

Volume Table of Contents

3390

MAP VTOC-1

Volume: 11
Title: MI MAPs F880-FEA0, INDEX
Machine Type: 4331-2/4331-11
Power Design Level: 5
B/M Number 4331-2: 5683209
B/M Number 4331-11: 4687172

PAGE NUMBER	PART NO.
3 390	4687019
3 400	8488074
3 410	5683193
3 500	8488059
3 510	8488060
3 515	8488477
3 516	8488478
3 517	8488485
3 518	8488494
3 519	8488496
3 521	8488371
3 531	8488372
3 541	8488373
3 551	8488374
3 560	8488459
3 570	8488073
3 580	8488075
3 590	8488077
3 600	8488078
3 610	8488079
3 620	8488080
3 625	5683326
Divider TAB	8483850
4 001	5683159
4 010	5683438
4 020	8488524
4 030	5683440
4 900	5683325

(WT only)

Remote TP-link

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	001	0001	A

001

(Entry Point A)

(Entry Point B)

Ref.code | Reason/Action

```

F801XX81 | ATTENTION: Make sure that the 'TP-link-test'
          | ===== was applied before using the
          | 'EIA-cable-test'.
  
```

Ref-code details:

F801XX81

||

00 = TD -> RD connection disturbed

||

|+-----+

Bits: 0 = DTR -> DSR = 4

1 = RTS -> CTS = 5

2 = SSB -> DCD = 6

3 = DRS -> RI = 7

(OUT) (IN)

CTS = Clear to send

DCD = Data carrier detect

DRS = Data rate select

DSR = Data set ready

DTR = Data terminal ready

RD = Receive data

RI = Ring indicator

RTS = Request to send

SSB = Select stand by

TD = Transmit data

(Step 001 continues)

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REF.CODE F80XXX81

26OCT81

EC 366493

3400

PN 8488074

PEC 366388

MAP F880-1

Remote TP-link

PAGE 2 OF 3

(Step 001 continued)

```

=====+
| SIGNAL |EIA|BOARD|TLG|MDM||PLG|TLG|BOARD|EIA|SIGNAL |
| (OUT) |CRD|CNCTR|   |PLG||MDM|   |CNCTR|CRD| (IN) |
|=====+
|DTR (0)|J02|V6D02|D02| 20|| 6 |D09|X6A02|J09|DSR (4)|
|RTS (1)|G03|V6E04|B03| 4 || 5 |B10|X6B04|G10|CTS (5)|
|SSB (2)|G05|W6B04|B05| 11|| 8 |D12|X6E02|J12|DCD (6)|
|DRS (3)|J06|W6C02|D06| 23|| 22|B13|X6E04|G13|RI (7)|
|TD      |G07|W6D04|B07| 2 || 3 |B04|W6A04|G04|RD |
|=====+

```

Positions:

Board connector:

1.EIA CRD = RLK Card 2; 01A-A2X4
 Board connector: 01A-A2ZH
 Tailgate (TLG): 01E-A1-BD

VVWWWXXXXX
 666666666666
 DEABCDEABCDE
 02

2.Line plate WT PSN; external cable.

Note:

Before line plate and external cable removing,
 perform line plate adjustment procedure.

See Volume 14, STM (FEAT.), Section: CA
 (Integrated Modem Adapter Interface WT SNAA,
 Jumper Setting of PSN Feature).

Then go to 0001, ENTRY POINT A.

(Step 001 continues)

26OCT81 PN 8488074

EC 366493 PEC 366388

3400 MAP F880-2

Remote TP-link

PAGE 3 OF 3

(Step 001 continued)

Ref.code	Reason	Suspected FRUs:	Go to MAP
F805XX81	CCA-error ATTENTION: This reference code may come up due to missing +5V on board position 01A-A2W2!	1.RLK card 1 ; 01A-A2W2 2.RLK card 2 ; 01A-A2X4 3.Board A2 ; 01A-A2	
F809XX81	CCA-error	1.RLK card 1 ; 01A-A2W2 2.RLK card 2 ; 01A-A2X4 3.Board A2 ; 01A-A2	
F80DXX81	Error in 38LS-modem or EIA card Ref.code can also be caused by improper switch setting.	1.RLK card 2 ; 01A-A2X4 2.Line plate WT PSN; Tailgate 01E 3.RLK card 1 ; 01A-A2W2 4.Board A2 ; 01A-A2 Attention: This reference code may come up for the 38LS/Line Plate when the receiver is lifted while the integrated test is running. The receiver must be replaced! Run self test for RSF link and insure switches on the A2X4 card are correct.	

After the repair

Go To Map 0001, Entry Point A.

26OCT81 PN 8488074

EC 366493 PEC 366388

3400 MAP F880-3



DCA-I/O Counter Overflow

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	001	0001	A

001

(Entry Point A)

Reference Code Layout:

F9 XX YY 01

```

  --  --
  |  |
  |  |
  |  |---Counter Number
  |  |
  |  |-----Port Number

```

Select "Native Displays and Printers" from the "Mode Select" menu of the CNTRL diskette.
Use the indicated port number to determine the I/O which caused the fault.

Go to appropriate I/O documentation.

After the repair.

Go To Map 0001, Entry Point A.

Log-In and Idle Programs

PAGE 1 OF 2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

001

(Entry Point A)

Ref. Code	Reason and Fix	Go to MAP
FC011081	Fix: Suspect cable at 01A-A2YM If no success:	0001 ENTRY POINT Y
FC20XX01	Reason: Unknown log monitor call: This may not validly occur. Fix: Go to EXIT MAP	0001 ENTRY POINT Y
FC30XX01	Reason: Invalid log request This error may not validly occur. Fix: Go to EXIT MAP	0001 ENTRY POINT Y
FC40XX01	Reason: This is a log loop. It may occur when: The same log request is raised again before the log process and MC/CC handling was completed. This Ref.Code comes always together with other logs, check with Log Distribution Statistic. This error is considered to be a solid failure. Therefore checkstop state is entered. Fix: Go to EXIT MAP	0001 ENTRY POINT P
FC708001	This Reference Code flashes when powering on. This is a normal operation.	

(Step 001 continues)

REF.C.FCXXX01

3500

MAP FC00-2

Log-IN and Idle Programs

PAGE 2 OF 2

(Step 001 continued)

FCC0XX01	Reason: FTA channel check with unknown adapter address	0001
	XX = adapter, channel address	ENTRY
	Fix: Go to EXIT MAP	POINT
		Y

Important Note:

Do not take any action as long as LOG-IN PROCESS but no Checkstop is indicated in line 23 on screen!

26OCT81 PN 8488059

EC 366493 PEC 366233

3500 MAP FC00-2

System Diskette Error MAP

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001
RFCA	B	1	001
RFCA	V	3	001
0020	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	001	0001	A

001

(Entry Point A)

(Entry Point B)

Important Hint:

Before you replace a card refer to the 'Plug List' in the Vol. MI 30 to find another card with the same P/N for card swapping.

General Note:

Check whether the diskette drive motor causes excessive vibration, which may affect the R/W heads.

Ref.code	Recommended Action	Go to MAP
FD01XX01	Reason: Module not found, Suspect: 1.Wrong diskette installed! 2.Link problem or control program error; Go to EXIT MAP	0001 ENTRY POINT Y
FD02XX01	Reason: Residual count available Suspect: Control program error; Go to EXIT MAP	
FD04XX01	Reason: Master index in error Suspect: Wrong diskette installed! Correct it.	0001,A

(Step 001 continues)

System Diskette Error

PAGE 2 OF 3

(Step 001 continued)

Ref.code	Recommended Action	Go to MAP
FD08XX01	Reason: Data check Suspect: 1.Defective diskette 2.Read/write circuitry: -R/W Head -Amplifier card -CDF card 1 -Cables	FD86,A
FD102001	Reason: Diskette drive interface connector problem or bad voltage Suspect: 1.+24V-pin B10 2.+5,1V-pin B03 3.-5,1V-pin B11	0001,A
FD10XX01	Reason: Equipment check Suspect: 1.CDF1 Card 1,2; 01A-A2R2, S2 2.Diskette 1 Cable; 01A-A2ZE 3.Drive error	FD80,A
FD20XX01	Reason: Timeout Suspect: Control program error RE-IML, if error appears again, Go to EXIT MAP	0001 ENTRY POINT Y
FD40XX01	Reason: Intervention required. Suspect: 1.Diskette not installed 2.Cover open 3.No diskette rotation 4.Index sensor defective Suspect also: CDF1 Card 1, 2, ; 01A-A2R2, S2	FD80,A
FD80XX01	Reason: Command reject Suspect: Control program or link error, Go to EXIT MAP	0001 ENTRY POINT
FD81XX01	Reason: Command reject and module not found Suspect: Link error, a module with ID '0000' was attempted to be accessed. Go to EXIT MAP	Y
--		

XX=any value, which is important for the support.

(Step 001 continues)

26OCT81 PN 8488060

EC 366493 PEC 366390

3510 MAP FD00-2

REF.C.FDXXXX01

3510

MAP FD00-3

System Diskette Error

PAGE 3 OF 3

(Step 001 continued)

(Entry Point V)

Verification:

After the repair

Go To Map 0001, Entry Point A.

26OCT81 PN 8488060

EC 366493 PEC 366390

3510 MAP FD00-3



I/O DISKETTE, ERROR MAP

PAGE 1 OF 5

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	2	001
RFCA	B	2	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
5	001	0001	A

Note:

Before you replace cards
01A-B2N2 and P2
try to find the faulty one
by swapping with cards
01A-B2R2 and S2.

I/O ERROR ENTRY

PAGE 2 OF 5

001

(Entry Point A)

(Entry Point B)

Important Notes

Before beginning the following procedure make sure that the error was not caused by a defective diskette.

Run the same routine which caused the error with another diskette. All diskette types except diskette type 1 formatted for the use on IBM 3125 and IBM 3115 are supported by this program.

Check whether the diskette drive motor causes excessive vibration, which may affect the R/W Heads.

Ref.Code	Reason/Action	Go to MAP
FD000181	Suspected FRUs:	
FD000281	CDF2 Card 1 and 2 ; 01A-A2N2 and P2	
FD000381		
FD000481		
FD000581		
FD000681		
FD000781		
FD000881		
FD000981		
FD000A81		
FD000B81		
FD000C81	After the repair go to EXIT MAP	0001,A
FD000D81	Ready problem	FD72,A
FD00FF81	Suspect FRUs:	
	CDF2 card 1 and 2; 01A-A2N2 and P2	
	or ready problem	FD72,A

(Step 001 continues)

26OCT81 PN 8488477

EC 366493 PEC 366390

3515 MAP FD60-2

I/O ERROR ENTRY

PAGE 3 OF 5

(Step 001 continued)

Ref.Code	Reason/Action	Go to MAP
FD010181	Suspected FRUs: CDF 2 Card 1 and 2 ; 01A-A2N2 and P2 or read problem	FD76,A
FD010281	Seek problem	FD74,A
FD010381	Read problem	FD76,A
FD021081	Write problem Suspected FRUs: 1.RD/WR Head 2.Electronic card in I/O diskette drive 3.Cable 01A-A2ZE 4.CDF 2 Card 1 and 2 ; 01A-A2N2 and P2 See also ref. code FDAAA81 in MAP	0402,N
FD021881 FD022081 FD022881	Read problem	FD76,A
FD023081	Wrong diskette installed. Copying and formatting of diskettes is only allowed for 2D diskettes, or the correct diskette is installed but may be defective. See Vol.13, STM, Section 5: I/O Diskette Drive Test (Test Selection 9). Use the right diskette. Order a new one, if the diskette is defective. If error is suspected in the drive, go to See also ref. code FDAAA81 in MAP	FD76,A 0402,N
FD023881	Ready problem	FD72,A
FD024081 FD028081 FD02C081	Read problem Defective Diskette (Address Marker)	FD76,A

(Step 001 continues)

26OCT81 PN 8488477

EC 366493 PEC 366390

3515 MAP FD60-3

I/O ERROR ENTRY

PAGE 4 OF 5

(Step 001 continued)

Ref.Code	Reason/Action	Go to MAP
FD02DD81	<p>This reference code will come up, if the diskette surface is defective or if there is any alternate track used on the diskette.</p> <p>All diskettes formatted with 'Alternate Track' cannot be surface checked with the 'I/O surface check' routine.</p> <p>If this reference code occurs with an I/O diskette use the procedure in MAP</p> <p>Order a new one, if the diskette is defective.</p>	<p>FD74, ENTRY POINT A</p>
FD030181	<p>Wrong diskette installed.</p> <p>Copying and formatting of diskettes is only allowed for 2D diskettes, or the correct diskette is installed but may be defective.</p> <p>See Vol.13, STM, Section 5: I/O Diskette Drive Test (Test Selection 9).</p> <p>Use the right diskette.</p> <p>Order a new one, if the diskette is defective.</p> <p>If error is suspected in the drive,.....</p>	<p>FD76,A</p>
FD400181	<p>Write problem</p> <p>Suspected FRUs:</p> <ol style="list-style-type: none"> 1.RD/WR Head 2.Electronic card in I/O diskette drive 3.Cable 01A-A2ZE 4.CDF 2 Card 1 and 2 ; 01A-A2N2 and P2 	

(Step 001 continues)

26OCT81 PN 8488477

EC 366493 PEC 366390

3515 MAP FD60-4

I/O ERROR ENTRY

PAGE 5 OF 5

(Step 001 continued)

Ref.Code	Reason/Action	Go to MAP
FDAAA81	Non compatible hardware.	0402 ENTRY POINT N
FDF0481	Be sure that the I/O diskette is inserted	
FDF0881	when running the 53FD diagnostic.	
FDF2081	53FD diagnostic is for I/O diskette only.	
FDF3081		
FDF3881	Suspected FRUs:	
FDF6081	CDF 2 Card 1 and 2 ; 01A-A2N2 and P2.	
FDF8081		

VERIFICATION:

After a repair
Go To Map 0001, Entry Point A.

26OCT81 PN 8488477

EC 366493 PEC 366390

3515 MAP FD60-5



I/O DISKETTE, ENTRY MAP

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	012	FD72	A
3	012	FD74	A
3	012	FD76	A
2	006	0E03	A
2	008	0001	A
3	011	0001	A

001

(Entry Point A)

Quick I/O Diskette Drive Check-Out Procedure.

 Run the I/O diskette diagnostic tests. Refer to
 Vol.13, STM, Section 5.

Any error?

Y N

002

Now perform the following procedure:

(Refer to Vol.13, STM, Section 5: Diskette Drive Maintenance Information, 130: Parts Location).

- . Make sure a diskette is inserted in the I/O diskette drive, and be sure that the diskette is not physically damaged.
- . If it is difficult to remove or insert a diskette in the drive check the head load bail return spring and the head backstop screw. (Refer to Vol.13, STM, Section 5: Diskette Drive Maintenance Information, 520: Solenoid and Bail Service Check'.)
- . Check that drive motor is running and the diskette is turning properly.

Remove power and check for the following defects:

- . Belt off or damaged.
(Step 002 continues)

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23JAN81 PN 8488478

REF.CODE FD001081

EC 366388 PEC 366345

4331

3516 MAP FD70-1

3
A

I/O DISK.ENTRY

(Step 002 continued)

- . Unseated diskette drive control card.
- . Unseated cable connectors.
- . Broken cover or pivots.
- . Broken or damaged drive band.

Failure found?

Y N

003

Was the error originally detected by the file diagnostic tests?

Y N

004

(Entry Point Y)

The error was detected by the operating system.
Get an EREP if possible.

EREP possible?

Y N

005

Go to Page 3, Step 012, Entry Point F.

006

Go To Map 0E03, Entry Point A.

007

Rerun the file diagnostic routine which generated the reference code.

See Vol.13, STM, Section 5: Diskette Drive Maintenance Information.

Does the error appear again?

Y N

008

Go To Map 0001, Entry Point A.

009

Go to Page 3, Step 012, Entry Point F.

A B
1 2

REF.C FD001081
I/O DISK.ENTRY
PAGE 3 OF 3

3516

MAP FD70-3

010
(Entry Point X)

Go to appropriate MAP and repair as required.

Rerun the file diagnostic routine, selection 5, loop function.

Does the error appear again

Y N

011
Go To Map 0001, Entry Point A.

012
(Entry Point F)

For a 'Not Ready' problem
Go To Map FD72, Entry Point A.

For a 'Seek' problem
Go To Map FD74, Entry Point A.

For a 'Read' problem
Go To Map FD76, Entry Point A.

013
Go to Step 010, Entry Point X.

23JAN81 PN 8488478
EC 366388 PEC 366345
3516 MAP FD70-3

I/O DISKETTE, NOT READY MAP

PAGE 1 OF 14

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FD60	A	1	001
FD70	A	1	001
FD74	A	1	001
OE03	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
11	054	0001	A
7	031	0001	A
9	044	0001	A
10	047	0001	A
10	051	0001	A
14	072	0001	A
4	013	0201	S
9	041	0201	T
7	030	0400	R

001

(Entry Point A)

Important hints:

Before you replace a card refer to the 'Plug List' in the Vol. MI 30 to find another card with the same P/N for card swapping.

If after a card exchange the test shows the same error symptoms, reinstall the old card before exchanging the next one.

I M P O R T A N T N O T E

Before beginning the following procedure, it is recommended that you first go to the 'Quick Diskette Drive Check-Out Procedure' in the I/O Diskette ENTRY MAP. Go to MAP FD70.

If problem is not corrected with that MAP, then return here.

Failure Description

A failure was detected in the diskette drive file ready circuitry. (The adapter will turn on file ready when the index pulses from the file control card indicate proper disk speed.)
(Step 001 continues)

I/O DISK.NOT READY

PAGE 2 OF 14

(Step 001 continued)
Is correct type of diskette installed?

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 010:
Diskette Description.

Note: Inspect the diskette. A diskette with two
index holes in the jacket (one for a diskette 1
diskette and one for a diskette 2 diskette)
cannot be used. It will not allow index pulses
to be present. The same error indi-
cation may be present if the diskette jacket allows enough
light through to trigger the index circuitry.

Y N

002

Insert correct diskette. Retry IML and run
file diagnostic routines,
selection 5.
Go to Page 7, Step 029, Entry Point Z.

003

Is diskette free of damage?

Y N

004

Replace diskette. Retry IML.
Go to Page 7, Step 029, Entry Point Z.

005

Is diskette inserted properly?

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 400:
Diskette Insertion.

Y N

006

Reinsert diskette properly Retry IML.
Go to Page 7, Step 029, Entry Point Z.

007

Does drive cover close properly?

Y N

3 3
A B

A B
2 2

REF.C.FD002081

3517

MAP FD72-3

I/O DISK.NOT READY

PAGE 3 OF 14

008

Correct drive cover operation.
Possible causes of drive cover not closing properly:

- 1.Any obstruction in the path of drive cover.
- 2.Drive cover latch not operating.
- 3.Drive cover pivots not functioning well.

Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information:
o 420: Cover Removal
o 430: Cover Replacement
o 440: Latch Assembly Removal
o 450: Latch Assembly Replacement.

009

(Entry Point AC)

Is drive hub pulley turning properly?

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 130:
Parts Location.

Y N

010

With power on the file drive hub is not turning.

The possible causes of this failure may be:

- 1.Bad diskette drive belt.
- 2.Missing drive motor AC voltage.
- 3.Bad diskette drive motor.
- 4.Drive pulley or drive hub adjustment.
- 5.Defective drive component.

(Entry Point AA)

Is file drive motor pulley turning?

Y N

011

Is drive motor shaft turning?

Y N

8 6 6 4
C D E F

23JAN81

PN 8488485

EC 366388

PEC 366345

3517

MAP FD72-3

F
3

REF.C.FD002081

3517

MAP FD72-4

I/O DISK.NOT READY

PAGE 4 OF 14

012

Measure AC voltage at AC motor connector.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 060:
Electrical Characteristics.

Is AC voltage correct at motor connector?

Y N

013

Suspect a power problem.
Go To Map 0201, Entry Point S.

014

Turn off AC power of drive motor. Remove
belt, allow motor to cool 5 minutes, then turn
on AC power.

Note: The drive motor has an automatic thermal
protection that resets when the motor cools.

Does motor start now?

Y N

015

Replace drive motor.
Retry IML and run file diagnostic routines,
selection 5.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information,
o 600: Drive Motor Removal
o 610: Drive Motor Replacement.

Caution:

If there is no ground strap between the
motor and the frame, install a ground strap.
Go to Page 7, Step 029, Entry Point Z.

016

Does diskette drive hub pulley turn freely (turn
manually)?

Caution: Turn power off when the disk drive
mechanism is operated manually.

Note: The drive mechanism has to be checked
for binds to avoid repeated switching of the
drive motor thermal contact.

Y N

S S
G H

23JAN81 PN 8488485

EC 366388 PEC 366345

3517 MAP FD72-4

G H
4 4

REF.C.FD002081

3517

MAP FD72-5

I/O DISK.NOT READY

PAGE 5 OF 14

017

Open diskette drive cover.

Now does drive hub turn freely?

Y N

018

If the binds cannot be corrected replace the entire disk drive assembly. Retry IML and run file diagnostic routines, selection 5.

Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 3: Diskette Drive Maintenance Information, 940: CDF Setup and Removal.

019

Replace cover or collet assembly as required. Retry IML and run file diagnostic routines, selection 5.

Go to Page 7, Step 029, Entry Point Z.

Refer to supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 420: Cover Removal and 460: Collet Removal

020

Check diskette drive idler for binds (turn manually).

Is idler free of binds?

Y N

021

Replace idler assembly. Retry IML and run file diagnostic routines, selection 5.

Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs Section 5: Diskette Drive Maintenance Information, 640: Idler Assembly Removal and 650: Idler Assembly Replacement.

022

Reinstall belt. If trouble still exists replace drive motor. Retry IML and run file diagnostic routines, selection 5.

Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 600: Drive Motor Removal and 610: Drive Motor Replacement.

