Volume: 03
Title: MI MAPS 8XXX-4B70
Machine Type: 4331-2 / 4331-11
Power Design Level: 4/5
B/M Number 4331-2: 5683353
B/M Number 4331-11: 4687135

Ref.Code Directory

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
EA00	A	1	001
0C00	A	1	001
0020	A	1	001
0080	A	1	001

001
(Entry Point A)

REFERENCE CODE DIRECTORY
==========

Reference Code	Title	Goto MAP
80000081	BMPX-1 adapter test	8070
80000181	BMPX 1 Standard Interface test	8080
80100081	BMPX-1 adapter test	8070
80200081	BMPX-2 adapter test	8170
80XXXX01	SCA-log (BMPX 1)	8000
81100081	BMPX-2 adapter test	8170
81000181	BMPX 2 Standard Interface test	8180
81XXXX01	SCA-log (BMPX 2)	8100
82XXXX81	HSC test	8270
82000181	HSC standard interface test	8280
82XXXX01	HSC log	8200

(Step 001 continues)

Ref.code directory

(Step 001 continued)

Reference Code	Title	Goto MAP
88B0XX81	ACA card wrap error	8882
88BBBB81	Board and cable errors	8880
88C0XX81	ACA plug wrap error	8884
88DXXX8F	In line problems	0001, Entry Point 0
88EXXX01	CA channel log MAP	8800
88FFFF80	CA configuration MAP	88FF
88XXXX81	Link to CA MAPs	8886
89FXXX01	CA unit check log MAP	8900

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	AA	2	001
0C00	MM	53	056
4902	MM	53	056
8XXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
55	071	0000	A
55	080	0000	A
56	085	0000	A
59	144	0000	A
53	055	0001	A
54	059	0001	A
55	083	0001	A
59	142	0001	A
6	005	0001	0
9	005	0001	0
17	005	0001	0
17	005	0001	0
62	165	0001	0
56	086	0001	0
52	041	0001	0
17	005	0001	P
63	171	8070	A
56	096	8070	A
56	090	8070	A
55	076	8070	A
53	046	8070	A
63	175	8080	A
56	093	8080	A

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 got first.

(Step 001 continues)

002

The error is obviously intermittent; most probably caused by any control unit/device attached to this channel or it is caused by the standard interface cabling/connectors.

The following SCA log picture below will be used when tracing this MAP:

1.Take the reference code from BMPX1 log display and look it up in the 'reference code table' which after some questions follows the SCA log picture.

2.Go to the entry point in the MAP as indicated by the reference code table.

3.Fetch additional information from the SCA log display, field A, B or C when told by this MAP.

(Step 002 continues)

(Step 002 continued)
Is there more than one control unit connected to this channel (BMPX1)?
Y N

003
Go to Step 005, Entry Point CC.

004
Display and note all available BMPX1 logs. Note down the device (Control unit) addresses displayed in field C of SCA log display.

Press COPY key, if console printer is available, or use FRIEND command PRINT LOG to get printouts of the logs.

Is it always the same control unit?
Y N

005
(Entry Point CC)

Now look up the reference code of the SCA log BMPX1 in the following list and go to the indicated entry point:

REF. Code

80110101

Interface Control Check
Go to Page 53, Step 049, Entry Point U.

Ref. Code

80110201

Channel Control Check
Go to Page 36, Step 040, Entry Point 60.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80115101

Interface Control Check
Go to Page 50, Step 040, Entry Point AH.

Ref. Code

80115201

Interface Control Check
Go to Page 50, Step 040, Entry Point AJ.

Ref. Code

80216101

Channel Data Check
Go to Page 41, Step 040, Entry Point 85.

Ref. Code

80217101

Interface Control Check
Go to Page 25, Step 040, Entry Point 16.

Ref. Code

80218101

Channel Data Check
Go to Page 26, Step 040, Entry Point 17.

Ref. Code

80219101
Go to Page 51, Step 040, Entry Point R1.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80220101
Go to Page 51, Step 040, Entry Point R2.

Ref.Code

80221101
Go to Page 51, Step 040, Entry Point R3.

Ref. Code

80222101

Channel Control Check
Go to Page 51, Step 040, Entry Point R4.

Ref. Code

80325101

Interface Control Check
Go to Page 23, Step 040, Entry Point 9.

Ref. Code

80325201

Channel Control Check
Go to Page 36, Step 040, Entry Point 63.

Ref. Code

80325301

Channel Control Check.
Check whether any control unit was switched off, otherwise
Go to Page 23, Step 040, Entry Point 10.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80334101

Interface Control Check
Go to Page 26, Step 040, Entry Point 20.

Ref. Code

80335101
Go To Map 0001, Entry Point O.

Ref. Code

80336101

Interface Control Check
Go to Page 26, Step 040, Entry Point 21.

Ref. Code

80337101

Channel Control Check
Go to Page 41, Step 040, Entry Point 86.

Ref. Code

80337201

Channel Control Check
Go to Page 42, Step 040, Entry Point 87.

Ref. Code

80338101

Interface Control Check
Go to Page 48, Step 040, Entry Point A9.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80339101

Interface Control Check
Go to Page 48, Step 040, Entry Point A9.

Ref. Code

80340101

Interface Control Check
Go to Page 33, Step 040, Entry Point 47.

Ref. Code

80340201

Interface Control Check
Go to Page 37, Step 040, Entry Point 67.

Ref. Code

80340301

Interface Control Check
Go to Page 33, Step 040, Entry Point 48.

Ref. Code

80340401

Interface Control Check
Go to Page 37, Step 040, Entry Point 68.

Ref. Code

80340501

Interface Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 42, Step 040, Entry Point 88.

Ref. Code

80653101

Channel Data Check
Go to Page 27, Step 040, Entry Point 23.

Ref. Code

80757101

Interface Control Check
Go to Page 34, Step 040, Entry Point 52.

Ref. Code

80757201

Channel Control Check
Go to Page 38, Step 040, Entry Point 72.

Ref. Code

80760101

Interface Control Check
Go to Page 23, Step 040, Entry Point 11.

Ref. Code

80760201

Channel Control Check
Go to Page 39, Step 040, Entry Point 73.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80761101

Interface Control Check
Go to Page 27, Step 040, Entry Point 24.

Ref. Code

80762101

Interface Control Check
Go to Page 27, Step 040, Entry Point 25.

Ref. Code

80763101

Interface Control Check
Go to Page 48, Step 040, Entry Point AB.

Ref. Code

80764101

Channel Control Check
Go to Page 42, Step 040, Entry Point 89.

Ref. Code

80764201

Channel Control Check
Go to Page 43, Step 040, Entry Point 90.

Ref. Code

80765101

Interface Control Check
(Step 005 continues)

(Step 005 continued)

Ref. Code

80771101

Interface Control Check
Go to Page 28, Step 040, Entry Point 28.

Ref. Code

80771201

Interface Control Check
Go to Page 28, Step 040, Entry Point 29.

Ref. Code

80772101

Channel Control Check
Go to Page 43, Step 040, Entry Point 93.

Ref. Code

80773101

Interface Control Check
Go to Page 50, Step 040, Entry Point AK.

80880101

Interface Control Check
Go to Page 52, Step 040, Entry Point QT.

Ref. Code

80881101

Interface Control Check
Go to Page 24, Step 040, Entry Point 12.
(Step 005 continues)

(Step 005 continued)

Ref. Code

80881201

Channel Control Check
Go to Page 39, Step 040, Entry Point 76.

Ref. Code

80883101

Channel Control Check
Go to Page 43, Step 040, Entry Point 94.

Ref. Code

80883201

Channel Control Check
Go to Page 43, Step 040, Entry Point 95.

Ref. Code

80884101

Interface Control Check
Go to Page 29, Step 040, Entry Point 37.

Ref. Code

80885101

Interface Control Check
Go to Page 30, Step 040, Entry Point 38.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80897101

Channel Control Check
Go to Page 49, Step 040, Entry Point AF.

Ref. Code

80898101

Channel Control Check
Go to Page 44, Step 040, Entry Point 98.

Ref. Code

80899101

Interface Control Check
Go to Page 31, Step 040, Entry Point 3B.

Ref. Code

8089A101

Interface Control Check
Go to Page 20, Step 040, Entry Point 3.

Ref. Code

8089A201

Channel Control Check
Go to Page 39, Step 040, Entry Point 79.

Ref. Code

80AA0101

Channel Data Check
(Step 005 continues)

(Step 005 continued)
Go to Page 44, Step 040, Entry Point 99.

Ref. Code

80AA1101

Channel Data Check
Go to Page 28, Step 040, Entry Point 33.

Ref. Code

80AA2101

Error during data transfer end
Go to Page 61, Step 165, Entry Point R.

Ref. Code

80AA3101

Error during data transfer end.
OPERATIONAL IN = 0
Go to Page 61, Step 165, Entry Point R.

Ref. Code

80AA4101

Channel Control Check
Go to Page 51, Step 040, Entry Point R7.

Ref. Code

80AA5101

Interface Control Check
Go to Page 31, Step 040, Entry Point 3C.

(Step 005 continues)

(Step 005 continued)

Ref. Code

80DD8101

Channel Control Check
Go to Page 45, Step 040, Entry Point A2.

Ref. Code

80DDA101

Interface Control Check
Go to Page 21, Step 040, Entry Point 4.

Ref. Code

80DDA201

Channel Control Check
Go to Page 40, Step 040, Entry Point 81.

Ref. Code

80DDB101

Interface Control Check
Go to Page 35, Step 040, Entry Point 57.

Ref. Code

80DDB201

Channel Control Check
Go to Page 40, Step 040, Entry Point 82.

Ref. Code

80DDC101

Interface Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 35, Step 040, Entry Point 58.

Ref. Code

80DDC201

Channel Control Check
Go to Page 41, Step 040, Entry Point 83.

Ref. Code

80FF0101

Subchannel probably not defined
Go to Page 52, Step 041, Entry Point K1.

Ref. Code

80FF1101

Subchannel probably not defined
Go to Page 52, Step 041, Entry Point K1.

Ref. Code

80FF2101
Go To Map 0001, Entry Point O.

80FFF101
Go To Map 0001, Entry Point O.

Ref. Code

80XXXX01
Go To Map 0001, Entry Point P.

018
'Reserved'
Y N

019
'Reserved'
Y N

020
'Reserved'
Y N

021
'Reserved'
Y N

022
'Reserved'
Y N

5 3 R 5 2 S 5 2 T 5 2 U 2 0 V W

W 0860 MAP 8000-19

023
(Entry Point J)

See field A of SCA log display.

ADDRESS IN = 1 ?
Y N

024
Go to Step 027, Entry Point 5Z.

025
COMMAND OUT = 1 ?
Y N

026
Go to Step 031, Entry Point 5C.

027
(Entry Point 5Z)

STATUS IN = 1 ?
Y N

028
Go to Page 20, Step 033, Entry Point 5Y.

029
COMMAND OUT = 1 ?
Y N

030
SERVICE OUT = 1 ?
Y N

031
(Entry Point 5C)

Go to Page 53, Step 056, Entry Point M.

032
Go to Page 20, Step 033, Entry Point 5Y.

(Step 040 continued)
(Entry Point 4)

Interface Control Check during
CLRIO/HDV/HIO operation:

Check Trap
(Tag in check, or time-out, or any overcurrent) while waiting for SELECT IN to drop.

SELECT IN = 1

Sequence code: CLRIO = 0
HDV/HIO = undefined

(Entry Point DO)

Sequence code 0 means:
Channel detected error during TIO or Clear I/O.
Go to Page 58, Step 123, Entry Point D.

(Entry Point 5)

Channel Control Check during trap reason analysis:

Tag In Trap
OPERATIONAL IN = 1
ADDRESS IN = 0
STATUS IN = 1
REQUEST IN may be on or off

Sequence code = 5.
Go to Page 19, Step 023, Entry Point J.

(Entry Point 7)

Channel Control Check during trap reason analysis:

Tag In Trap and Polling Trap

```
OPERATIONAL IN = 0
SELECT      IN = 1
```

Device address = invalid
Go to Page 53, Step 056, Entry Point M.
(Step 040 continues)

(Step 040 continued)

(Entry Point 7X)

Channel Control Check during trap reason analysis:

Tag IN Trap

```
OPERATIONAL IN = 0
REQUEST     IN = 0
SERVICE IN or
ADDRESS     IN = 1
```

SCA in data transfer mode.

Sequence code = 5
Go to Page 25, Step 040, Entry Point GT.

(Entry Point 7Y)

Interface Control Check during trap reason analysis:

No Any Trap Request
(Trap Loop counter exhausted)

```
REQUEST IN = 0
SERVICE IN = 1
DATA    IN = 1
```

Device address = invalid
Go to Page 53, Step 056, Entry Point M.

(Entry Point 7Z)

Interface Control Check during trap reason analysis:

No Any Trap Request
(Trap loop counter exhausted)

```
REQUEST IN = 1
SERVICE IN = 0
DATA    IN = 0
```

Device address = invalid
(Step 040 continues)

(Step 040 continued)
(Entry Point 9)

Interface Control Check during polling sequence:

Check Trap
(Tag in check, or time-out, or any over overcurrent),
while waiting for ADDRESS IN.

ADDRESS IN = 1,
no Bus in Buffer parity check.

Sequence code = 5

(Entry Point H5)

Sequence code = 5 means:
Command had been accepted, but data transfer was discontinued.
Go to Page 59, Step 147, Entry Point H.

(Entry Point 10)

Channel Control Check during polling sequence.
Check Trap
(Tag in check, or time-out, or any overcurrent),
while waiting for ADDRESS IN.

ADRESS IN = 0
or 'Bus in Buffer' parity check.
Device address = invalid.
Go to Page 59, Step 147, Entry Point H.

(Entry Point 11)

Interface Control Check during command chaining sequence:

Check Trap
(Tag in check, or time-out, or any overcurrent),
while waiting for ADDRESS IN.

Sequence code = invalid.
Go to Page 59, Step 147, Entry Point H.

(Step 040 continues)

(Step 040 continued)
(Entry Point 14)

Interface Control Check during polling sequence

Trap loop counter exhausted.

```
REQUEST IN = 0
SERVICE IN = 1
DATA    IN = 1

Device address = invalid
```

Go to Page 53, Step 056, Entry Point M.

(Entry Point 16)

Interface Control Check during ending status handling:

STATUS IN = 1, Ending Status.

