ACCEPTANCE

1. GENERAL

Before transfer of ownership, acceptance activities are performed following the installation of the AT&T 3B20D computer equipment in a new office. These acceptance tasks will assist an office in making an acceptance decision with confidence that the equipment was manufactured and installed properly and meets the design intent. Acceptance of the 3B20D computer usually is a part of and is included with a larger application system.

These procedures must be performed in sequence as the step-by-step instructions indicate. Any deviation will invalidate system responses.

These activities consist of verifying the operator interface, visual inspections, power and alarm checks, and diagnostic tests. A recommended sequence is shown in LIST 1.

2. ASSUMPTIONS

(a) Any trouble encountered during the performance of these procedures is referred to the installation team for resolution.

(b) All test equipment is functioning properly.

(c) The terminal and printer, upon completion of acceptance tests, are considered test equipment.

(d) The operator is familiar with terminal operations to include mode changing, page manipulation, and message conventions.

(e) Audible alarms are retired without instruction.

3. SUPPORTING DOCUMENTS

- SD-4C053 - AC and DC Power Distribution
- SD-4C065 - Port Switch Unit Circuit
- SD-4C097 - Main Store IOP Growth Circuit
- SD-4C098 - Central Processing Unit Circuit
- SD-4C099 - Main Store, Input-Output, and DFC Circuit
- SD-4C101 - Input-Output Processor Basic Unit Circuit
- SD-4C102 - Power Distribution Unit Circuit
- SD-4C119 - Processor Cabinet
- SD-4C126 - Tape/Disk Cabinet
- SD-4C127 - Processor System Circuit
- SD-82518 - Power Distribution Bay Circuit

- Tape Drive Manufacturer's Manuals
- Disk Drive Manufacturer's Manuals
- Input Message Manual for Application
- Output Message Manual for Application

4. ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this TOP volume.

ACO	Alarm cutoff	EOT	End of tape	PC	Processor cabinet
ACO/T	Alarm cutoff and test	ESC	Escape (key)	PDF	Power distribution frame
ACT	Active	EXT	Extend	PH	Phase
ALM	Alarm			PORTSW	Port switch
ALT	Alternate	FANALM	Fan alarm	PREV	Previous
ATP	All tests passed	FF	Filter fuse	PRM	Processor recovery message
				PSSU	Port switch subunit
BOT	Beginning of tape	Hz	Hertz	PSU	Port switch unit
				Pwr	Power
CAP	Capacitor	I/O	Input/output		
CC	Central control	IOP	Input/output processor	RCVY	Recovery
CE	Customer engineer			RDY	Ready
CH	Channel	LDPARM	Load parameter	REF	Refresh
CHG	Charge	LED	Light emitting diode	REPT	Report
CKT	Circuit	LF	Line feed	RMV	Remove
CMD	Command	LPI	Lines per inch	ROP	Receive-only printer
COMPL	Complete			ROS	Request out of service
CONT	Controller	MASC	Main store controller	RQIP	Request in progress
CPI	Character per inch	MB	Megabyte	RST	Restore
CR	Carriage return	MHD	Moving head disk		
CSU	Cache store unit	MOR	Manual override	SA	Starting address
CU	Control unit	MSG	Message	SCSI	Small computer system interface
Ctrl	Control (key)	MT	Magnetic tape	STBY	Standby
		MTC	Magnetic tape controller	SW	Switch
DEX	Demand exercise	MTTY	Maintenance terminal		
DFC	Disk file controller			T/D	Tape/disk cabinet
DFSA	Disk file system access	NUM	Number	TLP	Trouble location program
DGN	Diagnostics				
DISP	Display	OOS	Out of service	UNAV	Unavailable
DSR	Data set ready	OP	Output		
DUP	Disk unit package			VFY	Verify
		PAT	Pattern	VLMM	Very large main memory
EA	Emergency action	PC	Peripheral community	Vac	Volts alternating current
EA	Ending address	PC	Peripheral controller	Vdc	Volts direct current

LIST 1 — ACCEPTANCE SEQUENCE

ACCEPT OPERATOR INTERFACE

DO THE ITEMS BELOW IN THE ORDER LISTED	FOR DETAILS, GO TO
1. Inspect Terminal	DLP-500
2. Check KS-23554 Terminal Options	DLP-578
3. Inspect Display Pages	DLP-508
4. Inspect Model 444 Printer	DLP-579
5. Check Model 444 Printer Options	DLP-580
6. Perform Model 444 Printer Self-Tests	DLP-581
7. Test Port Switch Unit	DLP-513
8. Test Terminal Port Switch Subunit (PSSU)	DLP-514
9. Test Printer PSSU	DLP-514
10. Inspect Model 615 Terminal	DLP-576

ACCEPT PROCESSOR CABINET

DO THE ITEMS BELOW IN THE ORDER LISTED	FOR DETAILS, GO TO
1. **Note:** Terminal common systems displays should indicate all units active (ACT) and one control unit (CU) standby before starting this procedure	
2. Obtain digital multimeter	
3. If Not Active, Make CU 1 Active. Type **SW:CU;**	
4. At CU 0, Check CU 0 Light Emitting Diodes (LEDs)	DLP-521
5. Remove CU 0 From Service Via Power Switch	DLP-515
6. Remove Power From CU 0	DLP-517
7. At Disk File Controller (DFC) 0, Check DFC 0 LEDs	DLP-521
8. Remove DFC 0 From Service Via Power Switch	DLP-515
9. Remove Power From DFC 0	DLP-517
10. At Input/Output Processor (IOP) 0, Check IOP 0 LEDs	DLP-521
11. If Necessary, Configure Application Equipment to Permit Removal of IOP 0 From Service	
12. Remove IOP 0 From Service Via Power Switch	DLP-515
13. Remove Power From IOP 0	DLP-517
14. Inspect Processor Cabinet Bay 0	DLP-526
15. Inspect Bay 0 for Physical Integrity	DLP-527
16. Restore Power to IOP 0	DLP-519
17. Restore Power to CU 0	DLP-519
18. Restore Power to DFC 0	DLP-519
19. Restore IOP 0 to Service Via Power Switch	DLP-516
20. Test CU 0 Power Switch Fuse Alarm	DLP-523
21. Restore Power to CU 0	DLP-519
22. Test CU Power Unit Alarms	DLP-524
23. Restore Power to CU 0	DLP-519
24. Restore CU 0 to Standby Via Power Switch	DLP-516
25. Test Cooling Unit Alarms	DLP-522

ACCEPT POWER CABINET

DO THE ITEMS BELOW IN THE ORDER LISTED	FOR DETAILS, GO TO
1. **DANGER: -48 Vdc and 208 Vac present in this cabinet.**	
2. Inspect Power Cabinet	DLP-571
3. Check Power Cabinet Fuses	DLP-572
4. Test Power Cabinet Alarms	DLP-541
5. Test Power Distribution Filter Alarm	DLP-542
6. Test **CAP CHG** Circuit	DLP-532
7. Charge Filter Capacitor	DLP-540

INSPECT TERMINAL

SUMMARY: Remove power and check for loose or damaged connections. Restore power.

1. On base unit, set terminal **POWER** switch to the **0** position (off).
2. Inspect terminal external cabling for any loose or damaged connections.
3. Was cabling damaged or were loose connections found.

   If **YES**, then continue to Step **4**.

   If **NO**, then do Step **5**.
4. Tighten loose connections and replace damaged cables.
5. Verify that data cable is securely attached to Serial Port 1 (leftmost cable connector as viewed from the rear).
6. Set terminal **POWER** switch to the **1** position (on).
7. Operate **NORM DISP** key.
8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE**

INSPECT DISPLAY PAGES

SUMMARY: Verify that each display page can be accessed.

1. Operate **NORM DISP** key.
2. If not in command mode, operate **CMD/MSG** key.

   Response: Cursor on line 4.
3. Type commands listed in Figure 1 and others listed on the page index for your application; verify corresponding page is displayed.
4. Was each page displayed?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

Command	Page Displayed
100	PAGE INDEX
101	STATUS SUMMARY AREA
102	COMMON PROCESSOR DISPLAY
103	C/D UPDATE
104	OPERATING SYSTEM STATUS PAGE
105	CRAFT FM 01
106	CRAFT FM 01
107	SYSTEM UPDATE
109	FIELD UPDATE
110	DISK FILE SYSTEM ACCESS INDEX
120	DISK FILE SYSTEM ACCESS
121	DFSA PERFORMANCE

Figure 1

TEST PORT SWITCH UNIT (PSU)

SUMMARY: Enter **SW:PORTSW** message to toggle port switch subunit (PSSU) LEDs.

1. See Figure 1. At port switch in processor bay 0, verify each PSSU **1-0-AUTO** switch is in **AUTO** position.
2. Note which LED **0** or **1** is lighted on each PSSU.
3. At terminal, type: **SW:PORTSW;**
   Responses:

   EMERGENCY ACTION page displayed.

   SW PORTSW COMPLETED FOR ROP message received.

   SW PORTSW COMPLETED FOR MTTY message received.

   REPT TERMINAL IN SERVICE message received.
4. Did terminal and printer PSSU LEDs change state?

   If YES, STOP. YOU HAVE COMPLETED THIS PROCEDURE.

   If NO, then refer fault to installation team.

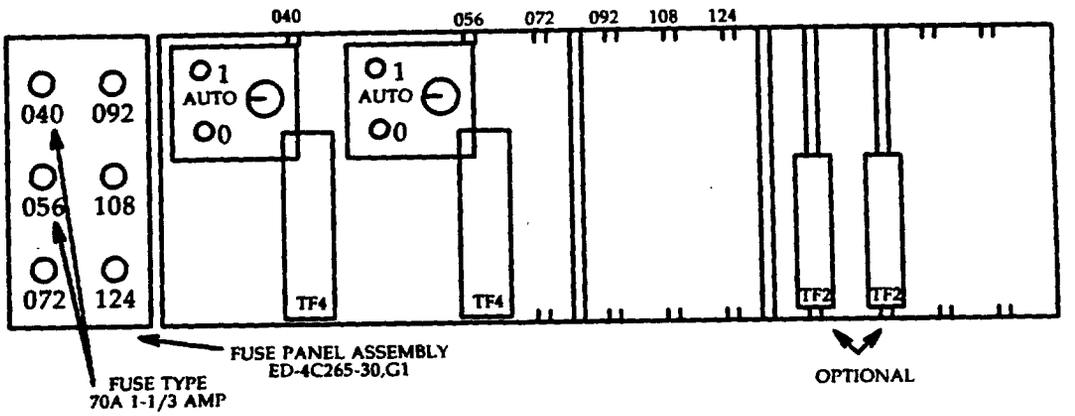


Figure 1

TEST PORT SWITCH SUBUNIT (PSSU)

SUMMARY: Verify **1-0-AUTO** switch is in **AUTO** position. Operate to **1** and then to **0** positions and verify respective LEDs light. Restore **1-0-AUTO** switch to **AUTO** position.

1. At port switch, verify **1-0-AUTO** switch is in the **AUTO** position.
2. Operate **1-0-AUTO** switch to **1**.
3. Did PSSU 1 LED light?

   If **YES**, then continue to Step **4**.

   If **NO**, then **refer fault to installation team.**
4. Operate **1-0-AUTO** switch to **0**.
5. Did PSSU 0 LED light?

   If **YES**, then continue to Step **6**.

   If **NO**, then **refer fault to installation team.**
6. Operate **1-0-AUTO** switch to **AUTO**.
7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

REMOVE UNIT FROM SERVICE VIA POWER SWITCH

1. At unit power switch located per Figure 1, operate **ROS/RST** switch to **ROS** position and wait for **RMV COMPLETED** messages.

   NOTE: Subunits removed from service before unit **RMV COMPLETED** message received (no subunit messages with CU).

2. Responses:

   RMV COMPLETED message received. (Message prevented if associated IOP is out of service.)

   Unit label indicates **OOS** or **OOS MAN**.

   OOS and **ROS** LEDs lighted.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Unit	Power Switch	Cabinet
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0/SCSI DFC 0	TN3B/TN6B	PC Bay 0
DFC 1/SCSI DFC 1	TN3B/TN6B	PC Bay 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
340-MB MHD (a)	ED-4C481	Tape/Disk 0
340-MB MHD (b)	ED-4C481	Tape/Disk 1
SCSI MHD (c)	CGG1	SCSI Disk 0
SCSI MHD (d)	CGG1	SCSI Disk 1

(a) MHD 0, 1, 2, and 3.
(b) MHD 4 through 12.
(c) SCSI MHD 0 through 15.
(d) SCSI MHD 16 through 31.

Figure 1

RESTORE UNIT TO SERVICE VIA POWER SWITCH

1. At unit power switch located per Figure 1, operate **ROS/RST** switch to **RST** position and wait for **RST COMPLETED** messages.

   NOTE: All subunits and unit diagnosed before restored to service (no restore subunit messages with CU).

2. Responses:

   RST COMPLETED message received. (Unit restoral message prevented if associated IOP is out of service.)

   Unit label indicates **ACT** (CU goes to **STBY**).

   OOS and **RQIP** LEDs off.

3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Unit	Power Switch	Cabinet
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0/SCSI DFC 0	TN3B/TN6B	PC Bay 0
DFC 1/SCSI DFC 1	TN3B/TN6B	PC Bay 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
340-MB MHD (a)	ED-4C481	Tape/Disk 0
340-MB MHD (b)	ED-4C481	Tape/Disk 1
SCSI MHD (c)	CGG1	SCSI Disk 0
SCSI MHD (d)	CGG1	SCSI Disk 1

(a) MHD 0, 1, 2, and 3.
(b) MHD 4 through 12.
(c) SCSI MHD 0 through 15.
(d) SCSI MHD 16 through 31.

Figure 1

REMOVE POWER FROM UNIT

1. If power is being removed from a 340-MB MHD, release **START** switch and wait for lamp to go steady off.
2. At unit power switch located per Figure 1, operate **OFF** switch.
3. Responses:

   REPT POWER REMOVED or **REPT UNAVAILABLE** message received. (Message prevented if associated IOP is out of service.)

