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MAP VTOC-1

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Title: MI MAPS CXXX-F500
Machine Type: 4331-2
Power Design Level: 4/5
B/M Number: 5683357

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REF.CODE DIRECTORY

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ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0020	A	1	001

001

(Entry Point A)

REFERENCE CODE DIRECTORY

=====

Reference Code	Title	Goto MAP
C1X00181	CTLI 1 Test	C180
C2X00181	CTLI 2 Test	C280
C3100181	CTLI 3 Test	C380
C400CF01	Channel Control Check (Emul.Mode)	C402
C400DA01	Channel Control Check (FA-Mode)	C402
C400FA01	Channel Control Check (FA-Mode)	C402
C4X00181	FTA-1 Test MAP	C480
C4XXXX01	FTA-1 LOG MAP	C400
C500CF01	Channel Control Check (Emul. Mode)	C502
C500DA01	Channel Control Check (FA-Mode)	C502
C500FA01	Channel Control Check (FA-Mode)	C502
C5X00181	FTA-2 Test MAP	C580
(Step 001 continues)		

REF.C.CXXXXXXX

1700

MAP CXXX-2

REF.CODE DIRECTORY

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(Step 001 continued)

C5XXXX01	FTA-2 LOG MAP	C500
C600CF01	Channel Control Check (Emul. Mode)	C602
C600DA01	Channel Control Check (FA-Mode)	C602
C600FA01	Channel Control Check (FA-Mode)	C602
C6100181	FTA3 test MAP	C680
C6XXXX01	FTA3 log MAP	C600

04DEC81 PN 5683178

EC 366515 PEC 366492

1700 MAP CXXX-2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C400	A	1	001
C402	A	1	001
OC00	A	1	001
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
10	040	C480	A
9	030	0001	A
10	032	0001	0

001

(Entry Point A)

CTLI 1 Test

Important hints:

Before testing the director-controller interface (CTLI) be sure that the FTA operates properly by running the FTA test. The FTA test should also have run one time with disconnected CTLI cables. The test should have run error free before running the CTLI 1 test.

For handling of the CTLI 1 Test see Vol. 13, STM, Section 4: Diagnostic Run Procedures.
(Director Controller Interface Test)

(Step 001 continues)

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REF.CODE C1 0/1 00181

26OCT81 PN 5683319

EC 366493 PEC 366492

1702 MAP C180-1

Error display is as follows:

```

      CTLI Wrap Test
XX   000 XY Z <---- SYMPTOM CODE
-----
C1X00181 <----- REFERENCE CODE
-----
| -Kind of error (5=line open or
|                     shorted to ground)
|             (6=line shorted to another line)
| 
| -Interface line in error
| 
| -Normally '000'
| 
|-Routine no (01 to 09)

```

Important:
Check to ensure that the interface BUS and TAG cables
or the WRAP CONNECTORS are not interchanged!
Power down the control
units during the test run.

Is symptom XX000001 displayed?

Y	N
1	3
0	3
A	B

26OCT81	PN 5683319
EC 366493	PEC 366492
1702	MAP C180-2

R
2

REF.CODE C1000181

1702

MAP C180-3

FEF.CODE C1100181

PAGE 3 OF 10

002

Is any one of the listed symptoms displayed
on screen:

XX000002

XX000003

XX000004

07000197

08000197

Y N

003

Is one of the listed symptoms displayed?

02000075

03000085

04000085

05000035

05000085

05000205

Y N

004

Any other symptom code is displayed:

(Entry Point M)

The following procedure explains how to identify a failing FRU in
the director-controller interface area.

Take a note of the first symptoms shown on screen (at most,
two symptoms per test run).

Are the wrap connectors already
plugged in any control unit?

Y N

005

Continue testing by putting the wrap
plugs in the first control unit after the
processor, then in the most distant
control unit. By systematically putting
the wrap plugs in the other control
units the area in which the fault lies is
approached.

1 1
0 0 4
C D E

26OCT81

PN 5683319

EC 366493

PEC 366492

1702

MAP C180-3

E
3

REF.CODE C1000181

1702

MAP C180-4

FEF.CODE C1100181

PAGE 4 OF 10

006

(Entry Point G)

Are the wrap connectors right now plugged in
the first control unit after the processor?

Y N

007

Is there any more control unit in between the
one with the wrap connectors and the
processor?

Y N

008

Go to Page 5, Step 012, Entry Point F.

009

Put the wrap connectors into the next control
unit towards the processor.

Run the CTLI 1 test again.

Same error?

Y N

010

The error is in the control unit or interface
cabling which have just been eliminated
by the wrap connectors.

Go to Page 6, Step 013, Entry Point T.

011

Go to Step 006, Entry Point G.

5
F

26OCT81 PN 5683319

EC 366493 PEC 366492

1702 MAP C180-4

F
4

REF.CODE C1000181

1702

MAP C180-5

FEF.CODE C1100181

PAGE 5 OF 10

012

(Entry Point F)

Plug the wrap connectors to the CTLI Tailgate
Connector (01D).
Run the CTRI 1 test again!

In case of a 3370 is connected go to 3370 MIM
page:
CTLR 10
CTLR 20

Same error symptoms?

Y N

7 6
G H

26OCT81 PN 5683319

EC 366493 PEC 366492

1702 MAP C180-5

013

(Entry Point T)

Inspect the interface connector contacts of the just eliminated cable for the proper positioning and/or damage.

Probe the defective line using the CE meter and the following table. Measure for continuity or shorts.

Table 1: Bus and Serpent Connections

Symptom code:

XX000 XY Z

-- --

5 = Line broken or short to ground
6 = Short to any other line

|-----|

V	SIGN.NAME	BOARD POS.	CONN.	CONN.	BOARD POS.	SIGN.NAME
01	TAG BUS 0	B2E2M06	TAG B03	->	TAG G03	B2E2U09 SELECT ACTIV
02	TAG BUS 5	B2E2S03	TAG D04	->	TAG G05	B2E2U10 NORMAL END
03	SYNC OUT	B2E2M13	BUS D13			
	RESPONSE	B2E2S04	TAG B12	->	TAG J09	B2E2S10 INDEX ALERT
04	TAG BUS 6	B2E2S02	TAG B08	->	TAG J06	B2E2P04 CHECK END
05	SEL.HOLD	B2E2S05	TAG D11	->	TAG G12	B2E2M05 CE ALERT
06	TAG GATE	B2E2S13	TAG B10	->	TAG G08	B2E2P05 ERROR ALERT
07	TAG BUS 7	B2E2M08	TAG D06	->	BUS J13	B2F2B13 SYNC IN
08	TAG BUS 4	B2E2U02	TAG B05			
	RECYCLE	B2E2M09	TAG D13	->	TAG J04	B2E2S09 TAG VALID
10	BUS OUT 0	B2E2S11	BUS D04	->	BUS J04	B2E2U06 BUS IN 0
11	BUS OUT 1	B2E2P06	BUS B05	->	BUS G05	B2E2S06 BUS IN 1
12	BUS OUT 2	B2E2U11	BUS D06	->	BUS J06	B2E2U07 BUS IN 2
13	BUS OUT 3	B2E2P12	BUS B08	->	BUS G08	B2E2S07 BUS IN 3
14	BUS OUT 4	B2E2P11	BUS D09	->	BUS J09	B2E2P02 BUS IN 4
15	BUS OUT 5	B2E2M12	BUS B10	->	BUS G10	B2E2M02 BUS IN 5
16	BUS OUT 6	B2E2M11	BUS D11	->	BUS J11	B2E2M03 BUS IN 6
17	BUS OUT 7	B2E2P10	BUS B12			
20	TAG BUS P	B2E2M07	TAG D09	->	BUS G12	B2E2M04 BUS IN 7
18	BUS OUT P	B2E2M10	BUS B03	->	BUS G03	B2E2S08 BUS IN P
19	BOR IN FTA IS NOT CORRECT					

(Step 013 continues)

26OCT81 PN 5683319

EC 366493 PEC 366492

1702 MAP C180-6

G
5

REF.CODE C1000181

1702

MAP C180-7

FEF.CODE C1100181

PAGE 7 OF 10

(Step 013 continued)

Any line defective?

Y N

014

Suspect the control unit which has been eliminated before be the wrap connectors.

Note, always inspect interface connector contacts positioning and/or damage.

Proceed with the respective controller maintenance documentation.

015

Repair the defective line.

1. Suspect bad connection or broken wire in one or both of the interface cable connectors.
2. Suspect short of shield to line in one or both of the interface cable connectors.
3. Suspect short of one line to another one or both of the interface cable connectors.

Open the interface connector covers and make the necessary repairs.

Go to Page 9, Step 029, Entry Point C.

016

Be sure that all connections of the interface connectors are properly seated and are not damaged.

Make the necessary repairs if required.

Run CTLI 1 test again!

Same error symptoms?

Y N

017

Error was caused by bad contacts in the FTA interface connectors.

Go to Page 9, Step 029, Entry Point C.

8
J

26OCT81 PN 5683319

EC 366493 PEC 366492

1702 MAP C180-7

J
7

REF.CODE C1000181

1702

MAP C180-8

FEF.CODE C1100181

PAGE 8 OF 10

018

Check that the flat cables which connect the driver card top connectors with the FTA interface connectors are properly seated.

FLATCABLE BUS OUT 01A-B2YA TO BUS SERPENT CONN. 01D-A2B0
FLATCABLE BUS IN 01A-B2YB TO BUS SERPENT CONN. 01D-A2GJ
FLATCABLE TAG 1 01A-B2YJ TO TAG SERPENT CONN. 01D-B2B0
FLATCABLE TAG 2 01A-B2YK TO TAG SERPENT CONN. 01D-B2GJ

Remove and replug suspected flat cables to remove possible contamination deposits on contact surfaces.

Run CTLI 1 test again!

Same error symptoms?

Y N

019

The error was caused by bad contact in the flat cable area of the FTA.

Go to Page 9, Step 029, Entry Point C.

020

(Entry Point K)

Replace FTA card 1, 01A-B2E2.

Run CTLI 1 test again!

Same error symptoms?

Y N

021

Error was caused by bad FTA card 1, 01A-B2E2.

Go to Page 9, Step 029, Entry Point C.

9
K

26OCT81

PN 5683319

EC 366493

PEC 366492

1702

MAP C180-8

K
8

REF.CODE C1000181

1702

MAP C180-9

FEF.CODE C1100181

PAGE 9 OF 10

022

Remove card in 01A-B2E2 and reinstall the old card. The error is not caused by this card.

Replace FTA card 2, 01A-B2F2.

Run CTLI 1 test again!

Same error symptoms?

Y N

023

Error was caused by bad FTA card 2, 01A-B2F2.

Go to Step 029, Entry Point C.

024

Remove card in 01A-B2F2 and reinstall the old card. The error was not caused by this card.

Replace FTA card 3, 01A-B2G2.

Run CTLI 1 test again!

Same error symptoms?

Y N

025

Error was caused by bad FTA card 3, 01A-B2G2.

Go to Step 029, Entry Point C.

026

Remove card in 01A-B2G2 and reinstall the old card. The error was not caused by this card.

Replace the 4 flat cables:

01A-B2YA TO BUS SERPENT CONNECTOR

01A-B2YB TO BUS SERPENT CONNECTOR

01A-B2YJ TO TAG INTERFACE CONNECTOR

01A-B2YK TO TAG SERPENT CONNECTOR

Run CTLI 1 test again!

(Step 026 continues)

(Step 026 continued)

Same error symptoms?

Y N

027

Error was caused by bad flat cables.

Go to Step 029, Entry Point C.

028

Remove just-installed flat cables. Reinstall old ones.

The error was not caused by flat cables.

Replace Board 01A-B2.

This you may do in accordance with your support structure.

Run CTLI 1 test again!

Same error symptoms?

Y N

029

(Entry Point C)

Replug all removed system parts, such as cables and controller, and plug the wrap connectors to the last controller.

Run test again to make sure that the standard interface is in good order.

Any error symptoms?

Y N

030

(Entry Point CC)

Replace the wrap connectors with the director-controller interface BUS/TAG terminators.

Go To Map 0001, Entry Point A.

26OCT81 PN 5683319

1 1
0 0
L M

EC 366493 PEC 366492

1702 MAP C180-9

D L M
3 9 9

REF.CODE C1000181

FEF.CODE C1100181

PAGE 10 OF 10

031

If errors occur again it is most probable that during replugging a new error was installed, such as bad or mispositioned contacts.

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

032

Make note of all symptoms and activities you have performed.

Go To Map 0001, Entry Point O.

033

CAUTION:

You may have got temperature problems on the CTLI drivers.

Please close board covers.

Check the air filters.

Make sure that the interface cables are in their specified length according to the physical planning.

Are the air filters ok and the board covers closed?

Y N

034

Correct the air flow and close the board covers.

Go to Step 035, Entry Point MS.

035

(Entry Point MS)

Is the interface cable in the specified length?

Y N

036

Install the correct interface cables.
Then run the wrap test again.

037

Go to Page 3, Step 004, Entry Point M.

A C
2 3

1702

MAP C180-10

038

Make sure that no wrap connector is plugged.

Run FTA 1 test!

Any reference code?

Y N

039

Go to Page 8, Step 020, Entry Point K.

040

Go To Map C480, Entry Point A.

041

The error was caused by the IC-bus.

Run IC-bus test.

26OCT81 PN 5683319

EC 366493 PEC 366492

1702 MAP C180-10

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C500	A	1	001
C502	A	1	001
0C00	A	1	001
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	041	C580	A
16	082	C580	A
8	031	0001	A
15	072	0001	A
9	033	0001	0
16	074	0001	0

001

(Entry Point A)

CTLI 2 Test

IMPORTANT HINTS:

Before testing the controller interface (CTLI) 2 test be sure that the FTA operates properly by running the FTA 2 test. When running the FTA test d i s c o n n e c t the CTLI cables. The test should have run error free before running the CTLI 2 test. For handling of the CTLI 2 test see Supplement to MAPs, section 4: Diagnostic Run Procedures (Controller-Interface Test)

(Step 001 continues)

(Step 001 continued)

Error display is as follows:

CTLI Wrap Test			
XX	000	XY Z	<---- SYMPTOM CODE
			C2X00181<-----
			REFERENCE CODE
			-Kind of error (5=line open or shorted to ground) (6=line shorted to another line)
			-Interface line in error
			-Normally '000'
			-Routine no (01 to 09)

Important:

Check to ensure that the controller interface cables
or the WRAP CONNECTORS are not interchanged!
Power down the controllers during the test run!

Is the system a 4331-2 or 4331-11 ?

Y N
| |
| |
| |
9 3
A 8

04DEC81 PN 5683180

EC 366515 PEC 366493

1706 MAP C280-2

B
2

REF.CODE C2000181

1706

MAP C280-3

REF.CODE C2100181

PAGE 3 OF 16

002

The system is a 4331-1!

Is symptom code XX000001 displayed?

Y N

003

Is any of the listed symptom codes
displayed on screen?

XX000002

XX000003

XX000004

07000197

08000197

Y N

004

Is one of the following symptom codes
displayed?

02000075

03000085

04000085

05000035

05000085

05000205

Y N

005

Any other symptom code is displayed:

(Entry Point M)

The following procedure explains how to identify a failing
FRU in the controller interface 2 test area:
Take a note of the first symptom codes shown on screen
(at the most two symptom codes per test run).

Are the wrap connectors already
plugged in any controller?

Y N

9 9 9 4 4
C D E F G

04DEC81

PN 5683180

EC 366515

PEC 366493

1706

MAP C280-3

F G
3 3

REF.CODE C2000181

H

1706

MAP C280-4

REF.CODE C2100181

PAGE 4 OF 16

006

Continue testing by putting the wrap plugs in the first controller after the processor, then in the most distant controller. By systematically putting the wrap plugs in the other controllers the area in which the fault lies is approached.

007

(Entry Point GG)

Are the wrap connectors right now plugged in the first controller after the processor?

Y N

008

Is there any more controller in between the one with the wrap connectors and the processor?

Y N

009

Go to Step 013, Entry Point FF.

010

Put the wrap connectors into the next controller towards the processor.
Run the CTLI 2 test again.

Same error?

Y N

011

The error is in the controller or interface cabling which have just been eliminated by the wrap connectors.

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

012

Go to Step 007, Entry Point GG.

013

(Entry Point FF)

Plug the wrap connectors to the CTLI Tailgate Connector (01D).

Run the CTLI 2 test again!

Same error symptoms?

Y N

H

6 5
J K

04DEC81

PN 5683180

EC 366515

PEC 366493

1706

MAP C280-4

K
4

REF.CODE C2000181

1706

MAP C280-5

REF.CODE C2100181

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014

(Entry Point TT)

Inspect the interface connector contacts of the just eliminated cable for proper positioning and/or damage. Probe the defective line using the CE-meter and with aid of the following table.

Table 1: BUS and serpent connections

Symptom code:

XX000 XY Z

-- --

| |

| 5 = Line broken or short to ground

| 6 = Short to any other line

|-----|

|

|

V |SIGN.NAME|BOARD POS.|CONN. | |CONN. |BOARD POS.|SIGN.NAME

01 TAG BUS 0	B2K2M06	TAG B03	-> TAG G03	B2K2U09	SELECT ACTIV
02 TAG BUS 5	B2K2S03	TAG D04	-> TAG G05	B2K2U10	NORMAL END
03 SYNC OUT	B2K2M13	BUS D13			
RESPONSE	B2K2S04	TAG B12	-> TAG J09	B2K2S10	INDEX ALERT
04 TAG BUS 6	B2K2S02	TAG B08	-> TAG J06	B2K2P04	CHECK END
05 SEL.HOLD	B2K2S05	TAG D11	-> TAG G12	B2K2M05	ICE ALERT
06 TAG GATE	B2K2S13	TAG B10	-> TAG G08	B2K2P05	ERROR ALERT
07 TAG BUS 7	B2K2M08	TAG D06	-> BUS J13	B2L2B13	SYNC IN
08 TAG BUS 4	B2K2U02	TAG B05			
RECYCLE	B2K2M09	TAG D13	-> TAG J04	B2K2S09	TAG VALID
10 BUS OUT 0	B2K2S11	BUS D04	-> BUS J04	B2K2U06	BUS IN 0
11 BUS OUT 1	B2K2P06	BUS B05	-> BUS G05	B2K2S06	BUS IN 1
12 BUS OUT 2	B2K2U11	BUS D06	-> BUS J06	B2K2U07	BUS IN 2
13 BUS OUT 3	B2K2P12	BUS B08	-> BUS G08	B2K2S07	BUS IN 3
14 BUS OUT 4	B2K2P11	BUS D09	-> BUS J09	B2K2P02	BUS IN 4
15 BUS OUT 5	B2K2M12	BUS B10	-> BUS G10	B2K2M02	BUS IN 5
16 BUS OUT 6	B2K2M11	BUS D11	-> BUS J11	B2K2M03	BUS IN 6
17 BUS OUT 7	B2K2P10	BUS B12			
20 TAG BUS P	B2K2M07	TAG B09	-> BUS G12	B2K2M04	BUS IN 7
18 BUS OUT P	B2K2M10	BUS B03	-> BUS G03	B2K2S08	BUS IN P
19 BOR IN FTA IS NOT CORRECT					

(Step 014 continues)

04DEC81 PN 5683180

EC 366515 PEC 366493

1706

MAP C280-5

J
4

REF.CODE C2000181

1706

MAP C280-6

REF.CODE C2100181

PAGE 6 OF 16

(Step 014 continued)

Any line defective?

Y N

015

Suspect the controller which has been
eliminated before by the wrap connectors.

Note: Always inspect interface connector
contacts positioning and/or damage.

Proceed with the respective controller
maintenance documentation .

016

Repair the defective line.

1. Suspect bad connection or broken
wire in one or both of the interface
cable connectors.
2. Suspect short of shield to line
in one or both of the interface
cable connectors.
3. Suspect short of one line to another
one or both of the interface cable
connectors.

Open the interface connector covers and
make the necessary repairs.

Go to Page 8, Step 030, Entry Point CC.

017

Be sure that all connections of the interface
connectors are properly seated and not
damaged.

Make the necessary repairs if required.

Run CTLI 2 test again!

Same error symptoms?

Y N

Y N

7 7
L M

04DEC81 PN 5683130

EC 366515 PEC 366493

1706 MAP C280-6

L M
6 6

REF.CODE C2000181

1706

MAP C280-7

REF.CODE C2100181

PAGE 7 OF 16

018

Error was caused by bad contacts in the FTA interface connectors.

Go to Page 8, Step 030, Entry Point CC.

019

Check that the flat cables which connect the driver card top connectors with the FTA interface connectors are properly seated.

FLATCABLE BUS OUT 01A-B2ZA TO BUS SERPENT CONN. 01D-C2BD
FLATCABLE BUS IN 01A-B2ZB TO BUS SERPENT CONN. 01D-C2GJ
FLATCABLE TAG 1 01A-B2ZC TO TAG SERPENT CONN. 01D-D2BD
FLATCABLE TAG 2 01A-B2ZD TO TAG SERPENT CONN. 01D-D2GJ

Remove and replug suspected flat cables to remove possible contamination deposits on contact surfaces.

Run the CTLI 2 test again!

Same error symptoms?

Y N

020

The error was caused by bad contact in the flatcable area of the FTA.

Go to Page 8, Step 030, Entry Point CC.

021

(Entry Point KK)

Replace FTA card 1, 01A-B2K2.

Run CTLI 2 test again.

Same error symptoms?

Y N

022

Error was caused by bad FTA card 1, 01A-B2K2.

Go to Page 8, Step 030, Entry Point CC.

3
N

04DEC81

PN 5683180

EC 366515

PEC 366493

1706

MAP C230-7

N
7

REF.CODE C2000181

1706

MAP C280-8

REF.CODE C2100181

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023

Remove card in 01A-B2K2 and reinstall the old card. The error is not caused by this card.

Replace FTA card 2, 01A-B2L2.

Run the CTLI 2 test again!

Same error symptoms?

Y N

024

Error was caused by bad FTA card 2, 01A-B2L2.

Go to Step 030, Entry Point CC.

025

REMOVE CARD IN 01A-B2L2 AND REINSTALL THE OLD CARD. THE ERROR WAS NOT CAUSED BY THIS CARD.

REPLACE FTA CARD 3; 01A-B2M2!
RUN CTLI 2 TEST AGAIN!

SAME ERROR SYMPTOMS?

Y N

026

ERROR WAS CAUSED BY BAD FTA CARD 3, 01A-B2M2

Go to Step 030, Entry Point CC.

027

REMOVE CARD IN 01A-B2M2 AND REINSTALL THE OLD card. The error was not caused by this card.

Replace the 4 flatcables:

01A-B2ZA TO BUS SERPENT CONNECTOR

01A-B2ZB TO BUS SERPENT CONNECTOR

01A-B2ZC TO TAG SERPENT CONNECTOR

01A-B2ZD TO TAG SERPENT CONNECTOR
(Step 027 continues)

(Step 027 continued)

Run CTLI 2 test again.

Same error symptoms?

Y N

028

Error was caused by bad flat cables.

Go to Step 030, Entry Point CC.

029

Remove just installed flat cables. Reinstall old ones. The error was not caused by flat cables. Replace board 01A-B2.

This you may do in accordance with your support structure.

Run the CTLI 2 test again!!

Same error symptoms?

Y N

030

(Entry Point CC)

Replug all removed system parts like cables and controller and plug the wrap connectors to the last controller.

Run test again to make sure that the controller interface cable is in good condition.

Any error symptoms?

Y N

031

(Entry Point BC)

Replace the wrap connectors with the controller interface terminators.

Go To Map 0001, Entry Point A.

04DEC81 PN 5683180

EC 366515 PEC 366493

1706 MAP C280-8

9 9
P Q

E P O
3 8 8

REF.CODE C2000181

REF.CODE C2100181

PAGE 9 OF 16

032

If errors occur again it is most probable that during replugging a new error was installed like bad or mispositioned contacts.

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

033

MAKE NOTE OF ALL SYMPTOMS AND ACTIVITIES YOU HAVE PERFORMED.

Go To Map 0001, Entry Point O.

034

CAUTION:

You have got temperature problems on the CTLI drivers.

Please close the board covers.

Check the air filters.

Make sure that the interface cables are in their specified length according to the physical planning guide.

Are the air filters ok and the board covers closed?

Y N

035

Correct the air flow and close the board covers.

Go to Step 036, Entry Point MS.

036

(Entry Point MS)

Are the interface cables in the specified length?

Y N

037

Install the correct interface cables.
Then run the wrap test again.

038

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

A C D
2 3 3

1706

MAP C280-9

039

Run FTA 2 test!

Make sure that no wrap connector is plugged.

Any reference code?

Y N

040

Go to Page 14, Step 062, Entry Point K.

041

Go To Map C580, Entry Point A.

042

The error was caused by the IC-bus.
Run IC-bus test!

043

The system is a 4331-2 or 4331-11.

Is symptom code XX000001 displayed?

Y N

044

Is any of the listed symptom codes displayed on screen?

XX000002

XX000003

XX000004

07000197

08000197

Y N

04DEC81

PN 5683180

EC 366515

PEC 366493

1706

MAP C280-9

1 1 1
6 6 0
R S T

T
9

REF.CODE C2000181

1706

MAP C280-10

REF.CODE C2100181

PAGE 10 OF 16

045

Is any of the following symptom codes
displayed?

02000075

03000085

04000085

05000035

05000085

05000205

Y N

046

Any other symptom code is displayed:

(Entry Point S)

The following procedure explains how to identify a failing FRU
in the controller interface 2 test area:

Take a note of the first symptom code shown on screen
(at the most two symptom codes per test run).

Are the wrap connectors already plugged
in any controller?

Y N

047

Continue testing by putting the wrap
plugs in the first controller after the
processor, then in the most distant
controller. By systematically putting the
wrap plugs in the other controllers the
area in which the fault lies is approached.

048

(Entry Point G)

Are the wrap connectors right now plugged
in the first controller after the processor?

Y N

1 1 1
6 1 1
U V W

04DEC31 PN 5683130

EC 366515 PEC 366493

1706

MAP C280-10

V W
1 1
0 0

REF.CODE C2000181

1706

MAP C280-11

REF.CODE C2100181

PAGE 11 OF 16

049

Is there any more controller in between the
one with the wrap connectors and the
processor?

Y N

050

Go to Step 054, Entry Point F.

051

Put the wrap connectors into the next
controller towards the processor.

Run the CTLI 2 test again.

Same error?

Y N

052

The error is in the controller or interface
cabling which have just been eliminated
by the wrap connectors.

Go to Page 12, Step 055, Entry Point T.

053

Go to Page 10, Step 048, Entry Point G.

054

(Entry Point F)

PLUG THE WRAP CONNECTORS TO THE CTLI
TAILGATE CONNECTORS (01D).

RUN THE CTLI 2 TEST AGAIN!

SAME ERROR SYMPTOMS?

Y N

1 1
3 2
X Y

04DEC81 PN 5683180

EC 366515 PEC 366493

1706 MAP C280-11

Y
1
1

REF.CODE C2000181

1706

MAP C280-12

REF.CODE C2100181

PAGE 12 OF 16

055

(Entry Point T)

Inspect the interface connector contacts of the just eliminated cable for the proper positioning and/or damage.

Probe the defective line using the CE-meter and with aid of the following table.

Table 1: BUS and serpent connections

Symptom code:

XX000 XY Z

-- --

| |

| 5 = Line missing or short to ground

| 6 = Short to any other line

|-----|

|

|

V	SIGN.NAME	BOARD POS.	CONN.		CONN.	BOARD POS.	SIGN.NAME
01	TAG BUS 0	B2L2M06	TAG B03	->	TAG G03	B2L2U09	SELECT ACTIV
02	TAG BUS 5	B2L2S03	TAG D04	->	TAG G05	B2L2U10	NORMAL END
03	SYNC OUT	B2L2M13	BUS D13				
	RESPONSE	B2L2S04	TAG B12	->	TAG J09	B2L2S10	INDEX ALERT
04	TAG BUS 6	B2L2S02	TAG B08	->	TAG J06	B2L2P04	CHECK END
05	SEL.HOLD	B2L2S05	TAG D11	->	TAG G12	B2L2M05	ICE ALERT
06	TAG GATE	B2L2S13	TAG B10	->	TAG G08	B2L2P05	ERROR ALERT
07	TAG BUS 7	B2L2M08	TAG D06	->	BUS J13	B2M2B13	SYNC IN
08	TAG BUS 4	B2L2U02	TAG B05				
	RECYCLE	B2L2M09	TAG D13	->	TAG J04	B2L2S09	TAG VALID
10	BUS OUT 0	B2L2S11	BUS D04	->	BUS J04	B2L2U06	BUS IN 0
11	BUS OUT 1	B2L2P06	BUS B05	->	BUS G05	B2L2S06	BUS IN 1
12	BUS OUT 2	B2L2U11	BUS D06	->	BUS J06	B2L2U07	BUS IN 2
13	BUS OUT 3	B2L2P12	BUS B08	->	BUS G08	B2L2S07	BUS IN 3
14	BUS OUT 4	B2L2P11	BUS D09	->	BUS J09	B2L2P02	BUS IN 4
15	BUS OUT 5	B2L2M12	BUS B10	->	BUS G10	B2L2M02	BUS IN 5
16	BUS OUT 6	B2L2M11	BUS D11	->	BUS J11	B2L2M03	BUS IN 6
17	BUS OUT 7	B2L2P10	BUS B12				
20	BUS OUT P	B2L2M07	TAG D09	->	BUS G12	B2L2M04	BUS IN 7
18	BUS OUT P	B2L2M10	BUS B03	->	BUS G03	B2L2S08	BUS IN P
19	BOR IN FTA IS NOT CORRECT						

(Step 055 continues)

04DEC81 PN 5683180

EC 366515 PEC 366493

1706

MAP C280-12

X
1
1

REF.CODE C2000181

1706

MAP C280-13

REF.CODE C2100181

PAGE 13 OF 16

(Step 055 continued)

Any line defective?

Y N

056

SUSPECT THE CONTROL UNIT WHICH
HAS BEEN ELIMINATED BEFORE BY
THE WRAP CONNECTORS.

Note: Always inspect interface connector
contacts positioning and/or damage.

Proceed with the respective controller
maintenance documentation .

057

Repair the defective line.

1. Suspect bad connection or broken wire
in one or both of the interface cable
connectors.
2. Suspect short of shield to line in one
or both of the interface cable connector.
3. Suspect short of one line to another one
or both of the interface cable connectors.

Open the interface connector covers and make the
necessary repairs.

Go to Page 15, Step 071, Entry Point C.

058

Be sure that all connections of the interface
connectors are properly seated and not
damaged.

Make the necessary repairs if required.

Run CTLI 2 test again!

Same error symptoms?

Y N

059

Error was caused by bad contacts in the FTA
interface connectors.

Go to Page 15, Step 071, Entry Point C.

04DEC81 PN 5683180

EC 366515 PEC 366493

1706 MAP C280-13

1
4
Z

Z
1
3

REF.CODE C2000181

1706

MAP C280-14

REF.CODE C2100181

PAGE 14 OF 16

060

Check that the flat cables which connect the driver card top connectors with the FTA interface connectors are properly seated.

FLATCABLE BUS OUT 01A-B2ZA TO BUS SERPENT CONN. 01D-C2BD
FLATCABLE BUS IN 01A-B2ZB TO BUS SERPENT CONN. 01D-C2GJ
FLATCABLE TAG 1 01A-B2ZC TO TAG SERPENT CONN. 01D-D2BD
FLATCABLE TAG 2 01A-B2ZD TO TAG SERPENT CONN. 01D-D2GJ

Remove and replug suspected flat cables to remove possible contamination deposits on contact surfaces.

Run the CTLI 2 test again!

Same error symptoms?

Y N

061

The error was caused by bad contact in the flatcable area of the FTA.

Go to Page 15, Step 071, Entry Point C.

062

(Entry Point K)

Replace FTA card 1, 01A-B2L2.

Run CTLI 2 test again!

Same error symptoms?

Y N

063

Error was caused by bad FTA card 1, 01A-B2L2.

Go to Page 8, Step 030, Entry Point CC.

1
5
A
A

04DEC81 PN 5683180

EC 366515 PEC 366493

1706 MAP C280-14

A
A
1
4

REF.CODE C2000181

1706

MAP C280-15

REF.CODE C2100181

PAGE 15 OF 16

064

Remove card in 01A-B2L2 and reinstall the old card. The error is not caused by this card.

Replace FTA card 2, 01A-B2M2.

Run the CTLI 2 test again!

Same error symptoms?

Y N

065

Error was caused by bad FTA card 2, 01A-B2M2.

Go to Step 071, Entry Point C.

066

Remove card in 01A-B2M2 and reinstall the old card. The error was not caused by this card.

Replace FTA card 3; 01A-B2N2.

Run CTLI 2 again!

Same error symptoms?

Y N

067

Error was caused by bad FTA card 3, 01A-B2N2.

Go to Step 071, Entry Point C.

068

Remove card in 01A-B2N2 and reinstall the old card. The error was not caused by this card.

Replace the 4 flat cables:

01A-B2ZA TO BUS SERPENT CONNECTOR

01A-B2ZB TO BUS SERPENT CONNECTOR

01A-B2ZC TO TAG SERPENT CONNECTOR

01A-B2ZD TO TAG SERPENT CONNECTOR

Run CTLI 2 test again!

(Step 068 continues)

(Step 068 continued)

Same error symptoms?

Y N

069

Error was caused by bad flat cables.

Go to Step 071, Entry Point C.

070

Remove just installed flat cables. Reinstall old ones.

The error was not caused by flat cables.

Replace board 01A-B2.

This you may do in accordance with you support structure.

Run the CTLI 2 test again!

Same error symptoms?

Y N

071

(Entry Point C)

Replug all removed system parts like cables and controller and pflug the wrap connectors to the last controller.

Run test again to make sure that the standard interface is in good order.

Any error symptoms?

Y N

072

(Entry Point TC)

Replace the wrap connectors with the controller interface terminators.

Go To Map 0001, Entry Point A.

1 1
6 6
A A
B C

04DEC81

PN 5683180

EC 366515

PEC 366493

1706

MAP C280-15

U A A REF.CODE C2000181
1 B C
0 1 1 REF.CODE C2100181
5 5
PAGE 16 OF 16

073

If errors occur again it is most probable that during replugging a new error was installed like bad or mispositioned contacts.