'Bus in Buffer'parity check.

Inbound or outbound operation.

Unit Status in 'Bus in Buffer' = invalid.

For sequence code see byte 52, bit 5, 6, 7 of SCA log display.

(Entry Point GT)

See the meaning of the sequence code in the following table, then continue:

```
Sequence Code
000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but no data transferred
011 = At least one byte of data was transferred
100 = Command code in current CCW was either not sent out or
      was sent but not accepted by the device
101 = Command was accepted, but data transfer is discontinued.
```

Go to Page 56, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 22)

Channel Control Check during command chaining sequence:

CHANNEL END received only.

Tag in Trap
while waiting for 'operational in' to fall.

OPERATIONAL IN = 1
ADDRESS IN = 0
STATUS IN = 0
SERVICE IN = 1
DATA IN = 1

SCA is in EC-mode.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 23)

Channel Data Check during data chaining:

Inbound operation
'Bus In Data' parity check
Go to Page 56, Step 097, Entry Point G.

(Entry Point 24)

Interface Control Check during command chaining:

ADDRESS IN = 0
STATUS IN = 1 (Short CU busy)

Sequence code = invalid.
Go to Page 56, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 25)

Interface Control Check and interface disconnect during command chaining:

ADDRESS IN = 0
SELECT IN = 1
(no Bus Out parity check).

Sequence code = invalid.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 26)

Interface Control Check during command chaining:

Tag in Trap
while waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 1
COMMAND OUT = 0
(command = dummy TIO)

Sequence code = invalid.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 27)

Interface Control Check during command chaining:

Sequence code = invalid

Tag in Trap
waiting for 'status in'

STATUS IN = 0
ADDRESS IN = 1
COMMAND OUT = 0
Go to Page 56, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 35)

Interface Control Check during command chaining:

Sequence code = invalid
ADDRESS IN = 1

Bus in parity check.
Go to Page 53, Step 056, Entry Point M.

(Entry Point 36)

Interface Control Check during command chaining:

Sequence code = invalid.
ADDRESS IN = 1

Device address on Bus in is not equal to the device address on Bus Out.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 37)

Interface Control Check during initial selection:

Sequence code = 4,
command in current CCW was either not sent out, or it was sent out but not accepted by the device.

ADDRESS IN = 1
Bus in parity check.
Go to Page 53, Step 056, Entry Point M.

(Step 040 continues)

(Step 040 continued)
(Entry Point 3B)

Interface Control Check during initial selection sequence:

SELECT IN = 1, CU busy. Waiting for 'selection in' to drop. 1 msec timeout loop exhausted.

Sequence code = 7 (invalid)
Go to Page 56, Step 097, Entry Point G.

(Entry Point 3C)

Interface Control Check during data transfer termination

SERVICE IN or
DATA IN = 1
Waiting for 'service in' or 'data in' to drop. 1 msec timeout loop exhausted.

Sequence code = 7 (invalid)
Go to Page 56, Step 097, Entry Point G.

(Entry Point 40)

Interface Control Check during CLRIO/HDV/HIO operation:

Device address = invalid.

```
Sequence code: CLRIO = 0
               HDV/HIO = undefined
```

Sequence code 0 means: Channel detected error.

ADDRESS IN = 1

Device address on Bus In is not equal the device address on Bus Out.
Go to Page 52, Step 042, Entry Point P.

(Step 040 continues)

(Step 040 continued)
(Entry Point 46)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in'.

STATUS IN = 0
or Bus in Buffer parity check.
Go to Page 57, Step 098, Entry Point B.

(Entry Point 47)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in' or 'service in' / 'data in'.

STATUS IN = 0
SERVICE IN = 0
DATA IN = 0

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 48)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in' or 'service in' and 'data in'.

STATUS IN = 0
SERVICE IN = 1
DATA IN = 1

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.
(Step 040 continues)

(Step 040 continued)

(Entry Point 49)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'status in' or 'service in' / 'data in'.

STATUS IN = 1,
SERVICE IN = 0
DATA IN = 0.

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 50)

Interface Control Check during polling sequence:

STATUS IN = 1,
SERVICE IN = 1,
DATA IN = 1

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 51)

Interface Control Check during command chaining:

Only 'channel end' received.
Command chaining indicated.

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational' in to fall.

See sequence code in byte 52, bit 5, 6, 7 of SCA log display and look it up in the sequence code table,
Go to Page 32, Step 040, Entry Point BT.

(Step 040 continues)

(Step 040 continued)
(Entry Point 56)

Interface Control Check during initial selection:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'status in' to drop.

STATUS IN = 1 (short control unit busy).

Sequence code = 4,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 57)

Interface Control Check during CLRIO/HDV/HIO operation:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational in' to drop.

```
Sequence code: CLRIO = 0,
               HDV/HIO = undefined.
```

Go to Page 32, Step 040, Entry Point BT.

(Entry Point 58)

Interface Control Check during CLRIO/HDV/HIO:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational in' drop.

```
Sequence code: CLRIO = 0,
               HDV/HIO = undefined.
```

Go to Page 32, Step 040, Entry Point BT.

(Step 040 continues)

(Step 040 continued)
(Entry Point 65)

Channel Control Check during polling sequence:

UNIT STATUS from 'Bus in Buffer', see byte 67 of SCA log display.

Check Trap while waiting for STATUS IN.

STATUS IN = 1
No 'Bus in Buffer' parity check.

Sequence code = 5.
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 66)

Channel Control Check during polling sequence:

UNIT STATUS = 00.

Check Trap while waiting for STATUS IN.

STATUS IN = 0,
or 'Bus in Buffer' parity check.

Sequence code = 5,
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 67)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 0
SERVICE IN/DATA IN = 0

Sequence code = 5
Go to Page 36, Step 040, Entry Point C5.

(Step 040 continues)

(Step 040 continued)
(Entry Point 68)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 0
SERVICE IN/DATA IN = 1

Sequence code = 5,
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 69)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 1,
SERVICE IN/DATA IN = 0.

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 5,
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 70)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 1,
SERVICE IN/DATA IN = 1.

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 5,
(Step 040 continues)

(Step 040 continued)
(Entry Point 73)

Channel Control Check during command chaining sequence:

Check Trap while waiting for ADDRESS IN.

Sequence code = invalid
Go to Page 62, Step 166, Entry Point C.

(Entry Point 74)

Interface Control Check during command chaining sequence:

Check Trap while waiting for STATUS IN

Sequence code = invalid
Go to Page 62, Step 166, Entry Point C.

(Entry Point 75)

Channel Control Check during command chaining sequence:

Check Trap while waiting for STATUS IN

Command = dummy TIO.

Sequence code = invalid.
Go to Page 62, Step 166, Entry Point C.

(Entry Point 76)

Channel Control Check during initial selection sequence:

Check Trap waiting for response to ADDRESS OUT

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Step 040 continues)

(Step 040 continued)
(Entry Point 77)

Channel Control Check during initial selection sequence:

Check Trap while waiting for STATUS IN.

Sequence code = 1,

(Entry Point C1)

Sequence code 1 means:

Command went out but device status not received.
Go to Page 62, Step 166, Entry Point C.

(Entry Point 78)

Channel Control Check during initial selection sequence:

Check Trap waiting for STATUS IN to drop.

STATUS IN = 1 (short control unit busy).

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Entry Point 79)

Channel Control Check during initial selection sequence:

Check Trap while waiting for SELECT IN to drop.

SELECT IN = 1.

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Step 040 continues)

(Step 040 continued)
(Entry Point 83)

Channel Control Check during
CLRIO/HDV/HIO operation:

Unexpected Trap while waiting for
OPERATIONAL IN to drop.

Sequence code: CLRIO = 0
HDV/HIO = undefined
Go to Page 40, Step 040, Entry Point C0.

(Entry Point 85)

Channel Data Check during terminal status
handling:

Outbound operation.
STATUS IN = 1 (terminal status)
'Bus Out Buffer' data parity check.
Go to Page 52, Step 043, Entry Point F.

(Entry Point 86)

Channel Control Check during polling
sequence:

BUS OUT parity check on COMMAND OUT

STATUS IN = 1

No Bus in Buffer parity Check.

Sequence code = 5

(Entry Point FT)

for meaning of sequence code see the following
table, then continue.

Sequence Code

000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but not data transferred
011 = At least one byte of data was transferred
(Step 040 continues)

(Step 040 continued)
(Entry Point 90)

Channel Control Check during command chaining:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.
Sequence code = invalid,
Go to Page 52, Step 043, Entry Point F.

(Entry Point 91)

Channel Control Check during command chaining:

BUS OUT parity check on COMMAND OUT.

Sequence code = invalid.
Go to Page 52, Step 043, Entry Point F.

(Entry Point 92)

Channel Control Check during command chaining:

BUS OUT parity check on COMMAND OUT.

Sequence code = invalid.
Go to Page 52, Step 043, Entry Point F.

(Entry Point 93)

Channel Control Check during command chaining:

SELECT IN = 1
BUS OUT parity check on ADDRESS OUT.

Sequence code = invalid.
Go to Page 52, Step 043, Entry Point F.

(Step 040 continues)

(Step 040 continued)
(Entry Point 94)

Channel Control Check during initial selection:

ADDRESS IN =1
BUS OUT parity check on ADDRESS OUT.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 95)

Channel Control Check during initial selection:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 96)

Channel Control Check during initial selection:

STATUS IN =1
BUS OUT parity check on COMMAND OUT.

Sequence code = 1,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 97)

Channel Control Check during initial selection:

STATUS IN = 1 (short CU busy),
ADDRESS IN = 0

BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Step 040 continues)

(Step 040 continued)
(Entry Point A1)

Channel Control Check during
CLRIO/HDV/HIO operation:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

```
Sequence code: CLRIO = 0,
               HDV/HIO = undefined.
```

For meaning of sequence code
Go to Page 41, Step 040, Entry Point FT.

(Entry Point A2)

Channel Control Check during
CLRIO/HDV/HIO operation:

SELECT IN = 1,
BUS OUT parity check on ADDRESS OUT.

```
Sequence code: CLRIO = 0,
               HDV/HIO = undefined.
```

For meaning of sequence code
Go to Page 41, Step 040, Entry Point FT.

(Entry Point A3)

Interface Control Check during polling
sequence:

SERVICE IN = 1
HALT 1 Flag off, no SERVICE IN expected.

Sequence code = 5,
Go to Page 47, Step 040, Entry Point PT.

(Step 040 continues)

(Step 040 continued)

(Entry Point A7)

Interface Control Check during
CLRIO/HDV/HIO operation:

All Traps are not down after interface
disconnect.

Tag in Trap, unexpected Trap condition.

OPERATIONAL IN/
SERVICE IN/
DATA IN = 1

```
Sequence code: CLRIO = 0,
               HDV/HIO = undefined.
```

For meaning of sequence code
Go to Step 040, Entry Point PT.

(Entry Point A8)

Interface Control Check during
CLRIO/HDV/HIO operation:

All Traps are not down after interface
disconnect.

Tag in Trap, unexpected Trap condition.

SERVICE IN / DATA IN = 0

```
Sequence code: CLRIO = 0
               HDV/HIO = undefined.
```

(Entry Point PT)

For meaning of sequence code use the
following table then continue.

```
Sequence Code

000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but no data transferred
011 = At least one byte of data was transferred
```

(Step 040 continues)

(Step 040 continued)
(Entry Point AD)

Channel Control Check during command chaining:

Tag in Trap, waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 0, or COMMAND OUT = 1

Sequence code = invalid.
Go to Page 53, Step 048, Entry Point T.

(Entry Point AE)

Channel Control Check during initial selection:

Tag in Trap, waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 0

Sequence code = 1,
command went out, but device status not received.
Go to Page 53, Step 048, Entry Point T.

(Entry Point AF)

Channel Control Check during initial selection:

Tag in Trap, unexpected Trap condition while waiting for control unit response to ADDRESS OUT.

ADDRESS IN = 0
STATUS IN = 0
SELECT IN = 0.

Sequence code = 4,
command code in current CCW was either not sent out or it was sent out but not accepted by the device.
Go to Page 53, Step 048, Entry Point T.

(Step 040 continues)

(Step 040 continued)

(Entry Point R1)

Error during terminal status handling.

STATUS IN = 1 (ending status)
COMMAND OUT raised by BSM interface card.
Go to Page 61, Step 165, Entry Point R.

(Entry Point R2)

Error during terminal status handling.

STATUS IN = 1 (terminal status)

Paging overrun detected by BSM interface card.
Go to Page 61, Step 165, Entry Point R.

(Entry Point R3)

Error during terminal status handling.

STATUS IN = IN (ending status)

Paging overrun detected by BSM interface card.
Go to Page 61, Step 165, Entry Point R.

(Entry Point R4)

Channel Control Check during ending status handling:

STATUS IN = 1 (ending status)
UNIT STATUS = 0
Go to Page 56, Step 097, Entry Point G.

(Entry Point R5)

Interface Control Check during polling sequence:

STATUS IN = 1 (ending status)
UNIT STATUS = 0
Go to Page 56, Step 097, Entry Point G.
(Step 040 continues)

(Step 040 continued)

(Entry Point R6)

Interface Control Check during initial selection:

Timeout while waiting for response to ADDRESS OUT.
ADDRESS IN = 0
SELECT IN = 0
STATUS IN = 0
Sequence code = 4
Go to Page 25, Step 040, Entry Point GT.

(Entry Point R7)

Channel Control Check during data transfer end:

STATUS IN = 1 (ending status handling)
Go to Page 61, Step 165, Entry Point R.

(Entry Point QE)

Interface Control Check during polling sequence:

Check Trap, waiting for 'status in' or 'service in'/'data in'. (Tag in check, or timeout, or any overcurrent)

STATUS IN = 0
SERVICE IN = 0
DATA IN = 0

See byte 67 of SCA log display:
ADDRESS IN belongs to the device which started poll.
Sequence code = 5:
Command was accepted, but data transfer is disconnected.

When following this MAP consider the device which sent ADDRESS IN.
Go to Page 53, Step 056, Entry Point M.

(Step 040 continues)

045
Is the symptom the same as noted before?
Y N

046
The new FRU may also be defective or more than one FRU is defective in the adapter.
Go To Map 8070, Entry Point A.

047
Replace the next FRU according to the given priority.
Go to Page 52, Step 043, Entry Point FF.

048
(Entry Point T)

Suspect:
BMPX1 card 2; 01A-B2C2
Go to Page 55, Step 077, Entry Point W.

