procedures M2 and M1)	3	2										
4. Go to sheet 9.			X									
5. Call next level of support	5	3										
6. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

1. Entry is made from sheet 8 of this table.
2. There are two Loop Multiplexer Card Cages in the system.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Find the Loop Multiplexer whose top cable goes directly to the MLIA. Are only the two Input Loop indicators lit?	Y	N										
2. Follow the bottom cable on the Loop Multiplexer to the next Loop Multiplexer. Are only the two Input Loop indicators lit?		Y	N									
ACTIONS:												
1. Replace the bottom cable on the Loop Multiplexer (procedure M7)	1											
2. Replace the Loop Multiplexer (procedure M2).	2	1										
3. Follow the bottom cable on the Loop Multiplexer to the next Loop Multiplexer and replace it, or if the cable goes to the MLIA, replace MLIA card #2, slot F (procedures M2 and M1)	3	2										
4. Go to sheet 10.			X									
5. Call next level of support.	5	3	4									
6. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

1. Entry is made from sheet 9 of this table.
2. There are two Loop Multiplexer Card Cages in the system.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Find the Loop Multiplexer whose bottom cable goes directly to the MLIA. Is only one of the Input Loop indicators off?	Y	N										
2. Follow the top cable on the Loop Multiplexer to the next Loop Multiplexer. Is only one of the Input Loop indicators off?		Y	N									
ACTIONS:												
1. Replace the top cable on the Loop Multiplexer (procedure M7)	1											
2. Replace the Loop Multiplexer (procedure M2).	2	1										
3. Follow the top cable on the Loop Multiplexer to the next Loop Multiplexer and replace it, or if the cable goes to the MLIA, replace MLIA card #1 slot E (procedures M2 and M1)	3	2										
4. Go to sheet 11.			X									
5. Call next level of support	5	3										
6. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4											

[redacted]

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

SUMPTIONS:

1. Entry is made from sheet 10 of this table.
2. There are two Loop Multiplexer **Card** Cages in the system.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Find the Loop Multiplexer whose top cable goes directly to the MLIA. Is only one of the Output Loop indicators lit?	Y	N										
2. Follow the bottom cable on the Loop Multiplexer to the next Loop Multiplexer. Is only one of the Output Loop indicators lit?		Y	N									
ACTIONS:												
1. Replace the bottom cable on the Loop Multiplexer (procedure M7)	1											
2. Replace the Loop Multiplexer (procedure M2).	2	1										
3. Follow the bottom cable on the Loop Multiplexer to the next Loop Multiplexer and replace it, or if the cable goes to the MLIA, replace MLIA card #2, slot F (procedures M2 and M1)	3	2										
4. You have misinterpreted one of the directions. Go back to sheet 7 and try again.			1									
5. Call next level of support	5	3	2									
6. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 3 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Was there an "UNEXPECTED INTERRUPT" message(s) among the CLA addresses and product numbers printed out?	Y			N								
2. Look at the fifth group of numbers in the "UNEXPECTED INTERRUPT" message. The group of numbers is the CLA address. Is this CLA listed among the CLA address and product numbers printed out?	Y		N									
3. Are there two CLA's set to this address?	Y	N										
ACTIONS:												
1. Change one of the duplicated CLA addresses to an unused address (procedure M8)	X											
2. Replace the CLA whose address was in the "UNEXPECTED INTERRUPT" message (procedure M2)		X										
3. If there is an enabled CLA whose address was not among the CLA addresses and product numbers printed out, replace that CLA (procedure M2)			1									
4. If there is a disabled CLA whose address was in the "UNEXPECTED INTERRUPT" message, replace that CLA (procedure M2).			2									
5. Replace the Loop Multiplexer card of the Loop Mux Cage containing the CLA of the address in question (procedure M2).			3									
6. Go to sheet 13.				X								
7. Call next level of support			5									
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)			4									

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 12 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Were there any CLA's with external test connectors that did not print out "EXTERNAL CONNECTOR" following the product number print out?	Y	N										
ACTIONS:												
1. Check to see that the proper external test connector was used on the CLA as follows: Product No. — Connector Part Number 2560-1 — 74715000 2561-1 — 74715600 2563-1 — 74870830	1											
2. Check the + and - 12 volt supply voltages on the Loop Multiplexer card cage (procedure M6)	2											
3. Replace the CLA that had the right external test connector but did not print it out (procedure M2)	3											
4. Go to sheet 14.		X										
5. Call next level of support.	4											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 13 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Were there any enabled CLA's missing from the print out of CLA Addresses and Product Numbers?	Y	N										
2. Were there any disabled CLA's that showed up in the printout of CLA addresses and Product Numbers?		Y	N									
3. Were there any of the following error messages after one or more of the CLA addresses: NO ODD RECEIVED, WRONG ODD ADDRESS RECEIVED, MORE THAN ONE ODD RECEIVED, BAD STATUS RECEIVED, WRONG STATUS ADDRESS RECEIVED, NO STATUS RECEIVED, BAD LINE FRAME RECEIVED, ERROR IN SECOND COMMAND SET RESPONSES, or NO SQD STATUS RECEIVED?			Y	N								
4. Were there any CLA listed under the wrong Product Number or under UNKNOWN?				Y	N							
ACTIONS:												
1. Replace the enabled CLA whose address was missing from the printout (procedure M2)	1											
2. Replace the Loop Multiplexer which resides in the Loop Mux Cage containing the missing CLA address (procedure M2)	2											
3. Replace the disabled CLA whose address showed up in the CLA addresses and Product Numbers (procedure M2)		X										
4. Replace the CLA whose addresses appears just before the error printout. (procedure M2)			X									
5. Replace the CLA whose addresses appears just before the bad product number printout (proc.M2)				X								
6. Call next level of support	4											
7. Go to sheet 5					X							
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	3											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

EXCESSIVE ODD INTERRUPTS

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Has the following message printed out before the excessive ODD interrupts message: "CLA PRODUCT ADDRESS NO"?	Y		N									
2. Look at the group of four numbers following the "EXCESSIVE ODD INTERRUPTS" printout. This is a CLA Address. Is there a CLA plugged into the system with this address?	Y	N										
ACTIONS:												
1. Replace the CLA (procedure M2).	1											
2. Replace the Loop Multiplexer of the Loop Multiplexer card cage that the CLA resides in. (procedure M2)	2											
3. Bypass each Loop Multiplexer card cage one at a time by disconnecting the Loop Multiplexer cables and connecting the two cables (proc. M5) together (or by disabling all the CLA's in the card cage), and retry the test until the "EXCESSIVE ODD INTERRUPTS" printout disappears. The last Loop Multiplexer bypassed has the bad CLA in it. Reconnect the Loop Multiplexer.		1										
4. Disable CLA's one by one in the bad Loop Multiplexer card cage (procedure M4) and retry the test until the "EXCESSIVE ODD INTERRUPTS" printout disappears. Replace the last CLA you disabled. (procedure M2)		2										
5. Unplug CLA's from the backplane one by one in the bad Loop Multiplexer card cage and retry the test until the "EXCESSIVE ODD INTERRUPTS" printout disappears. Replace the last CLA you unplugged. (procedure M2)		3										
6. Replace MLIA card #1, slot E (procedure M1)	3	4	1									
7. Replace MLIA card #2, slot F (procedure M1)	4	5	2									
8. Replace MLIA card #3, slot G (procedure M1)	5	6	3									
9. Call next level of support	7	7	4									
10. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	6											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

EXCESSIVE L F INTERRUPTS — Sheet 16 of 24

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Look at the group of four numbers following the "EXCESSIVE L F INTERRUPTS" printout. If the numbers are OEXX or OFXX, the XX is a CLA address. If the numbers are not OEXX or OFXX, look at the numbers in the next "EXCESSIVE L F INTERRUPTS" message. Is there a CLA plugged into the system with this address?	Y	N										
ACTIONS:												
1. Replace the CLA. (procedure M2)	1											
2. Replace the Loop Multiplexer of the Loop Multiplexer card cage that CLA resides in (procedure M2).	2											
3. Bypass the Loop Multiplexer card cages one at a time by disconnecting the Loop Multiplexer cables and connecting the two cables (procedure M5) together (or by disabling all the CLA's in the card cage), and retry the test until the "EXCESSIVE L F INTERRUPTS" printout disappears. The last Loop Multiplexer bypassed has the bad CLA in it. Reconnect the Loop Multiplexer.		1										
4. Disable CLA's one by one in the bad Loop Multiplexer card cage (procedure M4) and retry the test until the "EXCESSIVE L F INTERRUPTS" printout disappears. Replace the last CLA you disabled (procedure M2).		2										
5. Check the +5 and +12 volt supplys voltages at the card cage (procedure M6).	6	3										
6. Unplug CLA's from the backplane one by one in the bad Loop Multiplexer cage and retry the test until the "EXCESSIVE L F INTERRUPTS" printout disappears. Replace the last CLA you unplugged. (procedure M2)		4										
7. Replace MLIA card #1, slot E (procedure M1)	3	5										
8. Replace MLIA card #2, slot F (procedure M1)	4	6										
9. Replace MLIA card #3, slot G (procedure M1)	5	7										
10. Call next level of support.	7	8										

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

UNEXPECTED INTERRUPT — Sheet 17 of 24

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Has the following message printed out before the unexpected interrupts message: "CLA PRODUCT ADDRESS NO"?	Y		N									
2. Look at the group of numbers following the "UNEXPECTED INTERRUPTS" printout. This is a CLA address. Is there a CLA plugged into the system with this address?	Y	N										
ACTIONS:												
1. Replace the CLA (procedure M2).	1											
2. Replace the Loop Multiplexer of the Loop Multiplexer card cage that the CLA resides in (proc. M2).	2											
3. Bypass each Loop Multiplexer card cage one at a time by disconnecting the Loop Multiplexer cables and connecting the two cables together (procedure M5)(or by disabling all the CLA's in the card cage), and retry the test until the "UNEXPECTED INTERRUPTS" printout disappears. The last Loop Multiplexer bypassed has the bad CLA in it. Reconnect the Loop Multiplexer.		1										
4. Disable CLA's one by one in the bad Loop Multiplexer card cage(procedure M4) and retry the test until the "UNEXPECTED INTERRUPTS" printout disappears. Replace the last CLA you disabled (procedure M2).		2										
5. Unplug CLA's from the backplane one by one in the bad Loop Multiplexer card cage and retry the test until the "UNEXPECTED INTERRUPTS" printout disappears. Replace the last CLA you unplugged. (procedure M2)		3										

	1	2	3	4	5	6	7	8	9	10	11	12
6. Replace MLIA card #1, slot E (procedure M1)	3	4	1									
7. Replace MLIA card #2, slot F (procedure M1)	4	5	2									
8. Replace MLIA card #3, slot G (procedure M1)	5	6	3									
9. Run ODS Load Check and Mainframe diagnostics	6	7	4									
10. Call next level of support	8	8	5									
11. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	7											

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Is the first part of the message -- 4168 xxxx xzzz where zzz = 001?	Y	N										
2. Is the first part of the message -- 4168 xxxx xzzz where zzz = 002?		Y	N									
3. Is the first part of the message -- 4168 xxxx xzzz where zzz = 003?			Y	N								
4. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 403 or 703 or 803				Y	N							
ACTIONS:												
1. Replace MLIA card #1, slot E (procedure M1)	3	3	2									
2. Replace MLIA card #2 slot F (procedure M1)	2	2	1									
3. Replace MLIA card #3, slot G (procedure M1)	1	1	3									
4. yyyy is equal to the address of the CLA being tested. Replace this CLA. (procedure M2)				1								
5. Replace the Loop Multiplexer of the Loop Multiplexer card cage that the CLA resides in. (procedure M2)				2								
6. Go to sheet 19.					X							
7. Call next level of support.	5	5	5	4								
8. Check +5, +12 and -12 voltage at Loop Mux Card Cage (procedure M6)	4	4	4	3								

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 18 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Is the first part of the message -- 4168 xxxx xzzz where zzz = 104	Y	N										
2. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 404 or 704 or 804		Y	N									
3. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 305 or 505 or 605 or 905 or B05?			Y	N								
4. Is the first half of the message -- 4168 xxxx xzzz xxxx yyyy where zzz = 306 or 606 or B06?				Y	N							
ACTIONS:												
1. Replace MLIA card #1, slot E (procedure M1)	1											
2. Replace MLIA card #2, slot F (procedure M1)	2											
3. Replace MLIA card #3, slot G (procedure M1)	3											
4. yyyy is equal to the address of the CLA under test. Replace this CLA. (procedure M2)		1	1	1								
5. Replace the Loop Multiplexer of the Loop Multiplexer card cage that the CLA resides in (procedure M2)		2	2	2								
6. Go to sheet 20					X							
7. Call next level of support.	5	4	4	4								
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4	3	3	3								

[redacted]

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

SSUMPTIONS:

Entry is made from sheet 19 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Is the first part of the message -- 4168 xxxx xzzz where zzz = 107 or 207?	Y	N										
2. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 407 or 507 or 707 or 807 or 907?		Y	N									
3. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 508 or 908?			Y	N								
4. Is the first part of the message -- 4168 xxxx xzzz where zzz = 109?				Y	N							
5. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 309 or 409 or 509 or 609 or 709 or 809 or 909?					Y	N						
ACTIONS:												
1. Replace MLIA card #1, slot E (procedure M1)	1			1								
2. Replace MLIA card #2, slot F (procedure M1)	2			2								
3. Replace MLIA card #3, slot G (procedure M1)	3			3								
4. yyyy is equal to the address of the CLA under test. Replace this CLA. (procedure M2)		1	1		1							
5. Replace the Loop Multiplexer of the Loop Multiplexer card cage that the CLA resides in (procedure M2)		2	2		2							
6. Go to sheet 21.						X						
7. Call next level of support.	5	4	4	5	4							
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4	3	3	4	3							

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 20 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Is the first part of the message -- 4168 xxxx xzzz where zzz = 20B?	Y	N										
2. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 40B or 70B?		Y	N									
3. Is the first half of the message -- 4168 xxxx xzzz xxxx xxxx yyyy where zzz = 90C?			Y	N								
ACTIONS:												
1. Replace MLIA card #1, slot E (procedure M1)	3	3										
2. Replace MLIA card #2, slot F (procedure M1)	1	1										
3. Replace MLIA card #3, slot G (procedure M1)	2	2										
4. yyyy is equal to the address of the CLA under test. Replace the CLA (procedure M2)		4	1									
5. Replace the Loop Multiplexer of the Loop Multiplexer card cage that the CLA resides in (procedure M2)		5	2									
6. This is an illegal error message. Run the ODS Quick Look, Memory and Instruction Test.				1								
7. Call next level of support.	5	7	4	3								
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	4	6	3	2								

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

Entry is made from sheet 6 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Was the first part of the console printout 4134?	Y		N									
2. Is there a Loop Multiplexer card cage connected with one or more CLA's plugged into the cage and enabled?	Y	N										
ACTIONS:												
1. Replace the primary loop multiplexer card (procedure M2)	1											
2. Replace MLIA card #1, slot E (procedure M1)	2		1									
3. Replace MLIA card #2, slot F (procedure M1)	3		2									
4. Replace MLIA card #3, slog G (procedure M1)	4		3									
5. Run ODS Load check and Mainframe diagnostics.	5		4									
6. Call next level of support.	7		6									
7. System must contain a Loop Multiplexer card cage with one or more CLA's plugged into the cage and enabled for this DDLT to function properly.		X										
8. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	6		5									

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

1. Entry is made from sheet 7 of this table.
2. There is only one Loop Multiplexer Card Cage in the system.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Are all of the Loop Multiplexer Clock and Data indicators lit (input and output loops)?	Y	N										
2. Does the Loop Multiplexer have all of its indicators off?		Y	N									
ACTIONS:												
1. The last two characters of the first line of the Excessive MLIA Error message are the address of the CLA being tested. Replace that CLA. (procedure M2)	1											
2. Replace the Loop Mux Card (procedure M2)	2	2										
3. Replace MLIA card #1, slot E (procedure M1)	3											
4. Replace MLIA card #2, slot F (procedure M1)	4											
5. Replace MLIA card #3, slot G (procedure M1)	5											
6. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	6	3										
7. Run ODS Load Check and Mainframe diagnostics	7											
8. Call next level of support	8	4										
9. Check that the Loop Mux power switch is on (procedure M9)		1										
10. Go to sheet 25.			X									

TABLE 6-16 COMMUNICATION MULTIPLEXER OFF-LINE TEST DDLT

ASSUMPTIONS:

1. Entry is made from sheet 24 of this table.
2. There is only one Loop Multiplexer card cage in the system.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Are only the two Output Loop indicators lit on the Loop Mux card?	Y	N										
2. Are only the two Input Loop indicators lit?		Y	N									
3. Is only one of the Input Loop indicators off?			Y	N								
4. Is only one of the Output Loop indicators lit?				Y	N							
ACTIONS:												
1. Replace the Loop Multiplexer card(procedure M2).	1	1	1	1								
2. Replace MLIA card #1, slot E (procedure M1)	2		2									
3. Replace MLIA card #2, slot F (procedure M1)		2		2								
4. You have misinterpreted one of the directions; go back to sheet 24 and try again.					1							
5. Call next level of support.	4	4	4		3							
6. Check +5, +12 and -12 voltages at Loop Mux Card Cage (procedure M6)	3	3	3		2							

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT

Diagnostic Test of CC555 when connected to an I/O TTY Card

ASSUMPTIONS:

1. If this test is not to be run, go to next table.

2. After xxxxx? is displayed, the following is entered at the keyboard (if xxxxx is not displayed, go to table 6-100):
   LIAT1 is typed in.
   CARRIAGE RETURN is pressed.
   NOTE: xxxxx = test name

3. Observe the CDT display for the following conditions.

CONDITIONS:	1	2	3
1. Is LIAT1 EXECUTING displayed?	Y	N	
2. Is RUN indicator illuminated?		N	Y
ACTIONS:			
1. Go to sheet 2 of this table.	X		
2. Go to table 6-100.		X	
3. Go to table 6-101.			X

TABLE 6-17 LIAT1: KEYBOARD TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card			Sheet 2 of 14
ASSUMPTIONS: **Observe CDT display for any of the following conditions.**			
CONDITIONS:	**1**	**2**	**3**
1. Is LIAT1 SUSPENDED ENDS displayed?	**Y**	**N**	
2. Is there an action code?		**Y**	**N**
ACTIONS: **1. Go to sheet 3 of this table.**	**X**		
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		X	
3. Call next level of support.			X

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card **Sheet 3 of 14**

ASSUMPTIONS:

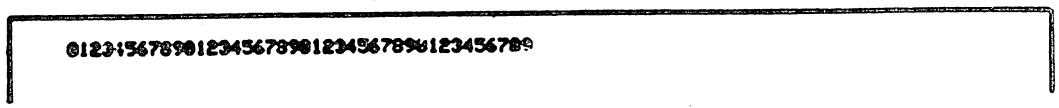
1. Conditions 1 through 6 below are understood before test execution.
2. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.
3. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4	5	6	7
1. Does sonic alarm sound three times?	Y						N
2. Does the screen clear?	Y					N	
3. Does the cursor move from position 0 to 80 and back across the screen several times?	Y				N		
4. Are the following test patterns displayed in order (see sheet 4 of this table)?	Y			N			
5. Does the screen clear?	Y		N				
6. Is LIAT1 SUSPENDED ENDS displayed?	Y	N					
ACTIONS:							
1. Go to sheet 5 of this table.	X						
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 6297400 and perform the specified tests and checks.		1	1	1	3	1	2
3. Replace I/O-TTY, micro processor, slot K.					1		1
4. Replace SMI board, micro processor, slot L.					2		
5. Call next level of support.		2	2	2	4	2	3

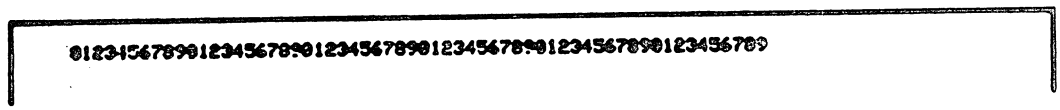
TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card

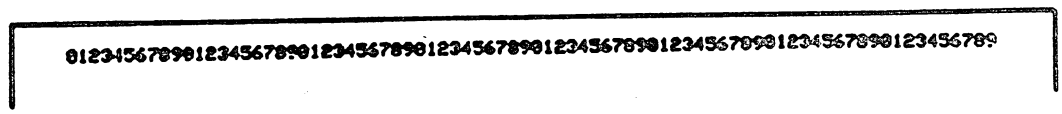
Test Pattern 1



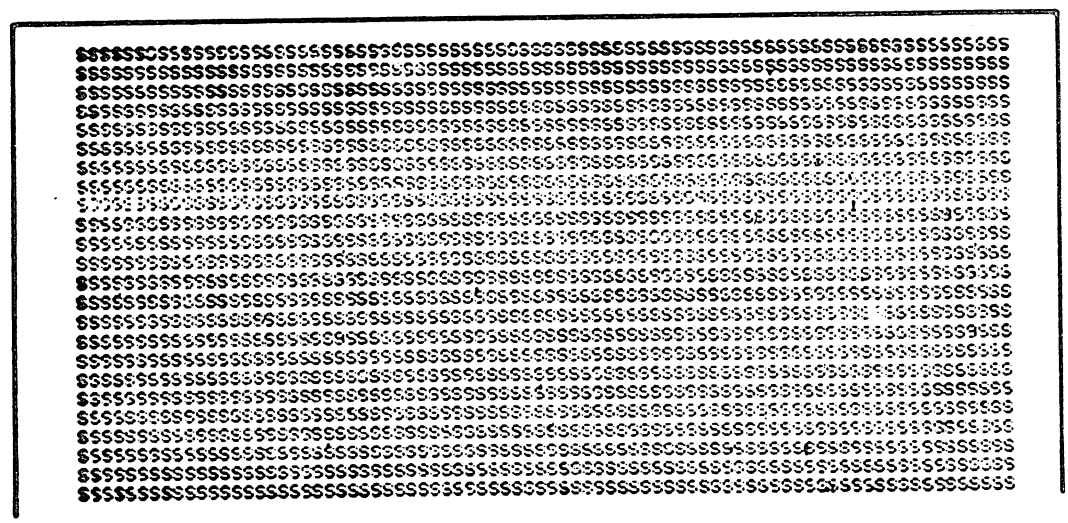
Test Pattern 2



Test Pattern 3



Test Pattern 4



Test Pattern 5

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card — Sheet 5 of 14

ASSUMPTIONS:

1. Conditions 1 and 2 are read to prepare for test execution.
2. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.
3. Observe CDT display for any of the following conditions.

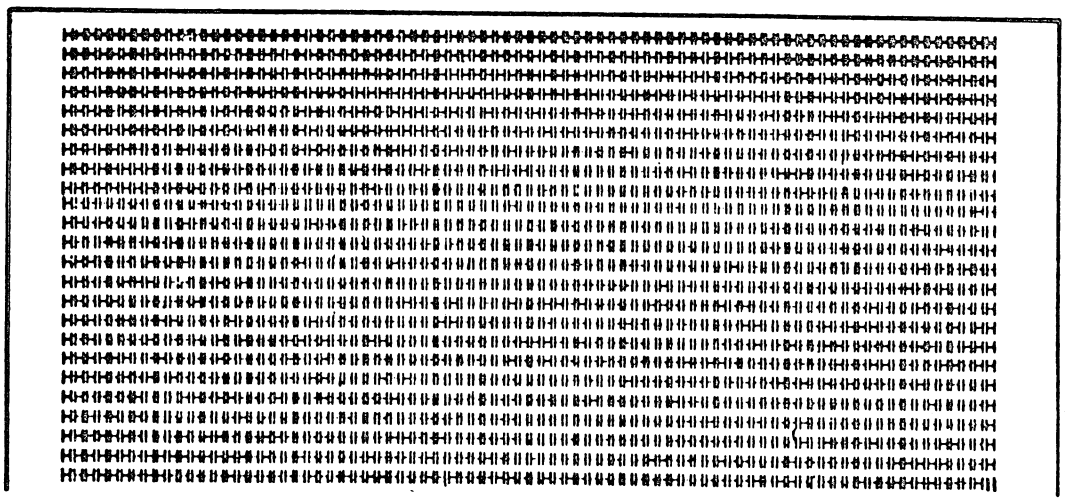
CONDITIONS:	1	2	3
1. Are test patterns on sheet 6 of this table displayed in order?	Y		N
2. Is LIAT1 SUSPENDED ENDS displayed?	Y	N	
ACTIONS:			
1. Go to sheet 7 of this table.	X		
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		1	1
3. Call next level of support.		2	2

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

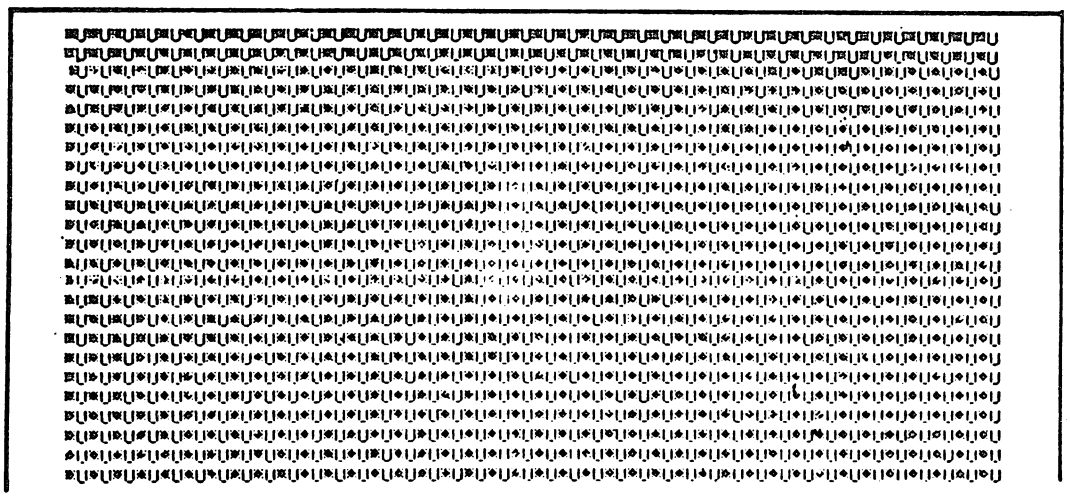
Diagnostic Test of CC555 when connected to an I/O TTY Card


```
  A/D      !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]↑←
ADT CHAR   !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]↑←
ADT WORD   !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]↑←
  A/D      'ABCDEFGHIJKLMNOPQRSTUVWXYZ{|}@
ADT CHAR   'ABCDEFGHIJKLMNOPQRSTUVWXYZ{|}@
ADT WORD   'ABCDEFGHIJKLMNOPQRSTUVWXYZ{|}@
```

Test Pattern 6



Test Pattern 7



Test Pattern 8

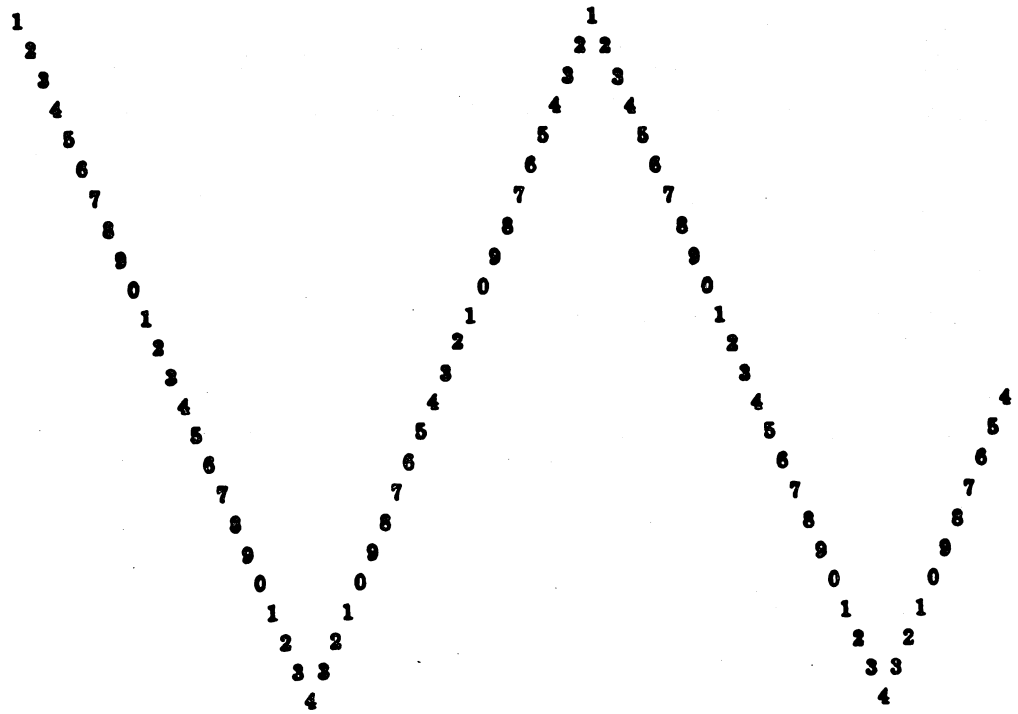
Test Pattern 9

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card	Sheet 7 of 14		
ASSUMPTIONS: 1. The following is entered at the keyboard: GO is typed in. CARRIAGE RETURN is pressed. 2. Observe CDT display for test pattern 10 (next page) and for any of the following conditions.			
CONDITIONS:	1	2	3
1. Is LIAT 1 SUSPENDED ENDS displayed?	Y	N	
2. Is there an action code?		Y	N
ACTIONS:			
1. Go to sheet 9 of this table.	X		
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		1	
3. Call next level of support		2	X

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card



Test Pattern 10

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card — Sheet 9 of 14

ASSUMPTIONS:

1. **The following is entered at the keyboard:**
   GO is typed in.
   CARRIAGE RETURN is pressed.
2. **Observe CDT display for any of the following conditions.**

CONDITIONS:	1	2	3
1. **Is LIAT1 SUSPENDED ENDS displayed?**	Y	N	
2. **Is there an action code?**		Y	N
ACTIONS:			
1. **Go to sheet 10 of this table.**	X		
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		1	
3. Call next level of support.		2	X

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card — Sheet 10 of 14

ASSUMPTIONS:

1. The following is entered at the keyboard:
   GO is typed in.
   CARRIAGE RETURN is pressed.
2. When requested by the display, 1234567890 is typed in on the keyboard.
3. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3
1. Is LIAT1 SUSPENDED ENDS displayed?	Y	N	
2. Is there an action code?		Y	N
ACTIONS:			
1. Go to sheet 11 of this table.	X		
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		1	
3. Call the next level of support.		2	X

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic test of CC555 when connected to an I/O TTY Card — Sheet 11 of 14

ASSUMPTIONS:

1. The following is entered at the keyboard:

   GO is typed in.
   CARRIAGE RETURN is pressed.