   Unit label indicates **OOS** or **UNAV**.

   At unit power switch, **OFF** LED lighted.
4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Unit	Power Switch	Cabinet
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0/SCSI DFC 0	TN3B/TN6B	PC Bay 0
DFC 1/SCSI DFC 1	TN3B/TN6B	PC Bay 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
340-MB MHD (a)	ED-4C481	Tape/Disk 0
340-MB MHD (b)	ED-4C481	Tape/Disk 1
SCSI MHD (c)	CGG1	SCSI Disk 0
SCSI MHD (d)	CGG1	SCSI Disk 1

(a) MHD 0, 1, 2, and 3.
(b) MHD 4 through 12.
(c) SCSI MHD 0 through 15.
(d) SCSI MHD 16 through 31.

Figure 1

RESTORE POWER TO UNIT

1. At unit power switch located per Figure 1, operate **ON** switch.
2. Responses:

   REPT POWER RESTORED or **REPT OUT OF SERVICE** message received. (Message prevented if associated IOP is out of service.)

   Unit label indicates **OOS** or **OOS MAN**.

   At unit power switch, **OOS** LED lighted.
3. If unit is 340-MB MHD, depress **START** key.
4. Response:

   START lamp lighted steady in 30 seconds.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Unit	Power Switch	Cabinet
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0/SCSI DFC 0	TN3B/TN6B	PC Bay 0
DFC 1/SCSI DFC 1	TN3B/TN6B	PC Bay 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
340-MB MHD (a)	ED-4C481	Tape/Disk 0
340-MB MHD (b)	ED-4C481	Tape/Disk 1
SCSI MHD (c)	CGG1	SCSI Disk 0
SCSI MHD (d)	CGG1	SCSI Disk 1

(a) MHD 0, 1, 2, and 3.
(b) MHD 4 through 12.
(c) SCSI MHD 0 through 15.
(d) SCSI MHD 16 through 31.

Figure 1

DIAGNOSE UNIT

1. Locate unit in Figure 1.
2. Type input message indicated for unit.

   Note: Output message received when all subunits are removed from service and diagnosed.

3. Does output message indicate **ATP MSG COMPL?**

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE**

   If **NO**, then **refer fault to installation team.**

Unit	Input Message
CU	DGN:CU=a;RAW,DEX;
DFC	DGN:DFC=a;RAW,DEX:DATA,CONT;
IOP	DGN:IOP=a;RAW,DEX:DATA,CONT;
MHD	DGN:MHD=b;RAW,DEX;
a = 0 or 1 b = MHD number	

Figure 1

CHECK LIGHT EMITTING DIODES (LEDs)

1. Locate unit power switch in Figure 1.

Unit	Power Switch	Cabinet
CU 0	TN5B	PC Bay 0
CU 1	TN5B	PC Bay 1
DFC 0/SCSI DFC 0	TN3B/TN6B	PC Bay 0
DFC 1/SCSI DFC 1	TN3B/TN6B	PC Bay 1
IOP 0	TN6B	PC Bay 0
IOP 1	TN6B	PC Bay 1
340-MB MHD (a)	ED-4C481	Tape/Disk 0
340-MB MHD (b)	ED-4C481	Tape/Disk 1
SCSI MHD (c)	CGG1	SCSI Disk 0
SCSI MHD (d)	CGG1	SCSI Disk 1

(a) MHD 0, 1, 2, and 3.
(b) MHD 4 through 12.
(c) SCSI MHD 0 through 15.
(d) SCSI MHD 16 through 31.

Figure 1

2. Operate **ACO/T** switch.
3. Are all power switch LEDs lighted?

   If **YES**, then continue to Step **4**.

   If **NO**, then **refer fault to installation team.**
4. Is **TN5B** power switch being tested?

   If **YES**, then continue to Step **5**.

   If **NO**, then do Step **6**.
5. Are all **TN10** LEDs lighted and does **STATUS** indicate **B**?

   If **YES**, then continue to Step **6**

   If **NO**, then **refer fault to installation team.**
6. Is **IOP TN6B** power switch being tested?

   If **YES**, then continue to Step **7**.

   If **NO**, then do Step **8**.
7. Are both LEDs lighted on all **TN9** circuit packs?

   If **YES**, then continue to Step **8**.

   If **NO**, then **refer fault to installation team.**
8. Return **ACO/T** switch to normal.
9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE**

TEST COOLING UNIT ALARMS

SUMMARY: At out-of-service processor, check for **SINGLE FAN FAILURE** output message. Check for **MULTIPLE FAN FAILURE** by replacing mate fan fuse with tripped fuse. Verify LEDs. Replace fuses.

1. At processor bay x, replace fuse **021-013-1** with tripped fuse.

   where: x = 0 or 1.

2. Check responses.

   FAN A LED lighted.

   REPT SINGLE FAN FAILURE message received.

3. Were responses obtained?

   If **YES**, then do Step **4**.

   If **NO**, then **refer fault to installation team.**

4. Replace fuse **021-017-1** with tripped fuse.

5. Check responses.

   FAN B LED lighted.

   REPT MULTIPLE FAN FAILURE message received.

6. Were responses obtained?

   If **YES**, then do Step **7**.

   If **NO**, then **refer fault to installation team.**

7. Replace both tripped fuses with good fuses.

8. At cooling unit, depress **ON/RESET** switch.

9. Is **REPT MULTIPLE FAN ALARM CLEARED** message received and are **FAN A** and **B** LEDs off?

   If **YES**, then do Step **12**.

   If **NO**, then continue to Step **10**.

10. At terminal, type: **RESET:FANALM CU=a;**

    where: a = 0 or 1.

11. Is **REPT MULTIPLE FAN ALARM CLEARED** message received and are **FAN A** and **B** LEDs off?

    If **YES**; wait 10 seconds (LEDs may relight); then continue to Step **12**.

    If **NO**, then **refer fault to installation team.**

12. Have other fan tray alarms (fuses **021-106-1** and **021-110-1**) been tested?

    If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

    If **NO**, then continue to Step **13.**

13. Substitute **021-106-1** for **021-013-1** and **021-110-1** for **021-017-1** and repeat procedure.

TEST POWER SWITCH FUSE ALARM

1. At processor bay x, for unit being tested, remove and immediately replace fuse indicated in Figure 1.

   where x = 0 or 1.

Unit	Bay	Fuse
CU 0	0	059-168-005
CU 1	1	059-168-005
DFC 0	0	049-008T-014
DFC 1	1	049-008T-014
IOP 0	0	030-169T-005
IOP 1	1	030-169T-005

Figure 1

2. Are **OFF** LEDs lighted on respective **495FA** or **494GA** power units?

   If **YES**, then continue to Step **3**.

   If **NO**, then **refer fault to installation team.**

3. Is **REPT POWER REMOVED** or **REPT UNAVAILABLE** message received?

   If **YES**, then continue to Step **4**.

   If **NO**, then **refer fault to installation team.**

4. Is input/output processor power switch being tested?

   If **YES**, then continue to Step **5**.

   If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

5. Is **POWER ALARM** LED lighted on **TN9** power units?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

TEST POWER UNIT ALARMS

SUMMARY: Unlatch power unit and verify indicators and output message for unit being tested.

1. Unlatch and unseat power unit for first item of designated unit in Figure 1.

Designated Unit	Item	Power Unit	Cabinet Location
CU	1	495FA - A	056 - 016
	2	495FA - B	056 - 178
	3	495FA - D	047 - 178
	4	495FA - G	029 - 016
	5	495FA - F	038 - 178
DFC	1	495FA - C	047 - 016
IOP	1	495FA - H	029 - 178
	2	494GA - J	029 - 024
	3(a)	495FA - E	038 - 016
(a) IOP growth unit.			

Figure 1

2. Is IOP growth unit being tested?

   If YES, then continue to Step **3**.

   If NO, then do Step **4**.

3. Is **ALM** LED lighted on unit power switch (TN6B)?

   If YES, then do Step **5**.

   If NO, then **relatch power unit and refer fault to installation team.**

4. Are **ALM** and **OFF** LEDs lighted on unit power switch.

   If YES, then do Step **5**.

   If NO, then **relatch power unit and refer fault to installation team.**

5. Is **REPT FAULT** or **REPT POWER REMOVED** or **REPT UNAVAILABLE** message received?

   If YES, then continue to Step **6**.

   If NO, then **relatch power unit and refer fault to installation team.**

6. Is IOP being tested?

   If YES, then continue to Step **7**.

   If NO, then do Step **8**.

7. Are **POWER ALARM** and **OOS** LEDs lighted on **TN9** power units as shown in Figure 2?

   If YES, then do Step **8**.

   If NO, then **relatch power unit and refer fault to installation team**

Unlatched IOP Power Unit	Lighted TN9 LEDs on							
	PC 0 029-032		PC 1 029-072		PC 2 038-024		PC 3 038-056	
	ALM	OOS	ALM	OOS	ALM	OOS	ALM	OOS
495FA - H 029-178	X		X		X		X	
494GA - J 029-024			X	X				
495FA - E 038-016					X	X	X	X
PC = peripheral community								

Figure 2

8. Relatch power unit unseated in Step **1**.
9. Have all items for this designated unit been tested?

   If YES, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If NO, then continue to Step **10**.

10. Restore power to tested unit.

    Reference: Procedure **DLP-519**

11. Now repeat from Step **1**.

TEST POWER UNITS

SUMMARY: Using digital multimeter, measure output voltage on faceplate of each power unit.

1. Using digital multimeter, measure voltage at test jacks on faceplate of first item in Figure 1.

Item	Power Unit	Cabinet Location
1	495FA-A	056-016
2	495FA-B	056-178
3	495FA-D	056-178
4(a)	495FA-F	038-178
5	495FA-C	047-016
6	495FA-G	029-016
7	495FA-H	029-178
8	494GA-J	029-024
9	495FA-E	038-016
(a) May not be equipped.		

Figure 1

2. Does measurement between +5V (+) and (–) indicate between +4.9 and +5.1 volts?

   If YES, then do Step **3**.

   If NO, then **refer fault to installation team.**

3. Is **494GA** power unit being tested?

   If YES, then continue to Step **4**.

   If NO, then do Step **5**.

4. Does measurement between –5V (–) and (+) indicate between –5.1 and –4.9 volts?

   If YES, then do Step **5**.

   If NO, then **refer fault to installation team.**

5. Have all items been tested?

   If YES, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If NO, then continue to Step **6**.

6. Repeat procedure for next item in Figure 1.

INSPECT PROCESSOR BAY 0 OR 1

SUMMARY: Visually inspect for apparatus, circuit packs, and fuses.

1. **DANGER: -48V present in this cabinet.**
2. At processor bay, verify that units and apparatus are installed per Figure 1.
3. Verify fuse ratings per Figure 2.
4. Verify central processing unit circuit packs for your office are inserted as listed in Figure 3. Use Figure 4 when the office is equipped with the very large main memory (VLMM) feature.
5. Verify main store, input/output, and DFC circuit packs for your office are inserted as listed in Figure 5. Use Figure 6 when the office is equipped with the small computer system interface (SCSI) disk file controller (DFC) and the VLMM features.
6. Verify main store and input/output processor growth unit circuit packs for office configuration are inserted as listed in Figure 7.
7. Verify input/output processor basic unit circuit packs for office configuration are inserted as listed in Figure 8.
8. Verify cooling units and port switch unit are installed per Figure 9 and Figure 10 respectively.
9. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

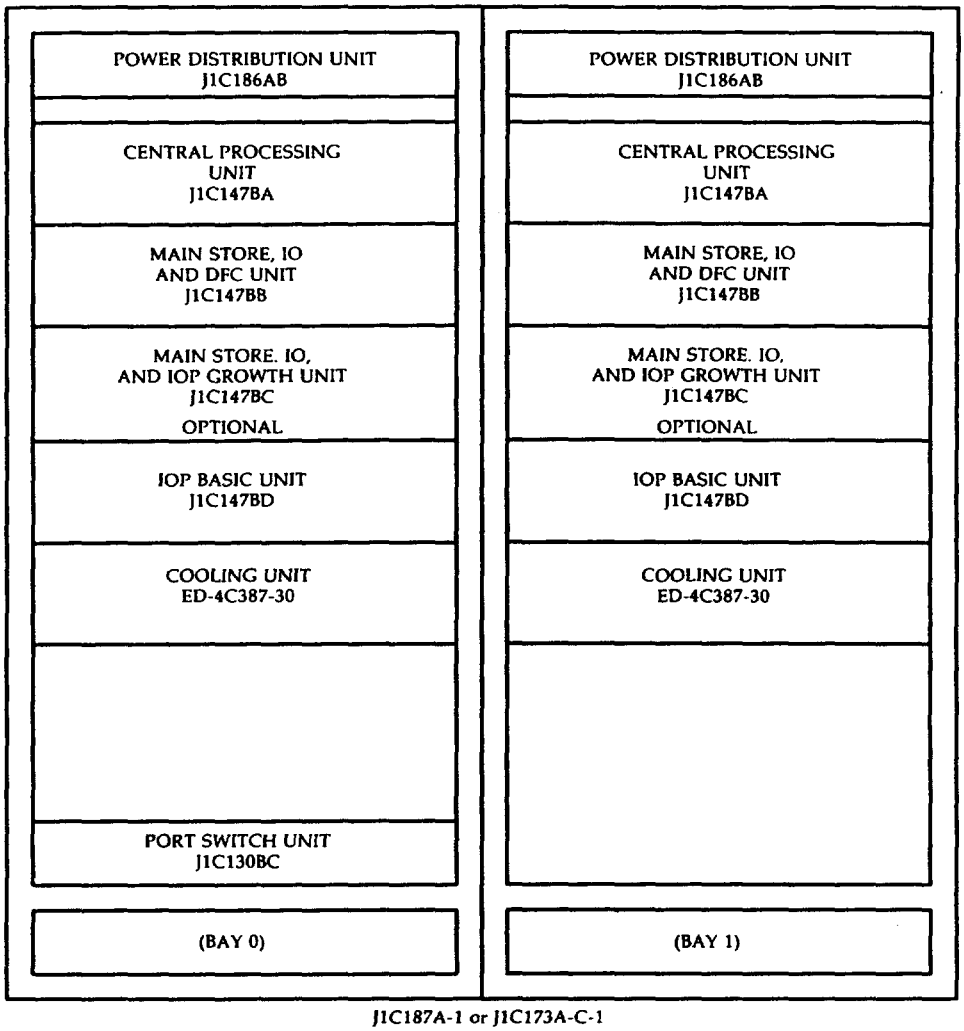


Figure 1. Processor Cabinet

(Left Fuse Block)