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

074

Make note of all symptoms and activities you have performed.

Go To Map 0001, Entry Point O.

075

CAUTION:

You have got temperature problems on the CTLi drivers.

Please close the board covers.

Check the air filters.

Make sure that the interface cables are in their specified length according to the physical planning guide.

Are the air filters ok and the board covers closed?

Y N

076

Correct the air flow and close the board covers.

Go to Step 077, Entry Point ML.

077

(Entry Point ML)

Are the interface cables in the specified length?

Y N

078

Install the correct interface cables.
Then run the wrap test again.

079

Go to Page 10, Step 046, Entry Point S.

R S 1706 MAP C280-16
9 9

080

Run FTA 2 test!

Make sure that no wrap connector is plugged.

Any reference code?

Y N

081

Go to Page 7, Step 021, Entry Point KK.

082

Go To Map C580, Entry Point A.

083

The error was caused by the IC-bus.

Run IC-bus test!

04DEC81 PN 5683180

EC 366515 PEC 366493

1706 MAP C280-16

CTLI 3 Test

PAGE 1 OF 10

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C600	A	1	001
C602	A	1	001
OC00	A	1	001
0000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
10	040	C680	A
8	030	0001	A
9	032	0001	0

001

(Entry Point A)

IMPORTANT HINTS:

Before testing the director-controller interface (CTLI) 3
be sure that the FTA 3
operates properly by running the FTA 3 test.
When running the FTA test d i s c o n n e c t the CTLI cable.
The test should run errorfree before running the CTLI 3 test.

For handling of the CTLI 3 Test see Supplement to MAPs,
section 4: Diagnostic Run Procedures
(Director-Controller-Interface Test)

(Step 001 continues)

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REF.CODE C3100181

26OCT81 PN 5683181

EC 366493 PEC 366492

1708 MAP C380-1

CTLI 3 Test

PAGE 2 OF 10

(Step 001 continued)

Error display is as follows:

CTLI Wrap Test			
XX	000	XY Z	<---- SYMPTOM CODE
			C3100181 <----- REFERENCE CODE
			-Kind of error (5=line open or shorted to ground) (6=line shorted to another line)
			-Interface line in error
			-Normally '000'
			-Routine no (01 to 09).

Important:

Check to ensure that the interface BUS and TAG cables
or the WRAP CONNECTORS are not interchanged

Power down the control units during the test
run!

(Step 001 continues)

26OCT81	PN 5683181
EC 366493	PEC 366492
1708	MAP C380-2

CTLI 3 Test

PAGE 3 OF 10

(Step 001 continued)

Is symptom code XX000001 displayed?

Y N

002

Is anyone of the listed symptoms
displayed on screen?

XX000002

XX000003

XX000004

07000197

08000197

Y N

003

Is one of the following symptoms
displayed?

02000075

03000085

04000085

05000035

05000085

05000205

Y N

004

Any other symptom code is displayed:

(Entry Point M)

The following procedure explains how to identify a failing FRU i
the director-controller interface area:Take a note of the first symptoms shown on screen (at the most
two symptoms per test run).Are the wrap connectors already
plugged in any control unit?

Y N

1	1			
0	0	9	4	4
A	B	C	D	E

26OCT81 PN 5683181

EC 366493 PEC 366492

1708 MAP C380-3

D E
3 3

REF.C.C3100181

CTLI 3 Test

PAGE 4 OF 10

005

Continue testing by putting the wrap plugs in the first control unit after the processor, then in the most distant control unit.

By systematically putting the wrap plugs in the other control units the area in which the fault lies is approached.

006

(Entry Point G)

Are the wrap connectors right now plugged in the first control unit after the processor?

Y N

007

Is there any more control unit in between the one with the wrap connectors and the processor?

Y N

008

Go to Step 012, Entry Point F.

009

Put the wrap connectors into the next control unit towards the processor.
Run the CTLI 3 test again.

Same error?

Y N

010

The error is in the control unit or interface cabling which has just been eliminated by the wrap connectors.

Go to Page 5, Step 013, Entry Point T.

011

Go to Step 006, Entry Point G.

F

1708

MAP C380-4

012

(Entry Point F)

Plug the wrap connectors to the CTLI Tailgate Connectors (01D).

Run the CTLI 3 test again!

Same error symptoms?

Y N

26OCT81

PN 5683181

EC 366493

PEC 366492

1708

MAP C380-4

6 5
G H

F

CTLI 3 Test

PAGE 5 OF 10

013

(Entry Point T)

Inspect the interface connector contacts of the
just eliminated cable for the proper positioning
and/or damage.

Probe the defective line using the CE-meter
and with aid of the following table.

Table 1: Bus and serpent connections

Symptom code:

XX000 XY Z

| |
| 5 = Line broken or short to ground
6 = Short to any other line

V	SIGN.NAME	BOARD POS.	CONN.		CONN.	BOARD POS.	SIGN.NAME
01	TAG BUS 0	B2P2M06	TAG B03	->	TAG G03	B2P2U09	SELECT ACTIV
02	TAG BUS 5	B2P2S03	TAG D04	->	TAG G05	B2P2U10	NORMAL END
03	SYNC OUT	B2P2M13	BUS D13				
	RESPONSE	B2P2S04	TAG B12	->	TAG J09	B2P2S10	INDEX ALERT
04	TAG BUS 6	B2P2S02	TAG B08	->	TAG J06	B2P2P04	CHECK END
05	SEL.HOLD	B2P2S05	TAG D11	->	TAG G12	B2P2M05	ICE ALERT
06	TAG GATE	B2P2S13	TAG B10	->	TAG G08	B2P2P05	ERROR ALERT
07	TAG BUS 7	B2P2M08	TAG D06	->	BUS J13	B2Q2B13	SYNC IN
08	TAG BUS 4	B2P2U02	TAG B05				
	RECYCLE	B2P2M09	TAG D13	->	TAG J04	B2P2S09	TAG VALID
10	BUS OUT 0	B2P2S11	BUS D04	->	BUS J04	B2P2U06	BUS IN 0
11	BUS OUT 1	B2P2P06	BUS B05	->	BUS G05	B2P2S06	BUS IN 1
12	BUS OUT 2	B2P2U11	BUS D06	->	BUS J06	B2P2U07	BUS IN 2
13	BUS OUT 3	B2P2P12	BUS B08	->	BUS G08	B2P2S07	BUS IN 3
14	BUS OUT 4	B2P2P11	BUS D09	->	BUS J09	B2P2P02	BUS IN 4
15	BUS OUT 5	B2P2M12	BUS B10	->	BUS G10	B2P2M02	BUS IN 5
16	BUS OUT 6	B2P2M11	BUS D11	->	BUS J11	B2P2M03	BUS IN 6
17	BUS OUT 7	B2P2P10	BUS B12				
20	TAG BUS P	B2P2M07	TAG B09	->	BUS 612	B2P2M04	BUS IN 7
18	BUS OUT P	B2P2M10	BUS B03	->	BUS G03	B2P2S08	BUS IN P
19	BOR IN FTA IS NOT CORRECT						

(Step 013 continues)

26OCT81 PN 5683181

EC 366493 PEC 366492

1708 MAP C380-5

CTLI 3 Test

PAGE 6 OF 10

(Step 013 continued)

Any line defective?

Y N

014

Suspect the control unit which has been eliminated before by the wrap connectors.

Note: Always inspect interface connector contacts positioning and/or damage.

Proceed with the respective controller maintenance documentation.

015

Repair the defective line.

1. Suspect bad connection or broken wire in one or both of the the interface cable connectors.
2. Suspect short of shield to line in one or both of the interface cable connector.
3. Suspect short of one line to another or both of the interface cable connectors.

Open the interface connector covers and make the necessary repairs.

Go to Page 8, Step 029, Entry Point C.

016

Be sure that all connections of the interface connectors are properly seated and not damaged.

Make the necessary repairs if required.

Run the CTLI 3 interface test again!

Same error symptoms?

Y N

017

Error was caused by bad contacts in the FTA interface connectors.

Go to Page 8, Step 029, Entry Point C.

26OCT81

PN 5683181

EC 366493

PEC 366492

1708

MAP C380-6

J
6

REF.C.C3100181

1708

MAP C380-7

CTLI 3 Test

PAGE 7 OF 10

018

Check that the flat cables which connect the driver card top connectors with the FTA interface connectors are properly seated.

FLATCABLE BUS OUT 01A-B2ZE TO BUS SERPENT CONN. 01D-E2BD
FLATCABLE BUS IN 01A-B2ZF TO BUS SERPENT CONN. 01D-E2GJ
FLATCABLE TAG 1 01A-B2ZG TO TAG SERPENT CONN. 01D-F2BD
FLATCABLE TAG 2 01A-B2ZH TO TAG SERPENT CONN. 01D-F2GJ

Remove and replug suspected flat cables to remove possible contamination deposits on contact surfaces.

Run the CTLI 3 test again!

Same error symptoms?

Y N

019

The error was caused by bad contact in the flatcable area of the FTA.

Go to Page 8, Step 029, Entry Point C.

020

(Entry Point K)

Replace FTA card 1, 01A-B2P2.

Run the CTLI 3 test again!

Same error symptoms?

Y N

021

Error was caused by bad FTA card 1, 01A-B2P2.

Go to Page 8, Step 029, Entry Point C.

8
K

26OCT81 PN 5683181

EC 366493 PEC 366492

1708 MAP C380-7

K
7

REF.C.C3100181

1708

MAP C380-8

CTLI 3 Test

PAGE 8 OF 10

022

Remove card in 01A-B2P2 and reinstall the old card. The error is not caused by this card.

Replace FTA card 2, 01A-B2Q2.

Run the CTLI 3 test again!

Same error symptoms?

Y N

023

Error was caused by bad FTA card 2,
01A-B2Q2.

Go to Step 029, Entry Point C.

024

Remove card in 01A-B2Q2 and reinstall the old card. The error was not caused by this card.

Replace FTA card 3; 01A-B2R2.

Run CTLI 3 test again!

Same error symptoms?

Y N

025

Error was caused by bad FTA card 3,
01A-B2R2.

Go to Step 029, Entry Point C.

026

Remove card in 01A-B2R2 and reinstall the old card. The error was not caused by this card.

Replace the 4 flatcables:

01A-B2ZE TO BUS SERPENT CONNECTOR

01A-B2ZF TO BUS SERPENT CONNECTOR

01A-B2ZG TO TAG INTERFACE CONNECTOR

01A-B2ZH TO TAG SERPENT CONNECTOR

Run CTLI 3 test again!

(Step 026 continues)

(Step 026 continued)

Same error symptoms?

Y N

027

Error was caused by bad flat cables.

Go to Step 029, Entry Point C.

028

Remove just installed flat cables. Reinstall old ones.

The error was not caused by flat cables.

Replace BOARD 01A-B2.

This you may do in accordance with your support structure.

Run CTLI 3 test again!

Same error symptoms?

Y N

029

(Entry Point C)

Replug all removed system parts like cables and controller and plug the wrap connectors to the last controller.

Run test again to make sure that the standard interface is in good order.

Any error symptoms?

Y N

030

(Entry Point CC)

Replace the wrap connectors with the director-controller interface BUS/TAG terminators.

Go To Map 0001, Entry Point A.

9 9
L M

26OCT81 PN 5683181
EC 366493 PEC 366492
1708 MAP C380-8

C L M
3 8 8

REF.C.C3100181

1708

MAP C380-9

CTLI 3 Test

PAGE 9 OF 10

031

If errors occur again it is most probable that during replugging a new error was installed like bad or mispositioned contacts.

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

032

Make note of all symptoms and activities you have performed.

Go To Map 0001, Entry Point O.

033

CAUTION:

You have got temperature problems on the CTLI drivers.

Please close the board covers.

Check the air filters.

Make sure that the interface cables are in their specified length according to the physical planning.

Are the air filters ok and the board covers closed?

Y N

034

Correct the air flow and close the board covers.

Go to Step 035, Entry Point KM.

035

(Entry Point KM)

Are the interface cables in the specified length?

Y N

036

Install the correct interface cables.
Then run the wrap test again.

037

Go to Page 3, Step 004, Entry Point M.

26OCT81 PN 5683181

EC 366493 PEC 366492

1708 MAP C380-9

A B
3 3

REF.C.C3100181

1708

MAP C380-10

CTLI 3 Test

PAGE 10 OF 10

038

Run FTA 3 test!

Make sure that no wrap connector is plugged.

Any reference code?

Y N

039

Go to Page 7, Step 020, Entry Point K.

040

Go To Map C680, Entry Point A.

041

The error was caused by the IC-bus.

Run IC-bus test.

26OCT81 PN 5683181

EC 366493 PEC 366492

1708 MAP C380-10

FTA 1 LOG MAP

PAGE 1 OF 11

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C402	A	1	001
RFCA	A	1	001
RFCA	B	3	003
RFCA	V	7	020
OC00	AA	2	002
OC00	MM	8	026
4902	MM	8	026

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
11	065	C180	A
5	012	C180	A
6	018	C180	A
6	017	C402	A
11	068	C480	A
10	045	C480	A
9	040	0000	A
7	022	0001	A
8	025	0001	A
9	029	0001	A
5	016	0001	A
11	059	0001	0

001

(Entry Point A)

Make sure that you have followed the START MAP 0000 precisely.

Another reference code may be more important than the one you have got first.

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

Y N

3 2
A B

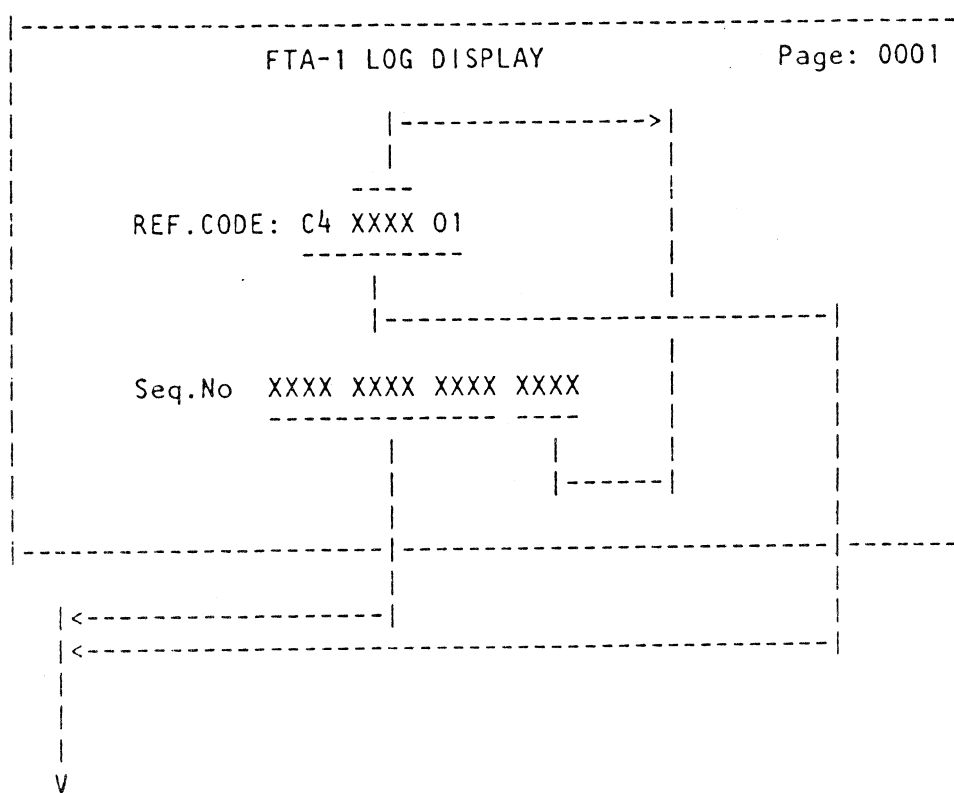
FTA 1 LOG MAP

PAGE 2 OF 11

002

(Entry Point AA)

FTA 1 Log Display (Example)



Select the IBM MAINTENANCE and SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA 1 LOG.
Proceed as told by the REFCODE ANALYSIS.

A
1

REF.CODE C4XXXX01

1710

MAP C400-3

FTA 1 LOG MAP

PAGE 3 OF 11

003

(Entry Point B)

Run FTA 1 test.

Any ref. code?

Y N

004

Run CTLI 1 test.

Any ref. code?

Y N

005

Is the ref. code from the FTA log
C400XX01 ?

Y N

006

FTA reference codes can also be
caused by I/O problems.

Look for an EREP of the I/Os
connected to FTA1.

Is there a fault symptom index/code
(FSI/FSC) recorded in the EREP?

Y N

6 6 6 5 4
C D E F G

04DEC81 PN 5683320

EC 366515 PEC 366493

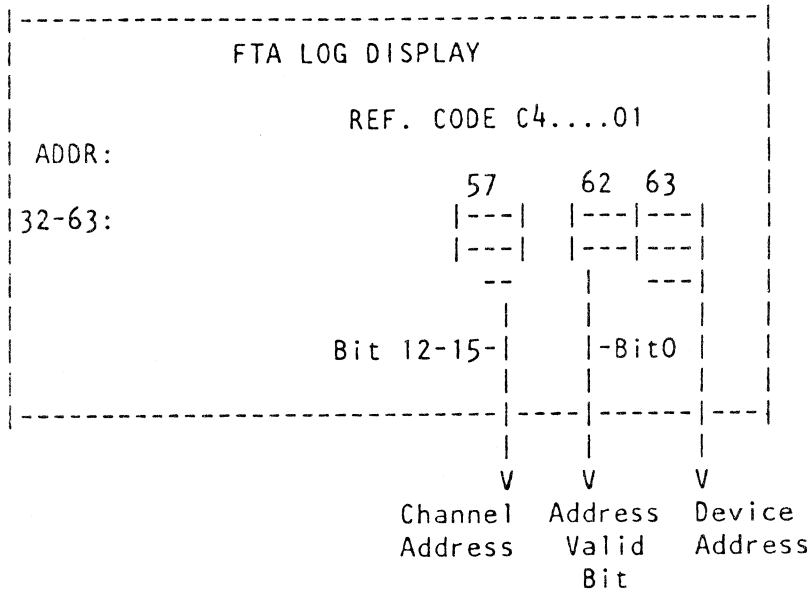
1710 MAP C400-3

FTA 1 LOG MAP

PAGE 4 OF 11

007

Select FTA log.



Is the 'Address Valid Bit'
(byte 62, bit 0) on?

Y N

008

Run CTLI1 (wrap) test.

Attention

Power down the controllers before the test run.

Start the test by putting the wrap plugs in the first control unit after the processor, then in the most distant control unit. By systematically putting the wrap plugs in the other controllers the area in which the fault lies is approached.

Any reference code?

Y N

009

Run inline tests for all devices attached to the FTA.

Any reference code?

Y N

F H J K L
3 4 4 4 4

REF.CODE C4XXXX01

1710

MAP C400-5

FTA 1 LOG MAP

PAGE 5 OF 11

010

(Entry Point N)

If the problem cannot be found with
aid of the inlines

(Either the inlines don't find an error
or they don't run):

Replace FRUs as indicated by the
REFCODE ANALYSIS.

Refer to the 'Card Where Used List' in Vol. 30,
PA 013 for possible card swapping.

After the repair do the verification.

Go to Page 7, Step 020,

Entry Point V.

011

Go to appropriate MAP.

012

Go To Map C180, Entry Point A.

013

Take the device address from the FTA log
byte 63. Run the inline tests for the
addressed device.

Any reference code?

Y N

014

Go to Step 010, Entry Point N.

015

Go to appropriate MAP.

016

(Entry Point BB)

Go to appropriate I/O documentation using the
FSI/FSC.

After the repair

Go To Map 0001, Entry Point A.

04DEC81 PN 5683320

EC 366515 PEC 366493

1710

MAP C400-5

C D E
3 3 3

REF.CODE C4XXXX01

1710

MAP C400-6

FTA 1 LOG MAP

PAGE 6 OF 11

017

Go To Map C402, Entry Point A.

018

Go To Map C180, Entry Point A.

019

Go to the appropriate MAP, respectively use
the REFCODE ANALYSIS.

04DEC81 PN 5683320

EC 366515 PEC 366493

1710 MAP C400-6

FTA 1 LOG MAP

PAGE 7 OF 11

020

(Entry Point V)

Verification:

After the repair run the test chaining.

Any reference code?

Y N

021

If possible run the application which caused the error and watch the system.

Does the original error come up again?

Y N

022

Go To Map 0001, Entry Point A.

023

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA 1 log.

The rightmost symptom of each sequence number log is used in creating the displayed reference code.

If the reference code fails to fix the problem, substitute the four characters in the middle of the reference code by the next symptom and return the REFCODE ANALYSIS with the so build new reference code.

Replace the FRU's that are now suspected by the REFCODE ANALYSIS.

Then run the test chaining.

Any reference codes?

Y N

024

Run the application which caused the error and watch the system.

Does the original error come up again?

Y N

1 1
1 1 8 8
M N P Q

04DEC81 PN 5683320

EC 366515 PEC 366493

1710 MAP C400-7

P 0
7 7

REF.CODE C4XXXX01

1710

MAP C400-8

FTA 1 LOG MAP

PAGE 8 OF 11

025

Go To Map 0001, Entry Point A.

026

(Entry Point MM)

Check director-controller interface cables/connectors; check whether all cable connectors fit properly, including the flat cables from 01A-B2YA/ YB/ YJ/ YK to tailgate 01D-A2 (BD)/ A2 (GJ)/ B2 (BD)/ B2 (GJ).

Look for broken loose or bent contact pins in the connectors.

Check I/O terminators for correct position and bent pins.

Check for proper shielding of I/O cables.

Refer to Vol.16, Power Manual, EMC Checking.

Repair or replace, if needed.

Run FTA1 test.

Any error?

Y N

027

(Entry Point MA)

For further verification run and loop the CTLI 1 test and apply stress to the connectors by hitting them with your hand.

Any error?

Y N

028

Run the application which showed the error.

Does the error come up again?

Y N

1 1
1 1 9 9
R S T U

04DEC81

PN 5683320

EC 366515

PEC 366493

1710

MAP C400-3

T U
8 8

REF.CODE C4XXXX01

FTA 1 LOG MAP

PAGE 9 OF 11

029

(Entry Point Z)

Go To Map 0001, Entry Point A.

030

Same error symptom as before?

Y N

031

Go to Step 040, Entry Point Y.

032

Now suspect the tag drivers and receivers of
the FTA 1: Replace
FTA1 card 3; 01A-B2G2

Run FTA 1 test and CTLI 1 test.

Any error?

Y N

033

(Entry Point MB)

Run the application which showed the error.

Does the error come up again?

Y N

034

Go to Step 029, Entry Point Z.

035

Same error symptom as before?

Y N

036

Go to Step 040, Entry Point Y.

W

1710

MAP C400-9

037

Suspect now the tag driver and receiver cards
in the control unit(s). If possible swap with the
bus driver and receiver cards. If possible run
the application which showed the error.

Does the error come up again?

Y N

038

Go to Step 029, Entry Point Z.

039

Same error symptom as before?

Y N

040

(Entry Point Y)

Go To Map 0000, Entry Point A.

041

Replace now the FTA 1 card 2; 01A-B2F2

Run FTA 1 test.

Any error?

Y N

042

Go to Page 10, Step 046, Entry Point W.

043

Same error symptom as before?

Y N

044

The new card may also be defective.
Correct it.

Run FTA 1 test.

Any error?

Y N

04DEC81 PN 5683320

EC 366515 PEC 366493

1710

MAP C400-9

1 1
1 1
V W

1 1 1
1 0 0
X Y Z

Y Z
9 9

REF.CODE C4XXXX01

FTA 1 LOG MAP

PAGE 10 OF 11

045

Second error may be in adapter.

Go To Map C480, Entry Point A.

046

(Entry Point W)

If possible run the application which caused the error.

Does the error come up again?

Y N

047

Go to Page 9, Step 029, Entry Point Z.

048

Same error symptoms as before?

Y N

049

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

050

Suspect now the terminator cards:

if 4331-1: 01A-B2X2.

if 4331-2 or 4331-11: 01A-B2YL/YM (IC-Bus 1).

Run IC-bus test and FTA 1 test.

Any reference code?

Y N

051

Try again the application which caused the error.

Does the error come up again?

Y N

052

Go to Page 9, Step 029, Entry Point Z.

1
1
A A
A B

A
B

1710

MAP C400-10

053

Same error symptoms as before?

Y N

054

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

055

(Entry Point S)

If 4331-1:

Exchange IC-bus cable 3
(IC-bus sense and control lines)
from 01A-B1B4(C) to 01A-B2YD.

If 4331-2 or 4331-11:

Exchange IC-bus cable 12 (IC-bus sense and control lines) from 01A-B1B4 (C) to 01A-B2YD.

Run FTA 1 test.

Any reference code?

Y N

056

Go to Page 9, Step 029, Entry Point Z.

057

Same symptoms as before?

Y N

058

New cable is also defective.
Correct it.

Go to Page 7, Step 020, Entry Point V.

1
1
A
C

04DEC81

PN 5683320

EC 366515

PEC 366493

1710

MAP C400-10

R S V X A A REF.CODE C4XXXX01
8 8 9 9 A C

1 1 FTA 1 LOG MAP
0 0

PAGE 11 OF 11

059

(Entry Point T)

Suspect now the board B2.

This you may replace in
accordance with your support
structure.

Write down all symptoms for
possible later use.

Go To Map 0001, Entry Point O.

060

Go to appropriate MAP, respectively
use the REFCODE ANALYSIS.

061

Go to Step 066,
Entry Point AM.

062

Same symptoms as before?

Y N

063

The new card may also be defective.

Correct it, then

Go to Page 9, Step 033,
Entry Point MB.

064

Go to Page 9, Step 033, Entry Point MB.

065

Go To Map C180, Entry Point A.

066

(Entry Point AM)

Disconnect interface cables.

Run FTA 1 test again to see whether the error is
inside or outside the adapter.

Any error?

Y N

A A
D E

M N A A
7 7 D E

1710

MAP C400-11

067

Go to Page 8, Step 027,
Entry Point MA.

068

Go To Map C480, Entry Point A.

069

Go to Step 070, Entry Point K.

070

(Entry Point K)

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS.

04DEC81

PN 5683320

EC 366515

PEC 366493

1710

MAP C400-11

26OCT81 PN 5683321
EC 366493 PEC 366390
1712 MAP C402-1

B
1

REF.C.C400XX01

1712

MAP C402-2

Channel Contr. Check

PAGE 2 OF 9

002

Reference code C400DA017

Y N

003

Go To Map C400, Entry Point A.

3
C

26OCT81 PN 5683321

EC 366493 PEC 366390

1712 MAP C402-2

C
2

REF.C.C400XX01

1712

MAP C402-3

Channel Contr. Check

PAGE 3 OF 9

004

The log was generated by the 3340/3344 direct attachment.

(The picture below is valid for reference code C400DA01 only.)

See the additional message in line 23 on screen.

If this message is not on screen, try to get it by doing CHANGE DISPLAY.

I/O ERR ADR: CUU C400DA01 XXXX YYYY

				_fault symptom index, FSI
				_logical cylinder/track address
				_ref.code 3340/3344 direct attachment
				_channel and device address

Recommended action :

The above Channel Control Check indicates a defect in either:
the 3348 data module or HDA,
the 3340/3344 drive or
the controller.

Go to respective MAP or go directly to the 3340/3344 documentation using the fault symptom index, FSI.

This can be extraced from sense byte 22 and 23.
See log byte 38 and 39 or
message line 23 on screen in position 'YYYY'.

Any 3340/3344 problem detected?

Y N

005

Suspect 01A-B2E2/F2/G2.

After the repair

Go To Map 0001, Entry Point A.

4
D

26OCT81

PN 5683321

EC 366493

PEC 366390

1712

MAP C402-3

D
3

REF.C.C400XX01

1712

MAP C402-4

Channel Contr. Check

PAGE 4 OF 9

006

Repair as told by 3340/3344 documentation,
then

Go To Map 0001, Entry Point A.

26OCT81 PN 5683321

EC 366493 PEC 366390

1712 MAP C402-4

A
1

REF.C.C400XX01

1712

MAP C402-5

Channel Contr. Check

PAGE 5 OF 9

007

Ref. Code C400CF01:

The log was generated by the 231X/33XX compatibility feature.

See the additional message in line 23 on screen.

If this message is not on screen, try to get it by doing
CHANGE DISPLAY.

This ref. code can also be caused
by a not initialized disk pack.

Programs to be used:

1. INITEM Utility,
2. Standalone Utility 5747SA1.

I/O ERR ADR: CUU C400CF01 XXXX YY ZZ

						Flag byte
						1X = control info. error
						2X = device error
						4X = device error/FTA error
						X2 = format error
						X4 = FTA error
						X8 = control info. error
						emulated device address
						emulated cyl/head address
						ref. code 231X/33XX comp. feature
						native device address

Is the message on screen?

Y N

008

Go to Page 7, Step 015, Entry Point B.

6
E

26OCT81 PN 5683321

EC 366493 PEC 366390

1712 MAP C402-5

E
5

REF.C.C400XX01

1712

MAP C402-6

Channel Contr. Check

PAGE 6 OF 9

009

Write down the error message.

Is there a '4X' shown in position 'ZZ' of the message?

Y N

010

Is there a '2X' or 'X4' shown in position 'ZZ' of the message?

Y N

011

Is there an 'X2' shown in position 'ZZ' of the message?

Y N

012

Go to Page 8, Step 021, Entry Point TZ.

013

Contact the customer for repetition of formatting the disk pack.

014

Go to Page 7, Step 015, Entry Point B.

7
F

26OCT81 PN 5683321

EC 366493 PEC 366390

1712

MAP C402-6

H
7

REF.C.C400XX01

1712

MAP C402-8

Channel Contr. Check

PAGE 8 OF 9

018

(Entry Point MM)

Take device address and run the inline routines
with this device.

Any error?

Y N

019

(Entry Point VZ)

Run FTA 1 test.

Any error?

Y N

020

Run CTLI (wrap) 1 test.

Attention

Power down the control units during the test
run.

Start the test by putting the wrap plugs in the
first control unit after the processor, then in the
most distant control unit.

By systematically putting the wrap plugs in the
other control units the area in which the fault
lies is approached.

Any error?

Y N

021

(Entry Point TZ)

Call for support.

As soon as the support structure gets involved, information
concerning the following subjects should be made available:

1. Machine configuration.
 2. EC REA status and installed MCTF (s).
 3. Attached I/O units and associated unit addresses.
 4. Software environment (release numbers, if applicable).
 5. Number of 3340/3344 buffers specified at IPL time,
also numbers of compatibility feature buffers specified
at IPL time.
- (Step 021 continues)

26OCT81 PN 5683321

EC 366493 PEC 366390

1712 MAP C402-8

9 9 9
J K L

G J K L
7 8 8 8

REF.C.C400XX01

1712

MAP C402-9

Channel Contr. Check

PAGE 9 OF 9

(Step 021 continued)

- 6.Recovery actions done so far (according to above scheme).
- 7.All existing log areas belonging to reference code C400XX01.
- 8.I/O units running concurrently at the time the logs occurred
- 9.Frequency of logs with reference code C400XX01.

Go To Map 0001, Entry Point O.

022

Go To Map C180, Entry Point A.

023

Go To Map C480, Entry Point A.

024

Go to respective MAP.

025

Go To Map 0001, Entry Point A.

26OCT81 PN 5683321

EC 366493 PEC 366390

1712 MAP C402-9

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C180	A	1	001
C400	A	1	001
C402	A	1	001
RFCA	A	1	001
OC00	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	003	0001	A

001

(Entry Point A)

FTA1 Test MAP.

Are you led to this MAP by the REFCODE
ANALYSIS?

Y N

002

Select the IBM MAINTENANCE and
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA1
test.

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

A
1

REF.CODE C4000181

1720

MAP C480-2

REF.CODE C4100181

PAGE 2 OF 2

003

(Entry Point P)

Prerequisites:

Make sure that there isn't any wrap connector
left in the system.

Do now the repair as told by the REFCODE ANALYSIS.

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

10APR81 PN 5683183

EC 366390 PEC 366284

1720 MAP C480-2

FTA 2 LOG MAP

PAGE 1 OF 11

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C502	A	1	001
RFCA	A	1	001
RFCA	B	3	003
RFCA	V	7	020
OC00	AA	2	002
OC00	MM	8	026
4902	MM	8	026

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
11	065	C280	A
5	012	C280	A
6	018	C280	A
5	017	C502	A
11	068	C580	A
10	045	C580	A
9	040	0000	A
10	049	0000	A
7	022	0001	A
8	025	0001	A
9	029	0001	A
10	052	0001	A
10	056	0001	A
5	016	0001	A
11	059	0001	0

001

(Entry Point A)

Make sure that you have followed the START MAP 0000 precisely.

Another reference code may be more important than the one you have got first.

Are you led to this MAP by the REFCODE
ANALYSIS?

Y N

Y N

3 2
A B

8
1

REF.CODE C5XXXX01

1730

MAP C500-2

FTA 2 LOG MAP

PAGE 2 OF 11

002

(Entry Point AA)

FTA 2 Log Display (Example)

=====

FTA-2 LOG DISPLAY		Page: 0001
REF.CODE: C5 XXXX 01		
SYMPTOMS		
SEQ.NO	XXXX	XXXX XXXX XXXX
V		

Select the IBM MAINTENANCE and SERVICE
SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA 2 LOG.

Go to Page 3, Step 003, Entry Point B.

04DEC81 PN 5683184

EC 366515 PEC 366493

1730 MAP C500-2

A
1

REF.CODE C5XXXX01

1730

MAP C500-3

FTA 2 LOG MAP

PAGE 3 OF 11

003

(Entry Point B)

Run FTA 2 test.

Any ref. code?

Y N

004

Run CTLI 2 test.

Any ref. code?

Y N

005

Is the ref. code from the FTA 2 log
C500XX01?

Y N

006

Attention:

Be sure that there isn't any blank tape
mounted for reading.

FTA reference codes can also be
caused by I/O problems.

Look for an EREP of the I/Os
connected to FTA2.