049
(Entry Point U)

WARNING:
Reference code 80110101 or 80110301 or 80110501 may also come up if a read command is given to a tape unit with a blank tape mounted. This will cause a time-out after 45 SEC and an interface control check. This fact is indicated in the BMPX1 log by the time out bit, message 'TIMEOUT ADR: XXX' in line 23 during login and in the log display.
XXX= device address.

Check this first!

Is there a blank tape mounted?
Y N

050
Is it reference code 80110101?
Y N

Z A A A B

051
Is it reference code 80110301?
Y N

052
Reference code 80110501.
This reference code can also come up,if a 3411 is attached and its mechanical scew is far out of adjustment.
Check this also.
If the adjustment is alright,
Go to Page 20, Step 040,
Entry Point 2.

053
Go to Page 20, Step 040, Entry Point 1.

054
Go to Page 32, Step 040, Entry Point 44.

055
Contact the customer.

The customer should correct the problem and continue his job.

Go To Map 0001, Entry Point A.

056
(Entry Point M)

(Entry Point Q)

Suspected:
Intermittent error mainly in the standard interface included the interface adapter parts of all connected control units of this channel. See also field A of SCA log display and note down the error condition of the tag signals for possible later use in case of support.

(Entry Point MM)

Check standard interface cables/connectors; check whether all cable connectors fit properly,
(Step 056 continues)

068
(Entry Point ZW)

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

Does the error come up again?
Y N

069
Go to Page 54, Step 059, Entry Point Z.

070
Same error symptom as before?
Y N

071
(Entry Point Y)

Go To Map 0000, Entry Point A.

072
Have you already been told to replace BMPX1 card 2 ; 01A-B2C2 during this call?

Y N

073
Replace now the BMPX1 card 2; 01A-B2C2
Run BMPX1 adapter test.

Any error?
Y N

074
Go to Step 077, Entry Point W.

075
The new card may also be defective.
Correct it.

Run BMPX1 adapter test. Sucessful?
Y N

076
Second error may be in adapter.

Go To Map 8070, Entry Point A.

077
(Entry Point W)

Run the application which caused the error.

Does the error come up again?
Y N

078
Go to Page 54, Step 059, Entry Point Z.

079
Same error symptoms as before?
Y N

080
Go To Map 0000, Entry Point A.

081
Suspect now the terminator card;

if 4321 or 4331-1: 01A-B2X2.

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

Run IC-bus test and BMPX1 adapter test.

Any reference code?
Y N

082
Try again the application which caused the error.

Does the error come up again?
Y N

083
Go To Map 0001, Entry Point A.

098
(Entry Point B)

See the adapter checks shown in field B of the SCA log display:

MAP Column 2:						
Additional SCA log informat						
Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Time-out?
Y N

099
Tag In Check?
Y N

100
Overcurrent?
Y N

101
Bus Parity Check?
Y N

102
Disconnect In?
Y N

58 AP AQ AR AS AT AU

103
Go to Page 53, Step 056, Entry Point M.

104
Go to Page 52, Step 042, Entry Point P.

105
Go to Page 53, Step 056, Entry Point M.

106
Are there more than one overcurrent logs?
Y N

107
Go to Page 56, Step 097, Entry Point G.

108
Are all from the same control unit/device?
Y N

109
Go to Page 53, Step 056, Entry Point Q.

110
Go to Page 56, Step 097, Entry Point G.

111
Disconnect In?
Y N

112
Are there more than one tag in check logs?
Y N

113
Go to Page 56, Step 097, Entry Point G.

58 AV AW

131
Go to Page 53, Step 056, Entry Point M.

132
Go to Page 52, Step 042, Entry Point P.

133
Time-out for signal to drop?
Y N

134
Time-out for signal to raise.

Are there more than one time-out logs?
Y N

135
Go to Page 56, Step 097, Entry Point G.

136
Are all from the same control unit/device?

See field C of the SCA log display.

Y N

137
Go to Page 61, Step 165, Entry Point R.

138
Go to Page 56, Step 097, Entry Point G.

139
Go to Page 53, Step 056, Entry Point M.

140
(Entry Point E)

Suspect:
BMPX1 card 2; 01A-B2C2
Run IC-bus test and BMPX1 adapter test.

Any reference code?
Y N

141
Try again the application which caused the error.

Does the error come up again?
Y N

142
Go To Map 0001, Entry Point A.

143
Same error symptoms as before?
Y N

144
Go To Map 0000, Entry Point A.

145
Go to Page 53, Step 056, Entry Point Q.

146
Go to appropriate MAP.

147
(Entry Point H)

See the adapter checks displayed in field B of the SCA log display:

MAP Column 2:						
Additional SCA log informat						
Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Time-out?
Y N

160
Go to Step 165, Entry Point R.

161
Go to Page 56, Step 097, Entry Point G.

162
(Entry Point S)

See the adapter checks shown in field B of the SCA log display:

MAP Column 2:
Additional SCA log informat

Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Bus (IN) Parity Check?
Y N

163
Go to Page 53, Step 056, Entry Point Q.

164
Go to Page 53, Step 056, Entry Point M.

165
(Entry Point R)

Suspected FRUs if 4321 or 4331-1:
1.PU card 5 ; 01A-B1G2
2.IC-Bus cable 3 ; 01A-B1B4(C) to 01A-B2YD

Suspected FRUs if 4331-2 or 4331-11
1.PU card 7 ; 01A-B1J2
2.IC-Bus cable 13; 01A-B1B4(B) to 01A-B2YC

Run the test chain. If a reference code comes up, go to appropriate MAP, or suspect the new FRU also being defective. Run the application
(Step 165 continues)

(Step 168 continued)

01A-B2C3, D3
01A-B2C4, D4
01A-B2C5, D5

Any reference code when testing after a FRU replacement?
Y N

169
Go to Page 55, Step 077, Entry Point W.

170
Is the symptom the same as noted before?
Y N

171
The new FRU may also be defective or more than one FRU is defective in the adapter.
Go To Map 8070, Entry Point A.

172
Replace the next FRU according to the given priority.
Go to Page 62, Step 168, Entry Point CX.

173
Suspect BMPX1 card 2 ; 01A-B2C2
Go to Page 53, Step 056, Entry Point M.

174
(Entry Point CA)

Suspect:
BMPX1 card 2; 01A-B2C2
Go to Page 55, Step 077, Entry Point W.

175
Go To Map 8080, Entry Point A.

BMPX-1 ADAPT TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
RFCA	A	1	001
RFCA	P	2	003
0C00	A	1	001
8XXX	A	1	001
8000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	009	0000	K
2	005	0001	0
2	007	0001	0

001

(Entry Point A)
****

BMPX-1 Adapter Test MAP.

```
*********************************************
*********************************************
** Caution:                                **
** Errors may come up, if the interface    **
** cable is too near any power cable.      **
*********************************************
*********************************************
```

Are you led to this MAP by the REFCODE ANALYSIS?
Y N

002
Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

Invoke the REFCODE ANALYSIS.

Key in the reference code and the first symptom code from the BMPX-1 Adapter test.
Go to Page 2, Step 003, Entry Point P.

BMPX-1 STANDARD INTERFACE TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	A	1	001
8XXX	A	1	001
8000	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
9	019	0001	A
9	021	0001	0

001
(Entry Point A)

```
**************************************************
**************************************************
** Warning,                                     **
** errors may come up, if the interface cable   **
** is too near any power cable!                 **
**************************************************
**************************************************
```

IMPORTANT HINTS:
---

1. Before testing the Standard Interface be sure that the BMPX-1 operates properly by running the BMPX-1 adapter test. This test should have run errorfree before testing the Standard Interface.

   For handling of the Standard Interface Test see Supplement to MAPs, Section 4.

(Step 001 continues)

(Step 001 continued)

0100 0003	TOR NOT ZERO
0100 0004	BIB NOT ZERO
0100 0005	TIR NOT ZERO
0100 0006	BOB BIT P ERROR
0100 0008	BOB NOT BIT 0
0100 0009	BOB NOT BIT 1
0100 000B	BOB NOT BIT 2
0100 000C	BOB NOT BIT 3
0100 000D	BOB NOT BIT 4
0100 000E	BOB NOT BIT 5
0100 000F	BOB NOT BIT 6
0100 0010	BOB NOT BIT 7
0200 0002	BOB NOT ZERO
0200 0003	TOR NOT ZERO
0200 0004	BIB NOT ZERO
0200 0005	TIR NOT ZERO
0200 0006	NOT ADDRESS OUT
0200 0008	NOT COMMAND OUT
0200 000A	NOT SERVICE OUT
0200 000C	NOT DATA OUT
0200 000E	NOT SUPPRESS OUT
0200 0010	NOT OPERATION OUT
0200 0012	NOT HOLD OUT
0200 0014	NOT CONDITION SUP OUT
0300 0002	BOB NOT ZERO
0300 0003	TOR NOT ZERO
0300 0004	BIB NOT ZERO
0300 0005	TIR NOT ZERO
0300 0006	BOB NOT BIT P
0300 0007	BIB NOT BIT P
0300 000F	METERING NOT IN OFF

6. Any other Symptom Code is displayed:

The following procedure explains how to identify a failing FRU in the Standard Interface area:
Take a note of the first symptoms shown on screen (at the most three symptoms per test run).

A. SYMPTOM CODES 0100XXXX - ERROR PERTAINS TO BUS INTERFACE
B. SYMPTOM CODES 0200XXXX - ERROR PERTAINS TO TAG INTERFACE
C. SYMPTOM CODES 030001XX - ERROR PERTAINS TO BUS INTERFACE
D. SYMPTOM CODES 030002XX - ERROR PERTAINS TO TAG INTERFACE

(Step 001 continues)

004
Inspect the interface connector contacts of the just eliminated cable for the proper positioning and/or datmage

(Entry Point T)

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

TABLE 1: INTERFACE WRAP CONNECTIONS

SYMTOM CODE: XX00YYZZ

ZZ	Error cause: (The affected line(s) you see in the following table for XX/YY.)
02	TESTED LINE HAS OPEN CIRCUIT Suspect bad connection or broken wire in one or both of the interface cable connectors. Open the interface connectors covers and make the necessary repairs.
03	TESTED LINE IS SHORTED TO GROUND Suspect short of shield to line in one or both of the interface cable connector. Open the interface coannector covers and make the necessary repairs.
04	TESTED LINE IS SHORTED TO OTHER LINE 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.

(Step 004 continues)

(Step 004 continued)
check for any loose or broken wire or damaged pin!
Go to Page 9, Step 018, Entry Point C.

005
Is the whole standard interface cable checked out from the last control unit back to the BMPX-1 interface connector?

Y N

006
Go to Page 1, Step 001, Entry Point A.

007
Be sure that all connections of the interface connectors are properly seated and not damaged.
Make the necessary repairs if required.

Run BMPX-1 standard interface cable test again!

Same error symptoms?
Y N

008
Error was caused by bad contacts in the BMPX-1 interface connectors of this interface.
Go to Page 9, Step 018, Entry Point C.

013
Remove card in 01A-B2B2 and reinstall the old card.The error is not caused by this card.

Replace BMPX card 2, 01A-B2C2.

Run the BMPX-1 standard interface cable test again!

Same error symptoms?
Y N

014
Error was caused by bad BMPX-1 card 2, 01A-B2C2.
Go to Step 018, Entry Point C.

015
Remove card in 01A-B2C2 and reinstall the old card. The error was not caused by this card.

Replace the 2 flatcables in case of a bus malfunction from:
01A-B2B2(W)to bus interface connector
01A-B2B2(X)to bus interface connector

in case of a tag malfunction from:
01A-B2B2(Y)to tag interface connector
01A-B2B2(Z)to tag interface connector

run BMPX-1 standard interface cable test again!

Same error symptoms?
Y N

016
Error was caused by bad flat cables.
Go to Step 018, Entry Point C.

E

017
Remove just installed flat cables. Reinstall old ones.
The error was not caused by flat cables.
Repalce board 01A-B2.

Run BMPX-1 standard interface cable test again!

Same error symptoms?
Y N

018
(Entry Point C)

Replug all removed system parts like cables and control units and plug the wrap connectors to the last control unit.

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

Any error symptoms?
Y N

019
Replace the wrap connectors with the standard interface bus/tag terminators.
Go To Map 0001, Entry Point A.

020
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.

021
Make a note of all symptoms and activities you have performed.
Go To Map 0001, Entry Point O.

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	AA	1	001
0C00	MM	53	056
4902	MM	53	056
8XXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
55	071	0000	A
55	080	0000	A
55	085	0000	A
59	144	0000	A
53	055	0001	A
54	059	0001	A
55	083	0001	A
59	142	0001	A
6	005	0001	0
9	005	0001	0
17	005	0001	0
17	005	0001	0
60	165	0001	0
55	086	0001	0
52	041	0001	0
17	005	0001	P
62	171	8170	A
56	096	8170	A
56	090	8170	A
55	076	8170	A
53	046	8170	A
62	175	8180	A
56	093	8180	A

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 got first.

(Entry Point AA)

Important hint:

(Step 001 continues)

(Step 002 continued)
The following SCA log picture below will be used when tracing this MAP:

1. Take the reference code from BMPX2 log display and look it up in the 'reference code table' which after some questions follows the SCA log picture.

2. Go to the entry point in the MAP as indicated by the reference code table.

3. Fetch additional information from the SCA log display, field A, B or C when told by this MAP.

(Step 002 continues)

(Step 002 continued)
Is there more than one control unit connected to this channel (BMPX2)?
Y N

003
Go to Step 005, Entry Point CC.

004
Display and note all available BMPX2 logs. Note down the device (Control unit) addresses displayed in field C of SCA log display.

Press COPY key, if console printer is available, or use FRIEND command PRINT LOG to get printouts of the logs.

Is it always the same control unit?
Y N

005
(Entry Point CC)

Now look up the reference code of the SCA log BMPX2 in the following list and go to the indicated entry point:

REF. Code

81110101

Interface Control Check
Go to Page 53, Step 049, Entry Point U.

Ref. Code

81110201

Channel Control Check
Go to Page 38, Step 040, Entry Point 60.

Ref. Code

81110301

Interface Control Check
Go to Page 53, Step 049, Entry Point U.