23JAN81 PN 8488485
EC 366388 PEC 366345
3517 MAP FD72-5

D E
3 3

REF.C.FD002081

3517

MAP FD72-6

I/O DISK.NOT READY

PAGE 6 OF 14

023

Drive motor pulley is loose. Adjust and tighten.
Retry IML and run file diagnostic routines, selection 5.
Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 620:
Drive Pulley Removal and 630: Drive Pulley Replacement.

024

Is drive belt installed and tracking properly?

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 560:
Belt Tracking Service Check
and 570: Belt Tracking Adjustment.

Y N

025

Install or replace belt. Retry IML and run file diagnostic routines, selection 5.
Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 580:
Belt Removal and 590: Belt Replacement.

026

Check hub assembly for binds and noise with cover closed (turn manually).

Is hub free of binds and noise?

Y N

027

Open diskette drive cover.

Now is the drive hub free of binds and noise?

Y N

028

Replace entire disk drive assembly.
Retry IML.

Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 940:
CDF Setup and Removal.

7 7
J K

23JAN81 PN 8488485

EC 366388 PEC 366345

3517 MAP FD72-6

J K
6 6

REF.C.FD002081

3517

MAP FD72-7

I/O DISK.NOT READY

PAGE 7 OF 14

029

Replace cover or collet assembly as required. Retry IML.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 420: Cover Removal and 460: Collet Removal

(Entry Point Z)

IML successful?

Y N

030

Go To Map 0400, Entry Point R.

031

Go To Map 0001, Entry Point A.

032

Check diskette drive idler for binds (turn manually).

Is idler free of binds?

Y N

033

Replace idler assembly.
Retry IML and run file diagnostic routines, selection 5.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 640: Idler Assembly Removal and 650: Idler Assembly Replacement.

Go to Step 029, Entry Point Z.

034

You have checked the drive motor and drive mechanism for proper operation.
Replace the drive belt if you have not detected any other faulty part.
Do the repair as required!
Go to Page 14, Step 073, Entry Point C.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 580: Belt Removal and 590: Belt Replacement.

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3517

MAP FD72-7

C
3

035

(Entry Point AD)

When you enter here it is assumed that you have not detected any obvious trouble in the file drive mechanism.

Probe '+index' at the file drive control card with the failing diskette inserted.

Caution: Before removing or replacing cards or cables power-down completely.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 890: Control Card Test Pin
Note: Diskette must be rotating.

Is line pulsing?

Y N

036

Probe '+43FD index' and '+33FD index.'

Is only one line pulsing?

Y N

037

Inspect the diskette. A diskette with two index holes in the jacket (one for a diskette 1 diskette and one for a diskette 2 diskette) cannot be used. It will not allow index pulses to be present. The same error indication may be present if the diskette jacket allows enough light through to trigger the index circuitry.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 010: Diskette Description.

Is correct type of diskette inserted?

Y N

038

Insert correct type of diskette. Retry IML.
Go to Page 7, Step 023, Entry Point Z.

039

Go to Page 5, Step 040, Entry Point X.

1
9
M

M
8

REF.C.FD002081

3517

MAP FD72-9

I/O DISK.NOT READY

PAGE 9 OF 14

040

(Entry Point X)

Check '+5V DC', '-5V DC' and '+24V DC' input voltages to diskette drive.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 890: Control Card Test Pins. Refer to MIM 060: Electrical Characteristics.

Are voltages correct?

Y N

041

Suspect a PWR problem.

Go To Map 0201, Entry Point T.

042

Perform LED output service check.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 810: LED Output Service Check.

Is LED voltage correct?

Y N

043

Remove/replace the LED.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 820: LED Removal and 830: LED Replacement

Any more errors?

Y N

044

Problem is corrected.

Go To Map 0001, Entry Point A.

045

Replace diskette drive control card and check for satisfactory operation. Retry IML and run file diagnostic routines, selection 5.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 870: Control Card Removal and 880: Control Card Replacement.

Go to Page 7, Step 029, Entry Point Z.

I
O
N

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3517

MAP FD72-9

N
9

REF.C.FD002081
I/O DISK.NOT READY
PAGE 10 OF 14

3517 MAP FD72-10

046

Perform LED and phototransistor (PTX) alignment.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 800: LED and PTX Alignment.

Any more errors?

Y N

047

Problem is corrected.
Go To Map 0001, Entry Point A.

048

Replace CDF2 Card 1, 2 ; 01A-A2N2, P2.
Retry IML and run file diagnostic routines, selection 5.

Does IML and the diagnostic routines run error free?

Y N

049

Put the replaced cards back again and continue.

Perform PTX amplifier service check.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 840: PTX Amplifier Service Check.

Is output satisfactory for both 43FD and 33FD amplifiers?

Y N

050

Replace diskette drive control card and check for satisfactory operation.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information, 870: Control Card Removal and 880: Control Card Replacement.

Any more errors?

Y N

051

Go To Map 0001, Entry Point A.

052

Go to Page 11, Step 053, Entry Point AX.

1 1
1 1
P Q

23JAN81 PN 8488485
EC 366388 PEC 366345
3517 MAP FD72-10

L P Q
8 1 1
0 0

REF.C.FD002081
I/O DISK.NOT READY

3517

MAP FD72-11

PAGE 11 OF 14

053
(Entry Point AX)

Replace PTX assembly. Retry IML.

Go to Page 7, Step 029, Entry Point Z.

054
Go To Map 0001, Entry Point A.

055
(Entry Point AE)

Estimate disk speed!

Is disk speed correct?

Y N

056
Check cover pivots, cover latch and collet.

Are pivots, latch, and collet all right?

Y N

057
Replace as required. Retry IML.

Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 850:
PTX Removal and 860: PTX Replacement.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 790:
Diskette Speed Service Check
Note: If you cannot answer this question, first
use the YES-leg and then the NO-leg to isolate
the error.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 130:
Parts Location.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 420:
Cover Removal
430: Cover Replacement
440: Latch Assembly Removal
450: Latch Assembly Replacement
460: Collet Removal
470: Collet Replacement

1 1
2 2
R S

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EC 366388 PEC 366345

3517 MAP FD72-11

R S
1 1
1 1

REF.C.FD002081

3517

MAP FD72-12

I/O DISK.NOT READY

PAGE 12 OF 14

058

Perform head load solenoid service check.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 520:
Solenoid and Bail Service Check.

Is adjustment correct?

Y N

059

Adjust solenoid.
Retry IML and run file diagnostic routines,
selection 5.
Go to Page 7, Step 029, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 530:
Solenoid and Bail Adjustment.

060

To check the drive mechanism
Go to Page 3, Step 010, Entry Point AA.

061

(Entry Point AG)

Note: Diskette must be rotating.

Probe '+index' at O1A-A2N2 B09 (input to file
drive adapter card).

Is line pulsing?

Y N

062

Check signal cable from file drive control
card to board O1A-A2.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information, 920:
Control Card Interface
and 930: Signal Routing.

Is cable correct?

Y N

063

Repair or replace cable.
Retry IML and run file diagnostic routines,
selection 5.
Go to Page 7, Step 029, Entry Point Z.

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MAP FD72-12

1 1
3 3
1 0

T U
1 1
2 2

REF.C.FD002081

3517

MAP FD72-13

I/O DISK.NOT READY

PAGE 13 OF 14

064

Suspect an open or shorted board wiring
from 01A-A2P6-C02 to 01A-A2N2-B09.
Do the repair as required!
Go to Page 14, Step 073, Entry Point C.

065

(Entry Point AH)

Replace CDF2 Card 1 ; 01A-A2N2, and check
for satisfactory operation.

Caution: Before removing or replacing cards,
power-down completely.

Any more problems?

Y N

066

Problem is corrected.

GO TO MAP 0001, ENTRY POINT A.

Don't go on here!

'reserved'

Y N

067

068

(Entry Point AW)

Error found?

Y N

069

Replace entire disk drive assembly! Retry
IML.

Go to Page 7, Step 029, Entry Point Z.

See Supplement to MAPs, Section 5: Diskette
Drive Maintenance Information.

1 1
4 4
V W

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3517 MAP FD72-13

V W
1 1
3 3

REF.C.FD002081

3517

MAP FD72-14

I/O DISK.NOT READY

PAGE 14 OF 14

070

Retry IML and run file diagnostic routines, selection 5.

Go to Page 7, Step 029, Entry Point Z.

071

Reinstall 01A-A2N2 and replace CDF2 Card 2 ; 01A-A2P2.

Any more problems?

Y N

072

Problem is corrected.

Go To Map 0001, Entry Point A.

073

(Entry Point C)

Make sure that you have considered all the possible error causes listed below.

1.Disk not turning.

Go to Page 3, Step 009, Entry Point AC.

2a.File cover not closed properly.

b.No drive motor voltage or bad drive motor.

c.Defective drive component.

d.Bad adapter cards 01A-A2N2, P2

Go to Page 13, Step 065, Entry Point AH.

3.Missing index pulses.

Go to Page 8, Step 035, Entry Point AD.

If there are still missing index pulses and ENTRY POINT AD was not successful,

Go to Page 12, Step 061, Entry Point AG.

(Step 073 continues)

(Step 073 continued)

4a.Bad file control card.

b.Bad light emitting diode or phototransistor.

c.Bad phototransistor alignment.

d.Missing or out of tolerance diskette drive control card voltages.

e.Loose or bad cable connectors on the diskette drive control card or on 01A-A2ZE.

f.Defective diskette.

g.Disk speed incorrect.

Go to Page 11, Step 055, Entry Point AE.

5.Wrong type of diskette is inserted in drive.

Go to Page 1, Step 001, Entry Point A.

Note: Index pulses will not appear if a diskette with two index holes is inserted in the drive.

Go to Page 13, Step 068, Entry Point AW.

23JAN81 PN 8488485

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3517 MAP FD72-14

I/O DISKETTE, SEEK ERROR MAP

PAGE 1 OF 11

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FD60	A	1	001
FD70	A	1	001
FD76	T	3	005
FD76	BA	11	045
OE03	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
6	017	FD72	A
6	017	FD76	A
8	031	FD76	A
9	034	0001	A
5	014	0001	M
4	010	0201	T
8	026	0201	T
9	033	0400	R

001

(Entry Point A)

Did an error occur during I/O diskette drive test?

Y N

002

Important hints:

Before you replace a card, refer to the Plug List in the Vol. MI 30 to find another card with the same P/N for card swapping.

If after a card exchange the test shows the same error symptoms, re-install the old card before exchanging the next one.

Failure Description:

A failure was detected after a diskette drive seek operation. One or more of the following functions failed:

- Did not read the cylinder address after a seek operation.
 - Received incorrect status during an address mark interrupt.
 - Detected an ID-field error (incorrect ID read from diskette).
 - Detected an ID-field CRC error (could not read the ID-field).
- (Step 002 continues)

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4331

3518

MAP FD74-1

1
1
A

I/O DISK.SEEK ERROR

PAGE 2 OF 11

(Step 002 continued)

IMPORTANT NOTE

Before beginning the following procedure, it is recommended that you first go to the "Quick Diskette Drive Check-Out Procedure" in the I/O Diskette ENTRY MAP. Go to MAP FD70. If problem is not corrected with that MAP, then return here.

(Entry Point AA)

Check drive access mechanism for binds by manually turning the stepper motor pulley or by moving the carriage assembly.

Caution: Turn power off when the disk drive mechanism is operated manually. Refer to Vol.13, STM, Section 5: Diskette Drive Maintenance Information, 130: Parts Location.

Does the drive access mechanism move freely?

Y N

003

Locate the binding / defective parts and replace as required.

Refer to the appropriate removal/replacement procedure in the Supplement to MAPs.

Suspected parts:

Refer to Vol. 30, STM, Section 5: Diskette Drive Maintenance Information, 480 through 510 and 680 through 780.

. Head/carriage assembly

. Stepper drive parts

Retry IML and run file diagnostic routines, selection 5.

Then go to MAP 0001, ENTRY POINT A.

Don't go on here.

(Step 003 continues)

1
1
B

REF.C.FD004081
I/O DISK.SEEK ERROR

3518 MAP FD74-3

PAGE 3 OF 11

(Step 003 continued)

Reserved

Y N

004

005

(Entry Point T)

Check drive access mechanism for binds by manually turning the stepper motor pulley or by moving the carriage assembly.

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information, 130: Parts location.

Caution:
Turn power off when the disk drive mechanism is operated manually.

Does drive access mechanism move freely?

Y N

006

Locate the binding/defective parts and replace as required.

Refer to the appropriate removal/replacement procedure in the Supplement to MAPs.

Suspected parts:

- . Head/Carriage Assembly
- . Stepper Drive parts

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information, 480 through 510 and 680 through 780.

Retry IML and run file diagnostic routines, selection 5.

Go to Page 8, Step 032, Entry Point Z.

007

(Entry Point B)

Perform head/carriage service check. If stepper motor will not detent during this procedure, go ahead with the YES-leg and perform this check at a later time if required. Is the adjustment correct?

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information, 480: Head/ Carriage Service Check.

Y N

4 4
C D

23JAN81 PN 8488494
EC 366388 PEC 366234
3518 MAP FD74-3

C D
3 3

REF.C.FD004081

3518

MAP FD74-4

I/O DISK.SEEK ERROR

PAGE 4 OF 11

008

Perform head/carriage adjustment.
Retry IML and run file diagnostic routines,
selection 5.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information
490: Head Carriage Adjustment.

Go to Page 8, Step 032, Entry Point Z.

009

Check +24VDC input voltage to diskette drive.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
890: Control Card Test Pins.

Is voltage correct?

Y N

010

Go To Map 0201, Entry Point T.

011

Check the four access lines,
'+Access 0', '+Access 1',
'+Access 2', '+Access 3',
at the diskette drive control card test pins.
o Turn power off

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 890: Control card test pins
o 920: Control Card Interface
Description.
Section Access Lines
0 through 3
o 150: Typical Timing Sequence
o 160: Driver Control Logic

o Move carriage manually to
inner stop (track 76)

o Connect logic probe to the
four access lines
(one at a time)

o Turn power-on

o Watch logic probe until error
stop.

The access lines should start
pulsing after approximately
10-20 seconds (seek operation).

o Repeat this procedure for all
four access lines.
(Step 011 continues)

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EC 366388 PEC 366234

3518 MAP FD74-4

I/O DISK.SEEK ERROR

PAGE 5 OF 11

(Step 011 continued)

Are all four lines pulsing?

Y N

012

Check the four access lines at the CDF2 Card
1, 2 ; 01A-A2N2, P2.
Use the same procedure as in previous step.

Refer to Voi. 13, STM, Section 5:
Diskette Drive Maintenance Information; 930:
Signal Routing

Are all four lines pulsing?

Y N

013

Replace CDF2 Card 1 ; 01A-A2N2 and
check for satisfactory operation.

Caution:
Before removing or replacing cards,
power-down completely.

Any more problems?

Y N

014

Problem is corrected.

(Entry Point M)

Go To Map 0001, Entry Point M.

015

Reinstall 01A-A2N2 and replace CDF2
Card 2 ; 01A-A2P2.

Any more problems?

Y N

016

Problem is corrected.

Go to Step 014, Entry Point M.

7 6 6
E F G

F G
5 5

REF.C.FD004081

3518

MAP FD74-6

I/O DISK.SEEK ERROR

PAGE 6 OF 11

017

If there are other error symptoms go to the respective MAP that is:

If you suspect a not ready problem

Go To Map FD72, Entry Point A.

If you suspect a read problem

Go To Map FD76, Entry Point A.

Otherwise suspect:

1.Board 01A-A2

2.Signal cable from
board 01A-A2ZE to diskette
drive control card.

Check parts and replace
as required.

Go to Page 10, Step 041, Entry Point C.

Refer to Vol. 13, STM, Section 5:

Diskette Drive Maintenance Information,

o 930: Signal Routing

Refer to board replacement procedure in
Supplement to MAPs, Chapter 2.

018

(Entry Point D)

Check signal cable from the drive control card
to board 01A-A2ZE.

Refer to Vol. 13, STM, Section 5:

Diskette Drive Maintenance Information,

920: Control Card Interface to 930 Signal
Routing.

Is cable correct?

Y N

019

Repair or replace cable.

Retry IML and run file diagnostic routines,
selection 5.

Go to Page 8, Step 032, Entry Point Z.

020

Suspect an open or shorted board wiring on
board 1A-A2.

Repair board net or replace board.

Retry IML and run file diagnostic routines,
selection 5.

Go to Page 8, Step 032, Entry Point Z.

Refer to board replacement procedure in

Supplement to MAPs, Chapter 2.

23JAN81 PN 8488494

EC 366388 PEC 366234

3518 MAP FD74-6

5

REF.C.FD004081

3518

MAP FD74-7

I/O DISK.SEEK ERROR

PAGE 7 OF 11

021

Check stepper motor coils/cable and connector.

o Power-down

o Remove diskette drive control card

o Measure resistance of each stepper motor coil at pins in feed through connector. (Resistance across each coil to common should be 115-141 ohms.)

o Replug card and cable.

Is resistance of all four coils correct?

Y N

022

Replace stepper motor.

Any more problems?

Y N

023

Problem is corrected.

Go to Page 5, Step 014, Entry Point M.

024

Go to Step 025, Entry Point X.

025

(Entry Point X)

Check +5VDC, -5VDC and +24VDC input voltages to diskette drive control card.

Are voltages correct?

Y N

8 8
H J

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information,
o 870: Control Card Removal.
o 900: Control Card Socket and connector pins.
o 920: Control Card interface description.

Refer to Vol.13, STM, Section 5: Diskette Drive Maintenance Information,
o 680: Stepper motor removal.
o 690: Stepper motor replacement.

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information,
o 890: Control Card test pins
o 060: Electrical Characteristics.

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3518 MAP FD74-7

H J
7 7

REF.C.FD004081
I/O DISK.SEEK ERROR
PAGE 8 OF 11

3518 MAP FD74-8

026
Go To Map 0201, Entry Point T.

027
Replace diskette drive control card.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 870: Control Card Removal
o 880: Control Card Replacement

Any more problems?
Y N

028
Problem is corrected.

Go to MAP 0001, ENTRY POINT M.

Don't go on here!
Reserved

Y N

029

030
(Entry Point AW)

Error found?

Y N

031
Suspect a diskette read error; proceed
with Read Error MAP. In the Read Error
MAP you may omit those steps, you have
already done in this Seek MAP.
Go To Map FD76, Entry Point A.

032
Retry IML and run file diagnostic routines,
selection 5.

(Entry Point Z)

IML successful?

Y N

9 9 9
K L M

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3518 MAP FD74-8

K L M
8 8 8

REF.C.FD004081

3518

MAP FD74-9

I/O DISK.SEEK ERROR

PAGE 9 OF 11

033

Go To Map 0400, Entry Point R.

034

Go To Map 0001, Entry Point A.

035

Check that stepper motor pulley is tight on stepper motor shaft.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 710: Pulley and Clamp Replacement

Is pulley tight?

Y N

036

Adjust and tighten pulley.
Retry IML and run file diagnostic routines,
selection 5.

Go to Page 8, Step 032, Entry Point Z.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 700: Pulley and Clamp Removal
o 710: Pulley and Clamp Replacement

037

Visually check stepper drive band tracking.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information, o 730:
Drive Band Service check.

Is the drive band centered?

Y N

038

Adjust drive band.
Retry IML and run file diagnostic routine
selection 5.

Go to Page 8, Step 032, Entry Point Z.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 740: Drive Band Adjustment
o 490: Head/Carriage Adjustment

039

Visually check stepper drive band to see that it is free of damage.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 730: Drive Band Service Check

Is drive band free of damage?

Y N

1 1
0 0
N P

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EC 366388 PEC 366234

3518 MAP FD74-9

I/O DISK.SEEK ERROR

PAGE 10 OF 11

040

Replace band.
Retry IML and run file diagnostic routines,
selection 5.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 750: Drive Band Removal
o 760: Drive Band Replacement
o 740: Drive Band Adjustment

Go to Page 8, Step 032, Entry Point Z.

041

Suspect a failing stepper motor.
Before replacing the motor perform following
checks:

o Check to see that carriage
moves freely on its guide rods
at center and extreme limits
of carriage travel. Take care
not to damage band.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information, o 500:
Head/Carriage Removal
o 510: Head/Carriage Replacement

o Check idler pulley for binds.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information, o 770:
Idler Assembly Removal

o Check for correct gap between
stepper motor pulley and
casting.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
o 680: Stepper motor Removal.

Replace defective parts as required.
(Entry Point C)

To find the appropriate replacement procedure
refer to supplement to MAPs 5000 Diskette
Driver Maintenance Information.

Error found?

Y N

042

Try again using the following
overview for the possible causes for a seek error:

1. Defective diskette.
2. Bad adapter card (CDF2 card 1,2; 01A-A2N2, P2).
3. Bad diskette drive control card.
4. Diskette drive access mechanism (stepper motor, carriage)
is bad or out of alignment.

Go to Page 3, Step 005, Entry Point T.

(Step 042 continues)

A B Q
1 2 1
0

REF.C.FD004081

3518

MAP FD74-11

I/O DISK.SEEK ERROR

PAGE 11 OF 11

(Step 042 continued)

5. Missing or out of tolerance diskette drive control card
DC voltages (-5V, +5V, +24V).

Go to Page 7, Step 025, Entry Point X.

6. Loose or bad cable connectors at the diskette drive control
card or on board connector 01A-A2ZE.

Go to Page 6, Step 019, Entry Point D.

When you reach this point

Go to Page 8, Step 030,

Entry Point AW.

043

Retry IML and run file diagnostic routines,
selection 5.

Go to Page 8, Step 032, Entry Point Z.

044

Go to Page 3, Step 007, Entry Point B.

045

(Entry Point BA)

Check if the
diskette has a defective cylinder because the I/O Diskette Drive
Test does not handle a defective alternate cylinder.

Checking procedure:

Refer to Vol.13, STM, Section 5,

Diskette Drive Maintenance

Information (Test selection 7).