021-013-1 70B/72A (Fan 1)	021-021-1 72A/70B (Fan logic 3)
021-017-1 70B/72A (Fan 2)	021-114-1 72A/70B (Fan logic 2)
021-106-1 70B/72A (Fan 3)	048-008-004 74D/70F (Pwr unit C)
021-110-1 70B/72A (Fan 4)	049-008T-014 72A/70C (DFC TN3B)

(Center Fuse Block)

057-008T-005 70F/74D (Pwr unit A)	039-175-003 74D/70F (Pwr unit F)
057-176T-005 70F/74D (Pwr unit B)	030-013-005 74D/70F (Pwr unit G)
059-168-005 70F/74D (CU TN5B)	Spare
048-175-004 70F/74D (Pwr unit D)	Spare

(Right Fuse Block)

039-008T-004 70F/74D (Pwr unit E)	030-007T-005 74B/70F (494GA Power unit)
040-008T-012 70F/74B (PC 3 TN9)	030-175T-005 74D/70F (Pwr unit H)
041-008T-020 70F/74B (PC 2 TN9)	030-169T-005 72B/70C (IOP TN6B)
032-007T-022 70F/74B (PC 1 TN9)	031-007T-014 74B/70F (PC 0 TN9)

Figure 2. Fuse Assignments

Location	Unit	Title	Notes
016	495FA	Power Unit A	
020	Vacant		
028	UN22C	Maintenance Channel	
036	UN28B	Programmable Microstore (MC4C150A1)	May have MC4C077A1
042	UN248	16K Writable Microstore	Optional UN48B
050	Vacant		Void with UN248 in slot 042
058	Vacant		Void with UN248 in slot 042
066	UN135	Microstore Controller (MC4C153A1)	
072	UN1C	Data Manipulation Unit 0	
078	UN23C	Data Manipulation Unit 1	
084	UN2B	Special Register 0	
092	UN3B	Special Register 1	
098	UN6B	Store Data Control	
104	UN43D	Store Address Controller	May have UN43C
110	UN45B	Store Address Translator	May have UN45C
118	UN21	Utility Circuit	Optional
124	UN10C	Cache Control	
130	UN10C	Cache Control	
138	UN11C	Cache Memory	
146	UN133B	Main Store Update Unit	
154	TN10	Emergency Action Interface	
162	TN5B	Control Unit Power Switch	
178	495FA	Power Unit B	

Figure 3. Central Processing Unit (SD-4C098-01)

Location	Unit	Title	Notes
016	495FA	Power Unit A	
020	Vacant		
028	UN22C	Maintenance Channel	
036	UN28B	Programmable Microstore (MC3T003A1)	
042	UN248	16K Writable Microstore	Optional UN48B
050	Vacant		Void with UN248
058	Vacant		Void with UN248 in slot 042
066	UN135	Microstore Controller (MC4C153A1)	
072	UN608	Data Manipulation Unit 0	
078	UN609	Data Manipulation Unit 1	
084	UN2B	Special Register 0	
092	UN3C	Special Register 1	
098	UN6B	Store Data Control	
104	UN611	Store Address Controller	
110	UN612	Store Address Translator	
118	UN615	Utility Circuit	Optional
124	UN616	Cache Control	
130	UN616	Cache Control	
138	UN617	Cache Memory	
146	UN133C	Main Store Update Unit	
154	TN10	Emergency Action Interface	
162	TN5B	Control Unit Power Switch	
178	495FA	Power Unit B	

Figure 4. Central Processing Unit (SD-4C098-01) With Very Large Main Memory Feature

Location	Unit	Title	Notes
016	495FA	Power Unit C	
022	Vacant		
028	TN19	Microcontrol Store A (MC4C061B1)	
034	TN19	Microcontrol Store B (MC4C061B1)	
040	Vacant		
044	UN55	Disk File Controller Interface	
052	TN70B	Bus Interface Controller	
058	TN69B	Dual Duplex Serial Bus Selector	
064	UN64	Peripheral Disk Interface	
074	TN3B	Power Control Switch	
080	UN9B	Dual Serial Channel (11)	
088	UN46	Direct Memory Access Controller 0	
096	UN46	Direct Memory Access Controller 1	Optional
104	UN9B	Dual Serial Channel (12)	Optional
112	UN59C	Main Store Controller	
120	TN56	Main Store Array (07)	Optional
126	TN56	Main Store Array (06)	Optional
132	TN56	Main Store Array (05)	Optional
138	TN56	Main Store Array (04)	Optional
144	TN56	Main Store Array (03)	Optional
150	TN56	Main Store Array (02)	
156	TN56	Main Store Array (01)	
162	TN56	Main Store Array (00)	
178	495FA	Power Unit D	

Figure 5. Main Store, I/O, and DFC (SD-4C099-01)

Location	Unit	Title	Notes
016	495FA	Power Unit C	
024	TN6B	Power Control Switch	
030	TN69B	Dual Duplex Serial Bus Selector	
036	TN294	SCSI Host Adapter 1 (MC3T051A1)	
044	TN2116	SCSI Host Adapter 2 (MC3T052A1)	
052	Vacant		
058	Vacant		
064	Vacant		
074	Vacant		
080	UN9B	Dual Serial Channel (11)	
088	UN46	Direct Memory Access Controller 0	
096	UN46	Direct Memory Access Controller 1	Optional
104	UN9B	Dual Serial Channel (12)	Optional
112	UN618	Main Store Controller	
120	TN2012	Main Store Array (07)	Optional
126	TN2012	Main Store Array (06)	Optional
132	TN2012	Main Store Array (05)	Optional
138	TN2012	Main Store Array (04)	Optional
144	TN2012	Main Store Array (03)	Optional
150	TN2012	Main Store Array (02)	
156	TN2012	Main Store Array (01)	
162	TN2012	Main Store Array (00)	
178	495FA	Power Unit D	

Figure 6. Main Store, I/O, and SCSI DFC (SD-4C099-01) With Very Large Main Memory Feature

Location	Unit	Title	Notes
016	495FA	Power Unit E	
024	TN9	Power Converter 3	
028			Job engineered PC33
034			Job engineered PC32
040			Job engineered PC31
046			Job engineered PC30
056	TN9	Power Converter 2	
062			Job engineered PC23
068			Job engineered PC22
074			Job engineered PC21
080			Job engineered PC20
088			Job engineered
096			Job engineered
104			Job engineered
112			Job engineered
120	TN56*	Main Store Array (08)	Optional
126	TN56*	Main Store Array (09)	Optional
132	TN56*	Main Store Array (10)	Optional
138	TN56*	Main Store Array (11)	Optional
144	TN56*	Main Store Array (12)	Optional
150	TN56*	Main Store Array (13)	Optional
156	TN56*	Main Store Array (14)	Optional
162	TN56*	Main Store Array (15)	Optional
178	495FA	Power Unit F	
* May have TN2012 with VLMM feature			

Figure 7. Main Store, I/O, and IOP Growth Unit (SD-4C097-01)

Location	Unit	Title	Notes
016	495FA	Power Unit G	Not used
024	494GA	Power Unit J	
032	TN9	Power Converter 1	
038			Job engineered PC13
046			Job engineered PC12
054			Job engineered PC11
062			Job engineered PC10
072	TN9	Power Converter 0	
078	UN145B	Dual Density Tape Controller (MC4C160A1B)	
086	TN4B	Asynchronous Data Link Controller (MC4C011A1B)	
094	UN33B	Scanner Signal Distributor	
102	TN983	Maintenance TTY Controller (MC4C132A1E)	
110	UN25B	Input/Output Microprocessor Interface	
118			Job engineered
126	TN61B	Peripheral Interface Controller	
132	TN84B	Micro Control Store (MC4C151A1)	
138			Job engineered
144	Vacant		
148	TN70B	Bus Interface Controller	
154	TN69B	Dual Duplex Serial Bus Selector	
162	TN6B	IOP Power Switch	
178	495FA	Power Unit H	

Figure 8. Input/Output Processor Basic Unit (SD-4C101-01)

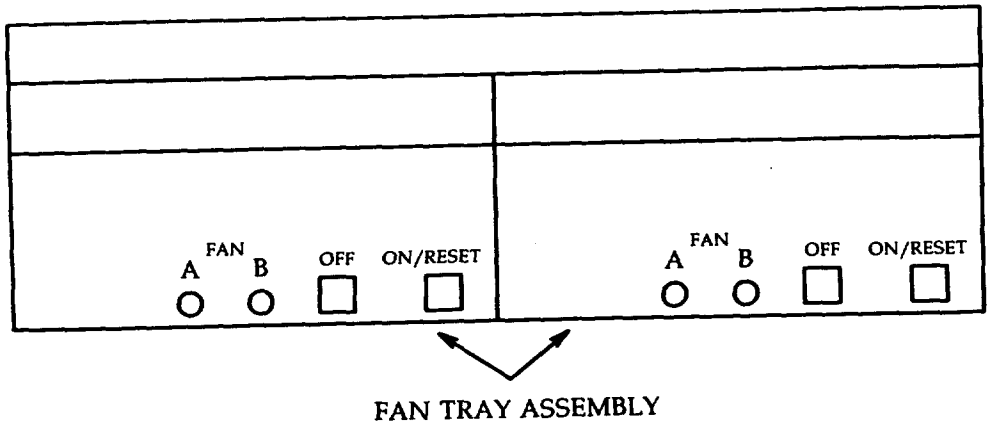


Figure 9. Cooling Unit

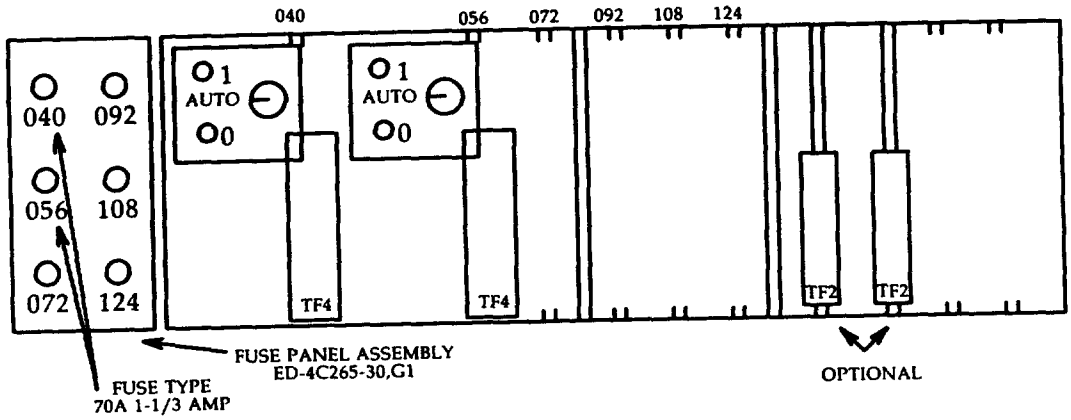


Figure 10. Port Switch Unit

INSPECT CABINET FOR PHYSICAL INTEGRITY

SUMMARY: Make visual inspection of cabinet to ensure mounted equipment and wiring are properly provided.

1. **DANGER: -48 Vdc present in this unit.**
2. Inspect cabinet for presence of foreign matter.
3. Inspect cabinet for physical damage.
4. Inspect mounted apparatus for secure mounting.
5. Check wiring connections for:
    a. Number of wire wraps and clippings
    b. Solder integrity (cold solder) (splashes)
    c. Crossed or bent terminals
    d. Wire fanning, dressing, and lacing.
6. Check relays, if equipped, for contact continuity, damage, and alignment.
7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

TEST CAP CHG CIRCUIT

1. On power cabinet control panel, momentarily depress **CAP CHG TEST** switch.
2. Did **CAP CHG** LED light?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

CHARGE FUSE FILTER PANEL CIRCUIT

1. On power cabinet, insert charge probe into indicator fuse position, twist, and lock in position.
2. **CAUTION: Step 4 must be performed within 12 seconds after completion of Step 3; otherwise, fuse will blow.**
3. Hold **CAP CHG TEST** switch closed until **CAP CHG** LED extinguishes; then release.
4. Install good fuse in load fuse position.
5. Remove charge probe and install good fuse in indicator fuse position.
6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

CHARGE FILTER CAPACITOR

1. On power cabinet, insert probe into filter fuse position, twist, and lock in position.
2. **CAUTION: Step 4 must be performed within 12 seconds after completing Step 3; otherwise, fuse will blow.**
3. Hold **CAP CHG TEST** switch closed until **CAP CHG** LED extinguishes; then release.
4. Remove charge probe and install good fuse in filter fuse position.

   Response: **FF** LED off.
5. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

TEST POWER CABINET ALARMS

SUMMARY: Remove control unit from service. Swap fuse **FA4** with tripped fuse. Verify LED and output message. Install original fuse and restore control unit to service.

1. If not active, make CU 1 active. Type: **SW:CU;**

   Response: **SW:CU 1 COMPLETED** message received.

2. At CU 0, operate **ROS/RST** switch to **ROS** position and wait for output message.

   Response: **RMV COMPL** message received.

3. At power cabinet, observe that fuse blocks on left side of fuse filter panel supply power to processor cabinet bay 0 (except port switch). Fuse blocks on right side of fuse filter panel supply power to processor cabinet bay 1.