(Step 005 continues)

18B

(Step 005 continued)

Ref. Code

81115201

Interface Control Check
Go to Page 50, Step 040, Entry Point AJ.

Ref. Code

81216101

Channel Data Check
Go to Page 41, Step 040, Entry Point 85.

Ref. Code

81217101

Interface Control Check
Go to Page 25, Step 040, Entry Point 16.

Ref. Code

81218101

Channel Data Check
Go to Page 26, Step 040, Entry Point 17.

Ref. Code

81219101
Go to Page 51, Step 040, Entry Point R1.

Ref. Code

81220101
Go to Page 51, Step 040, Entry Point R2.

(Step 005 continues)

(Step 005 continued)

Ref.Code

81221101
Go to Page 51, Step 040, Entry Point R3.

Ref. Code

81222101

Channel Control Check
Go to Page 51, Step 040, Entry Point R4.

Ref. Code

81325101

Interface Control Check
Go to Page 23, Step 040, Entry Point 9.

Ref. Code

81325201

Channel Control Check
Go to Page 36, Step 040, Entry Point 63.

Ref. Code

81325301

Channel Control Check.
Check whether any control unit was switched off, otherwise
Go to Page 23, Step 040, Entry Point 10.

(Step 005 continues)

(Step 005 continued)

Ref. Code

81334101

Interface Control Check
Go to Page 26, Step 040, Entry Point 20.

Ref. Code

81335101
Go To Map 0001, Entry Point 0.

Ref. Code

81336101

Interface Control Check
Go to Page 26, Step 040, Entry Point 21.

Ref. Code

81337101

Channel Control Check
Go to Page 41, Step 040, Entry Point 86.

Ref. Code

81337201

Channel Control Check
Go to Page 42, Step 040, Entry Point 87.

Ref. Code

81338101

Interface Control Check
Go to Page 48, Step 040, Entry Point A9.

(Step 005 continues)

(Step 005 continued)

Ref. Code

81339101

Interface Control Check
Go to Page 48, Step 040, Entry Point A9.

Ref. Code

81340101

Interface Control Check
Go to Page 33, Step 040, Entry Point 47.

Ref. Code

81340201

Interface Control Check
Go to Page 37, Step 040, Entry Point 67.

Ref. Code

81340301

Interface Control Check
Go to Page 33, Step 040, Entry Point 48.

Ref. Code

81340401

Interface Control Check
Go to Page 37, Step 040, Entry Point 68.

Ref. Code

81340501

Interface Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 42, Step 040, Entry Point 88.

Ref. Code

81653101

Channel Data Check
Go to Page 27, Step 040, Entry Point 23.

Ref. Code

81757101

Interface Control Check
Go to Page 34, Step 040, Entry Point 52.

Ref. Code

81757201

Channel Control Check
Go to Page 38, Step 040, Entry Point 72.

Ref. Code

81760101

Interface Control Check
Go to Page 23, Step 040, Entry Point 11.

Ref. Code

81760201

Channel Control Check
Go to Page 39, Step 040, Entry Point 73.

(Step 005 continues)

(Step 005 continued)

Ref. Code

81761101

Interface Control Check
Go to Page 27, Step 040, Entry Point 24.

Ref. Code

81762101

Interface Control Check
Go to Page 27, Step 040, Entry Point 25.

Ref. Code

81763101

Interface Control Check
Go to Page 48, Step 040, Entry Point AB.

Ref. Code

81764101

Channel Control Check
Go to Page 42, Step 040, Entry Point 89.

Ref. Code

81764201

Channel Control Check
Go to Page 43, Step 040, Entry Point 90.

Ref. Code

81765101

Interface Control Check
(Step 005 continues)

(Step 005 continued)

Ref. Code

81771101

Interface Control Check
Go to Page 28, Step 040, Entry Point 28.

Ref. Code

81771201

Interface Control Check
Go to Page 28, Step 040, Entry Point 29.

Ref. Code

81772101

Channel Control Check
Go to Page 43, Step 040, Entry Point 93.

Ref. Code

81773101

Interface Control Check
Go to Page 50, Step 040, Entry Point AK.

81880101

Interface Control Check
Go to Page 52, Step 040, Entry Point QT.

Ref. Code

81881101

Interface Control Check
Go to Page 24, Step 040, Entry Point 12.
(Step 005 continues)

(Step 005 continued)

Ref. Code

81881201

Channel Control Check
Go to Page 39, Step 040, Entry Point 76.

Ref. Code

81883101

Channel Control Check
Go to Page 43, Step 040, Entry Point 94.

Ref. Code

81883201

Channel Control Check
Go to Page 43, Step 040, Entry Point 95.

Ref. Code

81884101

Interface Control Check
Go to Page 29, Step 040, Entry Point 37.

Ref. Code

81885101

Interface Control Check
Go to Page 30, Step 040, Entry Point 38.

(Step 005 continues)

(Step 005 continued)

Ref. Code

81897101

Channel Control Check
Go to Page 49, Step 040, Entry Point AF.

Ref. Code

81898101

Channel Control Check
Go to Page 44, Step 040, Entry Point 98.

Ref. Code

81899101

Interface Control Check
Go to Page 31, Step 040, Entry Point 3B.

Ref. Code

8189A101

Interface Control Check
Go to Page 20, Step 040, Entry Point 3.

Ref. Code

8189A201

Channel Control Check
Go to Page 39, Step 040, Entry Point 79.

Ref. Code

81AA0101

Channel Data Check
(Step 005 continues)

(Step 005 continued)
Go to Page 44, Step 040, Entry Point 99.

Ref. Code

81AA1101

Channel Data Check
Go to Page 28, Step 040, Entry Point 33.

Ref. Code

81AA2101

Error during data transfer end
Go to Page 60, Step 165, Entry Point R.

Ref. Code

81AA3101

Error during data transfer end.
OPERATIONAL IN = 0
Go to Page 60, Step 165, Entry Point R.

Ref. Code

81AA4101

Channel Control Check
Go to Page 51, Step 040, Entry Point R7.

Ref. Code

81AA5101

Interface Control Check
Go to Page 31, Step 040, Entry Point 3C.

(Step 005 continues)

(Step 005 continued)

Ref. Code

81DD8101

Channel Control Check
Go to Page 45, Step 040, Entry Point A2.

Ref. Code

81DDA101

Interface Control Check
Go to Page 21, Step 040, Entry Point 4.

Ref. Code

81DDA201

Channel Control Check
Go to Page 40, Step 040, Entry Point 81.

Ref. Code

81DDB101

Interface Control Check
Go to Page 35, Step 040, Entry Point 57.

Ref. Code

81DDB201

Channel Control Check
Go to Page 40, Step 040, Entry Point 82.

Ref. Code

81DDC101

Interface Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 35, Step 040, Entry Point 58.

Ref. Code

81DDC201

Channel Control Check
Go to Page 41, Step 040, Entry Point 83.

Ref. Code

81FF0101

Subchannel probably not defined
Go to Page 52, Step 041, Entry Point K1.

Ref. Code

81FF1101

Subchannel probably not defined
Go to Page 52, Step 041, Entry Point K1.

Ref. Code

81FF2101
Go To Map 0001, Entry Point O.

81FFF101
Go To Map 0001, Entry Point O.

Ref. Code

81XXXX01
Go To Map 0001, Entry Point P.

Go to Page 5, Step 005, Entry Point CC.

018
'Reserved'
Y N

019
'Reserved'
Y N

020
'Reserved'
Y N

021
'Reserved'
Y N

022
'Reserved'
Y N

023
(Entry Point J)

See field A of SCA log display.

ADDRESS IN = 1 ?
Y N

024
Go to Step 027, Entry Point 5Z.

025
COMMAND OUT = 1 ?
Y N

026
Go to Step 031, Entry Point 5C.

027
(Entry Point 5Z)

STATUS IN = 1 ?
Y N

028
Go to Page 20, Step 033, Entry Point 5Y.

029
COMMAND OUT = 1 ?
Y N

030
SERVICE OUT = 1 ?
Y N

031
(Entry Point 5C)

Go to Page 53, Step 056, Entry Point M.

032
Go to Page 20, Step 033, Entry Point 5Y.

53Q 52R 52S 52T 20U V

20W

(Step 040 continued)
(Entry Point 4)

Interface Control Check during
CLRIO/HDV/HIO operation:

Check Trap
(Tag in check, or time-out, or any overcurrent) while waiting for SELECT IN to drop.

SELECT IN = 1

Sequence code: CLRIO = 0
HDV/HIO = undefined

(Entry Point DO)

Sequence code 0 means:
Channel detected error during TIO or Clear I/O.
Go to Page 58, Step 123, Entry Point D.

(Entry Point 5)

Channel Control Check during trap reason analysis:

Tag In Trap
OPERATIONAL IN = 1
ADDRESS IN = 0
STATUS IN = 1
REQUEST IN may be on or off

Sequence code = 5.
Go to Page 19, Step 023, Entry Point J.

(Entry Point 7)

Channel Control Check during trap reason analysis:

Tag In Trap and Polling Trap

```
OPERATIONAL  IN = 0
SELECT       IN = 1
```

Device address = invalid
Go to Page 53, Step 056, Entry Point M.
(Step 040 continues)

(Step 040 continued)

(Entry Point 7X)

Channel Control Check during trap reason analysis:

Tag IN Trap

```
OPERATIONAL  IN = 0
REQUEST      IN = 0
SERVICE  IN or
ADDRESS      IN = 1
```

SCA in data transfer mode.

Sequence code = 5
Go to Page 25, Step 040, Entry Point GT.

(Entry Point 7Y)

Interface Control Check during trap reason analysis:

No Any Trap Request
(Trap Loop counter exhausted)

```
REQUEST  IN = 0
SERVICE  IN = 1
DATA     IN = 1
```

Device address = invalid
Go to Page 53, Step 056, Entry Point M.

(Entry Point 7Z)

Interface Control Check during trap reason analysis:

No Any Trap Request
(Trap loop counter exhausted)

```
REQUEST  IN = 1
SERVICE  IN = 0
DATA     IN = 0
```

Device address = invalid
(Step 040 continues)

(Step 040 continued)
(Entry Point 9)

Interface Control Check during polling sequence:

Check Trap
(Tag in check, or time-out, or any over overcurrent),
while waiting for ADDRESS IN.

ADDRESS IN = 1,
no Bus in Buffer parity check.

Sequence code = 5

(Entry Point H5)

Sequence code = 5 means:
Command had been accepted, but data transfer was discontinued.
Go to Page 59, Step 147, Entry Point H.

(Entry Point 10)

Channel Control Check during polling sequence.
Check Trap
(Tag in check, or time-out, or any overcurrent),
while waiting for ADDRESS IN.

ADRESS IN = 0
or 'Bus in Buffer' parity check.
Device address = invalid.
Go to Page 59, Step 147, Entry Point H.

(Entry Point 11)

Interface Control Check during command chaining sequence:

Check Trap
(Tag in check, or time-out, or any overcurrent),
while waiting for ADDRESS IN.

Sequence code = invalid.
Go to Page 59, Step 147, Entry Point H.

(Step 040 continues)

(Step 040 continued)
(Entry Point 14)

Interface Control Check during polling sequence

Trap loop counter exhausted.

```
REQUEST IN = 0
SERVICE IN = 1
DATA    IN = 1

Device address = invalid
```

Go to Page 53, Step 056, Entry Point M.

(Entry Point 16)

Interface Control Check during ending status handling:

STATUS IN = 1, Ending Status.

'Bus in Buffer'parity check.

Inbound or outbound operation.

Unit Status in 'Bus in Buffer' = invalid.

For sequence code see byte 52, bit 5, 6, 7 of SCA log display.

(Entry Point GT)

See the meaning of the sequence code in the following table, then continue:

```
Sequence Code
000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but no data transferred
011 = At least one byte of data was transferred
100 = Command code in current CCW was either not sent out or
      was sent but not accepted by the device
101 = Command was accepted, but data transfer is discontinued.
```

Go to Page 58, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 22)

Channel Control Check during command chaining sequence:

CHANNEL END received only.

Tag in Trap
while waiting for 'operational in' to fall.

OPERATIONAL IN = 1
ADDRESS IN = 0
STATUS IN = 0
SERVICE IN = 1
DATA IN = 1

SCA is in EC-mode.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 23)

Channel Data Check during data chaining:

Inbound operation
'Bus In Data' parity check
Go to Page 56, Step 097, Entry Point G.

(Entry Point 24)

Interface Control Check during command chaining:

ADDRESS IN = 0
STATUS IN = 1 (Short CU busy)

Sequence code = invalid.
Go to Page 56, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 25)

Interface Control Check and interface disconnect during command chaining:

ADDRESS IN = 0
SELECT IN = 1
(no Bus Out parity check).

Sequence code = invalid.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 26)

Interface Control Check during command chaining:

Tag in Trap
while waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 1
COMMAND OUT = 0
(command = dummy TIO)

Sequence code = invalid.
Go to Page 56, Step 097, Entry Point G.

(Entry Point 27)

Interface Control Check during command chaining:

Sequence code = invalid

Tag in Trap
waiting for 'status in'

STATUS IN = 0
ADDRESS IN = 1
COMMAND OUT = 0
Go to Page 56, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 35)

Interface Control Check during command chaining:

Sequence code = invalid
ADDRESS IN = 1

Bus in parity check.
Go to Page 53, Step 056, Entry Point M.

(Entry Point 36)

Interface Control Check during command chaining:

Sequence code = invalid.
ADDRESS IN = 1

Device address on Bus in is not equal to the device address on Bus Out.
Go to Page 58, Step 097, Entry Point G.

(Entry Point 37)

Interface Control Check during initial selection:

Sequence code = 4,
command in current CCW was either not sent out, or it was sent out but not accepted by the device.

ADDRESS IN = 1
Bus in parity check.
Go to Page 53, Step 056, Entry Point M.

(Step 040 continues)

(Step 040 continued)
(Entry Point 3B)

Interface Control Check during initial selection sequence:

SELECT IN = 1, CU busy. Waiting for 'selection in' to drop. 1 msec timeout loop exhausted.

Sequence code = 7 (invalid)
Go to Page 56, Step 097, Entry Point G.

(Entry Point 3C)

Interface Control Check during data transfer termination

SERVICE IN or
DATA IN = 1
Waiting for 'service in' or 'data in' to drop. 1 msec timeout loop exhausted.