1. Invoke the test 7 (Record display).

2. Insert the problem diskette into the I/O diskette drive.

3. Display the index cylinder. Selection: CCHRRR= 000005.

4. Check if the data at bytes 7, 8, and 9 is X'404040'.

If it is not so, the diskette has one or more defective
or alternate cylinders.

In this case disregard the I/O diskette drive test results.

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3518

MAP FD74-11

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FD60	A	1	001
FD70	A	1	001
FD74	A	1	001
FD74	B	2	004
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	039	FD74	T
9	043	FD74	BA
9	042	0001	A
4	014	0001	M
6	027	0001	O
2	005	0201	T
9	041	0400	R

001
 (Entry Point A)

Did an error occur during I/O Diskette Drive Test?

Y N

002

Important Hints:

Before you replace a card, refer to the 'Plug List' in the Vol. MI 30 to find another card with the same P/N for card swapping.

If after a card exchange the test shows the same error symptoms, reinstall the old card before exchanging the next one.

Failure Description

A read error was detected at the end of a diskette file read operation.

One or more of the following functions failed:

- Detected an ID-field CRC error
 - Detected a data field CRC error
- (Step 002 continues)

9
 A

I/O DISK.,READ ERROR

(Step 002 continued)

- The number of address marks detected on track zero is not 26.

IMPORTANT NOTE

Before beginning the following procedure, it is recommended that you first go to the 'Quick Diskette Drive Check-Out Procedure' in the User Diskette ENTRY MAP. Go to MAP FD70. If problem is not corrected with that MAP, then return here.

(Entry Point AA)

The failure may be caused by a defective diskette or a dirty head. Take the appropriate corrective action if required.

Does the problem still exist?

Y N

003

End of repair action.
Retry IPL and run file diagnostics selection 5.
Go to Page 9, Step 040, Entry Point Z.

004

(Entry Point B)

Check +5VDC, -5VDC and +24VDC input voltages to the diskette drive.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information:
o 890: Control Card Test Pins
o 060: Electrical Characteristics.

Are voltages correct?

Y N

005

Go To Map 0201, Entry Point T.

006

Do both heads load after each seek operation?

Note:
If you came from the SEEK ERROR MAP FD74 and were asked to do the head load service check, continue with the NO-leg.

Y N

4 3
B C

C
2

REF.C.FD006081

3519

MAP FD76-3

I/O DISK.,READ ERROR

PAGE 3 OF 9

007

(Entry Point D)

Do head load service check.
Install a jumper from ground to the 'Head Load' test pin on the diskette drive control card. This should energize the solenoid and cause the bail to load the heads.

Do the heads load?

Y N

008

Check head load solenoid resistance. Resistance should measure 66 to 74 ohms at normal room temperature (may be up to 140 ohms when the solenoid coil is hot.)

Is resistance within limits?

Y N

009

Repair or replace parts as required.
Retry IML.

Go to Page 9, Step 040, Entry Point Z.

010

Remove diskette drive cover. Operate bail manually. Check to see that solenoid and bail are free of binds. Check to see that bail return spring returns bail to its back stop.

Any binds detected?

Y N

011

Replace diskette drive control card and check for satisfactory operation. Retry IML and run file diagnostic routines, selection 5.
Go to Page 8, Step 038, Entry Point C.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information:
o 530: Solenoid and Bail Adjustment, steps 1 through 6
o 890: Control Card Test Pins

Refer to figures associated with Supplement to MAPs, Section 5: Diskette Drive Maintenance Information,
o 540: Solenoid and Bail Removal,

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information:
o 540: Solenoid and Bail Removal
o 550: Solenoid and Bail Replacement.

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information:
o 420: Cover Removal
o 530: Solenoid and Bail Adjustment (figures associated)

Refer to Supplement to MAPs, Section 5: Diskette Drive Maintenance Information:
o 870: Control Card Removal
o 880: Control Card Replacement.

4 4
D E

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EC 366388 PEC 366345

3519 MAP FD76-3

B D E
2 3 3

REF.C.FD006081

3519

MAP FD76-4

I/O DISK.,READ ERROR

PAGE 4 OF 9

012

Repair or replace binding parts.
Retry IML and run file diagnostic routines,
selection 5.
Go to Page 9, Step 040, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information,
540: Solenoid and Bail Removal.

013

Replace CDF2 Card 1 01A-A2N2, and check
for satisfactory operation.

Any more problems?

Y N

014

Problem is corrected.
(Entry Point M)
Go To Map 0001, Entry Point M.

015

Reinstall 01A-A2N2 and replace 01A-A2P2.
Any more problems?

Y N

016

Problem is corrected.
Go to Step 014, Entry Point M.

017

Consider an open or shorted '+ Head
Engage' line. Trace this signal from the
adapter card to the diskette drive control
card.
Check continuity from TPB7 to
01A-A2N2-U04.
Repair or replace defective parts as required!
Go to Page 8, Step 038, Entry Point C.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information,
930: Signal Routing.

018

Do head load solenoid service check.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information,
520: Solenoid and Bail Service Check,

Is service check satisfactory?

Y N

5 5
F G

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3519 MAP FD76-4

F G
4 4

REF.C.FD006081

3519

MAP FD76-5

I/O DISK.,READ ERROR

PAGE 5 OF 9

019

Adjust or replace as required. Retry IML and run file diagnostic routines, selection 5.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information
o 530: Solenoid and Bail Adjustment
o 540: Solenoid and Bail Removal
o 550: Solenoid and Bail Replacement.

Go to Page 9, Step 040, Entry Point Z.

020

Perform head/carriage service check.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information 480:
Head/Carriage Service Check.

Note:

If you entered this MAP coming from the SEEK MAP, you may have done this check already.

Is adjustment correct?

Y N

021

Perform head/carriage adjustment.
Retry IML and run file diagnostic routines, selection 5.
Go to Page 9, Step 040, Entry Point Z.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information,
490: Head/Carriage Adjustment.

022

Replace diskette drive control card and check for satisfactory operation.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information:
o 870: Control Card Removal
o 880: Control card replacement.

Note:

If cards are not available at this point in time, you may delay this step and the next step and continue with the 'file data' check procedure.

Any more problems?

Y N

6 6
H J

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PN 8488496

EC 366388

PEC 366345

3519

MAP FD76-5

H J
5 5

REF.C.FD006081

3519

MAP FD76-6

I/O DISK.,READ ERROR

PAGE 6 OF 9

023

End of repair action.

Go to MAP 0001, ENTRY POINT A

Don't go on here!

'reserved'

Y N

024

025

(Entry Point AW)

Error found?

Y N

026

Replace the head/carriage assembly!

Problem solved?

Y N

027

Go To Map 0001, Entry Point O.

028

Retry IML and run file diagnostic routines,
selection 5.

Go to Page 9, Step 040, Entry Point Z.

029

After the repair, retry IML and run file
diagnostic routines, selection 5.

Go to Page 9, Step 040, Entry Point Z.

030

Replace CDF2 Card 1 1A-A2N2, and check for
satisfactory operation.

Any more problems?

Y N

7 7
K L

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EC 366388 PEC 366345

3519 MAP FD76-6

K L
6 6

REF.C.FD006081

3519

MAP FD76-7

I/O DISK.,READ ERROR

PAGE 7 OF 9

031

End of repair action.

Go to Page 9, Step 040, Entry Point Z.

032

Reinstall 01A-A2N2 and replace CDF2 Card 2,
01A-A2P2.

Any more problems?

Y N

033

End of repair action.

Go to Page 9, Step 040, Entry Point Z.

034

Trace the '+ file data' line with the logic probe
from diskette drive control card to diskette
drive adapter card in board 01A-A2.

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information:
o 930: Signal Routing
o 890: Control Card Test Pins

Note:

A pulsing line does not necessarily indicate
good data.

Is this line pulsing during file read
operations?

Y N

035

Depending upon the results of your
measurement, suspect:

- o Diskette drive control card
and associated connectors
- o Signal cable from diskette
drive control card to 01A-A2ZE
- o Board wiring on 01A-A2

Do the repair as required.

Go to Page 8, Step 038, Entry Point C.

8
M

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3519 MAP FD76-7

M
7

REF.C.FD006081

3519

MAP FD76-8

I/O DISK.,READ ERROR

PAGE 8 OF 9

036

Trace the '+ Select Head 1' line with the logic probe from the diskette drive adapter card in board 01A-A2 to the diskette drive control card.

Refer to Supplement to MAPs,
Section 5: Diskette Drive Maintenance Information,
o 930: Signal Routing
o 890: Control Card Test Pins.

Is this line pulsing at all test points during reading from diskette?

Y N

037

Depending upon the results of your measurement, suspect:

- o Diskette drive adapter cards
01A-A2N2, P2
- o Board wiring on 01A-A2
- o Signal cable from 01A-A2ZE to diskette drive control card
- o Diskette drive control card and associated connectors.

Do the repair as required!

Go to Step 038, Entry Point C.

038

(Entry Point C)

Error found?

Y N

039

Try again using the following overview to determine all possible causes:

1. Defective diskette.
2. Read/write head is dirty, bad or out of alignment.
3. Head load solenoid and bail bad or out of alignment.

Go to Page 3, Step 007, Entry Point D.

(Step 039 continues)

9
N

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PEC 366345

3519

MAP FD76-8

A N
1 8

REF.C.FD006081

3519

MAP FD76-9

I/O DISK.,READ ERROR

PAGE 9 OF 9

(Step 039 continued)

4.Bad adapter card
(CDF2 card 1,2; 1A-A2N2, P2).

5.Bad diskette drive control
card located in user diskette
drive.

6.Missing or out of tolerance
diskette drive control
card DC voltages
(-5V, +5V, +24V).

Go to Page 2, Step 004, Entry Point B.

7.Loose or bad cable
connectors at the diskette
drive control card or on
board connector 1A-A2ZE

Refer to Supplement to MAPs, Section 5:
Diskette Drive Maintenance Information
930: Signal Routing

8.Diskette drive access
mechanism (stepper motor and carriage)
is bad or out of alignment
Go To Map FD74, Entry Point T.

When you come to this point for a second
time,
Go to Page 6, Step 025, Entry Point AW.

040

Retry IML and run file diagnostic routines,
selection 5.

(Entry Point Z)

Is IML successful?

Y N

041

Go To Map 0400, Entry Point R.

042

Go To Map 0001, Entry Point A.

043

Go To Map FD74, Entry Point BA.

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3519 MAP FD76-9



ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0000	A	1	001
0020	A	1	001
0240	A	1	001
0242	A	1	001
0243	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	007	0001	A
1	002	0201	T
3	006	0400	R

001
 (Entry Point A)

Quick Diskette Drive Check-Out Procedure.

Before using MAPs FD82, FD84, or FD86, perform the following procedure.

Ensure that all CP's of PS104 and PS103 (if present) are switched on.

See MI POWER, Physical Locations.

Ensure that all three voltages for the system diskette drive are ok (+24V, +5V, -5V):

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information. 930 Signal Routing. Use the column 'Cable Connector, Drive Side'

Are the voltages ok?

Y N

002
 Go To Map 0201, Entry Point T.

2
 A

A
1

REF.C.FD000081

3521

MAP FD80-2

SYST.DISK.ENTRY

PAGE 2 OF 3

003

- . Make sure the diskette is not damaged.
- . Run the diskette surface analysis test, see Vol. 13, STM, Section 5: Diskette Drive Maintenance Information.
- . If it is difficult to remove or insert a diskette in the drive check the head load bail return spring and the head backstop screw. (Refer to VOL. 13, STM, Section 5: Diskette Drive Maintenance Information, 520: Solenoid and Bail Service Check.
- . Check that drive motor is running and the diskette is turning properly.

Remove power and check for the following defects:
Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information,
130: Parts Location.

- . Belt off or damaged.
- . Unseated diskette drive control card.
- . Unseated cable connectors.
- . Broken cover or pivots.
- . Broken or damaged drive band.

Failure found?

Y N

004

Return to the diskette MAP you started before.

MAP FD82 (Diskette not ready)

MAP FD84 (Diskette seek error)

MAP FD86 (Diskette read error)

Note: The sequence of diskette operations during IML are described below.
See 'Diskette File IML Sequence'.

3
B

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PEC 366272

3521

MAP FD80-2

B
2

REF.C.FD000081
SYST.DISK.ENTRY

3521

MAP FD80-3

PAGE 3 OF 3

005

Re-IML the system.

Diskette File IML Sequence.

After pressing the power on/IML key the following diskette file sequence is executed:

1. Seek to cylinder 00.
2. Read cylinder 00, track 0, record 1 and 2
(bootstrap record 1 and 2).
3. Select head 1.
4. Read cylinder 00, track # 1, record 1 through 17
(SP -loader).
5. Select head 0.
6. Read cylinder 00, track 0, record 7
(volume label).
7. Seek to cylinder 70.
Seek to cylinder 40.
Seek to cylinder 10.
Seek to cylinder 00.
8. Seek to cylinder 01.
Read cylinder 01, track 0, record 2
(diskette master index).
9. From now on all seek/read operations depend on the machine configuration.

Is IML successful?

Y N

006

Go To Map 0400, Entry Point R.

007

Go To Map 0001, Entry Point A.

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EC 366388 PEC 366272

3521 MAP FD80-3

SYSTEM DISKETTE, NOT READY MAP

PAGE 1 OF 15

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FD80	A	1	001
FD84	A	1	001
0000	A	1	001
0400	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
13	068	0001	A
15	073	0001	M
4	013	0201	S
8	040	0201	T
13	067	0400	R

001

(Entry Point A)

Important hints:

Before you replace a card refer to the 'Plug List' in the Vol. MI 30 to find another card with the same P/N for card swapping.

If, after a card exchange the test shows the same error symptoms, reinstall the old card before exchanging the next one.

I M P O R T A N T N O T E

If an I/O diskette unit is installed, be sure that in the system diskette unit there is really the 'system diskette' inserted and not the 'system diskette overflow diskette'.

Before beginning the following procedure, it is recommended that you first go to the 'Quick Diskette Drive Check-Out Procedure' in the System Diskette ENTRY MAP. Go to MAP FD80.

If problem is not corrected with that MAP, then return here.

Failure Description

A failure was detected in the diskette drive file ready circuitry. (The adapter will turn on file ready when the index pulses from the file control card indicate proper disk speed.)

Is correct type of diskette installed?

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information, 010: Diskette Description.

(Step 001 continues)

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4331

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3531 MAP FD82-1

SYST.DISK.NOT READY

PAGE 2 OF 15

(Step 001 continued)

Is the 'system diskette' inserted and not the 'system diskette overflow diskette'. (See also the note on the right hand side.)

Note: Inspect the diskette. A diskette with two index holes in the jacket (one for a diskette 1 diskette and one for a diskette 2 diskette) cannot be used. It will not allow index pulses to be present. The same error indication may be present if the diskette jacket allows enough light through to trigger the index circuitry.

Y N

002

Insert correct diskette and retry IML.

Go to Page 13, Step 066, Entry Point Z.

003

Is diskette free of damage?

Y N

004

Replace diskette.

Go to Page 13, Step 066, Entry Point Z.

005

Is diskette inserted properly?

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
400: Diskette Insertion.

Y N

006

Reinsert diskette properly.
Retry IML.

Go to Page 13, Step 066, Entry Point Z.

007

Does drive cover close properly?

Y N

3 3
A B

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3531 MAP FD82-2

A B
2 2

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 3 OF 15

3531

MAP FD82-3

008

Correct drive cover operation.
Possible causes of drive cover not closing properly:

- 1.Any obstruction in the path of drive cover.
- 2.Drive cover latch not operating.
- 3.Drive cover pivots not functioning well.

Go to Page 13, Step 066, Entry Point Z.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
420: Cover Removal
430: Cover Replacement
440: Latch Assembly Removal
450: Latch Assembly Replacement.

009

(Entry Point AC)

Is drive hub pulley turning properly?

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
130: Parts Location.

Y N

010

With power on, the file drive hub is not turning.

The possible causes of this failure may be:

- 1.Bad diskette drive belt.
- 2.Missing drive motor AC voltage.
- 3.Bad diskette drive motor.
- 4.Drive pulley or drive hub adjustment.
- 5.Defective drive component.

(Entry Point AA)

Is file drive motor pulley turning?

Y N

011

Is drive motor shaft turning?

Y N

7 6 5 4
C D E F

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EC 366388 PEC 366272

3531 MAP FD82-3

F
3

012

Measure AC voltage at AC motor connector.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
060: Electrical Characteristics.

Is AC voltage correct at motor connector?

Y N

013

Suspect a power problem.
Go To Map 0201, Entry Point S.

014

Turn off AC power of drive motor. Remove
belt, allow motor to cool for 5 minutes, then
turn on AC power.

Note: The drive motor has an automatic thermal
protection, that resets when the motor cools.

Does motor start now?

Y N

015

Replace drive motor.
Caution: If there is no ground strap between
the motor and the frame, install a ground
strap.
Retry IML.
Go to Page 13, Step 066, Entry Point Z.

Refer to Vol.13, STM, Section 5:
Diskette Drive Maintenance Information,
600: Drive Motor Removal.
610: Drive Motor Replacement.

016

Does diskette drive hub pulley turn freely (turn
manually)?

Caution: Turn power off when the disk drive
mechanism is operated manually.
Note: The drive mechanism has to be checked
for binds to avoid repeated switching of the
drive motor thermal contact.

Y N

017

Open diskette drive cover.

Now does drive hub turn freely?

Y N

5 5 5
E H J

E G H J
3 4 4 4

REF.C.FD000281

3531

MAP FD82-5

SYST.DISK.NOT READY

PAGE 5 OF 15

018

If the binds cannot be corrected,
replace the entire disk drive assembly.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
940: CDF Setup and Removal.

Go to Page 13, Step 066, Entry Point Z.

019

Replace cover or collet assembly as
required.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
420: Cover Removal
460: Collet Removal

Go to Page 13, Step 066, Entry Point Z.

020

Check diskette drive idler for binds (turn
manually).

Is idler free of binds?

Y N

021

Replace idler assembly.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
640: Idler Assembly Removal.
650: Idler Assembly Replacement.

Go to Page 13, Step 066, Entry Point Z.

022

Reinstall belt. If trouble still exists, replace
drive motor.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
600: Drive Motor Removal.
610: Drive Motor Replacement.

Go to Page 13, Step 066, Entry Point Z.

023

Drive motor pulley is loose. Adjust and tighten.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
620: Drive Pulley Removal
630: Drive Pulley Replacement

Go to Page 13, Step 066, Entry Point Z.

23JAN81 PN 8488372

EC 366388 PEC 366272

3531 MAP FD82-5

D
3

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 6 OF 15

3531 MAP FD82-6

024

Is drive belt installed and tracking properly?

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
560: Belt Tracking Service Check.
570: Belt Tracking Adjustment.

Y N

025

Install or replace belt. Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
580: Belt Removal
590: Belt Replacement.

Go to Page 13, Step 066, Entry Point Z.

026

Check hub assembly for binds and noise with cover closed (turn manually).

Is hub free of binds and noise?

Y N

027

Open diskette drive cover.

Now is the drive hub free of binds and noise?

Y N

028

Replace entire disk drive assembly.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
940: CDF Setup and Removal.

Go to Page 13, Step 066, Entry Point Z.

029

Replace cover or collet assembly as required.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
420: Cover Removal.
460: Collet Removal.

Go to Page 13, Step 066, Entry Point Z.

7
K

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3531 MAP FD82-6

C K
3 6

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 7 OF 15

3531 MAP FD82-7

030

Check diskette drive idler for binds (turn manually).

Is idler free of binds?

Y N

031

Replace idler assembly.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
640: Idler Assembly Removal.
650: Idler Assembly Replacement.

032

You have checked the drive motor and drive mechanism for proper operation.
Replace the drive belt if you have not detected any other faulty part.
Do the repair as required!

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
580: Belt Removal.
590: Belt Replacement.

Go to Page 14, Step 072, Entry Point C.

033

(Entry Point AD)

When you enter here, it is assumed that you have not detected any obvious trouble in the file drive mechanism.

Caution: Before removing or replacing cards or cables power-down completely.

Replace CDF1 Card 1, 2: 01A-A2R2, S2

Retry IML.

Error found?

Y N

034

Put the replaced cards back again and continue here
Probe 'index' at the file drive control card with the failing diskette inserted.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
890: Control Card Test P.
Note: Diskette must be rotating.

Is line pulsing?

Y N

1 1
5 0 8
L M N

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EC 366388 PEC 366272
3531 MAP FD82-7

N
7

REF.C.FD000281

3531

MAP FD82-8

SYST.DISK.NOT READY

PAGE 8 OF 15

035

Probe '+43FD index' and '+33FD index.'

Is only one line pulsing?

Y N

036

Inspect the diskette. A diskette with two index holes in the jacket (one for a diskette 1 diskette and one for a diskette 2 diskette) cannot be used. It will not allow index pulses to be present. The same error indication may be present if the diskette jacket allows enough light through to trigger the index circuitry.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
010: Diskette Description.

Is correct type of diskette inserted?

Y N

037

Insert correct type of diskette.
Retry IML.

Go to Page 13, Step 066, Entry Point Z.

038

Go to Step 039, Entry Point X.

039

(Entry Point X)

Check '+5V DC', '-5V DC' and '+24V DC' input voltages to diskette drive.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
890: Control Card Test Pins.
Refer to MIM,
060: Electrical Characteristics.

Are voltages correct?

Y N

040

Suspect a PWR problem.
Go To Map 0201, Entry Point T.

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3531 MAP FD82-8

8

P
8

REF.C.FD0002B1
SYST.DISK.NOT READY
PAGE 9 OF 15

3531 MAP FD82-9

041
Perform LED output service check.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
810: LED Output Service Check.

Is LED voltage correct?

Y N

042
Remove/replace the LED.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
820: LED Removal.
830: LED Replacement.

Any more errors?

Y N

043
Problem is corrected.

Go to Page 15, Step 073, Entry Point M.