2. When requested by display, the following is entered at the keyboard:

   ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890 is typed in.
   CARRIAGE RETURN key is pressed.

3. Observe CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4
1. Is LIAT1 SUSPENDED ENDS displayed?	Y		N	
2. Does the display repeat that data exactly below the input data?	Y	N		
3. Is there an action code?			Y	N
ACTIONS:				
1. Go to sheet 12 of this table.	X			
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		2		
3. Replace I/O-TTY, micro processor, slot K.		1		1
4. Replace SMI board, micro processor, slot L.				2
5. Go to sheet 14 of this table.			X	
6. Call next level of support		3		3

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card — Sheet 12 of 14

ASSUMPTIONS:

1. **The following is entered at the keyboard:**
   GO is typed in.
   CARRIAGE RETURN is pressed.
2. **Entries are made as directed by the display.**
3. **Observe CDT display for any of the following conditions.**

CONDITIONS:	**1**	**2**	**3**
1. **Is LIAT1 SUSPENDED ENDS displayed?**	**Y**	**N**	
2. **Is there an action code?**		**Y**	**N**
ACTIONS:			
1. Go to sheet 13 of this table.	X		
2. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.		1	
3. Call the next level of support.		2	X

TABLE 6-17 LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (Cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card — Sheet 13 of 14

ASSUMPTIONS:

1. **The following is entered at the keyboard:**
   GO is typed in.
   CARRIAGE RETURN is pressed.
2. **Entries and switch changes are made as directed by display.**
3. **Observe CDT display for any of the following conditions.**

CONDITIONS:	1	2	3	4
1. **Is LIAT1 SUSPENDED ENDS displayed?**	Y		N	
2. **Is there an action code?**			Y	N
3. **Is this a verification run?**	Y	N		
ACTIONS:				
1. **At the keyboard:** **Type in GO** **Press CARRIAGE RETURN**	1	1		
2. Go to next table.	3			
3. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.			1	
4. Call next level of support.			2	X
5. Set switches to their original position (see figure 4L-3 for usual system configurations)	2	2		
6. Go to table 6-3 and begin verification run.		3		

TABLE 6-17. LIAT1: KEYBOARD DISPLAY TERMINAL DIAGNOSTIC DDLT (cont)

Diagnostic Test of CC555 when connected to an I/O TTY Card — Sheet 14 of 14

ASSUMPTIONS:

1. **An action code is displayed on CDT screen.**
2. **Observe CDT display for the following conditions.**

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7
1. 0711 or 0731 or 0721 or 0722 or 0732	Y	N					
2. 0733		Y	N				
3. 0741			Y	N			
4. 0742				Y	N		
5. 0750					Y	N	
6. 0751						Y	N
ACTIONS:							
1. Go to table CRT1 of Keyboard Display Terminal Hardware Maintenance Manual 62957400 and perform the specified tests and checks.	1	1	1	1	1	1	
2. Replace I/O-TTY, micro processor, slot K	2	3	2		2	2	
3. Replace SMI board, micro processor, slot L.		2			3		
4. Call next level of support.	3	4	3	2	4	3	X

TABLE 6-10. LCTT1: MAGNETIC TAPE CONTROLLER DDLT

ASSUMPTIONS:

1. If this device is not part of the hardware system, go to the next table.
2. MOS Main Memory Test {Table 6-6} has previously been run.
3. The interrupt line is properly wired. {per section 4P and procedure A28}
4. The equipment code jumpers are properly inserted. {per Section 4P and procedure A28}
5. The line switch "LS" in the ON position.
6. The diskette or cassette containing LCTT1 diagnostics has been loaded.
7. XXXXX? is displayed on the CDT. The following is entered at the keyboard:
8. LCTT1 is typed in.
   CARRIAGE RETURN is pressed.
9. Observe the CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Is LCTT1 EXECUTING displayed?	Y							N	
2. Is LCTT1 TERMINATED 0000 ERRORS displayed,	Y	N							
3. Does the CDT display 2611 or 2621?		Y	N						
4. 2612, 2622, 2631, 2632, or 2633			Y	N					
5. 2634, 2641, 2642, 2645, or 2646				Y	N				
6. 2643 or 2644					Y	N			
7. 2647 or 2648						Y	N		
8. 2651							Y	N	
9. Is RUN indicator illuminated?								Y	N
ACTIONS:									
1. Go to tape transport initial observations, Table 6-58	X								
2. Remove the controller and check the positions of the manual controls (in particular check the equipment code jumper settings and that the line switch, LS, is in the "ON" position). {Procedure R25}		1							
3. Restart magnetic tape DDLT at sheet 1 of this table.								1	
4. Check that the controller is properly seated. {Procedure R25}		2	1						
5. Check that no other controller in the system has the same equipment code as the LCTT1 Formatter controller. {Procedure R25}			2						
6. Replace the tape transport controller (Procedure R 25).		3	3	1	1	1	2		
7. Check that the interrupt line is properly wired.							1		
8. Replace I/O TTY controller, slot K (Procedure A23).		4	4	2	4	2	3		
9. Replace SMI board, slot L (Procedure A23).		5	5	3	5	3	4		
10. Replace memory interface (address) board, slot W (Procedure A25).					2				
11. Replace memory interface (data) board, slot V (Procedure A25).					3				
12. Go to table 6-100.								2	X
13. Call next level of support.		6	6	4	6	4	5		

TABLE 6-19. CDD1: CARTRIDGE DISK DRIVE CONTROLLER DDLT

Controller Diagnostic (CDD1) Sheet 1 of 2

ASSUMPTIONS:

1. The switches and jumpers located on the controller board are set as described in Section 4Q and procedure A28.
2. MOS Main Memory Test (Table 6-6) has previously been run.
3. The diskette or cassette containing CDD1 diagnostic has been loaded.
4. XXXXX? is displayed on the CDT. The following is entered at the keyboard.
5. ESC is pressed.
   J26@ is typed in.
6. CDD1 (CR) is typed in.
7. Observe the CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4
1. Is CDD1 EXECUTING displayed?	Y		N	
2. Is CDD1 SUSPENDED displayed?	Y	N		
3. Is RUN indicator illuminated?			N	Y
ACTIONS:				
1. Type in A,x (CR) (Where	1			
2. Go to sheet 2 of this table.	2			
3. Replace I/O TTY controller (slot K) (Procedure A23).		1		
4. Go to table 6-100.			X	
5. Go to table 6-101.		2		
6. Call next level of support.				X

Value of x	Memory Size (words)			
	0-64K	64-128K	128-192K	192-256K
x=	0	1	2	3

TABLE 6-49. CDD1: CARTRIDGE DISK DRIVE CONTROLLER DDLT

Controller Diagnostic (CDD1) (Continued) Sheet 1 of 2

ASSUMPTIONS:

1. Entry is made from sheet 1.
2. ESC is pressed.
   J20@ is typed in.
3. GO (CR) is typed.

CONDITIONS:	1	2	3	4	5	6	7
1. Is CDD1 TERMINATES 0 ERRORS displayed?	Y	N					
2. Is code 2511 or 2521 displayed?		Y	N				
3. Is code 2512, 2522, 2531, 2532 or 2533 displayed?			Y	N			
4. Is code 2534, 2541, 2542, 2545, 2546 or 2547 displayed?				Y	N		
5. Is code 2551 displayed?					Y	N	
6. Is code 2543, 2544 or 2549 displayed?						Y	N
ACTIONS:							
1. Go to Table 6-50 (Level II monitor loading)	X						
2. Check that the CDD controller is properly seated and that the controller manual controls are properly positioned (section 4Q).		1	1				
3. Verify that no other devices have the same equipment code. Check the switches or jumpers of all other controllers. Refer to section 4 for each device and procedure A28.			2	1			
4. Verify the equipment number and interrupt line number Refer to section 4Q.		2			1		
5. Replace Cartridge Disk Drive Controller (Procedure Q301)		3	3	2	2	1	1
6. Replace MIF-A board (Memory Interface Address) slot W (Procedure A25)						2	
7. Replace MIF-D board (Memory Interface Data) slot V (Procedure A25)						3	
8. Call next level of support.		4	4	3	3	4	2

TABLE 6-50. LEVEL II MONITOR DDLT

SHEET 1 of 1

ASSUMPTIONS:

1. Level I testing is complete. If this is an 18-30 Timeshare (dual CPU) system return to table 6-3 and test the second CPU if this has not already been done.
2. If this is an 18-30 Timeshare system, CPU 1 is selected at the operator's panel.
3. MASTER CLEAR is pressed.
4. Backplane Interrupt/Equipment numbers are connected properly (procedure A28).
5. If the load device is a diskette:
   Level II diskette is loaded.
   DEADSTART is pressed.

   NOTE: Additional diskettes (Vol. 2, etc.) may be required to complete Level II testing. See procedure A37 to determine diskette contents.
6. If the load device is a cassette:

   Level II cassette is inserted.
   After READY indicator illuminates, DEADSTART is pressed.
7. The CDT displays 123456. If the CDT does not display 123456, try another level II diskette or cassette. If the problem is not ocrrected, go to Table 6-3. Note: "DPSR Level xx release MM-DD-TT" (where xx is the release level) may be displayed after the 123456 when using media released or updated after 1-1-78.
8. Observe the conditions below.

CONDITIONS:	1	2	3	4	5	6	7
1. Is ODS x.x displayed where x.x is the release level?	Y					N	
2. Is RUN indicator illuminated?						N	Y
3. Is this the first time entry is made to this table?	N	Y					
4. Press STOP. Does RUN indicator extinguish?		Y			N		
5. Press RUN; then press CONTROL and BEL keys simultaneously at CDT keyboard. Is MI displayed?		Y		N			
6. Does the customer suspect a particular unit?		Y	N				
ACTIONS:							
1. Go to table 6-51.			X				
2. Go to table 6-100.						X	
3. Call next level of support.					4		
4. Check operators panel cable connections.					1		
5. Replace operators panel (procedure A20).					2		
6. Replace SMI board, slot L.				1	3		
7. Replace I/O-TTY controller, slot K.				2			
8. Go to table 6-101.				3			X

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TABLE 6-50. LEVEL II MONITOR DDLT (Contd)

Sheet 1 of 1 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7
9. Go to DDLT of peripheral device under test or suspected:	X	X					

Device	Table	
Card reader	6-51	
Cassette	6-52	
Flexible Disk	6-53	
Dual Channel CLA	6-54	
Single Channel CLA	6-54	
Line Printer	6-55	See note 3
Magnetic Tape Transport	6-56	
Storage Module	6-57	
Dual Mode LCTT	6-58	
Cartridge Disk Drive	6-59	
Keyboard Display to 8 Channel CLA	6-60	See note 4
Matrix Printer to 8 Channel CLA	6-61	See note 4
8 Channel CLA	6-62	See note 4

NOTES:

1. For any peripheral board replacement from this page on, restart the diagnostic by entering the following at the keyboard:

   Press CONTROL and BEL simultaneously
   Type in ODS, RSTR, xxxxx

   (xxxxx is the respective diagnostic mnemonic.)

2. If an error occurs from this restart procedure, after performing a DDLT action, reload test starting with Loadcheck table 6-3. This is necessary because the error may have been induced by performing the DDLT action.
3. For CT103/5 this test is a fault detection only DDLT (no fault isolation provided).
4. These tables are fault detection only.
5. If the load device controller is removed, MONITOR must be reloaded. See Table 6-50.

TABLE 6-51. CARD READER DDLT

Power On

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 D1).
4. Ensure card reader is not ready by pressing RESET.

CONDITIONS:	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						
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.									1	
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 D9). Replace if required (procedure D10).				3	2	2	2		4	
6. Check +17-volt power supply (procedure D6).								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 D9).							1			

Continued on next page

TABLE 6-51. CARD READER DDLT (Contd)

Power On										Sheet 1 of 6 (Contd)	
ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10
10. Check failing indicator and/or switch (procedure D9) and replace if required (procedure D10).					3		3			
11. Check READ CHECK switch/indicator (procedure D9) and replace if required (procedure D10).						1				
12. Check +5-volt power supply (procedure D5).				1						
13. Check RESET indicator/switch on card reader (procedure D9) and replace if required (procedure D10).				2						
14. Replace control board (procedure D13).		2	3							
15. With RESET pressed, check for ac power to motor (terminals 2 and 3 of TB2 on power supply).			1	4						
16. Replace motor (procedure D15).			2							
17. Check control and data board feature switches according to figure 4D-7 and tables 4D-2 and 4D-3.		1								
18. Call next level of support.		4	4	5	4	3	4	4	5	
19. Replace read amplifier board.		3								

TABLE 6-51. CARD READER DDLT (Contd)

Electromechanical Checks — Sheet 2 of 6

ASSUMPTIONS:

1. Off-line test deck is placed in card hopper.
2. RESET on card reader has been pressed.
3. TEST FEED switch on card reader/line printer interface board is placed in TEST FEED position (figure 4D-8).

NOTE: If card reader motor has stopped, press card reader RESET to continue.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11
1. Is READ CHECK on card reader illuminated?	Y	N									
2. Are cards feeding?		Y	N								
3. Is card stuck in throat entrance?			Y	N							
4. Are cards jammed at read station?				Y	N						
5. Is feed solenoid operating (listen for click)?					Y	N					
6. Is +17 vdc present between pins 3 and 6 of power supply TB1 (procedure D6). Apply power to solenoid.						Y	N				
7. Check hopper empty switch (procedure D7). Is switch open?							Y		N		
8. Check stacker full switch (procedure D8). Is switch open?							Y	N			
9. Is motor on?									N	Y	
NOTE: Reset TEST FEED switch on card reader/ line printer controller before continuing with checks.											
ACTIONS:											
1. Press controller TEST FEED switch forward and go to sheet 4 of this table.		X									
2. Go to sheet 3 of this table.	X										
3. Check leading edges of card deck for damage.			1	2							
4. Check and adjust throat gap (procedure D23).			2	3	1						

Continued on next page

TABLE 6-51. CARD READER DDLT (Contd)

Electromechanical Checks											Sheet 2 of 6 (Contd)	
ACTIONS (Continued):		1	2	3	4	5	6	7	8	9	10	11
	CAUTION Do not pull out cards in reverse direction.											
5.	Clear card jam (procedure D17).				1							
6.	Check card stacker springs and drive assembly (figure 6D-21).				4							
7.	Check card stacker follower arm for smooth operation (figure 6D-9).				5							
8.	Check feed solenoid (procedure D20).					2	3					
9.	Check wiring between pins 6 and 8 of power supply TB1 and feed solenoid (figure 6D-36).						1				1	
10.	Check settings of feature switches on data and control boards (tables 4D-2 and 4D-3 and figure 4D-7).						2	4				
11.	Replace control board (procedure D13).						4	5			2	
12.	Replace card reader/line printer controller board, processor slot J (procedure D25/S1.)							1				
13.	Check card reader I/O cable and connection to processor.							2				
14.	Check back panel connections in processor and card reader.							3				
15.	Isolate short.								1	1		
16.	Replace stacker full switch.								2	2		
17.	Check drive belt. Replace if broken. (Procedure D30)					3						
18.	Call next level of support			3	6	4	5	6	3	3	3	

TABLE 6-51. CARD READER DDLT (Contd)

Off-Line Check — Sheet 3 of 6

ASSUMPTIONS:

1. Card reader is readied for off-line check (procedure D4) (internal continuous feed operation).
2. The off-line test deck is loaded and read.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10
1. READ CHECK lamp on card reader is illuminated.	N	Y								
2. Control board LIGHT ERR lamp is illuminated.		Y	N							
3. Control board EARLY DARK ERR lamp is illuminated.			Y	N						
4. Control board LATE DARK ERR lamp is illuminated.				Y			N			
5. HOPPER on card reader is illuminated.							Y		N	
6. Control board FEED ERR or ILLEGAL FEED ERR lamp is illuminated.							Y	N		
7. STACKER on card reader is illuminated.				N	Y					
8. Control board STACK ERR lamp is illuminated.					Y	N				
9. Control board SYNC ERR lamp is illuminated.									Y	N
ACTIONS:										
1. Go to table 6-4.	X									
2. Check and replace read lamp (procedure D21).		2								
3. Check and replace timing lamp (procedure D22).			2						1	
4. Check card feed passage for dirt.							1			
5. Check throat gap (procedure D23).				1	1	1	2			
6. Check if feed plate and solenoid are mechanically bound (procedure D27).						2	3			
7. Replace feed solenoid and spring (procedure D20).						3	4	2		
8. Check for card damage.		1								
9. Check read head and replace (procedure D14).		6		5		7				
10. Check if feed plate is out of alignment (procedure D27).										

Continued on next page

TABLE 6-51. CARD READER DDLT (Contd)

Off-Line Check										Sheet 3 of 6 (Contd)
ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10
11. Replace control board (procedure D13).		4	5	4			5	3	3	
12. Replace data board (procedure D12).		7	6	6				4	4	
13. Check and replace amplifier board (procedure D11).		5			4					
14. Check skew adjustment (procedure D18).		3								
15. Check and replace timing disk (procedure D29).			4			5				
16. Check and replace mask and phototransistor (procedure D28).			3			6				
17. Clean transport drum (procedure D19).				2	2					
18. Check belt tension, and check that pulleys are not loose on shafts.			1			4				
19. Call next level of support.		8	7	7	5	8	6	5	4	X

TABLE 6-51 CR104: CARD READER DDLT (CONT)

Diagnostic Test — Sheet 4 of 6

ASSUMPTIONS:

1. Level II monitor is loaded (see table 6-50).

2. The following is entered at the keyboard:

   CONTROL and BEL keys are pressed simultaneously.
   ODS, LOAD, CR104 is typed in.
   CARRIAGE RETURN is pressed.

   CR104 SUSPENDED LOAD is displayed.

   CONTROL and BEL keys are pressed simultaneously.
   ODS, GO, CR104 is typed in.
   CARRIAGE RETURN is pressed.

3. Observe CDT display for operator actions and action codes.

CONDITIONS:	1	2	3	4	5	6
1. Is CR104 TERMINATED displayed?	Y			N		
2. Are there action codes displayed?				Y	N	
3. Is RUN indicator illuminated?					N	Y
4. Is there another card reader to be tested?	N		Y			
5. Is this a verification run?	N	Y				
ACTIONS:						
1. Go to table 6-52.	X					
2. Go to sheet 5 of this table.				X		
3. Go to table 6-100.					X	
4. Call next level of support.						X
5. Go to procedure A28 for directions if testing multiple subsystems.			X			
6. Go to table 6-103 and begin verification run.		X				

TABLE 6-51. CARD READER DDLT (Contd)

ASSUMPTIONS:

Entry is from sheet 4 of this table.

CONDITIONS:	1	2	3	4	5	6	7
Did CDT display:							
1. 1111	Y	N					
2. 1121		Y	N				
3. 1150			Y	N			
4. 1123				Y	N		
5. 1131					Y	N	
6. 1146						Y	N
ACTIONS:							
1. Go to sheet 6 of this table.							X
2. Verify that the card reader enable strap is installed on card reader/line printer controller (figure 4D-8, Figure 4S-2).	1						
3. Verify that card reader equipment code straps on card reader/line printer controller correspond to expected equipment code (figure 4D-8; 4S-2	2						
4. Verify that card reader interrupt enable straps on card reader/line printer controller correspond to typical configuration (figure 4D-9). See Note 1					2	1	
5. Check central processing unit and card reader connections and interconnecting cable (figure 5D-2).	3	1	1	1	1	2	
6. Verify that no other devices share the card reader equipment code.		3	7	2	3		
7. Replace card reader/line printer controller board (procedure D25 ; S1).	4	2	6	3	4	4	
8. Check settings of feature switches on data and control boards (figure 4D-7 and tables 4D-2 and 4D-3).			2				
9. Check interconnecting cable between data and control boards.			3				
10. Replace data board (procedure D12).			4			3	
11. Call next level of support.	5	4	9	4	5	5	
12. Replace read amplifier board.			8				
13. Replace control board (procedure D13)			5				

NOTE 1: Not Applicable to CR/LP/CLA Controller.

TABLE 6-51. CARD READER DDLT (Contd)

ASSUMPTIONS:

Entry is from sheet 5 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11
Did CDT display:											
1. 1133, 113A, 113B, 113C, 113D	Y	N									
2. 1134		Y	N								
3. 1135			Y	N							
4. 1136				Y	N						
5. 1137					Y	N					
6. 1138						Y	N				
7. 1142 or 1143							Y	N			
8. 1162								Y	N		
9. 1132 or 1139									Y	N	
10. 1160										Y	N
ACTIONS:											
1. Check operation of hopper empty and stacker full switches (procedures D7 and D8).					2						
2. Check processor and card reader connections and interfacing cable (figure 5D-2, figure 5S-1).	2	1					1	3			
3. Check settings of feature switches on data and control boards (figure 4D-7 and table 4D-2 and 4D-3).	1							4			
4. Check interconnecting cable between data and control boards.	4	3	2	2	4	4		5			
5. Check card on bottom of deck for any unusual conditions.			1								
6. Check card reader for a jammed card in the card path (procedure D17).				1							

Continued on next page

TABLE 6-51. CARD READER DDLT (Contd.)

Sheet 6 of 6 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11
7. Check for a hopper empty or a stacker full condition.					1						
8. Check last card fed for tears, clipped corners, or dirt.						1		1			
9. Replace data board (procedure D12).	5	4	4	3	7	8		10			
10. Replace control board (procedure D13).	6	5	5	4	6	7		9			
11. Rerun test with another test deck.								2			
12. Clean card reader (procedure D19).										1	
13. Check if read lamp is on; replace if necessary (procedure D21).						2					
14. Check cable from control board to amplifier board.					3	3		6			
15. Replace read head assembly (procedure D14).						5		7			
16. Replace amplifier board (procedure D11).	7				5	6		8			
17. Check adjustment of throat gap (procedure D23).			3								
18. Replace card reader/line printer controller, slot J (procedure D25 ; SLJ.	3	2	6	5	8	9	2	11			
19. If hopper is empty, load test deck and press RESET on card reader. If stacker is full, remove cards from stacker and press RESET.									1		
20. Restart card reader diagnostic. At the keyboard, perform the following: Press CONTROL and BEL simultaneously Type in ODS, GO Press CARRIAGE RETURN									2	2	
21. Call next level of support.	8	6	7	6	9	10	3	12	3	3	X

ASSUMPTIONS:

1. Level II monitor is loaded {See table 6-50}
2. If there are two cassette transports {unit 0 and Unit 1}in the system, tes— are performed first on Unit 0.

3. The following is entered at the keyboard:
   CONTROL and BEL are pressed simultaneously
   ODS, LDGO, CASET is typed in.
   CARRIAGE RETURN is pressed
4. Observe CDT display for operator action and action codes.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does the CDT display: CASET EXECUTING READY EACH SELECTED UNIT WITH A WRITE-ENABLED SCRATCH CASSETTE CASET SUSPENDED SELF	Y		N									
2. Is this the test of Unit 1 of a two transport CPU ?	Y	N										
3. Is the run indicator illuminated?			Y	N								
ACTIONS:												
1. Press CONTROL and BEL simultaneously Type ODS, CPAR, CASET, A,1 Press CARRIAGE RETURN	1											
2. Press CONTROL and BEL simultaneously Type ODS, Go, CASET Press CARRIAGE RETURN	2	2										
3. Go to sheet 2 of this table	3	3										
4. Install a write enabled scratch cassette in each unit per procedure H1. {If scratch cassette cannot be installed because takeup and supply reels keep turning with the lid on the transport lifted, replace the cassette transport, procedure H7}. Permit tape to rewind until READY indicator on operator panel illuminates.		1										
5. Repeat Loadcheck and restart test. Probably an operator error has occurred.			1									
6. Go to table 6-100.			2	X								

ASSUMPTIONS:

1. Entry is made from sheet 1 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does the CDT display: CASET COMPLETED 0001 PASSES CASET TERMINATED 0000 ERRORS	Y			N								
2. Is this the test of Unit 0 of a two transport (Unit 0 and unit 1) CPU ?	Y	N										
3. Is the ODS load device a cassette?	Y		N									
4. Is an action code displayed?				Y	N							
ACTIONS:												
1. Remove scratch cassette from Unit 0 and reinsert ODS cassette. Permit tape to rewind until READY indicator on operator panel illuminates.	1											
2. Press CONTROL and BEL simultaneously Type ODS, LDGO, CASET Press CARRIAGE RETURN	2		2									
3. Unit 1 has now been selected. Return to page 1 of this table and perform test on unit 1.	3		3									
4. Insert ODS load media for CASET test			1									
5. Remove all scratch cassettes.		1										
6. Go to next test.		2										
7. Go to sheet 3 of this table.				X								
8. Repeat Loadcheck and restart test. Probably an operator error has occurred.					1							
9. Call next level of support					2							

TABLE 6-52 CASET: CASSETTE TEST DDLT (Cont'd)

ASSUMPTIONS:

1. Entry is made from sheet 2 of this table.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9	10	11	12
1. 1C10	Y	N										
2. 1C12		Y	N									
3. 1C20			Y	N								
4. 1C30				Y	N							
5. 1C32					Y	N						
6. 1C34						Y	N					
7. 1C36							Y	N				
8. 1C38								Y	N			
9. 1C40									Y	N		
ACTIONS:												
1. Replace Cassette Controller, slot E	1	1	1	2	1	1	3	3	2			
2. Replace I/O-TTY controller, slot K	2	2	2	3	3	3	5	5	4			
3. Replace cassette transport (Procedure H7)	3	3	3	4	2	2	4	4	3			
4. Replace Control 1, slot P	4	4	4	5	4	4	6	6	5			
5. Replace ALU, slot M	5	5	5	6	5	5	7	7	6			
6. Replace Control 2, slot N	6	6	6	7	6	6	8	8	7			
7. Replace SMI, slot L	7	7	7	8	7	7	9	9	8			
8. Use another scratch cassette, if available							2	2	1			
9. Assure that the scratch cassette used is write enabled (see procedure H1)								1				
10. Repeat Loadcheck and restart test. Probably an operator error has occurred.				1			1					
11. Go to sheet 4 of this table										X		
12. Call next level of support	8	8	8	9	8	8	10	10	9			

[redacted]

ASSUMPTIONS:

1. Entry is made from sheet 3 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
Does the CDT display:												
1. 1C42	Y	N										
2. 1C44		Y	N									
3. 1C46			Y	N								
4. 1C48				Y	N							
5. 1C50					Y	N						
6. 1C52						Y	N					
7. 1C54							Y	N				
8. 1C70								Y	N			
9. 1C80									Y	N		
ACTIONS:												
1. Use another scratch cassette, if available.	1	1	1	1	1	1	1	1	1			
2. Replace cassette controller, slot E	2	2	3	3	2	2	2	2	3			
3. Replace cassette transport (procedure H7)	3	3	2	2	3	3	3	3	2			
4. Replace I/O-TTY controller, slot K	4	4	4	4	4	4	4	4	4			
5. Replace Control 1, slot P	5	5	5	5	5	5	5	5	5			
6. Replace ALU, slot M	6	6	6	6	6	6	6	6	6			
7. Replace Control 2, slot N	7	7	7	7	7	7	7	7	7			
8. Replace SMI, slot L	8	8	8	8	8	8	8	8	8			
9. Go to sheet 5 of this table										X		
10. Call next level of support	9	9	9	9	9	9	9	9	9			

ASSUMPTIONS:

1. Entry is made from sheet 4 of this table.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9	10	11	12
1. 1C82	Y	N										
2. 1C84		Y	N									
3. 1C86			Y	N								
4. 1C90				Y	N							
5. 1C92					Y	N						
6. 1C94						Y	N					
7. 1C96							Y	N				
8. 1C98								Y	N			
9. 1CA0									Y	N		
10. 1CA2										Y	N	
ACTIONS:												
1. Use another scratch cassette, if available	1	1	1	1	1	1	1	1	1	1		
2. Replace cassette transport (procedure H7)	2	2	2	3	3	2	2	3	3	3		
3. Replace cassette controller, slot E	3	3	3	2	2	3	3	2	2	2		
4. Replace I/O-TTY controller, slot K	4	4	4	4	4	4	4	4	4	4		
5. Replace Control 1, slot P	5	5	5	5	5	5	5	5	5	5		
6. Replace ALU, slot M	6	6	6	6	6	6	6	6	6	6		
7. Replace Control 2, slot N	7	7	7	7	7	7	7	7	7	7		
8. Replace SMI, slot L	8	8	8	8	8	8	8	8	8	8		
9. Call next level of support	9	9	9	9	9	9	9	9	9	9	X	

TABLE 6-53 FDSKA: FLEXIBLE DISK DDLT

ASSUMPTIONS:

1. Level I Testing is complete.
2. Level II Vol. X (where x is equal to the volume that contains the FDSKA diagnostic) is loaded (see Table 6-50 Level II Monitor DDLT). If both load devices (cassette and diskette) are available, the diagnostic must be loaded from the device using equipment code 7 and interrupt 7.
3. If there are two flexible disk drives (Unit 0 and Unit 1) in the system, Unit 0 is tested first.
4. A pre-initialized scratch diskette (CDC P/N 96820413 or equivalent) is available.
5. The following is entered at the keyboard:

   CONTROL and Bel are pressed simultaneously.
   ODS, LOAD, FDSKA is typed in.
   CARRIAGE RETURN is pressed.