Sequence code = 7 (invalid)
Go to Page 56, Step 097, Entry Point G.

(Entry Point 40)

Interface Control Check during CLRIO/HDV/HIO operation:

Device address = invalid.

Sequence code: CLRIO = 0
HDV/HIO = undefined

Sequence code 0 means: Channel detected error.

ADDRESS IN = 1

Device address on Bus In is not equal the device address on Bus Out.
Go to Page 52, Step 042, Entry Point P.

(Step 040 continues)

(Step 040 continued)
(Entry Point 46)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in'.

STATUS IN = 0
or Bus in Buffer parity check.
Go to Page 56, Step 090, Entry Point B.

(Entry Point 47)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in' or 'service in'/ 'data in'.

STATUS IN = 0
SERVICE IN = 0
DATA IN = 0

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 48)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in' or 'service in' and 'data in'.

STATUS IN = 0
SERVICE IN = 1
DATA IN = 1

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.
(Step 040 continues)

(Step 040 continued)

(Entry Point 49)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'status in' or 'service in'/ 'data in'.

STATUS IN = 1,
SERVICE IN = 0
DATA IN = 0.

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 50)

Interface Control Check during polling sequence:

STATUS IN = 1,
SERVICE IN = 1,
DATA IN = 1

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 51)

Interface Control Check during command chaining:

Only 'channel end' received.
Command chaining indicated.

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational' in to fall.

See sequence code in byte 52, bit 5, 6, 7 of SCA log display and look it up in the sequence code table,
Go to Page 32, Step 040, Entry Point BT.

(Step 040 continues)

(Step 040 continued)
(Entry Point 56)

Interface Control Check during initial selection:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'status in' to drop.

STATUS IN = 1 (short control unit busy).

Sequence code = 4,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 57)

Interface Control Check during CLRIO/HDV/HIO operation:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational in' to drop.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 58)

Interface Control Check during CLRIO/HDV/HIO:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational in' drop.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
Go to Page 32, Step 040, Entry Point BT.

(Step 040 continues)

(Step 040 continued)
(Entry Point 65)

Channel Control Check during polling sequence:

UNIT STATUS from 'Bus in Buffer', see byte 67 of SCA log display.

Check Trap while waiting for STATUS IN

STATUS IN = 1
No 'Bus in Buffer' parity check.

Sequence code = 5.
Go to Page 38, Step 040, Entry Point C5.

(Entry Point 66)

Channel Control Check during polling sequence:

UNIT STATUS = 00.

Check Trap while waiting for STATUS IN.

STATUS IN = 0,
or 'Bus in Buffer' parity check.

Sequence code = 5,
Go to Page 38, Step 040, Entry Point C5.

(Entry Point 67)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 0
SERVICE IN/DATA IN = 0

Sequence code = 5
Go to Page 38, Step 040, Entry Point C5.

(Step 040 continues)

(Step 040 continued)
(Entry Point 68)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 0
SERVICE IN/DATA IN = 1

Sequence code = 5,
Go to Page 38, Step 040, Entry Point C5.

(Entry Point 69)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 1,
SERVICE IN/DATA IN = 0.

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 5,
Go to Page 38, Step 040, Entry Point C5.

(Entry Point 70)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 1,
SERVICE IN/DATA IN = 1.

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 5,
(Step 040 continues)

(Step 040 continued)
(Entry Point 73)

Channel Control Check during command chaining sequence:

Check Trap while waiting for ADDRESS IN.

Sequence code = invalid
Go to Page 61, Step 166, Entry Point C.

(Entry Point 74)

Interface Control Check during command chaining sequence:

Check Trap while waiting for STATUS IN

Sequence code = invalid
Go to Page 61, Step 166, Entry Point C.

(Entry Point 75)

Channel Control Check during command chaining sequence:

Check Trap while waiting for STATUS IN

Command = dummy TIO.

Sequence code = invalid.
Go to Page 61, Step 166, Entry Point C.

(Entry Point 76)

Channel Control Check during initial selection sequence:

Check Trap waiting for response to ADDRESS OUT

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Step 040 continues)

(Step 040 continued)
(Entry Point 77)

Channel Control Check during initial selection sequence:

Check Trap while waiting for STATUS IN.

Sequence code = 1,

(Entry Point C1)

Sequence code 1 means:

Command went out but device status not received.
Go to Page 61, Step 166, Entry Point C.

(Entry Point 78)

Channel Control Check during initial selection sequence:

Check Trap waiting for STATUS IN to drop.

STATUS IN = 1 (short control unit busy).

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Entry Point 79)

Channel Control Check during initial selection sequence:

Check Trap while waiting for SELECT IN to drop.

SELECT IN = 1.

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Step 040 continues)

(Step 040 continued)
(Entry Point 83)

Channel Control Check during
CLRIO/HDV/HIO operation:

Unexpected Trap while waiting for
OPERATIONAL IN to drop.

Sequence code: CLRIO = 0
HDV/HIO = undefined
Go to Page 40, Step 040, Entry Point C0.

(Entry Point 85)

Channel Data Check during terminal status
handling:

Outbound operation.
STATUS IN = 1 (terminal status)
'Bus Out Buffer' data parity check.
Go to Page 52, Step 043, Entry Point F.

(Entry Point 86)

Channel Control Check during polling
sequence:

BUS OUT parity check on COMMAND OUT

STATUS IN = 1

No Bus in Buffer parity Check.

Sequence code = 5

(Entry Point FT)

for meaning of sequence code see the following
table, then continue.

Sequence Code

000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but not data transferred
011 = At least one byte of data was transferred
(Step 040 continues)

(Step 040 continued)
(Entry Point 90)

Channel Control Check during command chaining:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.
Sequence code = invalid,
Go to Page 52, Step 043, Entry Point F.

(Entry Point 91)

Channel Control Check during command chaining:

BUS OUT parity check on COMMAND OUT.

Sequence code = invalid.
Go to Page 52, Step 043, Entry Point F.

(Entry Point 92)

Channel Control Check during command chaining:

BUS OUT parity check on COMMAND OUT.

Sequence code = invalid.
Go to Page 52, Step 043, Entry Point F.

(Entry Point 93)

Channel Control Check during command chaining:

SELECT IN = 1
BUS OUT parity check on ADDRESS OUT.

Sequence code = invalid.
Go to Page 52, Step 043, Entry Point F.

(Step 040 continues)

(Step 040 continued)
(Entry Point 94)

Channel Control Check during initial selection:

ADDRESS IN =1
BUS OUT parity check on ADDRESS OUT.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 95)

Channel Control Check during initial selection:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 96)

Channel Control Check during initial selection:

STATUS IN =1
BUS OUT parity check on COMMAND OUT.

Sequence code = 1,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 97)

Channel Control Check during initial selection:

STATUS IN = 1 (short CU busy),
ADDRESS IN = 0

BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Step 040 continues)

(Step 040 continued)
(Entry Point A1)

Channel Control Check during
CLRIO/HDV/HIO operation:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
For meaning of sequence code
Go to Page 41, Step 040, Entry Point FT.

(Entry Point A2)

Channel Control Check during
CLRIO/HDV/HIO operation:

SELECT IN = 1,
BUS OUT parity check on ADDRESS OUT.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
For meaning of sequence code
Go to Page 41, Step 040, Entry Point FT.

(Entry Point A3)

Interface Control Check during polling
sequence:

SERVICE IN = 1
HALT 1 Flag off, no SERVICE IN expected.

Sequence code = 5,
Go to Page 47, Step 040, Entry Point PT.

(Step 040 continues)

(Step 040 continued)

(Entry Point A7)

Interface Control Check during
CLRIO/HDV/HIO operation:

All Traps are not down after interface
disconnect.

Tag in Trap, unexpected Trap condition.

OPERATIONAL IN/
SERVICE IN/
DATA IN = 1

Sequence code: CLRIO = 0,
HDV/HIO = undefined.

For meaning of sequence code
Go to Step 040, Entry Point PT.

(Entry Point A8)

Interface Control Check during
CLRIO/HDV/HIO operation:

All Traps are not down after interface
disconnect.

Tag in Trap, unexpected Trap condition.

SERVICE IN / DATA IN = 0

Sequence code: CLRIO = 0
HDV/HIO = undefined.

(Entry Point PT)

For meaning of sequence code use the
following table then continue.

Sequence Code

000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but no data transferred
011 = At least one byte of data was transferred

(Step 040 continues)

(Step 040 continued)
(Entry Point AD)

Channel Control Check during command chaining:

Tag in Trap, waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 0, or COMMAND OUT = 1

Sequence code = invalid.
Go to Page 53, Step 048, Entry Point T.

(Entry Point AE)

Channel Control Check during initial selection:

Tag in Trap, waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 0

Sequence code = 1,
command went out, but device status not received.
Go to Page 53, Step 048, Entry Point T.

(Entry Point AF)

Channel Control Check during initial selection:

Tag in Trap, unexpected Trap condition while waiting for control unit response to ADDRESS OUT.

ADDRESS IN = 0
STATUS IN = 0
SELECT IN = 0.

Sequence code = 4,
command code in current CCW was either not sent out or it was sent out but not accepted by the device.
Go to Page 53, Step 048, Entry Point T.

(Step 040 continues)

(Step 040 continued)
(Entry Point R1)

Error during terminal status handling.

STATUS IN = 1 (ending status)
COMMAND OUT raised by BSM interface card.
Go to Page 60, Step 165, Entry Point R.

(Entry Point R2)

Error during terminal status handling.

STATUS IN = 1 (terminal status)

Paging overrun detected by BSM interface card.
Go to Page 60, Step 165, Entry Point R.

(Entry Point R3)

Error during terminal status handling.

STATUS IN = IN (ending status)

Paging overrun detected by BSM interface card.
Go to Page 60, Step 165, Entry Point R.

(Entry Point R4)

Channel Control Check during ending status handling:

STATUS IN = 1 (ending status)
UNIT STATUS = 0
Go to Page 58, Step 097, Entry Point G.

(Entry Point R5)

Interface Control Check during polling sequence:

STATUS IN = 1 (ending status)
UNIT STATUS = 0
Go to Page 58, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point R6)

Interface Control Check during initial selection:

Timeout while waiting for response to ADDRESS OUT.
ADDRESS IN = 0
SELECT IN = 0
STATUS IN = 0
Sequence code = 4
Go to Page 25, Step 040, Entry Point GT.

(Entry Point R7)

Channel Control Check during data transfer end:

STATUS IN = 1 (ending status handling)
Go to Page 60, Step 165, Entry Point R.

(Entry Point QE)

Interface Control Check during polling sequence:

Check Trap, waiting for 'status in' or 'service in'/'data in'. (Tag in check, or timeout, or any overcurrent)

STATUS IN = 0
SERVICE IN = 0
DATA IN = 0

See byte 67 of SCA log display:
ADDRESS IN belongs to the device which started poll.
Sequence code = 5:
Command was accepted, but data transfer is disconnected.

When following this MAP consider the device which sent ADDRESS IN.
Go to Page 53, Step 056, Entry Point M.

(Step 040 continues)

045
Is the symptom the same as noted before?
Y N

046
The new FRU may also be defective or more than one FRU is defective in the adapter.
Go To Map 8170, Entry Point A.

047
Replace the next FRU according to the given priority.
Go to Page 52, Step 043, Entry Point FF.

048
(Entry Point T)

Suspect:
BMPX2 card 2; 01A-B2M2
Go to Page 55, Step 077, Entry Point W.

049
(Entry Point U)

WARNING:
Reference code 81110101 or 81110301 or 81110501 may also come up if a read command is given to a tape unit with a blank tape mounted. This will cause a time-out after 45 SEC and an interface control check. This fact is indicated in the BMPX2 log by the time out bit,
message 'TIMEOUT ADDRESS: XXX' in line 23 during login and in the log display.
XXX = device address.
Check this first!

Is there a blank tape mounted?
Y N

050
Is it reference code 81110101?
Y N

Y Z A

051
Is it reference code 81110301?
Y N

052
Reference code 81110501.
Go to Page 20, Step 040, Entry Point 2.

053
Go to Page 20, Step 040, Entry Point 1.

054
Go to Page 32, Step 040, Entry Point 44.

055
Contact the customer.

The customer should correct the problem and continue his job.

Go To Map 0001, Entry Point A.

056
(Entry Point M)

(Entry Point Q)

Suspected:
Intermittent error mainly in the standard interface included the interface adapter parts of all connected control units of this channel. See also field A of SCA log display and note down the error condition of the tag signals for possible later use in case of support.

(Entry Point MM)

Check standard interface cables/connectors; check whether all cable connectors fit properly, included the flat cables from 01A-B2L2 to tailgate 01D.

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

(Step 056 continues)

A G 5 4

070
Same error symptom as before?
Y N

071
(Entry Point Y)

Go To Map 0000, Entry Point A.

072
Have you already been told to replace BMPX2 card 2 ; 01A-B2M2 during this call?

Y N

073
Replace now the BMPX2 card 2; 01A-B2M2
Run BMPX2 adapter test.

Any error?
Y N

074
Go to Step 077, Entry Point W.

075
The new card may also be defective.
Correct it.

Run BMPX2 adapter test. Sucessful?
Y N

076
Second error may be in adapter.

Go To Map 0170, Entry Point A.

077
(Entry Point W)

Run the application which caused the error.

Does the error come up again?
Y N

5 6

A H A J A K

A J A K 0881 MAP 8100-55

078
Go to Page 54, Step 059, Entry Point Z.

079
Same error symptoms as before?
Y N

080
Go To Map 0000, Entry Point A.

081
Suspect now the terminator card;

01A-B2YL.

Run IC-bus test and BMPX2 adapter test.

Any reference code?
Y N

082
Try again the application which caused the error.

Does the error come up again?
Y N

083
Go To Map 0001, Entry Point A.

084
Same error symptoms as before?
Y N

085
Go To Map 0000, Entry Point A.

086
Suspect now the board 01A-B2.
Before you replace a board invoke your support structure. Therefore write down all error symptoms for possible later use and
Go To Map 0001, Entry Point O.