044
Replace diskette drive control card and
check for satisfactory operation.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
870: Control Card Removal.
880: Control Card Replacement.

Go to Page 13, Step 066, Entry Point Z.

045
Perform LED and phototransistor (PTX)
alignment.

Refer to Vol. 13, STM, section 5:
Diskette Drive Maintenance Information,
800: LED and PTX Alignment.

Any more errors?

Y N

046
Problem is corrected.

Go to Page 15, Step 073, Entry Point M.

1
0
Q

23JAN81 PN 8488372
EC 366388 PEC 366272
3531 MAP FD82-9

M 0
7 9

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 10 OF 15

3531 MAP FD82-10

047

Perform PTX amplifier service check.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
840: PTX Amplifier Service Check.

Is output correct for both 43FD and 33FD
amplifiers?

Y N

048

Replace diskette drive control card and
check for satisfactory operation.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
870: Control Card Removal.
880: Control Card Replacement.

Any more errors?

Y N

049

Problem is corrected.

Go to Page 15, Step 073, Entry Point M.

050

Go to Step 051, Entry Point AX.

051

(Entry Point AX)

Replace PTX assembly.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
850: PTX Removal.
860: PTX Replacement.

Go to Page 13, Step 066, Entry Point Z.

052

(Entry Point AE)

Estimate disk speed!

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
790: Diskette Speed Service Check.

Note: If you cannot answer this question first
use the YES-leg and then the NO-leg to isolate
the error.

Is disk speed correct?

Y N

1 I
2 I
R S

23JAN81 PN 8488372
EC 366388 PEC 366272
3531 MAP FD82-10

S
1
0

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 11 OF 15

3531 MAP FD82-11

053

Check cover pivots, cover latch and collet.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
130: Parts Location.

Are pivots, latch, and collet alright?

Y N

054

Replace as required.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance information,
420: Cover Removal.
430: Cover Replacement.
440: Latch Assembly Removal.
450: Latch Assembly Replacement.
460: Collet Removal.
470: Collet Replacement.

Go to Page 13, Step 063, Entry Point Z.

055

Perform head load solenoid service check.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
520: Solenoid and Bail Service Check

Is adjustment correct?

Y N

056

Adjust solenoid.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
530: Solenoid and Bail Adjustment.

Go to Page 13, Step 066, Entry Point Z.

057

To check the drive mechanism
Go to Page 3, Step 010, Entry Point AA.

23JAN81 PN 8488372
EC 366388 PEC 366272
3531 MAP FD82-11

R
1
0

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 12 OF 15

3531 MAP FD82-12

058
(Entry Point AG)

Note: Diskette must be rotating.

Probe '+index' at 1A-A2R2 B09 (input to file drive adapter card).

Is line pulsing?

Y N

059

Check signal cable from file drive control card to board 1A-A2.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
920: Control Card Interface Description,
930: Signal Routing.

Is cable correct?

Y N

060

Repair or replace cable.
Retry IML.

Go to Page 13, Step 066, Entry Point Z.

061

Suspect an open or shorted board wiring from 1A-A2P6-C02 to 01A-A2R2-B09.
Do the repair as required!

Go to Page 14, Step 072, Entry Point C.

062
(Entry Point AH)

Caution: Before removing or replacing cards power-down completely.

Replace console disk file adapter card 1A-A2R2 and check for satisfactory operation.
Any more problems?

Y N

1 1
3 3
7 U

23JAN81 PN 8488372
EC 366388 PEC 366272
3531 MAP FD82-12

T U
1 1
2 2

REF.C.FD000281
SYST.DISK.NOT READY
PAGE 13 OF 15

3531 MAP FD82-13

063
Problem is corrected.

don't go on here!

'reserved'

Y N

064

065
(Entry Point AW)

Error found?

Y N

066

Replace entire disk drive assembly.
Retry IML.

See Vol. 13, STM, Section 5: Diskette Drive
Maintenance Information.

(Entry Point Z)

IML successful?

Y N

067

Go To Map 0400, Entry Point R.

068

Go To Map 0001, Entry Point A.

069

Retry IML.

Go to Step 066, Entry Point Z.

070

Reinstall 01A-A2R2 and replace 01A-A2S2.

Any more problems?

Y N

J J
4 4
V W

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3531 MAP FD82-13

V W
1 1
3 3

REF.C.FD000281
SYST.DISK.NOT READY

3531

MAP FD82-14

PAGE 14 OF 15

071

Problem is corrected.

Go to Page 15, Step 073, Entry Point M.

072

(Entry Point C)

Make sure that you have considered all the possible error causes listed below.

1. Disk not turning.

Go to Page 3, Step 009, Entry Point AC.

2a. File cover not closed properly.

b. No drive motor voltage or bad drive motor.

c. Defective drive component.

d. Bad adapter cards 1A-A2R2, S2

Go to Page 12, Step 062, Entry Point AH.

3. Missing index pulses.

Go to Page 7, Step 033, Entry Point AD.

If there are still missing index pulses and ENTRY POINT AD was not successful,

Go to Page 12, Step 058, Entry Point AG.

4a. Bad file control card.

b. Bad light emitting diode or phototransistor.

c. Bad phototransistor alignment.

d. Missing or out of tolerance diskette drive control card voltages.

e. Loose or bad cable connectors on the diskette drive control card or on 1A-A2ZF.

f. Defective diskette.

g. Disk speed incorrect.

Go to Page 10, Step 052, Entry Point AE.

5. Wrong type of diskette is inserted in drive.

Go to Page 1, Step 001, Entry Point A.

(Step 072 continues)

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3531 MAP FD82-14

L
7

REF.C.FD000281

3531

MAP FD82-15

SYST.DISK.NOT READY

PAGE 15 OF 15

(Step 072 continued)

Note: Index pulses will not appear if a
diskette

with two index holes is inserted in the drive.

Go to Page 13, Step 065, Entry Point AW.

073

Problem is corrected.

(Entry Point M)

Go To Map 0001, Entry Point M.

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3531 MAP FD82-15



SYSTEM DISKETTE, SEEK ERROR MAP

PAGE 1 OF 12

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FD80	A	1	001
FD86	T	4	010
0000	A	1	001
0400	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
7	022	FD82	A
3	009	FD86	A
7	022	FD86	A
9	036	FD86	A
3	007	FD86	B
12	048	0001	A
6	019	0001	M
5	015	0201	T
9	031	0201	T
12	047	0400	R

001

(Entry Point A)

Important hints:

Before you replace a card, refer to the 'Plug List' in the Vol. M1 30 to find another card with the same P/N for card swapping.

If after a card exchange the test shows the same error symptoms, reinstall the old card before exchanging the next one.

Failure Description.

A failure was detected after a diskette drive seek operation. One or more of the following functions failed:

- Did not read the cylinder address after a seek operation.
- Received incorrect status during an address mark interrupt.
- Detected an ID-field error (incorrect ID read from diskette).
- Detected an ID-field CRC error (could not read the ID field).

(Step 001 continues)

SYST.DISK.SEEK ERROR

PAGE 2 OF 12

(Step 001 continued)

IMPORTANT NOTE

Before beginning the following procedure, it is recommended that you first go to the "Quick Diskette Drive Check-Out Procedure" in the CDF ENTRY MAP. Go to MAP FD80.

If problem is not corrected with that MAP, then return here.

(Entry Point AA)

Open machine cover to have access to the diskette drive assembly. To check the initial seek operation, move carriage manually to the inner stop (cylinder 76). Turn power on and watch carriage motion.

Caution: Turn power off when the disk drive mechanism is operated manually. Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information, 130: Parts Location.

Note: After pressing the power on/ IML key observe the carriage carefully. o Seek backward to cylinders 0 o Load R/W-head Refer also to Diskette File IML Sequence (MAP FD80).

Is there any carriage movement?

Y N

002

Check drive access mechanism for binds by manually turning the stepper motor pulley or by moving the carriage assembly.

Does the drive access mechanism move freely?

Y N

3 3 3
A B C

A B C
2 2 2

REF.C.FD000481

3541

MAP FD84-3

SYST.DISK.SEEK ERROR

PAGE 3 OF 12

003

Locate the binding/defective parts and replace as required.

Suspected parts:

- . Head/carriage assembly
 - . Stepper drive parts
- Retry IML.

Go to Page 12, Step 046, Entry Point Z.

Refer to the appropriate removal/replacement procedure in the Supplement to MAPs.

Refer to Vol. 13, STM, Section 5: Diskette Drive Maintenance Information, 480 through 510 and 680 through 780.

004

Go to Page 4, Step 012, Entry Point B.

005

The head should go to the outer stop for cylinder 0!

Service hint:

Switch off power, pull out the diskette drive, press your finger on the head-carriage to see if it can be moved down further.

If it cannot be moved down any further, the head is in cylinder 0 position.

Does the carriage move to cylinder 0?

Y N

006

Do both heads load after carriage movement?

Y N

007

Do head load service check.

Go To Map FD86, Entry Point B.

008

Go to Page 4, Step 010, Entry Point T.

009

This is most likely a diskette read error.

Go To Map FD86, Entry Point A.

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3541 MAP FD84-3

SYST.DISK.SEEK ERROR

PAGE 4 OF 12

010**(Entry Point T)**

Check drive access
mechanism

for binds by manually turning the stepper motor
pulley or by moving the carriage assembly.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
130: Parts Location.

Caution:
Turn power off when the disk drive mechanism
is operated manually.

Does drive access mechanism move freely?

Y N

011

Locate the binding/defective parts and
replace as required.

Suspected parts:

- Head/carriage assembly
- Stepper drive parts

Retry IML.

Refer to the appropriate removal/replacement
procedure in the Supplement to MAPs.

Refer to supplement to MAPs 5012-5014 480
through 510

Refer to Supplement to MAPs 5020-5025 680
through 780.

Go to Page 12, Step 046, Entry Point Z.

012**(Entry Point B)**

Perform head/carriage service check.

If stepper motor will not detent during this
procedure, go ahead with the YES-leg and
perform this check at a later time, if required.

Is the adjustment correct?

Y N

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
480: Head/Carriage Service Check.

013

Perform head/carriage adjustment.

Retry IML.

Refer to Vol. 13, STM, Section 5.,
Diskette Drive Maintenance Information,
490: Head/Carriage Adjustment.

Go to Page 12, Step 046, Entry Point Z.

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3541 MAP FD84-4

D
4

SYST.DISK.SEEK ERROR

PAGE 5 OF 12

014

Check +24VDC input voltage to diskette drive.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
890: Control Card Test Pins.

Is voltage correct?

Y N

015

Go To Map 0201, Entry Point T.

016

Check the four access lines,
'+Access 0', '+Access 1'
'+Access 2', '+Access 3',
at the diskette drive control card test pins.
o Turn power off.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
860: Control Card test Pin.
920: Control Card Interface
Description.
Section Access Lines
0 through 3
150: Typical Timing Sequence
160: Driver Control Logic

o Move carriage manually to
inner stop (track 76).

o Connect logic probe to the
four access lines
(one at a time).

o Turn power on.

o Watch logic probe until error
stop.

Refer to Diskette File IML Sequence.
Go to MAP FD80 then return to here.

The access lines should start
pulsing after approximately
10-20 seconds (seek operation).

o Repeat this procedure for all
four access lines.

Are all four lines pulsing?

Y N

8 6
E F

F
5

REF.C.FD000481

3541

MAP FD84-6

SYST.DISK.SEEK ERROR

PAGE 6 OF 12

017

Check the four access lines at the diskette drive adapter cards (01A-A2R2, S2).
Use the same procedure as in previous step.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
930: Signal Routing.

Are all four lines pulsing?

Y N

018

Replace diskette drive adapter card
01A-A2R2 and check for satisfactory
operation.

Caution:
Before removing or replacing cards power
down completely.

Any more problems?

Y N

019

Problem is corrected.

(Entry Point M)

Go To Map 0001, Entry Point M.

020

Reinstall 01A-A2R2 and replace 01A-A2S2.

Any more problems?

Y N

021

Problem is corrected.

Go to Step 019, Entry Point M.

7 7
G H

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3541 MAP FD84-6

SYST.DISK.SEEK ERROR

PAGE 7 OF 12

022

If there are other error symptoms go to the repective MAP,that is:

If you suspect a not ready problem

Go To Map FD82, Entry Point A.

If you suspect a read problem

Go To Map FD85, Entry Point A.

Otherwise suspect:

1.Board 01A-A2

2.Signal cable from board 01A-A2ZF to diskette drive control card. Check parts and replace as required.

Go to Page 11, Step 044, Entry Point C.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
930: Signal Routing
Refer to Board Replacement Procedure in
Supplement to MAPs, Chapter 2:

023

(Entry Point D)

Check signal cable from the drive control card to board 01A-A2ZF.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
920: Control Card Interface Description.
930: Signal Routing.

Is cable all right?

Y N

024

Repair or replace cable.

Retry IML.

Go to Page 12, Step 045, Entry Point Z.

025

Suspect an open or shorted board wiring on board 1A-A2.

Repair board net or replace board.

Retry IML.

Go to Page 12, Step 045, Entry Point Z.

Refer to Board Replacement Procedure in
Supplement to MAPs, Chapter 2.

026

Check stepper motor coils/cable and connector.

- o Power-down
- o Remove diskette drive control card
- o Measure resistance of each stepper motor coil at pins in feed through connector. (Resistance across each coil to common should be 115-141 ohms.)

o Replug card and cable.
Is resistance of all four coils correct?

Y N

027

Replace stepper motor.

Any more problems?

Y N

028

Problem is corrected.

Go to Page 6, Step 019, Entry Point M.

029

Go to Page 9, Step 030, Entry Point X.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
870: Control Card Removal.
900: Control Card Socket and Connector Pins
920: Control Card Interface Description.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
680: Stepper Motor Removal.
690: Stepper Motor Replacement.

J
8

REF.C.FD000481

3541

MAP FD84-9

SYST.DISK.SEEK ERROR

PAGE 9 OF 12

030

(Entry Point X)

Check +5VDC, -5VDC and +24VDC input voltages to diskette drive control card.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
890: Control Card test pins.
060: Electrical Characteristics.

Are voltages correct?

Y N

031

Go To Map 0201, Entry Point T.

032

Replace diskette drive control card.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
870: Control Card Removal.
880: Control Card Replacement.

Any more problems?

Y N

033

Problem is corrected.

Go to MAP 0001, ENTRY POINT M.

Don't go on here!

Reserved

Y N

034

035

(Entry Point AW)

Error found?

Y N

036

Suspect a diskette read error; proceed with Read Error MAP. In the Read Error MAP you may omit those steps you have already done in this Seek MAP.
Go To Map FD86, Entry Point A.

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3541

MAP FD84-9

1 1
0 0
K L

K L
9 9

REF.C.FD000481

3541

MAP FD84-10

SYST.DISK.SEEK ERROR

PAGE 10 OF 12

037

Retry IML!

Go to Page 12, Step 046, Entry Point Z.

038

Check that stepper motor pulley is tight on stepper motor shaft.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
710: Pulley and Clamp Replacement.

Is pulley tight?

Y N

039

Adjust and tighten pulley.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
700: Pulley and Clamp Removal.
710: Pulley and Clamp Replacement.

Go to Page 12, Step 046, Entry Point Z.

040

Visually check stepper drive band tracking.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Information,
730: Drive Band Service Check.

Is the drive band centered?

Y N

041

Adjust drive band.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information,
740: Drive Band Adjustment.
490: Head/Carriage Adjustment

Go to Page 12, Step 046, Entry Point Z.

042

Visually check stepper drive band to see that it is free of damage.

Refer to Vol. 13, STM, Section 5:
Diskette Drive maintenance Information,
730: Drive Band Service check.

Is drive band free of damage?

Y N

|||

1 1
1 1
M N

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EC 366388 PEC 366272

3541 MAP FD84-10

M N
1 1
0 0

REF.C.FD000481

3541

MAP FD84-11

SYST.DISK.SEEK ERROR

PAGE 11 OF 12

043

Replace band.

Retry IML.

Refer to Vol. 13, STM, Section 5:

Diskette Drive Maintenance Information,

750: Drive Band Removal.

760: Drive Band Replacement

740: Drive Band Adjustment

Go to Page 12, Step 046, Entry Point Z.

044

Suspect a failing stepper motor.

Before replacing the motor, perform following checks:

- o Check to see that carriage moves freely on its guide rods at center and extreme limits of carriage travel. Take care not to damage band.

Refer to Vol. 13, STM, Section 5:

Diskette Drive Maintenance Information,

500: Head/Carriage Removal.

510: Head/Carriage Replacement.

- o Check idler pulley for binds.

Refer to Vol. 13, STM, Section 5:

Diskette Drive Maintenance Information,

770: Idler Assembly Removal.

680: Stepper motor Removal.

- o Check for correct gap between stepper motor pulley and casting.

Replace defective parts as required.

(Entry Point C)

To find the appropriate replacement procedure

refer to Vol. 13, STM, Section 5:

Diskette Drive Maintenance Information.

Error found?

Y N

045

Try again using the following overview to determine the possible causes of a seek error:

1. Defective diskette.
2. Bad adapter card (CDF1 card 1, 2; 01A-A2R2, S2).
3. Bad diskette drive control card.
4. Diskette drive access mechanism (stepper motor, carriage) is bad or out of alignment.

Go to Page 4, Step 010, Entry Point T.

(Step 045 continues)

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3541

MAP FD84-11

1
2
P

P
1
1

REF.C.FD000481

3541

MAP FD84-12

SYST.DISK.SEEK ERROR

PAGE 12 OF 12

(Step 045 continued)

5. Missing or out of tolerance diskette drive control card
DC voltages (-5V, +5V, +24V).

Go to Page 9, Step 030, Entry Point X.

6. Loose or bad cable connectors at the diskette drive control
card or on board connector 01A-A2ZF.

Go to Page 7, Step 023, Entry Point D.

When you reach this point

Go to Page 9, Step 035, Entry Point AW.

046

Retry IML.

(Entry Point Z)

IML successful?

Y N

047

Go To Map 0400, Entry Point R.

048

Go To Map 0001, Entry Point A.

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PEC 366272

3541

MAP FD84-12

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FD80	A	1	001
FD84	A	1	001
FD84	B	2	003
0000	A	1	001
0400	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	038	FD84	T
9	039	0001	A
6	026	0001	O
2	004	0201	T

001
(Entry Point A)

Important hints:

Before you replace a card, refer to the 'Plug List' in the Vol. MI 30 to find another card with the same P/N for card swapping.

If after a card exchange the test shows the same error symptoms, re install the old card before exchanging the next one.

Failure Description

A read error was detected at the end of a diskette file read operation.

One or more of the following functions failed:

- Detected an ID field CRC error
- Detected a data field CRC error
- The number of address marks detected on track zero is not 26.

IMPORTANT NOTE

Before beginning the following procedure, it is recommended that you first go to the
(Step 001 continues)

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REF.CODE FD000681

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4331

3551 MAP FD86-1

SYST.DISK.,READ

PAGE 2 OF 9

(Step 001 continued)

'Quick Diskette Drive Check-Out Procedure'
in the System Diskette ENTRY MAP. Go to MAP FD80.
If problem is not corrected with that MAP, return here.

(Entry Point AA)

The failure may be caused by a defective
diskette or a dirty head.
Take the appropriate corrective action if
required.

Does the problem still exist?

Y N

002

End of repair action.
Retry IPL.
Go to Page 9, Step 039, Entry Point Z.

003

(Entry Point B)

Check +5VDC, -5VDC, and +24VDC input
voltages to the diskette drive.

Refer to Vol.13, STM, Section 5:
Diskette Drive Maintenance Information:
o 890: Control Card Test Pins
o 060: Electrical Characteristics

Are voltages correct?

Y N

004

Go To Map 0201, Entry Point T.

005

Do both heads load after each seek operation?

Note:
If you came from the
SEEK ERROR MAP FD84
and were asked to do the head load service
check, continue with the NO-leg.

Y N

Vertical lines for Y and N responses

4 3
A B

006

(Entry Point D)

Do head load service check.
Install a jumper from ground to the '-head load' test pin on the diskette drive control card. This should energize the solenoid and cause the bail to load the heads.

Do the heads load?

Y N

007

Check head load solenoid resistance. Resistance should measure 66 to 74 ohms at normal room temperature (may be up to 140 ohms when the solenoid coil is hot).

Is resistance within limits?

Y N

008

Repair or replace parts as required.

Go to Page 9, Step 039, Entry Point Z.

009

Remove diskette drive cover.
Operate bail manually.
Check to see that solenoid and bail are free of binds.
Check to see that bail return spring returns bail to its back stop.

Any binds detected?

Y N

010

Replace diskette drive control card and check for satisfactory operation.
Retry IML.

Go to Page 8, Step 037, Entry Point C.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
o 530: Solenoid and Bail Adjustment, steps 1 through 6
o 890: Control Card Test Pins

Refer to figures associated with Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information, 540: Solenoid and Bail Removal.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
o 540: Solenoid and Bail Removal
o 550: Solenoid and Bail Replacement.

Refer to Vol. 13, STM, Section 5:
o 420: Cover Removal
o 530 Solenoid and Bail Adjustment (figures associated).

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
o 870: Control Card Removal
o 880: Control Card Replacement

A C D
2 3 3

REF.C.FD000681

3551

MAP FD86-4

SYST.DISK.,READ

PAGE 4 OF 9

011

Repair or replace binding parts.
Retry IML.

Go to Page 9, Step 039, Entry Point Z.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
'540 Solenoid and Bail Replacement.'

012

Replace diskette drive adapter card
01A-A2R2 and check for satisfactory
operation.

Any further problem?

Y N

013

Problem is corrected.

Go to Page 9, Step 039, Entry Point Z.

014

Reinstall 01A-A2R2 and replace 01A-A2S2.

Any further problem?

Y N

015

Problem is corrected.

Go to Page 9, Step 039, Entry Point Z.

016

Consider an open or shorted '+ head engage'
line. Trace this signal from the adapter card
to the diskette drive control card.