6. Observe the CDT display for the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Does the CDT display FDSKA SUSPENDED LOAD?	Y								N			
2. Is this the test of Unit 1 of a system with two flexible disk drives?	Y				N							
3. Is the ODS LOAD device a cassette?	Y		N		Y		N					
4. Is the flexible disk drive controller being used as a "DMA" device? (If not "DMA" then must be A/Q). See Figure 4A-1.	Y	N	Y	N	Y	N	Y	N				
5. Is the RUN indicator illuminated?									Y	N		
ACTIONS:												
1. Go to procedure A36 and modify the run parameters.	1	1			1	1						
2. Press CONTROL and BEL simultaneously Type ODS, CPAR, FDSKA, 5, ABCO Press CARRIAGE RETURN	2		1		2		1					
3. Press CONTROL and BEL simultaneously Type ODS, CPAR, FDSKA, A, 1 Press CARRIAGE RETURN	3	2	2	1								

TABLE 6-53 FDSKA: FLEXIBLE DISK DDLT

SHEET 1 of 4 (Cont'd)

ACTIONS CONTINUED:	1	2	3	4	5	6	7	8	9	10	11	12
4. Insert scratch diskette into the drive under test. (Remove the ODS diskette if the ODS LOAD device is a diskette.	4	3	3	2	3	2	2	1				
5. Press the WRITE ENABLE switch on the operators panel. WRITE ENABLE indicator should illuminate.	5	4	4	3	4	3	3	2				
6. Press CONTROL and BEL simultaneously Type ODS,GO,FDSKA Press CARRIAGE RETURN	6	5	5	4	5	4	4	3				
7. Go to sheet 2 of this table.	7	6	6	5	6	5	5	4				
8. Repeat LOAD CHECK (See Table 6-3) then restart test on this page. Probably an operator error has occurred.									1			
9. Go to 6-101.									2	X		

ASSUMPTIONS:

Entry is made from sheet 1 of this table.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - Does the CDT display: FDSKA COMPLETED 0001 PASSES FDSKA TERMINATED 0000 ERRORS	Y			N								
2 - Is this the test of Unit 0 of a system with two flexible disk drives?	Y	N										
3 - Is the ODS load device a diskette?		Y	N									
4 - Is an action code displayed?				Y		N						
5 - Is the action code an even number?				Y	N							
ACTIONS:												
1- Remove scratch diskette	1	1	1									
2- Press WRITE ENAB. switch on the operators panel. WRITE ENAB. indicator should extinguish.	2	2										
3- Reinsert ODS diskette (if ODS load device is a diskette	3	3										
4- Restart page 1 of this table to test unit 1.	4											
5- Go to next table		4	2									
6- Go to sheet 3 of this table.				x								
7- Go to sheet 4 of this table.					x							
8- Go to table 6-101.						x						

TABLE 6-53 FDSKA: FLEXIBLE DISK DDLT

ASSUMPTIONS:

Observe the CDT display for the following action codes.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - 1F10 or 1F12 or 1F14 or 1F16 or 1F18 or 1F20 or 1F22 or 1F28 or 1F30 or 1F40 or 1F44 or 1F50 or 1FA0 or 1FB0	Y	N										
ACTIONS:												
1 - Use another diskette.	1	1										
2 - Check power supply voltages (Proc. K5)	2	2										
3 - Check flexible disk controller cable.	3	3										
4 - Replace flexible disk unit 0 (Proc. K9)	5	4										
5 - Replace flexible disk controller Procedure K10 (Slot E)	4	5										
6 - Call next level of support	6	6										

[redacted]

TABLE 6-53 FDSKA: FLEXIBLE DISK DDLT

—UMPTIONS:

Observe the CDT display for the following action codes.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1 - 1F11 or 1F13 or 1F15 or 1F17 or 1F19 or 1F21 or 1F23 or 1F29 or 1F31 or 1F41 or 1F45 or 1F51 or 1FA1 or 1FB1	Y	N										
ACTIONS:												
1 - Use another diskette.	1	1										
2 - Check power supply voltages (Proc. K5)	2	2										
3 - Check flexible disk controller cable	3	3										
4 - Replace flexible disk unit 1 (Proc. K9)	5	4										
5 - Replace flexible disk controller Procedure K10 (Slot E)	4	5										
6 - Call next level of support	6	6										

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TABLE 6-54 CLA1A/2A: COMMUNICATIONS LINE ADAPTER DIAGNOSTIC DDLT

ASSUMPTIONS:

1. ODS monitor is loaded {table 6-50}.

2. The following is entered at the keyboard {lower case}:

   CONTROL and BEL are pressed simultaneously.
   ODS, LOAD, CLA2A is typed in {Note: Type in "CLA1A" when checking CR/LP/CLA Controller}.
   CARRIAGE RETURN is pressed.
   CONTROL and BEL are pressed simultaneously.
   ODS, GO, CLA2A is typed in {Note: Type in "CLA1A" when checking CR/LP/CLA Controller}.
   CARRIAGE RETURN is pressed.

3. Observe CDT display for operator actions and responses.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Is CLA1A/2A EXECUTING displayed?	Y													N
2. LOOK AT CH 0 is displayed. Set operators panel CH 0/CH 1 SELECT switch to CH 0. Are all indicators except SR illuminated?†	Y										N			
3. {Note: This step not applicable to CR/LP/CLA Controller} LOOK AT CH 1 is displayed. Set operators panel CH 0/CH 1 SELECT switch to CH 1. Are all indicators except SR illuminated?†	Y							N						
4. Is ASYNC BAUD RATE CH 0 xxxx, displayed? {See figure 4C, for switch settings.} {xxxx = actual baud rate.}	Y						N							
5. {Note: This step is not applicable to CR/LP/CLA Controller} Is ASYNC BAUD RATE CH 1 xxxx, dispayed? {See section 4C for switch settings.} {xxxx = actual baud rate.}	Y					N								
6. Is action code 15XX/37XX displayed?	N				Y			Y	N		Y	N		
7. Is RUN indicator illuminated?									Y	N		Y	N	
8. Is CLA1A/2A TERMINATED displayed?‡	Y			N										
9. Is there another CLA to be tested?	N		Y											
10. Is this a verification run?	N	Y												
ACTIONS:														
1. Go to table 6-55	X													
2. Go to table 6-100.				X						X			X	X
3. Check DCCLA {slot F}/ CR/LP/CLA {Slot J} equipment and baud rate switches {see section 4}.					2	1	1	2			2			

†Channel lamp test runs 10 seconds per channel.

‡Section B runs approximately 2.5 minutes at 9600 baud.

TABLE 6-54. COMMUNICATIONS LINE ADAPTER DIAGNOSTIC DDLT (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12	13	14
4. Check operators panel/micro processor cable connection (figure 5A-2).									1			1		
5. Replace operators panel printed-wiring assembly (procedure A20).									4			2		
6. Replace CLA (procedure C1/S1).					3	2	2	3	3		3	3		
7. Call next level of support.					4	3	3	4	6		4	4		
8. Go to procedure A28 for directions if using multiple subsystems.			X		1			1			1			
9. Go to table 6-103.		X												
10. If this is a Timeshare system, check dual-CPU multiplexer and operator panel cables (figure 5A-3).									2					
11. If this is a Timeshare system, replace dual-CPU printed-wiring assembly (procedure A22).									5					

TABLE 6-55. LINE PRINTER DDLT

ASSUMPTIONS:

1. Line printer power cord is connected to ac outlet.
2. Testing is to be done on a drum printer. If testing is to be done on a band printer, insure the printer format tape is installed per the procedure in the CYBER 18 installation manual publication number 96768360, section 11, and go to sheet 9 of this table.
3. Format tape is installed (drum printer, procedure F9).

CONDITIONS:	1	2	3
1. Momentarily depress POWER ON indicator switch. Does POWER ON indicator remain illuminated?	Y		N
2. Is drum drive belt turning drum at right side of line printer?	Y	N	
ACTIONS:			
1. Go to sheet 2 of this table.	X		
2. Check that internal ac power is on (procedure F1).			1
3. Check that line printer gate is closed.		1	
4. Check and adjust interlock switch 1S07 (procedure F43).		2	
5. Open gate and check drive belt. Replace if necessary (procedure F30).		3	
6. Try to manually turn drum. If drum binds, locate cause.		4	
7. Check wiring to drum motor (remove shroud at front of line printer).		5	
8. Check and replace drum motor (procedure F31).		6	
9. Call next level of support.		7	2

TABLE 6-55. LINE PRINTER DDLT (Contd)

Off-Line Control Panel Checks — Sheet 2 of 11

ASSUMPTIONS:

1. Line printer power cord is connected to ac outlet.
2. Power is on. If power is not on, see procedure F1.
3. Format tape is installed (procedure F9).
4. Paper with 14-inch minimum width is loaded (procedure F8).

CONDITIONS:	1	2	3	4	5	6	7
1. Press STOP switch. Is STOP indicator illuminated?	Y						N
2. Is PAPER FAULT indicator extinguished?	Y					N	
3. Press START switch. Does START indicator illuminate?	Y				N		
4. Lift and replace left and right tractor flaps and paper. Does PAPER FAULT indicator illuminate and then extinguish?	Y			N			
5. Press PAGE EJECT switch. Does paper advance to top of form and stop?	Y		N				
6. Press SINGLE SPACE switch. Does paper advance?	Y	N					
ACTIONS:							
1. Go to sheet 3 of this table and check print quality.	X						
2. Check and replace lamp in indicator/switch (procedure F22).				1	1		1
3. Check wiring to and from connector 4J100 (left rear corner) for obvious problems. (See figure 6F-7.)		7	11		10		2
4. Replace I/O board 4A12 (procedure F23).		2	5	4	5	5	3
5. Replace status and paper motion board 4A18 (procedure F23).		4	8		7		4
6. Check that paper is loaded properly. Press PAGE EJECT switch (procedure F8).		1	1			1	
7. Check that correct format tape is installed (procedure F9).			2				
8. Check that format tape reader is latched.			3				
9. Replace vertical forms advance board 4A01 (procedure F23).		5	4				
10. Replace brush reader board 4A14 (procedure F23).			6				
11. Replace format register and decoder board 4A19 (procedure F23).		3	7				
12. Check PAGE EJECT switch and wiring (procedure F22).			10				
13. Check format tape reader switch (procedure F38).			12				

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Off-Line Control Panel Checks							Sheet 2 of 11 (Contd)
ACTIONS (Continued):	1	2	3	4	5	6	7
14. Check format tape reader (procedure F37).			13				
15. Check adjustment of left and right paper tear switches (behind paper, next to tractor flaps) (procedure F39).				2		3	
16. Check out-of-paper switch (procedure F39).						2	
17. Check left and right paper tear switches (procedure F39).				3		4	
18. Check single space switch (procedure F22).		6					
19. Replace receiver/transmitter board 4A26 (procedure F23).					6		
20. Check START indicator/switch (procedure F22).					8		
21. Check both gate switches (procedure F42).					9		
22. Check dc power (procedure F10).					2		
23. Check hammer drive fuses (left rear corner) (procedure F10).					3		
24. Replace hammer drive board corresponding to blown fuse (procedure F23).					4		
25. Replace control 1 card 4A24.					11		
26. Replace translator and oscillator card 4A22.			9				
27. Call next level of support.		8	14	5	12	6	5

TABLE 6-55. LINE PRINTER DDLT (Contd)

Print Quality

ASSUMPTIONS:

1. STOP indicator on line printer is pressed.
2. Test print switch (logic chassis location 4A27) on line printer is pressed.
3. Test print switch is pressed a second time (15 seconds after is was pressed first).

CONDITIONS:	1	2	3	4	5	6	7	8	9	10
1. Does the customer complain of ribbon malfunction?	N									Y
2. Did line printer continuously print 136 columns of Es?	Y					N				
3. Was anything printed?						N	Y			
4. Were lines overprinted?	N						Y	N		
5. Were more than 16 contiguous columns of Es missing?								N	Y	
6. Does ribbon move during printing cycle?	Y				N					
7. Is print density of Es even?	Y			N						
8. Do top and bottom of Es appear?	Y		N							
9. Did line printer print six or eight lines of Es per inch as expected?	Y	N								
ACTIONS:										
1. Go to sheet 4 of this table and run line printer diagnostic.	X									
2. Replace format register and decoder 4A19 (procedure F23).		1				15	4			
3. Replace status and paper motion board 4A18 (procedure F23).		2				14	5	8	8	
4. Check line density switch and associated wiring (procedure F45).		3								
5. Adjust character phasing control (top of control panel).			1							
6. Adjust flight time (procedure F32).			2							
7. Check ribbon (procedure F3, steps 6 through 10).				1					1	1
8. Check that ribbon is threaded properly (procedure F7).				2	2				2	2
9. Check and adjust ribbon tracking (procedure F21).				3					3	4
10. Check that ribbon or spool is not binding.					1	13				3

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Print Quality											Sheet 3 of 11 (Contd)
ACTIONS (Continued):		1	2	3	4	5	6	7	8	9	10
11.	Replace ribbon drive board 4A13 (procedure F23).					3					5
12.	Replace hammer driver board for failing columns (procedure F23).								2		
13.	Adjust print density (multipart paper only) (procedure F23).				4						
14.	Check dc power (procedure F10).						1	1			
15.	Replace hammer timing and select board 4A11 (procedure F23).						3		5	6	
16.	Replace I/O board 4A12 (procedure F23).						4	2	6	13	
17.	Replace receiver/transmitter board 4A26 (procedure F23).						5		13	14	
18.	Replace input control 1 board 4A24 (procedure F23).						6	8	11	11	
19.	Replace input control 2 board 4A25 (procedure F23).						7	9	12	12	
20.	Replace output timing board 4A23 (procedure F23).						8	10	4	5	
21.	Replace translator/oscillator board 4A22 (procedure F23).						9	11	10	10	
22.	Replace MOS memory board 4A21 (procedure F23).						10	12	9	9	
23.	Replace address register and subscan counter board 4A17 (procedure F23).						11	7	3	4	
24.	Replace print cycle timing board 4A20 (procedure F23).						12	3	7	7	
25.	Replace paper drive board 4A01 (procedure F23).							6			
26.	Replace test mode board 4A27 (procedure F23).						2				
27.	Check for broken print hammer in failing column. Replace if necessary (procedure F17).								1		
28.	Call next level of support.		4	3	5	4	16	13	14	15	6

TABLE 6-55 LP408: LINE PRINTER DDLT (Contd)

Line Printer Diagnostic	Sheet 4 of 11

ASSUMPTIONS:

1. Level II monitor is loaded (table 6-50).
   NOTE: If the printer is powered down at anytime after the monitor is loaded, a MASTER CLEAR and a reload of LDCHK should be done or a parity error will result.

2. The following is entered at the keyboard:
   CONTROL and BEL are pressed simultaneously.
   ODS, LDGO, LP408 is typed in.
   CARRIAGE RETURN is pressed.

3. Observe CDT display for operator action and action codes.

CONDITIONS:	1	2	3	4
1. Is LP408 TERMINATED displayed?	Y	N		
2. Are action codes displayed?		Y	N	
3. Is RUN indicator illuminated?			N	Y
ACTIONS:				
1. Go to sheet 7 of this table.	X			
2. Go to sheet 5 of this table.		2		
3. Go to table 6-100.			X	
4. Call next level of support.				X
5. Use procedure A28 to verify equipment code and interrupt assignments.		1		

TABLE 6-55. LINE PRINTER DDLT (Contd)

LP408 Line Printer Error Stops — Sheet 5 of 11

ASSUMPTIONS:

1. Entry is made from sheet 4 of this table.
2. Observe CDT display for the following action codes.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6
1. 1211 or 1221	Y	N				
2. 1224 or 1251		Y	N			
3. 1254			Y	N		
4. 1231				Y	N	
5. 1244					Y	N
6. 1271						Y
ACTIONS:						
1. Check micro processor and line printer connections and interconnecting cable (see figure 3F-5).	1	1	1	1	1	1
2. Replace card reader/line printer controller card, slot J (procedures D25 and F24).	2	2	4	4	4	2
3. Verify that no other devices share the same equipment code as the line printer by verifying address switches of all other controllers.	3					
4. Go to sheet 6 of this table.				5		
5. Replace line printer receiver and transmitter card 4A26 (procedure F23).		3	2	2	2	3
6. Replace input control 1 card 4A24 (procedure F23).		4	3	3	3	
7. Replace input control 2 card 4A25 (procedure F23).		5	5			4
8. Replace output timing card 4A23 (procedure F23).					5	
9. Replace memory card 4A21 (procedure F23).					6	
10. Replace print cycle timing card 4A20 (procedure F23).					7	
11. Replace status and paper motion card 4A18 (procedure F23).						5
12. Replace address register and subscan card 4A17 (procedure F23).					8	
13. Call next level of support.	4	6	6		9	6

TABLE 6-55. LINE PRINTER DDLT (Contd)

LP408 Diagnostic Status Errors — Sheet 6 of 11

ASSUMPTIONS:

1. Entry is made from sheet 5. Action code 1254 indicates status error.
2. BDBT = xxxx is displayed. (xxxx is hexadecimal representation of bits in error. For example, if xxxx is 0014, bits 03 and 04 were not as expected. Where errors exist in more than one bit, action is taken for each bit in error.)

CONDITIONS:	1	2	3	4	5	6	7	8	9	10
1. Is status bit 00 not as expected (READY)?	Y	N								
2. Is status bit 01 not as expected (BUSY)?		Y	N							
3. Is status bit 03 not as expected (DATA)?			Y	N						
4. Is status bit 04 not as expected (EDP)?				Y	N					
5. Is status bit 05 not as expected (ALARM)?					Y	N				
6. Is status bit 06 not as expected (ERROR)?						Y	N			
7. Is status bit 09 not as expected (ADT)?							Y	N		
8. Is status bit 10 not as expected (PAPER OUT)?								Y	N	
9. Is status bit 11 not as expected (BUFFER OUTFLOW)?									Y	N
ACTIONS:										
1. Check that paper is not out (less than three inches remaining).	1									
2. Check paper out switch (procedure F39).	2									
3. Check for paper fault conditions: tears, tractors open, gate open, etc. (procedures F39 and F42).	3									
4. Check that format tape reader is latched.	4				1					
5. Check for overheating of printed circuit boards.	5				2					
6. Replace card reader/line printer controller (procedures D25 and F24).		2	2	2	5	1	1	1	2	
7. Replace output timing board 4A23 (procedure F23).		1		1						
8. Replace status and paper motion board 4A18 (procedure F23).	6				3					
9. Replace translator and oscillator board 4A19 (procedure F23).			1			2			3	
10. Replace input/output board 4A12 (procedure F23).	7				4					

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

LP408 Diagnostic Status Errors										Sheet 6 of 11 (Contd)
ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10
11. Replace address register and subscan controller board 4A17 (procedure F23).		3							1	
12. Call next level of support.	8	4	3	3	6	3	2	2	4	1

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic — Sheet 7 of 11

ASSUMPTIONS:

1. Entry is made from sheet 4.
2. Refer to sample printouts (following sheets).

CONDITIONS:	1	2	3	4	5	6	7
1. Did line printer print five pages exactly like sample (condition 1)?	N	Y					
2. Did line printer print a page exactly like sample (condition 2)?		N	Y				
3. Did line printer print a page exactly like sample (condition 3)?			N	Y			
4. Did line printer print a page exactly like sample (condition 4)?				N	Y		
5. Is there another line printer to be tested?					N		Y
6. Is this a verification run?					Y	N	
NOTE Test sections 6 and 7 are not used for DDLT analysis.							
ACTIONS:							
1. Go to next device.						X	
2. Replace card reader/line printer controller (procedure D25 and F24).	10	9					
3. Replace receiver and transmitter card 4A26 (procedure F23).		4					
4. Check cabling between line printer and micro processor (figure 3F-1).	1	1					
5. Replace MOS memory board 4A21 (procedure F23).	6	2					
6. Replace translator oscillator board 4A19 (procedure F23).	5	3					
7. Replace input control 1 board 4A24 (procedure F23).	2	8					
8. Replace input control 2 board 4A25 (procedure F23).	3						
9. Replace output timing board 4A23 (procedure F23).	4						
10. Replace address register and subscan controller board 4A17 (procedure F23).	7	7		3			

Continued on next page

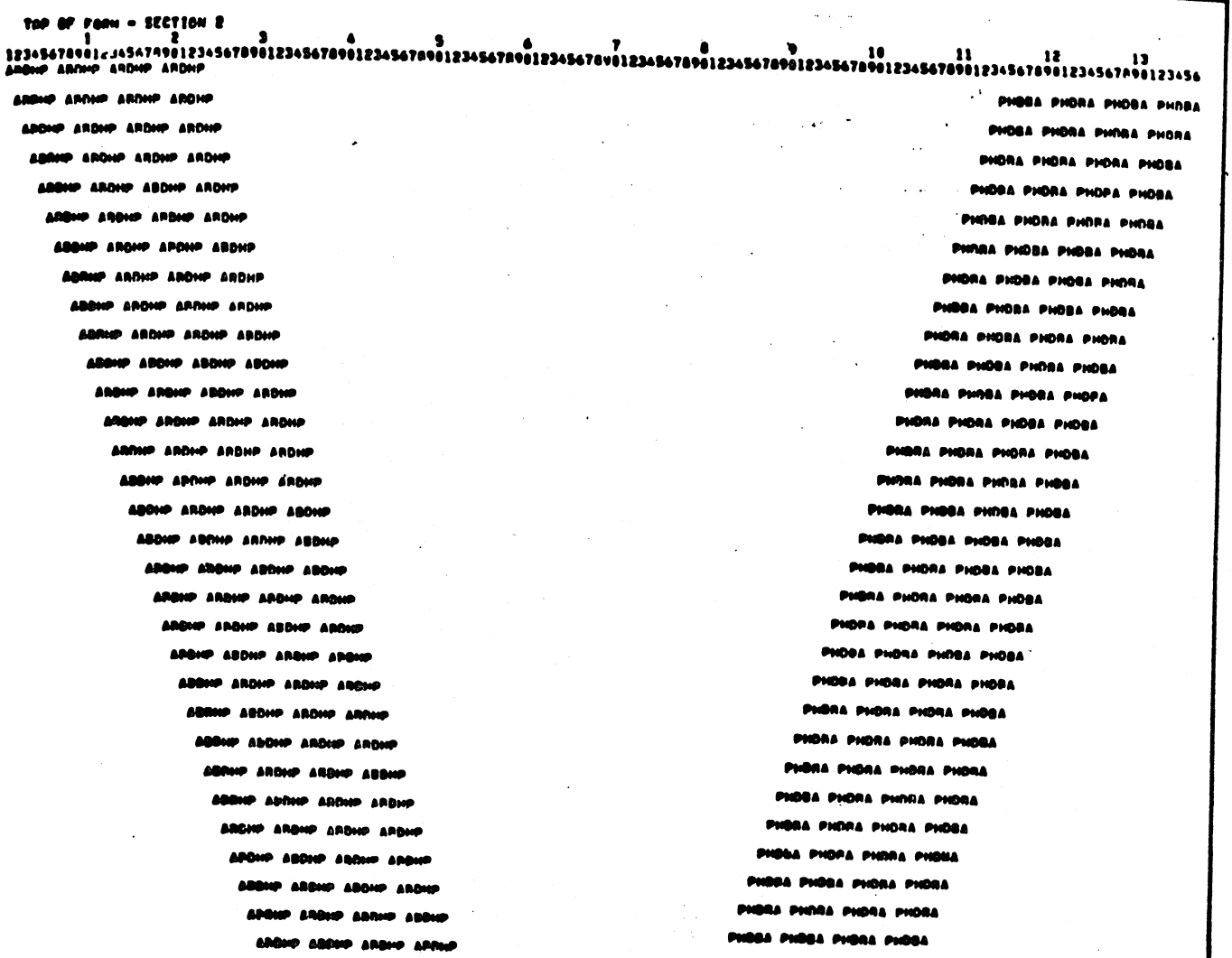
TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic							Sheet 7 of 14 (Contd)
ACTIONS (Continued):	1	2	3	4	5	6	7
11. Replace print cycle timing board 4A20 (procedure F23).	8	5					
12. Replace hammer timing and select board 4A11 (procedure F23).	9	6		2			
13. Check that format tape is properly installed.			1				
14. Replace format register and decoder card 4A19 (procedure F23).			2				
15. Go to table 6-103.					X		
16. Go to procedure A28 for instructions on testing multiple subsystems.							X
17. Replace paper drive board 4A01 (procedure F23).			3				
18. Replace brush reader board 4A14 (procedure F23).			5				
19. Replace status and paper motion board 4A18 (procedure F23).			4				
20. Replace hammer driver board for failing columns.				1			
21. Check for broken print hammer for failing column and replace if necessary (procedure F17).				4			
22. Call next level of support.	11	10	6	5			

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic Sheet 8 of 11 (Contd)

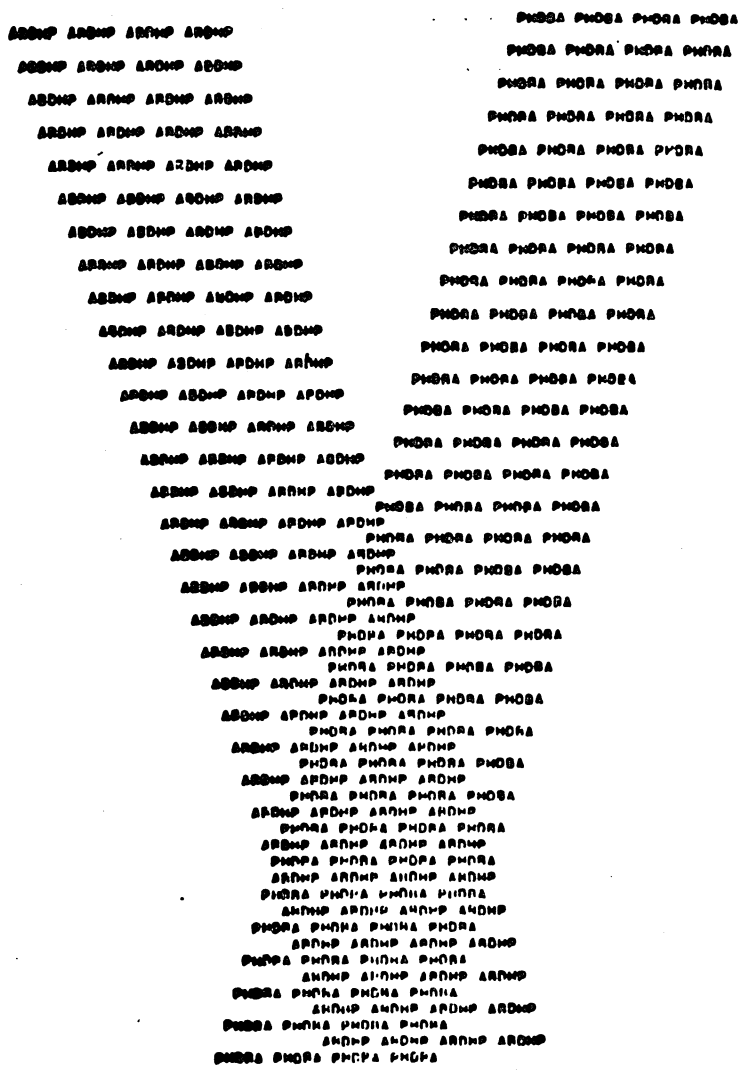


Sample Form — Condition 1

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic — Sheet 8 of 11 (Contd)