087
Go to appropriate MAP.

102
Disconnect In?
Y N

103
Go to Page 53, Step 056, Entry Point M.

104
Go to Page 52, Step 042, Entry Point P.

105
Go to Page 53, Step 056, Entry Point M.

106
Are there more than one overcurrent logs?
Y N

107
Go to Page 56, Step 097, Entry Point G.

108
Are all from the same control unit/device?
Y N

109
Go to Page 53, Step 056, Entry Point Q.

110
Go to Page 56, Step 097, Entry Point G.

111
Disconnect In?
Y N

112
Are there more than one tag in check logs?
Y N

113
Go to Page 56, Step 097, Entry Point G.

A A
R S

114
See device address shown in field C of the SCA log display.

Are all logs from the same control unit/device?
Y N

115
Go to Page 60, Step 165, Entry Point R.

116
Go to Page 56, Step 097, Entry Point G.

117
Go to Page 52, Step 042, Entry Point P.

118
Are there more than one time-out logs?
Y N

119
Go to Page 56, Step 097, Entry Point G.

120
See device address shown in field C of the SCA log display.

Are all logs from the same control unit/device?
Y N

121
Go to Page 60, Step 165, Entry Point R.

122
Go to Page 56, Step 097, Entry Point G.

141
Try again the application which caused the error.

Does the error come up again?
Y N

142
Go To Map 0001, Entry Point A.

143
Same error symptoms as before?
Y N

144
Go To Map 0000, Entry Point A.

145
Go to Page 53, Step 056, Entry Point Q.

146
Go to appropriate MAP.

147
(Entry Point H)

See the adapter checks displayed in field B of the SCA log display:

MAP Column 2:						
Additional SCA log informat						
Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Time-out?
Y N

A A
Y Z

148
Tag In Check?
Y N

149
Overcurrent?
Y N

150
Go to Page 53, Step 056, Entry Point M.

151
Go to Page 53, Step 056, Entry Point M.

152
Disconnect IN?
Y N

153
Go to Page 53, Step 056, Entry Point M.

154
Operational IN?
Y N

155
Go to Page 53, Step 056, Entry Point M.

156
Go to Page 52, Step 042, Entry Point P.

157
Are there more than one time-out logs?

Y N

158
Go to Page 56, Step 097, Entry Point G.

159
See field C of the SCA log control unit/device.

Are all time-out logs from the same device?
Y N

166
(Entry Point C)

No tag in check, nor time-out, nor any overcurrent.

See the adapter checks shown in field B of the SCA log display.

MAP Column 2:						
Additional SCA log informat						
Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Sense Bus Check?
Y N

167
Bus Parity Check?
Y N

168
(Entry Point CB)

Suspect the following FRUs:

Replace one FRU at a time and run the BMPX2 adapter test as well as the application which caused the error.

(Entry Point CX)

1.ACC card 4; 01A-B2N2
2.BMPX2 card 2; 01A-B2M2

3.Crossovers W/ X/ Y/ Z; 01A-B2M2, N2
01A-B2M3, N3
01A-B2M4, N4
01A-B2M5, N5

(Step 168 continues)

BMPX-2 ADAPT TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
RFCA	A	1	001
RFCA	P	2	003
0C00	A	1	001
8XXX	A	1	001
8100	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	009	0001	K
2	005	0001	0
2	007	0001	0

001

(Entry Point A)

****

BMPX-2 Adapter Test MAP.

```
**********************************************
**********************************************
** Warning,                                  **
** Errors may come up,if the interface cable **
** is too near any power cable!              **
**********************************************
**********************************************
```

Are you led to this MAP by the REFCODE ANALYSIS?

Y N

2 2
A B

BMPX-2 STANDARD INTERFACE TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	A	1	001
8XXX	A	1	001
8100	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
8	019	0001	A
9	021	0001	0

001
(Entry Point A)

```
**********************************************************
**********************************************************
**  Warning:                                            **
**  Errors may come up, if the interface cable          **
**  is too near any power cable!                        **
**********************************************************
**********************************************************
```

IMPORTANT HINTS:

1. Before testing the Standard Interface be sure that the BMPX-2 operates properly by running the BMPX-2 adapter test. This test should run errorfree before testing the Standard . Interface.

2. Error display is as follows:

   For handling of the Standard Interface Test see Supplement to MAPs, section 4.

(Step 001 continues)

(Step 001 continued)

0100 000E	BOB NOT BIT 5
0100 000F	BOB NOT BIT 6
0100 0010	BOB NOT BIT 7
0200 0002	BOB NOT ZERO
0200 0003	TOR NOT ZERO
0200 0004	BIB NOT ZERO
0200 0005	TIR NOT ZERO
0200 0006	NOT ADDRESS OUT
0200 0008	NOT COMMAND OUT
0200 000A	NOT SERVICE OUT
0200 000C	NOT DATA OUT
0200 000E	NOT SUPPRESS OUT
0200 0010	NOT OPERATION OUT
0200 0012	NOT HOLD OUT
0200 0014	NOT CONDITION SUP OUT
0300 0002	BOB NOT ZERO
0300 0003	TOR NOT ZERO
0300 0004	BIB NOT ZERO
0300 0005	TIR NOT ZERO
0300 0006	BOB NOT BIT P
0300 0007	BIB NOT BIT P
0300 000F	METERING NOT IN OFF

6. Any other Symptom Code is displayed:

The following procedure explains how to identify a failing FRU in the Standard Interface area:
Take a note of the first symptoms shown on screen (at the most three symptoms per test run).

A. SYMPTOM CODES 0100XXXX - ERROR PERTAINS TO BUS INTERFACE
B. SYMPTOM CODES 0200XXXX - ERROR PERTAINS TO TAG INTERFACE
C. SYMPTOM CODES 030001XX - ERROR PERTAINS TO BUS INTERFACE
D. SYMPTOM CODES 030002XX - ERROR PERTAINS TO TAG INTERFACE

Remove that interface cable, bus or tag, which was identified by the symptom code from the last control unit and plug the respective wrap connector to the cable interface connector, thus eliminating this control unit as the error cause.
Run BMPX-2 standard interface cable test again!

Same error symptoms?

Y N

4 4
A B

SYMTOM CODE: XX00YYZZ
(Step 004 continues)

XX	YY		
		ZZ	Error cause, the affected line(s) you see in the following table for XX/YY
		02	TESTED LINE HAS OPEN CIRCUIT Suspect bad connection or broken wire in one or both of the interface cable connectors. Open the interface connectors covers and make the necessary repairs.
		03	TESTED LINE IS SHORTED TO GROUND Suspect short of shield to line in one or both of the interface cable connector. Open the interface connector covers and make the necessary repairs.
		04	TESTED LINE IS SHORTED TO OTHER LINE 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.

XX	YY	BUS OUT Connector NAME	BUS OUT Connector PIN	BUS IN Connector PIN	BUS IN Connector NAME
01	FF	BUS OUT BIT P	B03	G03	BUS IN BIT P
01	80	BUS OUT BIT 0	D04	J04	BUS IN BIT 0
01	40	BUS OUT BIT 1	B05	G05	BUS IN BIT 1
01	20	BUS OUT BIT 2	D06	J06	BUS IN BIT 2
01	10	BUS OUT BIT 3	B08	G08	BUS IN BIT 3
01	08	BUS OUT BIT 4	D09	J09	BUS IN BIT 4
01	04	BUS OUT BIT 5	B10	G10	BUS IN BIT 5
01	02	BUS OUT BIT 6	D11	J11	BUS IN BIT 6
01	01	BUS OUT BIT 7	B12	G12	BUS IN BIT 7
03	10	MARK OUT	D13	J13	MARK IN

(Step 004 continues)

007
Besure that all connections of the interface connectors are properly seated and not damaged.
Make the necessary repairs if required.

Run BMPX-2 standard interface cable test again!

Same error symptoms?
Y N

008
Error was caused by bad contacts in the BMPX-2 interface connectors of this interface.
Go to Page 8, Step 018, Entry Point C.

009
Check the °wrap° connectors to be sure that they are ok, check for any loose or broken wire or damaged pin!
Check that the flat cables which connect the driver card top connectors with the BMPX-2 interface connectors are properly seated.

```
Flatcable bus out 01A-B2L2(W)to bus interface conne. 01D-C2(BD) 2-13
Flatcable bus in  01A-B2L2(X)to bus interface conne. 01D-C2(GJ) 2-13
Flatcable tag 1   01A-B2L2(Y)to tag interface conne. 01D-D2(BD) 2-13
Flatcable tag 2   01A-B2L2(Z)to tag interface conne. 01D-D2(GJ) 2-13
```
Remove and replug suspected flat cables to remove possible contamination deposits on contact surfaces.

Run BMPX-2 standard interface cable test again!

Same error symptoms?
Y N

010
The error was caused by bad contact in the flatcable area of the BMPX-2.
Go to Page 8, Step 018, Entry Point C.

021

Make a note of all symptoms and activities you have performed.

Go To Map 0001, Entry Point 0.

HSC-Log

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
RFCA	A	1	001
RFCA	B	3	004
0C00	AA	2	002
0C00	MM	4	007
8XXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	003	0001	A
4	006	0001	A
4	008	0001	A
3	005	0001	0
4	009	8280	A

C01
(Entry Point A)

```
**********************************************************
**********************************************************
**  CAUTION,                                            **
**  errors may come up, if the I/O interface cables     **
**  are routed too close to any power cable.            **
**********************************************************
**********************************************************
```

Make sure that you 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

2 2
A B

004
(Entry Point B)

Reference Code	Recommended Action:	Go to MAP ENTRY POINT A
82002101	See reference code EA300501	EA00
82004101	See reference code EA300901	EA00
82011901	See reference code EA302401	EA00
82012101	See reference code EA302501	EA00
82012901	See reference code EA302601	EA00
82013101	See reference code EA302701	EA00
82013901	See reference code EA302801	EA00
82014101	See reference code EA302901	EA00
82020901	See reference code EA304201	EA00
82021901	See reference code EA304401	EA00
82022101	See reference code EA304501	EA00
82027901	See reference code EA305001	EA00

Reference code found?
Y N

005
Go To Map 0001, Entry Point C.

4
C

HSC TEST MAP

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	A	1	001
8XXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
5	031	0001	A
6	044	0001	A
3	019	0001	0
6	047	0001	0
7	049	0001	0
2	008	3370	A
2	012	3370	A
7	054	3370	A
2	005	4B70	A
4	027	8280	A

001

(Entry Point A)

```
**********
```

```
**************************************************
**************************************************
** Warning,                                     **
** errors may come up, if the interface cable is **
** too near any power cable!                    **
**************************************************
**************************************************
```

(Entry Point Y)

```
**********
```

Be sure that you did
IML with the DIAG diskette before you selected
and started the HSC test.

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

(Step 001 continues)

018
Reference code 82060X81?
Y N

019
Run HSC test again.

If you still get the same reference code, invoke your support structure especially for a reference code search.

Go To Map 0001, Entry Point O.

020
Reference code 82060181?
Y N

021
Reference code 82060281?
Y N

022
Reference code 82060381.

Replace the following FRUs:
HSC card 3; 01A-B2R2
Term. card; 01A-B2X2
HSC card 2; 01A-B2Q2
Then
Go to Page 6, Step 042, Entry Point Z.

023
(Entry Point C)
****

Replace the following FRUs in the sequence shown:
1.HSC card; 01A-B2Q2.
2.HSC card; 01A-B2R2.
3.HSC card; 01A-B2P2.

Go to Page 6, Step 042, Entry Point Z.

028
The XX-field of the ref.code shows the erroneous TAG IN line(s):

```
Ref.Code 8204XX81
             --
              |    Tag In Lines:
              V    ---------------
         Bit 0  = Address In
         Bit 1  = Status In
         Bit 2  = Service In
         Bit 3  = Data In
         Bit 4  = Disconnect In
         Bit 5  = Operational In
         Bit 6  = Select In xor Operational In
         Bit 7  = Request In
```

Go to Page 4, Step 025, Entry Point EE.

029
(Entry Point P)
****

Have you already performed 'system reset'?
Y N

030
Perform 'system reset'.
Run HSC-test again.

Error again?
Y N

031
Go To Map 0001, Entry Point A.

032
Go to Page 2, Step 001, Entry Point AA.

033
(Entry Point N)
****

Reference code 82038081?
Y N

048
Run SBA test.

Any error?
Y N

049
Go To Map 0001, Entry Point O.

050
Go to appropriate MAP, respectively use the REFCODE ANALYSIS.

051
Go to appropriate MAP.

052
Run IC-bus test.

Any error?
Y N

053
Go to Page 3, Step 023, Entry Point C.

054
Go To Map 3370, Entry Point A.

055
Go to Page 6, Step 046, Entry Point Q.

HSC STANDARD INTERFACE TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	A	1	001
8XXX	A	1	001
8200	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
10	034	0001	A
10	033	0001	A
10	025	0001	A
10	027	0001	A
10	028	0001	A
10	030	0001	P
10	036	0001	0
10	037	3370	A

001
(Entry Point A)

```
**************************************************
**************************************************
** Warning,                                     **
** errors may come up, if the interface cable is **
** too near any power cable!                    **
**************************************************
**************************************************
```

IMPORTANT HINTS:

Before testing the Standard Interface be sure that the HSC operates properly by running the HSC adapter test. This test should run errorfree before testing the Standard Interface.

BE sure that all control units connected to the HSC interface are powered down.

Error display is as follows:

For handling of the Standard Interface Test see Supplement of MAPs, Section 4.

(Step 001 continues)

(Step 001 continued)

Y N

002
Are any of the following symptoms displayed?
0100FF02
02000B02
Y N

003
Are the following symptoms displayed:
01FFFFFF Bus Interface
02FFFFFF Tag Interface.

Y N

004
Compare the displayed symptoms with the ones listed here:

```
0100 FFFF      PROBLEM WITH BUS DATA BIT P
(short to ground or any other line)
0100 90FF      PROBLEM WITH MARKIN?OUT LINE
(short to ground or any other line)
```

Are either of the two symptoms displayed on screen?
Y N

005
Compare the displayed symptoms with the ones listed here:

```
01000002      BOB NOT ZERO RESET PHASE
01000003      BIB NOT ZERO RESET PHASE
01000004      TIR NOT ZERO RESET PHASE
01000005      TOR NOT ZERO RESET PHASE
01000006      BOB BIT P ERROR
01000007      BOB NOT ALL BITS ON
01000006      BOB BIT P ERROR
01000008      BOB NOT BITO
0100800E      BOB BIT P ON ERROR
0100800F      BIB BIT P ON ERROR
```

(Step 005 continues)

(Step 006 continued)
Same error symptoms?
Y N

007
The interface malfunction was caused by the control unit which was eliminated out of the interface loop.

Fetch the respective control unit maintenance documentation .
Identify the failing signal and its connection positions on the control unit interface connectors by using the symptom code and table 1.
Go to Step 009, Entry Point T.