Check continuity from TPB7 to

01A-A2R2U04.

Repair or replace defective parts as required!

Go to Page 8, Step 037, Entry Point C.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
930: Signal Rrouting.

017

Do head load solenoid service check.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
520: Solenoid and Bail
Service Check

Is service check satisfactory?

Y N

5 5
E F

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3551 MAP FD86-4

E F
4 4

REF.C.FD000681
SYST.DISK.,READ
PAGE 5 OF 9

3551

MAP FD86-5

018

Adjust or replace as required. Retry IPL.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
o 530: Solenoid and Bail
Adjustment
o 540: Solenoid and Bail
Removal
o 550: Solenoid and Bail
Replacement.

Go to Page 9, Step 039, Entry Point Z.

019

Perform head/carriage service check.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
480: Head/Carriage Service Check.
Note: If you entered this MAP coming from the
SEEK MAP, you may have done this check
already.

Is adjustment correct?

Y N

020

Perform head/carriage adjustment.
Retry IML.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
490: Head/Carriage Adjustment.

Go to Page 9, Step 039, Entry Point Z.

021

Replace diskette drive control card and check
for satisfactory operation.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
o 870: Control Card Removal
o 880: Control Card Replacement.
Note: If cards are not available at this point in
time, you may delay this step and the next step
and continue with the 'file data' check
procedure.

Any more problems?

Y N

7 6
G H

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PN 8488374

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PEC 366272

3551

MAP FD86-5

H
5

REF.C.FD000681
SYST.DISK.,READ
PAGE 6 OF 9

3551

MAP FD86-6

022

End of repair action.

Go to MAP 0001, ENTRY POINT A.

Don't go on here!

'reserved'

Y N

023

024

(Entry Point AW)

Error found?

Y N

025

Replace the head/carriage assembly!

Problem solved?

Y N

026

Go To Map 0001, Entry Point O.

027

Retry IML!

Go to Page 9, Step 039, Entry Point Z.

028

After the repair, retry IML, then

Go to Page 9, Step 039, Entry Point Z.

23JAN81

PN 8488374

EC 366388

PEC 366272

3551

MAP FD86-6

G
5

REF.C.FD000681
SYST.DISK.,READ
PAGE 7 OF 9

3551

MAP FD86-7

029

Replace diskette drive adapter cards 1A-A2R2,
S2 and check for satisfactory operation.

Any more problems?

Y N

030

End of repair action.
Go to Page 9, Step 039, Entry Point Z.

031

Reinstall 01A-A2R2 and replace 01A-A2S2.

Any more problems?

Y N

032

End of repair action.
Go to Page 9, Step 039, Entry Point Z.

033

Trace the '+ File Data' line with the logic probe
from diskette drive control card to diskette
drive adapter card in board 01A-A2.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
930: Signal Routing.
890: Control Card Test Pins
Refer to diskette file
IML sequence.
(MAP FD80)

Note: A pulsing line does not necessarily
indicate good data.

Is this line pulsing during file read
operations?

Y N

034

Depending upon the result of your
measurement, suspect:

- o Diskette drive control card
and associated connectors.
- o Signal cable from diskette
drive control card to 01A-A2ZF.
- o Board wiring on 01A-A2.

Do the repair as required.
Go to Page 8, Step 037, Entry Point C.

8
J

23JAN81

PN 8488374

EC 366388

PEC 366272

3551

MAP FD86-7

J
7

REF.C.FD000681
SYST.DISK..READ
PAGE 8 OF 9

3551

MAP FD86-8

035

Trace the '+ Select Head 1' line with the logic probe from the diskette drive adapter card in board 01A-A2 to the diskette drive control card.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
930: Signal Routing and
890: Control Card Test Pins.

Is this line pulsing at all test points during the IML sequence?

Y N

036

Depending upon the result of your measurement, suspect:

- o Diskette drive adapter cards
01A-A2R2, S2
 - o Board wiring on 01A-A2
 - o Signal cable from 01A-A2ZF to diskette drive control card
 - o Diskette drive control card and associated connectors
- Do the repair as required!
Go to Step 037, Entry Point C.

037

(Entry Point C)

Error found?

Y N

038

Try again using the following overview for all possible causes:

1. Defective diskette.
2. Read/write head is dirty, bad or out of alignment.
3. Head load solenoid and bail bad or out of alignment.

Go to Page 3, Step 006, Entry Point D.

(Step 038 continues)

9
K

23JAN81

PN 8488374

EC 366388

PEC 366272

3551

MAP FD86-8

SYST.DISK.,READ

PAGE 9 OF 9

(Step 038 continued)

4.Bad adapter card
(CDF1 card 1,2; 1A-A2R2, S2).

5.Bad diskette drive control
card located in CDF.

6.Missing or out of tolerance
diskette drive control
card DC voltages
(-5V, +5V, +24V).

Go to Page 2, Step 003, Entry Point B.

7.Loose or bad cable
connectors at the diskette
drive control card or on
board connector 1A-A2ZF.

Refer to Vol. 13, STM, Section 5:
Diskette Drive Maintenance Information:
930: Signal Routing.

8.Diskette drive access
mechanism (stepper motor and carriage)
is bad or out of alignment.

Go To Map FD84, Entry Point T.

When you come here a second time,
Go to Page 6, Step 024, Entry Point AW.

039

Retry IML

(Entry Point Z)

Go To Map 0001, Entry Point A.

23JAN81 PN 8488374

EC 366388 PEC 366272

3551 MAP FD86-9



Init. of CNTRL Diskette FU2

PAGE 1 OF 2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	013	0001	0
2	012	0001	0
2	011	0001	0
2	010	0001	0

001
(Entry Point A)

Reference Code
FE519D817

Y N

002
FE519C817

Y N

003
FE519B817

Y N

004
FE519A817

Y N

005
FE5194807

Y N

Invalid 'Multi Volume Data Set' indicator was found.
(Link problem).

Module BBALE222 not on diskette.
(Link problem)

Load module ID not in checksum list
(Link problem).

Length of load module is exceeded
(Link problem).

A B C D E F REF.C.FE519X8X
1 1 1 1 1 1

3560

MAP FE50-2

CNTRL disk. FU2

PAGE 2 OF 2

006
FE5192807
Y N

007
FE519180
Select ILT from CNTRL
diskette (FU1).

008
IML of CNTRL diskette (FU1)
required.
Do IML

009
Wrong diskette inserted.
Insert correct diskette.

FU1 contents the selection.
FU2 contents the ILTs.

010
Go To Map 0001, Entry Point O.

011
Go To Map 0001, Entry Point O.

012
Go To Map 0001, Entry Point O.

013
Go To Map 0001, Entry Point O.

15FEB80 PN 8488459

EC 366345 PEC 366272

3560 MAP FE50-2

MCTF Program Errors

PAGE 1 OF 2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

001
(Entry Point A)

The following errors may occur during application of the MCTF program:

Ref.code	Error Message in line 19	Error Reason and Fix
FE620081	2	Diskette read/ write test data mismatch; defective diskette.
FE620181	2	MCTF address must be *...=
FE620281	2	CSECT-ESID or member wrong or not on diskette; wrong diskette.
FE620381	2	Invalid ID. Check that the CNTRL diskette is installed and not the DIAG diskette.
FE620481	3	Invalid cross check; wrong diskette.
FE620581	2	MCTF number is wrong or not found (erase)
FE620681	4	MCTF already installed.
FE620781	2	Ass. address not HEX.
FE620881	2	Address too high (AD > LA + max. block count).

(Step 001 continues)

MCTF Program Errors

PAGE 2 OF 2

(Step 001 continued)

Ref.code	Error Message in line 19	Error Reason and Fix
FE620981	2	MCTF address below load address.
FE620A81	2	Invalid 'Z' expression.
FE620B81	2	Address EXP. not S, J, K, B, L, D, Y, or not byte bound or address not HEX or not 4/6 digits or X-address not 6 digits HEX or X-address/ subtract not 4 digits HEX or missing MCTF data or odd number of MCTF data characters.
FE620C81	6	Incorrect hash total; typing error.
FE620D81	5	Invalid selection (repeat it) see selection menu).
FE620E81	1	Diagnostic module overflow; invoke your support structure, go to MAP 0001, ENTRY POINT 0.
FE620F81	1	MCTF log area is full; invoke your support structure, go to MAP 0001, ENTRY POINT 0.

V

Explanation of error message in line 19:

Error Msg.	Meaning
1	Update area overflow.
2	Parameter wrong or not found.
3	Cross check mismatch.
4	Duplicate MCTF number.
5	Invalid selection.
6	Typing error (wrong hash total).

REF.CODE FE6XXX8X FIX 0001

3580

MAP FE80-1

M/S Selection MAP

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	2	001

M/S Selection MAP

PAGE 2 OF 3

001**(Entry Point A)**

The following handling errors may occur during maintenance/service selection:

Ref.code	Error Reason and Fix
FE610180	Invalid character: Only characters offered in the MENU are accepted, re-type. If the ref. code always recurs, the system may not recognize valid key entries. 1. Check the cable from 01A-A2ZD to tailgate (coax connectors 0-7). 2. Check the cable 01A-A2YC tailgate (coax connectors 8-15). 3. Suspect 01A-A2K2/J2/J4. If this does not help go to MAP 0001, Entry Point 0.
FE610280	Invalid selection: Only characters offered in the MENU are accepted, re-type.
FE610380	Program not on diskette: You are on the wrong diskette type, insert correct diskette. Restart.
FE61048F FE621F8F	Call for support directly! Go to MAP 0001, ENTRY PT.U
FE622080	Invalid selection: The zone value should be 'E' for east and 'W' for west. (Referenced to Greenwich, Great Britain). The hours may range from 0-12 and the minutes from 00-60. Exception: If twelve hours are specified the minutes must be 00.

(Step 001 continues)

M/S Selection MAP

PAGE 3 OF 3

(Step 001 continued)

Ref.code	Error Reason and Fix
FE630180	Invalid unit type: Type in only those unit types offered in the MENU.
FE630280	Incorrect PU response: Reason: PU sent command other than X'D8'. This error may not validly occur. Try again.
FE630380	Wrong unit: Only unit types offered in the MENU are accepted, re-type.
FE630480	Unit type not found: Only unit types offered in the MENU are accepted, re-type.
FE630580	Invalid selection: Only selections offered in the MENU area accepted, re-type.
FE630680	Type in the data in the format MM/DD/HH/MM. Example: for May 24, 10.15 hours type in 05/24/10/15.
FE630781	Symptom: PU stopped or not loaded with selection "stop before log" or "prevent channel logs" Fix: Do IML and try again.



CONFIGURE THE SYSTEM

PAGE 1 OF 38

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
E002	DD	15	013
E680	DD	15	013
FE92	B	9	001
FE94	B	9	001
FE96	B	9	001
FXXX	A	2	001
MES	M	18	020
MES	N	22	026
STM	E	10	009
0000	A	2	001
0001	E	10	009
2370	DD	15	013
3370	DD	15	013
4B70	DD	15	013
4970	DD	15	013

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
35	049	0001	A
27	030	0001	0

SYSTEM CONFIG.

PAGE 2 OF 38

001

(Entry Point A)

IMPORTANT NOTE

| WHEN GOING THROUGH THIS MAP THE REFERENCE CODE FE621180 |
| WILL BE DISPLAYED BY THE MAINTENANCE SELECTION PROGRAM |
| UNTIL IML WAS MADE AFTER COPY CONFIGURATION. IGNORE THIS |
REFERENCE CODE AS LONG AS YOU FOLLOW THIS MAP.

This MAP describes how to copy the configuration data from a certain diskette to other diskettes. Use this procedure whenever configuration data has been added or altered by an EC, REA, MES, manual operation (see Note), or during system installation.

Note:

Following manual operations can alter configuration data on the diskette.

1. Array Tool
2. Displays and Printers
3. Diskette Set Device Address
4. Alter Channel Number
5. SCA Configurator
6. FTA Configurator
7. HSC Configurator.
8. T O D Correction
9. CA Configurator
10. Change minimum ESD-sense level
11. MES update utility
12. Loop Adapter Configurator

If ROCF (Remote Operator Console Facility) is displayed on line 24 of the screen, disable the Auto-Answer mode (see page 37, Entry Point Z).

(Step 001 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-2

SYSTEM CONFIG.

PAGE 3 OF 38

(Step 001 continued)

(Entry Point AB)

How to identify the diskettes:

A diskette set can consist of either

1. Four diskettes

- one CNTRL diskette FU1 SEQ1
- one CNTRL diskette FU1 SEQ2 (backup diskette)
- one DIAG diskette DD1
- one DIAG diskette DD5

2. Five diskettes

- one CNTRL diskette FU1 SEQ1
- one CNTRL diskette FU1 SEQ2 (backup diskette)
- one DIAG diskette DD1
- one DIAG diskette DD2 (DIAG overflow diskette)
- one DIAG diskette DD5

3. Six diskettes

- one CNTRL diskette FU1 SEQ1
- one CNTRL diskette FU2 SEQ1 (overflow diskette)
- one CNTRL diskette FU1 SEQ2 (backup diskette)
- one CNTRL diskette FU2 SEQ2 (overflow backup diskette)
- one DIAG diskette DD1
- one DIAG diskette DD5

4. Seven diskettes

- one CNTRL diskette FU1 SEQ1
- one CNTRL diskette FU2 SEQ1 (overflow diskette)
- one CNTRL diskette FU1 SEQ2 (backup diskette)
- one CNTRL diskette FU2 SEQ2 (overflow backup diskette)
- one DIAG diskette DD1
- one DIAG diskette DD2 (DIAG overflow diskette)
- one DIAG diskette DD5

The overflow diskette FU2 contains the Disk/Tape Inline Tests
and is not affected by this MAP.

(Step 001 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-3

SYSTEM CONFIG.

PAGE 4 OF 38

(Step 001 continued)

The DIAG overflow diskette (DD2) contains the REFCODE ANALYSIS and the FRIEND but only for system 4331-2 or 4331-11. DD2 is not affected by this MAP.

The DIAG diskette (DD5) contains the system test and is not affected by this MAP.

The various diskettes can be identified by their different labeling; see the following illustrations:

(Step 001 continues)

15SEP82	PN 8488077
EC 366589	PEC 366515
3590	MAP FE90-4

SYSTEM CONFIG.

(Step 001 continued)

Diskette Set (four diskettes)

CNTRL
diskette: | CNTRL FU1 |
| |
| SEQ-1 |

CNTRL
diskette
for
backup: | CNTRL FU1 |
| |
| SEQ-2 |

DIAG
diskette: | DIAG DD1 |
| |

DIAG
diskette: | DIAG DD5 |
| |

(Step 001 continues)

REF.CODE FE621081
SYSTEM CONFIG.

3590

MAP FE90-6

PAGE 6 OF 38

(Step 001 continued)

or Diskette Set (five diskettes)

CNTRL
diskette: |-----|
| CNTRL FU1 |
| | |
| SEQ-1 |

CNTRL
diskette
for
backup: |-----|
| CNTRL FU1 |
| | |
| SEQ-2 |

DIAG
diskette
group: |-----| |-----|
DIAG DD1		DIAG DD2
OVFL 1/2		OVFL 2/2
-----		-----
>only for 4331-2
or 4331-11<

DIAG
diskette: |-----|
DIAG DD5

(Step 001 continues)

15SEP82 PN 8488077
EC 366589 PEC 366515
3590 MAP FE90-6

SYSTEM CONFIG.

(Step 001 continued)

or Diskette Set (six diskettes)

CNTRL
diskette
group:

CNTRL	FU1
OVFL	1/2
	SEQ-1

CNTRL	FU2
OVFL	2/2
	SEQ-1

CNTRL
diskette
group
for
backup:

CNTRL	FU1
OVFL	1/2
	SEQ-2

CNTRL	FU2
OVFL	2/2
	SEQ- 2

DIAG
diskette:

DIAG	DD1
------	-----

DIAG
diskette:

DIAG	DD5
------	-----

(Step 001 continues)

SYSTEM CONFIG.

PAGE 8 OF 38

(Step 001 continued)

or Diskette Set (seven diskettes)

CNTRL diskette group:	CNTRL FU1	CNTRL FU2
	OVFL 1/2	OVFL 2/2
	SEQ-1	SEQ-1

CNTRL diskette group for backup:	CNTRL FU1	CNTRL FU2
	OVFL 1/2	OVFL 2/2
	SEQ-2	SEQ- 2

DIAG diskette group:	DIAG DD1	DIAG DD2
	OVFL 1/2	OVFL 2/2

>only for 4331-2
or 4331-11<

DIAG diskette:	DIAG DD5
-------------------	----------

(Step 001 continues)

SYSTEM CONFIG.

(Step 001 continued)

(Entry Point B)

Are you installing a system (HW-system/CPU) or doing a model conversion?

Y N

002

Are you installing a feature change MES?

Note:

The new diskette(s) received with the MES may have a higher EC level than the current diskette(s).

Y N

003

Have you received only a new DIAG diskette?

Y N

004

Have you received only new CNTRL diskette(s) by EC/REA/emergency order?

Y N

005

Have you received a complete new diskette set by an EC/REA?

Y N

1 1 1 1 1
9 6 5 4 2
A B C D E F

006

Did you or the customer alter a CNTRL diskette with the aid of any configurator program?

Y N

007

Did you alter a DIAG diskette with the aid of the Array Tool?

(You changed the redundant bit setting.)

Y N

008

From the seven possibilities described above select the one which best fits for your situation.

Go to Step 001, Entry Point B.

1 1
1 0
G H

H
9

REF.CODE FE621081

3590

MAP FE90-10

SYSTEM CONFIG.

PAGE 10 OF 38

009

(Entry Point E)

Note:

The redundant bit setting is described in Vol.13,
STM, section 4: Diagnostic Run Procedure
(Array Tool, Variable/Full Scan Test).

Copying of redundant bit changes

Make sure that the DIAG diskette on which a
redundant bit change has been performed is
still installed.

o Select the IBM MAINTENANCE
and SERVICE PROGRAM SELECTION.

o Select the UTILITIES.

o Select the COPY CONFIGURATOR.

o Watch the screen:

Step 00: Select 'E', press ENTER and wait for message
INSTALL DISKETTE.

Step E1: Make sure the DIAG diskette (DD1) is still installed.
Press ENTER.

Step E2: When INSTALL DISKETTE appears on screen, install
the first CNTRL diskette (FU1 SEQ1).
Press ENTER.

Step E3: When DISKETTE WRITTEN appears on screen, install
the second CNTRL diskette (FU1 SEQ2).
Press ENTER.

If there is no back-up diskette existing,
leave the normal diskette installed for
step E3 and press ENTER only.

Wait until COPY COMPLETED appears on screen,
(to be seen for a few seconds only).

Go to Page 35, Step 045, Entry Point I.

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-10

010

(Entry Point C)

Copying of configuration changes

Make sure that the CNTRL diskette (FU1) which was changed manually is now installed.

o Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

o Select the UTILITIES.

o Select the COPY CONFIGURATOR.

o Watch the screen:

Step 00: Select 'D', press ENTER and wait for message INSTALL DISKETTE.

Step D1: Be sure that the CNTRL diskette (FU1) which is currently in use and on which a change, etc., has just been performed is still installed. Press ENTER.

Step D2: When INSTALL DISKETTE appears on screen, install the second (backup) CNTRL diskette (FU1). Press ENTER.

If there is no back-up diskette existing, leave the normal diskette installed for step D2 and press ENTER only.

Step D3: When DISKETTE WRITTEN appears on the screen, install the DIAG diskette (DD1).

Press ENTER.

Wait until COPY COMPLETED appears on the screen (to be seen for a few seconds only).

Go to Page 35, Step 045, Entry Point I.

011

(Entry Point DS)

Installation of new CNTRL
diskettes and new DIAG diskette

o Insert the new CNTRL diskette (FU1 SEQ1).

The identification of the different diskettes is described in step 001 of this MAP.

o Perform IML.

Note:

Ignore errors which might come up during the present IML operation. For the time being only the maintenance and support subsystem (MSSS) must be operational.

o Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

o Select the UTILITIES.

o Select the COPY CONFIGURATOR.

o Watch the screen:

Step 00: Select 'A', press ENTER and wait for message INSTALL DISKETTE.

Step A1: Install the old CNTRL diskette (FU1) which was used up to this point. Press ENTER.

Step A2: When INSTALL DISKETTE appears on screen, install the first new CNTRL diskette (FU1 SEQ1). Press ENTER.

Step A3: When DISKETTE WRITTEN appears on screen, install the second new (backup) CNTRL diskette (FU1 SEQ2). Press ENTER.

If a second new CNTRL diskette (FU1 SEQ2) is not available, leave the CNTRL diskette (FU1 SEQ1) installed for step A3 and press ENTER only. Remember that overflow diskettes (FU2) are not affected.

(Step 011 continues)

SYSTEM CONFIG.

PAGE 13 OF 38

(Step 011 continued)

Step A4: When DISKETTE WRITTEN appears on screen, install the new DIAG diskette (DD1).

Remember that the DIAG overflow diskette (DD2) is not affected.

Press ENTER.

Wait until COPY COMPLETED appears on the screen (to be seen for a few seconds only).

Go to Page 28, Step 032, Entry Point P.

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-13

012

(Entry Point CD)

Installation of new CNTRL diskettes

o Insert the new CNTRL diskette (FU1 SEQ1)

The identification of the different diskettes is described in step 001 of this MAP.

o Perform IML.

Note:

Ignore errors which might come up during the present IML. For the time being only the maintenance and support subsystem (MSSS) must be operational.

o Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

o Select the UTILITIES

o Select the COPY CONFIGURATOR.

o Watch the screen:

Step 00: Select 'A', press ENTER and wait for message
INSTALL DISKETTE

Step A1: Insert the old CNTRL diskette (FU1) which was used up to this point.
Press ENTER.

Step A2: When INSTALL DISKETTE appears on screen, install the first new CNTRL diskette (FU1 SEQ1).
Press ENTER.