4. **WARNING: Removal of incorrect fuse may cause system to crash.**

5. Remove indicator fuse **FA4** (bus D to PC) and install a tripped fuse at this location.

6. Is **REPT PDO MAJOR ALARM** or **REPT FUSE FAILURE PDF 0** message received?

   If **YES**, then continue to Step 7.

   If **NO**, then **refer fault to installation team.**

7. Is panel **ALARM** LED lighted?

   If **YES**, then continue to Step 8.

   If **NO**, then **refer fault to installation team.**

8. At power cabinet control panel, depress **ACO** switch.

9. Replace tripped fuse with fuse removed in Step 5.

   Response: Panel **ALARM** LED extinguished.

10. At CU 0, operate **ROS/RST** switch to **RST** position and wait for **RST COMPL** message.

11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

TEST POWER DISTRIBUTION FILTER ALARM

SUMMARY: Remove any filter fuse. Verify **ALARM** LED and output message.

1. At power cabinet filter fuse panel, select and remove a filter fuse (FF).
2. Is associated filter capacitor LED lighted?

   If **YES**, then continue to Step 3.

   If **NO**, then **refer fault to installation team.**
3. Is **REPT PD0 MAJOR ALARM** or **REPT FUSE FAILURE PDF 0** message received?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

DIAGNOSE MAGNETIC TAPE CONTROLLER (MTC)

1. At terminal, type: **DGN:MTC=0:DATA,MT=0,PH=5,TLP;** and wait for completion message.
2. Is **ATP MSG COMPL** message received?

   If **YES**, then continue to Step 3.

   If **NO**, then **refer fault to installation team.**
3. Type: **RST:MTC=0!** and wait for **RST COMPL** output message.
4. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

DIAGNOSE CENTRAL CONTROL (CC)

1. At terminal, type: **DGN:CU=a,CC=0:DATA,PH=59,TLP;**

   (a = 0 or 1)

2. Is **ATP MSG COMPL** output message received?

   If **YES**, then continue to Step 3.

   If **NO**, then **refer fault to installation team.**

3. At terminal, operate **EA DISP** key.

4. Remove any forces in effect on EMERGENCY ACTION page. If necessary, type: **14** on line 4.

5. Have an assistant at the control unit observe the **TN10** circuit pack.

6. At terminal, type: **DGN:CU=a,CC=0:DATA,PH=93,TLP;** and observe PRM and **TN10** sequences.

7. Did PRMs on EMERGENCY ACTION page sequence as shown in Figure 1 and print out on printer?

   If **YES**, then continue to Step 8.

   If **NO**, then **refer fault to installation team.**

8. At CU **TN10** circuit, did each LED light and extinguish in top to bottom sequence and did display sequence 0 through F?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

Processor Recovery Message (PRM) Sequence
PRM -a 0123 4567 89AB CDEF xx xx xx
PRM -a AAAA AAAA AAAA AAAA xx xx xx
PRM -a 5555 5555 5555 5555 xx xx xx
PRM -a EEEE EEEE EEEE EEEE xx xx xx
PRM -a 1111 1111 1111 1111 xx xx xx
PRM -a 0000 0000 0000 0000 xx xx xx
PRM -a FFFF FFFF FFFF FFFF xx xx xx
a = 0 or 1 and xx = don't care

Figure 1

EXERCISE MAIN STORE CONTROLLER (MASC)

1. At terminal, type: **EX:CU=a,MASC=0:DATA,PH=95,TLP;**
2. Determine range of addresses from Figure 1 for the main store arrays equipped in the processor.
3. Type (on single line):
   EX:LDPARM:CU=a,MASC=0:DATA,SA=H'xxxxxx,EA=H'yyyyyy,PAT=H'5A5A5A5A,REF=4!

   Where xxxxxx = starting address, yyyyyy = ending address, and 5A5A5A5A can be any pattern.
4. Is **ATP MSG COMPL** output message received?

   If **YES**, then continue to Step 5.

   If **NO**, then **refer fault to installation team.**
5. Type: **EX:CU=a,MASC=0:DATA,PH=96,TLP;**
6. Using the same range of addresses as in Step 2, type (on single line)

   EX:LDPARM:CU=a,MASC=0:DATA,SA=H'xxxxxx,EA=H'yyyyyyy,TIME=500,REF=4;
7. Is **ATP MSG COMPL** output message received?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

Positions Main Store Array			
TN 2012	TN 56	Starting Address	Ending Address
00	00	0000000	01FFFFC
	01	0200000	03FFFFC
01	02	0400000	05FFFFC
	03	0600000	07FFFFC
02	04	0800000	09FFFFC
	05	0A00000	0BFFFFC
03	06	0C00000	0DFFFFC
	07	0E00000	0FFFFFC
04	08	1000000	11FFFFC
	09	1200000	13FFFFC
05	10	1400000	15FFFFC
	11	1600000	17FFFFC
06	12	1800000	19FFFFC
	13	1A00000	1BFFFFC
07	14	1C00000	1DFFFFC
	15	1E00000	1FFFFFC
08		2000000	23FFFFC
09		2400000	27FFFFC
10		2800000	2BFFFFC
11		2C00000	2FFFFFC
12		3000000	33FFFFC
13		3400000	37FFFFC
14		3800000	3BFFFFC
15		3C00000	3FFFFFC

Figure 1

DIAGNOSE DATA COMMUNICATION CHANNEL

1. At terminal, type input message indicated in Figure 1 for DFC or IOP selected for test.
2. Is **ATP MSG COMPL** output message received?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

Unit	Input Message
DFC 0	**DGN:CU=a,CH=11:DATA,PH=40,TLP,DFC=0!**
DFC 1	**DGN:CU=a,CH=11:DATA,PH=40,TLP,DFC=1!**
IOP 0	**DGN:CU=a,CH=11:DATA,PH=40,TLP,IOP=0!**
IOP 1	**DGN:CU=a,CH=11:DATA,PH=40,TLP,IOP=1!**
(a = 0 or 1)	

Figure 1

DIAGNOSE CACHE STORE UNIT (CSU)

1. At terminal, type: **DGN:CU=a,CSU=0;RAW:DATA,PH=90!**

   (a = 0 or 1)

2. Is **ATP MSG COMPL** output message received?

   Note: Requires approximately 40 minutes.

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

DIAGNOSE DISK FILE CONTROLLER (DFC) USING DEMAND DIAGNOSTICS

1. If office is equipped with SCSI feature, perform Step 2 and skip Step 3.
2. At terminal, type: **DGN:DFC=a:DATA,PH=14&&15,CU=b,TLP;**

   (a = 0 or 1)
   (b = OOS CU 0 or 1)
3. At terminal, type: **DGN:DFC=a:DATA,PH=15,CU=b,TLP;**

   (a = 0 or 1)
   (b = OOS CU 0 or 1)
4. Is **ATP MSG COMPL** output message received?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

DIAGNOSE INPUT/OUTPUT PROCESSOR (IOP) USING DEMAND DIAGNOSTICS

1. At terminal, type: **DGN:IOP=a:DATA,PH=15,CU=b,TLP!**

   (a = 0 or 1)
   (b = OOS CU 0 or 1)

2. Is **ATP MSG COMPL** output message received?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

VERIFY MOVING HEAD DISK (MHD)

1. At terminal, type: **VFY:MHD=b;**

   (b = MHD number)

2. Is **VFY MHD b COMPLETED** output message received?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

   If **NO**, then **refer fault to installation team.**

REMOVE TAPE

1. At control panel, if **ONLINE** LED on, touch **RESET** switch.

   Response: **ONLINE** LED off.

2. Touch **UNLOAD** switch.

   Response: Tape rewinds onto supply reel.

3. Open dust cover.
4. Depress latch release button and remove reel.
5. Close dust cover.
6. Touch **LOGIC OFF** switch.
7. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

MOUNT TAPE

1. If tape is to be written, attach write enable ring on supply reel.
2. Open dust cover and verify circuit breaker is at side 1 (on).
3. If **LOGIC OFF** LED lighted, touch **LOGIC ON** switch.
4. See Figure 1. Place supply reel on hub and depress hub latch.
5. Thread tape from bottom of supply reel along path as shown in Figure 1.
6. Hold end of tape against takeup reel and wrap several turns clockwise by rotating reel; then close dust cover.
7. Touch **LOAD/REWIND** switch.
8. Does tape move, stop, and is **BOT** LED lighted?

   If **YES**, then continue to Step 9.

   If **NO**, then **refer fault to installation team.**
9. Touch **ONLINE** switch.
10. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

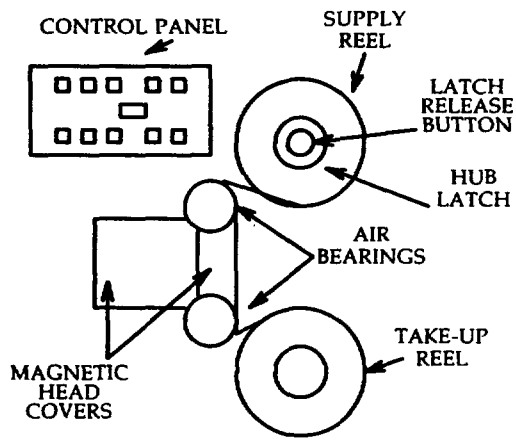


Figure 1

INSPECT TAPE TRANSPORT

1. Open dust cover and verify door interlock stud is tight.
2. Set circuit breaker at side **0** (off).

   Response: **LOGIC OFF** LED off.
3. Inspect dust cover and control panel for scratches, cracks, or abrasions, and dirt.

   Warning: Cleaner blades are brittle and sharp.
4. Remove head assembly covers, check for dirt and oxide on magnetic head, **EOT/BOT** sensor, tape cleaner, and upper and lower air bearings. See Figure 1.
5. Reinstall head assembly covers.
6. On rear of tape transport, inspect components and cables for damage and proper seating.
7. Was any damage found?

   If **YES**, then **report damage to installation team.**

   If **NO**, then continue to Step **8**.

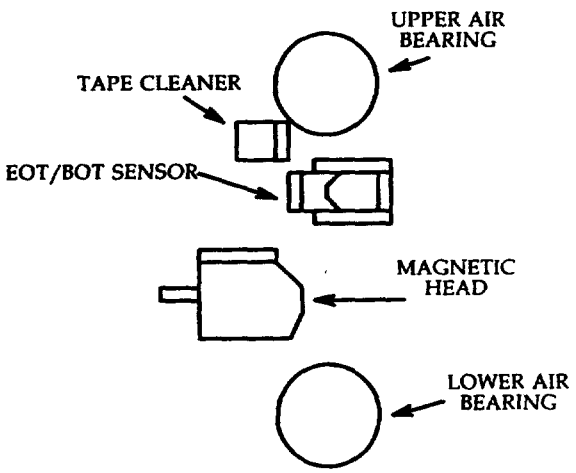


Figure 1

8. Was dirt found?

   If **YES**, then continue to Step **9**.

   If **NO**, then do to Step **10**.
9. Clean tape transport.

   Reference: **DLP-565**

10. Manually rotate takeup reel clockwise and counterclockwise.
11. Does takeup reel contact tape deck?

    If **YES**, then **refer fault to installation team.**

    If NO, then continue to Step **12**.
12. Mount tape reel on supply hub and depress hub latch.
13. Did reel mount easily against flange and is reel securely fastened?

    If **YES**, then continue to Step **14**.

    If **NO**, then **refer fault to installation team.**
14. Set circuit breaker to side **1** (on).

    Response: **LOGIC OFF** LED lighted.
15. Touch **LOGIC ON** switch.
16. Thread tape through head assembly and wrap several turns clockwise by rotating takeup reel.
17. Close dust cover.
18. Touch **LOAD/REWIND** switch; use flashlight and observe takeup reel.
19. Did tape contact reel flange?

    If **YES**, then **refer fault to installation team.**

    If NO, then continue to Step **20**.
20. At rear of tape drive, verify cooling fan operation.
21. Does cooling fan operate?

    If **YES**, then continue to Step **22**.

    If **NO**, then **refer fault to installation team.**
22. Remove tape.

    Reference: **DLP-562**
23. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

CLEAN TAPE TRANSPORT

1. At control panel, touch **LOGIC OFF** switch.

   Response: **LOGIC OFF** LED lighted.

2. Open dust cover.
3. Using lint-free cloth moistened with tape transport cleaner, clean recording surfaces by wiping in direction of tape motion.
4. **Warning: Cleaner blades are brittle and sharp.**
5. Use foam swaps moistened with tape transport cleaner; remove dirt and oxide from **EOT/BOT** sensor surfaces and tape cleaner blades (Figure 1).
6. Using lint-free cloth moistened with tape transport cleaner, clean upper and lower air bearings.
7. Using small mechanic's mirror, inspect inner air bearing guide and clean any oxide or dirt buildup.
8. Using lint-free cloth, wipe inside of head assembly covers; then install covers.
9. Using lint-free cloth, wipe dust and dirt from all interior and exterior surfaces of tape transport and dust cover.
10. Close dust cover.
11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

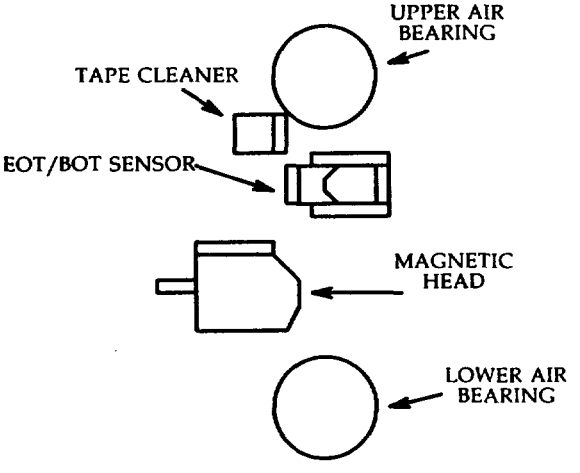


Figure 1

DIAGNOSE TAPE TRANSPORT

1. Open dust cover and verify circuit breaker at side 1.

   CAUTION: Do NOT use the diagnostic test tape (J1P059AB-1, List 1M1) for this procedure. The tape header may be destroyed.