Is there a fault symptom index/code
(FSI/FSC) recorded in the EREP?

Y N

6 6 5 5 4
C D E F G

04DEC81 PN 5683184

EC 366515 PEC 366493

1730

MAP C500-3

FTA 2 LOG MAP

PAGE 4 OF 11

007

Select FTA log.

FTA LOG DISPLAY			
REF. CODE C5....01			
ADDR:	57	62	63
32-63:	---	--	---
	---	--	---
	--		
Bit 12-15-		-Bit0	
	V	V	V
Channel	Address	Device	
Address	Valid	Address	
	Bit		

Is the 'Address Valid Bit'
(byte 62, bit 0) on?

Y N

008

Run the CTLI 2 (wrap) test.

Attention

Power down the controllers before the test run.

Any reference code?

Y N

009

Run inline tests for all devices attached to
the FTA.

Any reference code?

Y N

FTA 2 LOG MAP

PAGE 5 OF 11

010

(Entry Point N)

If the problem cannot be found
with aid of the inlines
(Either the inlines don't find an
error or they don't run):
Replace FRUs as indicated by the
REFCODE ANALYSIS.

Refer to the 'Card Where Used List' in Vol. 30,
PA 013 for possible card swapping.

After the repair do the
verification.

Go to Page 7, Step 020,
Entry Point V.

011

Go to appropriate MAP.

012

Go To Map C280, Entry Point A.

013

Take the device address from the FTA log
byte 63. Run the inline tests for the
addressed device.

Any reference code?

Y N

014

Go to Step 010, Entry Point N.

015

Go to appropriate MAP.

016

(Entry Point BB)

Go to appropriate I/O documentation using
the FSI/FSC.

After the repair

Go To Map 0001, Entry Point A.

017

Go To Map C502, Entry Point A.

C D
3 3

REF.CODE C5XXXX01

1730

MAP C500-6

FTA 2 LOG MAP

PAGE 6 OF 11

018

Go To Map C280, Entry Point A.

019

Go to appropriate MAP, respectively use
the REF CODE ANALYSIS.

04DEC81

PN 5683184

EC 366515

PEC 366493

1730

MAP C500-6

FTA 2 LOG MAP

PAGE 7 OF 11

020

(Entry Point V)

VERIFICATION:

After the repair run the test chaining.

Any reference code?

Y N

021

If possible run the application which caused the problem and watch the system.

Does the original error come up again?

Y N

022

Go To Map 0001, Entry Point A.

023

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA 2 log.

The rightmost symptom of each sequence number log is used in creating the displayed reference code.

If the reference code fails to fix the problem, substitute the four characters in the middle of the reference code by the next symptom and return the REFCODE ANALYSIS with the so build new reference code.

Replace the FRU's that are now suspected by the REFCODE ANALYSIS.
Then run the test chaining.

Any reference codes?

Y N

024

If possible run the application which caused the error and watch the system.

Does the original error come up again?

Y N

1 1
1 1 8 8
M N P Q

04DEC81

PN 5683184

EC 366515

PEC 366493

1730

MAP C500-7

P 0
7 7

REF.CODE C5XXXX01

1730

MAP C500-8

FTA 2 LOG MAP

PAGE 8 OF 11

025

Go To Map 0001, Entry Point A.

026

(Entry Point MM)

Check controller interface cables/connectors;
check whether all cable connectors fit properly,
included the flat cables from 01A-B2ZA
/B2ZB/ B2ZC /B2ZD to tailgate 01D-C2(BD)/
C2(GJ)/ D2(BD)/ D2(GJ).

Look for broken loose or bent contact pins in
the connectors.

Check I/O terminators for correct position and
bent pins.

Check also for proper shielding of I/O cables.

Refer to Vol.16, Power Manual, EMC Checking.

Repair or replace, if needed.

Run FTA2 test.

Any error?

Y N

027

(Entry Point MA)

For further verification run and loop the CTLI
2 test and apply stress to the connectors by
hitting them with your hand.

Any error?

Y N

028

If possible run the application which
showed the error.

Does the error come up again?

Y N

1 1
1 1 9 9
R S T U

04DEC81

PN 5683184

EC 366515

PEC 366493

1730

MAP C500-8

T U
8 8

REF.CODE C5XXXX01

W

1730

MAP C500-9

FTA 2 LOG MAP

PAGE 9 OF 11

029

(Entry Point Z)

Go To Map 0001, Entry Point A.

030

Same error symptom as before?

Y N

031

Go to Step 040, Entry Point Y.

032

Now suspect the tag drivers and receivers of the FTA 2:

Replace FTA2 card 3:

01A-B2M2 if 4331-1

01A-B2N2 if 4331-2 or 4331-11

Run FTA 2 test and CTLI 2 test.

Any error?

Y N

033

(Entry Point MB)

If possible run the application which showed the error.

Does the error come up again?

Y N

034

Go to Step 029, Entry Point Z.

035

Same error symptom as before?

Y N

036

Go to Step 040, Entry Point Y.

037

Suspect now the tag driver and receiver cards in the control unit(s). If possible swap with the bus driver and receiver cards. If possible run the application which showed the error.

Does the error come up again?

Y N

038

Go to Step 029, Entry Point Z.

039

Same error symptom as before?

Y N

040

(Entry Point Y)

Go To Map 0000, Entry Point A.

041

Replace now the FTA 2 card 2; 01A-B2L2 if 4331-1

01A-B2M2 if 4331-2 or 4331-11

Run FTA 2 test.

Any error?

Y N

042

Go to Page 10, Step 046, Entry Point W.

043

Same error symptom as before?

Y N

1
1
V W

1 1
1 0
X Y

04DEC91 PN 5683184

EC 366515 PEC 366493

1730 MAP C500-9

Y
9

REF.CODE C5XXXX01

FTA 2 LOG MAP

PAGE 10 OF 11

044

The new card may also be defective. Correct it.

Run FTA 2 test.

Any error?

Y N

045

Second error may be in adapter.

Go To Map C580, Entry Point A.

046

(Entry Point W)

If possible run the application which caused the error.

Does the error come up again?

Y N

047

Go to Page 9, Step 029, Entry Point Z.

048

Same error symptoms as before?

Y N

049

Go To Map 0000, Entry Point A.

050

Suspect now the terminator card; 01A-B2X2.

Run IC-bus test and FTA 2 test.

Any reference code?

Y N

051

Try again the application which caused the error.

Does the error come up again?

Y N

1
1 A A
Z A B

A A
A B

1730

MAP C500-10

052

Go To Map 0001, Entry Point A.

053

Same error symptoms as before?

Y N

054

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

055

(Entry Point S)

For system 4331-1

Exchange IC-bus cable 2

(IC-bus sense and control lines)
from 01A-B4(B) to 01A-B2YG.

For system 4331-2 or 4331-11:

Exchange IC-bus cable 10

(IC-bus sense and control lines)
from 01A-B1D4(D) to 01A-B2YF.

Run FTA 2 test.

Any reference code?

Y N

056

Go To Map 0001, Entry Point A.

057

Same symptoms as before?

Y N

058

New cable is also defective.

Correct it.

Go to Page 7, Step 020, Entry Point V.

1
1 A
C

04DEC81

PN 5683184

EC 366515

PEC 366493

1730

MAP C500-10

R S V X Z A REF.CODE C5XXXX01
8 8 9 9 1 C

0 1 FTA 2 LOG MAP

0 PAGE 11 OF 11

059

(Entry Point T)

Suspect now the board B2. This
you may replace in accordance
with you support structure.

Write down all symptoms for
possible later use.

Go To Map 0001, Entry Point O.

060

Go to appropriate MAP, respectively
use the REFCODE ANALYSIS.

061

Go to Step 066,
Entry Point AM.

062

Same symptoms as before?

Y N

063

The new card may also be defective.
Correct it.

Go to Page 9, Step 033,
Entry Point MB.

064

Go to Page 9, Step 033, Entry Point MB.

065

Go To Map C280, Entry Point A.

066

(Entry Point AM)

Disconnect interface cables.

Run FTA 2 test again to see whether the error is
inside or outside the adapter.

Any error?

Y N

A A
D E

M N A A
7 7 D E

1730

MAP C500-11

067

Go to Page 8, Step 027,
Entry Point MA.

068

Go To Map C580, Entry Point A.

069

Go to Step 070, Entry Point K.

070

(Entry Point K)

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS.

04DEC81 PN 5683184

EC 366515 PEC 366493

1730

MAP C500-11

PAGE 1 OF 9

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	022	C280	A
2	003	C500	A
9	023	C580	A
3	005	0001	A
4	006	0001	A
9	025	0001	A
9	021	0001	0

(Entry Point A)

231X/33XX compatibility feature and
3340/3344 direct attachment log display
(example).

```

PAGE: 0002
COMP FEAT/3340/3344 DIR ATTACHM LOG DISPL, FTA 2

LAST REF. CODE: C500XX01 .....

```

FTA = File Tape Adapter

Y	N
5	2
A	B

B
1

REF.CODE C500XX01

1732

MAP C502-2

CHANNEL CONTR.

PAGE 2 OF 9

002

Reference code C500DA01?

Y N

003

Go To Map C500, Entry Point A.

3
C

04DEC81 PN 5683198

EC 366515 PEC 366493

1732 MAP C502-2

CHANNEL CONTR.

PAGE 3 OF 9

004

The log was generated by the 3340/3344 direct attachment.

The picture below is valid for reference code C500DA01 only.

See the additional message in line 23 on screen.

If this message is not on screen, try to get it by doing
CHANGE DISPLAY.

I/O ERR ADR: CUU C500DA01 XXXX YYYY

fault symptom index, FSI

logical cyl/track address

_ref.code 3340/3344 direct
attachment

channel and device address

Recommended action :

The above Channel Control Check indicates a defect in either:
the 3348 data module or HDA
the 3340/3344 drive or
the controller.

Go to respective MAP or go directly to the 3340/3344 documentation using the fault symptom index, FSI.

This can be extracted from sense byte 22 and 23.

See log byte 38 and 39 or
message line 23 on screen in position 'YYYY'.

Any 3340/3344 problem detected?

Y N

005

Suspect:

01A-B2K2/L2/M2, if 4331-1

01A-B2L2/M2/N2, if 4331-2 or 4331-11

After the repair

Go To Map 0001, Entry Point A.

D
3

REF.CODE C500XX01

1732

MAP C502-4

CHANNEL CONTR.

PAGE 4 OF 9

006

Repair as told by the 3340/3344
documentation, then

Go To Map 0001, Entry Point A.

04DEC81 PN 5683198

EC 366515 PEC 366493

1732 MAP C502-4

A
1

REF.CODE C500XX01

1732

MAP C502-5

CHANNEL CONTR.

PAGE 5 OF 9

007

Ref. Code C500CF01

The log was generated by the 231X/33XX
compatibility feature.

See the additional message in line 23 on screen.

If the message is not on screen, try to get it by doing
CHANGE DISPLAY

This reference code can also
be caused by a not initialized
disk pack.

Programs to be used:

1. INITEM Utility,
2. Standalone Utility 5747SA1.

I/O ERR ADR: CUU C500CF01 XXXX YY ZZ

Flag byte

1X = control info. error

2X = device error

4X = device error/FTA error

X2 = format error

X4 = FTA error

X8 = Control information
error.

emulated device address

emulated cyl/head address

ref. code 231X/33XX comp. feature

native device address

Is the message on screen?

Y N

008

Go to Page 7, Step 015, Entry Point B.

04DEC81 PN 5683198

EC 366515 PEC 366493

1732

MAP C502-5

6
E

E
5

REF.CODE C500XX01

1732

MAP C502-6

CHANNEL CONTR.

PAGE 6 OF 9

009

Write down the message.

Is there a '4X' shown in position 'ZZ' of the message?

Y N

010

Is there a '2X' or 'X4' shown in position 'ZZ' of the message?

Y N

011

Is there an 'X2' shown in position 'ZZ' of the message?

Y N

012

Go to Page 8, Step 021, Entry Point TZ.

013

Contact the customer for repetition of formatting the disk pack.

014

Go to Page 7, Step 015, Entry Point B.

04DEC81 PN 5683198

EC 366515 PEC 366493

1732 MAP C502-6

7
F

PAGE 7 OF 9

(Entry Point B)

Select the FTA log. Press ENTER to get the COMP FEAT/3340/3344 Direct Attachment Log DISPLAY.

```

COMP FEAT/3340/3344 DIR.....

LAST REF.CODE C5....01 01009180

      12  13
ADDR: |---|---|
      |   |   |
      |---|---|
      --- ---
      |   |   |
      |   |   |
      |   |   |
      |   |   |
      |---|---|
      |   |   |
      V   |   |
DASD Adapter Number |   |
      V   |   |
Channel Address     |   |
      V   |   |
Device Address      |   |

Fault Symptom
Code, FSC

```

Is the FSC shown in the log display?

Y N

016

Go to Page 8, Step 018, Entry Point MM.

017

Use the FSC and go to the documentation of the I/O. The address of the I/O you see in byte 12 and 13 of the log display.

Repair successful?

Y N

85 96

H
7

REF.CODE C500XX01

1732

MAP C502-8

CHANNEL CONTR.

PAGE 8 OF 9

018

(Entry Point MM)

Take device address and run the inline routines
with this device.

Any error?

Y N

019

(Entry Point VZ)

Run FTA 2 test.

Any error?

Y N

020

Run CTLI (wrap) 2 test.

Attention:

Power down the control units during the test
run.

Start the test by putting the wrap plugs in the
first control unit after the processor, then in the
most distant control unit.

By systematically putting the wrap plugs in the
other control units the area in which the fault
lies is approached.

Any error?

Y N

021

(Entry Point TZ)

Call for support.

As soon as the support structure gets involved, information
concerning the following subjects should be made available:

1. Machine configuration.
2. EC REA statue and installed MCTF(s).
3. Attached I/O units and associated unit addresses.
4. Software environment (release numbers, if applicable).
5. Number of 3340/3344 buffers specified at IPL time,
also the number of compatibility feature buffers
specified at IPL time.

(Step 021 continues)

04DEC81 PN 5683198

EC 366515 PEC 366493

1732 MAP C502-8

9 9 9
J K L

G J K L
7 8 8 8

REF.CODE C500XX01

1732

MAP C502-9

CHANNEL CONTR.

PAGE 9 OF 9

(Step 021 continued)

6.Recovery actions done so far (according to above scheme).

7.All existing log areas belonging to reference code C500XX01.

8.1/0 units running concurrently at thea time the logs occurre

9.Frequency of logs with reference code C500XX01.

Go To Map 0001, Entry Point O.

022

Go To Map C280, Entry Point A.

023

Go To Map C580, Entry Point A.

024

Go to respective MAP.

025

Go To Map 0001, Entry Point A.

04DEC81 PN 5683198

EC 366515 PEC 366493

1732

MAP C502-9

REF.CODE C5000181 FIX 0003

1740

MAP C580-1

REF.CODE C5100181

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C280	A	1	001
C500	A	1	001
C502	A	1	001
RFCA	A	1	001
OC00	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	003	0001	A

001

(Entry Point A)

FTA2 Test MAP.

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

002

Select the IBM MAINTENANCE and
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA2
test.

Go to Step 003, Entry Point P.

003

(Entry Point P)

Prerequisites:

Make sure that there isn't any wrap connector
left in the system.

Do now the repair as told by the REFCODE ANALYSIS.

After the repair,

Go To Map 0001, Entry Point A.

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REF.CODE C5 0/1 00181

4331

10APR81

EC 366390

1740

PN 5683185

PEC 366284

MAP C580-1

FTA 3 Log MAP

PAGE 1 OF 11

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C602	A	1	001
RFCA	A	1	001
RFCA	B	3	003
RFCA	V	7	020
OC00	AA	2	002
OC00	MM	8	026
4902	MM	8	026

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
11	065	C380	A
5	012	C380	A
6	018	C380	A
6	017	C602	A
11	068	C680	A
10	045	C680	A
9	040	0000	A
10	049	0000	A
7	022	0001	A
8	025	0001	A
9	029	0001	A
10	052	0001	A
10	056	0001	A
6	016	0001	A
10	059	0001	0

001

(Entry Point A)

Make sure that you have followed the START MAP 0000 precisely.

Another reference code may be more important than the one you have got first.

Are you led to this MAP by the REFCODE
ANALYSIS?

Y N

Y N

3 2
A B

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REF.CODE C6XXXX01

26OCT81 PN 5683186

EC 366493 PEC 366390

1742 MAP C600-1

B
|

REF.C.C6XXXX01

1742

MAP C600-2

FTA 3 Log MAP

PAGE 2 OF 11

002

(Entry Point AA)

FTA 3 Log Display (Example)

=====

FTA-3 LOG DISPLAY		Page: 0001
REF.CODE: C6 XXXX 01		
SYMPTOMS		
SEQ.NO	XXXX XXXX XXXX XXXX	
V		

Select the IBM MAINTENANCE and SERVICE
SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA 3 LOG.
Proceed as told by the REFCODE ANALYSIS.

26OCT81 PN 5683186
EC 366493 PEC 366390
1742 MAP C600-2

A
1

REF.C.C6XXXX01

1742

MAP C600-3

FTA 3 Log MAP

PAGE 3 OF 11

003

(Entry Point B)

Run FTA 3 test.

Any ref. code?

Y N

004

Run CTLI 3 test.

Any ref. code?

Y N

005

Is the ref. code from the FTA 3 log
C600XX01?

Y N

006

FTA reference codes can also be
caused by I/O problems.

Look for an EREP of the I/Os
connected to FTA3.

Is there a fault symptom index/code
(FSI/FSC) recorded in EREP?

Y N

6 6 6 6 4
C D E F G

26OCT81

PN 5683186

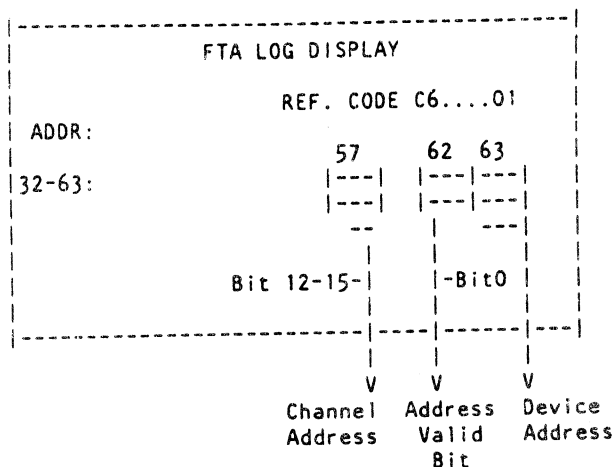
EC 366493

PEC 366390

1742

MAP C600-3

Select FTA log.



Is the 'Address Valid Bit'
(byte 62, bit 0) on?

Y N

Run CTLI 3 (wrap) test.

Attention

Power down the control units before the test run.

Start the test by putting the wrap plugs in the first control unit after the processor, then in the most distant control unit. By systematically putting the wrap plugs in the other control units the area in which the fault lies is approached.

Any reference code?

Y N

555

26OCT81	PN 5683186
EC 366493	PEC 366390
1742	MAP C500-4

H J K
4 4 4

REF.C.C6XXXX01

1742

MAP C600-5

FTA 3 Log MAP

PAGE 5 OF 11

009

Run inline tests for all devices attached to the FTA.

Any reference code?

Y N

010

(Entry Point N)

If the problem cannot be found with aid of the inlines

(Either the inlines don't find an error or they don't run):

Replace FRUs as indicated by the REFCODE ANALYSIS.

Refer to the 'Card Where Used List' in Vol.30, PA 013 for possible card swapping.

After the repair, do the verification.

Go to Page 7, Step 020, Entry Point V.

011

Go to appropriate MAP.

012

Go To Map C380, Entry Point A.

013

Take the device address from the FTA log byte 63.

Run the inline tests for the addressed device.

Any reference code?

Y N

014

Go to Step 010, Entry Point N.

015

Go to appropriate MAP.

26OCT81 PN 5683186

EC 366493 PEC 366390

1742 MAP C600-5

C D E F
3 3 3 3

REF.C.C6XXXX01

1742

MAP C600-6

FTA 3 Log MAP

PAGE 6 OF 11

016

(Entry Point BB)

Go to appropriate I/O documentation
using the FSI/FSC

After the repair.

Go To Map 0001, Entry Point A.

017

Go To Map C602, Entry Point A.

018

Go To Map C380, Entry Point A.

019

Follow it.

26OCT81 PN 5683186

EC 366493 PEC 366390

1742 MAP C600-6

020
(Entry Point V)

VERIFICATION:

After the repair run the test chaining.

Any reference code?

Y N

021

Run the application which caused the error
and watch the system.

Does the original error come again?

Y N

022

Go To Map 0001, Entry Point A.

023

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA 3
log.

The rightmost symptom of each sequence
number log is used in creating the displayed
reference code.

If the reference code fails to fix the problem,
substitute the four characters in the middle of
the reference code by the next symptom and
return the REFCODE ANALYSIS with the so
build new reference code.

Replace the FRU's that are now suspected
by the REFCODE ANALYSIS.
Then run the test chaining.

Any reference codes?

Y N

024

Run the application which caused the
error and watch the system.

Does the original error come up again?

Y N

1 1
1 1 8 8
L M N P

26OCT81 PN 5683186
EC 366493 PEC 366390
1742 MAP C600-7

N P
7 7

REF.C.C6XXXX01

1742

MAP C600-8

FTA 3 Log MAP

PAGE 8 OF 11

025

Go To Map 0001, Entry Point A.

026

(Entry Point MM)

Check director-controller interface cables/connectors; check whether all cable connectors fit properly, included the flat cables from 01A-B2ZE/ ZF/ ZG / ZH to tailgate 01D-E2 (BD)/ E2 (GJ)/ F2 (BD)/ F2 (GJ).

Look for broken loose or bent contact pins in the connectors.

Check I/O terminators for correct position and bent pins.

Check for proper shielding of I/O cables.

Refer to Vol.16, Power Manual, EMC Checking.

Repair or replace, if needed.

Run FTA3 test.

Any error?

Y N

027

(Entry Point MA)

For further verification run and loop the CTLI 3 test and apply stress to the connectors by hitting them with your hand.

Any error?

Y N

028

Run the application which showed the error.

Does the error come up again?

Y N

1 1
1 1 9 9
Q R S T

26OCT81

PN 5683186

EC 366493

PEC 366390

1742

MAP C600-8

S T
8 8

REF.C.C6XXXX01

FTA 3 Log MAP

PAGE 9 OF 11

029

(Entry Point Z)

Go To Map 0001, Entry Point A.

030

Same error symptom as before?

Y N

031

Go to Step 040, Entry Point Y.

032

Now suspect the tag drivers and receivers of
the FTA 3: Replace
FTA3 card 3; 01A-B2R2

(Entry Point X)

Run FTA 3 test and CTLI 3 test.

Any error?

Y N

033

(Entry Point MB)

Run the application which showed the error.

Does the error come up again?

Y N

034

Go to Step 029, Entry Point Z.

035

Same error symptom as before?

Y N

036

Go to Step 040, Entry Point Y.

1 1
0 0
U V

V

1742

MAP C600-9

037

Suspect now the tag driver and receiver cards
in the control unit(s). If possible swap with the
bus driver and receiver cards. Run the
application which showed the error.

Does the error come up again?

Y N

038

Go to Step 029, Entry Point Z.

039

Same error symptom as before?

Y N

040

(Entry Point Y)

Go To Map 0000, Entry Point A.

041

Replace now the FTA 3 card 2; 01A-B2Q2.

Run FTA 3 test.

Any error?

Y N

042

Go to Page 10, Step 046, Entry Point W.

043

Same error symptom as before?

Y N

044

The new card may also be defective.
Correct it.

Run FTA 3 test. Successful?

Y N

1 1 1
0 0 0
W X Y

26OCT81

PN 5683186

EC 366493

PEC 366390

1742

MAP C600-9

X Y
9 9
REF.C.C6XXXX01
FTA 3 Log MAP
PAGE 10 OF 11

045

Second error may be in adapter.

Go To Map C680, Entry Point A.

046

(Entry Point W)

Run the application which caused the error.

Does the error come up again?

Y N

047

Go to Page 9, Step 029, Entry Point Z.

048

Same error symptoms as before?

Y N

049

Go To Map 0000, Entry Point A.

050

Suspect now the terminator card; 01A-B2X2
(IC-Bus O).

Run IC-bus test and FTA 3 test.

Any reference code?

Y N

051

Try again the application which caused the
error.

Does the error come up again?

Y N

052

Go To Map 0001, Entry Point A.

053

Same error symptoms as before?

Y N

A A
Z A B

W Z A A
9 A B
1742 MAP C600-10

054

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

055

(Entry Point S)

Exchange IC-bus cable 9
(IC-bus sense and control lines)
from 01A-B1D4 (C) to 01A-B2YG

Run FTA 3 test.

Any reference code?

Y N

056

Go To Map 0001, Entry Point A.

057

Same symptoms as before?

Y N

058

New cable is also defective.

Correct it.

Go to Page 7, Step 020, Entry Point V.

059

(Entry Point T)

Suspect now the board B2. This you may
replace in accordance with your support
structure. Write down all error symptoms
for possible later use.

Go To Map 0001, Entry Point O.

060

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS.

061

Go to Page 11, Step 066, Entry Point AM.

26OCT81 PN 5683186
EC 366493 PEC 366390
1742 MAP C600-10

L M Q R U
7 7 8 8 9

REF.C.C8XXXX01

1742

MAP C600-11

FTA 3 Log MAP

PAGE 11 OF 11

062

Same symptoms as before?

Y N

063

The new card may also be defective. Correct it.

Go to Page 9, Step 033,

Entry Point MB.

064

Go to Page 9, Step 033,

Entry Point MB.

065

Go To Map C380, Entry Point A.

066

(Entry Point AM)

Disconnect interface cables.

Run FTA 3 test again to see whether the error is inside or outside the adapter.

Any error?

Y N

067

Go to Page 8, Step 027,

Entry Point MA.

068

Go To Map C680, Entry Point A.

069

Go to Step 070, Entry Point K.

070

(Entry Point K)

Go to the appropriate MAP, respective use the REFCODE ANALYSIS.

26OCT81 PN 5683186

EC 366493 PEC 366390

1742 MAP C600-11

1743 MAP C602-1

B
1

REF.C.C600XX01

1743

MAP C602-2

Channel Contr. Check

PAGE 2 OF 8

002

Reference code C600DA01?

Y N

003

Go To Map C600, Entry Point A.

004

The log was generated by the 3340/3344 direct attachment

(The picture below is valid for reference code C600DA01 only).

See the additional message in line 23 on screen.

If the message is not on screen, try to get it by doing
CHANGE DISPLAY.

I/O ERR ADR: CUU C600DA01 XXXX YYYY

				_fault symptom index, FSI
				_logical cylinder/track address
				_ref.code 3340/3344 direct attachment
				_channel and device address

Recommended action :

The above Channel Control Check indicates a defect in either:

the 3348 data module or HDA

the 3340/3344 drive or

the controller.

Go to respective MAP or go directly to the 3340/3344 documentation using the fault symptom index, FSI.

This can be extraced from sense byte22 and 23.

See log byte 38 and 39 or
message line 23 on screen in position 'YYYY'.

Any 3340/3344 problem detected?

Y N

|
|

3 3
C 0

26OCT81 PN 5683196

EC 366493 PEC 366390

1743 MAP C602-2

C D
2 2

REF.C.C600XX01

1743

MAP C602-3

Channel Contr. Check

PAGE 3 OF 8

005

Suspect:

01A-B2P2/Q2/R2.

After the repair

Go To Map 0001, Entry Point A.

006

Repair as told by the 3340/3344
documentation, then

Go To Map 0001, Entry Point A.

26OCT81 PN 5683196

EC 366493 PEC 366390

1743 MAP C602-3

A
1

REF.C.C600XX01

1743

MAP C602-4

Channel Contr. Check

PAGE 4 OF 8

007

Ref. Code C600CF01.

The log was generated by the 231X/33XX
compatibility feature.

See the additional message in line 23 on screen.

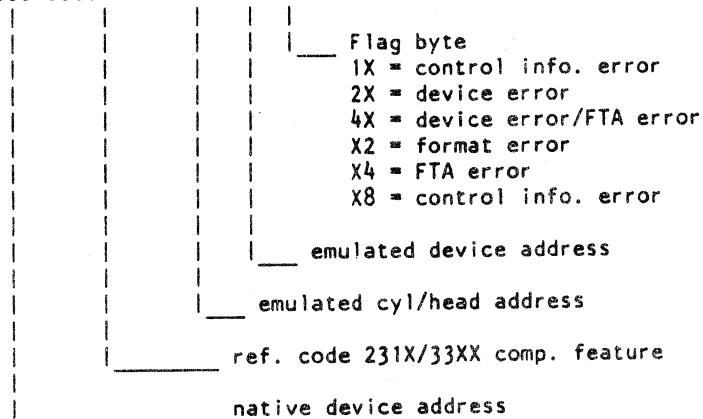
If this message is not on screen, try to get it by doing
CHANGE DISPLAY.

This ref. code can also come up
by a not initialized disk pack.

Programs to be used:

1. INITEM Utility,
2. Standalone Utility 5747SA1.

I/O ERR ADR: CUU C600CF01 XXXX YY ZZ



Is the message on screen?

Y N

008

Go to Page 6, Step 015, Entry Point W.

5
E

26OCT81 PN 5683196

EC 366493 PEC 366390

1743 MAP C602-4

E
4

REF.C.C600XX01

1743

MAP C602-5

Channel Contr. Check

PAGE 5 OF 8

009

Write down the message.

Is there a '4X' shown in position 'ZZ' of the message?

Y N

010

Is there a '2X' or 'X4' shown in position 'ZZ' of the message?

Y N

011

Is there a 'X2' shown in position 'ZZ' of the message?

Y N

012

Go to Page 7, Step 021, Entry Point TZ.

013

Contact the customer for repetition of formatting the disk pack.

014

Go to Page 6, Step 015, Entry Point W.

6
F

26OCT81

PN 5683196

EC 366493

PEC 366390

1743

MAP C602-5

PAGE 6 OF 8

(Entry Point W)

Select the FTA log. Press ENTER to get the
COMP FEAT/3340/3344 Direct Attachment
Log DISPLAY.

```

COMP FEAT/3340/3344 DIR.....

LAST REF.CODE C6....01 01009180
-----
                12  13
ADDR:          |----|
               |    |
               |----|
               |----|
               |    |
               |    |
               |    |
               |    |
               |    |
               |    |
DASD Adapter Number |
                   V
Channel Address      |
                   V
Device Address       |
                   V
Fault Symptom Code, FSC

```

Is the FSC shown in the log display?

Y N

018

Go to Page 7, Step 018, Entry Point WW.

017

Use the FSC and go to the documentation of the I/O. The address of the I/O you see in byte 12 and 13 of the log display.

Repair successful?

Y N

8 7
G H

H
6

REF.C.C600XX01

1743

MAP C602-7

Channel Contr. Check

PAGE 7 OF 8

018

(Entry Point WW)

Take device address and run the inline routines
with this device.

Any error?

Y N

019

(Entry Point VZ)

Run FTA 3 test.

Any error?

Y N

020

Run CTLI (wrap) 3 test.

Attention:

Power down the control units during the test
run.

Start the test by putting the wrap plugs in the
first control unit after the processor, then in the
most distant control unit.

By systematically putting the wrap plugs in the
other control units the area in which the fault
lies is approached.

Any error?

Y N

021

(Entry Point TZ)

Call for support.

As soon as the support structure gets involved, information
concerning the following subjects should be made available:

1. Machine configuration.
2. EC REA status and installed MCTF(s).
3. Attached I/O units and associated unit addresses.
4. Software environment (release numbers, if applicable).
5. Number of 3340/3344 FTA buffers specified at IPL time,
also numbers of compatibility feature buffers specified
at IPL time.

(Step 021 continues)

26OCT81 PN 5683196

EC 366493 PEC 366390

1743 MAP C602-7

8 8 8
J K L

G J K L
6 7 7 7

REF.C.C600XX01

1743

MAP C602-8

Channel Contr. Check

PAGE 8 OF 8

(Step 021 continued)

6.Recovery actions done so far (according to above scheme).

7.All existing log areas belonging to reference code C600XX01.

8.I/O units running concurrently at the time the logs occurred

9.Frequency of logs with reference code C600XX01.

Go To Map 0001, Entry Point O.

022

Go To Map C380, Entry Point A.

023

Go To Map C680, Entry Point A.

024

Go to respective MAP.

025

Go To Map 0001, Entry Point A.

26OCT81 PN 5683196
EC 366493 PEC 366390
1743 MAP C602-8

FTA 3 Test MAP

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
CXXX	A	1	001
C380	A	1	001
C600	A	1	001
C602	A	1	001
RFCA	A	1	001
OC00	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	003	0001	A

001

(Entry Point A)

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

002

Select the IBM MAINTENANCE AND
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the FTA3
test.

Go to Step 003, Entry Point P.

003

(Entry Point P)

PREREQUISITES:

Make sure that there isn't any wrap connector
left in the system.

Do now the repair as told

by the REFCODE ANALYSIS.-----
After the repair

Go To Map 0001, Entry Point A.