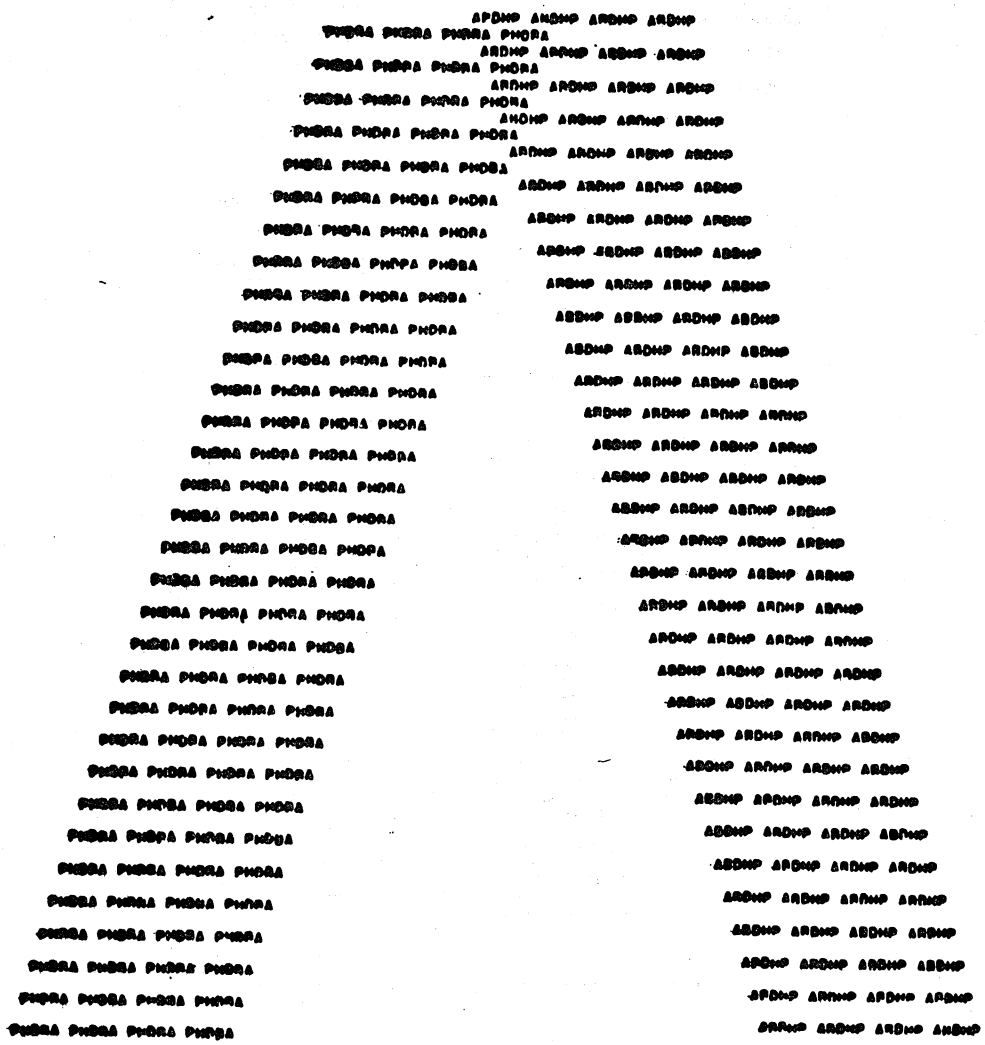


Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic — Sheet 8 of 11 (Contd)

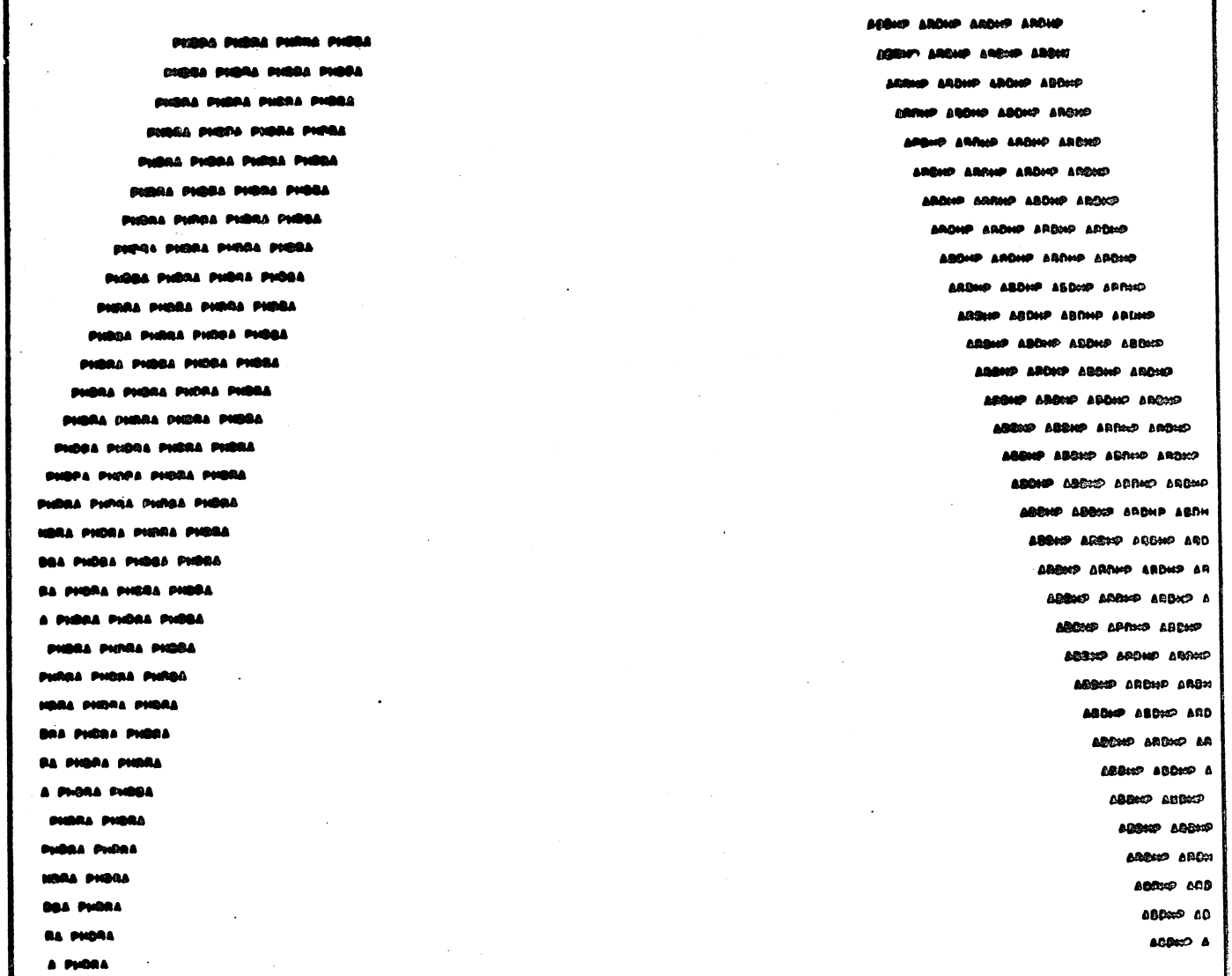


Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic	Sheet 8 of 11 (Contd)



Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

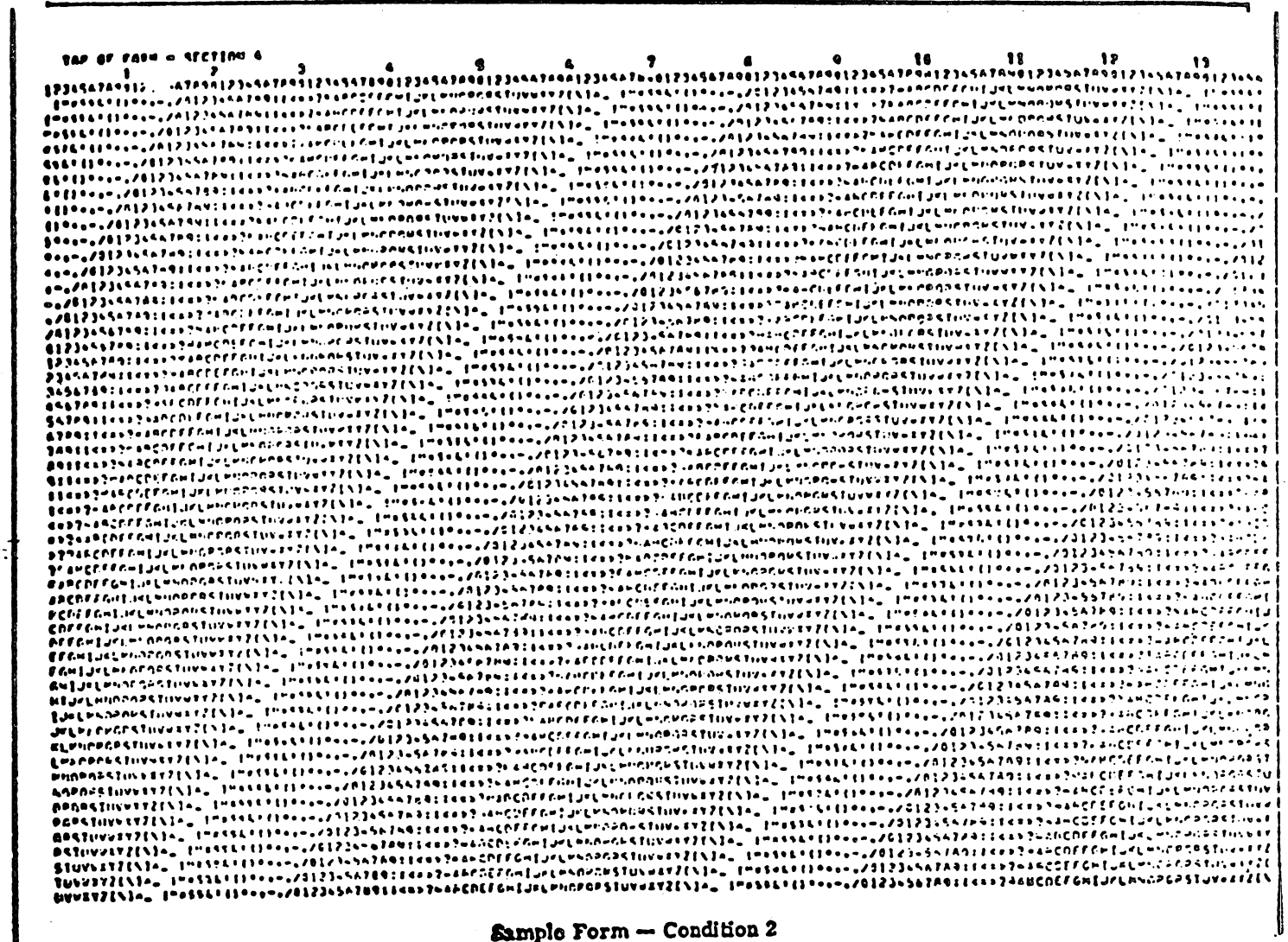
Printout Analysis of Line Printer Diagnostic	Sheet 8 of 11 (Contd)
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic — Sheet 8 of 11 (Contd)



Sample Form — Condition 2

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic	Sheet 8 of 11 (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 -1884




BOTTOM OF FORM
```

Sample Form — Condition 3

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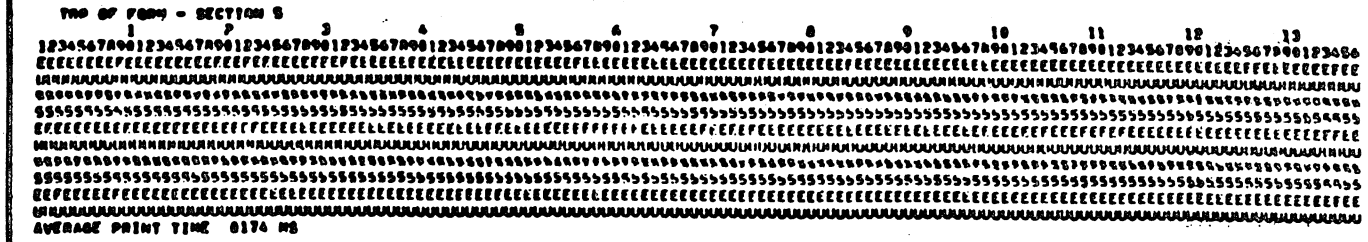
TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic Sheet 8 of 11 (Contd)

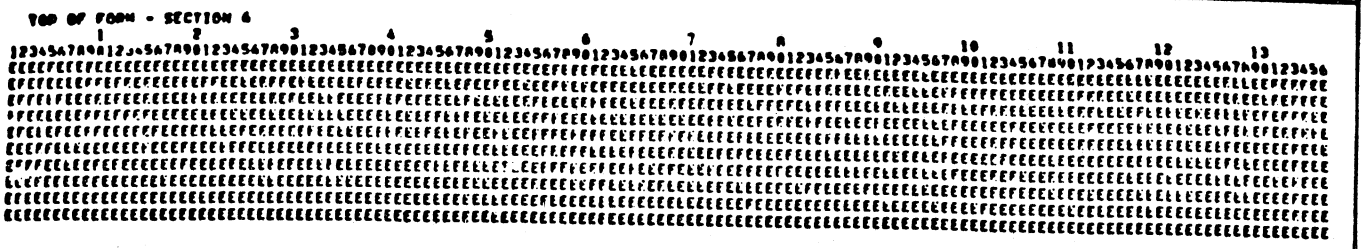


Sample Form — Condition 4

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic Sheet 8 of 11 (Contd)



This Sample Form for Reference Only

Continued on next page

TABLE 6-55. LINE PRINTER DDLT (Contd)

Printout Analysis of Line Printer Diagnostic	Sheet 8 of 11 (Contd)