2. Mount tape reel on hub with write enable ring and depress hub latch.
3. Thread tape from bottom of supply reel through head assembly and wrap several turns clockwise by rotating takeup reel.

   Note: Tape should not be tight but should have some slack.

4. Close dust cover.
5. Touch **LOGIC ON** switch; then touch **TEST** switch (Figure 1).
6. Observe indicators in Figure 2.

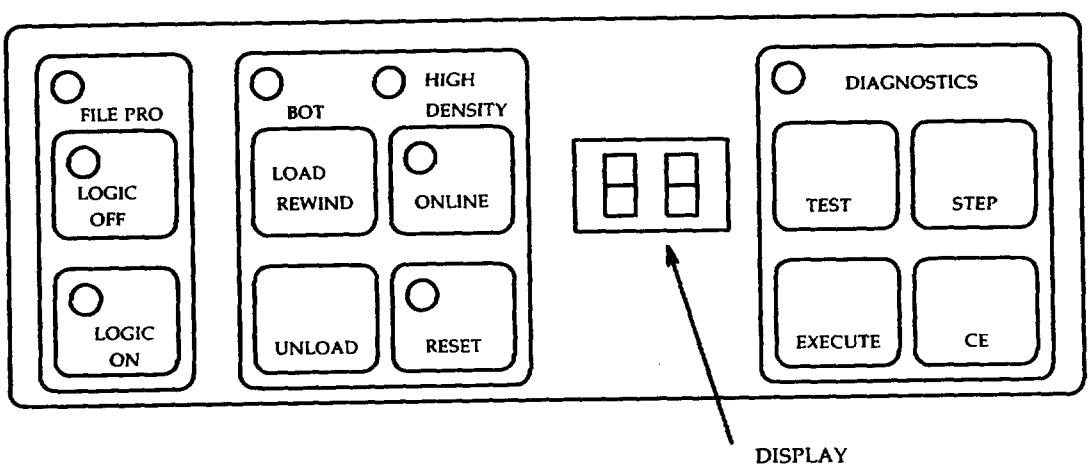


Figure 1

Item	Indicator	Condition
1	Display	01
2	DIAGNOSTICS	Lighted
3	FILE PRO	Lighted
4	HIGH DENSITY	Off
5	RESET	Off
6	LOGIC ON	Lighted
7	BOT	Off
8	LOGIC OFF	Off

Figure 2

7. Were indications obtained?

   If **YES**, then continue to Step **8**.

   If **NO**, then **refer fault to installation team.**

8. Touch **EXECUTE** switch.

9. **Note:** Tape moves forward and reverses for approximately 10 minutes for a 2400-foot reel before results are obtained.

10. Did the display increment from **00** to **99** and are **RESET** and **BOT** LEDs lighted?

    If **YES**, then continue to Step **10**.

    If **NO**, then **refer fault to installation team.**

11. Touch **RESET** switch.

12. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

TEST STOP AND SWITCH

1. At EA page, verify that all forces and inhibits are removed.

   Note: For the following output messages, a = active CU and b = standby CU at start of test.

2. Select an indicator and load fuse from Figure 1 and remove selected load fuse from the **active control unit**.

Fuse	Load
048-175-004	Converter D
059-168-005	TN5B
057-176T-005	Converter B
057-008T-005	Converter A
039-175-003	Converter F

Figure 1

3. Did indicator fuse blow?

   If **YES**, then continue to Step **4**.

   If **NO**, then **refer fault to installation team.**

4. Did CU power down?

   If **YES**, then continue to Step **5**.

   If **NO**, then **refer fault to installation team.**

5. Did **START OF CU b RECOVERY** output message print?

   If **YES**, then continue to Step **7**.

   If **NO**, then **refer fault to installation team.**

6. Did **REPT CU a UNAVAILABLE** or **POWER REMOVED** output message print?

   If **YES**, then continue to Step **8**.

   If **NO**, then **refer fault to installation team.**

7. Did **RCVRY CU b COMPLETED** output message print?

   If **YES**, then continue to Step **9**.

   If **NO**, then **refer fault to installation team.**

8. Replace load fuse and indicator fuse.

9. Depress **ON** switch and wait for restore operation.

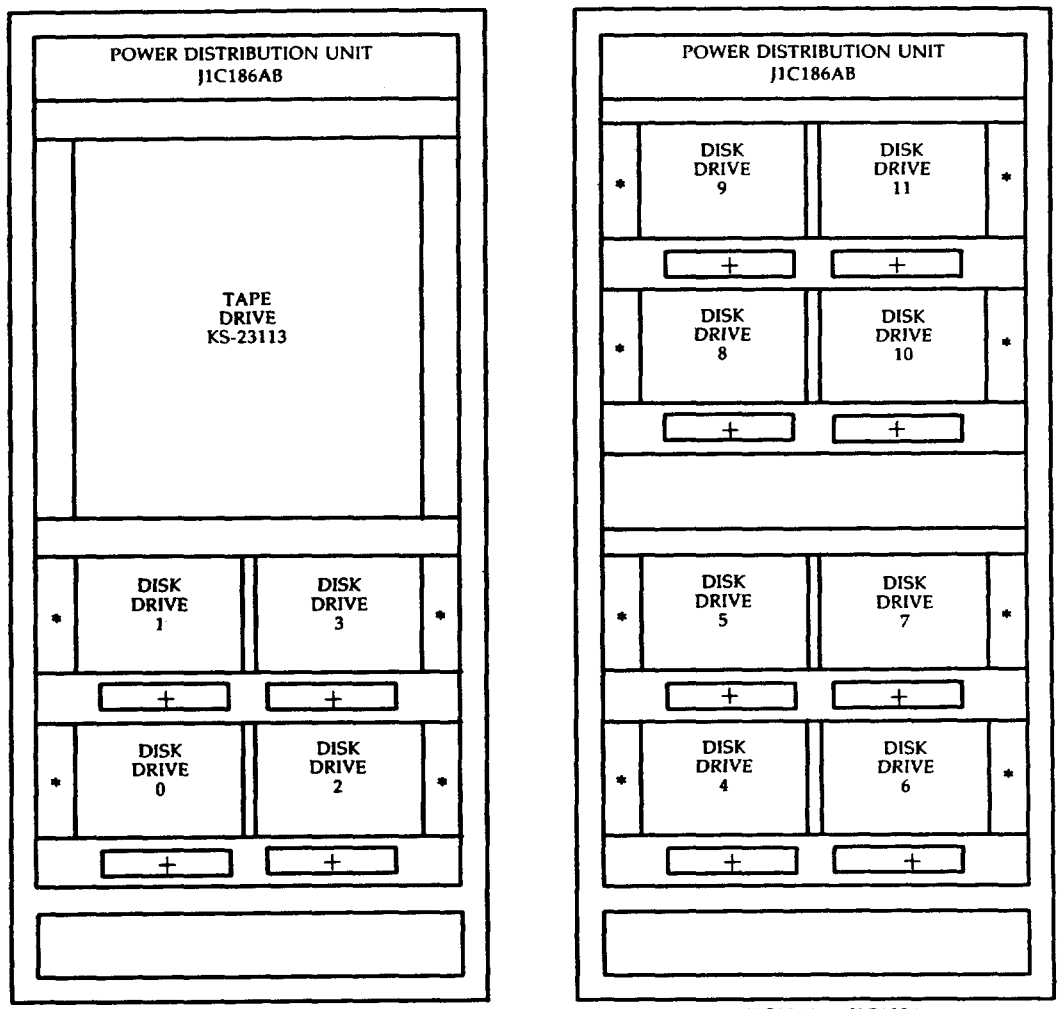
10. Did **RST CU COMPLETED** output message print?

    If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

    If **NO**, then **refer fault to installation team.**

INSPECT TAPE/DISK CABINET

1. At tape/disk cabinet, verify that apparatus for office configuration is installed per Figure 1.
2. Verify fuses for office configuration are correct per Figure 2.



Legend: DISK DRIVE = 340-Megabytes KS-22875
* = Power Supply KS-22997
\+ = Power Switch ED-4C481

Figure 1

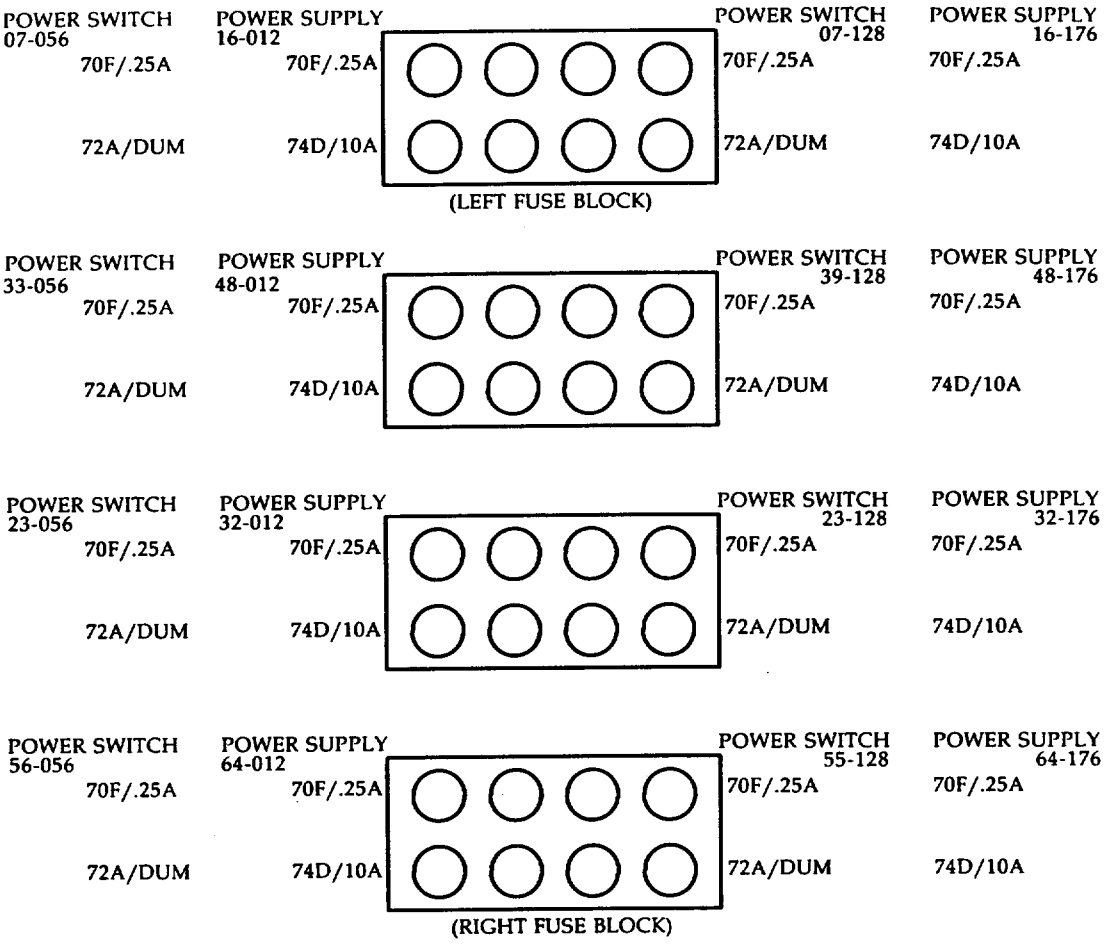

POWER SWITCH 07-056
70F/.25A
72A/DUM
POWER SUPPLY 16-012
70F/.25A
74D/10A
POWER SWITCH 07-128
70F/.25A
72A/DUM
POWER SUPPLY 16-176
70F/.25A
74D/10A
(LEFT FUSE BLOCK)
POWER SWITCH 33-056
70F/.25A
72A/DUM
POWER SUPPLY 48-012
70F/.25A
74D/10A
POWER SWITCH 39-128
70F/.25A
72A/DUM
POWER SUPPLY 48-176
70F/.25A
74D/10A
POWER SWITCH 23-056
70F/.25A
72A/DUM
POWER SUPPLY 32-012
70F/.25A
74D/10A
POWER SWITCH 23-128
70F/.25A
72A/DUM
POWER SUPPLY 32-176
70F/.25A
74D/10A
POWER SWITCH 56-056
70F/.25A
72A/DUM
POWER SUPPLY 64-012
70F/.25A
74D/10A
POWER SWITCH 55-128
70F/.25A
72A/DUM
POWER SUPPLY 64-176
70F/.25A
74D/10A
(RIGHT FUSE BLOCK)

Figure 2

TEST 340-MB MOVING HEAD DISK (MHD) ALARM

1. See Figure 1. At 340-MB MHD power supply, set **MAIN** circuit breaker to off.
2. See Figure 2. At power switch, are **ALM** and **OFF** LEDs lighted.

   If **YES**, then continue to Step 3.

   If **NO**, the **refer fault to installation team.**

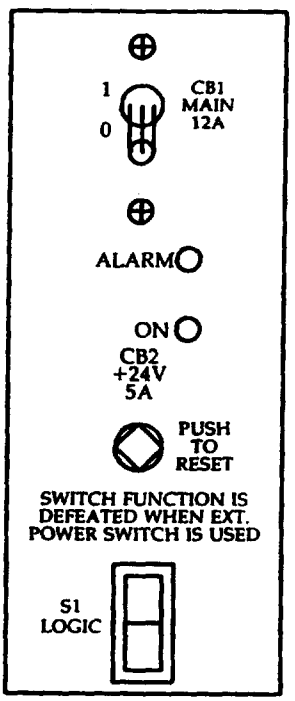


Figure 1

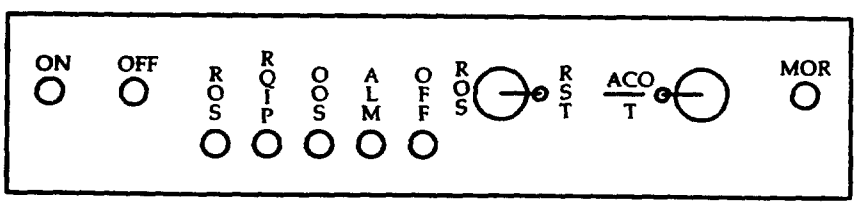


Figure 2

3. Is **REPT POWER REMOVED** message received?

   If **YES**, then continue to Step **4**.