REF.CODE DXXXXXXX FIX 0003

1750

MAP DXXX-1

Ref.Code directory

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	A	1	001
0020	A	1	001
0060	A	1	001

001

(Entry Point A)

REFERENCE CODE DIRECTORY

=====

Reference Code	Title	Goto MAP
D0XXXX81*	Disk/Tape ILT Monitor	D080
D8XXXX81*	Link to 8809 MAPs	D870
DAXXXX81*	Link to 3340 MAPs	DA70
DBXXXX81*	Link to 3344 MAPs	DB70
DDXXXX81*	Link to 3310 MAPs	DD70
DEXXXX81*	Link to 3370 MAPs	DE70
*		
*		
*		

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REF.CODE DXXXXXXX

4331

23JAN81

EC 366388

1750

PN 8488141

PEC 36640

MAP DXXX-1

REF.CODE D0XXXX81 FIX 0005

1760

MAP D080-1

Disk/Tape ILTs Monitor

PAGE 1 OF 13

ENTRY POINTS

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

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REF.CODE D0XXXX81

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-1

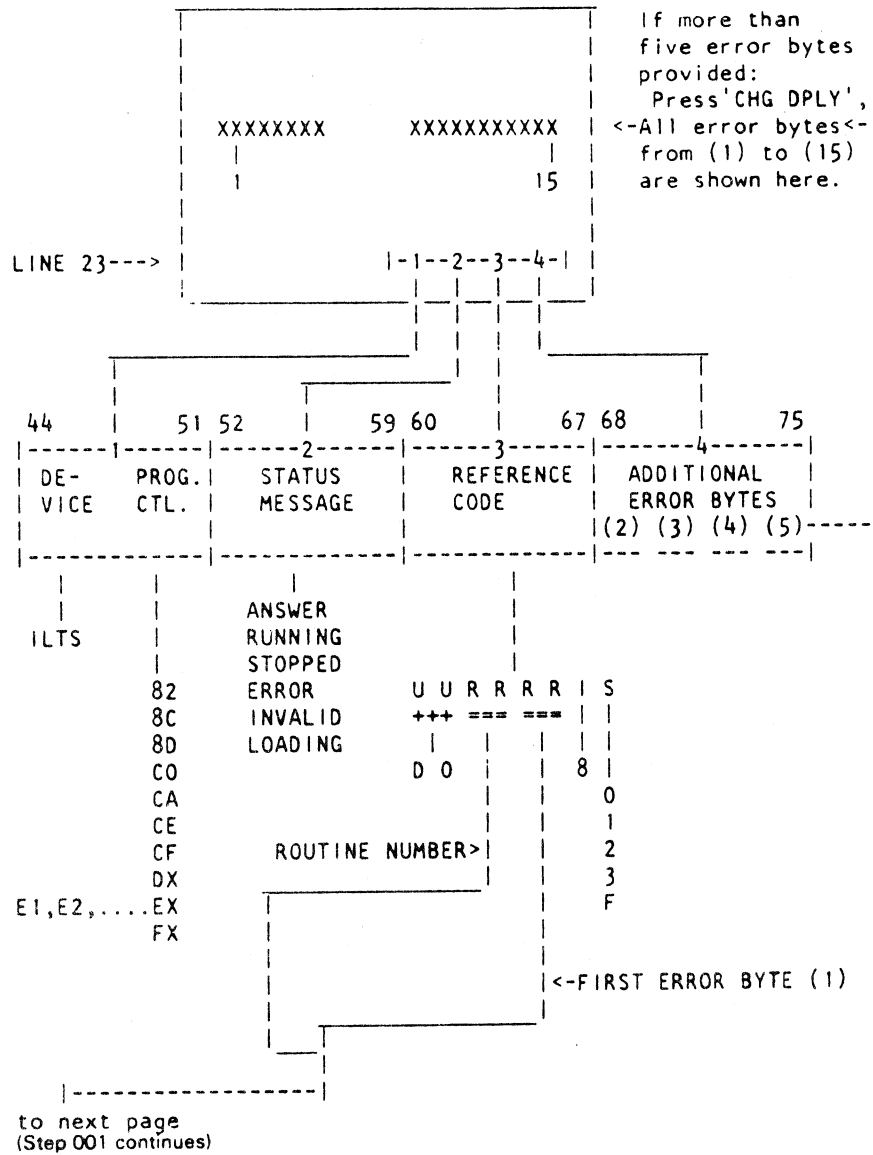
Disk/Tape ILTs Monitor

PAGE 2 OF 13

001

(Entry Point A)

S C R E E N



26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-2

Disk/Tape ILTs Monitor

PAGE 3 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D00X0081	Try to rerun the inline tests of the attached control units and I/Os If this does not help go to EXIT MAP----->	Suppl. to MAPs, Section: 4 Inline Tests Handling 0001 ENTRY POINT 0
D01X0081	Handling Error! Recommended Action: Repeat your key board or CE panel entry! Read the ILT handling description. Error Description: X = 0: Invalid I/O address (general test of address validity) X = 1: Invalid I/O address if CE- Mode (3310, 8809) or invalid channel address if activate CE alert (334X, NFP) X = 2: Invalid I/O address in case of set forced error logging mode X = 3: Invalid I/O address in case of reset forced error logging mode	

(Step 001 continues)

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-3

Disk/Tape ILTs Monitor

PAGE 4 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D01X0081 cont'd	X = 4: Device busy or contingent connection (in case of set CE-Mode) X = 5: Not used X = 6: Not used X = 7: Not used X = 8: Invalid run or control option entered X = 9: Invalid routine IC entered	
D02X0081	Try to rerun the inline tests	Suppl.
D03X0081	of the attached control units	to MAPs
D04X0081	and I/Os	Section 4:
D05X0081		Inline Tests
D06X0081		Handling
	If this does not help go to	
	EXIT MAP----->	0001
		ENTRY
		POINT
		0

(Step 001 continues)

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-4

Disk/Tape ILTs Monitor

PAGE 5 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D0700081	FTA timeout 25 SEC! The FTA has been requested for ILT but it has not been serviced within 25 seconds. * Reasons for timeout (consider priority): 1.The functional microcode handles a retryable data check on tape and keeps busy. Wait until the job is finished and start ILTs again. 2.A selector mode operation takes place. (Command chaining or read/ write records.) Wait until the job is finished and restart the ILT operation manually. 3.The FTA hardware is out of order Run respective FTA test. 4.A program error occurred Call for support----->	0001 ENTRY POINT 0

(Step 001 continues)

26OCT81 PN 8488475
EC 366493 PEC 366388
1760 MAP D080-5

Disk/Tape ILTs Monitor

PAGE 6 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D0710081	1. Ignore the problem for the time being and try to restart the inline tests. For test handling see Vol.13, STM, Section 4: Disk/Tape Inline Test Handling. If the problem repeats, continue with step 2.	
	2. Suspect an FTA hardware error. Run the respective FTA test. If the FTA test doesn't find an error, continue with step 3.	
	3. Replace the three cards of the failing FTA. Do the replacement step by step in the following sequence: - FTA card 2 - FTA card 3 - FTA card 1 For card locations see Vol.13, STM, Section 1: Card Locations. Run the tests again. If the problem still exists, continue with step 4.	
	4. Suspect a control program error. Go to EXIT MAP -----> Any good FRU that was removed should be returned to the machine.	0001, ENTRY POINT 0.

(Step 001 continues)

26OCT81 PN 8488475
 EC 366493 PEC 366388
 1760 MAP D080-6

Disk/Tape ILTs Monitor

PAGE 7 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
00720081	'Tag Valid' from 3370 is missing You need the MD for trouble shooting in the 3370. To decide if it is an intermittent hardware error or not, run inline test routine B3 (for 3340/44 only) to fetch and analyse the sense bytes or to get a symptom code. In case of hardware malfunctions either a 'Bus Out Parity Check' or 'Tag Bus Parity Check' may be indicated. If a control information error is suspected call for support ----->	0001, ENTRY POINT 0
00780081	Handling error. As long as the maintenance device, MD is running, it is not possible to handle inline tests from the 4331 console for inline test handling. Remove the signal cable to the MD If the error comes again the 'CE Alert' signal is erroneously on. In this case you need the MD for trouble shooting in the 3370.	

(Step 001 continues)

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-7

Disk/Tape ILTs Monitor

PAGE 8 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D07C0081	Long busy timeout (during 3370 string switch support). 1) Possible reasons for timeout (consider priority) 1.1.The opposite system seized the 3370 string because the machine configurator of the opposite system does not include string switch feature. 1.2.3370 string switch hardware left in busy condition. 2) Recommended actions: 2.1.If the timeout occurred during ILT invokement phase, perform system reset to clear the inline mode. 2.2.If the timeout occurred during ILT execution phase, terminate ILT's using option 30. 2.3.Change the machine configurator at the opposite system to allow 3370 string switch operation. 2.4.Power down - Power up the 3370 string in use. 2.5.Select the 3370 ILT's at the console for re-invokement. If this does not help go to EXIT MAP.	0001 ENTRY POINT 0
D07X0081	Try to rerun the inline tests of the attached control units and I/Os. If this does not help go to EXIT MAP ----->	Supplement to MAPs, Section 4: Inline Test Handling 0001 ENTRY POINT 0

(Step 001 continues)

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-8

Disk/Tape ILTs Monitor

PAGE 9 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D08X0081	Program Error or Hardware Error! Recommended Action: Run respective FTA test if recommended below or proceed directly with the EXIT MAP-----> In any case try to rerun the inline tests for the attached control units and I/Os! Error Description: X = 0: Undefined load return parameter of control information X = 1: Hardware check during FTA load of control information Run respective FTA test. X = 2: FTA did not stop for load of control information Run respective FTA test. X = 3: Timeout during load of control information Run respective FTA test X = 4: Mismatch of control information ID X = 5: Control information dedected error Run respective FTA test. X = 6: Protection check during loading X = 7: Control information address erroneously zero	0001 ENTRY POINT 0

(Step 001 continues)

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-9

Disk/Tape ILTs Monitor

PAGE 10 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D0930081	No bit significant controller address on CTLI 'Bus In' after 'Poll Controller' operation. Any line of the CTLI 'Bus In' cable is open. Run CTLI test. Important: The control units must be switched off. Start the test in putting the wrap plugs in the first control unit after the 4331 processor, then put them in the most distant control unit, e.t.c. If the CTLI test runs error free, suspect the 'Bus In' driver card of any control unit.	
D0960081	Any line of the CTLI 'Bus In' is erroneously active. Run CTLI test. Important: The control units must be switched off. Start the test in putting the wrap plugs in the first control unit after the 4331 processor, then put them in the most distant control unit, e.t.c. If the CTLI test runs error free, suspect the 'Bus In' driver card of any control unit.	

(Step 001 continues)

26OCT81 PN 8488475
EC 366493 PEC 366388
1760 MAP D080-10

Disk/Tape ILTs Monitor

PAGE 11 OF 13

(Step 001 continued)

Reference Code	Reason and Recommended Action	Go to MAP
D09X0081	Malfunction of disk or tape drive/controller connected to FTA via CTLI or FTA Hardware error or ILT Control information error! Control Information Recommended Action: Run respective FTA test. Run respective CTLI Director-controller Interface Test Try also to rerun the inline tests of the attached control unit and I/Os. If all this does not help go to EXIT MAP----->	Suppl. to MAPs, Section 4: Inline Test Handling 0001 ENTRY POINT 0
D0AX0081 D0BX0081	Try to rerun the inline tests of the attached control units and I/Os. If this does not help go to EXIT MAP----->	Suppl. to MAPs Section 4: Inline Test Handling 0001 ENTRY POINT 0

(Step 001 continues)

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-11

PAGE 12 OF 13

(Step 001 continued)

DOXXXX80 Reference codes issued in case of invalid CE entry:

a) Format of inline status displ on CE panel (3340) and MD (3370):

CO XX high displ + low displ

```

| |
| | <<<<<<<<<<<<<<<< | |

```

b) Format of reference code in line 23 on screen:

DX..... Groupcode of disk/ tape inline tests

D0..... Groupcode of disk/ tape inline monitor

DOXX0080

|| | ||

|| <<<<<<< ||

```
XX      PU inline monitor detected handling errors:
```

Suspected.....: Disk/tape inline monitor detected error
..... handling error

Recommended action: Repeat your keyboard or CE-panel entry.
Read the ILT handling description.

Error description : XX = 10: Invalid I/O address
(General test of address validity)

XX = 11: Invalid I/O address if set CE-mode
(3310, 8809) or invalid channel address
if activ. CE alert (334X, 3370)

XX = 12: Invalid I/O address in case of set forced error logging mode (N/A for 3340 and 3344)

XX = 13: Invalid I/O address in case of reset
forced error logging mode (N/A for
3340 and 3344)

XX = 14: Device busy or contingent connection
(In case of set CE-mode)

(Step 001 continues)

Disk/Tape ILTs Monitor

PAGE 13 OF 13

(Step 001 continued)

XX = 15: Not used

XX = 16: Not used

XX = 17: Not used

XX = 18: Invalid run or control option entered

XX = 40..FF: Invalid routine ID
Value is equal to CE-entry
(Wrong RTN ID.)

XX = C0: Run routine EF first, before you start
the MD.

Otherwise no system - MD communication
possible (MD will time out).

System will display:

'3370 C0 INVALID D0C0XXXX' on line23.

To recover:

Press the PF-key on the maintenance
device keyboard. Enter and run routine
'EF' from the 4331 system console
again.

26OCT81 PN 8488475

EC 366493 PEC 366388

1760 MAP D080-13

REF.CODE D8XXXXX81 FIX 0002

1770

MAP D870-1

8809 Tape Unit

PAGE 1 OF 2

ENTRY POINTS

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

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REF.CODE D8XXXXX81

26OCT81 PN 8488050

EC 366493 PEC 366492

1770 MAP D870-1

8809 Tape Unit

PAGE 2 OF 2

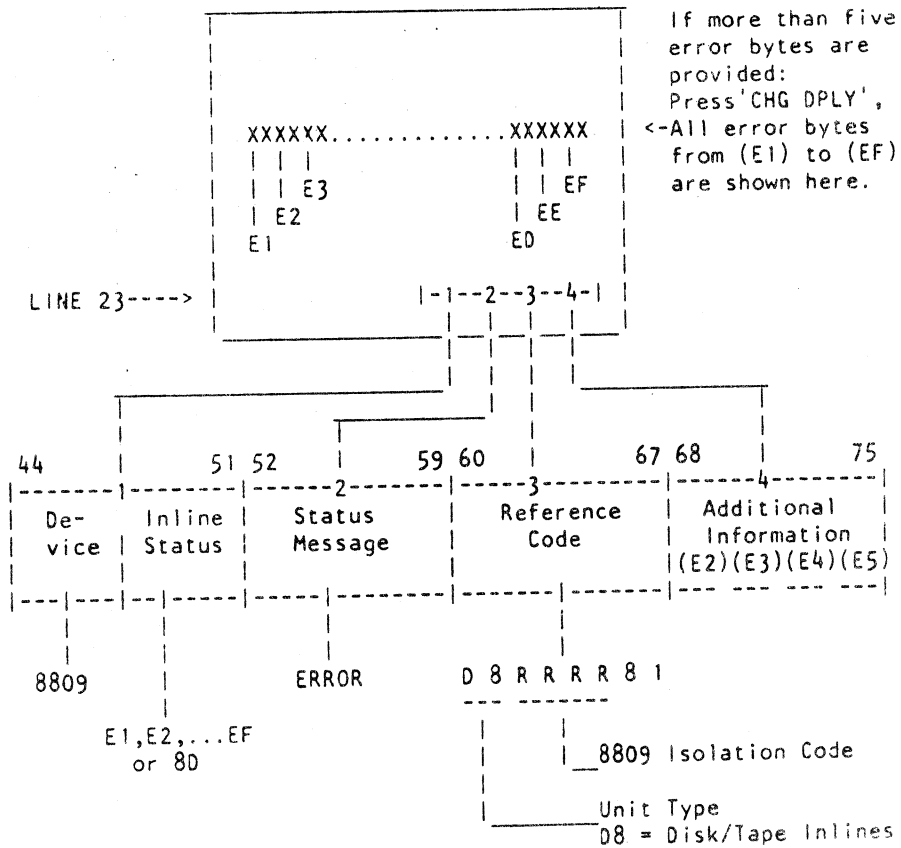
001

(Entry Point A)

.....

Link to the 8809 MAPs

S C R E E N



Write down the 8809 Isolation Code
(see RRRR-field of the reference code)
and go to the
8809 Start Map 0001, Entry Point A.

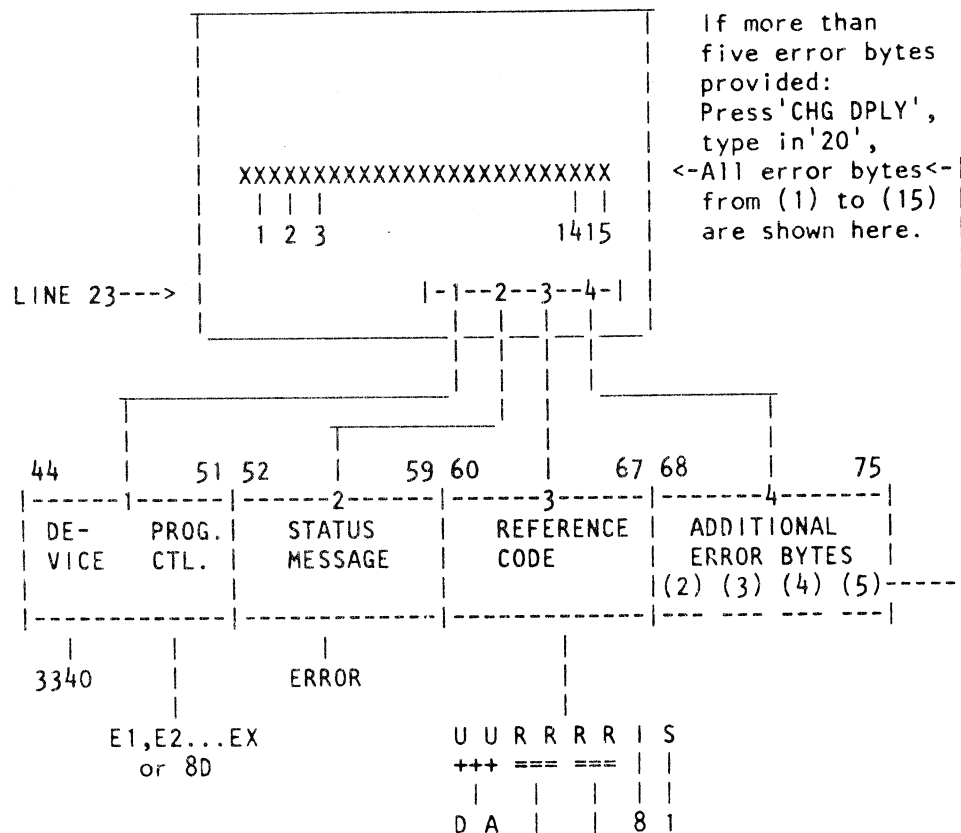
26OCT81 PN 8488050
EC 366493 PEC 366492
1770 MAP D870-2

PAGE 1 OF 3

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
DXXX	A	1	001
RFCA	V	3	001

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	002	0001	A

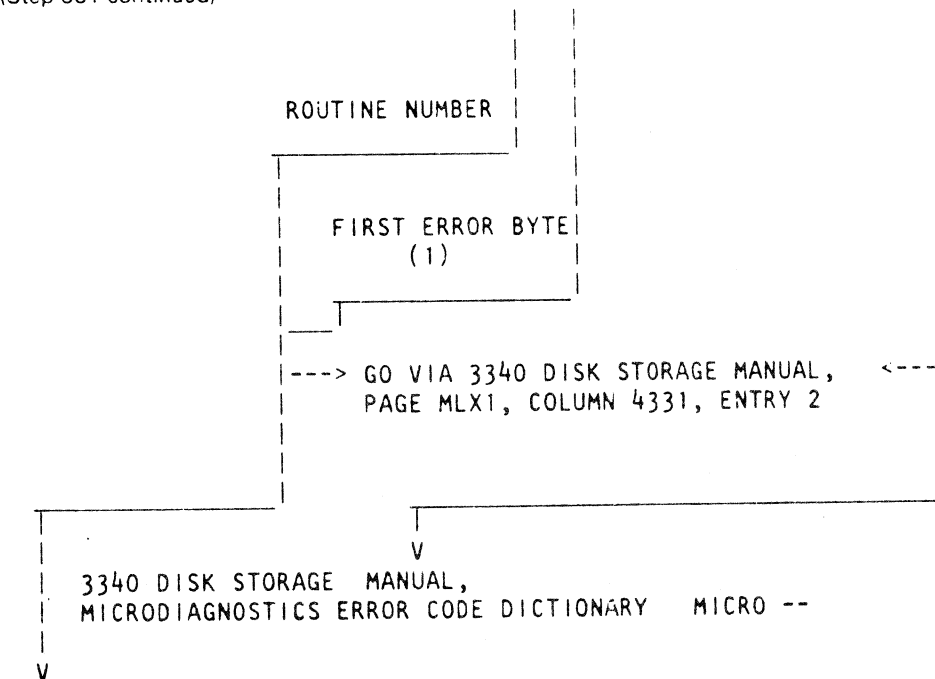
Link to 3340 MAPs



3340 CONTROL+DRIVES

PAGE 2 OF 3

(Step 001 continued)



ERROR CODE	ERROR DESCRIPTION	ICE PANEL LAMP DISPLAY		MAINTENANCE ANALYSIS PROCEDURE
		BYTE	DESCRIPTION	
R3RR		2		References to the 3340 MAP Charts
		3		
		4		
		5		

If reference code DA000081 go to EXIT MAP 0001, ENTRY POINT Y.

If reference code DAFFFF81 go to CTLR I- 271, ENTRY B,
if not successfull, go to CTLR I- 270, ENTRY E,
if not successfull, go to DATA-110, ENTRY POINT A.

Note:

The cause may be a timeout waiting for TAG VALID during execution of any CTLR/DEV command, which was previously tested for proper function, or an unexpected SYNC IN CHECK.

To decide if it is an intermittent hardware error, run routine "B3" to fetch and analyse the sense bytes or to get a symptom code (Step 001 continues)

10APR81 PN 8488048

EC 366390 PEC 366388

1780 MAP DA70-2

3340 CONTROL+DRIVES

PAGE 3 OF 3

(Step 001 continued)

In case of hardware malfunctions either a BUS-OUT parity check or TAG-BUS parity check has been indicated.

If so, do the action according to the 3340 MLM.

(Entry Point V)**IMPORTANT:**

Run the FTA test and CTLI test.

Any reference code?**Y N****002**

Proceed with the I/O documentation.

After the repair.

Go To Map 0001, Entry Point A.

003

Go to appropriate MAP.

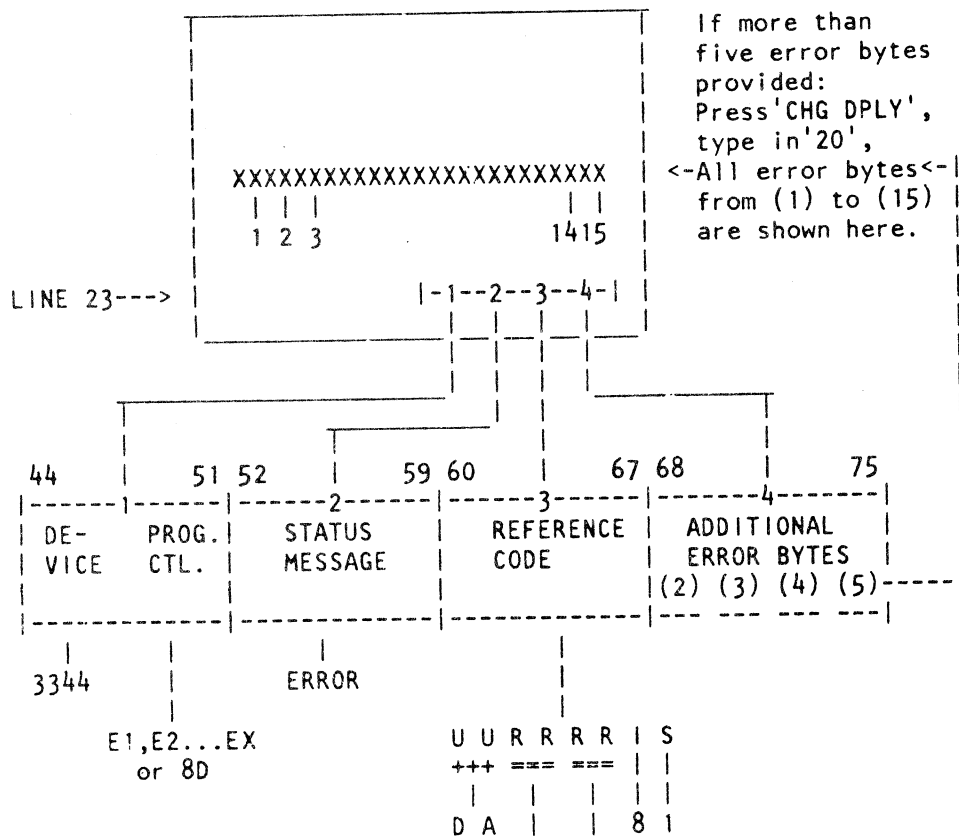
PAGE 1 OF 3

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
DXXX	A	1	001
RECA	V	3	001

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	002	0001	A

(Entry Point A)

Link to 3344 MAPs

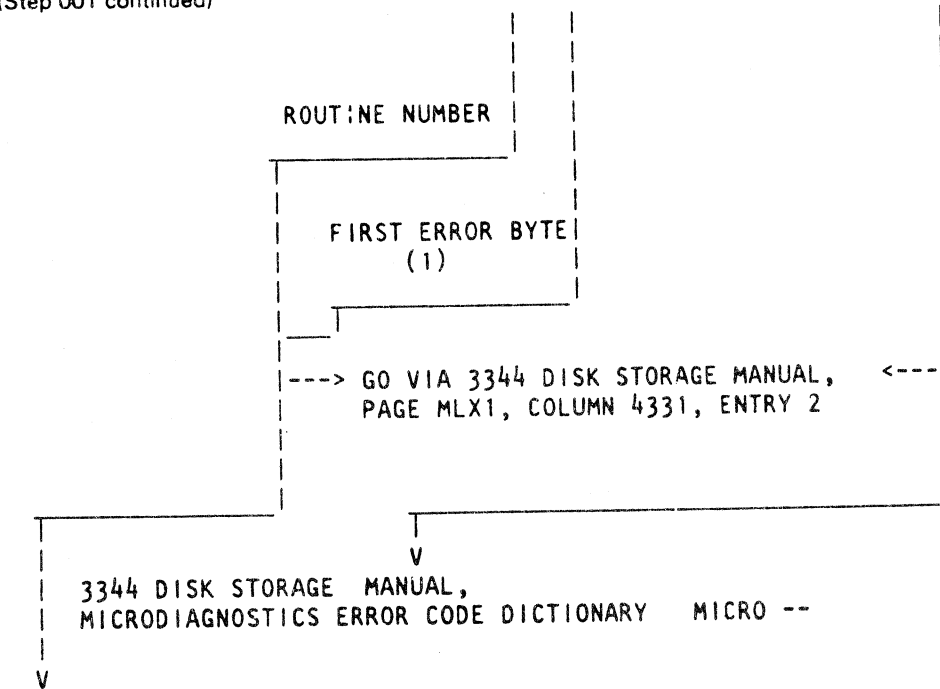


(Step 001 continues)

3344 CONTROL+DRIVES

PAGE 2 OF 3

(Step 001 continued)



ERROR CODE	ERROR DESCRIPTION	ICE PANEL LAMP DISPLAY		MAINTENANCE ANALYSIS PROCEDURE
		BYTE	DESCRIPTION	
RRRR		2		References to the 3340 MAP Charts
		3		
		4		
		5		

If reference code DB000081 go to EXIT MAP 0001, ENTRY POINT Y.

If reference code DBFFFF81 go to CTRL I- 271, ENTRY B, if not
successfull, go to CTRL I- 270, ENTRY E, if not
successfull, go to DATA-110, ENTRY A.

Note:

The cause may be a timeout waiting for TAG VALID during execution
of any CTRL/DEV command, which was previously tested for proper
function, or an unexpected SYNC in CHECK.

To decide if it is an intermittent hardware error, run routine
"B3" to fetch and analyse the sense bytes or to get a
(Step 001 continues)

10APR81 PN 5683324

EC 366390 PEC 366408

1782 MAP DB70-2

3344 CONTROL+DRIVES

PAGE 3 OF 3

(Step 001 continued)

symptom code.

In case of hardware malfunctions either an BUS-OUT parity check
or TAG-BUS parity check has been indicated.

If so, do the action according to the 3340 MLM.

(Entry Point V)**IMPORTANT:**

Run the FTA test and CTLI test.

Any reference code?**Y N****002**

Proceed with the I/O documentation.

After the repair.

Go To Map 0001, Entry Point A.

003

Go to appropriate MAP.

3310 Control + Drives

PAGE 1 OF 2

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
DXXX	A	1	001
RICA	V	2	001

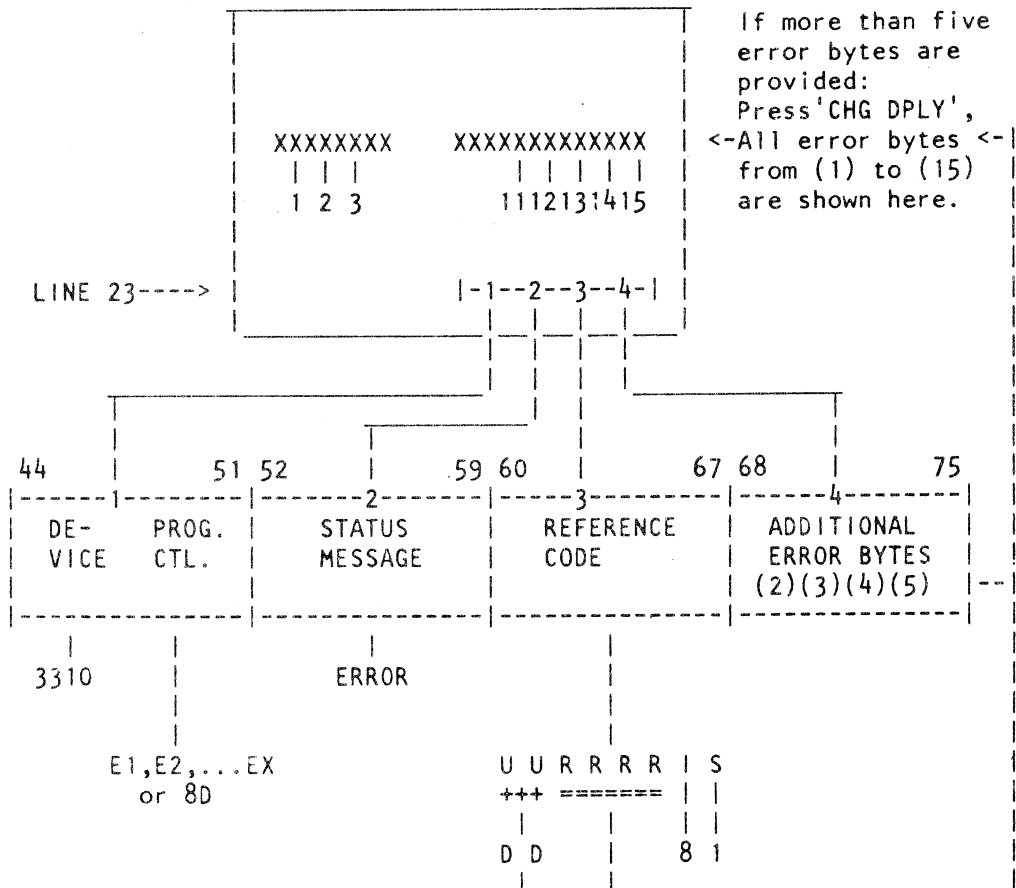
EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	002	0001	A

001

(Entry Point A)

S C R E E N



(Step 001 continues)

3310 Control + Drives

PAGE 2 OF 2

(Step 001 continued)

Go to MAP ST10, the
START MAP of 3310

These information is
evaluated in MAP ST10,
which is
the START MAP of 3310

(Entry Point V)

IMPORTANT:

Run the FTA test and CTLI test.

Any reference code?

Y N

002

Proceed with the I/O documentation.

After the repair,

Go To Map 0001, Entry Point A.

003

Go to appropriate MAP.

10APR81 PN 8488049

EC 366390 PEC 366345

1790 MAP DD70-2

3370 Disk Unit

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
DXXX	A	1	001
RFCA	V	3	002

EXIT POINTS

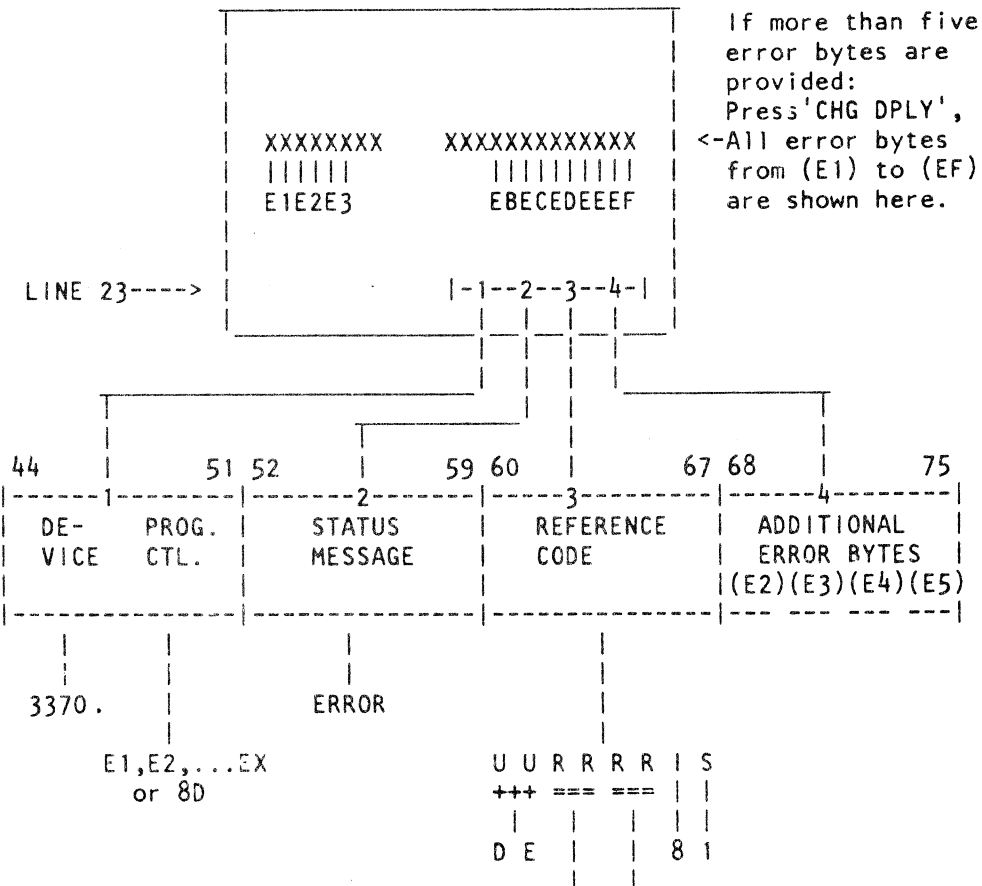
EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	003	0001	A

001

(Entry Point A)

Link to the 3370 MAPs

S C R E E N



(Step 001 continues)

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REF.CODE DEXXXX81

4331

10APR81

PN 8488061

EC 366390

PEC 366345

1792

MAP DE70-1

3370 Disk Unit

PAGE 2 OF 3

(Step 001 continued)

Routine No.>>	<<Error Byte 1 (E1)
---------------	---------------------

Go to '3370' documentation
via MLX pages of '3370'
documentation, entry 2.