Step A3: When DISKETTE WRITTEN appears on the screen, install the second new CNTRL diskette (FU1 SEQ2).
Press ENTER.

If a second new CNTRL diskette (FU1 SEQ2) is not available, leave the CNTRL diskette (FU1 SEQ1) installed for step A3 and press ENTER only. Remember that overflow diskettes (FU2) are not affected.

Step A4: When DISKETTE WRITTEN appears on the screen, install the old DIAG diskette (DD1).
(This diskette is currently in use at the system.)
Press ENTER.

Wait until COPY COMPLETED appears on screen (to be seen for a few seconds only).

Go to Page 28, Step 032, Entry Point P.

C
9

REF.CODE FE621081

3590

MAP FE90-15

SYSTEM CONFIG.

PAGE 15 OF 38

013

(Entry Point DD)

Installation of new DIAG diskette

This procedure is also applicable, if the configuration
on the DIAG diskette (DD1) has to be corrected !

Remember the DIAG overflow diskette (DD2)
is not affected by this MAP.

Now do the following:

- o Insert the CNTRL diskette (FU1) which is in current use.
- o Perform IML.
- o Select the IBM MAINTENANCE AND SERVICE
PROGRAM SELECTION.
- o Select the UTILITIES.
- o Select the COPY CONFIGURATOR.
- o Watch the screen:

Step 00: Select 'B', press ENTER and wait for message
INSTALL DISKETTE.

Step B1: Be sure that the current CNTRL diskette (FU1)
is still installed.
Press ENTER only.

Step B2: When INSTALL DISKETTE appears on screen, install
the new DIAG diskette (DD1) received with
this EC/REA, etc.
Press ENTER.

Wait until COPY COMPLETED appears on the screen
(to be seen for a few seconds only).

Are you installing a new DIAG diskette ?

Y N

014

The procedure has been done, because an
incorrect configuration was suspected.
Go back to the MAP where you came from!

1
6
J

15SEP82

PN 8488077

EC 366589

PEC 366515

3590

MAP FE90-15

B J
9 1
5

REF.CODE FE621081

3590

MAP FE90-16

SYSTEM CONFIG.

PAGE 16 OF 38

015

Go to Page 35, Step 045, Entry Point I.

016

(Entry Point Y)

MES Installation or Model Conversion

Have you received new CNTRL diskette(s)
with the MES?

Y N

017

Go to Page 22, Step 026, Entry Point N.

018

o Insert the new CNTRL diskette
(FU1 SEQ1) that was
shipped with the MES.

Step 001 in this MAP describes how to identify
the different diskettes.

o Perform IML.

Ignore errors which might come up during the
present IML. For the time being only the
maintenance and support subsystem (MSSS)
must be operational.

o Select the IBM MAINTENANCE
AND SERVICE PROGRAM SELECTION.

o Select the UTILITIES.

o Select the COPY CONFIGURATOR
program.

o Watch the screen:

Step 00: Select 'G', press ENTER and wait for the message
INSTALL DISKETTE.

Step G1: Insert the old CNTRL diskette (FU1) which was
currently in use.
Press ENTER.

Step G2: When INSTALL DISKETTE appears on screen, install the
new CNTRL diskette (FU1 SEQ1).
Press ENTER.

(Step 018 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-16

CA.

REF.CODE FE621081

3590

MAP FE90-17

SYSTEM CONFIG.

PAGE 17 OF 38

(Step 018 continued)

Wait until COPY COMPLETED appears on screen
(to be seen for a few
seconds only).

Are you told by the MES installation
instruction to do a manual configuration
change?

Y N

019

Go to Page 18, Step 020, Entry Point M.

1
8
K

15SEP82

PN 8488077

EC 366589

PEC 366515

3590

MAP FE90-17

K
1
7

REF.CODE FE621081

3590

MAP FE90-18

SYSTEM CONFIG.

PAGE 18 OF 38

020

Leave this page open.

- o Do the manual configuration change as instructed by the MES installation instruction.

When you have done the configuration change, the MES installation instruction will guide you back to this MAP, ENTRY POINT M.

For a configuration change of the I/Os contact the customer.

(Entry Point M)

- o Insert the new CNTRL diskette (FU1 SEQ1), (This is the diskette you have just manually configured according to the MES installation instruction.)

- o Perform IML

Note:

Ignore errors which might come up during the present IML. For the time being only the maintenance and support subsystem (MSSS) must be operational.

- o Select the IBM MAINTENANCE and SERVICE PROGRAM SELECTION.

- o Select the UTILITIES.

- o Select the COPY CONFIGURATOR.

- o Watch the screen:

Step 00: Select 'D', press ENTER and wait for message
INSTALL DISKETTE

Step D1: Make sure that the new CNTRL diskette (FU1 SEQ1) installed is the one which has the customer's specific configuration.
Press ENTER.

Step D2: When INSTALL DISKETTE appears on screen, install the second new (backup) CNTRL diskette (FU1 SEQ2).
(Step 020 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-18

A
9

REF.CODE FE621081

3590

MAP FE90-19

SYSTEM CONFIG.

PAGE 19 OF 38

(Step 020 continued)

Press ENTER.

If a second new CNTRL diskette (FU1 SEQ2) is not available, leave the first control diskette installed, for step D2 and press ENTER only.

Remember that overflow diskettes (FU2) are not affected.

Step D3: When DISKETTE WRITTEN appears on screen, install the new DIAG diskette (DD1) if available otherwise install the old DIAG diskette (DD1).

Press ENTER.

Wait until COPY COMPLETED appears on screen (to be seen for a few seconds only).

Go to Page 28, Step 032, Entry Point P.

021

(Entry Point X)

System Installation

Have you already done the manual configuration of the first CNTRL diskette (FU1 SEQ1)?

Y N

See Vol.13, STM, section 6: Diskette Configuration.?

022

Do the manual configuration first. Go to Vol.13, STM, section 6: Diskette Configuration.

If the Loop Adapter feature is installed, refer also to Vol.15, STM FEAT, Loop Adapter Configurator Tool.

2
0
L

15SEP82

PN 8488077

EC 366589

PEC 366515

3590

MAP FE90-19

L
1
9

SYSTEM CONFIG.

023

o Insert the first CNTRL diskette (FU1 SEQ1).
(This is the diskette you just have manually configured.)

The identification of the different diskettes is described in step 001 of this MAP.

o Perform IML

Note: Ignore errors which might come up during the present IML. For the time being only the maintenance and support subsystem (MSSS) must be operational.

o Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

o Select the UTILITIES

o Select the COPY CONFIGURATOR.

o Watch the screen:

Step 00: Select 'D', press ENTER and wait for the message INSTALL DISKETTE.

Step D1: Make sure that the first CNTRL diskette (FU1 SEQ1) is still installed. Press ENTER.

Step D2: When INSTALL DISKETTE appears on screen, install second CNTRL (backup) diskette (FU1 SEQ2). Press ENTER.

If there is no back-up diskette existing, leave the normal diskette installed for step D2 and press ENTER only.

Step D3: When INSTALL DISKETTE appears on screen, install the DIAG diskette (DD1). Press ENTER.

If there is no back-up diskette existing, leave the normal diskette installed for step D2 and press ENTER only.

When COPY COMPLETED appears on screen (to be seen for a few seconds only), install the CNTRL diskette (FU1 SEQ1) again.

Perform IML for all diskettes !

IML successful ?

Y N
| |
| |

2 2
1 1
M N

M N
2 2
0 0

REF.CODE FE621081
SYSTEM CONFIG.

3590

MAP FE90-21

PAGE 21 OF 38

024

Go to Page 24, Step 029, Entry Point H.

025

Return to Installation Manual in Vol.18.

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-21

SYSTEM CONFIG.

PAGE 22 OF 38

026

(Entry Point N)

MES Installation
(without new CNTRL diskettes)

Have you already done the manual configuration change(s) of the CNTRL diskette (FU1 SEQ1) according to the MES installation instruction?

Step 001 in this MAP describes how to identify the different diskettes.

Y N

027

Do the manual change(s) first go to the MES installation instruction.

Note:

Leave this page open. After having done the manual configuration change(s) return to ENTRY POINT N.

028

- o Insert the CNTRL diskette (FU1 SEQ1).
(This is the diskette you just have manually changed.)

- o Perform IML

Note:

Ignore errors which might come up during the present IML. For the time being only the maintenance and support subsystem (MSSS) must be operational.

- o Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

- o Select the UTILITIES.

- o Select the COPY CONFIGURATOR.

- o Watch the screen:

Step 00: Select 'D', press ENTER and wait for the message.
INSTALL DISKETTE.

Step D1: Make sure that the CNTRL diskette (FU1 SEQ1) installed still contains the valid customer's specific configuration as well. Press ENTER.

Step D2: When INSTALL DISKETTE appears on screen, install the second (backup) CNTRL diskette (FU1 SEQ2). Press ENTER.

If there is no back-up diskette existing, leave the normal diskette installed for step D2 and press ENTER only.

Step D3: When DISKETTE WRITTEN appears on screen, install the DIAG diskette (DD1). Press ENTER.

Wait until COPY COMPLETED appears on the screen.

Go to Page 28, Step 032, Entry Point P.

029

(Entry Point H)

How to recover from IML errors

General Hints
=====

- o If configuration data has been manually entered or updated carefully check all data keyed in.
Refer to Vol.13, STM, section 6 for detailed configure instructions.
If the Loop Adapter feature is installed, refer also to Vol.15, STM FEAT LA, page 6000, Loop Adapter Configurator Tool.
- o Repeat the copy operation whenever a handling error during copy configuration is assumed.
- o Check new diskettes for proper EC level and make sure that all required patches are installed.
- o If a reference code is displayed refer to the Symptom-Index below and to the corresponding MAP.
- o If no reference code is displayed refer to the Symptom Index below to find the recommended action.
- o Contact your support function if the problem cannot be resolved.

(Step 029 continues)

15SEP82

PN 8488077

EC 366589

PEC 366515

3590

MAP FE90-24

SYSTEM CONFIG.

PAGE 25 OF 38

(Step 029 continued)

Symptom Index	
Error Symptom	Recommended Action
Ref. code E0040701	Suspect a diskette link error. Contact your support function. A new diskette is required.
Ref. code E0040901	Checksum error. Suspect: Handling error during patch installation (e. g. IML key has been pressed during the copy operation). This can only be corrected by replacing the failing diskette by a new one (Note 1).
Ref. code E0060701 E0060801	Link error. See reference code E0040701 above.
Ref. code E0060901	Checksum error. Suspect: 1. Diskette write error. Repeat the copy configuration. 2. Handling error during patch installation or copy config operation (e. g. IML key has been pressed during the copy operation) If the handling error occurred during copy config operation repeat the copy procedure. If the handling error was made during patch installation the failing diskette has to be replaced by a new one (Note 1).

(Step 029 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590

MAP FE90-25

SYSTEM CONFIG.

PAGE 26 OF 38

(Step 029 continued)

Symptom Index	
Error Symptom	Recommended Action
Ref. code E0060B01	Link error. See reference code E0040701 above.
Ref. code E0061101	Checksum error. See reference code E0060901 above.
Ref. code E0061201 E0061301 E0061501 E0061701	Link error. See reference code E0040701 above.
Ref. code E0061801	Checksum error. See reference code E0040901 above.
Ref. code EAFXXX01	Go to MAP EA00, ENTRY POINT A.
Ref. code F5XXXX01	SPIL check. See reference code E0040701 above.
Ref. code FDXXXX01	Diskette or diskette drive problem. Suspect a diskette write failure. Try to recover the problem by repeating the copy configuration.
A reference code other than listed above is displayed.	Go to corresponding MAP.

(Step 029 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-26

SYSTEM CONFIG.

PAGE 27 OF 38

(Step 029 continued)

Symptom Index	
Error Symptom	Recommended Action
IML is not completed successfully and no reference code is displayed.	Go to MAP 0400 ENTRY POINT A (Dead System MAP).
<p>Note 1: The I/O Diskette Drive Copy And Formatting Program may be used to copy diskettes on any processor which is equipped with the I/O Diskette Drive feature. This might be helpful to copy a faultless diskette and to replace the failing diskette by the new duplicate. Refer to Vol.13, STM, section 5: I/O Diskette Drive Tests.</p>	

Have you found the reference code or the error symptom in the above table?

Y N

030

Go To Map 0001, Entry Point O.

031

Follow the appropriate recommended action.

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-27

SYSTEM CONFIG.

032

(Entry Point P)

MCTF Procedure

Is the last

MCTF UPDATE DISKETTE

available?

Y N

033

Have you received new CNTRL diskette(s)
with the MES/EC/REA emergency order?

Y N

034

Invoke your support structure to get
information about latest level MCTFs for
the just activated features.

3
O
U
T
R

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-28

(Step 035 continued)

1. Install the old
CNTRL diskette (FU1).
2. Select the IBM MAINTENANCE
AND SERVICE
PROGRAM SELECTION.
3. Select the UTILITIES.
4. Select DISKETTE
IDENTIFICATION.

On the display refer to MANUAL INSTALLED
MCTFs.

Are there any manually installed MCTFs
listed?

Y N

036

Go to Page 35, Step 045, Entry Point I.

037

Record all manually installed MCTFs (use the
COPY function if a console printer is available).
Save the list of manually installed MCTFs for
later use.

EC/REA Identification

Refer to page 1 of both the old and the new link
lists and compare EC levels and REAs installed.
Note: The Diskette Identification program can
also be used to display the EC levels and REAs
installed.

Do both the EC levels and all the REAs
match?

Y N

Y N

3 3
5 1
S T

T
3
0

REF.CODE FE621081

3590

MAP FE90-31

SYSTEM CONFIG.

PAGE 31 OF 38

038

(EC and/or REAs do not match)

Preparation of a list of unresolved problems

Refer to section F *Resolved Problems* of the new link list. This part of the link list shows all problems which are resolved and all MCTFs which are incorporated in the new microprogram link.

Example:

				RESOLVED PROBLEMS	
PROBLEM	PROBLEM	PROBLEM	PROBLEM	PROBLEM	PROBLEM
-----A----					
P290A400	P295A400				
-----B----					
P290B010	P301BC11	P301BC12	Note 1)		
-----C----					
P290CC01	P290CC02	P290CC03	P290CC0C	P290CC05	P290CC07
P296CC0C	P296CC03	P296CC04	P296CC05	P296CC06	P296CC07
				---	---
- *****					
- *	MCTFs	INSTALLED BY LINK			
- *****					
- P299CC0E					
- P299C24B	Note 4)			Note 2)	Note 3)
- P299C24C					
- P299C249					
- P299EC08					
- P299EC09					

- Note 1) Problem numbers are grouped by the area code.
- Note 2) These three characters correspond to the three low order digits of the EC number.
- Note 3) These four characters represent the unique problem number.
- Note 4) These MCTFs are factory installed.

Using the list of manually installed MCTFs cross out all MCTF numbers which are (Step 038 continues)

SYSTEM CONFIG.

PAGE 32 OF 38

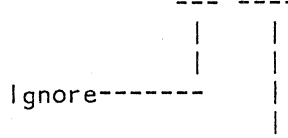
(Step 038 continued)

indicated as *Resolved Problems* in the new link list (Note 5). Do the same for all MCTFs which are listed as *MCTFs Installed By Link*.

Note 5: When looking for resolved problems refer only to the 4 character unique problem number (Note 3) and ignore the 3 character EC number (Note 2).

Example:

Manually installed MCTF on old diskette: P290CC0C
Resolved problem in new link list: P296 CC0C



The unique numbers match.-----
Cross out P290CC0C,
this problem is resolved.

Are any MCTFs left over on your list which are not resolved?

Y N

039

Go to Page 35, Step 045, Entry Point I.

040

Refer again to page 1 of the old and new link lists and compare the EC levels only (ignore any REAs).

Do EC levels match?

Y N

Y N

3 3
4 3
U V

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-32

V
3
2

REF.CODE FE621081

3590

MAP FE90-33

SYSTEM CONFIG.

PAGE 33 OF 38

041

(EC levels do not match, REAs are ignored).

Preparation of a list of MCTFs to be installed

The problem numbers of all unresolved problems must be modified to reflect the EC level of the new diskette. Replace the three character EC number XXX (PXXXANNN) of all unresolved problems by the three low order digits of the new diskette EC number.

Example:

Unresolved problem:		P290FC0A
New EC number:	364295	----

		V V

New problem number:		P295 FC0A

You have now a list of updated problem numbers. The corresponding MCTFs have to be reinstalled on the new CNTRL diskette.

Note: If REAs are incorporated into the new diskette the MCTF number is not necessarily identical with the problem number. In any case the unique number ANNN out of PXXXANNN is the same. The correct MCTF number is shown in the problem file of the data bank, where the problem number (PXXXANNN) is used as a search argument.

The required MCTFs are available via a data bank if not invoke your support function.
Go to Page 34, Step 042, Entry Point PP.

SYSTEM CONFIG.

PAGE 34 OF 38

042

(EC levels match, REAs do not match)
All MCTFs corresponding to the list of
unresolved problems you have just prepared
have to be reinstalled on the new CNTRL
diskette.

Note: If REAs are incorporated into the new diskette
the MCTF number is not necessarily
identical with the problem number. In any case
the unique number ANNN out of PXXXANNN is the same.
The correct MCTF number is shown in the problem file
of the data bank, where the problem number (PXXXANNN)
is used as a search argument.

The required MCTFs are available via a data
bank if not invoke your support function.

Go to Step 042, Entry Point PP.

(Entry Point PP)

Manual MCTF Installation

```
-----  
| Caution: You may destroy your diskettes. |  
| Do not press any keyboard key or the IML |  
| key while following message is displayed: |  
| Warning: Do not interrupt diskette update |  
| until completion. |  
|-----
```

Use the Manual MCTF Installation utility to
install the required MCTFs on all new CNTRL
diskettes.

(See Vol.13, STM, section 4: Manual MCTF
Installation.)

Note: The PF3-key function may be used to
install patches on the CNTRL back-up diskette,
if a back-up diskette is available.

Note: MCTFs may be installed via Remote Link
(see Vol.13, STM, section 4: How to Install a
MCTF Received via Remote Link).
(Step 042 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-34

0
8
S
O

REF.CODE FE621081
SYSTEM CONFIG.

3590

MAP FE90-35

PAGE 35 OF 38

(Step 042 continued)

Record all manually installed MCTFs in the new link list, section F: (Record all Manually Installed MCTFs Here:).
Go to Step 045, Entry Point I.

043

All MCTFs manually installed on the old CNTRL diskette have to be reinstalled on the new CNTRL diskette(s). The required MCTFs are available via a data bank if not invoke your support function.

Go to Page 34, Step 042, Entry Point PP.

044

Transfer the newest MCTFs (if there are some) from the 'MCTF UPDATE DISKETTE' to the CNTRL diskettes FU1 and FU2 and DIAG diskettes DD1 and DD2, as required.

Go to Step 045, Entry Point I.

045

(Entry Point I)

Are you installing a feature change MES?

Y N

046

Are you installing new diskettes received with an EC/REA?

Y N

047

Perform IML with all diskettes copied.

Is IML successful?

Y N

048

Refer to 'How to Recover from IML Errors' (ENTRY POINT H) and take the appropriate action.

Go to Page 24, Step 029, Entry Point H.

049

Go To Map 0001, Entry Point A.

050

Perform IML with all new diskettes.

Is IML successful?

Y N

051

Refer to 'How to Recover from IML Errors' (ENTRY POINT H) and take the appropriate action. Afterwards return to the EC/REA installation instruction.

Go to Page 24, Step 029, Entry Point H.

052

Return to the EC/REA installation instruction.

15SEP82

PN 8488077

EC 366589

PEC 366515

3590

MAP FE90-35

3
6
W

W
3
5

REF.CODE FE621081
SYSTEM CONFIG.
PAGE 36 OF 38

X 3590 MAP FE90-36

053

Perform IML with all diskettes copied.

055

Return to the MES installation instruction.

Is IML successful?

Y N

=====
=====

054

Refer to 'How to Recover from IML Errors'
(ENTRY POINT H) and take the appropriate
action. Afterwards return to the MES
installation instruction.

(Step 055 continues)

Go to Page 24, Step 029, Entry Point H.

X

15SEP82 PN 8488077
EC 366589 PEC 366515
3590 MAP FE90-36

SYSTEM CONFIG.

PAGE 37 OF 38

(Step 055 continued)

(Entry Point Z)

How to Enable/Disable Auto-Answer

=====

Before any maintenance action is started the Remote Operator Console Facility (ROCF) must be disabled first (Disable Auto-Answer). When the maintenance action has been finished ROCF can be enabled again if necessary (Enable Auto-Answer). A quick enable/disable procedure follows below.

For a detailed description of ROCF refer to Remote Operator Console Facility Feature Description, GA33-1545.

Disable Auto-Answer

1. Ask the system operator of the host system for permission to disable Auto-Answer.
2. Check that the security key (optional feature) is inserted and turned fully clockwise.
3. Press MOD SEL. The 'Mode Selection' display will appear.
4. Type in selection code MR (fast selection for the 'Remote Operator Console Facility' display). Press ENTER.
5. Write down the indicated telecommunication line speed (see message on the screen 'AUTO-ANSWER IS ENABLED BPS'). The line speed is needed for a later Enable Auto-Answer.
6. Type in selection code D (Disable Auto-Answer) and press ENTER
7. Follow the instructions appearing on the screen (Press PF1..).
8. Wait until the message 'AUTO-ANSWER DISABLED' is displayed. You can now start your maintenance actions.
9. Continue on page 3, Entry Point AB.

Note:

To enable ROCF see 'Enable Auto-Answer' below. You will find this procedure also in MAP 0001 (Exit MAP) Entry Point TA.
(Step 055 continues)

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-37

SYSTEM CONFIG.