   If **NO**, the **refer fault to installation team**.

4. At power switch, momentarily operate **ACO/T** switch; then depress **OFF** switch.
5. At power supply, set **MAIN** circuit breaker to on.
6. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

INSPECT POWER CABINET

1. **DANGER: 208 Vac and -48 Vdc present in this cabinet. Damage to equipment may result if fuses are removed.**
2. Verify that apparatus is installed per Figure 1 and Figure 2.
3. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

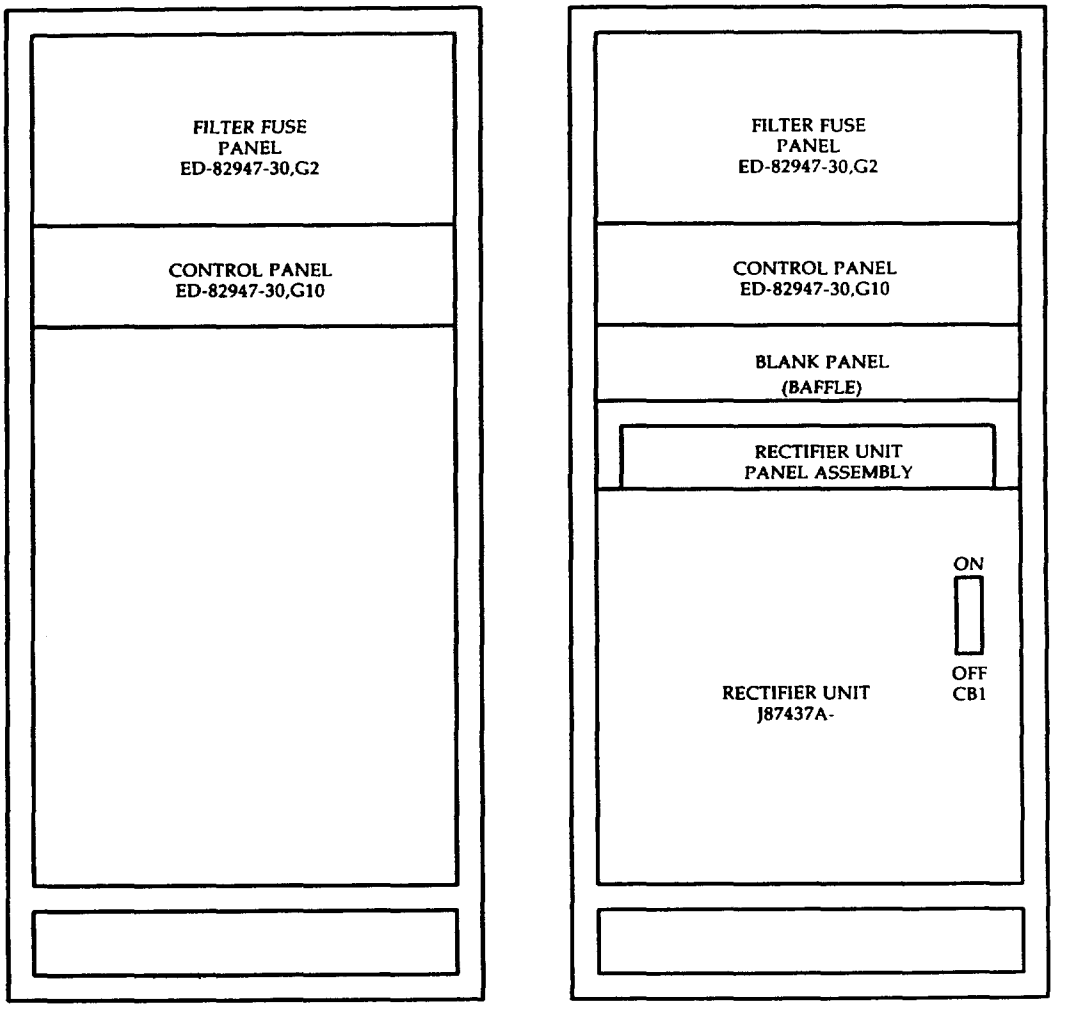


Figure 1

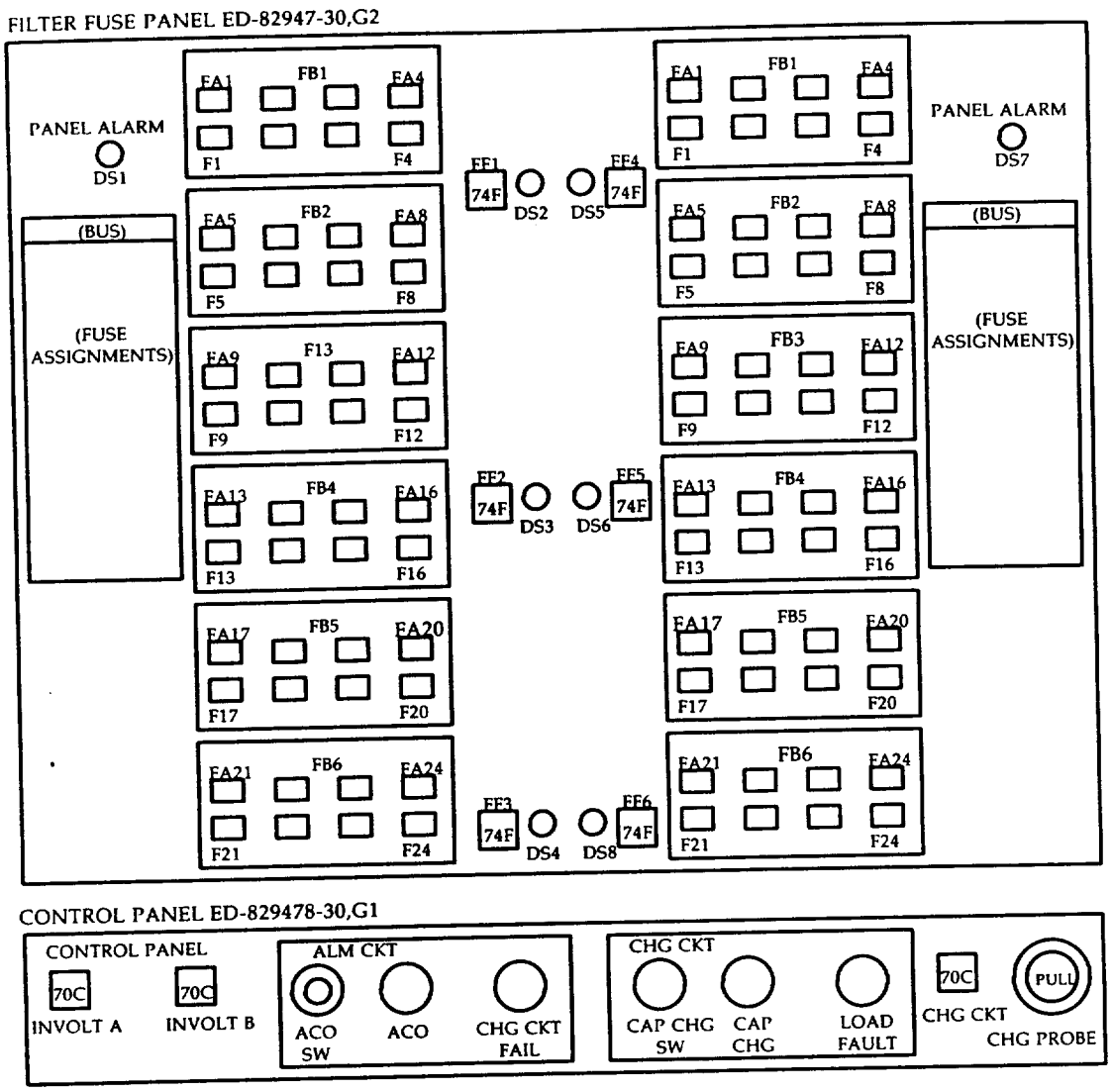

FILTER FUSE PANEL ED-82947-30,G2
PANEL ALARM
DS1
(BUS)
(FUSE ASSIGNMENTS)
FA1 FB1 FA4 F1 F4
FA5 FB2 FA8 F5 F8
FA9 F13 FA12 F9 F12
FA13 FB4 FA16 F13 F16
FA17 FB5 FA20 F17 F20
FA21 FB6 FA24 F21 F24
FF1 74F DS2 DS5 FF4 74F
FF2 74F DS3 DS6 FF5 74F
FF3 74F DS4 DS8 FF6 74F
PANEL ALARM
DS7
(BUS)
(FUSE ASSIGNMENTS)
CONTROL PANEL ED-829478-30,G1
CONTROL PANEL
70C INVOLT A
70C INVOLT B
ALM CKT
ACO SW
ACO
CHG CKT FAIL
CHG CKT
CAP CHG SW
CAP CHG
LOAD FAULT
70C
PULL
CHG CKT
CHG PROBE

Figure 2

CHECK POWER CABINET FUSES

1. Observe all indicator fuses on fuse filter panel.
2. Are any indicator fuses blown?

   If **YES**, then continue to Step **3**.

   If **NO**, then do Step **5**.
3. Test **CAP CHG** circuit.

   Reference: **DLP-532**
4. Charge fuse filter circuit.

   Reference: **DLP-534**
5. Are any filter capacitor LEDs lighted?

   If **YES**, then continue to Step **6**.

   If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
6. Test **CAP CHG** circuit.

   Reference: **DLP-532**
7. Charge filter capacitor.

   Reference: **DLP-540**
8. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

CHECK KS-22921, L1 TERMINAL

1. Operate **NORM DISP** key.
2. Adjust brightness using control knob on right underside of screen.
3. Operate **SET-UP** key.
4. Operate **4** key.

   LOCAL indicator lights.

   SET-UP A page is displayed (Figure 1).

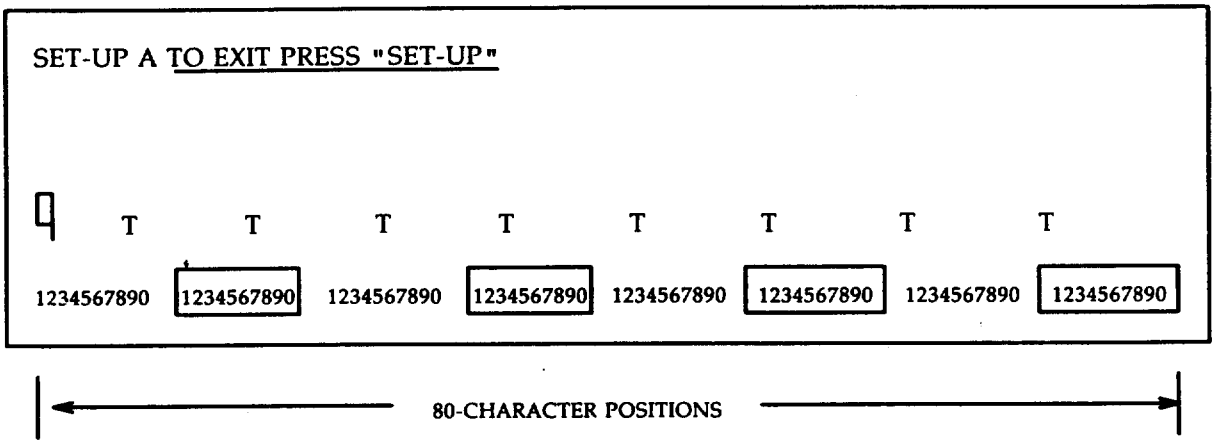


Figure 1.

5. Observe character ruler.
6. Toggle **9** key.

   Character ruler changes from 80 to 132 characters per line.
7. Leave character ruler at 132 characters per line and operate **SET-UP** key.
8. Hold **ESC** key and depress **#** and **8** keys.

   Screen displays 24 lines of 132 columns of Es.
9. Operate **SET-UP** key. Toggle **9** key to set character ruler to 80 characters per line.
10. Operate **5** key.

    SET-UP B page is displayed (Figure 2).
11. Compare states of bits in feature nibbles with desired states in Figure 3.

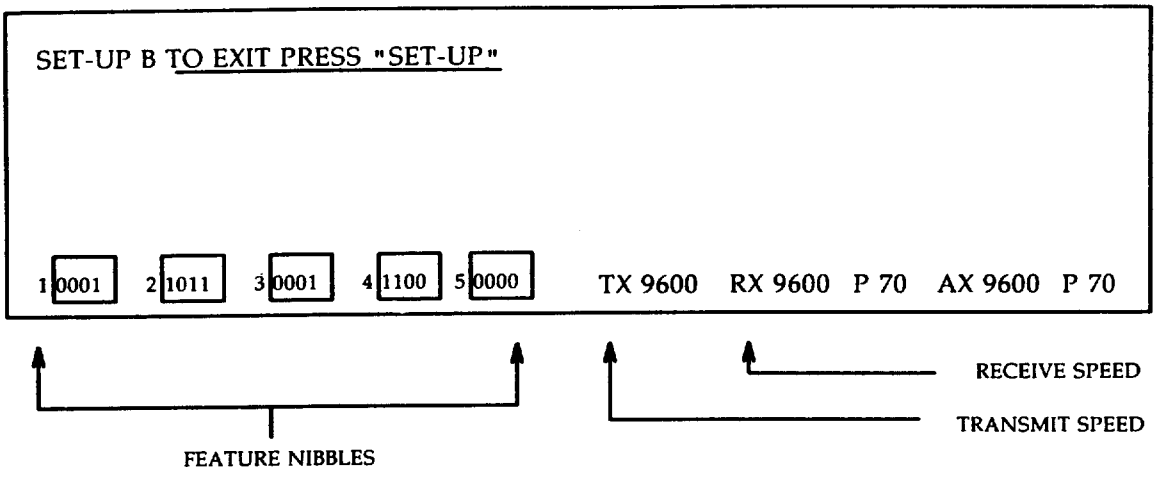


Figure 2.