For further error analysis
you need a maintenance
device (MD).

10APR81 PN 8488061

EC 366390 PEC 366345

1792 MAP DE70-2

3370 Disk Unit

PAGE 3 OF 3

002**(Entry Point V)****IMPORTANT:**

Run the FTA test and CTLI test.

Any reference code?**Y N****003**

Proceed with the I/O documentation, and the MD.

Ignore temporary error messages displayed on line 23 of console screen during run of 3370 inline tests controlled by the MD.

See Vol.13, STM, Section 4: Diagnostic Run Procedures (Disk/Tape Inline Test - General).

After the repair

Go To Map 0001, Entry Point A.**004**

Go to appropriate MAP.

10APR81 FN 8488061

EC 366390 PEC 366345

1792 MAP DE70-3

REF.CODE directory

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0001	A	1	001
0020	A	1	001

001

(Entry Point A)

REFERENCE CODE DIRECTORY

=====

Ref. Code	Title	Go to MAP
E0040F01	IML problems, IOC load (detailed)	E008
E004XX01	IML problems, IOC load	E002
E005XX01	BSM/Array problems	E003
E006XX01	IML problems, PU load	E004
E011XX01	Support proc. problems	E006
E019XX01	Diskette drive problems	0402 Entry point N
E01C4001	Wrong diskette installed	E005
E01XXX01	Diskette drive problems	0401 Entry point T
E02XXX01	I/O SS problems	E008 Entry point BB
E03XXX01	IML, support subsystem problem	E001
E086XX01	IML problems, PU load	E004
E1000001	Timer error	E100
E4XXXX01	Check stop MAP	E400
E6XXXX81	Customer manual operation	E680
E8XXXXXX	Directory	E8XX
EAXXXX01	PU detected control info. error	EA00

IML, SUPPORT SUBSYSTEM

PAGE 1 OF 5

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	A	1	001
RFCA	V	2	008

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	014	0001	A
2	013	0001	0
5	016	0001	0
1	004	0400	R
2	010	0400	R

001

(Entry Point A)

Are you led to this MAP by the REFCODE
ANALYSIS?

Y N

002

Perform IML.

IML successful?

Y N

003

Any ref.code?

Y N

004

Go To Map 0400, Entry Point R.

005

Go to Page 3, Step 015, Entry Point AA.

IML is performed successfully when the
PROGRAM LOAD picture appears on screen.

A B
1 1

IML, SUPPORT
REF.C.E03XXX01
PAGE 2 OF 5

1803

MAP E001-2

006

The error was intermittent, therefore you may proceed as follows:

Select the IBM MAINTENANCE and SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the IML, Support Subsystem problems.
Go to Step 007, Entry Point P.

007

(Entry Point P)

Do now the repair as told by the REFCODE ANALYSIS.

After the repair do the verification.
Go to Step 008, Entry Point V.

008

(Entry Point V)

Verification:

After a FRU replacement perform IML.

Successful?

Y N

009

Any ref.code?

Y N

010

Go To Map 0400, Entry Point R.

011

Same ref.code as before?

Y N

012

Go to appropriate MAP.

013

Go To Map 0001, Entry Point O.

014

Go To Map 0001, Entry Point A.

04DEC81 PN 5683309

EC 366515 PEC 366493

1803 MAP E001-2

015
(Entry Point AA)

Reference Code		Repair Action
E03XXX01	XXX	Suspect:
	01X	SBA card ; 01A-A2Q2
	02X	
	031	
	032	1.SBA card ; 01A-A2Q2 2.BSM card 1 ; 01A-B1H2, if 4331 PU card 5 ; 01A-B1G2, if 4331-2 or 4331-11 3.SCL card 1 ; 01A-A1B2 4."Power complete" LED on console
	033	SBA card ; 01A-A2Q2
	041	
	042	1.SBA card ; 01A-A2Q2 2.BSM card 1;01A-B1H2, if 4331 PU card 5;01A-B1G2, if 4331-2 or 4331-11
	043	SBA card ; 01A-A2Q2
	05X	
	06X	
	07X	

(Step 015 continues)

(Step 015 continued)

Reference Code	Repair Action
E03XXX01	XXX Suspect:
081	1.SBA card ; 01A-A2Q2 2.BSM card 1;01A-B1H2, if 4331 PU card 5;01A-B1G2, if 4331-2 or 4331-11
083	SBA card ; 01A-A2Q2
084	SCL card 1; 01A-A1B2
085	BSM card 1; 01A-B1H2, if 4331 PU card 5; 01A-B1G2, if 4331-2 or 4331-11
086	SBA card ; 01A-A2Q2
091	BSM card 1; 01A-B1H2, if 4331 PU card 5; 01A-B1G2, if 4331-2 or 4331-11
092	
093	
094	
095	
096	
097	1.BSM card 1; 01A-B1H2, if 4331 PU card 5; 01A-B1G2, if 4331-2 or 4331-11 2.Clock card; 01A-B1B2
098	Clock card; 01A-B1B2
099	
09A	BSM card 1; 01A-B1H2, if 4331 PU card 5; 01A-B1G2, if 4331-2 or 4331-11
0A1	SBA card ; 01A-A2Q2
0A2	SCL card 1; 01A-A1B2

(Step 015 continues)

REF.C.E03XXX01

PAGE 5 OF 5

(Step 015 continued)

Reference Code	Repair Action
E03XXX01	XXX Suspect:
	OA3 BSM card 1; 01A-B1H2, if 4331 PU card 6; 01A-B1G2, if 4331-2 or 4331-11
	OA4 1.SBA card ; 01A-A2Q2 2.BSM card 1; 01A-B1H2, if 4331 PU card 5; 01A-B1G2, if 4331-2 if 4331-11 3.SCL card 1; 01A-A1B2
	4XX SBA card ; 01A-A2Q2 8XX

Reference Code found?

Y N

016

Go To Map 0001, Entry Point O.

017

Do the repair as told by the above table, then

Go to Page 2, Step 008, Entry Point V.

04DEC81 PN 5683309

EC 366515 PEC 366493

1803

MAP E001-5

IML Problems, IOC load

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	A	1	001
RFCA	B	2	004
RFCA	V	3	007

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
3	010	0001	A
3	005	0001	O
3	009	0400	R

001

(Entry Point A)

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

002

Select the IBM MAINTENANCE and SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the IML Problems, IOC load.

Go to Step 003, Entry Point P.

003

(Entry Point P)

Do now the repair as told by the REFCODE ANALYSIS.

After the repair do the verification.

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

IML Problems, IOC load

PAGE 2 OF 3

004

(Entry Point B)

Reference Code	Recommended Action	Goto MAP
E0040701	If the diskette which caused the error is new, then return it and use the old one. If the diskette was good before, perform IML! If a hardware EC was installed before and the old diskette probably does not match it go to EXIT MAP	0001 ENTRY POINT 0
E0040901	Insert a spare diskette and try again the same application which caused the ref.code E0040901. If this reference code comes up as well, go to EXIT MAP If the spare diskette is alright order a new diskette to replace the defective one.	0001 ENTRY POINT Z
E0041001	If this error comes up during IML from the DIAG diskette, this DIAG diskette may have a wrong configuration. Perform "copy configurator" If this error comes up during IML from the CMTRL diskette, suspect: IOC card 4; 01A-A1F2 IOC card 5; 01A-A1G2	FE90 ENTRY POINT DD
E0041101	Like ref.code E0041001, but suspect only IOC card 5; 01A-A1G2	
E0041201	Like ref.code E0041001, but suspect only IOC card 6; 01A-A1H2	

(Step 004 continues)

26OCT81 PN 8488053

EC 366493 PEC 366390

1810 MAP E002-2

IML Problems, IOC load

PAGE 3 OF 3

(Step 004 continued)

Reference Code found?

Y N

005

Go To Map 0001, Entry Point O.

006

Go to MAP as shown in above table.

007

(Entry Point V)

VERIFICATION:

After FRU replacement perform IML with the
CNTRL diskette FU1.

Any reference code?

Y N

008

IML successful?

Y N

009

Go To Map 0400, Entry Point R.

010

Go To Map 0001, Entry Point A.

011

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS.

26OCT81 PN 8488053

EC 366493 PEC 366390

1810 MAP E002-3

IML,BSM/ARRAY PROBLEMS

PAGE 1 OF 3

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	A	1	001
RFCA	B	2	004

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	003	0001	A
3	005	0001	0

001

(Entry Point A)

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

002

Select the IBM MAINTENANCE and
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the IML,
BSM/Array Problems.

Go to Step 003, Entry Point P.

003

(Entry Point P)

Do now the repair as told by the REFCODE ANALYSIS.

After the repair

Go To Map 0001, Entry Point A.

IML,BSM/ARRAY

PAGE 2 OF 3

004

(Entry Point B)

Reference Code	Recommended Action	Goto
E0050X01		
E0052101	If the system is a 4331-1, run DM test Array-Tool with address given and try to repair solid error in that address by setting a redundant bit. (The address you see in byte 0 to 3 on the lower lefthand side of the IML log display. Perform IML! If the same error happens again, replace respective BSM card. If the system is a 4331-2 or 4331-11, run PU/BSM test. If the tests don't find an error and the problem will repeat, suspect clock card 01A-B1B2. Any good FRU that was removed before should be returned to the machine.	Vol.13 STM, Sect.4 Array Tool
E005C001	Run CS test in Array-Tool (if 4331-1)	Vol.13
E005C101	or PU/BSM test (if 4331-2 or 4331-11) for more information	STM, Sect.4 Array Tool

(Step 004 continues)

IML,BSM/ARRAY

PAGE 3 OF 3

(Step 004 continued)

Reference Code	Recommended Action	Goto
E005CE01	Run CS test in Array-Tool (if 4331-1) or PU/BSM test (if 4331-2 or 4331-11) for details or suspect the following FRUs: If the address is below '4000' suspect 1.PU Card 2, 01A-B1D2 If the address is equal or above '4000' suspect 1.PU Card 1, 01A-B1C2 (The address you see in byte 0 and 1 on the lower lefthand side of the display.) NOTE: If only one card is plugged in the positions 01A-B1C2/D2, replace this one.	Vol.13 STM, Sect.4 Array Tool
E005EX01	Run test chaining.	
E005F001	Go to appropriate MAP, if an error is	
E005F101	detected, otherwise go to EXIT MAP.....0001,	ENTRY POINT IP

Reference code found ?

Y N

005

Go To Map 0001, Entry Point O.

006

Proceed as shown in the above table.

IML, PU LOAD PROBLEMS

PAGE 1 OF 13

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	A	1	001
RFCA	B	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	038	0001	A
5	039	0001	A
7	042	0001	A
9	051	0001	A
10	054	0001	A
11	057	0001	A
12	062	0001	A
8	046	0001	O
7	043	0001	U
8	048	0400	R
11	059	0400	R

001

(Entry Point A)

(Entry Point B)

IML, PU LOAD PROBLEMS

=====

General note:

SP card 5: 01A-C2H2 may not be installed

Reference Code

E0860101

E0860201

E0860401?

Y N

002

E0860501?

Y N

003

E0860701

E0860801?

Y N

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REF.CODE E086XX01

ADA1830

04DEC81

PN 5683307

EC 366515

PEC 366493

1830

MAP E004-1

4	4	4	2
A	B	C	D

D
1

REF.C.E086XX01

IML, PU LOAD PROBLEM

PAGE 2 OF 13

004

E0860901?

Y N

005

E0860B01?

Y N

006

E0860C01?

Y N

007

E0860D01?

Y N

008

E0860F01?

Y N

4 4 4 3 3
E F G H J K

K

1830

MAP E004-2

009

E0861101?

Y N

010

E0861201?

Y N

011

E0861301?

Y N

012

E0861401?

Y N

013

E0861501?

Y N

3 3 3 3 3 3
L M N P Q R

04DEC81

PN 5683307

EC 366515

PEC 366493

1830

MAP E004-2

Q R
2 2

REF.C.E086XX01

IML, PU LOAD PROBLEM

PAGE 3 OF 13

H J L M N P 1830
2 2 2 2 2 2

MAP E004-3

014

E0861601?

Y N

015

E0861701?

Y N

016

E0861801?

Y N

017

E0861901?

Y N

018

E0861A01?

Y N

019

Any other reference code

E086XX01

Go to Page 6, Step 040,
Entry Point TT.

020

Go to Page 5, Step 039,
Entry Point PT.

021

Go to Page 4, Step 038,
Entry Point IT.

022

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

023

Go to Page 8, Step 045, Entry Point ST.

024

Go to Page 6, Step 040, Entry Point TT.

025

Go to Page 8, Step 045, Entry Point ST.

026

Go to Page 6, Step 040,
Entry Point TT.

027

Go to Page 13, Step 064,
Entry Point MT.

028

Go to Page 8, Step 045, Entry Point ST.

029

Go to Page 11, Step 056, Entry Point RT.

030

Go to Page 10, Step 053, Entry Point LT.

031

Go to Page 6, Step 040, Entry Point TT.

04DEC81 PN 5683307

EC 366515 PEC 366493

1830 MAP E004-3

A B C E F G REF.C.E086XX01
1 1 1 2 2 2

1830

MAP E004-4

IML, PU LOAD PROBLEM

PAGE 4 OF 13

032

Go to Page 10, Step 053,
Entry Point LT.

038

(Entry Point IT)

Replace 01A-B1C2.

033

Go to Page 8, Step 045,
Entry Point ST.

After the replacement.

Go To Map 0001, Entry Point A.

034

Go to Page 11, Step 056, Entry Point RT.

035

Go to Page 8, Step 045, Entry Point ST.

036

Go to Page 9, Step 050, Entry Point KT.

037

Go to Page 6, Step 040, Entry Point TT.

04DEC81

PN 5683307

EC 366515

PEC 366493

1830

MAP E004-4

IML, PU LOAD PROBLEM

PAGE 5 OF 13

039

(Entry Point PT)

If the customer calls for this reference code, tell him that he can continue his job.

There is no severe machine malfunction.

If this reference code is on, IML and PU/BSM tests will only need more time. No log will be stored in this case.

Replace 01A-B1C2

as soon as possible, when the customer will be visited anyhow.

If any other ref.code EO...01 does also come up

(IML not successful),

replace 01A-B1C2 immediately.

After the repair

Go To Map 0001, Entry Point A.

040
(Entry Point TT)

Recommended action:

1. Try again IML with CNTRL diskette FU 1!
2. If the error comes up again, do IML with DD1.
3. Run PU/BSM test!
4. Run and loop routine CS in PU/BSM test.

See Vol.13, STM, Section 4: Diagnostic Run Procedures (PU/BSM Test).

Any error?

Y N

041
(Entry Point FT)

If not yet already done, check the configuration of the control storage and main storage.

See Vol.13, STM, Section 6: Configure Procedures.

Select the MES UPDATE to see the storage configuration which is written on diskette, and compare it with the actually installed storage cards.

Any mismatch?

Y N

7 7 7
S T U

S T U
6 6 6

REF.C.E086XX01

1830

MAP E004-7

IML, PU LOAD PROBLEM

PAGE 7 OF 13

042

It is obviously an intermittent problem.

Replace now the FRUs according to the
priority shown:

- 1.Card 01A A2Q2
- 2.Card 01A-B1G2
- 3.Card 01A-B1C2
Card 01A-B1D2.....D2 may not be installed
- 4.Cable 01A-A2YF to 01A-B1A3 (C)

Also possible FRUs:

- 5.ENDCN 01A-A2Q3-X
- 6.XOVER 01A-C2E2-W to 01A-C2F2
XOVER 01A-C2E5-Z to 01A-C2F5
- 7.Cards 01A-C2D2 to J2.....01A-C2H2 may not be installed.

After replacement

Go To Map 0001, Entry Point A.

043

Invoke your support structure.

Go To Map 0001, Entry Point U.

044

Go to appropriate MAP.

04DEC81 PN 5683307

EC 366515 PEC 366493

1830 MAP E004-7

IML, PU LOAD PROBLEM

PAGE 8 OF 13

045

(Entry Point ST)

Recommended action:

If the diskette which caused the error is new,
then return it and use the old diskette.

If the diskette was good before, try IML.

Any error?

Y N

046

Go To Map 0001, Entry Point O.

047

Any reference code?

Y N

048

Go To Map 0400, Entry Point R.

049

Go to appropriate MAP.

IML, PU LOAD PROBLEM

PAGE 9 OF 13

050

(Entry Point KT)

Recommended action:

Check for correct configuration, CS (control storage) type etc.

See Vol.13, STM, Section 6: Configure Procedures.

- 1.Perform IML with FU1!
- 2.If the error comes up again, do IML with DD1.
- 3.Run PU/BSM test!
- 4.Run and loop routine CS in PU/BSM test.

See Vol.13, STM, Section 4: Diagnostic Run Procedures (PU/BSM Test).

Any ref. code?

Y N

051

Suspect:

- 1.Card 01A-A2Q2,
- 2.Card 01A-B1G2,
- 3.Card 01A-B1C2/D2 (may be one of the two cards is not installed).

When the replacement is done

Go To Map 0001, Entry Point A.

052

Go to appropriate MAP.

IML, PU LOAD PROBLEM

PAGE 10 OF 13

053

(Entry Point LT)

Recommended action:

1. Try IML with FU1!
2. If the error comes again, do IML with DD1.
3. Run PU/BSM test!
4. Run and loop routine CS in PU/BSM test.

See Vol.13, STM, Section 4: Diagnostic Run
Procedures (PU/BSM Test).

Any ref. code?

Y N

054

Suspect:

1. Card 01A-A2Q2
2. Card 01A-B1G2
3. Card 01A-B1C2
- Card 01A-B1D2.....D2 may not be installed

After replacement

Go To Map 0001, Entry Point A.

055

Go to appropriate MAP.

IML, PU LOAD PROBLEM

PAGE 11 OF 13

056

(Entry Point RT)

Probable reason:

The IML key was hit too early after the patch program or a configurator program was used.

Recommended action:

Repeat the patching or the configurator update. Wait until the message DO NOT INTERRUPT DISKETTE UPDATE UNTIL COMPLETION disappears from the screen, before you press the IML key.

Any error?

Y N

057

Go To Map 0001, Entry Point A.

058

Any ref. code?

Y N

059

Go To Map 0400, Entry Point R.

060

Go to appropriate MAP.

IML, PU LOAD PROBLEM

PAGE 12 OF 13

061

(Entry Point QT)

Recommended Action:

If the diskette which caused the error is new
then return it and take the old diskette.

Then:

- 1.Perform IML with the CNTRL diskette FU1!
- 2.If the error comes up again, do IML with DD1.
- 3.Run PU/BSM test!
- 4.Run and loop routine CS in PU/BSM test.

See Vol.13, STM, Section 4: Diagnostic Run
Procedures (PU/BSM Test).

Any error?

Y N

062

Order a new diskette if necessary!

Go To Map 0001, Entry Point A.

063

Go to appropriate MAP

IML, PU LOAD PROBLEM

PAGE 13 OF 13

064

(Entry Point MT)

Insert the backup diskette and try again IML.

If the error comes up again,

1. Try IML with DD1.

2. Run PU/BSM test.

3. Run and loop routine CS in PU/BSM test.

Any error?

Y N

065

Go to Page 6, Step 041, Entry Point FT.

066

(Entry Point SK)

Go to appropriate MAP

Wrong diskette installed

PAGE 1 OF 1

ENTRY POINTS

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

001

(Entry Point A)

Suspected: Wrong diskette in drive 1.

Recommended Action:

Insert correct diskette (FU1 or DD)!

Support Processor Problems

PAGE 1 OF 4

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	A	1	001
RFCA	V	4	007

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
4	013	0001	A
4	012	0001	O
1	004	0400	R
4	009	0400	R

001

(Entry Point A)

Make sure that you have traced the START MAP 0000 precisely. Another reference code may be more important than the one you have got first.

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

002

Perform IML.

IML successful?

Y N

003

Any ref.code?

Y N

004

Go To Map 0400, Entry Point R.

IML is performed successfully when the PROGRAM LOAD picture appears on screen.

C
1

Supp.Proc.Problems

1837

MAP E006-2

REF.C.E011XX01

PAGE 2 OF 4

005

(Entry Point AA)

.....

Look up the reference code in column 1 of the table below.

Find the suspected FRUs in column 2 of the table below (indicated by FRU numbers in priority sequence).

The names and the positions of the FRUs you will find in the FRU Table in this MAP.

Go to Step 005, Entry Point T.

Reference Code	Suspected FRUs (Priority)							
	1, 2, 3, 4, 5, 6, 7, 8							
E0110001	1	2	3	4	7	8		
E0112X01	1	2	3	7	8			
E0113X01	1	2	3	7	8			
E0114X01	1	2	3	7	8			
E0115X01	1	2	3	7	8			
E0116X01	1	2	3	7	8			
E0117X01	1	2	3	7	8			
E0118X01	1	2	3	7	8			
E0119X01	1	2	3	4	7	8		
E011AX01	1	2	3	4	7	8		
E011BX01	4	1	2	3	7	8		
E011C101	5	4						
E011C201	5	4						
E011C301	6	5						

(Entry Point T)
(Step 005 continues)

26OCT81 PN 8488052

EC 366493 PEC 366390

1837 MAP E006-2

D613

(Step 005 continued)

FRU TABLE

FRU Number	Card	Location	Basic/ Feature
1	SP Card 1	01A-C2D2	Basic
2	SP Card 2	01A-C2E2	Basic
3	SP Card 3	01A-C2F2	Basic
4	SP Card 4	01A-C2G2	Basic
5	SP Card 5	01A-C2H2	Basic
6	SP Card 6	01A-C2J2	Basic
7	SP Card 4	01A-C2B4	Basic
8	SP Card 3	01A-C2C2	Basic

After a FRU replacement,

Go to Page 4, Step 007, Entry Point V.

006

The error was intermittent, therefore you may proceed as follows:

Select the IBM MAINTENANCE and SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the Support Processor LOG.

Go to Page 4, Step 007, Entry Point P.

26OCT81 PN 8488052

EC 366493 PEC 366390

1837 MAP E006-3

A
1

Supp.Proc.Problems

1837

MAP E006-4

REF.C.E011XX01

PAGE 4 OF 4

007

(Entry Point P)

Do now the repair as told by the reference code analysis program.

Then do the verification.

(Entry Point V)

Verification:

After a FRU replacement run IML with the CNTRL diskette FU1!

Does the PROGRAM LOAD picture appear on screen?

Y N

008

Any reference code on screen?

Y N

009

Go To Map 0400, Entry Point R.

010

Same ref.code as before?

Y N

011

Go to MAP according to the reference code!

012

Go To Map 0001, Entry Point O.

013

Go To Map 0001, Entry Point A.

26OCT81 PN 8488052

EC 366493 PEC 366390

1837 MAP E006-4

IOC Load (detailed)

PAGE 1 OF 15

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
EXXX	BB	3	005
FSC	BB	3	005
FXXX	YY	8	025
RFCA	A	1	001
RFCA	B	1	001
RFCA	V	15	056
RFCA	BB	3	005
RFCA	YY	8	025

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
14	049	0001	A
6	017	0001	A
8	034	0001	A
15	058	0001	A
8	033	0001	O
8	036	0001	O
14	048	0400	R
6	016	0400	R
15	061	0400	R

001

(Entry Point A)

(Entry Point B)

Important note:

If any one of the cards listed below is to be replaced, first swap this card with the appropriate card from the MSSS.

See the *Card Where Used List* PA013 in Vol. 30.

To check whether the swapped card is defective or not press the IML key. If a defective card from IOC is in the MSSS, then the IML picture will not appear.

IOC FRU List:

IOC Card1 01A-A1C2

IOC Card2 01A-A1D2

IOC Card3 01A-A1E2

IOC Card4 01A-A1F2

(Step 001 continues)

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REF.CODE E0040F01

4331

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-1

IOC Load (detailed)

PAGE 2 OF 15

(Step 001 continued)

IOC Card5 01A-A1G2

IOC Card6 01A-A1H2

SCL Card1 01A-A1B2

SCL Card2 01A-A1A4

BBA Card2 01A-A2U2

Attention:

If the loop adapter is installed, the IOC cards 5 and 6 have to be suspected as soon as the IOC card 4 is suspected.

Is Reference Code E0040F01 still on screen?

Y N

002

(Entry Point TB)

Is IML log with Reference Code E0040F01 stored?

Y N

003

This MAP handles RC E0040F01. You are probably in the wrong MAP.

Don't go on here!

'reserved'

Y N

004

'reserved'

Y N

1 1
4 0 8 5 3
A B C D E

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-2

005

(Entry Point BB)

This part of the MAP is entered if an IOC processor bus error is suspected.

Note: The MFCU Adapter and the Loop Adapter are mutually exclusive features on the IOC processor bus.

To further analyze this error, it is necessary to disconnect all adapters from the IOC processor by the following procedures:

Turn power off at the system.

Disconnect the following cable connectors on board 01A-A1

1.ZG (Processor bus)

2.ZH (Processor bus)

Disconnect MFCU Card 1,
01A-A1R2
and associated Top connectors,

or, disconnect Loop Adapter cards:
01A-A1J2, L2, N2, Q2.

Turn power on.

Wait until a reference code appears on screen.

RC E0040F017

Y N

5 4
F G

Refer to Vol. 13, STM, Section 1: Locations
(Cabling Layout on Gate 01A).

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP EC08-3

G
3

REF.C.E0040F01
IOC Load (detailed)
PAGE 4 OF 15

1838

MAP E008-4

006

Turn power off.

Reconnect MFCU Card 1,
01A-A1R2, and Top connectors,

or, reconnect Loop Adapter cards
01A-A1J2, L2, N2, Q2.

Turn power on, Re-IML.

RC E0040F01?

Y N

007

Turn power off.

Reconnect IOC processor cables
01A-A1 ZG and ZH.

Disconnect BBA1 Card 01A-A2U2
Turn power on, re IML.

RC E0040F01?

Y N

008

Suspected FRUs:
BBA1 Card ; 01A-A2U2

Go to Page 14, Step 049, Entry Point Z.

009

Suspected FRUs:
1.IOC processor bus cables.
2.Board 01A-A2

Go to Page 14, Step 049, Entry Point Z.

5
H

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-4

D F H
2 3 4

REF.C.E0040F01

1838

MAP E008-5

IOC Load (detailed)

PAGE 5 OF 15

010

Suspected FRUs:

1.MFCU Card 1

01A-A1R2,

or Loop Adapter cards 01A-A1J2, L2, N2,
Q2.

Note: Do not swap (interchange) Loop Adapter
HPCA cards. Instead use a new HPCA card for
FRU replacement. Swapping HPCA cards can
produce unreliable results.

After you have replaced the failing FRU
with a new FRU, turn power off.

Reconnect IOC processor cables 01A-A1
ZG and ZH. Turn power on and try IML
again.

Go to Page 14, Step 049, Entry Point Z.

011

(Entry Point DD)

Suspected FRUs:

1.SCL Card1 ; 01A-A1B2

2.IOC Card2 ; 01A-A1D2

3.IOC Card1,3 ; 01A-A1C2, E2

4.SCL Card2 ; 01A-A1A4

5.IOC Card4 ; 01A-A1F2

6.IOC Card5 ; 01A-A1G2

7.IOC Card6 ; 01A-A1H2

8.Board ; 01A-A1

After you have replaced the failing FRU with
a new FRU, turn power off.

Reconnect IOC processor cables 01A-A1 ZG
and ZH. Turn power on and try IML again.

Go to Page 14, Step 049, Entry Point Z.

012

(Entry Point HH)

No Address Match.

Y N

013

Reserved.

6
J

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-5

J
5

REF.C.E0040F01

1838

MAP E008-6

IOC Load (detailed)

PAGE 6 OF 15

014

First time at this point?

Y N

015

Try IML again.

IML successful?

Y N

016

Go To Map 0400, Entry Point R.

017

Go To Map 0001, Entry Point A.

018

Connect logic probe to 01A-A1E2-S08
(IOC restart signal)

For logic probe description see General System
Information, Section 4: Tools.

Set up the logic probe as follows:

Level: MULTI

LATCH: NONE, then switch to DOWN position

GATE: GND

Connect the power leads of the CE probe as
follows:

Red lead to:

01A-A2E2-D03 (+5V)

Black lead to:

01A-A2E2-D08 (GND)

Note:

The IOC restart signal is now checked for
proper switching. This signal starts the IOC
diagnostic tests and the IOC load. The 'IOC
restart' is activated when the Power On
sequence is completed.

Hit the IML Key on the operator control panel
and wait until the IML picture appears on the
screen.

The IOC restart signal should go for a short
time to a down level. Both up and down lights
should be on after screen message 'IOC LOAD'
(Step 018 continues)

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-6

IOC Load (detailed)

PAGE 7 OF 15

(Step 018 continued)

Down light on?

Y N

019

Replace PCS Card1 01A-A2D2

Does the IOC restart signal now switch properly?

Y N

020

Trace the IOC restart signal called Reset I/O Controller from 01A-A2D2-J10 to 01A-A1E2-S08

Suspected FRUs:

- 1.Signal cable from board 01A-A2YE to 01A-A1ZE
- 2.SCL Card2 01A-A1A4

Go to Page 14, Step 049, Entry Point Z.

021

Problem is corrected; restart IML, then
Go to Page 14, Step 049, Entry Point Z.

022

Connect logic probe to 01A-A2E2-U10
(I Fetch signal)

Hit IML key and wait until the IML picture appears on the screen.

Is the I Fetch signal pulsing?

Y N

Y N

8 8
K L

Note:

The signal should switch at all test points as described above.

Set up the logic probe as follows:

Level: MULTI

LATCH: NONE

GATE: GND

Notes:

The I Fetch signal should start pulsing when the PC power on picture appears on the screen.
Be sure that the I-Fetch signal is continuously pulsing.

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-7

C K L
2 7 7

REF.C.E0040F01

IOC Load (detailed)

PAGE 8 OF 15

023

Suspected FRUs:
IOC Card's 1, 2, 3;
01A-0A1C2 to E2.

Go to Page 14, Step 049, Entry Point Z.

024

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

025

(Entry Point YY)

F0XXXX027

Y N

026

F10720027

Y N

027

F10822027

Y N

028

F10212027

Y N

029

F1011002

F1043002

F10532027

Y N

9 9 9 9
M N P Q R S

R S

1838

MAP E008-8

030

F11500027

Y N

031

RC FXXXX8027

Y N

032

(Entry Point E)

Suspected FRUs:

1.IOC Card 1,2,3
01A-A1C2 to E2
2.IOC Card 4
01A-A1F2

Fixed?

Y N

033

Go To Map 0001, Entry Point O.

034

Return system to customer.

Go To Map 0001, Entry Point A.

035

Error during cycle steal operation.

Suspected FRUs:

1.BBA1 Card; 01A-A2U2
2.MFCU Card1 ; 01A-A1R2, or Loop
Adapter cards 01A-A1J2, L2, N2, Q2.
3.SCL Card 1; 01A-A1B2
4.Board 01A-A1

Go to Page 14, Step 049, Entry Point Z.

038

Go To Map 0001, Entry Point O.

037

Go to Step 032, Entry Point E.

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-8

M N P Q
8 8 8 8

REF.C.E0040F01

1838

MAP E008-9

IOC Load (detailed)

PAGE 9 OF 15

038

Does the error occur with a new
diskette only?

Y N

039

Suspected FRUs:

1.IOC Cards 1,2,3

01A-A1C2 to E2

2.IOC Card 4

01A-A1F2

Go to Page 14, Step 049,
Entry Point Z.

040

This is probaly a diskette problem.
Return new diskette and use old
diskette.

Go to Page 14, Step 049, Entry Point Z.

041

Suspected FRUs:

IOC Card 4; 01A-A1F2

Go to Page 14, Step 049, Entry Point Z.

042

Suspected FRUs:

IOC Card 4 ; 01A-A1F2

Go to Page 14, Step 049, Entry Point Z.

043

Error during processor bus operation.

Suspected FRUs:

1.BBA1 Card ; 01A-A2U2

2.MFCU Card 1; 01A-A1R2, or Loop Adapter
cards 01A-A1J2, L2, N2, Q2.

3.SCL Card 1; 01A-A1B2

4.SCL Card 2; 01A-A1A4

5.Board 01A-A1

Go to Page 14, Step 049, Entry Point Z.

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-9

IOC Load (detailed)

PAGE 10 OF 15

044

Display last IML log with reference code E0040F01 and take the ADDR of IOC IAR and scan the ADDR table below to find a match between the IAR and the ADDR column.

Replace the suspected FRUs if shown, then go to

EXIT MAP 0001, ENTRY POINT A. Otherwise follow the reference code shown below the matching address:

(Entry Point AA)

If no address match is found in any of the following tables,

GO TO ENTRY POINT HH

(see note at the end of the tables for page and step numbers.