PAGE 38 OF 38

(Step 055 continued)

Enable Auto-Answer

1. Inform the system operator of the host system that Auto-Answer will be enabled again.
2. Ensure that IML has been performed with the CNTRL diskette installed.
3. Press MOD SEL. The 'Mode Selection' display will appear.
4. Type in selection code MR (fast selection for the 'Remote Operator Console Facility' display). Press ENTER.
5. Type in the correct selection code for the telecommunication line speed wanted:

 H for 1200 BPS
 L for 600 BPS

Press ENTER.
6. Wait until the message 'AUTO-ANSWER ENABLED' is displayed. The system operator of the host system can now establish the data link.
7. Activate the security keylock (optional feature) if wanted.

*** END ***

15SEP82 PN 8488077

EC 366589 PEC 366515

3590 MAP FE90-38

CONFIGURE THE SYSTEM

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER

No entries in this table

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	001	FE90	B

001**(Entry Point A)****Handling stop:**

Install that diskette set

which you are told by the procedure in Ref.code FE621081.

Go To Map FE90, Entry Point B.

CONFIGURE THE SYSTEM

PAGE 1 OF 2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	001	FE90	B

001**(Entry Point A)**

Wrong diskette set installed for copying!
 Check according to the following table and compare
 with the procedure in ref.code FE621081.
Go To Map FE90, Entry Point B.

(Step 001 continues)

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REF.CODE FE621280

4331

30APR79 PN 8488079

EC 366233 PEC 366189

3610 MAP FE94-1

CONFIGURE THE

PAGE 2 OF 2

(Step 001 continued)

Step	Expected diskette set	Erroneously installed diskette set
A1	Old CTL	Any DIAG
A2	First new CTL	Any DIAG
A3	Second new CTL	Any DIAG
A4	DIAG	Any CTL
B1	Old CTL	Any DIAG
B2	new DIAG	Any CTL
C1	Old CTL	Any DIAG
C2	First new CTL	Any DIAG
C3	Second new CTL	Any DIAG
C4	new DIAG	Any CTL
D1	CTL(updated by MANOP)	Any DIAG
D2	sec. CTL(not updated)	Any DIAG
D3	DIAG	Any CTL
E1	DIAG(updated by MANOP)	Any CTL
E2	First CTL	Any DIAG
E3	Second CTL	Any DIAG
F1	One of the CTL	Any DIAG
F2	Second CTL	Any DIAG
F3	DIAG	Any CTL

CONFIGURE THE SYSTEM

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	001	FE90	B

001

(Entry Point A)

Wrong case selection.

You entered any other character than A, B, C, D, E, F for case selection.

Select the right case according to the procedure in ref. code FE621081.

Go To Map FE90, Entry Point B.

Diskette Handling

PAGE 1 OF 2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
FXXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	006	0001	0
2	007	0001	0
2	008	0001	0

001
(Entry Point A)

Multi Volume Diskette Handling for Manual Operations:

Reference code FE700180?

Y N

002

Reference code FE700280?

Y N

003

Reference code FE700480?

Y N

004

Reference code FE700A81 to FE700E81?

Y N

005

Ref.Code FE70XX81?

Y N

A B C D E F REF.C.FE7XXX8X
1 1 1 1 1 1

3625

MAP FEA0-2

Diskette Handling

PAGE 2 OF 2

006

Ref.Code FE74XX81
Error during IOC-MANOPS.
Go To Map 0001, Entry Point O.

007

Error during PU-MANOPS.
Go To Map 0001, Entry Point O.

008

Program or link error.
Invoke your support structure.
Go To Map 0001, Entry Point O.

009

Wrong diskette installed.

010

Perform IML from CNTRL diskette FU1.

011

Select MANOPs from CNTRL diskette FU1.

26OCT81

PN 5683326

EC 366493

PEC 366390

3625

MAP FEA0-2

MAPINDEX

PAGE 1 OF 6

001

MAPINDEX 4331-2/4331-11

=====

REF. CODE	T I T L E	SORT NO.	MAP BL.	PART- NUMBER
0XXXXXXX	Directory	0030	0XXX	5683322
00000000	INTRODUCTION, how to use the MAPs	0035	INTR	4687471
00000001	Start MAP	0040	0000	5683311
00000101	Exit MAP	0050	0001	5683202
00001001	Intermittent problems	0052	0010	5683300
00002001	Reference code evaluation	0054	0020	5683301
00005001	Power problems	0060	0050	5683302
00006001	I/O problems	0062	0060	5683303
00007001	Lamp indicators trouble	0064	0070	5683304
00008001	CA/LA problems	0066	0080	5683305
02XXXXXX	Directory (Mapindex 02 see X1XXXXXX)	0080	02XX
04000001	Dead system (Errors during IML)	0701	0400	8488493
04000101	Dead system (Errors hang addr.table)	0702	0401	8488047
04000201	Dead system (Reference code table)	0703	0402	8488109
04000301	Processor bus problem	0704	0403	8488011
06000001	Operator's console trouble	0710	0600	8488497
08000001	Dead system (Errors after IML)	0721	0800	8488370
0C000001	Test chain MAP	0725	0C00	5683213
0EXXXX01	Operating system MAP	0730	0E00	5683204
0E542401	EREP 5424	0740	0E02	8488083
0E354001	EREP I/O diskette	0742	0E03	5683460
0E000001	Problems of DCA att. Devices	0744	0E04	5683318
3XXXXXXX	Directory	0750	3XXX	5683160
33000081	IC-bus test	0760	3370	5683161
3XXXXX01	IC-bus log	0770	3X00	5683162
4XXXXXXX	Directory	0780	4XXX	5683163
4BXXXX01	PU stop log	0790	4B00	5683164
4BXXXX81	PU-BSM test	0800	4B70	5683165
8XXXXXXX	Directory	0850	8XXX	5683168
80XXXX01	SCA-log (BMPX 1)	0860	8000	5683169
80100081	BMPX 1 adapter test	0870	8070	5683171
80000181	BMPX 1 standard interface test	0880	8080	5683173
81XXXX01	SCA-log (BMPX 2)	0881	8100	5683170
81100081	BMPX 2 adapter test	0882	8170	5683172
80200081	BMPX 2 adapter test	0882	8170	5683172
81000181	BMPX 2 standard interface test	0883	8180	5683174

(Step 001 continues)

MAPINDEX

PAGE 2 OF 6

(Step 001 continued)

REF. CODE	T I T L E	SORT NO.	MAP BL.	PART- NUMBER
82XXXX01	HSC log	0884	8200	5683175
82000081	HSC test	0886	8270	5683176
82000181	HSC standard interface test	0888	8280	5683177
84XXXX01	SCA-log (MPX)	0890	8400	5683312
84100081	MPX adapter test	0900	8470	5683463
84000181	MPX standard interface test	0910	8480	5683313
88EXXX01	CA channel log	0920	8800	8488105
88BBBB81	Board or cable errors	0930	8880	8488119
88B0XX81	ACA card wrap errors	0940	8882	8488117
88C0XX81	ACA plug wrap errors	0950	8884	8488118
88XXXX81	Link to CA MAPS	0960	8886	8488111
88000081	CA-BA test	0970	8888	8488120
8820XX81	PRE-BA or BA errors	0980	888A	8488121
8840XX81	BA-CCA errors	0990	888C	8488122
8850XX81	CCA basic error	1000	888E	8488123
886XX81	CCA card wrap error	1010	8890	8488124
88A1XX81	Self test plug wrap errors	1020	8892	8488112
8871XX81	Interface card wrap errors	1030	8894	8488125
8872XX81	Interface card wrap errors	1040	8896	8488126
8873XX81	Interface card wrap errors	1050	8898	8488127
8874XX81	Interface card wrap errors	1060	889A	8488128
88A2XX81	Self test plug wrap errors	1070	889C	8488113
8881XX81	Plug wrap errors	1080	889E	8488130
8882XX81	Plug wrap errors	1090	88A0	8488131
8883XX81	Plug wrap errors	1100	88A2	8488132
8884XX81	Plug wrap errors	1110	88A4	8488133
88A3XX81	Self test plug wrap errors	1120	88A6	8488114
8891XX81	Modem wrap errors	1130	88A8	8488135
8892XX81	Modem wrap errors	1140	88AA	8488136
8893XX81	Modem wrap errors	1150	88AC	8488137
8894XX81	Modem wrap errors	1160	88AE	8488138
8875XX81	Interface card wrap errors	1170	88AF	8488129
8885XX81	Plug wrap errors	1180	88B0	8488134
8895XX81	Modem wrap errors	1190	88B1	8488139
88A4XX81	Self test plug wrap errors	1200	88B2	8488115
88A5XX81	Self test plug wrap errors	1210	88B3	8488116
88A5XX81	Interface card wrap error	1211	88B5	5683227

(Step 001 continues)

13SEP82 PN 5683159

EC 366582 PEC 366493

4001 MAP XXXX-2

MAPINDEX

PAGE 3 OF 6

(Step 001 continued)

REF. CODE	T I T L E	SORT NO.	MAP BL.	PART- NUMBER
88A5XX81	Plug wrap error	1212	88B6	5683228
88A5XX81	Modem wrap error	1213	88B7	5683229
88A5XX81	Self test plug wrap errors	1214	88B8	8488664
88FFFF80	CA configuration MAP	1215	88FF	8488499
89FXXX01	CA unit check log	1220	8900	8488106
AXXXXXXX	Directory (if 5424 MFCU attached)	1230	AXXX	8488000
AXXXXXXX	Directory (if Loop Adapter attached)	1230	AXXX	4008824
A0XXXX01	I/O check stops	1240	A000	8488013
A1XXXX01	I/O check stops	1250	A100	8488015
A18XXX01	I/O timeout and TOD request	1255	A102	5683214
A2XXXX01	BBA 1 log, BBA of I/O subsystem	1260	A200	8488017
A2000081	BBA 1 test	1261	A280	8488470
A8XXXXXX	Directory	1262	A8XX	4008827
A8110901	Error opening HPCA data wrap test	1263	A810	4008828
A8110D01	Error opening modem wrap test	1263	A810	4008828
A8120801	Error during normal traffic on loops	1263	A810	4008828
A880XX01	Error in LA circuitry.	1264	A815	4008829
A8000081	Important hints	1265	A820	4008989
A80XXX81	Basic LA error	1266	A825	4009000
A81XXX81	Basic HPCA error	1267	A830	4009002
A8281X81	EIA card wrap test	1268	A850	4009003
A829XX81	Modem cable wrap test	1269	A855	4009027
A82AXX81	Selftest plug wrap test	1270	A860	4009028
A82AXX81	Selftest plug wrap test	1271	A865	4009032
A82CXX81	Modem wrap test	1272	A870	4009039
A8FXXX81	LA ILT Monitor Detected Errors	1273	A875	4009074
A8XXXX81	Cable errors	1274	A880	4009280
A8XXXX8F	Control program errors	1275	A885	4009283
A821XX81	LSA card wrap test	1276	A890	4009298
A822XX81	LSC wrap test	1277	A895	4009301
A823XX81	LSC1 open test	1278	A896	4009312
A824XX81	LSC2 open test	1279	A897	4009327
A8XXXX8X	Loop adapter checkout	1281	A8A0	5683314
AAXXX01	5424 MFCU entry MAP	1320	AA00	8488001
AA210001	Card marking	1322	AA02	8488002
AA220001	Missing punches, no punch check	1324	AA04	8488003
AA230001	Off punching	1326	AA06	8488004

(Step 001 continues)

13SEP82 PN 5683159

EC 366582 PEC 366493

4001 MAP XXXX-3

MAPINDEX

PAGE 4 OF 6

(Step 001 continued)

REF. CODE	T I T L E	SORT NO.	MAP BL.	PART- NUMBER
AA240001	Poor print quality	1328	AA08	8488005
AA250001	Incorrect print or overprint	1330	AA0A	8488006
AA260001	Missing print	1340	AA0C	8488007
AA270001	Incorrect stacker select	1350	AA0E	8488008
AA280001	Improper stacker, cover, etc.	1360	AA10	8488009
AA290001	MFCU usage meter	1370	AA12	8488010
AAEXX80	Signal leading edge not found	1390	AA70	8488018
AA02XX81	Feed check entry MAP	1400	AA82	8488019
AA020181	Feed check 1	1410	AA84	8488020
AA020281	Feed check 2	1420	AA86	8488021
AA020381	Feed check 3	1420	AA86	8488021
AA020481	Feed check 4	1420	AA86	8488021
AA020581	Feed check 5	1430	AA88	8488022
AA020681	Feed check 6	1430	AA88	8488022
AA020781	Feed check 7	1440	AA8A	8488023
AA020881	Feed check 8	1440	AA8A	8488023
AA021081	Feed check 10	1440	AA8A	8488023
AA021281	Feed check 12	1440	AA8A	8488023
AA020981	Feed check 9	1450	AA8C	8488024
AA021181	Feed check 11	1450	AA8C	8488024
AA021381	Feed check 13	1450	AA8C	8488024
AA021481	Feed check 14	1460	AA8E	8488025
AA021681	Feed check 16	1460	AA8E	8488025
AA021881	Feed check 18	1460	AA8E	8488025
AA021581	Feed check 15	1470	AA90	8488026
AA021781	Feed check 17	1470	AA90	8488026
AA021981	Feed check 19	1480	AA92	8488027
AA022081	Feed check 20	1490	AA94	8488028
AA022181	Feed check 21	1490	AA94	8488028
AA022281	Feed check 22	1500	AA96	8488029
AA03XX81	Feed check	1510	AA98	8488030
AA04XX81	Punch check	1520	AA9A	8488031
AA050081	Punch data check	1530	AA9C	8488032
AA060081	Print clutch check	1540	AA9E	8488033
AA070081	Print data check	1550	AAA0	8488034
AA080081	NPRO problem	1560	AAA2	8488035
AA090081	Ready problem	1570	AAA4	8488036

(Step 001 continues)

13SEP82 PN 5683159

EC 366582 PEC 366493

4001

MAP XXXX-4

MAPINDEX

PAGE 5 OF 6

(Step 001 continued)

REF. CODE	T I T L E	SORT NO.	MAP BL.	PART- NUMBER
AA0A0081	CS overrun	1580	AAA6	8488037
AA0FXX81	Errors indicated by EREP	1590	AAA8	8488038
AA250180	Katakana tie down missing	1600	AAA9	8488144
AAAXXX81	Adapter test	1610	AAAA	8488039
AAB0XX81	Improper execution	1620	AAAC	8488040
AADXXX81	Errors during ripple read test	1630	AAAD	8488145
AA090082	Intervention required	1640	AAAE	8488041
AAFXXX8F	Abnormal test condition	1650	AAB0	8488042
CXXXXXXX	Directory	1700	CXXX	5683178
C1100181	Director controller interface 1 test	1702	C180	5883319
C2100181	Director controller interface 2 test	1706	C280	5683180
C3100181	Director controller interface 3 test	1708	C380	5683181
C4XXXX01	FTA 1 log	1710	C400	5683320
C400XX01	Channel control check	1712	C402	5683321
C4100181	FTA 1 test	1720	C480	5683183
C5XXXX01	FTA 2 log	1730	C500	5683184
C500XX01	Channel control check	1732	C502	5683198
C5100181	FTA 2 test	1740	C580	5683185
C6XXXX01	FTA 3 log	1742	C600	5683186
C600XX01	Channel control check	1743	C602	5683196
C6100181	FTA 3 test	1744	C680	5683187
DXXXXXXX	Directory	1750	DXXX	8488141
DOXXXX81	Disk Tape I/LT monitor	1760	D080	8488475
D8XXXX81	Link to 8809 MAPs	1770	D870	8488050
DAXXXX81	Link to 3340 MAPs	1780	DA70	8488048
DBXXXX81	Link to 3344 MAPs	1782	DB70	5683324
DDXXXX81	Link to 3310 MAPs	1790	DD70	8488049
DEXXXX81	Link to 3370 MAPs	1792	DE70	8488061
EXXXXXXX	Directory	1800	EXXX	5684024
E03XXX01	IML, support subsystem problem	1803	E001	5683309
E004XX01	IML problems, IOC load	1810	E002	8488053
E005XX01	BSM/array problems	1820	E003	5683306
E086XX01	IML problems, PU load	1830	E004	5683307
E01C4001	Wrong diskette installed	1835	E005	8488498
E011XX01	Support processor problems	1837	E006	8488052
E0040F01	IML-problems, IOC load (detailed)	1838	E008	8488148
E1000001	Timer error	1840	E100	8488055

(Step 001 continues)

13SEP82 PN 5683159

EC 366582 PEC 366493

4001 MAP XXXX-5

MAPINDEX

PAGE 6 OF 6

(Step 001 continued)

REF. CODE	T I T L E	SORT NO.	MAP BL.	PART- NUMBER
E4XXXX01	Check stops	1850	E400	5683191
E6XXXX81	Customer manual operation	1860	E680	5683192
E8XXXXXX	Directory (Mapindex E8 see X2XXXXXX)	1861	E8XX	8488523
EAXXXX01	PU detected control inform. error	1895	EA00	5683323
FXXXXXXX	Directory	1900	FXXX	5684022
F1CXXX01	SP-machine check	1920	F100	8488473
F2XXXX01	BBA 0 log, BBA of support subsystem	1940	F200	5683310
F2000081	BBA 0 test	1950	F280	5683315
F3XXXX01	SBA errors	1960	F300	5683316
F3XXXX81	SBA test	1962	F380	5683308
F4XXXX01	Transmit/receive errors	1970	F400	5683317
F5XXXX01	SPIL program errors	1980	F500	8488068
F7XXXXXX	Directory (Mapindex F7 see X3XXXXXX)	2100	F7XX
F80XXX81	Remote TP link	3400	F880	8488074
F9XXXX01	DCA-I/O Counter Overflow	3410	F900	5683193
FCXXXX01	Log in and idle problems	3500	FC00	8488059
FDXXXX01	Diskette errors	3510	FD00	8488060
FDXXXX81	I/O diskette error MAP	3515	FD60	8488477
FD001081	I/O diskette entry MAP	3516	FD70	8488478
FD002081	I/O diskette not ready MAP	3517	FD72	8488485
FD004081	I/O diskette seek error MAP	3518	FD74	8488494
FD006081	I/O diskette read error MAP	3519	FD76	8488496
FD000081	53FD entry MAP	3521	FD80	8488371
FD000281	Not ready	3531	FD82	8488372
FD000481	Seek errors	3541	FD84	8488373
FD000681	Read errors	3551	FD86	8488374
FE519X8X	INIT.of control diskette FU 2	3560	FE50	8488459
FE620X81	MCTF program errors	3570	FE70	8488073
FE6XXX8X	M/S selection errors	3580	FE80	8488075
FE621081	Configure the system MAP	3590	FE90	8488077
FE621180	Configure the system errors	3600	FE92	8488078
FE621280	Configure the system errors	3610	FE94	8488079
FE621380	Configure the system errors	3620	FE96	8488080
FE7XXX8X	Diskette handling MAP	3625	FEA0	5683326
XXXXXXXX	Mapindex	4001	XXXX	5683159
X1XXXXXXXX	Mapindex 02	4010	XXX1
X2XXXXXXXX	Mapindex E8	4020	XXX2	8488524
X3XXXXXXXX	Mapindex F7	4030	XXX3

** E N D **

13SEP82 PN 5683159

EC 366582 PEC 366493

4001 MAP XXXX-6

MAPINDEX 02

PAGE 1 OF 2

001

```
#####
#           4 3 3 1   P R O C E S S O R           #
#                                           #
#           M O D E L   G R O U P   2 / 11       #
#                                           #
#           P O W E R   D E S I G N   L E V E L   5   #
#####
```

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
02XXXXXX	Directory 02	0080	02XX	5683443
02D00001	Power Map main entrance (Part1)	0100	0200	4008634
02D00101	Power Map main entrance (Part2)	0101	0201	1897279
02A00201	Before calling for assistance	0105	0202	8488242
02A00401	Final check after repairs	0110	0204	8488201
02A00901	PCC-CB01 tripped	0120	0209	8488529
02A01001	Line voltage distribution problem	0130	0210	8488203
02D01101	PCC-K02 problem	0140	0211	4008635
02D01201	PCC-K03 problem	0150	0212	4008636
02D01301	PCC-K04 not picked	0160	0213	4008637
02A01401	Convenient outlet problem	0165	0214	8488241
02A01501	Blower (AMD) problem	0170	0215	8488207
02D02001	PS104 +24V on 01A-A2 fail. H01	0180	0220	4008638
02F03101	PS104 +5.1V on 01A-B1 fail. H04	0190	0231	4008770
02D03201	PS104 -5.1V on 01A-C2 fail. H05	0200	0232	4008639
02D03301	PS104 +8.5V on 01A-C2 fail. H06	0210	0233	4008640
02D03401	PS104 +12V on 01A-A2 fail. H02	0220	0234	4008641
02D03501	PS104 -12V on 01A-A2 fail. H03	0230	0235	4008642
02D03601	Power off control problem	0240	0236	4008643
02D04001	PS104-CP05 tripped (+24V)	0250	0240	4008644
02F04101	PS104-CP01 tripped (+5.1V)	0260	0241	4008771
02D04201	PS104-CP02 tripped (+5.1V)	0270	0242	4008646
02D04301	PS104-CP03 tripped (-5.1V)	0280	0243	4008647
02D04401	PS104-CP07 tripped (+8.5V)	0290	0244	4008648
02D04501	PS104-CP06 tripped (+12V)	0300	0245	4008649
02D04601	PS104-CP04 tripped (-12V)	0310	0246	4008665

(Step 001 continues)