008
Remove the interface cable which was identified by the symptom code, from the next control unit (if more than one control units are attached to this interface) or the HSC respectively, thus eliminating this cable as the error cause.
Plug the respective plug connector to the interface connector of the control unit or the HSC.
Run the HSC standard interface cable test again!

Same error symptoms?
Y N

009
Inspect the interface connector contacts of the just eliminated cable for the proper positioning and/or damage.

(Entry Point T)

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

(Step 009 continues)

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

HSC Stand.Interf.Test

PAGE 7 OF 10

(Step 009 continued)

01	01	BUS OUT BIT 7	B12	G12	BUS IN BIT 7
01	06	MARK OUT	D13	J13	MARK IN

		TAG OUT CONN.		TAG IN CONN.	
XX	YY	NAME	PIN	PIN	NAME
02	80	ADDRESS OUT	B10	B05	ADDRESS IN
02	40	COMMAND OUT	D11	D04	STATUS IN
02	20	SERVICE OUT	D13	D06	SERVICE IN
02	10	DATA OUT	G10	G08	DATA IN
02	08	SUPPRESS OUT	G12	J11	DISCONNECT IN
02	04	OPERATION OUT	J13	B03	OPERATION.IN
02	06	OPERATION OUT	J13	B03	MARK IN with SELECT IN +)
02	02	HOLD/SELC.OUT	D09	B08	SELECT IN
02	0A	HOLD/SELC.OUT	D09	B08	DISCONNECT IN with SELECT IN +)
02	01	COND,SUPR.OUT	B12	J06	REQUEST IN
02	0B	METERING OUT	J04	G05	METERING IN

+) These 'IN' signals are turned on in combination with YY= 04/02

Repair the defective line.

Make sure that the *wrap* connectors are ok,
check for any loose or broken wire or damaged pin!
Go to Page 9, Step 023, Entry Point C.

010
Is the whole standard interface cable checked out from the last control unit back to the HSC interface connector?

Y N

011
Go to Page 1, Step 001, Entry Point A.

016
(Entry Point K)

Replace HSC card 1, 01A-B2P2.

Run HSC standard interface cable test again!

Same error symptoms?
Y N

017
Error was caused by bad HSC card 1,01A-B2P2.
Go to Step 023, Entry Point C.

018
Remove card in 01A-B2P2 and reinstall the old card.The error is not caused by this card.

Replace HSC card 2, 01A-B2Q2.

Run the HSC standard interface cable test again!

Same error symptoms?
Y N

019
Error was caused by bad HSC card 2, 01A-B2Q2.
Go to Step 023, Entry Point C.

020
Remove card in 01A-B2Q2 and reinstall the old card. The error was not caused by this card.

Replace the 2 flatcables in case of a bus malfunction from:
01A-B2P2(W)TO BUS SERPENT CONNECTOR
01A-B2W3(X)TO BUS SERPENT CONNECTOR

In case of a tag malfunction from:
01A-B2W4(Y)TO TAG INTERFACE CONNECTOR
01A-B2W5(Z)TO TAG SERPENT CONNECTOR

(Step 020 continues)

(Step 020 continued)
Run HSC standard interface cable test again!

Same error symptoms?
Y N

021
Error was caused by bad flat cables.
Go to Step 023, Entry Point C.

022
Remove just installed flat cables. Reinstall old ones.
The error was not caused by flat cables.
Replace board 01A-B2.

Run HSC standard interface cable test again!

Same error symptoms?
Y N

023
(Entry Point C)

Replug all removed system parts like cables and control untis and plug the wrap connectors to the last contol units.

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

Any error symptoms?
Y N

024
Replace the wrap connectors with the standard interface BUS/TAG terminators.

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

Symptom XXFFFFFF indicated?
Y N

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	AA	2	001
0C00	MM	54	056
4902	MM	54	056
8XXX	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
56	071	0000	A
56	080	0000	A
57	085	0000	A
60	144	0000	A
55	059	0001	A
56	083	0001	A
60	142	0001	A
6	005	0001	0
9	005	0001	0
17	005	0001	0
17	005	0001	0
63	165	0001	0
57	086	0001	0
53	041	0001	0
17	005	0001	P
64	171	8470	A
57	096	8470	A
57	090	8470	A
56	076	8470	A
54	046	8470	A
64	175	8480	A
57	093	8480	A

001

(Entry Point A)

Make sure that you have traced the START MAP precisely.

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

(Step 001 continues)

002

The error is obviously intermittent; most probably caused by any control unit/device attached to this channel or it is caused by the standard interface cabling/connectors.

The following SCA log picture below will be used when tracing this MAP:

1.Take the reference code from MPX log display and look it up in the 'reference code table' which after some questions followes the SCA log picture.

2.Go to the entry point in the MAP as indicated by the reference code table.

3.Fetch additional information from the SCA log display, field A, B or C when told by this MAP.

SCA Log (MPX) Display (Example)
(Step 002 continues)

(Step 002 continued)

Is there more than one control unit connected to this channel (MPX)?
Y N

003
Go to Step 005, Entry Point CC.

004
Display and note all available MPX logs. Note down the device (Control unit) addresses displayed in field C of SCA log display.

Press COPY key, if console printer is available, or use FRIEND command PRINT LOG to get printouts of the logs.

Is it always the same control unit?
Y N

005
(Entry Point CC)

Now look up the reference code of the SCA log MPX in the following list and go to the indicated entry point:

REF. Code

84110101

Interface Control Check
Go to Page 54, Step 049, Entry Point U.

Ref. Code

84110201

Channel Control Check
Go to Page 36, Step 040, Entry Point 60.

Ref. Code

84110301

Interface Control Check
Go to Page 54, Step 049, Entry Point U.
(Step 005 continues)

(Step 005 continued)

Ref. Code

84115201

Interface Control Check
Go to Page 50, Step 040, Entry Point AJ.

Ref. Code

84216101

Channel Data Check
Go to Page 41, Step 040, Entry Point 85.

Ref. Code

84217101

Interface Control Check
Go to Page 25, Step 040, Entry Point 16.

Ref. Code

84218101

Channel Data Check
Go to Page 26, Step 040, Entry Point 17.

Ref. Code

84219101
Go to Page 51, Step 040, Entry Point R1.

Ref. Code

84220101
Go to Page 51, Step 040, Entry Point R2.

(Step 005 continues)

(Step 005 continued)

Ref.Code

84221101
Go to Page 51, Step 040, Entry Point R3.

Ref. Code

84222101

Channel Control Check
Go to Page 51, Step 040, Entry Point R4.

Ref. Code

84325101

Interface Control Check
Go to Page 23, Step 040, Entry Point 9.

Ref. Code

84325201

Channel Control Check
Go to Page 36, Step 040, Entry Point 63.

Ref. Code

84325301

Channel Control Check.
Check whether any control unit was switched off, otherwise
Go to Page 23, Step 040, Entry Point 10.

Ref. Code

84325401

Channel Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 26, Step 040, Entry Point 20.

Ref. Code

84335101
Go To Map 0001, Entry Point 0.

Ref. Code

84336101

Interface Control Check
Go to Page 26, Step 040, Entry Point 21.

Ref. Code

84337101

Channel Control Check
Go to Page 41, Step 040, Entry Point 86.

Ref. Code

84337201

Channel Control Check
Go to Page 42, Step 040, Entry Point 87.

Ref. Code

84338101

Interface Control Check
Go to Page 48, Step 040, Entry Point A9.

Ref. Code

84339101

Interface Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 48, Step 040, Entry Point A9.

Ref. Code

84340101

Interface Control Check
Go to Page 33, Step 040, Entry Point 47.

Ref. Code

84340201

Interface Control Check
Go to Page 37, Step 040, Entry Point 67.

Ref. Code

84340301

Interface Control Check
Go to Page 33, Step 040, Entry Point 48.

Ref. Code

84340401

Interface Control Check
Go to Page 37, Step 040, Entry Point 68.

Ref. Code

84340501

Interface Control Check
Go to Page 33, Step 040, Entry Point 49.

(Step 005 continues)

(Step 005 continued)
Go to Page 42, Step 040, Entry Point 88.

Ref. Code

84653101

Channel Data Check
Go to Page 27, Step 040, Entry Point 23.

Ref. Code

84757101

Interface Control Check
Go to Page 34, Step 040, Entry Point 52.

Ref. Code

84757201

Channel Control Check
Go to Page 38, Step 040, Entry Point 72.

Ref. Code

84760101

Interface Control Check
Go to Page 23, Step 040, Entry Point 11.

Ref. Code

84760201

Channel Control Check
Go to Page 39, Step 040, Entry Point 73.

(Step 005 continues)

(Step 005 continued)

Ref. Code

84761101

Interface Control Check
Go to Page 27, Step 040, Entry Point 24.

Ref. Code

84762101

Interface Control Check
Go to Page 27, Step 040, Entry Point 25.

Ref. Code

84763101

Interface Control Check
Go to Page 48, Step 040, Entry Point AB.

Ref. Code

84764101

Channel Control Check
Go to Page 42, Step 040, Entry Point 89.

Ref. Code

84764201

Channel Control Check
Go to Page 43, Step 040, Entry Point 90.

Ref. Code

84765101

Interface Control Check
(Step 005 continues)

(Step 005 continued)

Ref. Code

84771101

Interface Control Check
Go to Page 28, Step 040, Entry Point 28.

Ref. Code

84771201

Interface Control Check
Go to Page 28, Step 040, Entry Point 29.

Ref. Code

84772101

Channel Control Check
Go to Page 43, Step 040, Entry Point 93.

Ref. Code

84773101

Interface Control Check
Go to Page 50, Step 040, Entry Point AK.

84880101

Interface Control Check
Go to Page 52, Step 040, Entry Point QT.

Ref. Code

84881101

Interface Control Check
Go to Page 24, Step 040, Entry Point 12.
(Step 005 continues)

(Step 005 continued)

Ref. Code

84881201

Channel Control Check
Go to Page 39, Step 040, Entry Point 76.

Ref. Code

84883101

Channel Control Check
Go to Page 43, Step 040, Entry Point 94.

Ref. Code

84883201

Channel Control Check
Go to Page 43, Step 040, Entry Point 95.

Ref. Code

84884101

Interface Control Check
Go to Page 29, Step 040, Entry Point 37.

Ref. Code

84885101

Interface Control Check
Go to Page 30, Step 040, Entry Point 38.

(Step 005 continues)

(Step 005 continued)

Ref. Code

84897101

Channel Control Check
Go to Page 49, Step 040, Entry Point AF.

Ref. Code

84898101

Channel Control Check
Go to Page 44, Step 040, Entry Point 98.

Ref. Code

84899101

Interface Control Check
Go to Page 31, Step 040, Entry Point 3B.

Ref. Code

8489A101

Interface Control Check
Go to Page 20, Step 040, Entry Point 3.

Ref. Code

8489A201

Channel Control Check
Go to Page 39, Step 040, Entry Point 79.

Ref. Code

84AA0101

Channel Data Check
(Step 005 continues)

(Step 005 continued)
Go to Page 44, Step 040, Entry Point 99.

Ref. Code

84AA1101

Channel Data Check
Go to Page 28, Step 040, Entry Point 33.

Ref. Code

84AA2101

Error during data transfer end
Go to Page 62, Step 165, Entry Point R.

Ref. Code

84AA3101

Error during data transfer end.
OPERATIONAL IN = 0
Go to Page 62, Step 165, Entry Point R.

Ref. Code

84AA4101

Channel Control Check
Go to Page 51, Step 040, Entry Point R7.

Ref. Code

84AA5101

Interface Control Check
Go to Page 31, Step 040, Entry Point 3C.

(Step 005 continues)

(Step 005 continued)

Ref. Code

84DD8101

Channel Control Check
Go to Page 45, Step 040, Entry Point A2.

Ref. Code

84DDA101

Interface Control Check
Go to Page 21, Step 040, Entry Point 4.

Ref. Code

84DDA201

Channel Control Check
Go to Page 40, Step 040, Entry Point 81.

Ref. Code

84DDB101

Interface Control Check
Go to Page 35, Step 040, Entry Point 57.

Ref. Code

84DDB201

Channel Control Check
Go to Page 40, Step 040, Entry Point 82.

Ref. Code

84DDC101

Interface Control Check
(Step 005 continues)

(Step 005 continued)
Go to Page 35, Step 040, Entry Point 58.

Ref. Code

84DDC201

Channel Control Check
Go to Page 41, Step 040, Entry Point 83.

Ref. Code

84FF0101

Subchannel probably not defined
Go to Page 53, Step 041, Entry Point K1.

Ref. Code

84FF1101

Subchannel probably not defined
Go to Page 53, Step 041, Entry Point K1.

Ref. Code

84FF2101
Go To Map 0001, Entry Point O.

84FFF101
Go To Map 0001, Entry Point O.

Ref. Code

84XXXX01
Go To Map 0001, Entry Point P.

018
'Reserved'
Y N

019
'Reserved'
Y N

020
'Reserved'
Y N

021
'Reserved'
Y N

022
'Reserved'
Y N

023
(Entry Point J)

See field A of SCA log display.

ADDRESS IN = 1 ?
Y N

024
Go to Step 027, Entry Point 5Z.

025
COMMAND OUT = 1 ?
Y N

026
Go to Step 031, Entry Point 5C.

027
(Entry Point 5Z)

STATUS IN = 1 ?
Y N

028
Go to Page 20, Step 033, Entry Point 5Y.

029
COMMAND OUT = 1 ?
Y N

030
SERVICE OUT = 1 ?
Y N

031
(Entry Point 5C)

Go to Page 54, Step 056, Entry Point M.

032
Go to Page 20, Step 033, Entry Point 5Y.

(Step 040 continued)
(Entry Point 4)

Interface Control Check during
CLRIO/HDV/HIO operation:

Check Trap
(Tag in check, or time-out, or any overcurrent) while waiting for SELECT IN to drop.

SELECT IN = 1

Sequence code: CLRIO = 0
HDV/HIO = undefined

(Entry Point DO)

Sequence code 0 means:
Channel detected error during TIO or Clear I/O.
Go to Page 59, Step 123, Entry Point D.