ADDR	Ref. Code
------	-----------

1048	E0200101
105E	E0200201
1062	E0200301
1066	E0200401
106A	E0200501
1072	E0200601
1078	E0200701
107E	E0200801
1082	E0200901
1088	E0201001
1090	E0201101
1098	E0201201
10A2	E0201301
10AA	E0201401
10B2	E0201501
10BC	E0201601
10C2	E0201701
10CA	E0201801
10D4	E0201901
10E0	E0202001
10EC	E0202101
10F8	E0202201
110A	E0202301

(Step 044 continues)

Suspected FRUs:

1. IOC Card 1,2,3
01A-A1C2 to E2
2. IOC Card 4,
01A-A1F2
3. SCL Card 2,
01A-A1A4

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1838 MAP E008-10

IOC Load (detailed)

PAGE 11 OF 15

(Step 044 continued)

110E	E0202401
1112	E0202501
1118	E0202601
111E	E0202701
1122	E0202801
1126	E0202901
1132	E0203001
113A	E0203101
1148	E0203201
1154	E0203301

ADDR Ref.Code

117E	E0223401
1184	E0223501
1198	E0223601
119E	E0223701

Suspected FRUs:

1.IOC Card 4;
01A-A1F2
2.IOC Card 1,2,3
01A-A1C2 to E2

ADDR Ref.Code

11AA	E0203801
11AE	E0203901
11B6	E0204001
11B8	E0204101
11BE	E0204201
11C2	E0204301
11C4	E0204401
11CA	E0204501
11D0	E0204601
11D2	E0204701
11D6	E0204801
11DA	E0204901
11DE	E0205001
11E8	E0205101
11EA	E0205201
11EE	E0205301
11F2	E0205401
11FC	E0205501
120A	E0205601
1210	E0205701
121E	E0205801

Suspected FRUs:

1.IOC Card 1,2,3
01A-A1C2 to E2
2.IOC Card 4
01A-A1F2

(Step 044 continues)

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-11

IOC Load (detailed)

PAGE 12 OF 15

(Step 044 continued)

ADDR Ref.Code

1262 E0226301
1274 E0226001
1286 E0226401
1298 E0226501
129E E0226601

Suspected FRUs:

1.IOC Card 4.
01A-A1F2
2.IOC Card 1,2,3
01A-A1C2 to E2

ADDR Ref.Code

12B2 E0207001
12B4 E0207101
12B8 E0207201
12BA E0207301
12BE E0207401
12C2 E0207501
12C6 E0207601
12DC E0207801
12E0 E0207901
12E6 E0208101

Suspected FRUs:

1.IOC Card 1,2,3
01A-A1C2 to E2
2.IOC Card 4
01A-A1F2

ADDR Ref.Code

12F8 E0248401
12FA E0248501

Suspected FRUs:

1.SCL Card 1
01A-A1B2
2.IOC Card 1,2,3
01A-A1C2 to E2

(Step 044 continues)

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-12

IOC Load (detailed)

PAGE 13 OF 15

(Step 044 continued)

ADDR Ref.Code

130C	E0260601
130E	E0260701
1320	E0260801
1322	E0260901
1334	E0261001
1336	E0261101
1350	E0261201
1352	E0261301
1360	E0261401
1362	E0261501

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

ADDR Ref.Code

1392	E0260101
1394	E0260201
1396	E0260301

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

ADDR Ref.Code

13EE	E0280001
------	----------

Suspected FRUs:

1.SCL Card 2
01A-A1A4

ADDR Ref.Code

13F0	E0280201
------	----------

Suspected FRUs:

1.SBA Card 01A-A2Q2
2.Support bus, cable #14
01A-A1ZE to
01A-A2YE
3.SCL Card 2
01A-A1A4

(Step 044 continues)

A
2

REF.C.E0040F01

IOC Load (detailed)

PAGE 14 OF 15

(Step 044 continued)

ADDR Ref.Code

17D4	F 1031802
17D8	F 1021202
17DA	F 1011002
17DE	F 1063802
17E2	F 1053202
17E4	F 1043002
17EC	F 1092802
17F0	F 1082202
17F2	F 1072002
17FA	F 0118802
17FC	F 0108002
1804	F 0124002
1806	F 0134802
180A	F 1140802
180E	F 1150002
1810	F 1160002

Go to Page 8, Step 025, Entry Point YY.

If no address match was found in any of the
above tables

Go to Page 5, Step 012, Entry Point HH.

045

Are IML symptom code data still on screen?

Y N

046

Is the CE switch on the CE panel in
normal position?

Y N

047

Turn CE switch to normal position.

Re-IML.

IML successful?

Y N

048

Go To Map 0400, Entry Point R.

T U V

T U V

1838

MAP E008-14

049

(Entry Point Z)

Go To Map 0001, Entry Point A.

050

Go to Page 2, Step 002, Entry Point TB.

051

Save this data,
if console printer is available
press COPY key.

Turn CE switch to normal position.

Re-IML.

Same reference code as before?

Y N

052

(Entry Point C)

Use the saved data to scan the address
table.

Use the address (IOC/IAR) displayed in
position 48 and 49 of the screen layout.

Go to Page 10, Step 044, Entry Point AA.

053

IML log available?

Y N

054

Go to Step 052, Entry Point C.

055

Go to Page 2, Step 002, Entry Point TB.

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EC 366390

PEC 366287

1838

MAP E008-14

056
(Entry Point V)

Verifications:

After repair perform IML with the CNTRL
diskette FU1.

Any error?

Y N

057

Run the test chaining.

Any reference code?

Y N

058

Go To Map 0001, Entry Point A.

059

Go to Step 062, Entry Point K.

060

Any reference code?

Y N

061

Go To Map 0400, Entry Point R.

062

(Entry Point K)

Go to appropriate MAP.

10APR81 PN 8488148

EC 366390 PEC 366287

1838 MAP E008-15

Timer Damage

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	B	1	001

EXIT POINTS

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

001

(Entry Point A)

(Entry Point B)

If this log appears after 'power on' or 'partial power on'
or right after IML, then ignore it.

If this log appears after the 'time of day' has been set,
the timer is failing.

Suspect PU card 3, 01A-B1E2,
Pu card 4, 01A-B1F2

then

Go To Map 0001, Entry Point A.

CHECK STOPS MAP

PAGE 1 OF 14

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	2	001
RFCA	A	2	001
RFCA	B	2	001
RFCA	P	10	019
RFCA	S	5	002
RFCA	KS	10	017
0000	A	2	001
0020	A	2	001
0020	P	10	019
4900	A	2	001
4900	P	10	019

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
12	022	0001	A
14	025	0001	A
10	016	0001	A
10	017	0001	A
6	010	0001	A
6	009	0001	0

CHECK STOPS MAP

PAGE 2 OF 14

001

(Entry Point A)

(Entry Point B)

PREREQUISITE ACTION :

Do the following:

1. Press the 'COPY' key to get a printout from screen or write down the reference code and extensions that appeared on screen:

E4XXXX01 ZZZZ AAAA

----			_____	last branch of control information
			_____	last CSAR address where the stop occurred.
			_____	stop number fetched from DLS position 30.

Save it for use in case of support!

2. Invoke the 'IBM Maintenance and Service Program Selection'
3. Select the Manual Operations'
4. Select the 'PU Manual Operations'
5. Enter 'T' (Nonsequ./Sequ.-Address-Trace) to get a trace of the last instructions. Press COPY if possible or write it down. Save the printout for use in case of support!
6. Do a reference code search to obtain a possible MAP FIX or MCTF(patch).
7. Now look up the reference code which you got from the defective machine in the following table and do the recommended action, respectively go to the indicated MAP:

Go to Page 3, Step 002, Entry Point C.

04DEC81 PN 5683191

EC 366515 PEC 366493

1850 MAP E400-2

CHECK STOPS MAP

PAGE 3 OF 14

002

(Entry Point C)

Ref.code	Recommended Action	Go to MAP
E4010200	See reference code E4010201	
E4010201	Machine check. PSW not enabled. Operating System Problem. Look for Operating System messages.	0E00, ENTRY POINT A
	Suspect also a possible control information problem. invoke your support structure.	0001 ENTRY POINT 0
E4010401	CPU stopped due to CHECK CONTROL = HARD STOP	0E00, ENTRY POINT A
E4010501	Unplug the coax cables from the DCA. Try to isolate a possible failing device. If no success, invoke your support structure.	0001, ENTRY POINT 0
E4020301	CPU stopped due to CHECK CONTROL = HARD STOP. An adapter error was detected. Run adapter tests to locate the faulty adapter. When reference code comes up, go to corresponding MAP. This reference code can also come up during customer manual operation Press cancel key! If any reference code comes up, go to appropriate MAP, otherwise go to EXIT MAP	0001, Entry POINT 0

(Step 002 continues)

04DEC81 PN 5683191

EC 366515 PEC 366493

1850

MAP E400-3

CHECK STOPS MAP

PAGE 4 OF 14

(Step 002 continued)

Ref.code	Recommended	Go to MAP
E4020401 E4020501 E4021101 E4021201	Error probably caused by a previous machine check.	Go to ENTRY POINT S after this table.
E4030101	CPU stopped due to CHECK CONTROL = HARD STOP	
E4049001	Probably a handling error for the FRIEND command PRINTLOG.	
E4084X01	Probably a handling error during FTA Trace, for ex. no buffer area specified.	
E4090201	Check whether the jumper from 01A-A2V2-S09 to 01A-A2V2-U08 is missing. This jumper should have been installed during conversion from 4331-1 to 4331-2 or 4331-11 (See also page PA201 of Vol. 30). Missing this jumper causes this ref.code when a write operation to the console occurs with certain data length specified. If the jumper is ok, suspect the FRUs as indicated by the REFCODE ANALYSIS for this reference code. After the repair go to EXIT MAP.....0001,	ENTRY Pt.A
E4FECE01	This reference code can only come up when STOP BEFORE LOG was set via CE manual operations. See Vol.13, STM, Section 4: Diagnostic Run Procedure (Stop Before Log), then go to EXIT MAP.....	0001 Entry Pt.U

(Step 002 continues)

04DEC81 PN 5683191

EC 366515 PEC 366493

1850 MAP E400-4

CHECK STOPS MAP

PAGE 5 OF 14

(Step 002 continued)

(Entry Point S)

Have you found the reference code in the
above table ?

Y N

003

If not yet done, select the REFCODE
ANALYSIS.

Key in the ref. code E4....01.

Proceed as told by the REFCODE
ANALYSIS.

004

Was it reference code E4020401 or E4020501
or E4021201?

Y N

005

Was it reference code E4021101 ?

Y N

006

Was it ref. code E40B0301 or
E40B0401 ?

Y N

007

Was it any reference code
E40BXX01 ?

Y N

1 1 1
0 0 0 6 6
A B C D E

04DEC81

PN 5683191

EC 366515

PEC 366493

1850

MAP E400-5

D E
5 5

REF.CODE E4XXX01

1850

MAP E400-6

CHECK STOPS MAP

PAGE 6 OF 14

008

(Entry Point AB)

Invoke the IBM MAINTENANCE AND
SERVICE SELECTION PROGRAM.
Select the REFCODE ANALYSIS.

Key in the reference code from the CHECK
STOP, E4....01.

Reference code found in the REFCODE
ANALYSIS ?

Y N

009

Invoke your support structure.
Go To Map 0001, Entry Point O.

010

Do the repair as told by the REFCODE
ANALYSIS, then
Go To Map 0001, Entry Point A.

011

E40BXX01

The High Speed Channel (HSC) control
program detected a machine malfunction
which has not been indicated by any
hardware check (such as parity check,
time out etc).
Run the test chaining to checkout
the PU, IC-Bus, and the HSC.

Any reference code ?

Y N

012

The tests run error free.

Have you already replaced FRUs as
indicated by the REFCODE ANALYSIS?

Y N

1
0 9 7
F G H

04DEC81 PN 5683191

EC 366515 PEC 366493

1850 MAP E400-6

H
6

REF.CODE E4XXXX01

1850

MAP E400-7

CHECK STOPS MAP

PAGE 7 OF 14

013

Invoke the IBM MAINTENANCE AND SERVICE
SELECTION PROGRAM.

Select the REFCODE ANALYSIS.

Key in the reference code E40B....

Replace the FRUS that are indicated by the
REFCODE ANALYSIS.

(Entry Point K)

If the replacement of the suspected FRUs does
not solve the problem, go to the table for the
specific reference codes E40B0001 through
E40B0501 beginning on the next page.

(Step 013 continues)

04DEC81 PN 5683191

EC 366515 PEC 366493

1850 MAP E400-7

CHECK STOPS MAP

PAGE 8 OF 14

(Step 013 continued)

Ref.code	Recommended	Go to MAP
E40B0001	If the replacement of the suspected FRUs that are indicated by the REFCODE ANALYSIS does not solve the problem suspect further: Wiring of IC Bus 0 star lines. For signal flow see Supplement to MAPs, section 1: Locations (IC Bus 0 Star Lines IC Bus cable number 9 for version 3). After the repair go to MAP	0001, ENTRY POINT A

(Step 013 continues)

04DEC81 PN 5633191

EC 366515 PEC 366493

1850 MAP E400-8

CHECK STOPS MAP

PAGE 9 OF 14

(Step 013 continued)

Ref.code	Recommended	Go to MAP
E40B0101 E40B0201	If the replacement of the suspected FRUs that are indicated by the REFCODE ANALYSIS does not solve the problem suspect further: 1.Wiring of IC Bus 0 star lines: - o -IC Trap 1 Request Adapter 0 - o -IC Trap 2 Request Adapter 0 For signal flow see Supplement to MAPs, section 1: Locations (IC Bus 0 Star Lines IC Bus cable number 9 for version 3). 2.Wiring of IC Bus 0 cable No 12. For signal flow see Supplement to MAPs, Section 1: Locations (IC Bus 0 stub lines, IC Bus cable number 12, version 3). After the repair go to MAP	0001, ENTRY POINT A
E40B0501	There are no FRUs to be replaced. Reason for this error: A channel check occurred while Check Control has been set to "Hard stop". To get a detailed log when this check reoccures set Check Control to "Normal" and have the application program restarted. After the repair go to MAP	0001, ENTRY POINT A

014

Go to Page 7, Step 013, Entry Point K.

04DEC81 PN 5683191

EC 366515 PEC 366493

1850

MAP E400-9

A B C F
5 5 5 6

REF.CODE E4XXXX01

1850

MAP E400-10

CHECK STOPS MAP

PAGE 10 OF 14

015

Go to appropriate MAP, respectively
use the REFCODE ANALYSIS.

016

Replace the FRUs, if suspected by the
REFCODE ANALYSIS.

After the repair

Go To Map 0001, Entry Point A.

017

(Entry Point KS)

This ref. code followed another one which
has already been logged on the diskette.
The E4021101 states, that any adapter of the
IOC (if inst.) or MSSS was not reset after a
hardware failure had been logged.
Do a log display to get the preceding log.
It must be a log from the BBA, SP or IOC.

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS

After the repair

Go To Map 0001, Entry Point A.

018

Go to Step 019, Entry Point P.

019

(Entry Point P)

.....

Do a log display to see, if there is any log other
than E4XXXX01 stored within the same time
frame (last log -1).

Any other log available?

Y N

020

Is the system a 4331-2 or 4331-11?

Y N

7 1 1
4 3 1
J K L

04DEC81

PN 5683191

EC 366515

PEC 366493

1850

MAP E400-10

021

The system is a 4331-1.

Select Maintenance Picture

Select 'B3' (PU Man. Op.)

Stop PU (Function H)

Display DLS 1 Register

(Function L, Address AX,

where X = contents of LSAR0; take the first numerical digit from the LSAR0).

Analyse the content of Register AX to find the failing adapter:

0	7	8	11	12	15	16	19	20	23	24

			Logical		Chann.		Ext.		Adapt.	
Channel State			Adapt.		Addr.		Chann.		Type	
			Addr.				State			

```

-----
|
|
V
'X'1 = MPX/CA-BA
'X'2 = FTA 2
'X'3 = reserved
'X'4 = FTA 1
'X'5 = BMPX
'X'6 = BBA0/BBA1  +)
'X'F = unknown

| | | |
| | | | --Bit 7 = BBA
| | | | ----Bit 6 = FTA
| | | | -----Bit 5 = CA
| | | | -----Bit 4 = SCA

+ ) BBA1 for 4331-1
    and 4331-2 only.

```

(Step 021 continues)

CHECK STOPS MAP

PAGE 12 OF 14

(Step 021 continued)

Replace the FRUs of the indicated adapter:

Logical Adapter Address	Adapter	FRUs
'X'1	MPX/CA-BA	01A-B2V2/W2/U2/T2
'X'2	FTA 2	01A-B2K2/L2/M2
'X'4	FTA 1	01A-B2E2/F2/G2
'X'5	BMPX	01A-B2D2/E2/C2
'X'6	BSU (BBA0 + BBA1)	01A-A2V2/T2/U2 (BBA1 for 4331-1 and 4331-2 only)

>>Run the TEST CHAINING.<<

Any reference code?

Y N

022

Go To Map 0001, Entry Point A.

023

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS.

PAGE 13 OF 14

1850 MAP E400-13

J
1
0

REF.CODE E4XXXX01

1850

MAP E400-14

CHECK STOPS MAP

PAGE 14 OF 14

(Step 024 continued)

Replace the FRUs of the indicated adapter:

Logical Adapter Address	ADAPTER	FRUS
'X'0	HSC	Cards in 01A-B2P2/Q2/R2
'X'1	FTA 3	Cards in 01A-B2P2/Q2/R2
'X'2	FTA 2/BMPX 2	Cards in 01A-B2/L2/M2/N2
'X'3	MPX/CA-BA	Cards in 01A-B2V2/W2/U2/T2
'X'4	FTA 1	Cards in 01A-B2E3/F2/G2
'X'5	BMPX 1	Cards in 01A-B2D2/B2/C2
'X'7	BSU(BBA0 + BBA1)	Cards in 01A-A2V2/T2/U2 (BBA1 for 4331-1 and 4331-2 only)

>>Run the TEST CHAINING.<<

Any reference code?

Y N

025

Go To Map 0001, Entry Point A.

026

Go to respective MAP, respectively use the
REFCODE ANALYSIS.

027

Go to appropriate MAP, respectively use the
REFCODE ANALYSIS.

04DEC81 PN 5683191

EC 366515 PEC 366493

1850 MAP E400-14

Customer Manual Operations

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ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EXXX	A	1	001
RFCA	A	1	001
RFCA	B	1	001
0001	SC	8	053
0020	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
8	052	0E00	A
5	030	0001	A
9	059	0001	A
11	062	0001	A
14	068	0001	A
19	077	0001	A
3	015	0001	O
5	031	0001	O
4	018	0001	Y
7	044	0020	A
7	047	0020	A
5	032	0020	A
5	025	0020	A
4	017	0020	A
19	081	0020	A
6	042	0020	XZ
19	080	0400	R

001

(Entry Point A)

.....

(Entry Point B)

.....

Write down the reference code (and its extension if any).

Any Reference Code

E6100081,

E6200081?

Y N

002

Reference Code E6202081?

Y N

8	8	2
A	B	C

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REF.CODE E6XXXX81

General Note:

Card position 01A-B1C2 or D2 may be empty.

Also card position 01A-C2H2 may be empty.

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-1

C
1

REF.C.E6XXXX81
Customer Manual
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003

Any Reference Code
E6100181,
E6100281,
E6200181,
E6200281,
E6200381?

Y N

004

Any Reference Code E6100681?

Y N

005

Any Reference Code
E6100481,
E6300781,
E6300881?

Y N

006

Reference Code E6100X81?

Y N

007

Any Reference Code
E611XX81,
E621XX81,
E631XX81,
E6400181,
E6400281?

Y N

8 8 5 5 5
D E F G H J

J

1860

MAP E680-2

008

Reference Code E6201081?

Y N

009

Reference Code E6201581?

Y N

010

Reference Code E620XX81?

Y N

011

Reference Code E630XX81?

Y N

012

Any Reference Code E6400381,
E6500081,
E6500181?

Y N

5 4 4 4 4 3
K L M N P Q

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-2

Customer Manual

PAGE 3 OF 19

013

Reference Code E64004817

Y N

014

Any Reference Code E670XX817

Y N

015

(Entry Point C)

The Error may
be intermittent.

Suspect the following FRU's.

1. For 4331-1:

PU Card 5; 01A-B1G2

BSM Card 1; 01A-B1H2

For 4331-2:

PU Card 6 and 7; 01A-B1H2/J2

BSM Card 1; 01A-B1K2

2. SBA Card; 01A-A2Q2

3. PU Card 1; 01A-B1C2

4. PU Card 2; 01A-B1D2

5. PU Card 3; 01A-B1E2

6. PU Card 4; 01A-B1F2

7. PU Card 5; 01A-B1G2 if 4331-2

If the repair does not help,

Go To Map 0001, Entry Point O.

016

E6700181 Invalid device specification in configuration

E6700281 Invalid keyboard language specification in
configurationE6700381 Invalid language table 1 specification in
configurationE6700481 Invalid language table 2 specification in
configurationE6700581 No operator console on 1.port in configuration
specified

E6700681 EBCDIC to hex conversion error

E6700781 Cursor value conversion error

E6700881 Duplicate diskette addresses in configuration

E6701181 No op console on 1.port

(Step 016 continues)

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-3

L M N P R
2 2 2 2 3

REF.C.E6XXX81

1860

MAP E680-4

Customer Manual

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(Step 016 continued)

E6701281 Language error mismatch of translate table and
language specification in corresponding port
E6701381 Diskette module too small for generation of DCB's
E6701481 Special features mismatch in corresponding port
E6701681 Duplicate device address. microcode error was before
when setting configuration
E6701781 No system diskette in configuration specified
E6701881 Device address out of range
E6702081 Invalid user diskette spec. in configuration
E6702181 EBCDIC to hex conversion error
E6702281 Cursor value conversion error
E6705581 Error during diskette operations, look also for
a SP log.

for each of these reference codes

Go to Page 5, Step 026,

Entry Point F.

017

This reference code must have an
extension which is also a reference
code.

Follow this other reference code,
therefore

Go To Map 0020, Entry Point A.

018

Go To Map 0001, Entry Point Y.

019

Go to Page 5, Step 026, Entry Point F.

020

Go to Page 5, Step 026, Entry Point F.

021

This reference code also comes up, if any
empty tape is mounted for IPL.

Is the correct tape mounted?

Y N

022

Mount the correct tape.
Do again IPL.

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-4

5
S

023
Go to Step 033,
Entry Point CK.

024
Write down:
PU card 5 ; 01A-B1G2, if 4331-1
PU card 7 ; 01A-B1J2, if 4331-2
This FRU is suspected if all other repairs
recommended by this map will fail.
Go to Page 3, Step 015, Entry Point C.

025
(Entry Point SP)

Be sure that the control diskette is installed.

Press cancel key.

Follow to the reference code that comes up
now,
Go To Map 0020, Entry Point A.

026
(Entry Point F)

Press cancel key.

Any log in process?
Y N

027
Did the error occur after installing a new
diskette or a new set of diskettes?
Y N

028
Go to Step 034, Entry Point K.

T U

029
Check the configuration.
Does the diskette configuration match
with the actual machine configuration?
Y N

030
Correct configuration. Then
Go To Map 0001, Entry Point A.

031
Suspect a control-information- or link
problem.
Go To Map 0001, Entry Point O.

032
Go To Map 0020, Entry Point A.

033
(Entry Point CK)

Make sure that the correct control diskette is
installed.

Press cancel key.

Any log in process?
Y N

034
(Entry Point K)

This Reference Code may also come up after
program load was started.

Suspect:

1. Malfunction of processing unit or
support-bus-adapter.
2. No IPL record on tape.
3. Device problem of the IPL device.
4. Any interface problem.
5. device problem of any other device.

(Step 034 continues)

26OCT81 PN 5683192
EC 366493 PEC 366492
1860 MAP E680-5

7
V

Customer Manual

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(Step 034 continued)

Run test chaining.

Any reference code?

Y N

035

Did the message "IPL error" appear on the screen?

Y N

036

Go to Page 3, Step 015, Entry Point C.

037

Run interface (wrap) test for the interface to the IPL device.

ATTENTION:

Power down the control unit during the test run. Start the tests by putting the wrap plugs in the first control unit after the processor then in the most distant control unit. By systematically putting the wrap plugs in the other control units the area in which the fault lies is approached.

Any reference code?

Y N

038

Run inline tests for the IPL device.

Any reference code?

Y N

039

Go to Page 3, Step 015, Entry Point C.

040

Go to appropriate map via the reference code directory.

041

Go to appropriate map via the reference code directory.

042

Go To Map 0020, Entry Point XZ.

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-6

V
5

REF.C.E6XXXX81
Customer Manual
PAGE 7 OF 19

1860

MAP E680-7

043

Any reference code 49000001 or 49015101?

Y N

044

Go To Map 0020, Entry Point A.

045

The PU may be stopped or in a loop due to an handling error.

Write down the reference code for later use.

Run test chaining.

Any reference code?

Y N

046

Install control diskette.

Perform IML and the customer manual operation, that causes the error.

Same error (reference code) again?

Y N

047

If any other ref. code E6XXXX81,

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

If any other ref. code,

Go To Map 0020, Entry Point A.

048

Use the previously saved reference code for further analysis.

Proceed with the respective map for the PU log, respectively use the reference code analysis.

049

Go to appropriate map via the reference code directory.

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-7

A B D E
1 1 2 2

REF.C.E6XXXX81

1860

MAP E680-8

Customer Manual

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050

Wrong storage size.

Correct the VSE storage size in the IPL specification picture, then do IPL again.

051

Make sure that there is not any wrap connection left in the system.

Go to Page 5, Step 033, Entry Point CK.

052

Go To Map 0E00, Entry Point A.

053

(Entry Point SC)

.....

This reference code must have a four byte extension field (symptom code XXXXXXXX)
E6....81 XXXXXXXX

Are you led to this map by the recode analysis?

Y N

054

Select the IBM maintenance and service selection program.

Invoke the Refcode analysis.

Key in the reference code from the customer manual operations.

Key in also the four byte extension into the symptom field.

Go to Page 19, Step 074, Entry Point BB.

If the message info-box is shown, have also a look there for any information. There might be important hints to this problem.
When you have read the information, select the refcode analysis (IRECA) again.

055

Is the first byte of symptom code (reference code extension) X'00' or X'BB'?

Y N

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EC 366493 PEC 366492

1860 MAP E680-8

1
5 9
W X

X
8

REF.C.E6XXXX81

1860

MAP E680-9

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056

(Entry Point PT)

Are all FRU's replaced as suspected in the
refcode analysis.

(Answer the question with yes, if no FRU is
suspected in the REFCODE ANALYSIS.).

Y N

057

Replace the FRUs suspected by the refcode
analysis.

After the repair

Go to Page 19, Step 075, Entry Point V.

058

Is customer manual operation still failing
with the same reference code

(Example: CLEAR RESET, PROGRAM LOAD,
etc.)?

Y N

059

Go To Map 0001, Entry Point A.

1
0
Y

26OCT81

PN 5683192

EC 366493

PEC 366492

1860

MAP E680-9

060

(Entry Point P)
.....

Check the last byte (fourth byte) of the symptom code (reference code extension) if there is more than *ONE* bit on.
(Each bit on indicates an adapter in error during the reset sequence.
Bytes ZZZZZZ in the symptom code belong to the first failing adapter in this sequence).

Use the table below to find the failing adapters.

E6X00081 ZZZZZYY

Reset Sequence

Bit	0	= HSC, if 4331-2	
	1	= MPX/CA-BA (or FTA 3, if 4331-2)	
	2	= FTA 2 (or BMPX 2, if 4331-2)	
	3	= MPX/CA-BA, if 4331-2	
	4	= FTA 1	
	5	= BMPX (1)	
	6	= BBA0/BBA1, if 4331	
	7	= BBA0/BBA1, if 4331-2	V

Only *ONE* bit on?

Y N

061

Suspected:

A. The adapter indicated by the symptom code fails and causes malfunctions in other adapters.

B. Any of the other adapters indicated in byte four is failing.

C. Terminator card(s)

01A-B2X2, all models

01A/B2E2, L2, N2, P2, according to the B2 board version and adapter configuration, if 4331-2.

D Configuration mismatch between the
(Step 061 continues)

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EC 366493 PEC 366492

1860 MAP E680-10

Customer Manual

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(Step 061 continued)

physical adapters that are installed and the
configuration on diskette.

E.IC-Bus hardware. (Cables,
data mover card
01A-B1G2 if 4331-1,
01A-B1J2 if 4331-2).

ACTION:

1. Replace the suspected FRUs for the first
failing adapter.
2. Make sure that the terminator card(s) are
plugged in the correct position.
3. Check for configuration mismatch.

To check the configuration:

Make sure that the CNTRL diskette is installed.

Select the IBM Maint. and Serv. Sel. Prog.
Select the Utilities/Remote. Select *MES
UPDATE*.

Read the information on the MES UPDATE
screen and compare the configuration shown
on screen with the actual installed parts.

4. Run test chaining.

Any reference code?

Y N

062

Go To Map 0001, Entry Point A.

063

Go to appropriate map via the reference code
directory.

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EC 356493 PEC 366492

1860 MAP E680-11

064

1. Fetch the right hand digit of the third byte (byte 02) of the symptom code (reference code extension).

This is the adapter address. Find the failing adapter using the table below:

E6XXXX81.....V..

1

v

$$X'O' = HSC$$

X'1' = MPX/CA-BA or FTA 3 *), if 4331-2

X'2' = FTA 2 *) or BMPX 2, if 4331-2

X'3' = MPX/CA-BA, if 4331-2

$$X'4' = FTA 1^{*})$$

X'5' = BMPX-1

$X'6' = BBA0/BBA1$, if 4331

X'7' = BBA0/BBA1, if 4331-2

X'F' = may be either Common I/O Reset
or Common Reset Routine
or EMU/FA Reset.

See page 15, step 071,
Entry Point AA.

*) When running an FTA test switch off the controllers.

Be sure that no wrap connector is left in the interface.

2. Run and loop the test for the adapter that you just have found.

Any reference code?

Y N

[illegible]

1	1
4	3
A	A
A	B

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-12

A
B
1
2

REF.C.E6XXXX81

1860

MAP E680-13

Customer Manual

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065

If not yet already done, run appropriate
interface test with wrap connectors:

For Addr. | Interface Test

0	HSC standard interface test
1	MPX standard interface test (or CTLI-3 test, if 4331-2)
2	CTLI-2 test (or BMPX 2 standard interf.test, if 4331-2)
3	MPX standard interface test, if 4331-2
4	CTLI-1 test
5	BMPX-1 standard interface test

ATTENTION:

Power down the control units during the test run.
Start the tests by putting the wrap plugs in the first
control unit after the processor, then in the most
distant control unit. By systematically putting the
wrap-plugs in the other control units the area in which
the fault lies is approached.

Any reference code?

Y N

066

Check the I/O unit(s), that belong to the
addressed adapter.

Run inline tests, if not already done and
provided inline tests are available.

Use respective I/O documentation (start
map of I/O etc.).

Contact the customer whether there is a
pending I/O problem.

If there is at least one I/O drive of a control
unit running well, concentrate on the other
I/O drives connected to the same control
unit.

Trouble found?

Y N

067

Go to Page 15, Step 071, Entry Point AA.

1 1
4 4
A A
C D

26OCT81 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-13

A A A
A C D
1 1 1
2 3 3

REF.C.E6XXXX81

1860

MAP E680-14

Customer Manual

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068

Do the repair according to the I/O
documentation, then

Go To Map 0001, Entry Point A.

069

Go to appropriate map via the reference
code directory.

070

Go to appropriate map via the reference code
directory.

26OCT81

PN 5683192

EC 366493

PEC 366492

1860

MAP E680-14

071

(Entry Point AA)

Look up the symptom code (reference code extension) in the following table and do the recommended action:

Column 1	Column 2	Column 3
Ref.Code Ext. (Symptom code)		
Common I/O reset	Recommended action	Go to map
00 01 1F 00	Suspect incorrect configura- tion or incorrect diskette. Therefore do the following: If IML was done from the Diag diskette, run the "Copy configurator program." Go to Map FE90, Entry Point DD If IML was done from the control diskette FU1, invoke your support structure. Go to Map 0001, Entry Point U	
00 02 1F 00	Do IML to recover following reference code, if any, otherwise Go to Map 0400, Entry Point R	
00 03 1F 00	Go to Exit Map 0001, Entry Point 0	
00 04 1F 00	Suspect incorrect adapter configuration, therefore do the following: If IML was done from the Diag diskette, run the "Copy configuration program" Go to Map FE90, Entry Point DD If IML was done from the control diskette FU1, invoke your support structure. Go to Map 0001, Entry Point U	
Column 1 (Step 071 continues)	Column 2	Column 3

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EC 366493 PEC 366492

1860 MAP E680-15

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(Step 071 continued)

Common I/O reset	Recommended action	Go to map
20 14 1Y XX (Note)	1. Run and loop IC-Bus test	
20 22 1Y XX (Note)	2. Run and loop FTA Y test	0001, Entry Point A
20 20 1Y XX	Check 8809 configuration. (String not contiguous.	0001, Entry Point A
20 25 1Y XX (Note)	Suspect failing I/O.	
20 27 1Y XX (Note)	Run inline test to the att. I/O's.	0001, Entry Point A
20 30 1Y XX (Note)	Invalid A-Box type. Suspect diskette or I/O configuration problem. Check for mismatch between Diskette- and I/O configura- tion on FTA. (3310, 3340, 3370)	0001, Entry Point A
20 XX 1Y XX (Note)	1. Run and loop IC-Bus test 2. Run and loop FTA 'Y' test 3. Run and loop CTLI 'Y' test 4. Run and loop inline test	0001, Entry Point A

** NOTE ** for system 4331: for system 4331-2:
 Y = 2 = FTA 2 Y = 2 = FTA 2
 Y = 4 = FTA 1 Y = 4 = FTA 1
 Y = 1 = FTA 3

Power down the control units during the test run.
 Except for the inline tests.

For CTLI-test: Start the test by putting the
 wrap plugs in the control unit
 next to the processor and then into
 the most distant control unit.
 by systematically putting the wrap
 plugs in the other control units the
 area in which the fault lies is
 approached.

(Step 071 continues)

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 EC 366493 PEC 366492
 1860 MAP E680-16

Customer Manual

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(Step 071 continued)

Column 1	Column 2	Column 3
20 31 1X 00/08/20	Try IML. Follow reference code, if any otherwise Go to Map	0400, Entry Point R
=====		
Symptom Codes for CAI	Recommended action	
40 01 1X 00/40	In order to find out the faulty CCA card invoke the "customer manual operations"- take out one CCA card after the other and perform always "program reset" in between. Caution, at least one CCA Card has always to be kept installed-	
40 02 1X 00/40		
40 03 1X 00/40		
	As soon as the same error does not come up anymore when a CCA card is out, replace that card.	
	If the same error always happens independently from any CCA card removal, replace the FRU that is suspected with the next priority.	