```
TOP OF FORM - SECTION 7
         1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456
```

This Sample Form for Reference Only

TABLE 6-55. LINE PRINTER DDLT

Power On

ASSUMPTIONS:

1. Band is installed.
2. Format tape is installed.
3. Ribbon is installed.
4. Switch settings are correct (Section 4T).

CONDITIONS:	1	2	3	4	5
1. Turn power on. Does STOP light remain illuminated?	Y		N		
2. Was the band activated?	Y	N			
3. Did the red indicator on the EVFU extinguish after about 8 seconds?	Y			N	
4. Set up forms using procedure on page 3-6 of Reference and Field Service manual number 95445060. Were you able to set uo forms properly?	Y				N
ACTIONS					
1. Go to sheet 10 of this table.	X				
2. Check that internal AC oower is on.			1		
3. Check that line printer gate is closed.		1			
4. Check interlocks on band assembly.		2			
5. Check CE indicator lights for fuse out indication.			2		
6. Check that format tape is installed correctly.				1	1
7. Check that band is "Homed" properly.		3	3		
8. Check that ribbon is installed properly.		4			
9. Refer to printer Reference and Field Service Manual No. 95445060.		5		2	2
10. Call next level of support.		6	4	3	3

TABLE 6-55. LINE PRINTER DDLT

ASSUMPTIONS:

1. Entry is made from sheet 9.
2. Level II monitor is loaded (table 6-50).
   NOTE: If the printer is powered down at any time after the monitor is loaded, a MASTER CLEAR and a reload of LDCHK should be done or a parity error will result.
3. The following is entered at the keyboard:
   CONTROL and BEL are pressed simultaneously
   ODS, CPAR, LP408,B,0184,
   CARRIAGE RETURN Key is pressed.
   (This will change the first and last print columns for sections 6 and 7).
4. The following is entered at the keyboard:
   CONTROL and BEL and pressed simultaneously
   ODS.CPAR.LP408.D.0084
   CARRIAGE RETURN Key is pressed.
   (This changes number of columns for band printer to 132).
5. The following is entered at the keyboard:
   CONTROL and BEL are pressed simultaneously.
   ODS,GO,LP408
   CARRIAGE RETURN key is pressed.
6. Observe CDT display for operator action and action codes.

CONDITIONS:	1	2	3	4
1. Is LP408 TERMINATED displayed?	Y	N		
2. Are action codes displayed?		Y	N	
3. Is RUN on operator's panel illuminated?			Y	N
ACTIONS:				
1. Go to sheet 11.	X			
2. Refer to LP408 diagnostic in ODS Reference Manual, No. 96768410 for Error Code Explanation.		1		
3. Refer to Printer Reference and Field Service Manual, No. 95445060 for trouble-shooting procedures.		2		
4. Repeat LDCHK and restart test.			1	
5. Go to table 6-100.			2	
6. Call next level of support.		3		X

TABLE 6-55 LINE PRINTER DDLT

Printout Analysis of Line Printer Diagnostic — Sheet 11 of 11.

ASSUMPTIONS:

1. Entry is made from sheet 10.
2. Refer to sample printouts (following sheets)

CONDITIONS:	1	2	3	4	5
1. Did the line printer print five pages exactly like the sample? Condition 1	N	Y			
2. Did the line printer print a page exactly like the sample? Condition 2		N	Y		
3. Did the line printer print a page exactly like the sample? Condition 3			N	Y	
4. Did the line printer print a page exactly like the sample? Condition 4				N	Y
ACTION:					
1. Go to next device					X
2. Replace Card Reader/Line Printer controller, slot J.	2	1	1	1	
3. Check cabling between line printer and micro-processor	1				
4. Refer to printer Reference and Field Service manual No. 95445060 for troubleshooting procedures.	3	2	2	2	
5. Call next level of support.	4	3	3	3	

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TABLE 6-56 LCTTA and LCTTB: MAGNETIC TAPE TRANSPORT DDLT

Controller Diagnostics	Sheet 1 of 13

ASSUMPTIONS:

1. Level II monitor is loaded (table 6-50).

2. The following is entered at the keyboard:

   CONTROL and BEL are pressed simultaneously.
   ODS, LDGO, LCTTA is typed in.
   CARRIAGE RETURN is pressed.

3. Observe CDT display for any of the following conditions and action codes after approximately one minute.

CONDITIONS:	1	2	3	4	5
1. Is LCTTA EXECUTING displayed?	Y			N	
2. Is LCTTA TERMINATED displayed?	Y	N			
3. Is code 1380, 1381, or 1350 displayed?		Y	N		
4. Is RUN indicator illuminated?				N	Y
ACTIONS:					
1. Go to tape transport initial observations on sheet 2 of this table.	X				
2. Replace tape transport controller (slot AB) (procedure G25).		2	1		
3. Replace I/O-TTY controller (slot K) (procedure A23).		3	2		
4. Replace SMI board (slot L) (procedure A23).		4	3		
5. Call next level of support.					X
6. Go to table 6-100.				X	
7. Go to table 6-101.		5	4		
8. Use procedure A28 to verify equipment code and interrupt assignments		1			

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Initial Observations — Sheet 2 of 13

ASSUMPTIONS:

1. Tape transport cleaning (procedure G1) is completed.
2. Power is turned on (if red power indicator does not illuminate, go to procedure G4).
3. Cabinet interlock switch is pulled out (figure 6G-3).
4. Lower tape reel is not installed.

CONDITIONS:	1	2	3	4	5
1. Does customer complain that tapes run off at end-of-tape?	N				Y
2. Are fiber optic lamps illuminated (figure 6G-23) (end-of-tape and loop columns)?	Y			N	
3. Is FILE PROTECT indicator illuminated?	Y		N		
4. At the lower reel (file), press FILE PROTECT switch located behind lower tape reel. Does PROTECT indicator extinguish?	Y	N			
ACTIONS:					
1. Go to sheet 3 of this table.	X				
2. Replace FILE PROTECT sensor switch (procedure G23).		1			
3. Replace lamp in operator's panel (procedure G22).			1		
4. Replace lamp in fiber optics (procedure G21).				1	2
5. Replace control board, slot 2 (figure 4G-2, sheet 2).				2	4
6. Replace write/read recovery, slot 10 (figure 4G-2, sheet 2).†		3	3		
7. Replace I/O logics, slot 1 (figure 4G-2, sheet 2).		2	2		5
8. Replace reel logics, slot 3.					3
9. Check tape end-of-tape marker.					1
10. Check power distribution box (procedure G27).				3	
11. Call next higher level of support.		4	4	4	6

†Requires higher level of support for adjustment; perform all other actions first.

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Tape Loading — Sheet 3 of 13

ASSUMPTIONS:

1. Tape to be written on is loaded using procedure G5.
2. Close tape transport door.
3. LOAD REWIND on the tape transport is pressed.
4. LOAD REWIND on the tape transport is pressed.

CONDITIONS:	1	2	3	4	5	6	7	8
1. Did the transport load the tape columns correctly and is it at beginning of tape (BOT).	Y	N						
2. After 15 seconds, does the tape unload or move forward without finding beginning of tape?		Y	N					
3. Is the tape hanging below the upper loop sensors (figure 6G-2)?			Y	N				
4. Was there a loss of vacuum?				Y	N			
5. Did the motor start up and run, then shut down?					Y	N		
6. Did the left loop column load?						Y	N	
7. Did the right loop column load?							Y	N
ACTIONS:								
1. Go to sheet 4 of this table.	X							
2. Check the capstan fuse and replace if necessary (figure 6G-4).			1					
3. Replace capstan power amplifier (figure 6G-6).†		5	2					
4. Replace capstan logic, slot 4 (figure 4G-2).†		4	3	4				
5. Replace control logic, slot 2 (figure 4G-2).		3	4	5	4	3	1	
6. Replace capstan motor (figure 4G-2).†			5					
7. Replace reel logic, slot 3 (figure 4G-2).		6	6	1	3	4	2	4
8. Replace reel logic, slot 1 (figure 4G-2).		2	7	2	2	5	3	
9. Replace vacuum regulator (procedure G9).					6			

†Requires higher level of support; perform all possible actions first.

Continued on next page

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Tape Loading								Sheet 3 of 13 (Contd)	
ACTIONS (Continued):	1	2	3	4	5	6	7	8
10. Replace vacuum relay (figure 6G-12).					7			
11. Check tape beginning-of-tape marker.		1			1			
12. Replace upper reel motor. †				3				
13. Replace regulator board fuse (figure 6G-10).					5			
14. Replace blower assembly (procedure G13). †					8			
15. Check cabinet interlock switch (figure 6G-1).					9			
16. Check upper reel power amplifier fuse (machine reel) (figure 6G-6).						1		
17. Replace upper reel power amplifier (figure 6G-6).						2		
18. Replace upper reel motor. †							4	
19. Check lower reel power amplifier fuse (figure 6G-6).								1
20. Replace lower reel power amplifier (figure 6G-6).								2
21. Replace lower reel motor. †								5
22. Replace upper tape tachometer (procedure G15).								6
23. Replace lower tape tachometer (procedure G17).							5	
24. Call next level of support.		7	8	6	10	6	6	7

† Requires higher level of support; perform all other possible actions first.

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Tape Motion — Sheet 4 of 13

ASSUMPTIONS:

READY on the tape transport is pressed.

CONDITIONS:	1	2	3	4	5	6	7	8
1. Is READY indicator on tape transport illuminated?	N	Y						
2. Did tape move?		Y	N					
3. Press CLEAR on tape transport. Does READY indicator extinguish?			N	Y				
4. At board location 2, press red switch up once. Does tape move forward (figure 4G-2, sheet 2)?				N	Y			
5. After 30 seconds of forward motion, press CLEAR on tape transport. At board location 2, press red switch down once. After 5 seconds, press CLEAR. Did tape move in reverse until CLEAR was pressed?					N	Y		
6. Did vacuum motor shut down?						Y	N	
7. Press LOAD REWIND on tape transport. Does tape move in reverse?							N	Y
ACTIONS:								
1. Go to sheet 5 of this table.								X
2. Replace ready lamp (procedure G22).	3							
3. Replace operators panel (procedure G26).	4		2					
4. Replace I/O logic, slot 1 (figure 4G-2).	1	1	1	2	5		2	
5. Replace control logic, slot 2 (figure 4G-2).	2	2	3	1	2		1	
6. Replace capstan power amplifier.†					1			
7. Replace capstan logic, slot 4 (figure 4G-2).†		4			3			
8. Replace reel logic, slot 3 (figure 4G-2).	5	3	4	3	4	1	3	
9. Call next level of support.	6	5	5	4	6	2	4	

†Requires higher level of support; perform all other possible actions first.

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Tape Motion								Sheet 5 of 13
ASSUMPTIONS: Entry is from sheet 4 of this table while tape is rewinding. If tape has stopped, press switch up again at board location 2. Allow tape to move forward for 30 seconds; then press CLEAR; then rewind.								
CONDITIONS:	1	2	3	4	5	6	7	8
1. Did tape move at high speed?	N	Y						
2. Did vacuum motor shut down?		N				Y		
3. Did upper reel unload?		N			Y	Y		N
4. Is left column pulled out (unloaded)?		N		Y		Y	N	
5. Does tape stop at beginning of tape?		Y	N					
ACTIONS:								
1. Go to sheet 6 of this table.		X						
2. Replace capstan motor.†	5							
3. Replace upper reel power amplifier (figure 6G-6).				1			2	
4. Replace upper reel motor.†							3	
5. Replace lower reel power amplifier (figure 6G-6).								2
6. Replace lower reel motor.								3
7. Replace capstan logic, slot 4 (figure 4G-2).†	1			2				
8. Replace control logic, slot 2 (figure 4G-2).	2		2	3	2	1	4	4
9. Replace I/O logic, slot 1 (figure 4G-2).	3		1			2	5	5
10. Replace capstan power amplifier.†	4							
11. Replace reel logic, slot 3 (figure 4G-2).			3		1	3	1	1
12. Call next level of support.	6		4	4	3	4	6	6

†Requires higher level of support; perform all other possible actions first.

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Tape Unloading			Sheet 6 of 13
ASSUMPTIONS: UNLOAD on tape transport is pressed.			
CONDITIONS: Tape rewinds and unloads tape reels; vacuum shuts down and tape drive goes not ready.		1 Y	2 N
ACTIONS:			
1.	Go to sheet 7 of this table.	X	
2.	Replace control logic, slot 2 (figure 4G-2).		1
3.	Replace reel logic, slot 3 (figure 4G-2).		2
4.	Replace I/O logic, slot 1 (figure 4G-2).		3
5.	Call next level of support.		4

Table 6-56 LCTTA and LCTTB: MAGNETIC TAPE TRANSPORT DDLT

Diagnostic Loading	Sheet 7 of 13	
ASSUMPTIONS:		
1. A magnetic tape has been mounted and loaded with write ring (procedure G5).		
2. LOAD REWIND on tape transport is pressed.		
3. Cabinet interlock switch is pulled out or door is closed and READY on tape transport is pressed.		
4. The following is entered at the keyboard: CONTROL and BEL are pressed simultaneously. ODS, LOAD, LCTTB is typed in. CARRIAGE RETURN is pressed.		
CONDITIONS:	1	2
1. Is LCTTB SUSPENDED LOAD displayed?	Y	N
ACTIONS:		
1. Go to sheet 8 of this table.	X	
2. Go to table 6-100.		X

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Drive Unit Identification — Sheet 8 of 13

ASSUMPTIONS:

1. Cable is seated using procedure G3.
2. Back side of tape transport logic board chassis slot XA1, right column of pins, is observed for unit number identity.
3. Yellow jumper is connected from pin 16 to:

   Pin 17 for unit 0
   Pin 18 for unit 1
   Pin 19 for unit 2
   Pin 20 for unit 3

4. After observing unit number, slide lock is released and tape transport is secured into cabinet.
5. At read/write head the presence of a small hinged door in front of head (figure 6G-1) identifies unit as a 9-track drive.

ACTIONS:

1. Insert the following codes at action 2 below.

Track	Unit	Code to be Inserted
7	0	0900
7	1	1900
7	2	2900
7	3	3900
9	0	0100
9	1	1100
9	2	2100
9	3	3100

2. Enter the following information on the keyboard using the unit code from the above table in place of the blanks:

   Press CONTROL and BEL simultaneously
   Type in ODS, CPAR, LCTTB, A, ____
   Press CARRIAGE RETURN

3. Pull out cabinet interlock switch, and press READY on tape transport.
4. Enter the following at the keyboard:

   Press CONTROL and BEL simultaneously
   Type in ODS, GO, LCTTB
   Press CARRIAGE RETURN

5. Go to sheet 9 of this table.

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Diagnostic Testing							Sheet 9 of 13
CONDITIONS:		1	2	3	4	5	6
1.	Is LCTTB TERMINATED displayed?	Y			N		
2.	Are there action codes displayed?				Y	N	
3.	Is RUN indicator illuminated?					N	Y
4.	Is there another tape drive to be tested?	N		Y			
5.	Is this a verification run?	Y	N				
ACTIONS:							
1.	Go to sheet 10 of this table.				X		
2.	Go to table 6-100.					X	
3.	Restart magnetic tape transport test at sheet 7 of this table.						1
4.	Call next level of support.						2
5.	Restart magnetic tape transport test at sheet 2 of this table.			X			
6.	Go to next device.		X				
7.	Go to table 6-103.	X					

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Diagnostic Test Action Codes — Sheet 10 of 13

ASSUMPTIONS:

Observe CDT display for any of the following action codes.

CONDITIONS:	1	2	3	4	5	6	7	8
Does the CDT display:								
1. 1430	Y	N						
2. 14A0		Y	N					
3. 1431			Y	N				
4. 1432				Y	N			
5. 1440					Y	N		
6. 1490 through 1498						Y	N	
7. 1450 or 1451							Y	N
ACTIONS:								
1. Replace magnetic tape transport controller, slot AB (procedure G25).	1	2	5	2	4		1	
2. Replace original board, I/O-TTY board, slot K (procedure A23).	2	8	4		2		2	
3. Replace I/O logic board, tape transport slot 1 (figure 4G-2).	4	3	6	4	5		3	
4. Replace control logic board, tape transport slot 2 (figure 4G-2).	5	4	7	5	6		4	
5. Replace reel logic board, tape transport slot 3 (figure 4G-2).	6	5	8	6	7		5	
6. Replace capstan logic board, tape transport slot 4 (figure 4G-2). †		6					6	
7. Replace translator (procedure G11).	3	7	2	3	3			
8. Replace tape transport board, slot 8 (figure 4G-2). †			3					
9. Use different tape.			1	1	1			
10. Go to sheet 11 of this table.						X		
11. Go to sheet 12 of this table.								X

†Requires higher level of support; perform all other possible actions first.

Continued on next page

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Diagnostic Test Action Codes									
									Sheet 10 of 13 (Contd)
ACTIONS (Continued):		1	2	3	4	5	6	7	8
12.	Call next level of support.	7	9	9	7	8		7	
13.	Ensure green READY lamp is on; if not, press READY on tape transport.		1						

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Bit Comparison

ASSUMPTIONS:

1. This DDLT is primarily intended to be used by a higher level of support.
2. Observe CDT display for one of the following action codes.

CONDITIONS:	1	2	3	4
Does the CDT display:				
1. 1490 or 1492 or 1494	Y	N		
2. 1491 or 1493 or 1497		Y	N	
3. 1495 or 1498			Y	N
4. 1496				Y
ACTIONS:				
1. Replace read-recovery/write driver board, slot 5 (figure 4G-2).†		1		
2. Replace read-recovery/write driver board, slot 6 (figure 4G-2).†			1	1
3. Replace read-recovery/write driver board, slot 7 (figure 4G-2).†	1			
4. Replace read-recovery/write driver board, slot 9 (figure 4G-2).† (NRZI write/read recovery boards)	2		2	
5. Replace read-recovery/write driver board, slot 10 (figure 4G-2).† (NRZI write/read recovery boards)		2		2
6. Replace read-recovery/write driver board, slot 8 (figure 4G-2).†	3	3	3	3
7. Replace translator (procedure G11).	4	4	4	4
8. Replace controller, slot AB (procedure G25).	5	5	5	5
9. Replace I/O-TTY, slot K (procedure A23).	6	6	6	6
10. Call next level of support.	7	7	7	7

†Requires higher level of support; perform all other possible actions first.

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Monitored Conditions								Sheet 12 of 13
ASSUMPTIONS: Observe CDT display for one of the following action codes.								
CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	
1. 1433	Y	N						
2. 1434		Y	N					
3. 1435			Y	N				
4. 1436				Y	N			
5. 1437					Y	N		
6. 1438						Y	N	
ACTIONS:								
1. Replace the translator (procedure G11).	1	4	5	6	6	2		
2. Replace I/O logic, slot 1 (figure 4G-2).	2	1	1	2	2	3		
3. Replace control logic, slot 2 (figure 4G-2).	3	2	3	3	3	4		
4. Replace reel logic, slot 3 (figure 4G-2).	4	5	2	5	4	5		
5. Replace capstan logic, slot 4 (figure 4G-2).†				7				
6. Replace controller, slot AB (procedure A13).		3	4	4	5	1		
7. Check reflective marker on tape.				1				
8. Go to sheet 13 of this table.							X	
9. Use another tape. Perform the following at the keyboard: Press CONTROL and BEL simultaneously Type in ODS, GO, LCTTB Press CARRIAGE RETURN					1			

†Requires higher level of support; perform all other possible actions first.

Continued on next page

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Monitored Conditions		Sheet 12 of 13 (Contd)						
ACTIONS (Continued):		1	2	3	4	5	6	7
10.	Replace I/O-TTY, slot K.					7		
11.	Replace SMI, slot L.					8		
12.	Call next level of support.	5	6	6	8		6	
13.	Problem is on printed circuit boards from slots 5 through 10 and requires calling next level of support.					9		

TABLE 6-56. MAGNETIC TAPE TRANSPORT DDLT (Contd)

Motion Testing — Sheet 13 of 13

ASSUMPTIONS:

Observe CDT display for one of the following action codes.

CONDITIONS: Does the CDT display:	1	2	3	4	5
1. 1441	Y				
2. 1442	N	Y			
3. 14A2		N	Y		
4. 1443			N	Y	N
ACTIONS:					
1. Use different tape.	1	1			
2. Replace controller, slot AB (procedure G25).	2		1	1	1
3. Replace translator (procedure G11).	6		2	2	2
4. Replace slot 10 NRZI write/read recovery (figure 4G-2).†		5	6		
5. Replace capstan logic, slot 4 (figure 4G-2).†	9				
6. Replace capstan power amplifier.†	10				
7. Replace read/write head.†		6			
8. Adjust capstan power amplifier start time.†	7				
9. Replace I/O logic, slot 1 (figure 4G-2).	3	2	3	3	3
10. Replace control logic, slot 2 (figure 4G-2).	4	3	4	4	4
11. Replace reel logic, slot 3 (figure 4G-2).	5	4	5	5	5
12. Adjust stop time.†	8				
13. Call next level of support.	11	7	7	6	6

†Requires higher level of support; perform all other possible actions first.

TABLE 6-57 SMD2A AND SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A LOAD AND PARAMETER ENTRY — SHEET 1 of 14

ASSUMPTIONS:

1. Level II monitor is loaded (Table 6-50).
2. SMD01 diagnostic has been run successfully on all drives in the system.

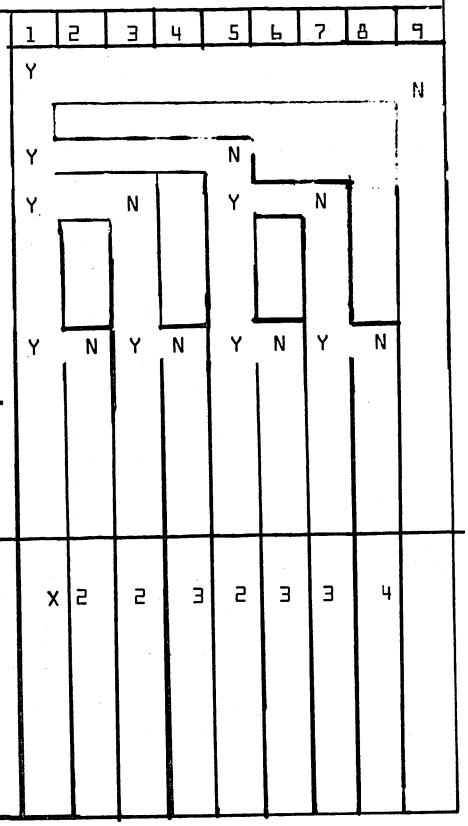
NOTE

SMD01 level I, volume 1 and SMD01 level I, volume 2, DPSF level 93 and below will not execute on DA1 in the dual processor configuration.

3. The drive to be tested has a scratch pack installed and the drive is READY.
4. Master Clear has been pressed on the other CPU in a dual processor system.
5. The diskette or cassette containing the SMD2A diagnostic has been inserted into the load device.
6. Enter the following at the keyboard:
   CONTROL and BEL are pressed simultaneously (MI)
   ODS, LDG0, SMD2A is typed in
   CARRIAGE RETURN is pressed
7. Observe the CDT display for the following condition:

CONDITIONS:

1. Is SMD2A EXECUTING
   SMD2A SUSPENDED BOT displayed?
2. Is the logical unit plug on the front of the drive to be tested a 0?
3. Is the drive to be tested a high density drive? (This is indicated by an 1867-20/21 product label on the front of the drive.
4. Is the diagnostic being executed on Disk Adaptor 0 (DA0)? DA0 is the only DA in a single processor system. DA0, in a dual processor system, will be connected directly to the 1833-3 Control Unit. (DA1 will be the second Disk Adapter connected to the Control Unit.)



ACTIONS:

1. Go to sheet 2 of this table.

TABLE 6-57 SMD2A AND SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A LOAD AND PARAMETER ENTRY {CONT'D} SHEET 1 of 14 {CONT'D}

ACTIONS:	1	2	3	4	5	6	7	8	9	
2. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2A, A, _____ {fill in the space with the drive logical unit number, in hexadecimal. See the table below.} CARRIAGE RETURN is pressed					1	1	1	1		
3. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2A, 15, 1 CARRIAGE RETURN is pressed		1		2		2		3		
4. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2A, B, 0 CARRIAGE RETURN is pressed			1	1			2	2		
5. Go to table 6-100.									X	

Logical Unit Plug to Hexadecimal Drive Number Conversion

Logical Unit Plug	Hexadecimal Number
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

NOTE: Only logical unit numbers 0-7 are supported by this diagnostic. 8-15 are illegal logical unit numbers.

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A OVERLAP SEEK PROBLEMS	SHEET 2 of 14	
ASSUMPTIONS:		
1. Entry is made from Sheet 1 of this table.		
CONDITIONS:	1	2
1. Does the customer or engineer suspect a problem with the overlap seek capability? (multiple drive subsystem only)	N	Y
ACTIONS:		
1. Go to sheet 4 of this table.	X	
2. Go to sheet 3 of this table. The SMD2M diagnostic will be multiplexed with the SMD2A diagnostic.		X
NOTE: It is good practice to execute the SMD2A diagnostic on all drives individually, prior to attempting overlap seek testing on sheet 3.		

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2M LOAD AND PARAMETER ENTRY — SHEET 3 of 14

ASSUMPTIONS:

1. Entry is made from sheet 2 of this table.
2. The drives to be tested have scratch packs installed, with known good address tags written. {SMD2A maybe run to insure valid address tags}
3. The diskette or cassette containing the SMD2M diagnostic has been inserted into the load device.
4. Enter the following at the keyboard:

   CONTROL and BEL are pressed simultaneously {MI}
   ODS, LDG0, SMD2M is typed in
   CARRIAGE RETURN is pressed

5. Observe the CDT display for the following condition:

CONDITIONS:

1. Is 'SMD2M EXECUTING' SMD2M SUSPENDED BOT displayed?
2. Is the logical Unit plug on the front of the drive to be tested a 0?
3. Is the drive to be tested a high density drive? {This is indicated by an 1867-20/21 product label on the front of the drive}
4. Is the diagnostic being executed on Disk Adapter 0 {DA0}? DA0 is the only DA in a single processor system. DA0, in a dual processor system will be connected directly to the 1833-3 Control Unit. DA1 will be the second Disk Adapter connected to the Control Unit}.

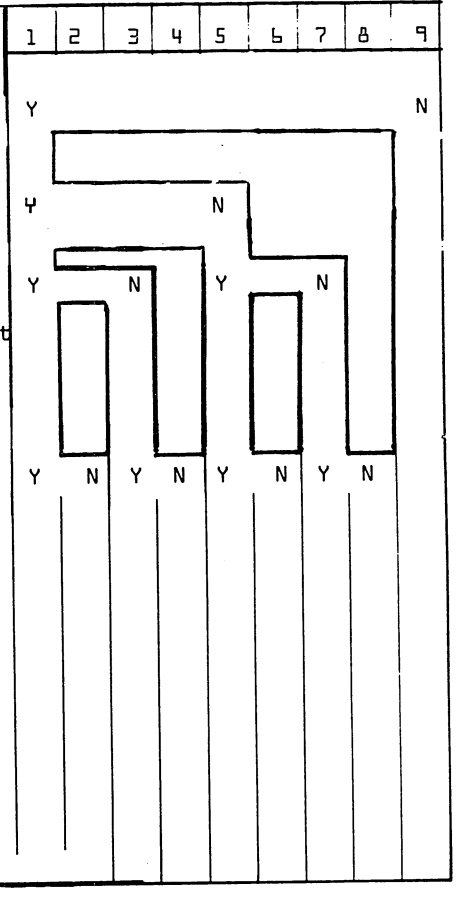


TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2M LOAD AND PARAMETER ENTRY {CONT'D}	SHEET 3 of 14 {CONT'D}								
ACTIONS:	1	2	3	4	5	6	7	8	9
1. Go to sheet 4 of this table	2	3	3	4	3	4	4	5	
2. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2M, A,_____ {fill in the space with the logical unit number in hexadecimal. See the table below} CARRIAGE RETURN is pressed. Logical Unit Plug to Hexadecimal Drive Number Conversion Logical Unit Plug / Hexadecimal Number 0 / 0 1 / 1 2 / 2 3 / 3 4 / 4 5 / 5 6 / 6 7 / 7 NOTE: Only logical unit numbers 0 through 7 are supported by this diagnostic. Logical Unit numbers 8 through 15 are illegal.					1	1	1	1	
3. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2M, B, 0 CARRIAGE RETURN is pressed.			1	1			2	2	
4. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2M, 15, 1 CARRIAGE RETURN is pressed.		1		2		2		3	
5. Enter the following at the keyboard: CONTROL and BEL are pressed simultaneously {MI} ODS, CPAR, SMD2M, 9, 1F CARRIAGE RETURN is pressed.	1	2	2	3	2	3	3	4	
6. Go to table 6-100.									X

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M EXECUTION SHEET 4 of 14

ASSUMPTIONS:

1. Entry is made from sheet 2 or 3 of this table.
2. Enter the following at the keyboard:

   CONTROL and BEL are pressed simultaneously {MI}
   ODS, GO is typed in
   CARRIAGE RETURN is pressed

3. Observe the CDT display for any of the following conditions.

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Is SMD2A SUSPENDED ENDP displayed after approximately eight minutes and if SMD2M is being run is 'SMD2M SUSPENDED ENDP' displayed after approximately five minutes?	Y						N		
2. Are any 'CORRECTABLE ECC ERROR' messages displayed? NOTE Test will continue to execute wait for condition 1 to be satisfied.	N					Y			
3. Are any action codes displayed?							Y	N	
4. Is the run light illuminated on the operators panel?								Y	N
5. Is there another SMD subsystem to be tested?	N				Y				
6. Is there another drive in this subsystem to be tested?	N			Y					
7. Does the customer or engineer suspect a problem with the autoload capibility?	N		Y						
8. Has testing been completed from all processors?	Y	N							

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M EXECUTION	SHEET 4 of 14 (CONT'D)								
ACTIONS:	1	2	3	4	5	6	7	8	9
1. Enter the following at the keyboard: Press CONTROL and BEL simultaneously (MI) ODS, CCW, SMD2A, 40 is typed in CARRIAGE RETURN is pressed	1								
2. If SMD2M has been run, enter the following at the keyboard: Press CONTROL and BEL simultaneously (MI) ODS, CCW, SMD2M, 40 is typed in CARRIAGE RETURN is pressed	2								
3. Enter the following at the keyboard: Press CONTROL and BEL simultaneously (MI) ODS, GO is typed in CARRIAGE RETURN is pressed	3								
4. Go to next device to be tested.	5								
5. Go to sheet 1 of this table and perform the testing from the second processor.		X							
6. Go to procedure J36, autoload verification.	4		1						
7. Enter the following at the keyboard: Press CONTROL and BEL simultaneously (MI) ODS, RSTR CARRIAGE RETURN is pressed				1					
8. Go to sheet 1 condition 1 of this table and perform testing on the next drive.				2					
9. Go to procedure A28, testing multiple subsystems.					X				
10. Go to sheet 7 of this table.						X			
11. Go to sheet 5 of this table.							X		
12. Go to table 6-100.								X	
13. Replace the SMD Adapter board (Procedure J26).			2						X
14. Check the CPU-1 panel-multiplexer cable (see figure 5A-3).			3						
15. Replace the operators panel (Procedure A20).			4						
16. Replace the operators panel multiplexer board (Procedure A21).			5						
17. Call the next level of support.			6						

TABLE 6- 57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M ACTION CODES — SHEET 5 of 14

ASSUMPTIONS:

1. Entry is made from sheet 4 of this table.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9
1. xx01 through xx0F?	Y	N							
2. xx11?		Y	N						
3. xx12or xx21 or xx22? {External Reject}			Y	N					
4. xx3F? {Extraneous zero bit error}				Y	N				
5. xx40? {DA File Error}					Y	N			
6. xx50? {Ghost Interrupt}						Y	N		
7. xx51? {Force Release Error}							Y	N	
8. xx48 or xx4C through xx4E? {ECC Errors}								Y	N
ACTIONS: 1. This is a parameter entry error. Go to sheet 1 of this table and restart.	1								
2. This is an internal reject. Verify that the equipment code of the controller is correct {procedure J26}		1							
3. Replace the SMD adapter board {procedure J26}		2	1	1	1	1	1		
4. Replace the control unit logic board A09 {procedure J27}			2				2		
5. Replace the SMD adapter to control unit logic cable. {procedure J37}			3				3		

TABLE 6- 57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M ACTION CODES {CONT'D} SHEET 5 of 14 {CONT'D}

ACTIONS:	1	2	3	4	5	6	7	8	9
6. Go to sheet 14 of this table.		3		2		2			
7. Go to sheet 6 of this table.									X
8. Call next level of support.	2		4	3	6	3	4		
9. Go to sheet 7 of this table.								X	
10. Replace the SMD logic board A10. {Procedure J18}					5				
11. Replace the SMD logic board A11. {Procedure J18}					4				
12. Replace the SMD logic board A12. {Procedure J18}					2				
13. Replace the SMD logic board A13. {Procedure J18}					3				

TABLE 6- 57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M ACTION CODES — SHEET 6 of 14

ASSUMPTIONS:

1. Entry is made from sheet 5.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS:	1	2		3	4	5	6	7	8	9		
Does the CDT display?												
1. xx00 or xxF2?	Y	N										
2. xxF3?		Y		N								
3. xx4B?				Y	N							
4. xx80 through xx9E?					Y	N						
5. xxA0 through xxAE?						Y	N					
6. xxB0 through xxBE?							Y	N				
7. xxC0 through xxCE?								Y	N			
8. xxD0 through xxDE?									Y	N		
ACTIONS:												
1. Replace the SMD adapter board {procedure J26}		1		1								
2. Replace control unit logic board A13 {procedure J27}		2										
3. Replace control unit logic board A20 {procedure J27}		3										
4. Replace SMD logic board A03 {Procedure J18}				2								
5. Replace SMD logic board A04 {Procedure J18}				3								
6. Replace SMD logic board A06 {Procedure J18}				4								
7. Replace SMD logic board A09 {Procedure J18}				5								
8. Replace SMD logic board A10 {Procedure J18}				6								
9. Replace SMD logic board A11 {Procedure J18}				7								
10. Replace SMD logic board A12 {Procedure J18}	X			8								
11. Replace SMD logic board A13 {Procedure J18}		5		9								
12. Go to sheet 14 of this table.				10								
13. Go to sheet 8 of this table.					X							

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M ACTION CODES — SHEET 6 of 14 (Cont.)

ACTIONS:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
14. Go to sheet 9 of this table.					X									
15. Go to sheet 10 of this table.						X								
16. Go to sheet 11 of this table.							X							
17. Go to sheet 12 of this table.								X						
18. Go to sheet 13 of this table.	X	6							X					
19. Call next level of support.														
20. Replace control unit logic board A21 (Procedure J27).		4												

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

ERROR CORRECTION CODE FAILURES — SHEET 7 of 14

ASSUMPTIONS:

1. Entry is made from sheet 4 or 5 of this table.
2. An Error Correction Code failure has been detected.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS: Does the CDT display:	1	2	3	4	5
1. CORRECTABLE ERROR SMD2X	Y	N			
2. xx4C?		Y	N		
3. xx4D?			Y	N	
4. xx4E?					
5. xx48?					
ACTIONS:					
1. Try another disk pack	1	1	1	1	1
2. Replace the SMD interface board {Procedure J26}.		2	2	2	2
3. Replace control unit logic board A17 {Procedure J27}.		3	3		
4. Replace control unit logic board A16 {Procedure J27}.		4	4		
5. Replace control unit logic board A20 {Procedure J27}.		5		3	4
6. Replace control unit logic board A21 {Procedure J27}.		6		4	5
7. Replace control unit logic board A22 {Procedure J27}.		7		5	6
8. Replace control unit logic board A15 {Procedure J27}.		8	5		
9. Replace control unit logic board A14 {Procedure J27}.			6		
10. Replace control unit logic board A13 {Procedure J27}.		9			3
11. Replace SMD logic board A15 {Procedure J18}.		10	7		
12. Replace SMD logic board A14 {Procedure J18}.		11	8		
13. Replace SMD logic board A01 {Procedure J18}.		12	9		
14. Replace SMD writer board {Procedure J25}.		13	10		
15. Replace SMD read pre-amplifier board {Procedure J24}.		14	11		
16. Re-run the diagnostic. Go to sheet 1 of this table.	2				
17. Call next level of support.	3	15	12	6	7

TABLE 6- SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

DISK ADAPTER STATUS ERRORS — SHEET 8 of 14

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of xx80 through xx9E has been displayed on the CDT

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6
1. xx80 or xx88 or xx8C or xx8E or xx9E	Y	N				
2. xx92 or xx96 or xx98 or xx9A		Y	N			
3. xx82 or xx8A			Y	N		