12. If bits need to be corrected, position cursor above incorrect bit using cursor positioning arrows. Toggle key indicated in Figure 3 to change incorrect bit; repeat as necessary.
13. If transmit speed is not 9600, depress **7** key until 9600 appears.
14. If receive speed is not 9600, depress **8** key until 9600 appears.
15. Operate **SET-UP** key twice.

    SET-UP A page is displayed.
16. Check tab **T** settings for desired positions. Operate **T** key to set tabs to every eighth character or operate **3** key to clear all tabs or position cursor over desired character and toggle **2** key to set or clear tab.
17. Operate **4** key.

    ON LINE indicator lights.
18. Operate **SHIFT** and **S** keys simultaneously.

    SET-UP A page is displayed.
19. Operate **SET-UP** key.
20. Is this terminal used as the maintenance terminal?

    If YES, then continue to Step **21**.

    If NO, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
21. Operate **EA DISP** key.

    EMERGENCY ACTION page is displayed.
22. If not in command mode, operate **CMD/MSG** key. Cursor moves to line 4.

INSPECT MODEL 615 TERMINAL

SUMMARY: Remove power and check for loose or damaged connections. Verify emulation cartridge is present, restore power, and check setup options.

1. At lower-right edge of monitor, set terminal **POWER** switch to **OFF**.
2. Verify that 4425 emulation cartridge is present.
3. Inspect terminal external cabling for any loose or damaged connections.
4. Was cabling damaged or were loose connections found?

   If **YES**, then continue to Step **5**.

   If **NO**, then do Step **6**.
5. Tighten loose connections and replace damaged cables.
6. Set terminal **POWER** switch to **ON**.

   Response: **615/4425 TEST PASSED** appears on status line.
7. Press **SHIFT** and **f1 Set-Up** keys simultaneously.

   Response: OPTIONS SETUP page appears on screen.
8. Compare OPTIONS SETUP page with Figure 1 on page 2.
9. Are there any options that need to be changed?

   If **YES**, then continue to Step **10**.

   If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE**
10. Using the positioning arrow keys or **NEXT FIELD** key, move the cursor to the option to be changed.
11. Press the **STEP** key to step the option through its selectable values until setting is correct.
12. Repeat Steps **10** and **11** for each option requiring a change.
13. Press **SAVE ALL** key to store the currently displayed values.
14. **STOP. YOU HAVE COMPLETED THIS PROCEDURE**

Option	Setting	Option	Setting
Speed	9,600	Answer on Connect	no
Duplex	full	Transmission	char
Send Parity	even	Line Send	keyed
Check Parity	yes	Block Send	unprot
Cartridge	in use	Send From	cursor
132 Columns	off	I/O Card	idle
Scrolling	smooth	Edit Keys	local
Scroll Speed	fast	Send Attributes	no
Wait for DSR	no	DC1/DC3	on
Return Key	CR	VT*52	no
Newline on LF	yes	"Enter" Key	return key
Autowrap	on	Field Separator	default >
Cursor Blink	no	Block Terminator	default ETX
Cursor Type	block	Answerback	default empty
Keyclick	off	Printer Model	normal
Margin Bell	off	Printer Speed	9,600
Volume	7	Alarm	pin 20

Figure 1

* Trademark of Digital Equipment Corporation.

INSPECT SCSI DISK CABINET

1. At SCSI disk cabinet, verify that apparatus for your office configuration is installed per Figure 1.
2. Verify fuses for office configuration are correct per Figure 2.

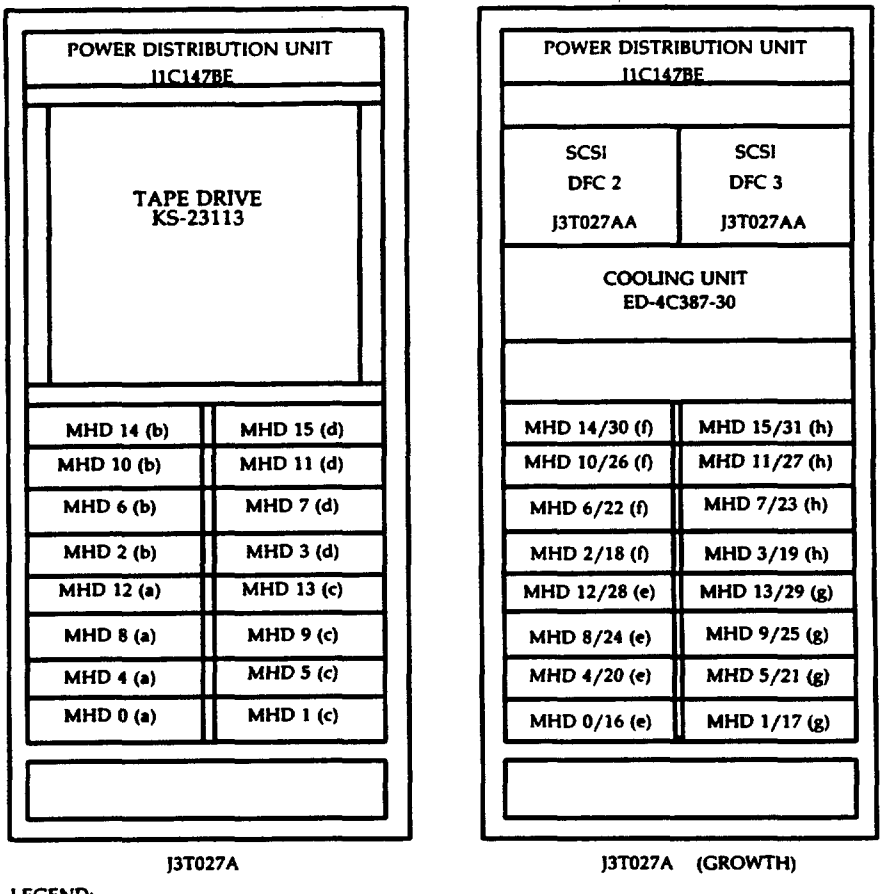


Figure 1. SCSI Disk Cabinet

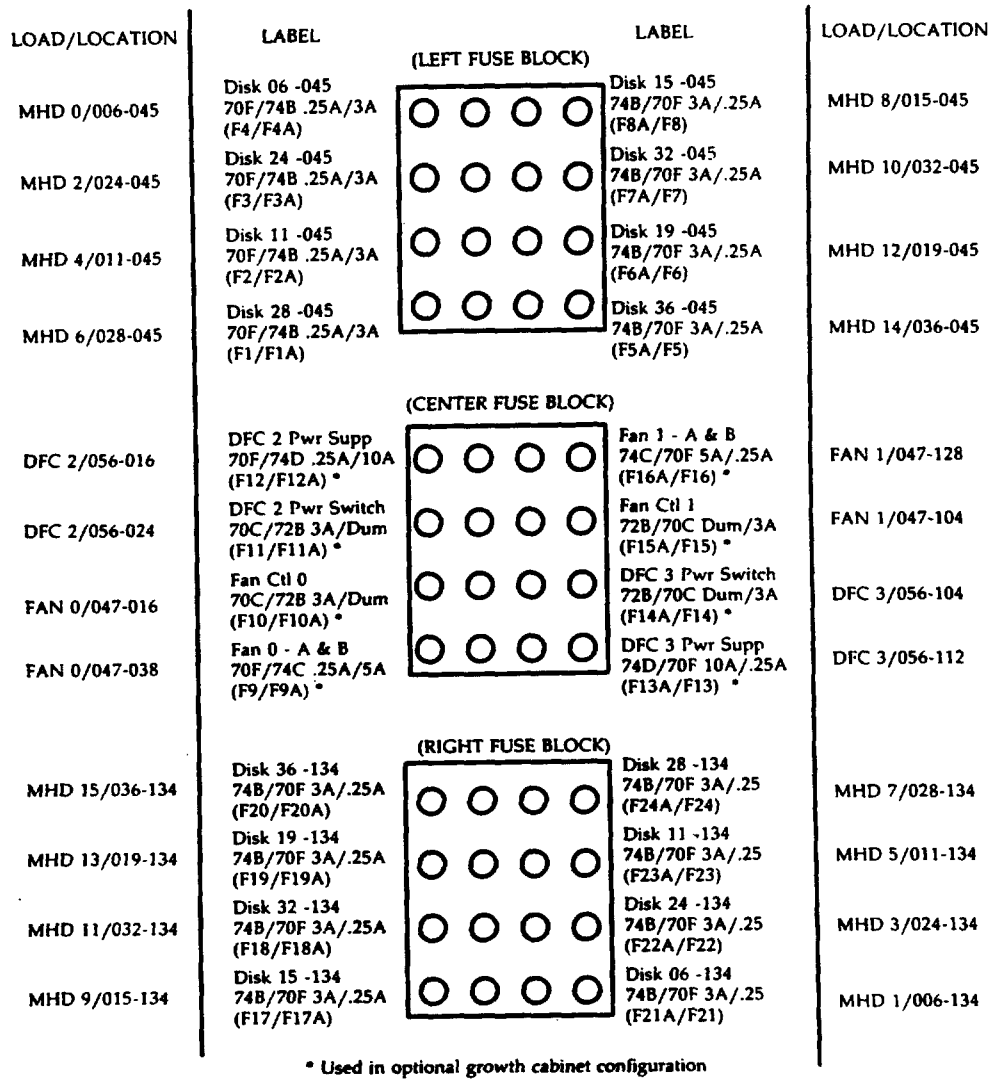


Figure 2. SCSI Disk Cabinet Fuse Assignments

CHECK KS-23554 TERMINAL OPTIONS

1. Operate **NORM DISP** key.
2. Adjust brightness and contrast using control knobs.
3. Enter SET-UP mode. Hold **Ctrl** key and depress **Alt** and **F3** keys.

   Response: Set-Up page displayed (Figure 1).

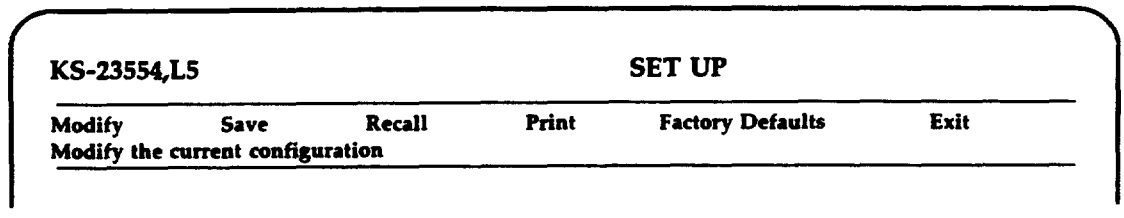


Figure 1. Top of Set-Up Screen

4. Using any of the keys listed in TABLE A, position cursor to **Modify** (line 2) and depress ENTER.

   Response: **Modify** highlighted.
   Modify the current configuration printed on line 3.

TABLE A

Key	Function
Up arrow	Moves cursor up one line
Down arrow	Moves cursor down one line
Ctrl and **PgUp**	Prompts for page number of screen Type page number and depress ENTER
PgUp	Scrolls screen up one page
PgDn	Scrolls screen down one page
Home	Jumps cursor to top of parameter list
End	Jumps cursor to bottom of parameter list
Space Bar	Scrolls forward through list of parameter values
Back Space	Scrolls backward through list of parameter values

5. See Figure 2 (Sheet 2 of 2) on Page 4. Using the keys listed in TABLE A, position cursor to *Connection* parameter.

6. Depress space bar to change **On Line** value to **Local**.
7. Position the cursor to **Exit** (Figure 1, line 2) and depress ENTER.

   Response: **Exit** highlighted.
8. Depress **Esc** key, depress **#** key, and depress **8** key.

   Response: Screen displays 24 lines of 80 columns of Es.
9. Enter SET-UP mode. Hold **Ctrl** key and depress **Alt** and **F3** keys.

   Response: Set-Up page displayed.
10. Compare the values of the SET-UP parameters on the screen with the desired values in Figure 2, Page 3.
11. Are there parameters that need to be changed?

    If **YES**, then continue to Step **12**.

    If **NO**, then go to Step **17**.
12. Move cursor to **Modify** (line 2) and depress ENTER.

    Response: **Modify** highlighted.
13. Using the keys in TABLE A, position the cursor on the parameter to be changed.
14. Depress the space bar to step through values assigned to the parameter.
15. When the desired value appears, depress ENTER.
16. Repeat Steps **13** through **15** to change any other parameters.
17. Position the cursor to the *Connection* parameter.
18. Depress the space bar to change **Local** to **On Line**.
19. Position the cursor to **Save** (line 2) and depress ENTER.

    Response: **Save** highlighted.
20. Position the cursor to **Exit** (line 2) and depress ENTER.

    Response: **Exit** highlighted.
21. Operate **EA DISP** key.

    Response: **EMERGENCY ACTION** page displayed.
22. If cursor is not on line 4, operate **CMD/MSG** key.
23. Type **15**.

    Response: Output message **A REPT TERMINAL IN SERVICE** received.