(Step 071 continues)

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EC 366493 PEC 366492

1860 MAP E680-17

Customer Manual

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(Step 071 continued)

Column 1	Column 2	Column 3
Symptom codes for Common I/O reset	Recommended Action	Go to Map
BB 00 00 01 BB 00 00 02	Suspect incorrect adapter configuration- therefore do the following: if IML was done from the diag diskette, run the "copy configurator" program. Go to Map.	FE90, Entry Point DD
	If IML was done from the control diskette FU1, invoke your support structure. Go to Map	0001, Entry Point U

Symptom code found?

Y N

072

Have you already invoked the recode
analysis?

Y N

073

Select the IBM Maintenance and Service
Selection program.

Invoke the recode analysis.

If the message info box is shown, have also a
look there for any information.

There might be important hints to this problem.

When you have read the information, select the
recode analysis (IRECA) again.

(Step 073 continues)

1 1
9 9
A A
E F

26OC181 PN 5683192

EC 366493 PEC 366492

1860 MAP E680-18

A A
E F
1 1
8 8

REF.C.E6XXX81
Customer Manual
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(Step 073 continued)
Key in the reference code from the
customer manual operation, E6....81.

Also key in the symptom code (reference
code extension).

Go to Step 074, Entry Point BB.

074
(Entry Point BB)
.....

Replace the FRUs suspected by the refcode
analysis. After the repair.
Go to Step 075, Entry Point V.

075
Follow the reference in Column 3 of the table
above, then do the verification.

(Entry Point V)
.....

Verification:

Perform IML with the control diskette FU1.

Any error?
Y N

076
Perform program load or the customer
manual operation that causes this failure.
Any reference code?
Y N

077
Go To Map 0001, Entry Point A.

078
Go to Step 081, Entry Point VS.

A
G

A
G

1860 MAP E680-19

079
Any reference code?
Y N
080
Go To Map 0400, Entry Point R.

081
(Entry Point VS)
.....
Go To Map 0020, Entry Point A.

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EC 366493 PEC 366492
1860 MAP E680-19

REF.CODE E8XXXXXX FIX 0000

1861

MAP E8XX-1

REF.CODE DIRECTORY

PAGE 1 OF 2

001

ENTRY POINTS

FROM	ENTER THIS MAP		

MAP	ENTRY	PAGE	STEP
NUMBER	POINT	NUMBER	NUMBER

E8XX	A	2	001
0001	A	2	001
0020	A	2	001

```
#####
#
#   REFERENCE CODE DIRECTORY FOR
#
#   *           4 3 3 1   P R O C E S S O R
#   * *
#   * *           M O D E L   G R O U P   1 / 2
#   * * * * *
#   * *           P O W E R   D E S I G N   L E V E L   4 / 5
#
#####
```

(Step 001 continues)

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REF.CODE E8XXXXXX

26OCT81 PN 8488523

EC 366493 PEC 366232

1861 MAP E8XX-1

REF.CODE DIRECTORY

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(Step 001 continued)

(Entry Point A)

REFERENCE CODE DIRECTORY

=====

REFERENCE CODE	S Y M P T O M	GO TO MAP
E8000101	ESD level 1 incident, temperature normal	E800
E8000201	ESD level 2 incident, temperature normal	E800
E8000301	ESD level 3 incident, temperature normal	E800
E8000401	ESD level 4 incident, temperature normal	E800
E80E1201	ESD level 2 incident and ESD latch 1 missing	E8E0
E80E1301	ESD level 3 incident and ESD latch 1 missing	E8E0
E80E1401	ESD level 4 incident and ESD latch 1 missing	E8E0
E80E2301	ESD level 3 incident and ESD latch 2 missing	E8E0
E80E2401	ESD level 4 incident and ESD latch 2 missing	E8E0
E80E3401	ESD level 4 incident and ESD latch 3 missing	E8E0
E8B00001	Ambient temperature went back to normal, D04	E8B0
E8B00101	ESD level 1 incident & temp. warning switched off	E800
E8B00201	ESD level 2 incident & temp. warning switched off	E800
E8B00301	ESD level 3 incident & temp. warning switched off	E800
E8B00401	ESD level 4 incident & temp. warning switched off	E800
E8BE1201	ESD lvl 2 inc. & lvl 1 latch miss & temp. normal	E8E0
E8BE1301	ESD lvl 3 inc. & lvl 1 latch miss & temp. normal	E8E0
E8BE1401	ESD lvl 4 inc. & lvl 1 latch miss & temp. normal	E8E0
E8BE2301	ESD lvl 3 inc. & lvl 2 latch miss & temp. normal	E8E0
E8BE2401	ESD lvl 4 inc. & lvl 2 latch miss & temp. normal	E8E0
E8BE3401	ESD lvl 4 inc. & lvl 3 latch miss & temp. normal	E8E0
E8F00001	Ambient temperature exceeded upper limit, D04	E8F0
E8F00101	ESD level 1 incident & temp. warning switched on	E800
E8F00201	ESD level 2 incident & temp. warning switched on	E800
E8F00301	ESD level 3 incident & temp. warning switched on	E800
E8F00401	ESD level 4 incident & temp. warning switched on	E800
E8FE1201	ESD lvl 2 inc. & lvl 1 miss & temp. warning sw. on	E8E0
E8FE1301	ESD lvl 3 inc. & lvl 1 miss & temp. warning sw. on	E8E0
E8FE1401	ESD lvl 4 inc. & lvl 1 miss & temp. warning sw. on	E8E0
E8FE2301	ESD lvl 3 inc. & lvl 2 miss & temp. warning sw. on	E8E0
E8FE2401	ESD lvl 4 inc. & lvl 2 miss & temp. warning sw. on	E8E0
E8FE3401	ESD lvl 4 inc. & lvl 3 miss & temp. warning sw. on	E8E0

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EC 366493 PEC 366232

1861 MAP E8XX-2

REF.CODE E8XXXXXX FIX 0002

1865

MAP E800-1

E S D PROBLEM

PAGE 1 OF 7

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
E8XX	A	2	002
0001	A	2	002

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
6	030	E8F0	A
4	010	0001	A

001

SYMPTOM:

ANY ELECTROSTATIC DISCHARGE (ESD) INCIDENT LEVEL 1 TO 4.

IF ANY OF THE FOLLOWING LISTED REFERENCE CODES IS DISPLAYED,
GO TO THE CORRESPONDING MAP ACCORDING TO THE TABLE ON THE NEXT PAGE.
=====

Go to Page 2, Step 002, Entry Point A.

E S D PROBLEM

PAGE 2 OF 7

002

(Entry Point A)

REFERENCE CODE	S Y M P T O M	GO TO MAP
E80E1201	ESD level 2 incident and ESD latch 1 missing	E8E0
E80E1301	ESD level 3 incident and ESD latch 1 missing	E8E0
E80E1401	ESD level 4 incident and ESD latch 1 missing	E8E0
E80E2301	ESD level 3 incident and ESD latch 2 missing	E8E0
E80E2401	ESD level 4 incident and ESD latch 2 missing	E8E0
E80E3401	ESD level 4 incident and ESD latch 3 missing	E8E0
E8B00001	Ambient temperature went back to normal, D04	E8B0
E8BE1201	ESD lvl 2 inc. & lvl 1 latch miss & temp. normal	E8E0
E8BE1301	ESD lvl 3 inc. & lvl 1 latch miss & temp. normal	E8E0
E8BE1401	ESD lvl 4 inc. & lvl 1 latch miss & temp. normal	E8E0
E8BE2301	ESD lvl 3 inc. & lvl 2 latch miss & temp. normal	E8E0
E8BE2401	ESD lvl 4 inc. & lvl 2 latch miss & temp. normal	E8E0
E8BE3401	ESD lvl 4 inc. & lvl 3 latch miss & temp. normal	E8E0
E8F00001	Ambient temperature exceeded upper limit, D04	E8F0
E8FE1201	ESD lvl 2 inc. & lvl 1 miss & temp. warning sw. on	E8E0
E8FE1301	ESD lvl 3 inc. & lvl 1 miss & temp. warning sw. on	E8E0
E8FE1401	ESD lvl 4 inc. & lvl 1 miss & temp. warning sw. on	E8E0
E8FE2301	ESD lvl 3 inc. & lvl 2 miss & temp. warning sw. on	E8E0
E8FE2401	ESD lvl 4 inc. & lvl 2 miss & temp. warning sw. on	E8E0
E8FE3401	ESD lvl 4 inc. & lvl 3 miss & temp. warning sw. on	E8E0

(Step 002 continues)

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EC 368493 PEC 366388

1865 MAP E800-2

E S D PROBLEM

PAGE 3 OF 7

(Step 002 continued)

THIS MAP IS VALID FOR THE FOLLOWING LISTED REFERENCE CODES:
 =====

REFERENCE CODE	S Y M P T O M
E8000101	ESD level 1 incident, temperature normal
E8000201	ESD level 2 incident, temperature normal
E8000301	ESD level 3 incident, temperature normal
E8000401	ESD level 4 incident, temperature normal
E8B00101	ESD level 1 incident & temp. warning switched off
E8B00201	ESD level 2 incident & temp. warning switched off
E8B00301	ESD level 3 incident & temp. warning switched off
E8B00401	ESD level 4 incident & temp. warning switched off
E8F00101	ESD level 1 incident & temp. warning switched on
E8F00201	ESD level 2 incident & temp. warning switched on
E8F00301	ESD level 3 incident & temp. warning switched on
E8F00401	ESD level 4 incident & temp. warning switched on

Suspected errors or FRUs (including intermittent errors)	
1	Ambient conditions as floor material, air humidity.
2	Grounding and shielding problems if machine errors appear at the same time.
3	ESD monitor card in position 01A-A2A5.

Is the ESD monitor card installed in position
01A-A2A5?

Y N

Y N

4 4
A B

26OCT81 PN 8488525

EC 366493 PEC 366388

1865 MAP E800-3

A B
3 3

REF.CODE E8X00X01

E S D PROBLEM

PAGE 4 OF 7

003

Ensure that the current ESD sense level is set to zero (see book MI POWER in Vol. 16).

Switch machine power off.

Switch machine power on.

If the problem is not solved, return to the MAP you came from or call your Field Support Center for support.

004

(Entry Point G)

1. Press power-off switch.
2. Connect CE-meter (range 1.5VDC) to 01A-A2A5-D07 (+)
'(Test point for reference voltage)'
and to any D08 pin
'DC-GND'
3. Press power-on switch.

Is the ESD monitor reference voltage 0.8VDC?

Y N

005

Adjust the ESD monitor reference voltage to 0.8VDC. Use the potentiometer on the ESD monitor card in position 01A-A2A5 for adjustment.

If the potentiometer is sealed, please remove the sealing before adjustment.

Is the ESD monitor reference voltage 0.8VDC?

Y N

006

1. Press power-off switch.
 2. Replace the ESD monitor card in position 01A-A2A5.
- Go to Step 004, Entry Point G.

7
C D

D

1865

MAP E800-4

007

(Entry Point H)

Use the Ambient Recording Log Display and read the current ESD sense level.

Is the current ESD sense level equal 0?

Y N

008

Note:

This MAP asks for certain reference codes containing the letter X.

The letter X stands for any hex digit 0 to F. Use the ambient recording log display and check for ESD logs.

Note:

Write down the current ESD sense level. This information may be required later.

Are ESD-logs available?

Y N

009

Is the minimum ESD-sense level equal 1?

Y N

010

1. Increase the sensitivity of the ESD monitor program by setting next lower ESD sense level.

Note:

Level 1 is the most sensitive level.

If the new ESD sense level is correct, change also the ESD sense level on the second control diskette.

2. Check in a few hours or days for ESD logs.

(Entry Point Z)

Go To Map 0001, Entry Point A.

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EC 366493 PEC 366388

1865 MAP E800-4

7 5 5
E F G

F G
4 4

REF.CODE E8X00X01

ESD PROBLEM

PAGE 5 OF 7

011

Suspect other than ESD problems.
Go to Page 4, Step 010, Entry Point Z.

012

Is the last ambient log E8B00X01?
(Temperature returned to normal)

Y N

013

Is the last ambient log E8F00X01?
(Ambient temperature exceeded upper limit)

Y N

014

(Entry Point B)

1. Display the last 5 machine logs.
2. Compare the time stamps of these logs with the time stamps of the ESD logs.

Are there coincidences within a time frame of 3 minutes between certain machine logs and the ESD logs.

Y N

015

Are there more than 20 ESD incidents per day?

Y N

016

No further ESD actions required.
Go to Page 4, Step 010, Entry Point Z.

017

Use the ambient recording log display and check the sensitivity of the ESD monitor.

Is the ESD sense level set to 4?

Y N

6 6
H J K L M

K L M

1865

MAP E800-5

018

Set next higher ESD sense level on both control diskette.

Note. Sense level 1 is the most sensitive level.

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

019

Does customer complain of performance degradation which could be caused by high frequently ESD logs?

Y N

020

Go to Step 022, Entry Point F.

021

1. Disable the ESD monitor by setting the minimum ESD sense level to 0.

Go to Page 6, Step 028, Entry Point D.

022

(Entry Point F)

Have you already done the ESD checks?

Y N

023

Do the following listed ESD checks:

1. Cover gasket must have sufficient contact to the machine frame. There should be no gap. The covers must be adjusted to get a good frame contact along the total gasket length.
2. The gate cover must be installed.
3. The shield of all external cables must be grounded next to the cable entry. The ground leads have usually slip on connectors. Check each cable.
4. Aluminium plated connectors must be installed for the standard interface (MPX, BMPX) and for FTA interface. The plating (Step 023 continues)

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EC 366493 PEC 366388

6 N

1865

MAP E800-5

N
5

REF.CODE E8X00X01
E S D PROBLEM

PAGE 6 OF 7

(Step 023 continued)

quality may be significantly degraded by climatic stress (dark surface of plating material). Perform a visual inspection

Connector blocks for the MFCU are not interchangeable with other connector blocks. MFCU interface signals will be grounded if other connector blocks are used for the MFCU.
MFCU connector blocks have no red dots at their short side.

Metallic dummy blocks (fillers) must be installed in each unused I/O interface connector position.

5. Ensure that a sufficient contact exists between all connector blocks and dummy blocks (if present) if the cover of gate 01D is closed.

6. Ensure that the screws of the ground strap between gate 01A (hinge side) and machine frame are tight.

Any error detected and repaired?

Y N

024

Go to Step 026, Entry Point E.

025

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

026

(Entry Point E)

Have you already replaced the ESD monitor card in position 01A-A2A5?

Y N

P Q

H J P Q
5 5

1865

MAP E800-6

027

1. Press power-off switch.
2. Replace the ESD monitor card in position 01A-A2A5.

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

028

(Entry Point D)

Fill in the form sheet for support calls
Call your Field Support Center for support.

029

There was an ESD incident of any level 1 to 4 and the ambient temperature warning is switched on. Normally there is no correlation between both events.

Is the environment temperature above 36 degrees centigrade (95 degrees F)?

Y N

030

Go To Map E8F0, Entry Point A.

031

(Entry Point C)

1. Advise the customer to keep the environment temperature within the specified limits.
2. Take care of the ESD incident and
Go to Page 5, Step 014, Entry Point B.

032

There was an ESD incident of any level 1 to 4 and the ambient temperature went back to normal. Normally there is no correlation between both events.

Go to Step 031, Entry Point C.

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EC 366493 PEC 366388

1865 MAP E800-6

C E
4 4

REF.CODE E8X00X01

1865

MAP E800-7

E S D PROBLEM

PAGE 7 OF 7

033

1. Set the current ESD sense level to 3.
2. Press power-off switch.
3. Press power-on switch and wait approximately one minute.

Is any reference code displayed?

Y N

034

Trouble shooting should be stopped here.
Further ESD incidents will be logged and
may be used later in case of system
problems without error isolation.
Go to Page 4, Step 010, Entry Point Z.

035

Go to MAP for displayed reference code.

036

Go to Page 4, Step 007, Entry Point H.

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EC 366493 PEC 366388

1865 MAP E800-7

THERMAL PROBLEM

PAGE 1 OF 1

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
E8XX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
1	001	0204	A

001

Symptom:

Air inlet temperature returned to normal, 004.

Suspected errors or FRU's	
(including intermittent errors)	

1. Dirty air filters.	
2. Defective blower.	

(Entry Point A)**NOTE:**

The environment temperature exceeded 35 degrees centigrade (97 degrees F) and went back to normal (temperature below 35 degrees C or 97 degrees F).

Both events, exceeding upper limit and returning to normal, are logged with time stamps.

You can display both logs and compare the time stamps.

The difference of both time stamps indicates the duration of high ambient temperature.

To prevent overheating, ensure that all blowers are running and all air filters are clean.

To check the air filters visually, you have to remove at least one spring which holds the airfilter in its position.

NOTE: The airflow is from top to bottom.

If necessary the airfilter must be cleaned or replaced.

The customer must keep the environment temperature within the specified limits.

Go To Map 0204, Entry Point A.

PAGE 1 OF 3

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER

No entries in this table

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	010	0204	A

Symptom:
Any ESD hardware failure after power on.

Suspected errors or FRU's
(including intermittent errors)

- ```

1 | ESD monitor card 01A-A2A5.
2 | PC sense card 01A-A2D2.
3 | PC sense card 01A-A1C2.
4 | Wiring from ESD monitor card to
 | power controller card 01A-A2D2.

```

**Note:** This MAP asks for ESD error logs. EDS error logs are part of the ambient recording log display and are intensified displayed. An ESD error log shows any ESD incident level 2 to 4 and any lower ESD level is missing. For more details see ambient recording log display in book MI POWER.

1. Press power-off switch.
2. Press power on switch and wait approximately one minute.

**Is any reference code displayed?**

**Y N**

---

| 3<br>A | 2<br>B |
|--------|--------|
|--------|--------|

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REF.CODE E8XEXX01

4331

25MAY79

PN 8488526

EC 366232

PEC -NONE-

1875

MAP E8E0. :

B  
1

Ref.C.E8XEXX01

Power Problem

PAGE 2 OF 3

002

Use the ambient recording log display and check for ESD error logs.

Note: ESD error logs are intensified displayed.

Is any ESD error log available?

Y N

003

Retry power off/power on several times and use the ambient recording log display and check for ESD error logs.

(Entry Point B)

Is any ESD error log available?

Y N

004

Is any reference code displayed?

Y N

005

Suspect intermittent error. Replace the parts listed on top of this MAP step by step. Wait until the error occurs again before replacing the next listed part.  
Go to Step 010, Entry Point Z.

006

Go to corresponding MAP.

007

Is any reference code of format F708XX81 displayed?

Y N

C D E

1875

MAP E8E0-2

008

(Entry Point D)

1. Press power off switch.
2. Replace the ESD monitor card 01A-A2A5.
3. Press power on switch and wait approximately one minute.
4. Use the ambient recording log display and check for ESD error logs.

Is any ESD error log available?

Y N

009

1. Retry power off/power on several times.
2. Use the ambient log display and check for ESD error logs.

Is any ESD error log available?

Y N

010

(Entry Point Z)

Go To Map 0204, Entry Point A.

011

(Entry Point C)

1. Replace PC sense card(s) 1 and/or 2 in positions 01A-A2D2 and 01A-A2C2 step by step.
- Go to Step 010, Entry Point Z.

012

Go to Step 010, Entry Point Z.

013

Go to corresponding MAP.

014

Go to Step 008, Entry Point D.

C D E

25MAY79 PN 8488526

EC 366232 PEC -NONE-

1875 MAP E8E0-2



A  
1

**Ref.C.E8XEXX01**

1875

MAP E8E0-3

**Power Problem**

PAGE 3 OF 3

**015**

Go to corresponding MAP.

25MAY79 PN 8488526

EC 366232 PEC -NONE-

1875 MAP E8E0-3



## THERMAL PROBLEM

PAGE 1 OF 6

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| E800          | A              | 2              | 002            |
| E800          | A              | 2              | 002            |

## EXIT POINTS

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 3              | 006            | 0200          | A              |
| 6              | 029            | 0202          | A              |
| 6              | 028            | 0204          | A              |
| 4              | 018            | 0215          | A              |

001

Symptom:

Air inlet temperature too high, D04.

|                                                             |                                     |
|-------------------------------------------------------------|-------------------------------------|
| Suspected errors or FRUs<br>(including intermittent errors) |                                     |
| 1                                                           | Blower problem.                     |
| 2                                                           | Air filter problem.                 |
| 3                                                           | High ambient temperature.           |
| 4                                                           | Component overheating.              |
| 5                                                           | +24VDC PS103 or PS104 distribution. |
| 6                                                           | BPC card 01A-A2B2.                  |
| 7                                                           | PC sense card 01A-A2D2.             |
| 8                                                           | Defective thermal switch TH109.     |
| 9                                                           | Thermal switch wiring.              |
| 10                                                          | D04 sense wiring.                   |

Go to Page 2, Step 002, Entry Point A.

## THERMAL PROBLEM

PAGE 2 OF 6

002

(Entry Point A)

## NOTE 1:

Opening of the thermal switch TH109 generates an ambient log.  
The log is accessible to the CE via the  
Ambient Recoding Log Display.

## NOTE 2:

To prevent overheating, ensure that all blowers  
are running and that all air filters are clean.  
To check the air filters visually, you have to remove at least  
one spring which holds the airfilter in its position.  
The airflow is from top to bottom.  
If necessary the airfilter must be cleaned or replaced.  
The customer must keep the environment temperature within the  
specified limits.

## NOTE 2:

3. The letter X within a reference code stands for any digit or  
character.

Is the ambient temperature above  
36 degrees centigrade  
(95 degrees F)?

Y N

## 003

1. Connect CE-meter (range 5VDC)

-lead to 01A-A2D2-G03

-Inlet TH failed D04

(ALD-YB641)

+lead to 01A-A2D2-D03

'(+5V)'

2. Observe your meter and press the  
power-on switch.

Is 5VDC present?

Y N

6 6 3  
A B C

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EC 366493 PEC 366369

1880 MAP E8FO-2

C  
2

REF.CODE E8FXXX01

THERMAL PROBLEM

PAGE 3 OF 6

004

Wait approximately two minutes. Use the ambient recording log display and check for a temperature log generated during the last two minutes.

Is a new temperature log present?

Y N

005

Is the \*power complete\* indicator on?

Y N

006

(Entry Point B)

Go To Map 0200, Entry Point A.

007

Was the last reference code E8XXXX01?

Y N

008

Suspect an intermittent overheating problem. Check all blowers for correct operation and the air filters in the machine covers.

Go to Page 6, Step 028, Entry Point Z.

009

The ambient temperature went back to normal.

Ensure that all blowers are running and that the airfilters are clean.

The customer must keep the ambient temperature within the specified limits.

Go to Page 6, Step 028, Entry Point Z.

010

Was the last reference code E8FXXX01?

Y N

011

Go to corresponding MAP.

D

D

1880

MAP E8F0-3

012

(Entry Point C)

Connect CE-meter (range 50VDC)

+lead to TH109-COM

+24V PS103 to thermals'or

+24V PS104 to thermals'

(ALD-YA341)

-lead to any DC-GND.

Is 24VDC present?

Y N

013

1.Press power-off key.

2.Connect CE-meter

(range 50VDC)

+lead to 01A-A2C1-A06

+24V PS103 to thermals'or

+24V PS104 to thermals'

(ALD-YB221)

-lead to any D08 pin.

3.Observe your meter and press and hold power-on switch.

Is 24VDC present?

Y N

014

1.Press power-off switch.

2.Check and repair +24V wiring

from 01A-A2B3-E14 to

01A-A2C1-A06

+24V PS103 to thermals'or

+24V PS104 to thermals'

(ALD-YB221)

Go to Page 6, Step 028, Entry Point Z.

015

1.Press power-off switch.

2.Check and repair wiring from

01A-A2C1-A06 to TH107-NCL.

+24V PS103 to thermals'or

+24V PS104 to thermals'

(ALD-YA341)

Go to Page 6, Step 028, Entry Point Z.

4  
E

26OCT81 PN 8488521

EC 366493 PEC 366369

1880 MAP E8F0-3

E  
3

REF.CODE E8FXXX01  
THERMAL PROBLEM  
PAGE 4 OF 6

016

- 1.Connect CE-meter (range 50VDC)  
+lead to TH109-NCL  
-Inlet TH failed D04'  
(ALD-YA341)  
-lead to any DC-GND.

Is 24VDC present?

Y N

017

Thermal switch TH109 is open.

Are the blowers AMD101, AMD102 and  
AMD103 running?

Y N

018

Suspect overheating caused by failing  
blower.

Repair failing blower according to Map  
0215.

Go To Map 0215, Entry Point A.

019

Check for clean airfilters in the machine  
covers.

Are the airfilters ok?

Y N

020

Clean the airfilters or replace them.

Go to Page 6, Step 028, Entry Point Z.

021

- 1.Press power-off switch.
  - 2.Replace thermal switch TH109.
- Go to Page 6, Step 028, Entry Point Z.

F

F

1880

MAP E8F0-4

022

- 1.Press power-off switch.
- 2.Press power on switch and wait  
approximately one minute. Use the ambient  
recording log display and check for the last  
reference code.

Was the last reference code E8FXXX01?

Y N

023

Overheating condition does not exist  
anymore.

Ensure that all blowers are running and that  
all airfilters are clean.

Go to Page 6, Step 028, Entry Point Z.

5  
G

26OCT81 PN 8488521

EC 366493 PEC 366369

1880 MAP E8F0-4

G  
4

REF.CODE E8FXXX01

1880

MAP E8F0-5

THERMAL PROBLEM

PAGE 5 OF 6

024

1. Press power-off key.
2. Remove cards from  
01A-A2B2 and 01A-A2D2.
3. Perform wiring check for the following nets.  
Apply the wiring check procedure shown in  
book  
Maintenance Information (MI) POWER.

|      |   |                          |
|------|---|--------------------------|
| CARD | * | 01A-A2B2-S05 (ALD-YB421) |
|      |   | Board wiring             |
| CARD | = | 01A-A2D2-G03 (ALD-YB641) |

\*'-Inlet TH failed D04'

|      |   |                          |
|------|---|--------------------------|
| CARD | * | TH109-NCL (ALD-YA341)    |
|      |   | Wiring                   |
| CONN | = | 01A-A2B1-D08 (ALD-YB221) |
|      |   | Board wiring             |
| CARD | = | 01A-A2B2-U02 (ALD-YB423) |

\*'-Inlet TH failed D04'

Any wiring error detected and repaired?

Y N

6 6  
H J

26OCT81 PN 8488521  
EC 366493 PEC 366369  
1880 MAP E8F0-5

H J  
5 5

REF.CODE E8FXXX01

THERMAL PROBLEM

PAGE 6 OF 6

A B  
2 2

1880

MAP E8F0-6

**025**

- 1.Reinstall the BPC card into position 01A-A2B2.
- 2.Replace the PC sense card 1 which was previously removed from position 01A-A2D2.
- 3.Press the power on switch and wait approximately one minute.
- 4.Display the ambient recording logs.

Was the last reference code E8FXXX01?

Y N

**026**

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

**027**

- 1.Press power-off switch.
- 2.Reinstall the previously replaced PC sense card 1 into position 01A-A2D2.
- 3.Replace the BPC card in position 01A-A2B2.
- 4.Press power on switch and wait approximately one minute.
- 5.Display the ambient recording logs.

Was the last reference code E8FXXX01?

Y N

**028**

(Entry Point Z)

Go To Map 0204, Entry Point A.

**029**

Suspect diskette problem.  
Use the diagnostic diskette and retry power on.  
If any reference code E8FXXX01 is still generated.  
Go To Map 0202, Entry Point A.

**030**

Go to Step 028, Entry Point Z.

**031**

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

**032**

Customer must keep the ambient temperature within the specified limits. No machine problem exists.

Go to Step 028, Entry Point Z.

26OCT81 PN 8488521

EC 366493 PEC 366369

1880 MAP E8F0-6



## PU DETECTED CTL INFO ERRORS

PAGE 1 OF 11

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| EXXX          | A              | 1              | 001            |
| FE90          | A              | 1              | 001            |
| RFCA          | A              | 1              | 001            |
| RFCA          | B              | 4              | 020            |
| RFCA          | P              | 1              | 003            |
| RFCA          | V              | 10             | 023            |
| 0020          | A              | 1              | 001            |
| 8200          | A              | 1              | 001            |

## EXIT POINTS

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 10             | 026            | 0001          | A              |
| 3              | 018            | 0001          | 0              |
| 3              | 017            | 0001          | U              |
| 10             | 029            | 0001          | U              |

001

(Entry Point A)

Make sure that you have traced the START MAP 0000 precisely.  
Another reference code may be more important than the one you  
have got first.

Are you led to this MAP by the REFCODE  
ANALYSIS?

Y N

002

Go to Step 003, Entry Point P.

003

It is necessary to do first the following  
prerequisites before using the REFCODE  
ANALYSIS:

(Entry Point P)

## PREREQUISITES:

Most times the reference codes EA..... are caused by control  
information problems.

(Step 003 continues)

## PU DETECTED CTL INFO

PAGE 2 OF 11

(Step 003 continued)

Therefore invoke your support structure and do first a problem search, before you replace any FRU.

Write down the suspected FRUs, when indicated by the REFCODE ANALYSIS.

Is there any problem description/ solution/ MCTF (patch) provided?

Y N

004

Did the error come up after having used a new CNTRL diskette or when running a new customer's application program?

Y N

005

Did the system run error free up to now under the same conditions?

Y N

006

See the log summary (log distribution statistics).

Refer to Vol. 13, STM Section 4: Diagnostic Run Procedures (Reference Code Log)

Are there previous logs that may originate from the same error source?

Y N

007

Run test chaining.

Any error?

Y N

3 3 3 3 3 3  
A B C D E F

04DEC81 PN 5683323

EC 366515 PEC 366492

1895 MAP EA00-2

E F  
2 2

REF.C.EAXXXX01

A B C D  
2 2 2 2

1895

MAP EA00-3

PU DETECTED CTL INFO

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008

(Entry Point AA)

Have you already invoked the REFCODE ANALYSIS ?

Y N

009

Select the IBM MAINTENANCE and SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

(Entry Point Z)

Key in the reference code from the PU detected control information error, EA.....

Go to Step 012, Entry Point J.

010

Are there suspected FRUs indicated by the REFCODE ANALYSIS ?

Y N

011

Look up the reference code EA..... in the following table and do the recommended action.

Go to Page 4, Step 020, Entry Point B.

012

(Entry Point J)

Do now the repair as told

-----  
by the REFCODE ANALYSIS.  
-----

After the repair, do the verification.

Go to Page 10, Step 023, Entry Point V.

013

Go to appropriate MAP, respectively use the REFCODE ANALYSIS. After the repair, Go to Step 017, Entry Point C.

014

Do the repair according to this (these) reference codes.

Then

Go to Step 017, Entry Point C.

015

Are there other logs that may lead to the problem (compare the time stamps)?

Y N

016

Look up the ref. code EA..... in the following table,

Go to Page 4, Step 020, Entry Point B.

017

In this case use the other error log(s) for the repair action.

Go to the appropriate MAP and then return to here again.

(Entry Point C)

After the repair, inform your support structure immediately about all details of the error, therefore

Go To Map 0001, Entry Point U.

018

(Entry Point T)

The problem is probably a control information error.

Go To Map 0001, Entry Point O.

019

Proceed as indicated by the problem description.

Go to Step 017, Entry Point C.