MAPINDEX 02

PAGE 2 OF 2

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
02D05001	TR104/PS104 power problem	0320	0250	4008667
02D06001	PS104 -5.1V some sense points failing	0323	0260	4008669
02A07001	SPI panel check procedure	0325	0270	8488240
02F07501	Voltage measurements	0330	0275	4008772
02A07801	IPS test station check procedure	0340	0278	8488243
02A07901	IPS voltage adjustment procedure	0350	0279	5684089
02D08001	IPS service check	0360	0280	5683441
02A08101	PS105-CP03 tripped (+6.0V to 01A-A1)	0370	0281	8488227
02A08201	PS105-CP06 tripped (+8.5V to 01A-A1/C2)	0380	0282	8488228
02A08301	PS105-CP05 tripped (-8.5V to 01A-A1/C2)	0390	0283	8488229
02D08401	PS105-CP04 tripped (-5.1V to 01A-C2)	0400	0284	4008745
02A08501	PS105-CP02 tripped (+5.1V to 01A-A2)	0410	0285	8488231
02A08601	PS105-CP01 tripped (+5.1V to 01A-A1)	0420	0286	8488232
02A08701	TR105/PS105 power problem	0430	0287	8488233
02C09201	TR102 line voltage problem	0438	0292	5683414
02C09301	TR102-F01 blown (primary fuse)	0439	0293	8488531
02C09401	PS102-CP07 or CP08 or CP09 tripped	0440	0294	8488532
02C09501	PS102-CP05 tripped (+7.1V bulk to PS112)	0450	0295	8488533
02C09601	PS102-CP04 tripped (+9.5V bulk to PS113)	0460	0296	8488534
02C09701	PS102-CP06 tripped (+6.8V bulk to PS114)	0470	0297	8488535
02C09901	PS102-CP02 tripped (+5.1V bulk to 01A-B1)	0480	0299	8488536
02C0A001	PS102-CP03 tr. (+10.1V to PS111/01A-B2)	0490	02A0	8488537
X1FXXXXX	INDEX FOR 02-REFCODES 4331-2/11 PDL5	4010	XXX1	5683438

13SEP82 PN 5683438

EC 366582 PEC 366493

4010 MAP XXX1-2

MAPINDEX E8

PAGE 1 OF 1

001

```
#####
# * 4 3 2 1 / 4 3 3 1 - 1 / 4 3 3 1 - 2 / 4 3 3 1 - 11 #
# * * #
# * * P R O C E S S O R #
# * * * * * #
# * * P O W E R D E S I G N L E V E L 4 / 5 #
#####
```

REFER. CODE	S Y M P T O M	SORT NO.	MAP	PART-NUMBER
E8XXXXXX	Directory E8	1861	E8XX	8488523
E8X00X01	ESD incident (any level 1 to 4)	1865	E800	8488525
E8BXXX01	Air inlet temp. returned to normal	1870	E8B0	8488522
E8XEXX01	Any ESD hardware failure	1875	E8E0	8488526
E8FXXX01	Air inlet temperature too high, D04	1880	E8F0	8488521

MAPINDEX F7

PAGE 1 OF 8

001

```
#####
#           4 3 3 1   P R O C E S S O R           #
#                                                                 #
#           M O D E L   G R O U P   2 / 11         #
#                                                                 #
#           P O W E R   D E S I G N   L E V E L   5 #
#####
```

REF. CODE	SYMPTOM	SORT NO.	MAP	PART-NUMBER
F7XXXXXX	Directory F7XXXXXX	2100	F7XX	5683444
F7A00201	PS111 UV failure D19	2200	F700	8488600
F7A00401	PS111 OV failure D22	2210	F701	8488601
F7A00601	PS111 OC failure D23	2220	F702	8488602
F7A00801	PS111 initial-PWR on signal C08 missing	2230	F703	8488603
F7A01201	PS112 UV failure D26	2240	F704	8488604
F7A01401	PS112 OV failure D24	2250	F705	8488605
F7A01601	PS112 OC failure D25	2260	F706	8488606
F7A01801	PS112 Power on signal C09 missing	2270	F707	8488607
F7A02001	PS113 OC failure D28	2280	F708	8488608
F7A02201	PS113 UV failure D20	2290	F709	8488609
F7A02401	PS113 OV failure D27	2300	F70A	8488610
F7A03001	PS114 power on signal C11 missing	2310	F70B	8488611
F7A03201	PS114 OV failure D29	2320	F70C	8488612
F7A03401	PS114 OC failure D30	2330	F70D	8488613
F7A03601	PS114 UV failure D13	2340	F70E	8488614

(Step 001 continues)

MAPINDEX F7

PAGE 2 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7A04201	PS111 power on signal C19 missing	2350	F712	8488615
F7A04401	PS113 power on signal C10 missing	2360	F713	8488616
F7F10001	PS111 A05 +4.26V init. volt. on B1 fail.	2369	F732	5683447
F7F10201	PS111 A05 +4.26V on B1 fail. and UV sig.	2370	F733	5683448
F7A10401	PS111 A05 +4.26V on B1 fail. and OV sig.	2380	F734	8488618
F7C10601	PS111 A05 +4.26V on B1 fail. and OC sig.	2390	F735	5683408
F7F10801	PS111 A05 +4.26V on 01A-B1 failing	2400	F736	5683446
F7A11001	PS112 A06 -6.54V on B1 fail. and UV sig.	2410	F737	8488621
F7A11201	PS112 A06 -6.54V on B1 fail. and OV sig.	2420	F738	8488622
F7C11401	PS112 A06 -6.54V on B1 fail. and OC sig.	2430	F739	8488511
F7F11601	PS112 A06 -6.54V on 01A-B1 failing	2440	F73A	5683445
F7C12001	PS113 A07 -4.34V on B1 fail. and OC sig.	2450	F73C	8488513
F7A12201	PS113 A07 -4.34V on B1 fail. and UV sig.	2460	F73D	5683410
F7A12401	PS113 A07 -4.34V on B1 fail. and OV sig.	2470	F73E	5683411
F7F12601	PS113 A07 -4.34V on 01A-B1 failing	2480	F73F	5683430
F7A13001	PS114 A08 -1.52V on B1 fail. and OV sig.	2490	F741	8488629
F7C13201	PS114 A08 -1.52V on B1 fail. and OC sig.	2500	F742	8488515
F7A13401	PS114 A08 -1.52V on B1 fail. and UV sig.	2510	F743	8488631
F7F13601	PS114 A08 -1.52V on 01A-B1 failing	2520	F744	5683431
F7A13801	PS111 UV sign. D19 missing dur. PWR-on	2530	F745	8488633
F7A14001	PS112 UV sign. D26 missing dur. PWR-on	2540	F746	8488634
F7A14201	PS113 UV Sign. D20 missing dur. PWR-on	2550	F747	8488635
F7A14401	PS114 UV sign. D13 missing dur. PWR-on	2560	F748	8488636
F7F20001	TR102 TH failure D09	2570	F764	5683432
F7C20401	PS102 +12.3V bias to PS111 fail. A56	2580	F766	8488518
F7C20601	PS102 +12.3V bias to PS112 fail. A58	2590	F767	8488519
F7C20801	PS102 +12.3V bias to PS113/PS114 fail.	2600	F768	8488540
F7C21001	PS102 +9.5V bulk to PS113 fail. A59	2610	F769	8488541
F7C21201	PS102 +6.8V bulk to PS114 fail. A61	2620	F76A	8488542
F7C21401	PS102 +10.1V on 01A-B2 fail. A39	2630	F76B	8488543

(Step 001 continues)

13SEP82 PN 5683440

EC 366582 PEC 366493

4030 MAP XXX3-2

MAPINDEX F7

PAGE 3 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7C21601	PS102 +7.1V bulk to PS112 fail. A57	2640	F76C	8488544
F7F21801	PS102 +5.1V on 01A-B1 fail. A54	2650	F76D	5683433
F7A22001	PS102 on by mistake, A54	2652	F76E	8488597
F7C22201	PS102 more than one voltage out of tol.	2654	F76F	4008801
F7D30001	PS104 +24V on 01A-A2 fail. A41 (MSSS)	2660	F796	4008751
F7D40001	PS104 +12V on 01A-A2 fail. A42 (MSSS)	2670	F797	4008752
F7F40201	PS104 +5.1V on 01A-C2 fail. A44 (MSSS)	2680	F798	5683434
F7D40401	PS104 +8.5V on 01A-C2 fail. A46 (MSSS)	2690	F799	4008754
F7A40601	PS104 +8.5V on 01A-C2 fail. A31	2700	F79A	8488550
F7D40801	PS104 -5.1V on 01A-C2 fail. A33	2710	F79B	4008755
F7A41001	PS104 -12V on 01A-C2 fail. A64	2720	F79C	8488552
F7D41201	PS104 -12.0V on 01A-A2 fail. A43	2730	F79D	4008756
F7D41401	PS104 -5.1V on 01A-C2 fail. A45/A47	2740	F79E	4008757
F7A41601	PS104 +8.5V on 01A-B2 fail. A23	2750	F79F	8488555
F7D41801	PS104 +5.1V on 01A-C2 fail. A30	2760	F7A0	4008758
F7A42001	PS104 -12V on 01A-B2 fail. A32	2770	F7A1	8488557
F7D42201	PS104 +5.1V on 01A-C1 fail. A22	2780	F7A2	4008759
F7D42401	TR104 TH-failure D03	2790	F7A3	4008760
F7D42601	PS104 +8.5V on 01A-B2 and 01A-C2 fail.	2800	F7A4	4008761
F7D42801	PS104 -12V on 01A-B2 and 01A-C2 fail.	2810	F7A5	4008762
F7F43001	PS104 -5.1V on 01A-B1 failing, A63	2811	F7A6	5683435
F7D43201	PS104 +12V on 01A-A1 failing, A13	2812	F7A7	4008764
F7F43401	PS104 +12V on 01A-B1 failing, A48	2813	F7A8	5683436
F7D43601	PS104 -5.1V on 01A-B1/01A-C2 fail. A45/A63	2814	F7A9	4008766
F7D43801	PS104 -5.1V on 01A-A1 failing, A01	2815	F7AA	4008767
F7D50001	TR105 TH-failure D08	2820	F7B0	4008768
F7D50201	PS105 +8.5V on 01A-A1 fail. A02	2830	F7B1	4008773
F7A50601	PS105 +8.5V on 01A-C2 fail. A31	2850	F7B3	8488565
F7D50801	PS105 -5.1V on 01A-C2 fail. A33	2860	F7B4	4008774
F7A51001	PS105 -8.5V on 01A-C2 fail. A62	2870	F7B5	8488567
F7D51201	PS105 -8.5V on 01A-A1 fail. A38	2880	F7B6	4008781
F7D51401	PS105 +6.0V on 01A-A1 fail. A52	2890	F7B7	4008785

(Step 001 continues)

13SEP82 PN 5683440

EC 366582 PEC 366493

4030 MAP XXX3-3

MAPINDEX F7

PAGE 4 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7D51601	PS105 +5.1V on 01A-C2 fail. A30	2900	F7B8	4008786
F7A51801	PS105 -8.5V on 01A-B2 fail. A32	2910	F7B9	8488571
F7D52001	PS105 +5.1V on 01A-A1 fail. A03	2920	F7BA	4008787
F7A52201	PS105 +8.5V on 01A-B2 fail. A23	2930	F7BB	8488573
F7D52401	PS105 +8.5V on 01A-B2 and 01A-C2 fail.	2940	F7BC	4008788
F7D52601	PS105 -8.5V on 01A-B2 and 01A-C2 fail.	2950	F7BD	4008789
F7A52801	PS105 on by mistake	2952	F7BE	8488598
F7A53001	PS105-K01 on by mistake	2954	F7BF	8488599
F7A60001	Control line C02 for PCC-K02 missing	2960	F7C0	8488576
F7A60201	Control line C34 for PCC-K03 missing	2970	F7C1	8488577
F7A60401	Control line C24 for PS105-K01 missing	2980	F7C2	8488578
F7D60601	Thermal loop gate 01A and PS open D18	2990	F7C3	4008769
F7A53201	PS105 more than one voltage out of tol.	2992	F7C4	4008803
F7A80801	Missing tie down on unused sense line A18	3000	F7D0	8488580
F7A81001	Missing tie down on unused sense line A20	3000	F7D0	8488580
F7A81201	Missing tie down on unused sense line A21	3000	F7D0	8488580
F7A81401	Missing tie down on unused sense line A16	3000	F7D0	8488580
F7A81601	Missing tie down on unused sense line A09	3000	F7D0	8488580
F7A81801	Missing tie down on unused sense line A04	3000	F7D0	8488580
F7A82001	Missing tie down on unused sense line A55	3000	F7D0	8488580
F7A82201	Missing tie down on unused sense line A10	3000	F7D0	8488580
F7A82401	Missing tie down on unused sense line A40	3000	F7D0	8488580
F7A82601	Missing tie down on unused sense line A34	3000	F7D0	8488580
F7A82801	Missing tie down on unused sense line A35	3000	F7D0	8488580
F7A83001	Missing tie down on unused sense line A36	3000	F7D0	8488580
F7A83201	Missing tie down on unused sense line A37	3000	F7D0	8488580
F7A83401	Missing tie down on unused sense line A19	3000	F7D0	8488580
F7A83601	Missing tie down on unused sense line A25	3000	F7D0	8488580
F7A83801	Missing tie down on unused sense line A50	3000	F7D0	8488580
F7A84001	Missing tie down on unused sense line A24	3000	F7D0	8488580
F7A84201	Missing tie down on unused sense line A53	3000	F7D0	8488580

(Step 001 continues)

13SEP82 PN 5683440

EC 366582 PEC 366493

4030

MAP XXX3-4

MAPINDEX F7

PAGE 5 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7A84401	Missing tie down on unused sense line A26	3000	F7D0	8488580
F7A84601	Missing tie down on unused sense line A27	3000	F7D0	8488580
F7A84801	Missing tie down on unused sense line A28	3000	F7D0	8488580
F7A85001	Missing tie down on unused sense line A29	3000	F7D0	8488580
F7A85201	Missing tie down on unused sense line A12	3000	F7D0	8488580
F7A85401	Missing tie down on unused sense line A11	3000	F7D0	8488580
F7A85601	Missing tie down on unused sense line A14	3000	F7D0	8488580
F7A85801	Missing tie down on unused sense line A51	3000	F7D0	8488580
F7A86001	Missing tie down on unused sense line A15	3000	F7D0	8488580
F7A86201	Missing tie down on unused sense line A49	3000	F7D0	8488580
F7A86401	Missing tie down on unused sense line A17	3000	F7D0	8488580
F7A91001	Missing tie up on unused sense line D34	3010	F7D1	8488581
F7A91201	Missing tie up on unused sense line D32	3010	F7D1	8488581
F7A91401	Missing tie up on unused sense line D53	3010	F7D1	8488581
F7A91601	Missing tie up on unused sense line D54	3010	F7D1	8488581
F7A91801	Missing tie up on unused sense line D17	3010	F7D1	8488581
F7A92001	Missing tie up on unused sense line D12	3010	F7D1	8488581
F7A92201	Missing tie up on unused sense line D52	3010	F7D1	8488581
F7A92401	Missing tie up on unused sense line D11	3010	F7D1	8488581
F7A92601	Missing tie up on unused sense line D14	3010	F7D1	8488581
F7A92801	Missing tie up on unused sense line D21	3010	F7D1	8488581
F7A93001	Missing tie up on unused sense line D38	3010	F7D1	8488581
F7A93201	Missing tie up on unused sense line D02	3010	F7D1	8488581
F7A93401	Missing tie up on unused sense line D33	3010	F7D1	8488581
F7A93601	Missing tie up on unused sense line D06	3010	F7D1	8488581
F7A93801	Missing tie up on unused sense line D07	3010	F7D1	8488581
F7A94001	Missing tie up on unused sense line D15	3010	F7D1	8488581
F7A94201	Missing tie up on unused sense line D16	3010	F7D1	8488581
F7ADFF01	Any failure during power off sequence.	3019	F7DF	5683416
F7AE0001	Control error (power complete/incompl.)	3020	F7E0	8488582
F7AE0101	MFCU power incomplete	3030	F7E1	8488583

(Step 001 continues)

13SEP82 PN 5683440

EC 366582 PEC 366493

4030 MAP XXX3-5

MAPINDEX F7

PAGE 6 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7AE8001	Channel I/O power incomplete	3040	F7E2	8488584
F7AE8101	MFCU and channel-I/O power incomplete	3050	F7E3	8488585
F7AD0101	MFCU power off failure	3060	F7E4	8488586
F7AD8001	Channel I/O power off failure	3070	F7E5	5684085
F7AD8101	MFCU and channel I/O power off failure	3080	F7E6	8488588
F7AE0701	Invalid power on/off code, K5	3090	F7E7	8488589
F7AE0801	All control latches reset by 36 ms T0.	3100	F7E8	8488590
F7AE0901	Monitor control error, K7	3110	F7E9	8488591
F7AE0A01	Power on control error, M2	3120	F7EA	8488592
F7AE0B01	Power off key pressed and escape done	3130	F7EB	8488593
F7AE0C01	Power off escape done w/o pwr off key	3140	F7EC	8488594
F7AE0D01	Permanent interrupt at end of power on K1	3150	F7ED	8488595
F7A00001	Power problem, no error found	3155	F7EE	8488596
F7AE0F01	Initial loop count zero	3156	F7EF	8488520
F7A09X81	Control error	3160	F7F0	5684086
F7A10X81	Any read bus bit permanently on	3160	F7F0	5684086
F7A11081	SC1 reset error (any bit)	3160	F7F0	5684086
F7A11181	SC1 control line permanently on	3160	F7F0	5684086
F7A12081	SC2 reset error (any bit)	3160	F7F0	5684086
F7A12181	SC2 control line permanently on	3160	F7F0	5684086
F7A13081	IFC reset error (any bit)	3160	F7F0	5684086
F7A13181	IFC control line permanently on	3160	F7F0	5684086
F7A19X81	Control error	3160	F7F0	5684086
F7A21281	SC1 missing diagnostic line	3160	F7F0	5684086
F7A21381	SC1 missing diagnostic line	3160	F7F0	5684086
F7A22X81	SC2 diagnostic control error	3160	F7F0	5684086
F7A23181	Any read bus bit permanently off	3160	F7F0	5684086
F7A29X81	Control error	3160	F7F0	5684086
F7A31181	SC1 reset error	3160	F7F0	5684086
F7A31281	SC1 missing control line for addr. check	3160	F7F0	5684086
F7A31381	SC1 sense module or address error	3160	F7F0	5684086

(Step 001 continues)

13SEP82 PN 5683440

EC 366582 PEC 366493

4030

MAP XXX3-6

MAPINDEX F7

PAGE 7 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7A32X81	SC2 addr. check or diagn. / reset error	3160	F7F0	5684086
F7A33X81	Control error	3160	F7F0	5684086
F7A39X81	Control error	3160	F7F0	5684086
F7A41081	SC1 reset error	3160	F7F0	5684086
F7A41381	SC1 DAC control byte not FF	3160	F7F0	5684086
F7A42081	SC2 reset error	3160	F7F0	5684086
F7A42181	SC2 reference voltage PS104 -5.1V < 50 %	3160	F7F0	5684086
F7A42281	SC2 reference voltage PS104 -5.1V <87.5 %	3160	F7F0	5684086
F7A42381	SC2 DAC control byte not FF	3160	F7F0	5684086
F7A43081	IFC reset error	3160	F7F0	5684086
F7A43281	DAC deviation = or > 1.5 %	3160	F7F0	5684086
F7A49X81	Control error	3160	F7F0	5684086
F7A51081	SC1 reset error	3160	F7F0	5684086
F7A51181	SC1 interrupt bit missing	3160	F7F0	5684086
F7A51281	SC1 all mask bits off	3160	F7F0	5684086
F7A51381	SC1 interrupt mask 1 to 3 bits off	3160	F7F0	5684086
F7A52081	SC2 reset error	3160	F7F0	5684086
F7A52181	SC2 interrupt bit missing	3160	F7F0	5684086
F7A52281	SC2 all mask bits off	3160	F7F0	5684086
F7A52381	SC2 interrupt mask 1 to 3 bits off	3160	F7F0	5684086
F7A53X81	IFC reset error or interrupt problem	3160	F7F0	5684086
F7A59X81	Control error	3160	F7F0	5684086
F7A61081	SC1 reset error	3160	F7F0	5684086
F7A61181	SC1 36ms timeout missing	3160	F7F0	5684086
F7A61281	SC1 36ms timeout too late	3160	F7F0	5684086
F7A61381	SC1 36ms timeout too soon	3160	F7F0	5684086
F7A61481	SC1 not all control lines reset	3160	F7F0	5684086
F7A61581	SC2 not all control lines reset	3160	F7F0	5684086
F7A61681	IFC not all control lines reset	3160	F7F0	5684086
F7A62081	SC2 reset error	3160	F7F0	5684086
F7A62181	SC2 36ms timeout missing	3160	F7F0	5684086

(Step 001 continues)

MAPINDEX F7

PAGE 8 OF 8

(Step 001 continued)

REF. CODE	S Y M P T O M	SORT NO.	MAP	PART- NUMBER
F7A62281	SC2 36ms timeout too late	3160	F7F0	5684086
F7A62381	SC2 36ms timeout too soon	3160	F7F0	5684086
F7A63081	IFC reset error	3160	F7F0	5684086
F7A69X81	Control error	3160	F7F0	5684086
F7A72X81	SC2 set / reset error of control lines	3160	F7F0	5684086
F7A79X81	Control error	3160	F7F0	5684086
F7A82X81	Control error	3160	F7F0	5684086
F7A83X81	Control error	3160	F7F0	5684086
F7A84X81	Any ESD latch could not be reset	3160	F7F0	5684086
F7A85X81	Any EDS latch could not be set	3160	F7F0	5684086
F7A89X81	Control error	3160	F7F0	5684086
F7A21181	SC1 diagnostic control bit off	3170	F7F1	8488501
F7A41181	SC1 reference voltage PS104 -5.1V < 50 %	3180	F7F2	8488502
F7A41281	SC1 reference voltage PS104 -5.1V < 88 %	3190	F7F3	8488503
F7A43181	-5.1V PS104 on SC1 and/or SC2 > 116.5 %	3200	F7F4	8488505
X3FXXXXX	INDEX FOR F7-REFCODES 4331-2/11 PDL5	4030	XXX3	5683440

13SEP82 PN 5683440

EC 366582 PEC 366493

4030 MAP XXX3-8