4. xx84 or xx94				Y	N	
5. xx9C					Y	N
6. xx86						Y
ACTIONS:						
1. Replace the SMD interface board {procedure J26}	1	1	1	1	1	1
2. Replace control unit logic board A07 {procedure J27}.			2	2		
3. Replace control unit logic board A09 {procedure J27}.			3	3		
4. Replace control unit logic board A18 {procedure J27}.			4			
5. Replace control unit logic board A19 {procedure J27}.			5			
6. Replace control unit logic board A26 {procedure J27}.			6		2	7
7. Replace control unit logic board A27 {procedure J27}.			7		3	
8. Replace control unit logic board A29 {procedure J27}.			8		4	
9. Replace control unit logic board A11 {procedure J27}.					5	2
10. Replace control unit logic board A12 {procedure J27}.					6	3
11. Replace control unit logic board A14 {procedure J27}.						4
12. Replace control unit logic board A15 {procedure J27}.						5
13. Replace control unit logic board A17 {procedure J27}.						6
14. Replace control unit logic board A08 {procedure J27}.				4	7	
15. Replace SMD logic board A02 {procedure J18}.			9		8	

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

DISK ADAPTER STATUS ERRORS — SHEET 8 of 14 (CONT'D)

ACTIONS: (continued)	1	2	3	4	5	6
16. Replace SMD logic board A03 (procedure J18).			10			
17. Replace SMD logic board A06 (procedure J18).			11		9	
18. Replace SMD logic board A07 (procedure J18).					10	
19. Replace SMD logic board A14 (procedure J18).						8
20. Replace SMD logic board A15 (procedure J18).						9
21. Replace the SMD read pre-amplifier (procedure J24).						10
22. Replace the SMD control panel (procedure J17).			12		11	
23. Replace the SMD sector plug (procedure J35).			13			11
24. Go to sheet 14 of this table.		2				
25. Call the next level of support.	2	3	14	5	12	12

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

CONTROL UNIT STATUS ERRORS — SHEET 9 of 14

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of xxA0 through xxAE has been displayed on the CDT.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS:	1	2	3	4	5	6	7	8
Does the CDT display:								
1. XXAA	Y	N						
2. XXAE		Y	N					
3. XXA6			Y	N				
4. XXA8				Y	N			
5. XXA2					Y	N		
6. XXA0						Y	N	
7. XXAC							Y	N
8. XXA4								Y
ACTIONS:								
1. Replace the SMD interface board {procedure J26}.		1	1	1	1			1
2. Replace the control unit power fail board {procedure J33}.	1							
3. Replace control unit logic board A13 {procedure J27}.	3	3	2	2	2	1	1	2
4. Replace control unit logic board A11 {procedure J27}.	2	2	3	3	3		2	
5. Replace control unit logic board A25 {procedure J27}.			4					
6. Replace control unit logic board A23 {procedure J27}.			5	10			4	
7. Replace control unit logic board A10 {procedure J27}.	4	4	6	5	9	5	7	3
8. Replace control unit logic board A12 {procedure J27}.		5	7	6	10			
9. Replace control unit logic board A18 {procedure J27}.			8			3		

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

CONTROL UNIT STATUS ERRORS — SHEET 9 of 14 (CONT'D)

ACTIONS (continued):	1	2	3	4	5	6	7	8
10. Replace control unit logic board A19 (procedure J27).			9			4		
11. Replace control unit logic board A15 (procedure J27).			12	4			6	6
12. Replace control unit logic board A22 (procedure J27).			13	11	4			10
13. Replace control unit logic board A14 (procedure J27).			11	7	8			7
14. Replace control unit logic board A20 (procedure J27).					5			11
15. Replace control unit logic board A21 (procedure J27).					6			12
16. Replace control unit logic board A16 (procedure J27).			14	8	7		8	5
17. Replace control unit logic board A08 (procedure J27).						2		
18. Replace control unit logic board A26 (procedure J27).			10	12	11		3	
19. Replace control unit logic board A24 (procedure J27).							5	
20. Replace control unit logic board A17 (procedure J27).				9				4
21. Replace control unit logic board A07 (procedure J27).		6						
22. Replace control unit logic board A09 (procedure J27).		7						
23. Replace control unit logic board A27 (procedure J27).			15		12		9	
24. Replace control unit logic board A29 (procedure J27).			16		13		10	
25. Replace SMD logic board A05. (Procedure J18)			17					
26. Replace SMD logic board A06 (procedure J18).			18				11	9
27. Replace SMD logic board A07 (procedure J18).			19				12	
28. Replace SMD logic board A02 (procedure J18).							13	
29. Replace SMD logic board A15 (procedure J18).								8
30. Replace SMD writer board (procedure J25).								13
31. Replace SMD read preamplifier board (procedure J24).								14
32. Replace SMD logic board A01 (procedure J18).								15
33. Call the next level of support.	5	8	20	13	14	6	14	16

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

DRIVE STATUS 1 ERRORS — SHEET 10 of 14

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of xxB0 through xxBE has been displayed on the CDT.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS:	1	2	3	4	5	6	7
Does the CDT display:							
1. xxB2	Y	N					
2. xxBC		Y	N				
3. xxBE			Y	N			
4. xxB6 or 22B8				Y	N		
5. xxB0					Y	N	
6. xxB4						Y	N
7. xxBA							Y
ACTIONS:							
1. Replace control unit logic board A13 {procedure J27}.	1	1	1	1	1	1	1
2. Replace control unit logic board A11 {procedure J27}.	2	2	2	2	2	2	2
3. Replace control unit logic board A10 {procedure J27}.	3	3	3	3	3	3	3
4. Replace control unit logic board A26 {procedure J27}.	4	8	4				
5. Replace control unit logic board A27 {procedure J27}.	5	6	5	5			
6. Replace control unit logic board A29 {procedure J27}.	6	7	6	6			
7. Replace control unit logic board A23 {procedure J27}.		4			4	5	5
8. Replace control unit logic board A14 {procedure J27}.				10			
9. Replace control unit logic board A15 {procedure J27}.		5		4			
10. Replace control unit logic board A16 {procedure J27}.				7			
11. Replace control unit logic board A17 {procedure J27}.				9			
12. Replace control unit logic board A12 {procedure J27}.				8	5	4	4
13. Replace control unit logic board A24 {procedure J27}.							6
14. Replace SMD logic board A02 {procedure J18}.		11		11	6	6	7
15. Replace SMD logic board A06 {procedure J18}.	7	9	8	12	7		8
16. Replace SMD logic Board A07 {procedure J18}.			7		8	7	9
17. Replace SMD logic board A05 {procedure J18}.			9				10

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

DRIVE STATUS 1 ERROPS — SHEET 10 of 14 (CONT'D)

ACTIONS (continued):	1	2	3	4	5	6	7
18. Replace SMD logic board A01 (procedure J18)	8	14		13			11
19. Replace SMD logic board A04 (procedure J18).							12
20. Replace SMD logic board A03 (procedure J18).	9	10					
21. Replace SMD logic board A10 (procedure J18).		12					
22. Replace SMD logic board A11 (procedure J18).				14			
23. Replace SMD logic board A14 (procedure J18).					9		
24. Replace SMD logic board A15 (procedure J18).				15			
25. Replace the servo pre-amplifier board (procedure J19).	10						
26. Replace the writer board (procedure J25).							
27. Replace the SMD control panel assembly (procedure J17).			10				
28. Replace the sector plug (procedure J35).		13					
29. Replace the read pre-amplifier board (procedure J24).				17			
30. Call the next level of support.	11	15	11	18	10	8	13

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

DRIVE STATUS 2 ERRORS — SHEET 11 of 14

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of xxC0 through xxCE has been displayed on the CDT.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6
1. xxC8	Y	N				
2. xxCA		Y	N			
3. xxC2			Y	N		
4. xxC0				Y	N	
5. xxCE					Y	N
6. xxC4 or xxC6 xxCC						Y
ACTIONS:						
1. Replace control unit logic board A10 {procedure J27}.	1	1	1	1	1	1
2. Replace SMD logic board A02 {procedure J18}.	2	2	2	2	2	2
3. Replace SMD logic board A07 {procedure J18}.	3	3	3	3	3	3
4. Replace SMD logic board A06 {procedure J18}.	4	4	4	4	4	4
5. Replace SMD logic board A05 {procedure J18}.	5			5		
6. Replace SMD logic board A04 {procedure J18}.	6	5		6		
7. Replace SMD logic board A03 {procedure J18}.	7	11				
8. Replace SMD logic board A09 {procedure J18}.		6			5	
9. Replace SMD logic board A13 {procedure J18}.		7				
10. Replace SMD logic board A11 {procedure J18}.		8				
11. Replace SMD logic board A10 {procedure J18}.		9				
12. Replace SMD logic board A12 {procedure J18}.		10				
13. Replace control unit logic board A15 {procedure J27}.					7	5
14. Replace control unit logic board A14 {procedure J27}.					8	6
15. Replace control unit logic board A17 {procedure J27}.					9	7
16. Replace SMD read pre-amplifier board {procedure J24}.					6	
17. Call the next level of support.	8	12	5	7	10	8

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

DRIVE FAULT STATUS ERRORS — SHEET 12 of 14

ASSUMPTIONS:

1. Entry is made from sheet 6 of this table.
2. An action code of xxD0 through xxDE has been displayed on the CDT.

NOTE: After a subassembly has been replaced return to table 6-15 and perform a verification of the SMD subsystem by executing the level I diagnostic.

CONDITIONS: Does the CDT display:	1	2	3	4	5
1. xxD6	Y	N			
2. xxD2		Y	N		
3. xxD4 or xxDE			Y	N	
4. xxD8 or xxDA or xxDC				Y	N
5. xxD0					Y
ACTIONS:					
1. Replace control unit logic board A12 {procedure J27}.	1	1	1	1	1
2. Replace control unit logic board A27 {procedure J27}.				8	
3. Replace control unit logic board A29 {procedure J27}.				9	
4. Replace control unit logic board A15 {procedure J27}.				10	
5. Replace control unit logic board A17 {procedure J27}.				11	
6. Replace SMD logic board A02 {procedure J18}.	2	2	2	2	2
7. Replace SMD logic board A05 {procedure J18}.	3		3	3	3
8. Replace SMD logic board A07 {procedure J18}.	5	3	4	5	
9. Replace SMD logic board A06 {procedure J18}.	4		5		
10. Replace SMD logic board A01 {procedure J18}.				7	
11. Replace SMD logic board A13 {procedure J18}.	6	4			
12. Replace SMD logic board A04 {procedure J18}.		5		4	
13. Replace SMD logic board A11 {procedure J18}.		7			
14. Replace SMD logic board A14 {procedure J18}.				6	
15. Replace the read pre-amplifier board {procedure J24}.			6		
16. Replace the writer board {procedure J25}.			7	12	
17. Replace the SMD control panel assembly {procedure J17}.					4
18. Check the SMD power supplies {procedure J21}.	7	8	8	13	5
19. Replace SMD logic board A03 {procedure J18}.		6			
20. Call the next level of support.	8	9	9	14	6

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

SMD2A AND SMD2M DIAGNOSTIC AND DRIVER FAULTS	SHEET 13 of 14
ASSUMPTIONS: 1. Entry is made from sheet 6 of this table. 2. A failure has been detected which was not correctable by replacing hardware subassemblies.	
CONDITIONS: 1. One of the following action codes was displayed: XX00 or XXF2 or XXF3	Y
ACTIONS: This problem is a result of an inconsistency detected within the diagnostic software. Additional higher level of support is required. For proper support, an in-depth knowledge of the diagnostic software is required.	X

TABLE 6-57 SMD2A and SMD2M: STORAGE MODULE DRIVE DDLT

CPU PROBLEMS — SHEET 14 of 14

ASSUMPTIONS:

1. Entry may be made from sheets 5, 6 and 8 of this table.

2. A failure has been detected that was not correctable by replacing subassemblies in the storage module drive subsystem.

NOTE: This DDLT replaces subassemblies within the central processor. If the defective component is isolated to the processor, a complete verification must be performed by going to table 6-103.

CONDITIONS:	1	2	3
Does the CDT display:			
1. xx01 through xx0F or xx11 or xx12 or xx21 or xx22 or xx3F or xx40 or xx51 or xx80 through 8E or xx9C or xx9E	Y	N	
2. xx4B or xx92 through xx9A		Y	N
3. xx50			Y
ACTIONS:			
1. Replace the status mode interrupt board {procedure A23}.	1		1
2. Replace the I/O-TTY board {procedure A23}.	2		
3. Replace the panel interface board {procedure A23}.			2
4. Call the next level of support.	3	4	5
5. Replace the Memory interface address {procedure A25 }.		1	
6. Replace the memory interface data {procedure A25 }.		2	3
7. Replace the MDS main memory array {procedure A24 }.		3	4

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TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

Initial Observations — Sheet 1 of 24

ASSUMPTIONS:

1. Tape transport cleaning (procedure R1) is completed.
2. Power is turned on (if red power indicator does not illuminate, go to procedure R4).
3. Cabinet interlock switch is pulled out (figure 6R-1).
4. Lower tape reel is not installed.

CONDITIONS:	1	2	3	4	5
1. Does customer complain that tapes run off at end-of-tape?	N				Y
2. Are the transport fiber optic lamps illuminated {figure 6R-2} {end-of-tape and loop columns}?	Y			N	
3. Is the transport FILE PROTECT indicator illuminated?	Y		N		
4. At the transport lower reel {file}, press FILE PROTECT switch located behind lower tape reel. Does PROTECT indicator extinguish?	Y	N			
ACTIONS:					
1. Go to sheet 2 of this table.	X				
2. Replace FILE PROTECT sensor switch (procedure R23).		1			
3. Replace lamp in operator's panel (procedure R22).			1		
4. Replace lamp in fiber optics (procedure R21).				1	2
5. Replace control board, slot 2 {procedure R6}.				2	4
6. Replace write/read recovery, slot 10.†		3	3		
7. Replace I/O logics, slot 1 {procedure R6}.		2	2		5
8. Replace transport reel logics, slot 3.†					3
9. Check tape end-of-tape marker.					1
10. Check power distribution box (Procedure R27).				3	
12. Call next higher level of support.		4	4	5	6
11. Replace the filier optico bundle {Procedure 6R-39}				4	

†Requires higher level of support for adjustment; perform all other actions first.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

Tape Loading — Sheet 2 of 24

ASSUMPTIONS:

1. Tape to be written on is loaded using procedure R5.
2. Tape transport door is closed or interlock switch is pulled out.
3. LOAD REWIND on the tape transport is pressed.

CONDITIONS:	1	2	3	4	5	6	7	8
1. Did the transport load the tape columns correctly and is at beginning of tape(BOT)?	Y	N						
2. After 15 seconds, does the tape continue to move forward without finding the beginning of the tape marker?		Y	N					
3. Is the tape in both columns hanging below the upper loop sensors (figure 6R-2)?			Y	N				
4. Was there a loss of vacuum after columns loaded properly?				Y	N			
5. Did the motor start up and run, then shut down?					N	Y		
6. Did the left loop column load?						Y	N	
7. Did the right loop column load?							Y	N
ACTIONS:								
1. Go to sheet 3 of this table.	X							
2. Check the capstan fuse and replace if necessary (procedure R40).			1					
3. Replace capstan power amplifier.†		7	2					
4. Replace capstan logic, slot 4.†		5	3	5				
5. Replace control logic, slot 2 (procedure R6).		2	4	6	5	3	1	3
6. Replace capstan motor.†			5					
7. Replace reel logic, slot 3.†		4	6	1	4	4	2	4
8. Replace I/O logic, slot 1 (procedure R6).		3	7	2	3	5	3	
9. Replace Transport vacuum regulator.†					6			

†Requires higher level of support;

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

Tape Loading — Sheet 2 of 24 (Contd)

ACTIONS (con't):	1	2	3	4	5	6	7	8
10. Replace vacuum relay {procedure R10}.					7			
11. Check tape beginning-of-tape marker.		1			1			
12. Replace BOT sensor. †		6						
13. Replace pneumatic regulator board fuse {procedure R40}.					2			
14. Replace blower assembly. †					8			
15. Check cabinet interlock switch {procedure R35}.					9			
16. Check upper reel power amplifier fuse (machine reel) {procedure R40}.				3		1	4	
17. Replace upper reel power amplifier {procedure R7}.				4		2	5	
18. Replace upper reel motor.†				7			7	
19. Check lower reel power amplifier fuse {procedure R40}.								1
20. Replace lower reel power amplifier {procedure R 8}.								2
21. Replace lower reel motor.†								6
22. Replace upper tape tachometer. †							6	
23. Replace lower tape tachometer. †								5
24. Replace the loop column sensor {Procedure R34}		8	8	8	10	6	8	7
25. Call next level of support.					11			
†Requires higher level of support								

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TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT (Cont'd)

Tape Motion — Sheet 3 of 24

ASSUMPTIONS:

READY on the tape transport is pressed.

CONDITIONS:	1	2	3	4	5	6	7	8
1. Is READY indicator on tape transport illuminated?	N	Y						
2. Did tape move?		Y	N					
3. Press CLEAR on tape transport. Does READY indicator extinguish?			N	Y				
4. At board location 2, press red switch up once. Does tape move forward?				N	Y			
5. After 30 seconds of forward motion, press CLEAR on tape transport. At board location 2, press red switch down once. After 5 seconds, press CLEAR. Did tape move in reverse until CLEAR was pressed?					N	Y		
6. Did vacuum motor shut down?						Y	N	
7. Press LOAD REWIND on tape transport. Does tape move in reverse?							N	Y
ACTIONS:								
1. Go to sheet 4 of this table.								X
2. Replace ready lamp (Procedure R22).	3							
3. Replace operators panel (Procedure R26).	4		2					
4. Replace I/O logic, slot 1 (Procedure R6).	1	1	1	2	5		2	
5. Replace control logic, slot 2 (Procedure R6).	2	2	3	1	2		1	
6. Replace capstan power amplifier.†				5	1			
7. Replace capstan logic, slot 4. †		4		4	3			
8. Replace reel logic, slot 3. †	5	3	4	3	4	1	3	
9. Call next level of support.	6	5	5	6	6	2	4	

†Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT {Cont'd}

Tape Motion — Sheet 4 of 24

ASSUMPTIONS:

Entry is from sheet 3 of this table while tape is rewinding. If tape has stopped, press switch up again at board location 2. Allow tape to move forward for 30 seconds; then press CLEAR; then rewind.

CONDITIONS:	1	2	3	4	5	6	7	8
1. Did tape move at high speed?	N	Y						
2. Did vacuum motor shut down?		N				Y		
3. Did upper reel unload?		N			Y	Y		N
4. Is left column pulled out (unloaded)?		N		Y		Y	N	
5. Does tape stop at beginning of tape?		Y	N					
ACTIONS:								
1. Go to sheet 5 of this table.		X						
2. Replace capstan motor.†	5							
3. Replace upper reel power amplifier. {Procedure R7}				1			2	
4. Replace upper reel motor.†							3	
5. Replace lower reel power amplifier. {Procedure R8}								2
6. Replace lower reel motor. †								3
7. Replace capstan logic, slot 4. †	1			2				
8. Replace control logic, slot 2. {Procedure R6}	2		2	3	2	1	4	4
9. Replace I/O logic, slot 1. {Procedure R6}	3		1			2	5	5
10. Replace capstan power amplifier.†	4							
11. Replace reel logic, slot 3. †			3		1	3	1	1
12. Call next level of support.	6		4	4	3	4	6	6

†Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT {Cont'd}

Tape Unloading		Sheet 5 of 24
ASSUMPTIONS:		
UNLOAD on tape transport is pressed.		
CONDITIONS:	1	2
Tape rewinds and unloads tape reels; vacuum shuts down and tape drive goes not ready.	Y	N
ACTIONS:		
1. Go to sheet 6 of this table.	X	
2. Replace control logic, slot 2. {Procedure R6}		1
3. Replace reel logic, slot 3. †		2
4. Replace I/O logic, slot 1. {Procedure R6}		3
5. Call next level of support.		4
† Requires higher level of support.		

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT.

Formatter Initial Observation	Sheet 5 of 24		
ASSUMPTIONS:			
1. The formatter is connected to a suitable 110v AC source.			
2. Formatter Power On switch is pushed (If red power indicator does not illuminate, go to procedure R4 to measure Formatter Power Supply Outputs).			
CONDITIONS:	1	2	3
1. Does the red power indicator illuminate?	Y	N	
2. Are the measured voltages the proper values?		Y	N
ACTIONS:			
1. Go to sheet 7 of this table	X	2	
2. Replace formatter power on indicator. {Procedure R41}		1	
3. Replace Formatter Power Supply (Procedure R11).			2
4. Check the Formatter fuse and replace if necessary. {Procedure R42}			1

TABLE 6-58. MAGNETIC TAPE SUBSYSTEM DDLT (Cont'd)

Diagnostic Loading	Sheet 7 of 24

ASSUMPTIONS:

1. A magnetic tape has been mounted and loaded with write ring (procedure R5).
2. LOAD REWIND on tape transport is pressed.
3. Cabinet interlock switch is pulled out or door is closed and READY on tape transport is pressed.
4. LEVEL II monitor is loaded (Table 6-50)
5. The diskette or cassette containing LCTT2 diagnostic has been loaded.
6. Enter the following at the keyboard:
   CONTROL and BEL are pressed simultaneously.
   ODS, LOAD, LCTT2 is typed in.
   CARRIAGE RETURN is pressed.
7. Observe CDT display for the following condition, after approximately one minute.

CONDITIONS:	1	2
1. Is LCTT2 SUSPENDED LOAD displayed?	Y	N
ACTIONS:		
1. Go to sheet 8 of this table.	X	
2. Go to table 6-100.		X

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT (Cont'd)

Drive Unit Identification	Sheet 8 of 24

ASSUMPTIONS:

1. Cable is seated using procedure R3.
2. Back side of tape transport logic board chassis slot XA1, right column of pins, is observed for unit number identity. (Procedure R44).
3. Yellow jumper is connected from pin 16 to:
   Pin 17 for unit 0
   Pin 18 for unit 1
   Pin 19 for unit 2
   Pin 20 for unit 3
4. After observing unit number, slide lock is released and tape transport is secured into cabinet.
5. At read/write head the presence of a small hinged pad in front of head (figure 6R-2) identifies unit as a 9-track drive.
6. If there is more than one unit on the controller all units must be powered on. | 1 |

ACTIONS:

1. Insert the following codes at action 2 below: | 1 |

	Action 2
Unit 0:	0
Unit 1:	1
Unit 2:	2
Unit 3:	3

2. Enter the following information on the keyboard using the unit code from the above table in place of the blank | 2 |

   Press CONTROL and BEL simultaneously.
   Type in ODS,CPAR,LCTT2,12,___
   Press CARRIAGE RETURN

3. If the unit to be tested is a 9 track device go to action 4, for a 7 track transport, type in the following information on the keyboard: | 3 |

   Press CONTROL and BEL simultaneously.
   Type in ODS,CPAR,LCTT2,F,1
   Press CARRIAGE RETURN

   Then go to action 5.

TABLE 6-58. LCTT2: MAGNETIC TAPE SYBSYSTEM DDLT

	1
ACTIONS (cont'd): 4. If the transport is to be tested in the NRZI mode,† go to action 5. For testing in the PE mode, enter the following information on the keyboard: Press CONTROL and BEL simultaneously. Type in ODS,CPAR,LCTT2,A,3 Press CARRIAGE RETURN	4
5. Enter the following at the keyboard: Press CONTROL and BEL simultaneously Type in ODS,CPAR,LCTT2,5,8000 Press CARRIAGE RETURN	5
6. Enter the following at the keyboard: Press CONTROL and BEL simultaneously Type in ODS,GO,LCTT2 Press CARRIAGE RETURN	6
7. Go to sheet 9 of this table.	7
† When testing a dual mode transport, the test should be run twice. Once in the NRZI mode and once in the PE mode.	

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 8.

CONDITIONS:	1	2	3	4
1. Is the following displayed on the CDT (after about 15 minutes): LCTT2 SECTION 8 WAIT UNTIL REWIND IS FINISHED. LCTT2 SUSPENDED SELF	Y	N		
2. Are there action codes displayed?		Y	N	
3. Is RUN indicator illuminated?			N	Y
ACTIONS:				
1. Go to sheet 10 of this table.	X			
2. Go to sheet 13 of this table.		X		
3. Go to table 6-100.			X	3
4. Restart magnetic tape transport test at sheet 7 of this table.				1
5. Replace Tape Transport Controller, {Procedure R 25}.				2

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

1. The following is entered at the keyboard following the completion of the rewind:
   CONTROL and BEL are pressed simultaneously
   ODS,GO is typed in
   CARRIAGE RETURN is pressed.

CONDITIONS:	1	2	3	4	5
1. Is the following displayed at the CDT? REMOVE RING, THEN READY THE UNIT LCTT2 SUSPEND SELF	Y	N			
2. Is action code 3637 displayed?		Y		N	
3. Is READY indicator of the transport illuminated?		Y	N		
4. Is the RUN indicator illuminated?				Y	N
ACTIONS:					
1. Go to sheet 11 of this table.	X				
2. Go to Table 6-100.				2	X
3. Replace tape transport controller. {Procedure R25}		1	1		
4. Replace Formatter Clock and Density Control board, formatter slot 21 (Procedure R43).		2			
5. Replace Formatter Command control board, formatter slot 23 (Procedure R43).		3	2		
6. Replace I/O board, transport slot 1. {Procedure R6}		4	3		
7. Call next level of support.		5	4		
8. Restart magnetic tape transport test at sheet 7 of this table.				1	

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

1. The transport is unloaded, the file-protect ring is removed and the tape reel is reloaded using procedure R5.
2. READY on the transport is pushed.
3. The following is entered at the keyboard:
   CONTROL and BEL are pressed simultaneously
   ODS,GO is typed in
   CARRIAGE RETURN is pressed.

CONDITIONS:	1	2	3	4	5
1. Is the following displayed at the CDT: INSERT RING, THEN READY THE UNIT LCTT2 SUSPEND SELF	Y	N			
2. Is action code 3639 displayed?		Y		N	
3. Is the file protect indicator of the transport illuminated?		Y	N		
4. Is the RUN indicator illuminated?				Y	N
ACTIONS:					
1. Go to sheet 12 of this table.	X				
2. Go to Table 6-100.				2	X
3. Replace Command Control board, Formatter slot 23 (Procedure R43).		1			
4. Replace tape transport controller {Procedure R25}.		2			
5. Go to condition 4 of sheet 1 of this table.			2		
6. Replace I/O logics, transport slot 1 {Procedure R6}.		3			
7. Call next higher level of support		4			
8. Replace FILE PROTECT sensor switch (Procedure R23).			1		
9. Restart magnetic tape transport test at sheet 7 of this table.				1	

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

1. The transport is unloaded, the file protect ring is inserted, and the tape reel is remounted using procedure R5.
2. READY on the transport is pushed.
3. The following is entered at the keyboard:
   CONTROL and BEL are pushed simultaneously.
   ODS,GO is typed in
   CARRIAGE RETURN is pressed.

CONDITIONS:	1	2	3	4	5
1. Does LCTT2 TERMINATED 0000 ERRORS appear on the CDT?	Y			N	
2. Is there another tape drive to be tested?	Y	N			
3. Is this a verification run?		Y	N		
4. Is RUN indicator illuminated?				Y	N
ACTIONS:					
1. Go to table 6-103.			X		
2. Go to next device to be tested.		X			
3. Restart magnetic tape transport test at sheet 7 of this table.	X			1	
4. Go to table 6-100.				2	X

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 9.

CONDITIONS: Does the CDT display?	1	2	3	4	5
1. 3611 or 3621	Y	N			
2. 3622		Y	N		
3. 3612			Y	N	
4. 3652				Y	N
ACTIONS:					
1. Check that equipment code jumpers are properly set and that switch "LS" is in the "ON" position. {Procedure R25}	1				
2. Check that the controller board is properly seated. (Procedure R25)	2	2	2		
3. Replace the tape transport controller. {Procedure R25}	3	3	3		
4. Replace I/O - TTY controller, slot K. {Procedure A23}	4	4	4		
5. Replace SMI board, slot L. {Procedure A23}	5	5	5	2	
6. Call next level of support.	6	6	6	3	
7. Check that no other controller has the same equipment code as the Magnetic Tape Transport Controller. Refer to section 4 for each device.		1	1	1	
8. Go to sheet 14 of this table					X

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

1. The Formatter front panel is removed (figure 6R-3) so that the LED indicators on the clock and density board (slot 21) can be observed.

CONDITIONS:	1	2	3	4	5	6	7
Does the CDT display:							
1. 3631	Y			N			
2. 3638				Y			N
3. Is READY on the transport illuminated?	Y	N					
4. Is SELECT on the transport illuminated?	Y		N				
5. Is FILE PROTECT on the transport illuminated?				Y	N		
6. Are any of the following indicators on the formatter clock and density control board (slot 21) illuminated? NRZI, High Speed , 9 Track			N			Y	
ACTIONS:							
1. Verify that no other transport has the same unit select jumper setting. {Procedure R45}			1				
1. Verify that the tape transport is properly connected to the formatter. {Procedure R3}	2		3				
2. Restart the magnetic tape transport DDLT at sheet 7 of this table.			4				
3. Check that the controller and the controller to formatter cable are properly seated (Procedure R3).	1		2		1		
4. Replace Magnetic Tape Transport controller. {Procedure R25}	3	2	5		2		
5. Replace Clock and sensity control board, formatter slot 21. {Procedure R43}		3	6			3	
6. Replace I/O Logics, transport slot 1. {Procedure R6}			7		4	1	
7. Go to sheet 15 of this table.							X

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ACTIONS (cont'd)	1	2		3	4	5	6	7
8. Replace control logic, transport slot 2 {Procedure R6}.							2	
9. Call next level of support.	7	5		10		5	5	
10. Replace Command Control board, Formatter slot 23 {Procedure R43}.	4	4				3	4	
11. Replace the transport to Formatter cable at connection J1, {Procedure R46}.	6			8				
12. Replace the controller to formatter cable {Procedure R46}.	5			9				
13. Verify that the door is properly closed or that interlock switch is fully pulled out. Press the READY switch.		1						
14. Replace File Protect Sensor Switch (Procedure R23).					2			
15. Go to sheet 1/assumption 2 of this table					3			
16. Verify that the tape reel has a write enabling ring installed					1			

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 14.

CONDITIONS:	1	2	3	4	5
1. Does the CDT display 3651?	Y				N
2. Is the Formatter Busy indicator (formatter slot 21) illuminated?	Y		N		
3. Is the tape in motion?	N			Y	
4. Is testing being done in the PE mode?	Y	N			
ACTIONS:					
1. Replace the tape transport controller. {Procedure R25}	1	1	1	4	
2. Replace the Clock and Density Control Board, formatter slot 21. {Procedure R43}	2	2	2	1	
3. Replace the Command Control Board, formatter slot 23. {Procedure R43}	3	3	3	2	
4. Replace the timing Control board, formatter slot 22.(Procedure R43)	4	4	4	3	
5. Replace Write Control board, formatter slot 20. {Procedure R43}	5	5			
6. Replace PE Read Control, formatter slot 18. {Procedure R43}	6				
7. Call next level of support	8	8	6	8	
8. Replace NRZI read control, formatter slot 19. {Procedure R43}		6			
9. Go to sheet 16 of this table.					X
10. Replace I/O Logics board, transport slot 1. {Procedure R6}	7	7	5	5	
11. Replace Control Logics board, transport slot 2. {Procedure R6}				6	
12. Replace Capstan Logic board, transport slot 4.†				7	

† Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 15.

CONDITIONS:	1	2	3	4	5	6	7
Does the CDT display:							
1. 3630	N	Y					
2. 3635	N					Y	
3. 3653	N						Y
4. Is the 9-track indicator (slot 21) of the formatter illuminated?		Y		N			
5. Is the unit a 9-track device?		Y	N	Y	N		
ACTIONS:							
1. Go to sheet 17 of this table.	X						
2. Restart the magnetic tape transport DDLT at sheet 7 of this table.		1	1	1	1	1	
3. Replace the Magnetic Tape Transport controller. {Procedure R25}		2			2	2	1
4. Replace Clock and Density Control Board, Formatter slot 21. {Procedure R43}		3	3	2	3	3	
5. Replace I/O logics, transport slot 1. {Procedure R6}			4	3		5	
6. Replace transport to formatter cable. {Procedure R46}			5	4			
7. Call next level of support.		5	7	6	5	8	3
8. Replace controller to formatter cable. {Procedure R46}		4	6	5	4	7	2
9. Replace Command Control Board, Formatter slot 23. {Procedure R43}						4	
10. Replace Read Logic Board, transport slot 7. †						6	
11. Check the controller to formatter cable {Procedure R3}			2				

† Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 16.

CONDITIONS:	1	2	3	4	5
Does the CDT display:					
1. 3632	N	Y			
2. 363A or does the tape run off the lower tape reel?	N			Y	
3. Is the BOT/EOT indicator of the transport illuminated?		Y	N	Y	N
ACTIONS:					
1. Go to sheet 18 of this table.	X				
2. Use a different tape.		1			1
3. Replace I/O Logics board, transport slot 1. {Procedure R6}		2	3	3	2
4. Replace BOT/EOT sensor. {Procedure R19}		3			3
5. Call next level of support.		4	5	6	4
6. Replace tape transport controller. {Procedure R25}			1	1	
7. Replace Command Control board, Formatter slot 23. {Procedure R43}			2	2	
8. Replace transport to formatter cable J1. {Procedure R46}			4	4	
9. Replace formatter to controller cable. {Procedure R46}				5	

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 17.

CONDITIONS:	1	2	3
1. Does the CDT display: 3633, 3634 or 3643?	N	Y	
2. Is testing being done in the PE mode?		Y	N
ACTIONS:			
1. Replace Tape Transport Controller. {Procedure R25}		1	1
2. Replace Clock and Density Control board, Formatter slot 21. {Procedure R43}		2	2
3. Replace NRZI Read Control board, Formatter slot 19. {Procedure R43}			3
4. Replace Command Control Board, Formatter slot 23. {Procedure R43}		4	4
5. Replace Timing Control Board, Formatter slot 22. {Procedure R43}		5	5
6. Replace Write Control Board, Formatter slot 20. {Procedure R43}		6	6
7. Replace Formatter to Controller cable. {Procedure R46}		7	7