04DEC81 PN 5683323

EC 366515 PEC 366492

1895 MAP EA00-3

## PU DETECTED CTL INFO

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020

(Entry Point B)

| Column 1                                     | Column 2                                                                                                                       | Column 3                                                                                                                                                                                                                                                                          |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ref. Code                                    | Suspected Areas:                                                                                                               | Recommended Action:                                                                                                                                                                                                                                                               |
| EA00AX01                                     | For system 4331:<br>MPX, BMPX,<br>FTA1, FTA2, PU<br><br>For 4331-2/4331-11:<br>MPX, HSC/FTA3<br>FTA2/BMPX2,<br>FTA1, BMPX1, PU | Replace FRUs as indicated<br>by the REFCODE ANALYSIS.<br><br>If this does not help,<br>go to MAP 0001,<br>ENTRY POINT U.                                                                                                                                                          |
| EA00CX01<br>EA00DX01<br>EA00EX01<br>EA00FX01 | Error probably<br>caused by a<br>previous machine<br>check.                                                                    | Please select the last log<br>and go to MAP according to<br>the last logged reference<br>code.<br><br>If no last log is stored,<br>look for further logs in the<br>log summary.<br>If there are further logs,<br>write them down and<br>continue with MAP 0001,<br>ENTRY POINT X. |
| EA09XX01                                     | The BBA control<br>code in the PU has<br>detected an<br>abnormal condition<br>which led to a<br>machine check                  | Replace FRUs as indicated by<br>the REFCODE ANALYSIS.<br><br>If this does not help,<br>go to MAP 0001,<br>ENTRY POINT U.                                                                                                                                                          |
| EA0A0101                                     | Control info. error                                                                                                            | Go to MAP 0001, ENTRY POINT O.                                                                                                                                                                                                                                                    |

(Step 020 continues)

## PU DETECTED CTL INFO

PAGE 5 OF 11

(Step 020 continued)

| Column 1  | Column 2                                                                                                                                  | Column 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ref. Code | Suspected Areas:                                                                                                                          | Recommended Action:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| EA10XX01  | Reason:<br>The MPX/BMPX<br>control<br>information in the<br>PU has detected a<br>abnormal condition<br>which leads to a<br>machine check. | Proceed with the reference<br>code shown below according to<br>the value of XX:<br><br>XX =    Ref. code<br>00      84113101<br>10      80113101<br>20      81113101<br><br>01      84219101<br>11      80219101<br>21      81219101<br><br>02      84221101<br>12      80221101<br>22      81221101<br><br>03      84335101<br>13      80335101<br>23      81335101<br><br>04      84AA2101<br>14      80AA2101<br>24      81AA2101<br><br>05      84AA4101<br>15      80AA4101<br>25      81AA4101<br><br>06      84FF0101<br>16      80FF0101<br>26      81FF0101 |

(Step 020 continues)

## PU DETECTED CTL INFO

PAGE 6 OF 11

(Step 020 continued)

| Column 1                                                             | Column 2                                                                                                                                        | Column 3                                                                                                                                                                                                                        |
|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ref. Code                                                            | Suspected Areas:                                                                                                                                | Recommended Action:                                                                                                                                                                                                             |
|                                                                      |                                                                                                                                                 | 07 84FF1101<br>17 80FF1101<br>27 81FF1101<br><br>08 84FF2101<br>18 80FF2101<br>28 81FF2101<br><br>09 84FFF101<br>19 80FFF101<br>29 81FFF101<br><br>Go to appropriate MAP via<br>reference code directory<br>8XXX, ENTRY POINT A |
| EA20XX01                                                             | For system 4331-1:<br>FTA1, FTA2,<br>IC-bus,<br>DATA MOVER<br>For 4331-2/4331-11:<br>FTA1, FTA2, FTA3,<br>IC-bus 0,<br>IC-bus 1,<br>DATA MOVER. | Replace FRUs as indicated<br>by the REFCODE ANALYSIS.<br><br>If this does not help,<br>go to MAP 0001,<br>ENTRY POINT U.                                                                                                        |
| EA300501<br>EA300901<br>EA302401<br>EA302501<br>EA302601<br>EA302701 | For 4331-2 or<br>4331-11 only:<br><br>Note: Error<br>detected during<br>data transfer<br>between HSC and<br>DATA MOVER.                         | Run PU/BSM test.<br>Suspect PU card 7; 01A-B1J2<br><br>If no success go to MAP 0001,<br>ENTRY POINT O                                                                                                                           |
| EA302801<br>EA302901                                                 | Control information<br>error (High Speed<br>Channel)                                                                                            | Go to MAP 0001, ENTRY POINT O                                                                                                                                                                                                   |

(Step 020 continues)

04DEC81 PN 5683323

EC 366515 PEC 366492

1895 MAP EA00-6

## PU DETECTED CTL INFO

PAGE 7 OF 11

(Step 020 continued)

| Column 1                         | Column 2                                          | Column 3                                                                                                                                                                          |
|----------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ref. Code                        | Suspected Areas:                                  | Recommended Action:                                                                                                                                                               |
| EA304201                         | Control information error<br>(High Speed Channel) | Go to MAP 0001, ENTRY POINT 0                                                                                                                                                     |
|                                  | I/O Control Unit(s) connected to HSC              | Run HSC standard Interface Test).<br>See Vol.13, STM, Section 4: Standard Interface Test.<br><br>( A failing "Request In" signal from attached I/O control unit(s) is suspected.) |
| EA304401<br>EA304501<br>EA305001 | Control information error (High Speed Channel)    | Go to MAP 0001, ENTRY POINT 0                                                                                                                                                     |
| EA4XXX01                         | PU                                                | Look for a PU stop log.<br>If there is no PU stop log go to MAP 0001, ENTRY POINT 0                                                                                               |
| EA637001                         |                                                   | If this ref. code comes up, you have probably inserted a diskette the EC level of which is below EC 364300.<br>If not, go to MAP 0001, ENTRY POINT 0.                             |

(Step 020 continues)

## PU DETECTED CTL INFO

PAGE 8 OF 11

(Step 020 continued)

| Column 1  | Column 2                                                                          | Column 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ref. Code | Suspected Areas:                                                                  | Recommended Action:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| EAFXXX01  | An error was detected during the copy operation of the loop adapter configurator. | <p>Suspected areas of error:</p> <p>1.A handling error was made during copy configuration (for example the IML key has been pressed during the copy operation).<br/>Recommended action:<br/>Repeat the copy configurator procedure.</p> <p>2.An undetected diskette write error occurred during the copy operation.<br/>Recommended action:<br/>Repeat the copy configurator procedure.</p> <p>3.If the diskette is used for the first time (new diskette) suspect a diskette link error.<br/>Recommended action:<br/>A new, corrected diskette is required.<br/>Contact your support function.<br/>Go to MAP 0001, ENTRY POINT U.</p> |
| EAXXXX01  |                                                                                   | Go to MAP 0001, ENTRY POINT O                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Have you found the reference code in the above table ?

Y N

021

Go to Page 3, Step 018, Entry Point T.

04DEC81 PN 5683323

EC 366515 PEC 366492

1895 MAP EA00-8



G  
8

REF.C.EAXXXX01

1895

MAP EA00-9

PU DETECTED CTL INFO

PAGE 9 OF 11

022

Follow the recommended action as shown in  
the table of this MAP.

After the repair do the verification.

Go to Page 10, Step 023, Entry Point V.

04DEC81 PN 5683323

EC 366515 PEC 366492

1895 MAP EA00-9

## PU DETECTED CTL INFO

PAGE 10 OF 11

023

(Entry Point V)

## VERIFICATION:

Run the test chaining.

Any reference code?

Y N

024

Run the interface (wrap) tests for MPX, HSC, BMPX1 and 2, FTA1, FTA2, FTA3.

Attention:

Power down the control units before the test run.

Start the tests by putting the wrap plugs in the first control unit after the processing unit.  
By systematically putting the wrap plugs in the other control units the area in which the fault lies is approached.

Any error?

Y N

025

If possible run the application which caused the error.

Does the error appear again?

Y N

026

Go To Map 0001, Entry Point A.

027

Are all suspected FRUs replaced as indicated by the REFCODE ANALYSIS?

Y N

028

Replace the next FRU. Then  
Go to Step 023, Entry Point V.

029

Invoke your support structure.  
Go To Map 0001, Entry Point U.1 1  
1 1  
H J

04DEC81 PN 5683323

EC 366515 PEC 366492

1895 MAP EA00-10

H J  
1 1  
0 0

REF.C.EAXXXX01

1895

MAP EA00-11

PU DETECTED CTL INFO

PAGE 11 OF 11

030

(Entry Point K)

Go to respective MAP, respectively use the  
REFCODE ANALYSIS. After the repair

Go to Page 3, Step 017, Entry Point C.

031

Go to Step 030, Entry Point K.

04DEC81 PN 5683323

EC 366515 PEC 366492

1895

MAP EA00-11



## Ref.code directory

PAGE 1 OF 3

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| 0000          | A              | 1              | 001            |
| 0001          | A              | 1              | 001            |
| 0010          | A              | 1              | 001            |
| 0020          | A              | 1              | 001            |

001

(Entry Point A)

## REFERENCE CODE DIRECTORY

=====

| Reference<br>Code | Title                                 | Go to<br>MAP                 |
|-------------------|---------------------------------------|------------------------------|
| FOXXXX01          | SP-MCPC hangs                         | 0400<br>ENTRY<br>POINT<br>GG |
| FOXXXX02          | I/OSS problems                        | E008<br>ENTRY<br>POINT<br>YY |
| FICXXX01          | SP-Machine Check                      | F100                         |
| FIXXXX01          | SP-MCPC hangs                         | 0400<br>ENTRY<br>POINT<br>GG |
| FIXXXX02          | I/OSS problems                        | E008<br>ENTRY<br>POINT<br>YY |
| F2000081          | BBAO Test MAP                         | F280                         |
| F2XXXX01          | BBAO Log MAP,<br>(Step 001 continues) | F200                         |

## Ref.code directory

PAGE 2 OF 3

(Step 001 continued)

|          |                                      |      |
|----------|--------------------------------------|------|
|          | BBA of support subsystem             |      |
| F3XXXX01 | SBA errors                           | F300 |
| F3XXXX81 | SBA test                             | F380 |
| F4XXXX01 | Transmit/receive error log           | F400 |
| F5XXXX01 | SPIL program MAP                     | F500 |
| F7XXXXXX | Directory (Power)                    | F7XX |
| FCXXXX01 | Log in and idle problems             | FC00 |
| F8XXXX81 | Remote TP link                       | F880 |
| F9XXXX01 | DCA-I/O Counter Overflow             | F900 |
| FD001081 | User diskette entry MAP              | FD70 |
| FD002081 | User diskette not ready MAP          | FD72 |
| FD004081 | User diskette seek error MAP         | FD74 |
| FD006081 | User diskette read error MAP         | FD76 |
| FDXXXX01 | System diskette error MAP            | FD00 |
| FDXXXX81 | User diskette error MAP              | FD60 |
| FD000081 | 53FD Entry MAP                       | FD80 |
| FD000281 | Not ready MAP                        | FD82 |
| FD000481 | Seek error MAP                       | FD84 |
| FD000681 | Read error MAP                       | FD86 |
| FE519X8X | Initialization of CNTRL diskette FU2 | FE50 |
| FE620X81 | MCTF program errors                  | FE70 |
| FE621081 | Copy system configurator             | FE90 |
| FE621180 | Copy system configurator             | FE92 |
| FE621280 | Copy system configurator             | FE94 |
| FE621380 | Copy system configurator             | FE96 |
| FE6XXX80 | M/S selection MAP                    | FE80 |
| FE700X8X | Diskette Handling MAP                | FEA0 |

(Step 001 continues)

10APR81 PN 5684022

EC 366390 PEC 366345

1900 MAP FXXX-2

REF.CODE FXXXXXXX

1900

MAP FXXX-3

Ref.code directory

PAGE 3 OF 3

(Step 001 continued)

|          |                |       |
|----------|----------------|-------|
| FXXXXX01 | SP-MCPC hangs  | 0400  |
|          |                | ENTRY |
|          |                | POINT |
|          |                | GG    |
|          |                |       |
| FXXXXX02 | I/OSS problems | E008  |
|          |                | ENTRY |
|          |                | POINT |
|          |                | YY    |

10APR81 PN 5684022

EC 366390 PEC 366345

1900 MAP FXXX-3





## SP-MACHINE CHECK

PAGE 1 OF 11

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| FXXX          | A              | 1              | 001            |
| RFCA          | A              | 1              | 001            |
| RFCA          | B              | 8              | 008            |
| RFCA          | V              | 9              | 011            |

## EXIT POINTS

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 10             | 020            | 0001          | A              |
| 10             | 021            | 0001          | A              |
| 11             | 022            | 0001          | A              |
| 9              | 016            | 0001          | O              |
| 1              | 004            | 0400          | R              |
| 9              | 013            | 0400          | R              |

001

(Entry Point A)

\*\*\*\*\*

Make sure that you have traced the START MAP 0000 precisely.  
Another reference code may be more important than the one you  
have got first.

Are you led to this MAP by the REFCODE  
ANALYSIS?

Y N

002

Perform IML with the CNTRL diskette.

IML is performed successfully when the  
PROGRAM LOAD picture appears on screen.

IML successful?

Y N

003

Any ref.code?

Y N

004

Go To Map 0400, Entry Point R.

PAGE 2 OF 11

005

(Entry Point AA)

◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆

### SP Machine Check Log Display (Example)

SP MACHINE CHECK LOG

Ref.Code F1CXX01

To column 1 of the following table.

Find the FRUs (indicated by FRU numbers) which are suspected in a given priority in column 2 of the table below.

The names and the positions of the FRUs you will find in the FRU table of this MAP, which you will find on page 6, step 005, Entry POINT I.

Important Note:

| Category            | Item                | Value   | Unit    |
|---------------------|---------------------|---------|---------|
| Land                | Land                | 100,000 | Sq. Ft. |
|                     | Land                | 100,000 | Sq. Ft. |
| Buildings           | Buildings           | 100,000 | Sq. Ft. |
|                     | Buildings           | 100,000 | Sq. Ft. |
| Equipment           | Equipment           | 100,000 | Sq. Ft. |
|                     | Equipment           | 100,000 | Sq. Ft. |
| Inventory           | Inventory           | 100,000 | Sq. Ft. |
|                     | Inventory           | 100,000 | Sq. Ft. |
| Accounts Receivable | Accounts Receivable | 100,000 | Sq. Ft. |
|                     | Accounts Receivable | 100,000 | Sq. Ft. |
| Accounts Payable    | Accounts Payable    | 100,000 | Sq. Ft. |
|                     | Accounts Payable    | 100,000 | Sq. Ft. |
| Cash                | Cash                | 100,000 | Sq. Ft. |
|                     | Cash                | 100,000 | Sq. Ft. |
| Total Assets        | Total Assets        | 100,000 | Sq. Ft. |
|                     | Total Assets        | 100,000 | Sq. Ft. |
| Total Liabilities   | Total Liabilities   | 100,000 | Sq. Ft. |
|                     | Total Liabilities   | 100,000 | Sq. Ft. |
| Total Equity        | Total Equity        | 100,000 | Sq. Ft. |
|                     | Total Equity        | 100,000 | Sq. Ft. |

Any of these reference codes may also come up due to ground problems on the DCA coax cables or ground problems within the terminals connected to the DCA.

There fore check first all ports for ground problems before you start any other action or replacement!

(Step 005 continues)

## SP-MACHINE CHECK

PAGE 3 OF 11

(Step 005 continued)

| COLUMN 1          | COLUMN 2                   |    |   |   |   |   |   |   | COLUMN 3 | COL. 4       |
|-------------------|----------------------------|----|---|---|---|---|---|---|----------|--------------|
| Reference<br>CODE | Suspected FRUs<br>PRIORITY |    |   |   |   |   |   |   | Remarks  | GO TO<br>MAP |
|                   | 1                          | 2  | 3 | 4 | 5 | 6 | 7 | 8 |          |              |
| F1C10101          | 4                          |    |   |   |   |   |   |   |          |              |
| F1C10201          | 6                          |    |   |   |   |   |   |   |          |              |
| F1C10301          | 5                          |    |   |   |   |   |   |   |          |              |
| F1C20201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C20A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C21201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C21601          | 14                         |    |   |   |   |   |   |   |          |              |
| F1C21701          | 7                          |    |   |   |   |   |   |   |          |              |
| F1C21A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C22201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C22301          | 17                         |    |   |   |   |   |   |   |          |              |
| F1C22401          | 18                         | 19 |   |   |   |   |   |   |          |              |
| F1C22601          | 15                         |    |   |   |   |   |   |   |          |              |
| F1C22A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C23201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C23A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C28501          | 11                         | 10 |   |   |   |   |   |   |          |              |
| F1C28701          | 16                         |    |   |   |   |   |   |   |          |              |
| F1C30201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C30A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C31201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C31601          | 14                         |    |   |   |   |   |   |   |          |              |
| F1C31701          | 7                          |    |   |   |   |   |   |   |          |              |
| F1C31A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C32201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C32301          | 17                         |    |   |   |   |   |   |   |          |              |
| F1C32401          | 18                         | 19 |   |   |   |   |   |   |          |              |
| F1C32601          | 15                         |    |   |   |   |   |   |   |          |              |
| F1C32A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C33201          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C33A01          | 13                         | 12 |   |   |   |   |   |   |          |              |
| F1C38501          | 11                         | 10 | 9 |   |   |   |   |   |          |              |
| F1C38701          | 16                         |    |   |   |   |   |   |   |          |              |

(Step 005 continues)

04DEC81 PN 8488473

EC 366515 PEC 366493

1920 MAP F100-3

## SP-MACHINE CHECK

PAGE 4 OF 11

(Step 005 continued)

| COLUMN 1          | COLUMN 2                                                                                                                                                                                                                                                                                                             |    |   |    |    |   |   |   | COLUMN 3            | COL. 4                  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|----|---|---|---|---------------------|-------------------------|
| Reference<br>CODE | Suspected FRUs<br>PRIORITY                                                                                                                                                                                                                                                                                           |    |   |    |    |   |   |   | Remarks             | GO TO<br>MAP            |
|                   | 1                                                                                                                                                                                                                                                                                                                    | 2  | 3 | 4  | 5  | 6 | 7 | 8 |                     |                         |
| F1C4XX01          |                                                                                                                                                                                                                                                                                                                      |    |   |    |    |   |   |   | Control Information | 0001                    |
| F1C5XX01          |                                                                                                                                                                                                                                                                                                                      |    |   |    |    |   |   |   | Error               | ENTRY<br>POINT<br>0     |
| F1C60001          | 17                                                                                                                                                                                                                                                                                                                   | 1  | 3 | 14 | 15 | 3 | 2 | 1 | 12                  |                         |
| F1C60201          | Perform the DCA ground<br>loop check and look for<br>an open connection or any<br>grounding problem on the<br>coax shield.<br>If ref. code F1C60201 when<br>using "Change Display" key,<br>suspect 01A-C2H2 or 01A-C2J2.<br>If ref. code F1C60201 and only<br>top half of IML screen displayed,<br>suspect 01A-C2G2. |    |   |    |    |   |   |   |                     |                         |
| F1C70001          | 3                                                                                                                                                                                                                                                                                                                    | 2  | 1 |    |    |   |   |   |                     | 0400,<br>ENTRY<br>P. BB |
| F1CA1001          | 13                                                                                                                                                                                                                                                                                                                   | 12 |   |    |    |   |   |   |                     |                         |
| F1CA1101          | 13                                                                                                                                                                                                                                                                                                                   | 12 |   |    |    |   |   |   |                     |                         |
| F1CA1201          | 13                                                                                                                                                                                                                                                                                                                   | 12 |   |    |    |   |   |   |                     |                         |
| F1CA2101          | 13                                                                                                                                                                                                                                                                                                                   | 12 |   |    |    |   |   |   |                     |                         |
| F1CA2201          | 13                                                                                                                                                                                                                                                                                                                   | 12 |   |    |    |   |   |   |                     |                         |
| F1CA2301          | Unplug the coax cables from the DCA.<br>Try to isolate the failing device.                                                                                                                                                                                                                                           |    |   |    |    |   |   |   |                     |                         |

(Step 005 continues)

04DEC81 PN 8438473

EC 366515 PEC 366493

1920 MAP F100-1

## SP-MACHINE CHECK

PAGE 5 OF 11

(Step 005 continued)

| COLUMN 1          | COLUMN 2                                                                                                                 |    |   |   |   |   |   |   | COLUMN 3            | COL. 4       |
|-------------------|--------------------------------------------------------------------------------------------------------------------------|----|---|---|---|---|---|---|---------------------|--------------|
| Reference<br>CODE | Suspected FRUs<br>PRIORITY                                                                                               |    |   |   |   |   |   |   | Remarks             | GO TO<br>MAP |
|                   | 1                                                                                                                        | 2  | 3 | 4 | 5 | 6 | 7 | 8 |                     |              |
| F1CA3001          | 13                                                                                                                       | 12 |   |   |   |   |   |   | Before a FRU        |              |
| F1CA3101          | 13                                                                                                                       | 12 |   |   |   |   |   |   | replacement perform |              |
| F1CA3201          | 13                                                                                                                       | 12 |   |   |   |   |   |   | a checkout of the   |              |
|                   |                                                                                                                          |    |   |   |   |   |   |   | operator console    |              |
|                   |                                                                                                                          |    |   |   |   |   |   |   | 3278-2A or          |              |
|                   |                                                                                                                          |    |   |   |   |   |   |   | 3279-2C Display     |              |
|                   |                                                                                                                          |    |   |   |   |   |   |   | Console Maintenance |              |
|                   |                                                                                                                          |    |   |   |   |   |   |   | Information.        |              |
| F1CA8201          | Check all coax cables/connectors.<br>Check the 3278-2A / 3279-2C<br>using the Display Console<br>Maintenance Information |    |   |   |   |   |   |   |                     |              |
| F1CCXX01          |                                                                                                                          |    |   |   |   |   |   |   | Control Information | 0001         |
| F1CDXX01          |                                                                                                                          |    |   |   |   |   |   |   | Error               | ENTRY        |
| F1CEXX01          |                                                                                                                          |    |   |   |   |   |   |   |                     | POINT        |
| F1CF0001          |                                                                                                                          |    |   |   |   |   |   |   |                     | 0            |

(Step 005 continues)

04DEC81 PN 8488473

EC 366515 PEC 366493

1920 MAP F100-5

## SP-MACHINE CHECK

PAGE 6 OF 11

(Step 005 continued)

(Entry Point T)

\*\*\*\*\*

FRU Table

=====

| No. | Name                | Position                | Basic Feature |
|-----|---------------------|-------------------------|---------------|
| 1   | SP-card 1           | 01A-C2D2                | Basic         |
| 2   | SP-card 2           | 01A-C2E2                |               |
| 3   | SP-card 3           | 01A-C2F2                |               |
| 4   | SP-card 4           | 01A-C2G2                |               |
| 5   | SP-card 5           | 01A-C2H2                |               |
| 6   | SP-card 6           | 01A-C2J2                |               |
| 7   | SCL-card 3          | 01A-C2C2                |               |
| 8   | SCL-card 4          | 01A-C2B4                |               |
| 9   | PSC-card 2          | 01A-A2C2                |               |
| 10  | PSC-card 1          | 01A-A2D2                |               |
| 11  | PCI-card 1          | 01A-A2E2                |               |
| 12  | DCA-card 1,2        | 01A-A2J4,J2             |               |
| 13  | DCA-card 3          | 01A-A2K2                |               |
| 14  | CDF1-card 1,2       | 01A-A2R2,S2             |               |
| 15  | CDF2-card 1,2       | 01A-A2N2,P2             |               |
| 16  | SBA-card            | 01A-A2Q2                |               |
| 17  | BBA0-card           | 01A-A2T2                |               |
| 18  | RLK-card 1          | 01A-A2W2                |               |
| 19  | RLK-card 2          | 01A-A2X4                |               |
| 20  | Processor bus cable | 01A-A2YM to<br>01A-C2YJ |               |
| 21  | Processor bus cable | 01A-A2YD to<br>01A-C2YK |               |

After the repair,

Go to Page 9, Step 011, Entry Point V.

04DEC81 PN 8468473

EC 366515 PEC 366493

1920 MAP F100-6

A 8  
1 1

REF.C.F1CXXX01

1920

MAP F100-7

SP-MACHINE CHECK

PAGE 7 OF 11

006

The error was obviously intermittent.

Before any FRU replacement .....

Go to Step 007, Entry Point P.

007

(Entry Point P)

\*\*\*\*\*

Important Note:

=====

Any of these reference codes may also come up due to ground problems on the DCA coax cables or ground problems within the terminals connected to the DCA.

There fore check first all ports for ground problems before you start any other action or replacement!

Do now the repair as told by the REFCODE ANALYSIS.

-----

After the repair do the verification.

Go to Page 9, Step 011, Entry Point V.

04DEC81 PN 8488473

EC 366515 PEC 366493

1920 MAP F100-7

## SP-MACHINE CHECK

PAGE 8 OF 11

008

(Entry Point B)

\*\*\*\*\*

| Reference<br>Code                | Action                                                                                                                                                                                                                                                                                       |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| F1C60201                         | Perform the DCA ground loop check and look for an open connection or any grounding problem on the coax shield.<br>If ref. code F1C60201 when using "Change Display" key, suspect 01A-C2H2 or 01A-C2J2.<br>If ref. code F1C60201 and only top half of IML screen displayed, suspect 01A-C2G2. |
| F1CA2301                         | Unplug the coax cables from the DCA.<br>Try to isolate the failing device.                                                                                                                                                                                                                   |
| F1CA3001<br>F1CA3101<br>F1CA3201 | Before a FRU replacement perform a checkout of the operator console using the 3278-2A or 3279-2C Display Console Maintenance Information.                                                                                                                                                    |
| F1CA8201                         | Check all coax cables/connectors.<br>Check the 3278-2A / 3279-2C using the Display Console Maintenance Information                                                                                                                                                                           |

Is the operator console working correctly?

Y N

009

Do the repair as told by the console maintenance information.

04DEC81 PN 8488473

EC 366515 PEC 366493

1920

MAP F100-8



0  
8

REF.C.F1CXXX01  
SP-MACHINE CHECK  
PAGE 9 OF 11

1920

MAP F100-9

010

Go back to the REFCODE ANALYSIS for the  
FRU replacement.

011

(Entry Point V)

\*\*\*\*\*

Verification:

After a FRU replacement perform IML with the  
CNTRL diskette FU1 !

IML successful?

(IML is completed successfully when the  
PROGRAM LOAD picture appears on the  
screen.)

Y N

012

Any reference code?

Y N

013

Go To Map 0400, Entry Point R.

014

Same ref.code as before?

Y N

015

Go to appropriate MAP, respectively use  
the REFCODE ANALYSIS.

016

Go To Map 0001, Entry Point O.

017

It may have been an intermittent error.

Run BBA 0 Test,  
BBA 1 Test (no BBA1 for 4331-11),  
and SBA Test.

Any reference code?

Y N

1 1  
1 0  
E F

04DEC81 PN 8488473

EC 366515 PEC 366493

1920 MAP F100-9

018

Is this the first time you have been called for  
this trouble?

Y N

019

Reseat and check the following:

- 1.Processor bus cable 01A-A2YM to  
01A-C2YJ  
Processor bus cable 01A-A2YD to  
01A-C2YK

- 2.Perform the DCA ground loop check and  
look for an open connection or any  
grounding problem on the coax shield.

Is problem found?

Y N

020

Now suspect each adapter on this bus.

Suspected FRUs:

|               |              |
|---------------|--------------|
| PSC-card 2    | 01A-A2C2     |
| PSC-card 1    | 01A-A2D2     |
| PCI-card 1    | 01A-A2E2     |
| DCA-card 1, 2 | 01A-A2J4, J2 |
| DCA-card 3    | 01A-A2K2     |
| CDF1-card 1,2 | 01A-A2R2, S2 |
| CDF2-card 1,2 | 01A-A2N2, P2 |
| SBA-card      | 01A-A2Q2     |
| BBA0-card     | 01A-A2T2     |
| RLK-card 1    | 01A-A2W2     |
| RLK-card 2    | 01A-A2X4     |

After the repair

Go To Map 0001, Entry Point A.

021

Repair as required, then

Go To Map 0001, Entry Point A.

04DEC81 PN 8488473

EC 366515 PEC 366493

1920 MAP F100-10

E G  
9 1  
0

REF.C.F1CXXX01

1920

MAP F100-11

SP-MACHINE CHECK

PAGE 11 OF 11

022

Go To Map 0001, Entry Point A.

023

Go to corresponding MAP, respectively use the  
REFCODE ANALYSIS.

04DEC81 PN 8488473

EC 366515 PEC 366493

1920

MAP F100-11



**BBA0 Log MAP**

PAGE 1 OF 4

**ENTRY POINTS**

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| FXXX          | A              | 1              | 001            |
| RFCA          | A              | 1              | 001            |
| RFCA          | B              | 2              | 003            |
| OC00          | AA             | 1              | 002            |
| OC00          | MM             | 4              | 014            |
| 4902          | MM             | 4              | 014            |

**EXIT POINTS**

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 2              | 005            | 0001          | A              |
| 3              | 007            | 0001          | A              |
| 4              | 016            | 0001          | A              |
| 4              | 015            | 0001          | 0              |

**001**

(Entry Point A)

Make sure that you have traced the START MAP 0000 precisely.  
Another reference code may be more important than the one you  
have got first.

**Are you led to this MAP by the REFCODE  
ANALYSIS?**

Y N

**002**

(Entry Point AA)

BSU Log Display (Example)

=====

|                                                                    |  |
|--------------------------------------------------------------------|--|
| BBA LOG                                                            |  |
| REF. CODE F2XXXX01                                                 |  |
| Last SP detected errors<br>XXXXXXXX                                |  |
| If any ref. code is<br>displayed here, use<br>(Step 002 continues) |  |

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10APR81

PN 5683310

REF.CODE F2XXXX01

EC 366390

PEC 366385

4331

1940

MAP F200 1

2  
A

A  
1

REF.C.F2XXXX01

1940

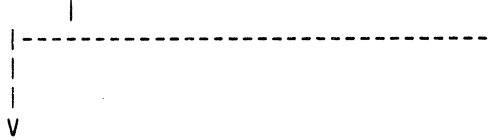
MAP F200-2

**BBA0 Log MAP**

PAGE 2 OF 4

(Step 002 continued)

this ref. code first.



Write down the reference code from the  
BBA 0 LOG.

Go to Step 003, Entry Point B.

**003**

(Entry Point B)

General note:

SP card 5; 01A-C2H2 may not be installed.

Look first for an IC-bus log.

Any IC-bus log?

Y N

**004**

(Entry Point K)

Is the reference code from the BBA 0 log  
F2FXXX01?

Y N

**005**

Invoke the REFCODE ANALYSIS.

Replace FRUs as indicated by the  
REFCODE ANALYSIS for the BBA 0 log.

After the repair

Go To Map 0001, Entry Point A.

4 3  
B C

10APR81 PN 5683310

EC 366390 PEC 366389

1940

MAP F200-2

C  
2

REF.C.F2XXXX01

1940

MAP F200-3

BBA0 Log MAP

PAGE 3 OF 4

006

REFERENCE  
CODE

F2FXXX01

A conversation between the  
PU and the BBA0 was  
not completed.

The keyboard may not have  
been functional for about  
32 sec before any of these  
logs was taken:

Did a PU and/or IC-bus log  
occur before any of the  
reference codes F2FXXX01  
was logged?

Y N

007

(Entry Point BA)

REFERENCE  
CODE

Suspect the following:

F2FOXX01 | 1.BBA0 card ; 01A-A2T2  
| 2.ACC card 3 ; 01A-A2V2

F2F1XX01 | 1.BBA0 card ; 01A-A2T2  
F2F2XX01 | 2.ACC card 3 ; 01A-A2V2  
| 3.PU, look for a PU log  
| If there is a PU log  
| go to appropriate MAP,  
| respectively use the  
| REFCODE ANALYSIS.  
| 4.Timeout problem  
| Go to MAP 0001,  
| ENTRY POINT 0

After the repair

Go To Map 0001, Entry Point A.

4  
D

10APR81 PN 5683310  
EC 366390 PEC 366389  
1940 MAP F200-3

B D  
2 3

REF.C.F2XXXX01

1940

MAP F200-4

**BBA0 Log MAP**

PAGE 4 OF 4

**008**

Is there an IC-bus log?

Y N

**009**

Keep the PU log for possible later use.

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

**010**

Suspect the IC-bus.

Go to appropriate MAP, respectively use the  
REFCODE ANALYSIS.

**011**

Is the time stamp about the same as for the  
BBA 0 log (within 1 hour)?

Y N

**012**

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

**013**

Follow the reference code from the IC-bus log.

Go to appropriate MAP, respectively use the  
REFCODE ANALYSIS.

**014**

(Entry Point MM)

Suspect the following FRUs;  
replace one at a time:

BBA0 card 1: 01A-A2T2

ACC card 3: 01A-A2V2

Processor Bus for MSSS:

01A-C2YJ to 01A-A2YM

and 01A-C2YK to 01A-A2YD

**Successful?**

Y N

**015**

Go To Map 0001, Entry Point O.

**016**

Go To Map 0001, Entry Point A.

10APR81

PN 5683310

EC 366390

PEC 366389

1940

MAP F200-4



**BBA0 Test MAP**

PAGE 1 OF 1

**ENTRY POINTS**

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| FXXX          | A              | 1              | 001            |
| RFCA          | A              | 1              | 001            |
| OC00          | A              | 1              | 001            |

**EXIT POINTS**

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 1              | 003            | 0001          | A              |

**001**

(Entry Point A)

Are you led to this MAP by the REFCODE  
ANALYSIS?

Y N

**002**

Select the IBM MAINTENANCE and  
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the BBA0  
test.

Go to Step 003, Entry Point P.

**003**

(Entry Point P)

Do now the repair as told by the REFCODE  
ANALYSIS.

-----  
After the repair

Go To Map 0001, Entry Point A.



## SBA Error Log

PAGE 1 OF 1

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| FXXX          | A              | 1              | 001            |
| RFCA          | A              | 1              | 001            |
| 4900          | A              | 1              | 001            |

## EXIT POINTS

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 1              | 003            | 0001          | A              |

001

(Entry Point A)

Are you led to this MAP by the REFCODE  
ANALYSIS?

Y N

002

Select the IBM MAINTENANCE and  
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the SBA  
Error LOG.

Go to Step 003, Entry Point P.

003

(Entry Point P)

Do now the repair as told by the REFCODE  
ANALYSIS.

After the repair

Go To Map 0001, Entry Point A.



## SBA Test

PAGE 1 OF 1

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| FXXX          | A              | 1              | 001            |
| RFCA          | A              | 1              | 001            |
| 4900          | A              | 1              | 001            |

## EXIT POINTS

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 1              | 003            | 0001          | A              |

001

(Entry Point A)

Are you led to this MAP by the REFCODE  
ANALYSIS?

Y N

002

Select the IBM MAINTENANCE and  
SERVICE SELECTION PROGRAM.

Invoke the REFCODE ANALYSIS.

Key in the reference code from the SBA test.  
Go to Step 003, Entry Point P.

003

(Entry Point P)

Do now the repair as told by the REFCODE  
ANALYSIS.

After the repair

Go To Map 0001, Entry Point A.



MAP F400-1

PAGE 1 OF 2

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 2              | 004            | 0001          | A              |

1970 MAP F400-1

A B  
1 1

REF.C.F4XXXX01

1970

MAP F400-2

Transmit/Receive Error

PAGE 2 OF 2

004

Do now the repair as told by the REFCODE ANALYSIS.

-----  
After the repair,

Go To Map 0001, Entry Point A.

005

If by mistake the test loader for ST 4300 was selected, and then FRIEND was selected a CLEAR RESET must have been done in between. The same is required if first FRIEND was selected and then the ST 4300 test loader.

26OCT81 PN 5683317

EC 366493 PEC 366390

1970 MAP F400-2



## SPIL Program MAP

PAGE 1 OF 1

## ENTRY POINTS

| FROM          | ENTER THIS MAP |                |                |
|---------------|----------------|----------------|----------------|
| MAP<br>NUMBER | ENTRY<br>POINT | PAGE<br>NUMBER | STEP<br>NUMBER |
| FXXX          | A              | 1              | 001            |

## EXIT POINTS

| EXIT THIS MAP  |                | TO            |                |
|----------------|----------------|---------------|----------------|
| PAGE<br>NUMBER | STEP<br>NUMBER | MAP<br>NUMBER | ENTRY<br>POINT |
| 1              | 001            | 0001          | Y              |

001

(Entry Point A)

Reason: A Program check was detected.

Fix: Write down log information.

Go To Map 0001, Entry Point Y.

-----  
If all testing (by MAP 0001, Entry Point Y) does  
not find an error, card 01A-C2E2 could  
possibly have caused the problem.