24. STOP. YOU HAVE COMPLETED THIS PROCEDURE.

SYSTEM CONFIGURATION			
Parameter	**Value**	**Parameter**	**Value**
Date	Day Month Year	*Assignment*	Terminal
Time	Hour Minute Second	*Communication Speed*	9600
Diskette Drives	none	*Data bits/Parity*	7 bits, Even Parity
Keyboard Type	AT&T KS-22921 L1 Style	*Handshaking*	XON/XOFF
		Interface	RS-232
Screen Resolution	High	*Stop Bits*	1 Stop Bit
Numeric Coprocessor	Not Installed	*Communication Buffer*	64 Bytes
Operating Mode	Terminal Only (One Session)	*Transmit Limit*	Unlimited
Parallel Port	Terminal (Printer)	*Assignment*	Terminal
Printer Hot-Key	Disabled	*Communication Speed*	9600
Printer Type	AT&T 5310 (Version 3.0)	*Data bits/Parity*	7 bits, Even Parity
		Handshaking	XON/XOFF
DOS Enabled	Disabled	*Interface*	RS-232
First Boot Device	Hard Disk	*Stop Bits*	1 Stop Bit
Second Boot Device	Hard Disk	*Communication Buffer*	64 Bytes
Third Boot Device	RAMfile	*Transmit Limit*	Unlimited
Fourth Boot Device	CARDfile		
RAMfile Write Protect	Unprotected	*Background Color*	Black
Speaker Volume	Loud	*Cursor Color*	Green
Application Interrupts	Enabled	*Standout Color*	Green
Screen Saver	Disabled	*Text Color*	White
		Title Color	Yellow

Figure 2. (Sheet 1 of 2)

KS-22921 TERMINAL CONFIGURATION (TERM A or B)			
Parameter (*Note 1*)	Value (*Note 1*)	Parameter	Value
Connection	On Line	*Keypad Mode*	Numeric Keypad
Terminal Mode	KS-22921 Mode	*Cursor Key Mode*	Normal Cursor Keys
VT100 Mode	VT100 ID	*Keys*	Typewriter Keys
User Defined Key Locks	Unlocked	*Lock*	Caps Lock
User Feature Locks	Unlocked	*Key Repeat*	No Auto Repeat
Character Set Mode	Multinational	*Keyclick*	Enable Keyclick
Margin Bell	No Margin Bell	*Break Key*	Enable Break Key
Warning Bell	Enable Warning Bell	*Auto Answerback*	No Auto Answerback
New Line	No New Line		
Local Echo	No Local Echo		
		Printer to Host	No Printer Input to Host
Columns/Rows	24 Rows by 80 Columns	*Printer Mode*	Normal Print Mode
Scroll	Jump Scroll	*Print Screen Mode*	Print Full Page
Auto Wrap	No Auto Wrap	*Print Mono/Color*	Monochrome
Video Mode	Light Text, Dark Screen	*Print Page Width*	8½ Inches
Control Mode	Interpret Controls	*Print Width*	Same as Current Screen Width
Text Cursor Display	Text Cursor On		
Cursor Style	Block Cursor	*Print Terminator*	No Terminator
Status Line	No Status Line		
Tabs	No Tabs		

Note:
1. This section may appear twice if the terminal is (or was) configured for two sessions.

Figure 2. (Sheet 2 of 2)

INSPECT MODEL 444 PRINTER

1. If printer is on-line, depress **On Line** key.
2. At left rear of printer, set power switch to the **0** position (off).
3. Inspect printer external cabling for loose or damaged cables or connectors.
4. Was cabling damaged or were loose connections found?

   If **YES**, then continue to Step **5**.

   If **NO**, then do Step **6**.
5. Tighten loose connections and replace damaged cables.
6. Set power switch to the **1** position (on).

   Response:

   Power and **Alarm Clear** LEDs are lighted.

   DIAGNOSTIC CHECK appears on status display for 10 seconds.

   Alarm Clear LED will extinguish.

   ON LINE appears on status display.
7. Check top of form position, if necessary press **Forms** ↑ **or** ↓ keys.
8. Check 6 or 8 lines per inch on scale, if necessary press **8 LPI** key. To select 8 lines per inch press **8 LPI** key to light the **8 LPI** LED. To select 6 lines per inch press **8 LPI** key to extinguish the **8 LPI** LED.
9. Check that the form length agrees with the paper installed in the printer. Press **Form Len.** key to display the form length in the status display. If necessary, press and release the **Form Len.** key to step through the values. Leave the correct form length displayed and press the **On Line** key. The **On Line** LED will light.
10. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

CHECK MODEL 444 PRINTER OPTIONS

1. See Figure 1. If printer is on line, depress **On Line** key to remove printer from service.

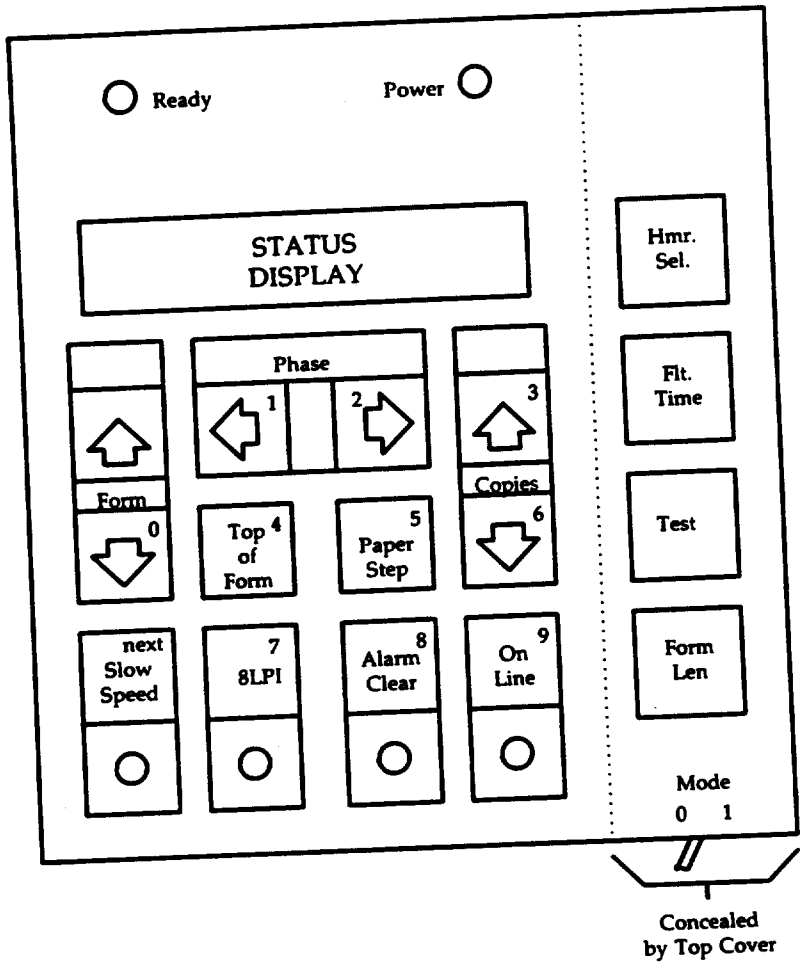


Figure 1.

2. Open top cover.
3. Set **Mode 0/1** slide switch to the 1 position.
4. Using the number keys, type in the item number for the first item in Figure 2 on Page 2.
5. Does the status display agree with the *Desired Setting* as listed in Figure 2?

   If **YES**, then continue to Step 6.

   If **NO**, then go to Step 7.

Item	Feature	Desired Setting
01	COLUMNS	132
02	AUTO FDOVER	ON (1)
03	AUTO PRINT	OFF (0)
04	LF ON CR	OFF (0)
05	PARITY	EVEN
06	1403 COMPAT	OFF (0)
07	PF SKIPOVER	0 Lines
08	BD TIMEOUT	5 Seconds
09	INTERFACE	7 Bits
10	VFU SKPOVR	OFF (0)
11	STP CNT TR	OFF (0)
12	PAPER SCRL	ON (1)
13	PRINT TO BOF	OFF (0)
14	OVER PRNT	140
15	STEP COUNT	15
16	80 COL SFTST	ON (1)
17	NOP AFT ESC	OFF (0)
18	SUPPRESS TOF	OFF (0)
19	MARGIN SET	0
20	LF ON FF	OFF (0)
21	DISABLE VFU	OFF (0)
22	I/F	SERIAL
23	FF ON ETX	OFF (0)
24	FF ON DSCON	OFF (0)
25	STOP BITS	1
26	BAUD RT	1200
27	PRTCL	SIMPLEX
28	Not used	

Figure 2

6. Depress **next** key until status display agrees with the *Desired Setting* in Figure 2 for that item.
7. Type in the next item number listed in Figure 2.
8. Repeat Steps **4** through **7** for all items in Figure 2.
9. Set **Mode 0/1** slide switch to the **0** position.
10. Press **Alarm Clear** key.
11. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

PERFORM MODEL 444 PRINTER SELF-TESTS

1. See Figure 1. If printer is on-line, depress **On Line** key.
2. Verify that paper, ribbon, and character band are installed and perform properly. **READY** is displayed in status display.
3. Open top cover.

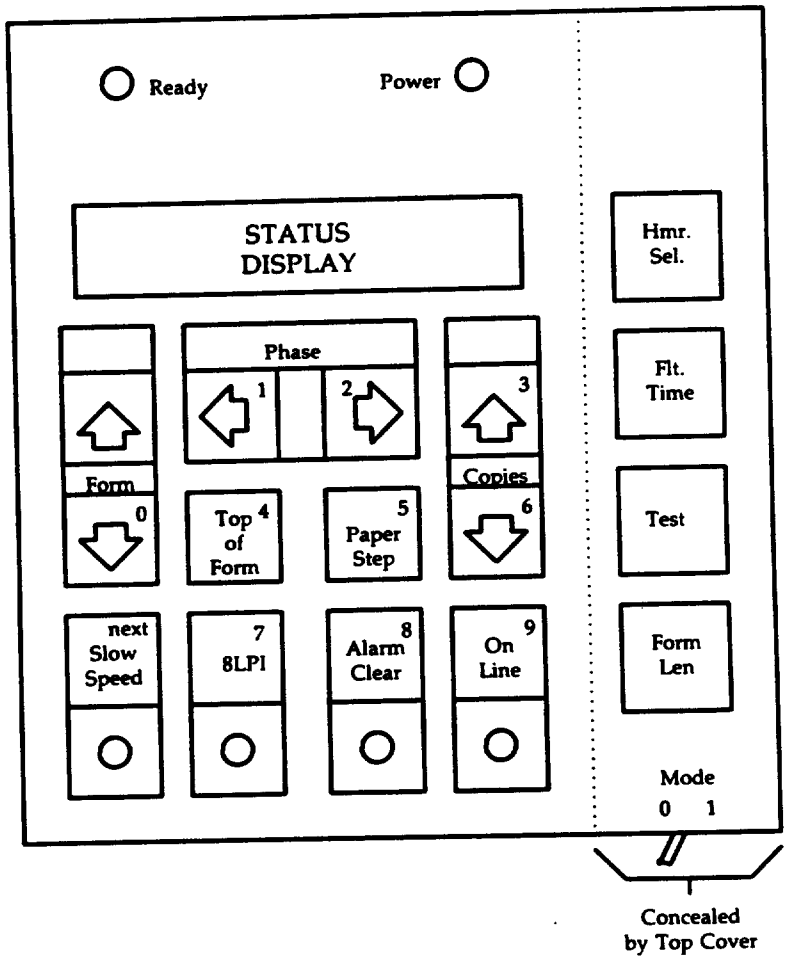
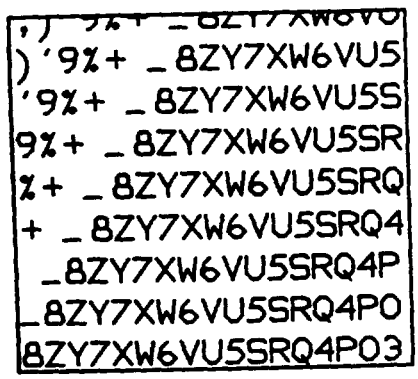
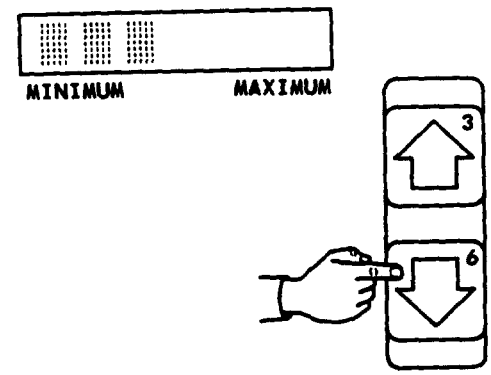


Figure 1

4. Press **Test** key until **SHIFT/REPEAT** is displayed in status display.
5. Close top cover.
6. Press **On Line** key to start the print cycle.
7. See Figure 2A on Page 2. After 10 or 12 sliding patterns are printed, press **On Line** to stop the print cycle.



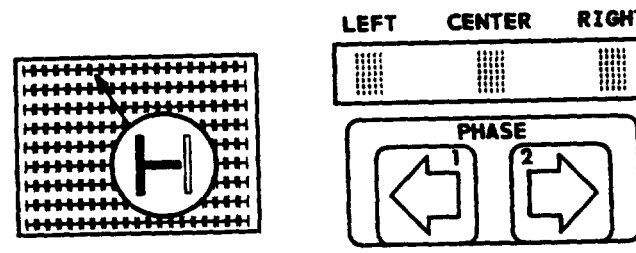
(A) Sliding pattern printout



(B) Minimum to maximum print form thickness

Paper Type	Thickness (inches)	Status Display
1 part	.003	|
2 part	.006	||||
3 part	.009	|||||||
4 part	.013	|||||||||
5 part	.016	||||||||||||
6 part	.020	||||||||||||||

(C) Copies Control Settings



(D) Characters showing unequal density

Figure 2

8. Open top cover.
9. Press **Test** key until **FIXED PATTERN** is displayed in status display.
10. Close top cover.
11. Press **On Line** key to start the print cycle.

    Response: Printer will scroll down and begin printing Hs across the form.
12. Press **Copies** ↑ **or** ↓ keys to adjust hammer impact for print form thickness. Adjust for the lowest setting for the print form being used. See Figures 2B and 2C on Page 2 to match the paper type with the correct setting.
13. Press **Phase** ← **or** → keys to adjust hammer impact to center characters. Adjust until the vertical legs of the Hs have equal density. → key increases the density of the right leg of the H, while ← key increases the density of the left leg of the H. Figure 2D shows unequal density.
14. When all adjustments are made, press **On Line** key to stop printing.
15. Open top cover and press **Test** until READY is displayed in the status display.
16. Close top cover.
17. Return the printer to service, press **On Line** key.
18. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**