8. Replace Phase Error detect and VCO board, Formatter slot 17. {Procedure R43}		3	
9. Go to sheet 19 of this table.	X		
10. Replace I/O logic board, transport slot 1. {Procedure R6}		8	8
11. Replace Control logic board, transport slot 2. {Procedure R6}		9	9
12. Replace Capstan logic board, transport slot 4. †		10	10
13. Replace Capstan power amplifier. †		11	11
14. Perform transport start/ stop time adjustment.†		12	12
15. Call next level of support.		13	13

†Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 18.

CONDITIONS:	1	2	3
Does the CDT display:			
1. 3641	Y	N	
2. 3642		Y	N
ACTIONS:			
1. Replace tape transport controller. {Procedure R25}	1	1	
2. Replace memory interface (address) board processor, slot W. {Procedure A25}	3		
3. Replace memory interface(data) board, processor slot V. {Procedure A25}	2	5	
4. Replace Clock and Density Control board, Formatter slot 21. {Procedure R43}	4	2	
5. Go to sheet 20 of this table.			X
6. Call next level of support.	6	6	
7. Replace Timing Control board, Formatter slot 22. {Procedure R43}	5	3	
8. Replace Write Control Board, Formatter slot 20. {Procedure R43}		4	

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 19.

CONDITIONS:	1	2	3	4	5	6	7
Does the CDT display:							
1. 3671 or 3645	Y			N			
2. 3672				Y		N	
3. 3673						Y	N
4. Did the HARD ERROR indicator (Formatter slot 21) illuminate for 1 second and then go out? †	Y	N		N	Y		
5. Is testing being done in the PE mode?	Y		N				
ACTIONS:							
1. Use different tape.	1		1				
2. Replace tape transport controller. {Procedure R25}		1		1	1	1	
3. Replace Formatter to controller cable. {Procedure R46}		3		7	5	2	
4. Call next level of support.	20	4	17	8	6	5	
5. Replace NRZI Read Control Board, formatter slot 19 {Procedure R43}			2	3	3		
6. Replace formatter to transport cable, J2. {Procedure R46}			5				
7. Replace Phase Error Detect and VCO board, Formatter slot 17. {Procedure R43}	2						
8. Replace Timing control board, Formatter slot 22. {Procedure R43}	3		3	2		3	
9. Replace Write control board, Formatter slot 20. {Procedure R43}	4		4	4	4	4	
10. Replace Clock and Density Control, formatter slot 21. {Procedure R43}	7	2			2		
11. Replace I/O Logics board tape transport slot 1. {Procedure R6}	14		7				
12. Go to sheet 21 of this table.							X

†NOTE: Since the Hard Error indicator illuminates for a brief time only, it may be necessary to restart the test and to constantly observe the indicator.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ACTIONS (cont'd):	1	2	3	4
13. Replace Phase Data Recovery board, Formatter slct 15. {Procedure R43}	11			
14. Replace Phase Data Recovery board, slot 14. {Procedure R43}	12			
15. Replace Phase Data Recovery board, slot 16. {Procedure R43}	13			
16. Replace Read Logic board, transport slot 7. †	8		6	
17. Replace Control Logic board, transport slot 2. {Procedure R6}	18		10	
18. Replace Capstan Logic board, transport slot 4. †	19		11	
19. Replace Write Driver (5-channel), transport slot 5. †	9		12	
20. Replace NRZI write board, transport slot 10 {7 track only}. †			9	5
21. Replace Write Driver (4-channel), transport slot 6, (9 track only).†	10		13	
22. Replace NRZI write board, transport slot 9 {7 track only}. †			8	
23. Replace Recovery board, transport slot 7 {7 track only}. †				6
24. Replace Command Control Board, Formatter slot 23. {Procedure R43}	5			
25. Replace PE Read Control Board, Formatter slot 18. {Procedure R43}	6			
26. Replace Read Recovery Board, transport slot 8. †	15		14	
27. Replace Read Recovery Board, transport slot 9, †	16		15	
28. Replace Read Recovery Board, transport slot 10. †	17		16	

† Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 20.

CONDITIONS:	1	2	3	4	5
Does the CDT display:					
1. 3690 through 3697, 3640 or 3647	Y		N		
2. 3680			Y		N
3. Is testing being done in the PE mode?	Y	N	Y	N	
ACTIONS:					
1. Use different tape.	1	1	1	1	
2. Replace tape transport controller. {Procedure R25}	2	2	2	2	
3. Replace Phase Error Detect and VCO board, Formatter slot 17. {Procedure R43}	3		3		
4. Replace NRZI read recovery board, Formatter slot 19. {Procedure R43}		3		3	
5. Replace Memory Interface Data board slot V. {Procedure A25}	6	6			
6. Replace Memory Interface Address board, slot W. {Procedure A25}	7	7			
7. Call next level of support.	8	8	6	6	
8. Replace Write control board, Formatter slot 20. {Procedure R43}	4	4	4	4	
9. Go to sheet 22 of this table.					X
10. Replace Timing Control board, Formatter slot 22. {Procedure R43}	5	5	5	5	

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 21.

CONDITIONS:	1	2	3	4	5	6	7	8
Does the CDT display:								
1. 3648	Y		N					
2. 3646			Y					N
3. Did the HARD ERROR indicator (Formatter slot 21) illuminate for 2 seconds and then go out?†	Y	N	Y				N	
4. Does the problem occur in Section 1 ?			N		Y			
5. Is testing being done in the PE mode?			Y	N	Y	N		
ACTIONS:								
1. Use different tape.	1							
2. Replace tape transport controller. {Procedure R25}	2	1	1	1	1	1	1	
3. Replace formatter to controller cable. {Procedure R46}	4						4	
4. Replace Clock and density control board formatter slot 21 {Procedure R43}		2	4	3	6	5	2	
5. Replace Command control board, formatter slot 23. {Proc. R43}		3	5	4	7	6		
6. Replace Timing control board, formatter slot 22. {Proc. R43}	3	4					3	
7. Replace Write Control board, formatter slot 20. {Proc. R43}		5						
8. Call next level of support.	5	14	9	8	11	8	5	
9. Replace Phase Error Detect and VCO board, formatter slot 17. {Procedure R43}			2		3			
10. Replace PE control board, formatter slot 18. {Procedure R43}			3		5			
11. Replace NRZI Read control board, formatter slot 19. {Procedure R43}				2		3		
12. Replace I/O Logics transport slot 1. {Procedure R6}		10	6	5	2	2		
13. Replace Read Logic, transport slot 7. ††					4	4		
14. Replace Capstan Logic, Transport slot 3. ††		12	8	7	8	7		
15. Go to sheet 23 of this table.								X
16. Replace Write Driver (4 channel) logic board, transport slot 6 {9 track only}. ††		6			10			
17. Replace control logic transport slot 2. {Procedure R6}		11	7	6				
18. Replace erase head and cable.††		13						
19. Replace Write Driver (5 channel) logic board, transport slot 6 {9 track only}. ††		8		9	9			
20 Replace NRZI write board, transport, slot 10 (7 track transport only). ††		7						
21 Replace NRZI write board, transport, slot 9 (7 track only). ††		9						

†NOTE: Since the Hard Error indicator illuminates for a brief time only, it may be necessary to restart the test and to constantly observe the indicator.

††Requires higher level of support.

TABLE 6-58. LCTT2: MAGNETIC TAPE SUBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 22.

CONDITIONS:	1	2
1. Does the CDT display: 3674 or 3675	Y	N
ACTIONS:		
1. Replace Tape Transport Controller. {Procedure R25}	1	
2. Replace Memory Interface (Address) Processor slot W. {Procedure A25}	3	
3. Replace Memory Interface (Data) Process slot V. {Procedure A25}	4	
4. Replace I/O TTY board, slot K. {Procedure A23}	5	
5. Go to sheet 24 of this table.		X
6. Go to table 6-6 and run the MOS memory tests.	6	
7. Replace Memory board, slot X. {Procedure A25}	2	
8. Call next level of support.	7	

TABLE 6-58. LCTT2: MAGNETIC TAPE SYBSYSTEM DDLT

ASSUMPTIONS:

Entry is made from sheet 23.

CONDITIONS:	1	2	3
1. Does the CDT display 3681?	Y		N
2. Does the Command Reject indicator† (formatter slot 21) illuminate for two seconds and then go out?	Y	N	
ACTIONS:			
1. Replace the tape transport controller. {Procedure R25}	2	1	
2. Replace the formatter to controller cable. {Procedure R46}	3	2	
3. Replace Command Control Board, Formatter slot 23. {Procedure R43}	1	4	
4. Replace Clock and Density Control board, formatter slot 21. {Procedure R43}	4	3	
5. Call next level of support.	5	5	X

†The Command Reject indicator operates in the same manner as the Hard Error indicator. See note at bottom of sheet 22.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT

Initial Observation {Start Problems} **Sheet 1 of 18**

ASSUMPTIONS:

1. Main Breaker and ± 34V Breaker are ON.
2. Scratch Cartridge Pack with proper address tags is installed.
3. Daisy Chain Terminator is installed on the last unit.
4. All the internal drive switches are as described in section 4Q of this manual.
5. The computer is powered on and ODS CDD1 was passed successfully.

NOTE

Insure the installed pack has no valuable information recorded. This diagnostic performs write operations that may be destructive.

CONDITIONS:	1	2	3	4	5	6	7	8	9	10	11	12
1. Did Breaker trip?	Y	N										
2. Is the sound of the blower motor and moving air heard with the pack access cover raised?		N	Y									
3. Push "START" button. Is "START" illuminated?			Y								N	
4. Did spindle turn?			Y							N	Y	N
5. Did Brushes move? Observe yellow circle under pack cover.			Y						N			
6. Is "FAULT" illuminated?			Y	N								
7. Is either the fixed or cartridge "WRITE PROTECT" illuminated?				Y	N							
8. Did customer complain about retract operation problems?					Y	N						
9. Did customer complain about pack lock problems?						Y	N					
10. Did customer complain about READY problems or the "READY" light not illuminate after two minutes?							Y	N				
ACTIONS:												
1. Turn main breaker OFF and then ON.	1											
2. Turn OFF main breaker and ±34V breaker. Then turn the two switches ON together. Repeat this section several times.	2											
3. Go to sheet 2 of this table.	3											
4. Replace CDD Controller board {procedure Q50}.			1									
5. Replace Fixed Disk Index/Section Transducer {procedure Q11, but before the removal, check that A9P2 is properly connected. {Figure 6Q-2}			6									
6. Replace control board {procedure Q18}			2						1	2		3
7. Replace Data Recovery Board {procedure Q18}			3									
8. Replace R/W/E/ board {procedure Q18}			4									
9. Replace Preamp. board *			7									
10. Replace Sector board *			8									
11. Replace Servo board *			9									
12. Perform Disk Brush Check and replacement {procedure Q8}									3			
13. Replace switch board. {Procedure Q23}											2	5
14. Check that pack locks are closed.												1
15. Replace brush motor {procedure Q16}									4			
16. Replace piggyback power board {procedure Q20}									5	5		6
17. Adjust cartridge on switch {procedure Q26}										1		2
18. Replace triacs K1 and K2 on spindle motor assembly. {Procedure Q34}										4		

* Requires higher level of support. {Continued}

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT {continued}

Initial Observation {Start Problems} Sheet 1 of 18 {cont.}

	1	2	3	4	5	6	7	8	9	10	11	12
19. Replace spindle belt {procedure Q7}										6		
20. Replace spindle motor {procedure Q17}										8		
21. Replace START lamp {procedure Q1}											1	
22. Go to sheet 3 of this table.					X							
23. Go to sheet 4 of this table.						X						
24. Go to sheet 5 of this table.							X					
25. Go to sheet 6 of this table.								X				
26. Call next level of support.		2	10						9	11	3	10
27. Replace the cartridge on switch {procedure Q14}										3		4
28. Replace the power supply assembly {procedure Q19}									6	7		7
29. Perform the disk brush switch check and adjustment {procedure Q28}									2			
30. Perform fixed disk index sector transducer check and adjustment {procedure Q28}			5									
31. Replace the blower motor {procedure Q23}		1										
32. Replace the start relay {procedure Q33}									7	9		8
33. Replace the spindle brake board {procedure Q32}									8	10		9
34. Go to sheet 14 of this table.				X								

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT {continued}

Start Problems (continued) Sheet 2 of 18

ASSUMPTIONS:

1. Entry is made from sheet 1.

CONDITIONS:	1	2	3
1. Disconnect A2P2 from mother board. Does Breaker still trip? {Figure 6Q-4}	N	Y	
2. Is AC voltage as required? {120V 60Hz}		Y	N
ACTIONS:			
1. Replace piggyback power board {procedure Q20}.		1	
2. Replace power supply assembly (Procedure Q19).		2	
3. Connect A2P2 connector.	1		
4. Call next level of support.	9	3	2
5. Set P12 jumpers to the input voltage {see section 3 of this manual}.			1
6. Replace the control board {procedure Q18}.	2		
7. Replace the sector board {procedure Q18}.	3		
8. Replace the servo board †	4		
9. Replace the R/W/E board {procedure Q18}.	5		
10. Replace the data board {procedure Q18}.	6		
11. Replace the switch board † {procedure Q23}	7		
12. Replace the I/O board {procedure Q31}.	8		

†Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (continued)

Retract Operation — Sheet 3 of 18

ASSUMPTIONS:

1. Entry is made from sheet 1 of this table.
2. Customer complains that pressing on start switch to stop operation did not cause the carriage to retract or that the carriage retracts in the middle of operation.

ACTIONS:

1.	Replace preamp board †.	3
2.	Replace control board (Procedure Q18).	1
3.	Replace piggyback power board (procedure Q20).	2
4.	Check R/W head and disk surfaces if head crashed, replace damaged parts †	5
5.	Call next level of support.	6
6.	Inspect and clean the read/write heads (procedure Q2).	4

† Requires higher level of support.

TABLE 6-59 CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (continued)

Pack Lock Problem — Sheet 4 of 18

ASSUMPTIONS:

1. Entry is made from sheet 1, of this table.
2. The customer complains about Pack Lock problem.

CONDITIONS:	1	2	3	4
1. Set Breaker OFF. Do pack locks release?	N			Y
2. Set Breaker ON. Wait three minutes. Do pack locks release?	N	Y		
3. Push "START" switch. Do pack locks release?		Y	N	
ACTIONS:				
1. Adjust pack lock assembly †.	2	1		1
2. Check retract switch †.	1			
3. Replace control board (Procedure #18).	3	2		
4. Replace sector board †.	4	3		
5. Call next level of support.	5	4	X	2

† Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (continued)

Ready Problem — Sheet 5 of 15

ASSUMPTIONS:

1. Entry is made from sheet 11 and sheet 12 of this table.
2. Customer complains about READY problems.

CONDITIONS:	1	2	3
1. Is READY lamp illuminated after two minutes?	N	Y	
2. Is FAULT illuminated?		Y	N
ACTIONS:			
1. Adjust cartridge on switch (procedure Q26).	1		
2. Replace switch board †.	5		
3. Replace control board (Procedure Q18).	3		
4. Verify setting of SW1-7 on control board. (Refer to section 4 of this manual)		1	
5. Go to sheet 1 condition 6 of this table		2	
6. Call next level of support.	6		
7. Go to sheet 6 of this table.			X
8. Replace Preamp servo board.†	4		
9. Replace the cartridge on switch (procedure Q14).	2		

† Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (continued)

Diagnostic (CDD2) loading — Sheet 6 of 18

ASSUMPTIONS:

1. Level II monitor is loaded (Table 6-50)
2. Diskette or cassette containing CDD2 Diagnostic has been loaded.
3. Enter the following at the keyboard:
   CONTROL and BEL are pressed simultaneously.
   ODS, LOAD, CDD2 is typed in.
   CARRIAGE RETURN is pressed
4. Observe the CDT display for any of the following conditions.

CONDITIONS:	1	2	3	
1. Is CONSTANT INTERRUPT displayed?	Y	N		
2. Is CDD2 SUSPENDED LOAD displayed?		Y	N	
ACTIONS:				
1. Replace Cartridge Disk Drive Controller (procedure A30).	1			
2. Replace SMI board (procedure A23).	2			
3. Call next level of support.	3			
4. Go to sheet 7 of this table.		X		
5. Go to table 6-100.			X	

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (continued)

Diagnostic (CDD2) parameters and initialization	Sheet 7 of 8

ASSUMPTIONS:

1. Observe the location of the devices in the daisy chain. The first one is unit 0, the second is unit 1 and so on.
2. After observing unit number check that appropriate SD jumper is inserted according to the densities of the devices. Refer to section 4Q of this manual.
3. The internal drive switch positions are as described in section 4Q of this manual.

	1
ACTIONS: 1. Insert the following codes at action 2 below Unit 0 - CODE = 10 Unit 1 - CODE = 11 Unit 2 - CODE = 12 Unit 3 - CODE = 13	1
2. Enter the following information on the keyboard for choosing the desired device (using the unit code from above table in place of the blank): Press CONTROL and BEL simultaneously. Type in ODS, CPAR, CDD2, 9, _____ Press CARRIAGE RETURN	2
3. Enter the following at the keyboard: Press CONTROL and BEL simultaneously. Type in ODS, CPAR, CDD2, 1, 80 Press CARRIAGE RETURN	3
4. Enter the following at the keyboard: Press CONTROL and BEL simultaneously. Type in ODS, GO Press CARRIAGE RETURN	4
5. Go to sheet 8 of this table.	

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

Diagnostic (CDD2) testing				Sheet 8 of 12
ASSUMPTIONS: Entry is made from sheet 7.				
CONDITIONS:	1	2	3	4
1. Is the following displayed on CDT (after about one minute)? CDD SECTION 3 WAIT FOR UNITS TO BE READY CDD2 SUSPENDED SELF	Y	N		
2. Are there action codes displayed?		Y	N	
3. Is RUN indicator illuminated?			N	Y
ACTIONS:				
1. Go to sheet 9 of this table.	X			
2. Go to sheet 11 of this table.		X		
3. Go to table 6-100.			X	
4. Restart CDD test at sheet 6 of this table.				1
5. Call next level of support				2

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

ASSUMPTIONS:

1. The following is entered at the keyboard:
   CONTROL and BEL are pressed simultaneously.
   ODS, GO is typed in.
   CARRIAGE RETURN is pressed.

CONDITIONS:	1	2	3	4		
1. Are there action codes displayed?	Y	N				
2. Is the following displayed at the CDT? LESS THAN 2 UNITS ARE ON. TEST TERMINATES WITHOUT EXECUTION		Y	N			
3. Are there two READY units in the system?		Y	N			
4. Is the following displayed at the CDT? TURN ON. WRITE - PROTECT SWITCH CDD2 SUSPENDED SELF			Y	N		
ACTIONS:						
1. Go to sheet 11 of this table.	X					
2. Check that the units are connected in the correct manner. Unit select and seek complete switches in 1866 are as described in section 3 of this manual (first 1866 is unit Zero and seek complete Zero). Refer to section 40 of this manual.		1				
4. Go to sheet 10 of this table.			X			
5. Call next level of support.		2		X		

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

ASSUMPTIONS:

1. WRITE PROTECT switch is turned on.
2. The following is inserted at the keyboard:
   CONTROL and BEL are pressed simultaneously.
   ODS, GO is typed in.
   CARRIAGE RETURN is pressed.

CONDITIONS:	1	2	3	4	5	6	7
1. Are there action codes displayed?	Y	N					
2. Is the following displayed at the CDT? TURN OFF WRITE -PROTECT SWITCH CDD2 SUSPENDED SELF		Y			N		
3. WRITE PROTECT switch is turned off. GO is typed in. CARRIAGE RETURN is pressed. Is CDD2 TERMINATES Displayed on the CDT?		Y				N	
4. Are there action codes displayed?						N	Y
5. Is there another disk drive to be tested?		Y	N				
6. Is this a verification run?			Y	N			
ACTIONS:							
1. Go to sheet 11 of this table.	X						X
2. Go to table 6-100.					X	X	
3. Go to table 6-103.				X			
4. Restart CDD2 diagnostic test at sheet 1 of this table with another disk which is to be tested.		X					
5. Go to next device.			X				

TABLE 6-59. CARTIRDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

Diagnostic (CDD2) Testing (Ready Problems) Sheet 11 of 18

ASSUMPTIONS:

1. Entry is made from sheets 8, 9, and 10 of this table.
2. A failure has been detected. Observe the CDT display for any of the following action code.

CONDITIONS:	1	2	3	4	5	6
1. Is code 3531 or 3554 displayed?	Y			N		
2. Is READY lamp illuminated?	Y		N			
3. Is FAULT illuminated?	N	Y		Y		N
4. Is ESEC bit 14 of the error message 1 and no Fixed Disk option installed?				N	Y	
ACTIONS:						
1. Replace Cartridge Disk Drive controller board (Procedure 4130).	1	1		1		
2. Replace control board (Procedure 4118).	2			2		
3. Go to sheet 5 of this table.		2	X			
4. Go to sheet 12 of this table						X
5. Call next level of support.	3	3		7		
6. Replace R/W/E board (procedure 4118).				3		
7. Replace Data Recovery board (procedure 4118).				4		
8. Replace Sector board. †				5		
9. Replace Servo board. †				6		
10. Control and BEL are pressed simultaneously. If the device is double density, type in: ODS, CPAR, CDD2, B, 5BFC CARRIAGE RETURN is pressed If the device is single density, type in: ODS, CPAR, CDD2, B, 2DFD CARRIAGE RETURN is pressed Push on the FAULT RESET. CONTROL and BEL are pressed simultaneously Type in ODS, GO CARRIAGE RETURN is pressed					X	

† Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

ASSUMPTIONS:

1. Entry is made from sheet 11 of this table.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

CONDITIONS:	1	2	3	4	5	6
1. Is code 3515 or 3516 displayed?	Y	N				
2. Is code 3525 or 3526 displayed?		Y	N			
3. Is code 3534 displayed ?			Y	N		
4. Is code 3550 displayed?				Y		N
5. Is LSTQ in the error message equal to 705?				Y	N	
ACTIONS:						
1. Check that the CDD controller is properly seated and that the controller manual controls are properly positioned. (See section 4Q.)	1					
2. Verify that the units are connected in the correct manner (section 3 of this manual) and that 1866 internal switches are as described in section 4Q of this manual.				1		
3. Verify equipment number and interrupt line number (Procedure Q30).	2	1	1		1	
4. Replace Cartridge Disk Drive Controller, (Procedure Q30).	3	2	2	2	2	
5. Replace SMI board, slot L (Procedure A23)			3		3	
6. Replace I/O - TTY board, slot K (Procedure A23).	4		4		4	
7. Go to sheet 13 of this table.						X
8. Call next level of support.	5	3	5	7	5	
9. Replace I/O board (procedure Q31).				4		
10. Replace Servo board. †				5		
11. Replace Control board (procedure Q18).				6		
12. Check the Controller to disk drive cable. (Procedure Q35)				3		

† Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

Diagnostic (CDD2) Testing (Sheet 13 of 18)

ASSUMPTIONS:

1. Entry is made from sheet 12 of this table.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

CONDITIONS:	1	2	3
1. Is code 3530 displayed?	Y		N
2. Is ESEC bit 14 equal to 1? (Fixed Disk)	Y	N	
ACTIONS:			
1. Check to insure the disk pack is a model 848-29		1	
2. Replace Cartridge Disk Drive controller (Procedure #30).	1	2	
3. Replace sector board †.	2	3	
4. Replace I/O board (procedure #31).	3	4	
5. Replace sector ring (procedure #13).	4		
6. Replace Fixed disk index/sector transducer (Procedure #11).	6		
7. Replace Cartridge disk index/sector transducer †.		5	
8. Go to sheet 14 of this table.			X
9. Call next level of support.	7	6	
10. Preform the fixed disk index/sector transducer check and adjustment. (Procedure #29)	5		

† Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT {Continued}

Diagnostic (CDD2) Testing (seek problems) Sheet 14 of 15

ASSUMPTIONS:

1. Entry is made from sheet 1 or 13 of this table.
2. If entry was made from sheet 1, go to action 2 of this sheet.
3. A failure has been detected. Observe the CDT display for any of the following action codes.

CONDITIONS:	1	2	3	4	5	6	7
1. Is code 3533, 353A, 3540, 3552, 3553, 3582, or 3586 displayed?	Y	N					
2. Is code 3556 or 3584 displayed?		Y		N			
3. Is error on Cartridge Disk? (ESEC bit 14 is zero).		Y	N				
4. Is code 3538, 3544, or 3583 displayed?				Y	N		
5. Is code 3580 displayed?					Y	N	
6. Is code 3532 displayed?						Y	N
ACTIONS:							
1. Replace Cartridge Disk Drive controller board (Procedure Q30).	1	1	1	1	1	1	
2. Replace control board. (Procedure Q18).	3	4	4				
3. Replace servo board †.	2					2	
4. Replace preamp board.†	5						
5 Replace I/O board (Procedure Q31).	4	3	3			4	
6. Check alignment with C.E. disk †.		6					
7. Write addresses on the entire disk, by using the Diagnostic: Enter the following information on the keyboard. Press CONTROL and BEL simultaneously. Type in: ODS, CPAR, CDD2, 13, 8000 CARRIAGE RETURN is pressed. Press CONTROL and BEL simultaneously. Type in: ODS, CPAR, 3, 6000 CARRIAGE RETURN is pressed. Press CONTROL and BEL simultaneously. Type in: ODS, RSTRT CARRIAGE RETURN IS PRESSED. Restart the diagnostic at sheet 6 of this table.		7	7			5	
8. Replace fixed disk {Procedure Q10} and repeat action 7.†			8				
9. Replace Cartridge disk and repeat action 7.		9					
10. Replace R/W/E board and repeat action 7, {Procedure Q18}.		8	6			6	
11. Go to sheet 15 of this table.							X
12. Check that the units are connected in correct figuration & that the unit select and seek complete switches are as required. Refer to section 4Q of this manual.					2		
13. Restart the test for the other unit.					3		
14. Call next level of support	6	10	9	2	4	7	
15. Replace Data Recovery board {procedure Q18}.		5	5				
16. Replace Sector board.†						3	
17. Preform the cartridge disk inspection and cleaning {Procedure Q3}.		2					
18. Preform the fixed disk inspection and cleaning {procedure Q4}. Q4}.			2				

†Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

Diagnostic (CDD2) Testing (write protect problems)		Sheet 15 of 18
ASSUMPTIONS:		
1. Entry is made from sheet 14. 2. A failure has been detected. Observe the CDT display for any of the following action codes.		
CONDITIONS:	1	2
1. Are codes 3555, 3560 or 3581 displayed?	Y	N
ACTIONS:		
1. Check that the disk drive write protect switches are set as required by the CDT display and are in the correct position.	1	
2. Replace Cartridge Disk Drive controller board (Procedure 030).	2	
3. Replace control board, (procedure 018).	3	
4. Replace I/O board (procedure 031).	4	
5. Replace switch board †. (procedure 023).	5	
6. Go to sheet 16 of this table.		X
7. Call next level of support	6	
† Requires higher level of support.		

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

Diagnostic (CDD2) Testing (DMA Errors) Sheet 16 of 18

ASSUMPTIONS:

1. Entry is made from sheet 15.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

CONDITIONS:	1	2	3
1. Is code 3536, 3537, 3558 or 3573 displayed?	Y	N	
2. Is code 3541 displayed?		Y	N
ACTIONS:			
1. Replace Cartridge Disk Drive controller board (Procedure Q30)	1	1	
2. Replace MIF-A board (memory interface address) slot W (Procedure A25).	2	2	
3. Replace MIF-D board (memory interface data) slot V (Procedure A25)	3	3	
5. Replace Data receovery board (Procedure Q18).		4	
6. Replace Read/Write/Erase board (Procedure Q18).		5	
7. Replace control board (Procedure Q18).		6	
8. Replace I/O board (procedure Q31).		7	
9. Go to sheet 17 of this table.			X
10. Call next level of support.	4	8	

† Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT (Continued)

Diagnostic (CDD2) testing (Data problems) Sheet 17 of 18

ASSUMPTIONS:

1. Entry is made from sheet 16.
2. Observe the CDT display for any of the following action codes.

CONDITIONS:	1	2	3	4	5	6	7	8
1. Is code 3535 displayed?	Y		N					
2. Is code 3557 displayed?			Y			N		
3. Is FAULT illuminated?			Y	N				
4. Is code 3542 displayed?						Y	N	
5. Is code 3543, 3545, 3539 or 3585 displayed?							Y	N
6. Is there error on cartridge disk? (ESEC bit 14 is zero)	Y	N		Y	N			
ACTIONS:								
1. Replace Cartridge Disk Drive Controller. (Procedure Q30)	1	1	1	1	1	1	1	
2. Push FAULT RESET switch.			2					
3. Replace cartridge disk.	3			2				
4. Replace fixed disk. (Procedure Q10)		3			2			
5. Replace Data Recovery board. (Procedure Q18)	4	4	3	3	3			
6. Replace Read/Write/Erase board. (Procedure Q18)	5	5	4	4	4			
7. Replace I/O board (procedure Q31).	6	6		5	5			
8. Replace Control board. (Procedure Q18)	7	7		6	6			
9. Replace R/W head according to bit 14 and bit 15 of ESEC: † 00 - replace head 0 10 - replace head 1 01 - replace head 2 11 - replace head 3	9	9		8	8			
10. Replace MIF-D (Memory Interface Data) board, slot V (Procedure A25)						2		
11. Replace MIF-A (Memory Interface Address) board, slot W, (Procedure A25)						3		
12. Go to sheet 18 of this table.								x
13. Replace Sector board. †			5					
14. Call next level of support.	10	10	6	9	9	4	2	
15. Perform the cartridge disk inspection, and cleaning (procedure Q3).	2							
16. Perform the fixed disk inspection and cleaning (procedure Q4).		2						
17. Perform Upper head inspection and cleaning (procedure Q2).	8	8		7	7			

†Requires higher level of support.

TABLE 6-59. CDD2: CARTRIDGE DISK DRIVE SUBSYSTEM DDLT {Continued}

Diagnostic (CDD2) Testing (Bus Relinquish Problems) Sheet 18 of 18

ASSUMPTIONS:

1. Entry is made from sheet 17.
2. A failure has been detected. Observe the CDT display for any of the following action codes.

CONDITIONS:	1	2	3
1. Is code 3551 displayed?	Y		N
ACTIONS:			
1. Check if SW4-4 and SW4-5 on the disk drive I/O board are in OFF position. {Refer to section 4G of this manual.}	1		
2. Replace Cartridge Disk Drive controller board {procedure Q30.}.	2		
3. Restart Diagnostic CDD2 testing at sheet 16 of this table.	3		
4. Call next level of support.	4		X

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TABLE 6-60 CLACD: 1X8 CHANNEL COMMUNICATIONS LINE ADAPTER TO CONVERSATIONAL DISPLAY TERMINAL DIAGNOSTIC DDLT

ASSUMPTIONS

1. Entry is made from table 6-50 or 6-62.

2. The correct software media has been selected. Three (3) versions of the 8 channel CLA exist in the field. Two (2) versions of the ODS diagnostic exist. Refer to the table below to determine which ODS media to use.

HARDWARE-SOFTWARE REFERENCE TABLE

8 CH. CLA P/N	ODS DISKETTE		ODS CASSETTE	
	ITOS 1.1	ITOS 1.2	ITOS 1.1	ITOS 1.2
96740200	96860080	Not Used	96860320	Not Used
967510 27/96752189	96860080	96860081	96860320	96860321
96752122	96860080	96860081	96860320	96860321

NOTE: ODS Media P/N 96860080 and P/N 96860320 will not support baud rates greater than 4800.

3. ODS 2.0 (cassette or flexible disk) that contains CLACD is loaded as in table 6-50.

4. The port number (0 through F) that the CDT is connected to has been determined.' (This can be accomplished by following the CDT cable (96740282) from the CDT, back to the cable adapter paddle board. The channel number is clearly visible on the connector side of the paddle board.) See figure 6N-2 and table 6N-2 in Vol. 3 of this manual.

5. The 1X8 CH. CLA is configured for equipment code 10, (Section 4N-1).
Note: Two 8 Ch. CLA's may share the same equipment code and be used as a 16 channel device (refer to the MOS Installation Manual 9 6768360). However, two or more 8 Ch. CLA's may be installed with unique equipment codes and parameter changes must be made to test CLA's not configured for equipment code 10. Refer to procedure A28.

6. The baud rate switches in the CDT and on the 1X8 CH. CLA select the same baud rate. (Section 4L and 4N).

7. The CDT is selected for even parity (section 4L).

8. The test patterns on sheet 2 of this table are used for references for sections 1, 2, and 3 of this test. Follow the instructions given with test pattern 3 when section 3 of this test is running.

9. The following is entered at the keyboard:

CONTROL and BEL are pressed simultaneously.
ODS, LOAD, CLACD is typed in.
CARRIAGE RETURN is pressed.
CLACD SUSPENDED LOAD is returned on the console display.
CONTROL and BEL are pressed simultaneously.
ODS, CPAR, CLACD, D, X is typed in (where "x" is the port number the CDT is connected to).
CARRIAGE RETURN is pressed.
CONTROL and BEL are pressed simultaneously.
ODS, GO is typed in.
CARRIAGE RETURN is pressed.

10. Observe the system console display for the following conditions.

TABLE 6-60 CLACD 1 x 8 CHANNEL COMMUNICATIONS LINE ADAPTER TO CONVERSATIONAL DISPLAY DEVICE

CONDITIONS:	1	2	3	4	5	6	7	8	9
1. Is CLACD EXECUTING displayed?	Y							N	
2. Are TEST PATTERNS 1, 2, and 3 displayed on the CDT?		Y			N				
3. Is CLACD TERMINATED displayed?		Y	N						
4. Is action code 31xx displayed? {Wait a minimum of 80 seconds.}			Y	N		Y	N		
5. Is the RUN indicator illuminated?				Y	N		Y	N	
ACTIONS:									
1. Restart sheet 1 of this table at assumption 2 to test the next CDT or go to the next equipment to be tested if all CDT's have been tested.	X								
2. Reload and restart test at the beginning of this table.			1		2				
3. Go to table 6-100.				X			X	X	
4. Check signal cabling {Procedure N4}					1	1			
5. Go to table 6-52 and test both the transmit and receive section of the channel the CDT under test is connected to.		1			3	2			
6. Run the CDT off line tests. {Go to table CRT1 of Keyboard Display Terminal Hardware and Maintenance Manual 62957400 and perform the specified tests and checks.					4	3			
7. Call the next level of support.		2	2		5	4			

TABLE 6-60. CLACD

Printout Analysis of CDT	Diagnostic	Sheet 3 of 3

```
BEGIN SECTION 1 - CLACD
          1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./0
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./01
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./012
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./0123
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./01234
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./012345
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)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./012345678
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./0123456789
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^  !"#$%&'()*+,-./0123456789:
BEGIN SECTION 2 - CLACD
          1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890

HHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
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 BEGIN SECTION 3 - CLACD


INPUT UP TO 80 CHARACTERS AND A (CR).
>
```

TABLE 6-61: CLAMP 1X8 CHANNEL COMMUNICATIONS LINE ADAPTER TO MATRIX PRINTER DIAGNOSTIC DDLT

ASSUMPTIONS:

1. Entry is made from table 6-50 or 6-62.

2. The correct software media has been selected. Three (3) versions of the 8 channel CLA exist in the field. Two (2) versions of the ODS diagnostics exist. Refer to the table below to determine which ODS media to use.

HARDWARE-SOFTWARE REFERENCE TABLE

8 CH. CLA P/N	ODS DISKETTE		ODS CASSETTE	
	ITOS 1.1	ITOS 1.2	ITOS 1.1	ITOS 1.2
96740200	96860080	Not Used	96860320	Not Used
96751027/96752189	96860080	96860081	96860320	96860321
96752122	96860080	96860081	96860320	96860321

NOTE: ODS Media P/N 96860080 and P/N 96860320 will not support baud rates greater than 4800.

3. The port number (0 through F) that the printer is connected to has been determined. (This can be accomplished by following the printer cable (96740284) from the printer, back to the cable adapter paddle board. The channel number is clearly visible on the connector side of the paddle board.) See figure 6N-2 and Table 6N-2 in Vol. 3 of this manual.

4. The 1 X 8 CH. CLA is configured for equipment code 10, and the channel the printer is connected to is set for half-duplex (section 4N).
NOTE: Two 8 CH. CLA's may share the same equipment code and be used as a 16 channel device (refer to the MOS Installation Manual 96768360). However, two or more 8 CH. CLA's may be installed with unique equipment codes and parameter changes must be made to test CLA's not configured for equipment code 10. Refer to proc. A28.

6. The printer is selected for even parity and 7 data bits (section 4P).

7. The printer is loaded with paper and the START PRINT switch is illuminated (section 2P-1).

8. The test pattern on sheet 2 of this table is used as a reference for sections 1, 2, 3, and 4 of this test.

9. The following is entered at the keyboard:

CONTROL and BEL are pressed simultaneously.
ODS,LOAD, CLAMP is typed in.
CARRIAGE RETURN is pressed.

CLAMP SUSPENDED LOAD is returned on the console display.

CONTROL and BEL are pressed simultaneously.
ODS, CPAR, CLAMP, D, X, is typed in (where "X" is the port number the printer is connected to).
CARRIAGE RETURN is pressed.
CONTROL and BEL are pressed simultaneously.
ODS, GO is typed in.
CARRIAGE RETURN is pressed.

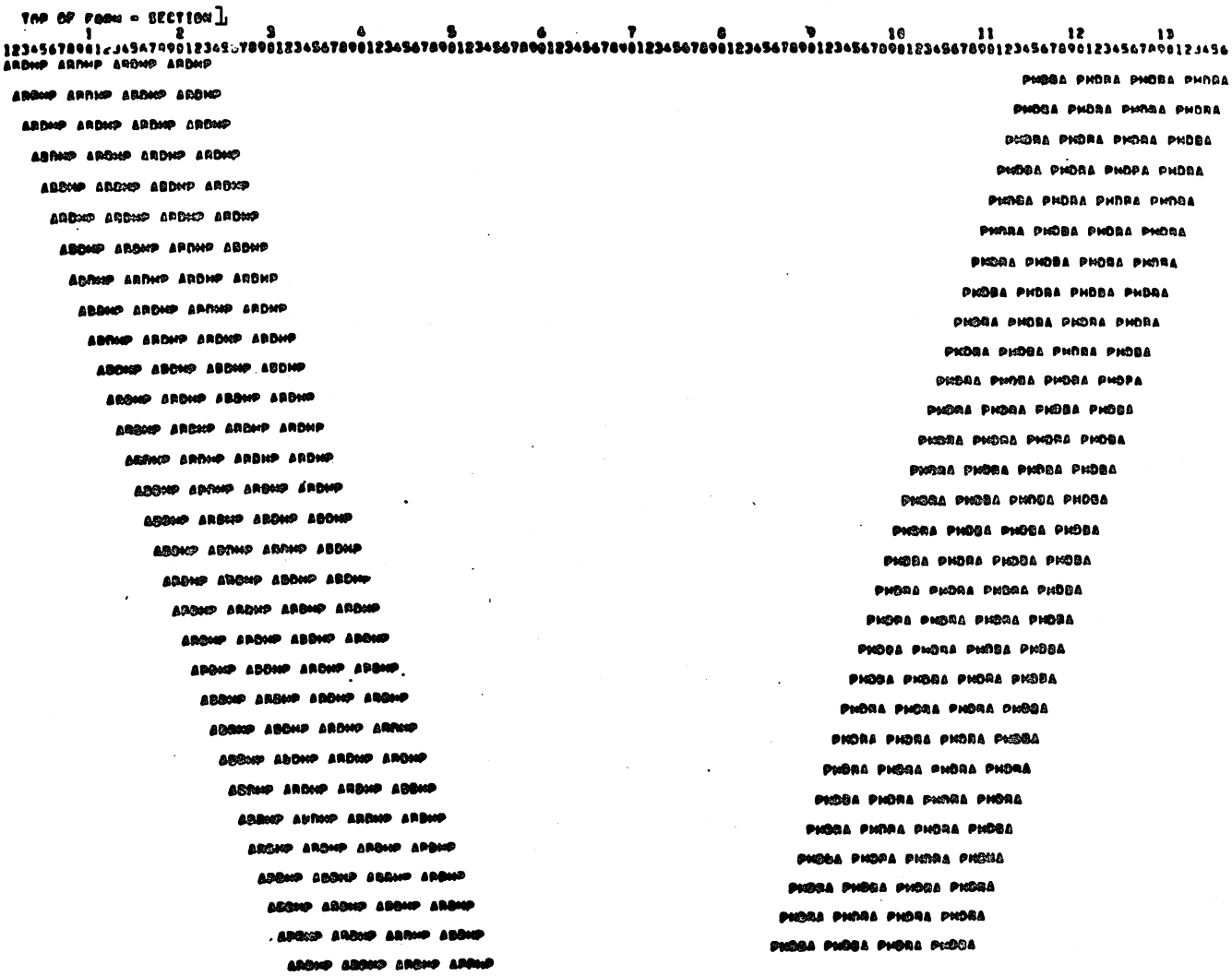
10. Observe the system console display for the following conditions.

TABLE 6-61 CLAMP 1 x 8 CHANNEL COMMUNICATIONS LINE ADAPTER TO MATRIX PRINTER DIAGNOSTIC DDLT

CONDITIONS:	1	2	3	4	5	6	7	8	
1. Is CLAMP executing?	Y							N	
2. Are TEST PATTERNS 1, 2, 3 and 4 printed on the printer?		Y			N				
3. Is CLAMP TERMINATED displayed?		Y	N						
4. Is action code 30xx displayed? {Wait a minimum of 80 seconds.}			Y	N	Y	N			
5. Is the RUN indicator illuminated?				Y	N		Y	N	
ACTIONS:									
1. Restart sheet 1 of this table at assumption 2 to test the next printer or go to the next equipment to be tested if all printers have been tested.	X								
2. Reload and restart test at the beginning of this table.			1		2				
3. Go to table 6-100.				X			X	X	
4. Check signal cabling. {Refer to Procedure N4}.					1	1			
5. Go to table 6-62 and test both the transmit and receive section of the channel the printer under test is connected to.		1			3	2			
6. Go to the CDC Matrix Printer Equipment CT104A field service and reference manual {CDC 95445028} section 6- Fault Isolation and perform the specified tests and checks.					4	3			
7. Replace the RS-232 interface board in the printer {procedure 6P-1}.					5	4			
8. Call the next level of support		2	2		6	5			

TABLE 6- 61 PRINTER DDLT (Contd)

Printout Analysis of Printer Diagnostic Sheet 3 of 3

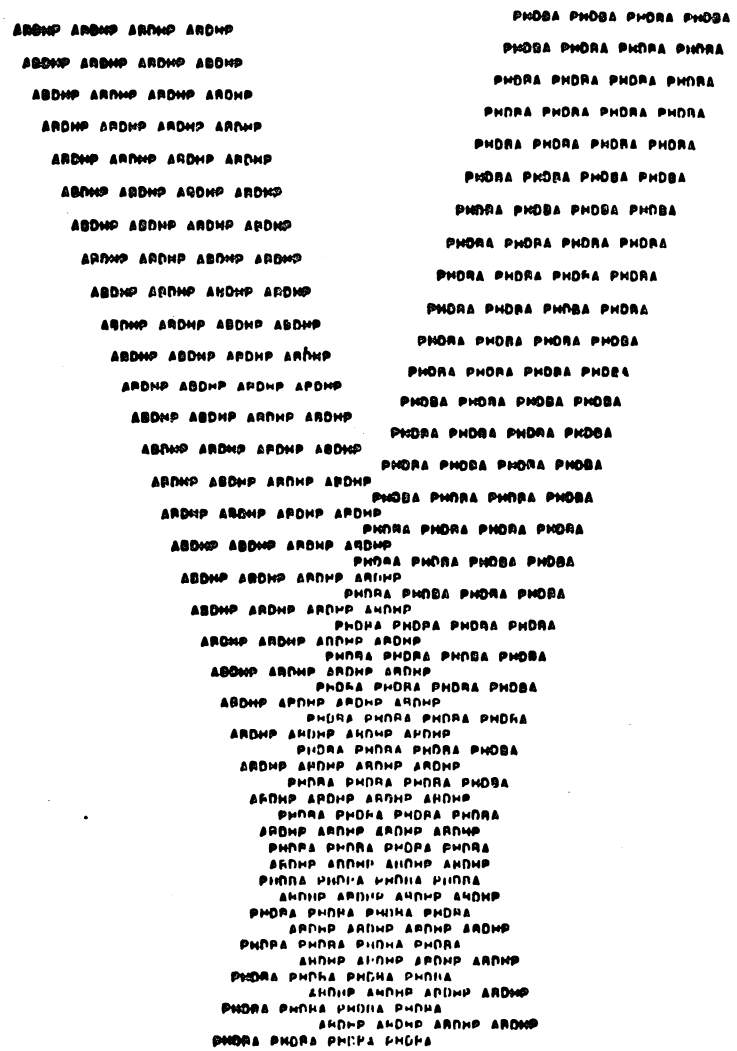


Sample Form — Condition 1

Continued on next page

TABLE 6-61 PRINTER DDLT (Contd)

Printout Analysis of Printer Diagnostic Sheet 3 of 3(Cont)

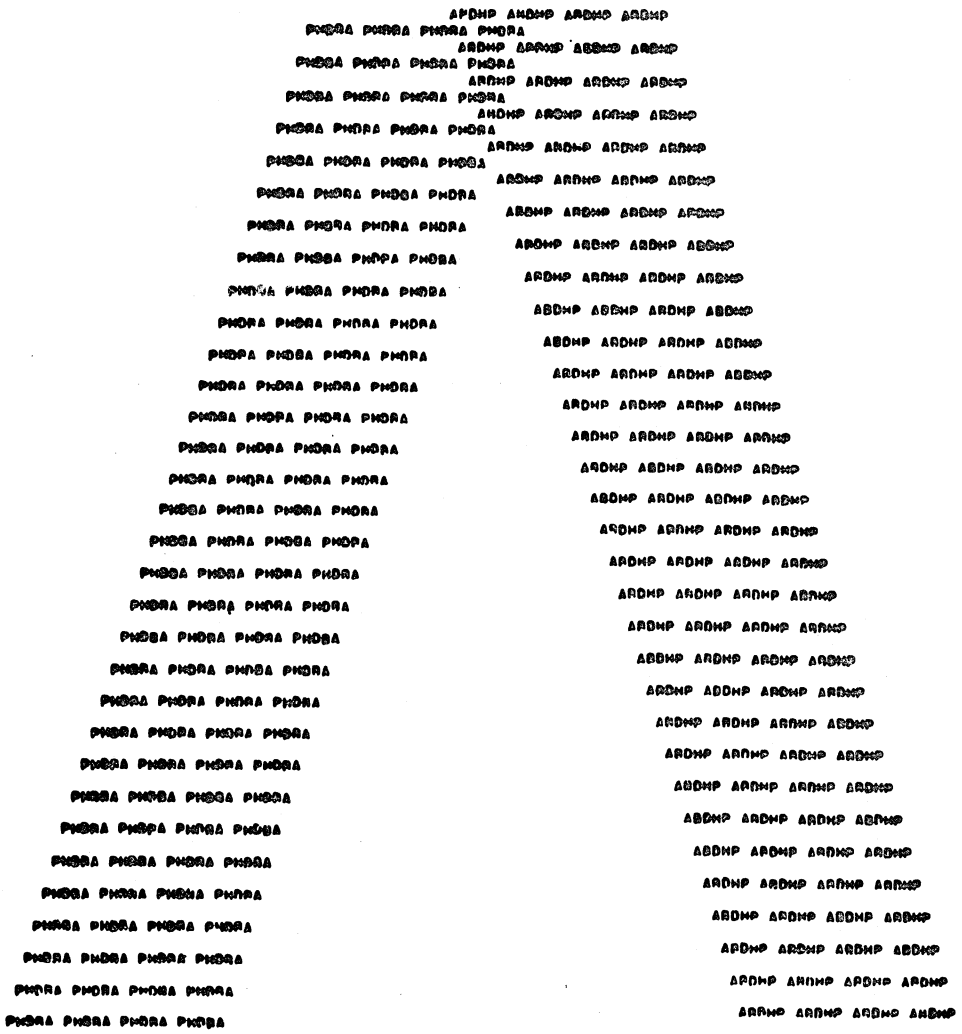


Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-61 PRINTER DDLT (Contd)

Printout Analysis of Printer Diagnostic — Sheet 3 of 3 (Contd)

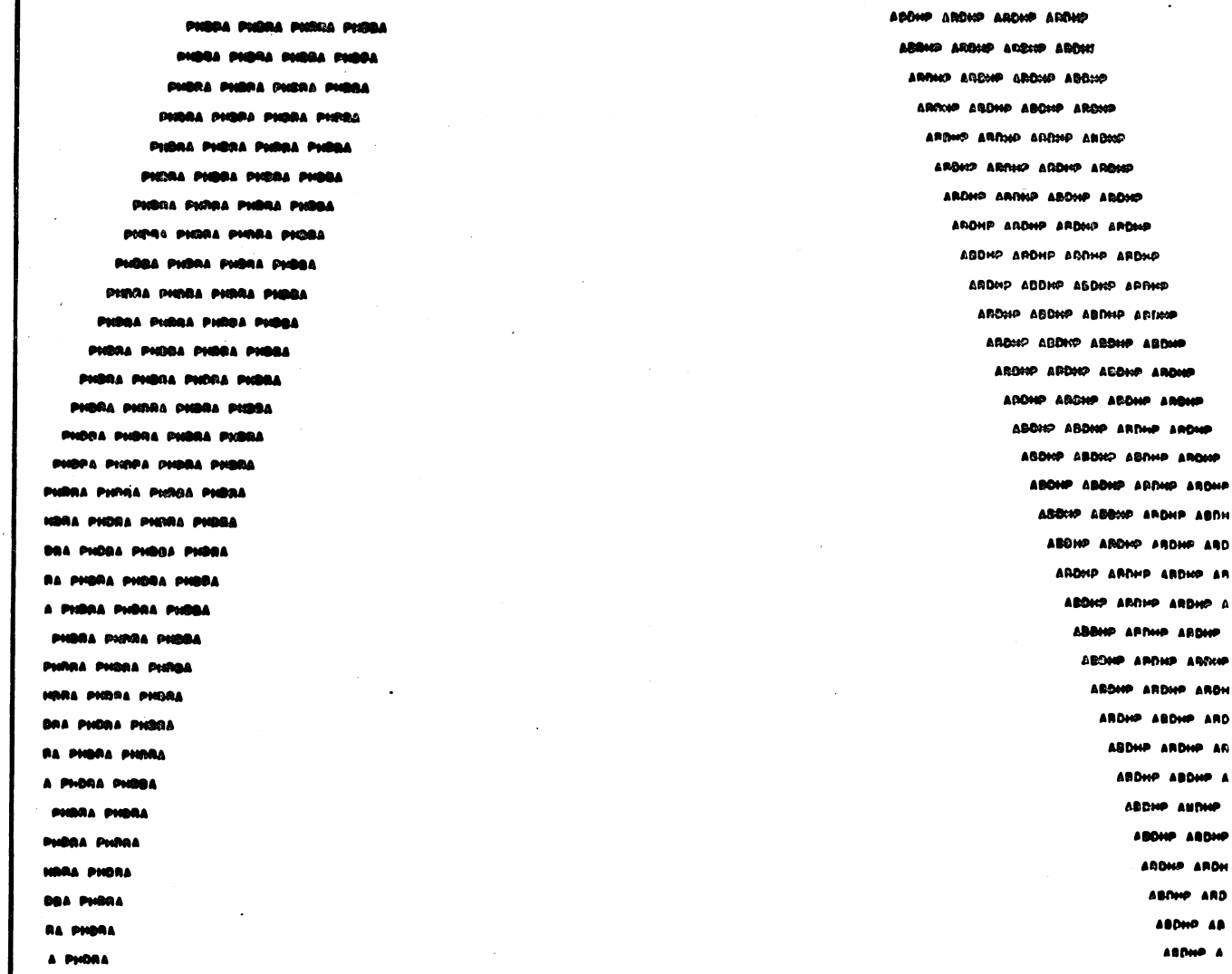


Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-61 PRINTER DDLT {Contd}

Printout Analysis of Printer Diagnostic — Sheet 3 of 3{Cont}



Sample Form — Condition 1 (Continued)

Continued on next page

TABLE 6-61 PRINTER DDLT (Contd)

Printout Analysis of Printer Diagnostic	Sheet 3 of 3 (Cont)
PHDBA	ABDHP
PHDBA	ABDHP
HDBA	ABDH
DBA	ABD
BA	AB
A	A

Sample Form — Condition 1 (Continued)

Continued on next page

TOP OF FORM - SECTION 2
VERTICAL TAB NEXT

VERTICAL TAB DONE

SINGLE SPACE NEXT
SINGLE SPACE NEXT
DOUBLE SPACE NEXT

DOUBLE SPACE NEXT

1234 SUPPRESS SPACE 1234

TABLE 6-61 PRINTER DDLT {Contd}

Printout Analysis of Printer Diagnostic

Sheet 3 of 3 {Contd}

TOP OF FORM - SECTION 3

TOP OF FORM - SECTION 4

TABLE 6-62 CLA8L: 1 X 8 CHANNEL COMMUNICATIONS LINE ADAPTER
LOOP BACK DIAGNOSTIC DDLT

ASSUMPTIONS:

1. Entry is made from table 6-50, 6-60, or 6-61.

2. The correct software media has been selected. Three (3) versions of the 8 channel CLA exist in the field. Two (2) versions of the ODS diagnostic exist. Refer to the table below to determine which ODS media to use.

HARDWARE-SOFTWARE REFERENCE TABLE

8 CH. CLA P/N	ODS DISKETTE		ODS CASSETTE	
	ITOS 1.1	ITOS 1.2	ITOS 1.1	ITOS 1.2
96740200	96860080	Not Used	96860320	Not Used
96751027/96752189	96860080	96860081	96860320	96860321
96752122	96860080	96860081	96860320	96860321

NOTE: ODS Media P/N 96860080 and P/N 96860320 will not support baud rates greater than 4800.

3. One pass of this diagnostic tests the transmit side and the receive side of the two ports the loop back cable is installed on only. To test subsequent ports, restart this sheet.

4. The 1 X 8 CH. CLA loop back cable (96750678) is installed between ports X and Y (where "X" and "Y" are any two ports).
(Procedure 6N-3.) NOTE: X cannot equal Y.

5. The 1X8 CH. CLA is configured for equipment code 10. The channel function switches are set for full duplex, and the baud rate switches are set the same for the ports being tested (Section 4N-1).

NOTE: Two 8 CH. CLA's may share the same equipment code and be used as a 16 channel device (refer to the MOS Installation Manual 96768360). However, two or more 8 CH. CLA's may be installed with unique equipment codes and parameter changes must be made to test CLA's not configured for equipment code 10. Refer to procedure A28.

6. The following is entered at the keyboard:

CONTROL and BEL are pressed simultaneously.
ODS, LOAD, CLA8L is typed in.
CARRIAGE RETURN is pressed.

CLA SUSPENDED LOAD is returned on the console display.

CONTROL and BELL are pressed simultaneously.

ODS, CPAR, CLA8L, B, XY YX is typed in (where X and Y are the same two ports listed in assumption 4 above. Ref. Table 6N-2 for 16 channel to port conversion.

CARRIAGE RETURN is pressed.
CONTROL and BEL are pressed simultaneously.
ODS, GO is typed in.
CARRIAGE RETURN is pressed.

7. Observe the console display for the following conditions:

TABLE 6-62 1 x 8 CHANNEL COMMUNICATIONS LINE ADAPTER
LOOP BACK DIAGNOSTIC DDLT

Sheet 2 of 2

	1	2	3	4	5	.	.	.	.
CONDITIONS:									
1. Is CLA8L EXECUTING displayed?	Y				N				
2. Is CLA8L TERMINATED displayed?	Y	N							
3. Is action code 3Bxx displayed? {Wait a minimum of 80 seconds.}		Y	N						
4. Is the RUN indicator illuminated?			Y	N					
ACTIONS:									
1. Repeat this table until all channels that need to be tested have been tested. If the channels that are to be tested have been tested, go on to the next equipment to be tested. If entry to this table was made from an action in table 6-60 or 6-61, return to the exited table and continue testing.	X								
2. Reload and restart test at beginning of this table.		1	1						
3. Go to table 6-100.				X	X				
4. Check loop back cable for correctposition. {Procedure N3}.		2							
5. Check CLA switch settings {Refer to Section 4N-1}		3							
6. Replace loop back cable. {Procedure N3}		4							
7. Replace 1 x 8 CH. CLA. {Procedure N1}		5							
8. Replace Cable adapter Paddle Board. {Procedure N2}		6							
9. Call the next level of support.		7	2						

TABLE 6-100. LOADER FAULT DDLT

ASSUMPTIONS:

1. The following is typed in at the keyboard:

   ESC
   J11G KG

2. Observe CDT display for any of the following conditions. Where an x appears in the action code, the x may be 1, 3, 5, or 7.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9
1. KxEFE OR KxEFA or KxEFC	Y	N							
2. KxEF2 or KxEF4 or KxF0E or KxF0A		Y	N						
3. KxF0C or KxEF0 or KxF08 or KxF00 or KxF02 or KxF04 or KxF06			Y	N					
4. KxEF6				Y	N				
5. KxEF8					Y	N			
6. KxEFA						Y	N		
7. KxEEE							Y	N	
8. KxEEC								Y	N
ACTIONS:									
1. Go to sheet 2 of this table.									X
2. Press @ on keyboard. Use another diskette or cassette {same program}, if available.	1								
3. Inspect cassette for obvious problems, tears, cracks, etc.	2								
4. Press RUN.	3								
5. Replace I/O-TTY, slot K.	4	1	1	1	1				
6. Replace FDD controller, slot E, {pro. D25}' or cassette controller, slot E (procedure H5).	5	2	2	2	2				
7. Replace transform, slot R.		3	3						
8. Replace ALU, slot M.		4	4						
9. Replace memory, slot X.	6	5	5						

Continued on next page

TABLE 6-100. LOADER FAULT DDLT (Contd)

Sheet 1 of 2 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9
10. Replace memory, slot Y.	7	6	6						
11. Replace memory interface, slot V.	8	7	7						
12. Replace memory interface, slot W.	9	8	8						
13. Replace SMI, slot L.		9	9	3	3				
14. Go to table 6-53 if FDD is the load device. Go to table 6-52 if cassette is load device.	10								
15. Call the next level of support.		10	10	4	4				
16. This is a normal completion by the loader if the load device was not loaded and ready for input. If at this point it is desirable to level a diagnostic, load the load device, make ready, and press RUN.						X			
17. The end-of-library has been found and identified by two successive file marks found.							X		
18. There was not an end-of-file found at the end of program. Use another card deck or cassette.								X	

TABLE 6-100. LOADER FAULT DDLT (Contd)

ASSUMPTIONS:

1. The following is typed in at the keyboard:

   J14G
   KG

2. Observe CDT display for any of the following conditions.

CONDITIONS: Does the CDT display:	1	2	3	4	5	6	7	8	9	10	11	12
1. K0007	Y	N										
2. K0008		Y	N									
3. K0009			Y	N								
4. K000A or K000B				Y	N							
5. K000C					Y	N						
6. K000D						Y	N					
7. K000E or K000F							Y	N				
8. K0010								Y	N			
9. K0011									Y	N		
10. K0012 or K0013 or K0014										Y	N	
11. K0015 through K001C											Y	N
ACTIONS:												
1. Go to table 6-101.												X
2. Use another diskette or cassette (same program) if available.				1	1					1		
3. Replace I/O-TTY, slot K.	2					4	1	2	2	2	1	
4. Replace FDD controller, slot E (procedure A15) or cassette controller, slot E.						5	2	3	3	3	2	
5. Replace transform, slot R.		3									3	
6. Replace ALU, slot M.											4	

Continued on next page

TABLE 6-100. LOADER FAULT DDLT (Contd)

Sheet 2 of 2 (Contd)

ACTIONS (Continued):	1	2	3	4	5	6	7	8	9	10	11	12
7. Replace memory, slot X. (Power down micro processor.)		5	1								5	
8. Replace memory, slot Y. (Power down micro processor.)			2								6	
9. Replace memory interface, slot V.		1	3								7	
10. Replace memory interface, slot W.		2	4								8	
11. Replace SMI, slot L.	1	4				6	3	4	4	4	9	
12. Make diskette or cassette ready.						1						
13. Check diagnostic diskette or cassette for obvious damage.						2						
14. Clear stacker full condition (card reader only).						3						
15. Go to table 6-102 if load device is card reader.						7	4	5	5	5		
16. Load diskette or cassette and make ready. Check that end-of-file card was read after last test terminated. If end-of-file card was not read, load one in card reader. Press RUN.								1				
17. If READ CHECK indicator on card reader is illuminated, go to table 6-51.									1			
18. Call next level of support.	3	6	5	2	2	8	5	6	6	6	10	

TABLE 6-101. SYSTEM FAILURE DDLT

Sheet 1 of 1

ASSUMPTIONS:

1. This DDLT satisfies system fault isolation and eliminates failure where peripheral controller faults occur in loading the computer.
2. After each board replacement, restart at table 6-3.

CONDITIONS:	1	2	3	4
1. Is load device a flexible disk?	Y	N		
2. Is load device a cassette?		Y	N	
3. Is load device a card reader?			Y	N
ACTIONS:				
1. Replace card reader/line printer or CR/LP/CLA controller, slot J	3	3	1	4
2. Replace cassette controller, slot E	4	1	3	5
3. Replace flexible disk controller, slot E	1	4	4	6
4. Replace communications line adapter board, slot F	2	2	2	3
5. Replace magnetic tape controller, slot AB	5	5	6	1
6. Replace SMD controller, (Procedure J26)	6	6	5	2
7. Replace CDD controller, slot H	7	7	7	7
8. Replace PELCTT controller, slot G	8	8	8	8
9. Replace 8 ch. CLA, slot F	9	9	9	9
10. Go to table 6-53	11			
11. Go to table 6-52		10		
12. Replace flexible disk drive (Procedure K9)	10			
13. Go to table 6-51			10	
14. Call next level of support				10

TABLE 6-102. CARD READER AUTOLOAD FAULT DDLT

ASSUMPTIONS:

Entry is from table 6-3.

CONDITIONS:	1	2	3
1. Did card reader motors come on?	Y		N
2. Is READ CHECK at card reader illuminated?	N	Y	
ACTIONS:			
1. Check card-reader-to-processor cable connection (figures 5D-2 or 5D-6).	1		1
2. Clean the card reader (procedure D19). Check for broken or bent springs; check to see if the feed plate is operational and if the read head is seated properly.	2		2
3. Use another card deck and rerun test.	3	1	
4. Adjust read lamp, if available: a. Place card reader off line (procedure D4). b. Do procedure D11, step 11. c. Place card reader on line.	4		
5. Replace card reader data board (procedure D12).	5		4
6. Replace card reader control board (procedure D13).	6		3
7. Go to table 6-51.		2	6
8. Replace card reader amplifier board (procedure D11).	7		5
9. Go to table 6-101.	8		

TABLE 6-103. VERIFICATION SEQUENCE DDLT

Sheet 1 of 1		
CONDITIONS:	1	2
1. Is a verification to be run on the system?	Y	N
ACTIONS:		
1. Go to table 6-3 and begin verification run.	X	
2. Testing is complete. Call your boss.		X

COMMENT SHEET

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