(Entry Point 5)

Channel Control Check during trap reason analysis:

Tag In Trap
OPERATIONAL IN = 1
ADDRESS IN = 0
STATUS IN = 1
REQUEST IN may be on or off

Sequence code = 5.
Go to Page 19, Step 023, Entry Point J.

(Entry Point 7)

Channel Control Check during trap reason analysis:

Tag In Trap and Polling Trap

```
OPERATIONAL  IN = 0
SELECT       IN = 1
```

```
Device address = invalid
```

Go to Page 54, Step 056, Entry Point M.
(Step 040 continues)

(Step 040 continued)

(Entry Point 7X)

Channel Control Check during trap reason analysis:

Tag IN Trap

```
OPERATIONAL  IN = 0
REQUEST      IN = 0
SERVICE  IN or
ADDRESS      IN = 1
```

SCA in data transfer mode.

Sequence code = 5
Go to Page 25, Step 040, Entry Point GT.

(Entry Point 7Y)

Interface Control Check during trap reason analysis:

No Any Trap Request
(Trap Loop counter exhausted)

```
REQUEST  IN = 0
SERVICE  IN = 1
DATA     IN = 1
```

```
Device address = invalid
```

Go to Page 54, Step 056, Entry Point M.

(Entry Point 7Z)

Interface Control Check during trap reason analysis:

No Any Trap Request
(Trap loop counter exhausted)

```
REQUEST  IN = 1
SERVICE  IN = 0
DATA     IN = 0
```

```
Device address = invalid
```

(Step 040 continues)

(Step 040 continued)
(Entry Point 9)

Interface Control Check during polling sequence:

Check Trap
(Tag in check, or time-out, or any over overcurrent),
while waiting for ADDRESS IN.

ADDRESS IN = 1,
no Bus in Buffer parity check.

Sequence code = 5

(Entry Point H5)

Sequence code = 5 means:
Command had been accepted, but data transfer was discontinued.
Go to Page 60, Step 147, Entry Point H.

(Entry Point 10)

Channel Control Check during polling sequence.
Check Trap
(Tag in check, or time-out, or any overcurrent),
while waiting for ADDRESS IN.

ADRESS IN = 0
or 'Bus in Buffer' parity check.
Device address = invalid.
Go to Page 60, Step 147, Entry Point H.

(Entry Point 11)

Interface Control Check during command chaining sequence:

Check Trap
(Tag in check, or time-out, or any overcurrent),
while waiting for ADDRESS IN.

Sequence code = invalid.
Go to Page 60, Step 147, Entry Point H.

(Step 040 continues)

(Step 040 continued)
(Entry Point 14)

Interface Control Check during polling sequence

Trap loop counter exhausted.

```
REQUEST IN = 0
SERVICE IN = 1
DATA    IN = 1

Device address = invalid
```

Go to Page 54, Step 056, Entry Point M.

(Entry Point 16)

Interface Control Check during ending status handling:

STATUS IN = 1, Ending Status.

'Bus in Buffer' parity check.

Inbound or outbound operation.

Unit Status in 'Bus in Buffer' = invalid.

For sequence code see byte 52, bit 5, 6, 7 of SCA log display.

(Entry Point GT)

See the meaning of the sequence code in the following table, then continue:

```
Sequence Code
000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but no data transferred
011 = At least one byte of data was transferred
100 = Command code in current CCW was either not sent out or
      was sent but not accepted by the device
101 = Command was accepted, but data transfer is discontinued.
```

Go to Page 57, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 22)

Channel Control Check during command chaining sequence:

CHANNEL END received only.

Tag in Trap
while waiting for 'operational in' to fall.

OPERATIONAL IN = 1
ADDRESS IN = 0
STATUS IN = 0
SERVICE IN = 1
DATA IN = 1

SCA is in EC-mode.
Go to Page 57, Step 097, Entry Point G.

(Entry Point 23)

Channel Data Check during data chaining:

Inbound operation
'Bus In Data' parity check
Go to Page 57, Step 097, Entry Point G.

(Entry Point 24)

Interface Control Check during command chaining:

ADDRESS IN = 0
STATUS IN = 1 (Short CU busy)

Sequence code = invalid.
Go to Page 57, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 25)

Interface Control Check and interface disconnect during command chaining:

ADDRESS IN = 0
SELECT IN = 1
(no Bus Out parity check).

Sequence code = invalid.
Go to Page 57, Step 097, Entry Point G.

(Entry Point 26)

Interface Control Check during command chaining:

Tag in Trap
while waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 1
COMMAND OUT = 0
(command = dummy TIO)

Sequence code = invalid.
Go to Page 57, Step 097, Entry Point G.

(Entry Point 27)

Interface Control Check during command chaining:

Sequence code = invalid

Tag in Trap
waiting for 'status in'

STATUS IN = 0
ADDRESS IN = 1
COMMAND OUT = 0
Go to Page 57, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point 35)

Interface Control Check during command chaining:

Sequence code = invalid
ADDRESS IN = 1

Bus in parity check.
Go to Page 54, Step 056, Entry Point M.

(Entry Point 36)

Interface Control Check during command chaining:

Sequence code = invalid.
ADDRESS IN = 1

Device address on Bus in is not equal to the device address on Bus Out.
Go to Page 57, Step 097, Entry Point G.

(Entry Point 37)

Interface Control Check during initial selection:

Sequence code = 4,
command in current CCW was either not sent out, or it was sent out but not accepted by the device.

ADDRESS IN = 1
Bus in parity check.
Go to Page 54, Step 056, Entry Point M.

(Step 040 continues)

(Step 040 continued)
(Entry Point 3B)

Interface Control Check during initial selection sequence:

SELECT IN = 1, CU busy. Waiting for 'selection in' to drop. 1 msec timeout loop exhausted.

Sequence code = 7 (invalid)
Go to Page 57, Step 097, Entry Point G.

(Entry Point 3C)

Interface Control Check during data transfer termination

SERVICE IN or
DATA IN = 1
Waiting for 'service in' or 'data in' to drop. 1 msec timeout loop exhausted.

Sequence code = 7 (invalid)
Go to Page 57, Step 097, Entry Point G.

(Entry Point 40)

Interface Control Check during CLRIO/HDV/HIO operation:

Device address = invalid.

```
Sequence code: CLRIO = 0
               HDV/HIO = undefined
```

Sequence code 0 means: Channel detected error.

ADDRESS IN = 1

Device address on Bus In is not equal the device address on Bus Out.
Go to Page 53, Step 042, Entry Point P.

(Step 040 continues)

(Step 040 continued)
(Entry Point 46)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in'.

STATUS IN = 0
or Bus in Buffer parity check.
Go to Page 58, Step 098, Entry Point B.

(Entry Point 47)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in' or 'service in' / 'data in'.

STATUS IN = 0
SERVICE IN = 0
DATA IN = 0

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 48)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent),
while waiting for 'status in' or 'service in' and 'data in'.

STATUS IN = 0
SERVICE IN = 1
DATA IN = 1

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.
(Step 040 continues)

(Step 040 continued)

(Entry Point 49)

Interface Control Check during polling sequence:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'status in' or 'service in' / 'data in'.

STATUS IN = 1,
SERVICE IN = 0
DATA IN = 0.

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 50)

Interface Control Check during polling sequence:

STATUS IN = 1,
SERVICE IN = 1,
DATA IN = 1

Sequence code = 5,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 51)

Interface Control Check during command chaining:

Only 'channel end' received.
Command chaining indicated.

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational' in to fall.

See sequence code in byte 52, bit 5, 6, 7 of SCA log display and look it up in the sequence code table,
Go to Page 32, Step 040, Entry Point BT.

(Step 040 continues)

(Step 040 continued)
(Entry Point 56)

Interface Control Check during initial selection:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'status in' to drop.

STATUS IN = 1 (short control unit busy).

Sequence code = 4,
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 57)

Interface Control Check during CLRIO/HDV/HIO operation:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational in' to drop.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
Go to Page 32, Step 040, Entry Point BT.

(Entry Point 58)

Interface Control Check during CLRIO/HDV/HIO:

Check Trap (tag in check, or time-out, or any overcurrent), while waiting for 'operational in' drop.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
Go to Page 32, Step 040, Entry Point BT.

(Step 040 continues)

(Step 040 continued)
(Entry Point 65)

Channel Control Check during polling sequence:

UNIT STATUS from 'Bus in Buffer', see byte 67 of SCA log display.

Check Trap while waiting for STATUS IN.

STATUS IN = 1
No 'Bus in Buffer' parity check.

Sequence code = 5.
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 66)

Channel Control Check during polling sequence:

UNIT STATUS = 00.

Check Trap while waiting for STATUS IN.

STATUS IN = 0,
or 'Bus in Buffer' parity check.

Sequence code = 5,
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 67)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 0
SERVICE IN/DATA IN = 0

Sequence code = 5
Go to Page 36, Step 040, Entry Point C5.

(Step 040 continues)

(Step 040 continued)
(Entry Point 68)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 0
SERVICE IN/DATA IN = 1

Sequence code = 5,
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 69)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 1,
SERVICE IN/DATA IN = 0.

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 5,
Go to Page 36, Step 040, Entry Point C5.

(Entry Point 70)

Interface Control Check during polling sequence:

Check Trap while waiting for STATUS IN or SERVICE IN/DATA IN.

STATUS IN = 1,
SERVICE IN/DATA IN = 1.

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 5,
(Step 040 continues)

(Step 040 continued)
(Entry Point 73)

Channel Control Check during command chaining sequence:

Check Trap while waiting for ADDRESS IN.

Sequence code = invalid
Go to Page 63, Step 166, Entry Point C.

(Entry Point 74)

Interface Control Check during command chaining sequence:

Check Trap while waiting for STATUS IN

Sequence code = invalid
Go to Page 63, Step 166, Entry Point C.

(Entry Point 75)

Channel Control Check during command chaining sequence:

Check Trap while waiting for STATUS IN

Command = dummy TIO.

Sequence code = invalid.
Go to Page 63, Step 166, Entry Point C.

(Entry Point 76)

Channel Control Check during initial selection sequence:

Check Trap waiting for response to ADDRESS OUT

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Step 040 continues)

(Step 040 continued)
(Entry Point 77)

Channel Control Check during initial selection sequence:

Check Trap while waiting for STATUS IN.

Sequence code = 1,

(Entry Point C1)

Sequence code 1 means:

Command went out but device status not received.
Go to Page 63, Step 166, Entry Point C.

(Entry Point 78)

Channel Control Check during initial selection sequence:

Check Trap waiting for STATUS IN to drop.

STATUS IN = 1 (short control unit busy).

UNIT STATUS from 'Bus in Buffer' see byte 67 of SCA log display.

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Entry Point 79)

Channel Control Check during initial selection sequence:

Check Trap while waiting for SELECT IN to drop.

SELECT IN = 1.

Sequence code = 4,
Go to Page 36, Step 040, Entry Point C4.

(Step 040 continues)

(Step 040 continued)
(Entry Point 83)

Channel Control Check during
CLRIO/HDV/HIO operation:

Unexpected Trap while waiting for
OPERATIONAL IN to drop.

Sequence code: CLRIO = 0
HDV/HIO = undefined
Go to Page 40, Step 040, Entry Point C0.

(Entry Point 85)

Channel Data Check during terminal status
handling:

Outbound operation.
STATUS IN = 1 (terminal status)
'Bus Out Buffer' data parity check.
Go to Page 53, Step 043, Entry Point F.

(Entry Point 86)

Channel Control Check during polling
sequence:

BUS OUT parity check on COMMAND OUT

STATUS IN = 1

No Bus in Buffer parity Check.

Sequence code = 5

(Entry Point FT)

for meaning of sequence code see the following
table, then continue.

Sequence Code

000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but not data transferred
011 = At least one byte of data was transferred
(Step 040 continues)

(Step 040 continued)
(Entry Point 90)

Channel Control Check during command chaining:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.
Sequence code = invalid,
Go to Page 53, Step 043, Entry Point F.

(Entry Point 91)

Channel Control Check during command chaining:

BUS OUT parity check on COMMAND OUT.

Sequence code = invalid.
Go to Page 53, Step 043, Entry Point F.

(Entry Point 92)

Channel Control Check during command chaining:

BUS OUT parity check on COMMAND OUT.

Sequence code = invalid.
Go to Page 53, Step 043, Entry Point F.

(Entry Point 93)

Channel Control Check during command chaining:

SELECT IN = 1
BUS OUT parity check on ADDRESS OUT.

Sequence code = invalid.
Go to Page 53, Step 043, Entry Point F.

(Step 040 continues)

(Step 040 continued)
(Entry Point 94)

Channel Control Check during initial selection:

ADDRESS IN =1
BUS OUT parity check on ADDRESS OUT.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 95)

Channel Control Check during initial selection:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 96)

Channel Control Check during initial selection:

STATUS IN =1
BUS OUT parity check on COMMAND OUT.

Sequence code = 1,
Go to Page 41, Step 040, Entry Point FT.

(Entry Point 97)

Channel Control Check during initial selection:

STATUS IN = 1 (short CU busy),
ADDRESS IN = 0

BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code = 4,
Go to Page 41, Step 040, Entry Point FT.

(Step 040 continues)

(Step 040 continued)
(Entry Point A1)

Channel Control Check during
CLRIO/HDV/HIO operation:

ADDRESS IN = 1
BUS OUT parity check on ADDRESS OUT.

Device address = invalid.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
For meaning of sequence code
Go to Page 41, Step 040, Entry Point FT.

(Entry Point A2)

Channel Control Check during
CLRIO/HDV/HIO operation:

SELECT IN = 1,
BUS OUT parity check on ADDRESS OUT.

Sequence code: CLRIO = 0,
HDV/HIO = undefined.
For meaning of sequence code
Go to Page 41, Step 040, Entry Point FT.

(Entry Point A3)

Interface Control Check during polling
sequence:

SERVICE IN = 1
HALT 1 Flag off, no SERVICE IN expected.

Sequence code = 5,
Go to Page 47, Step 040, Entry Point PT.

(Step 040 continues)

(Step 040 continued)

(Entry Point A7)

Interface Control Check during
CLRIO/HDV/HIO operation:

All Traps are not down after interface
disconnect.

Tag in Trap, unexpected Trap condition.

OPERATIONAL IN/
SERVICE IN/
DATA IN = 1

Sequence code: CLRIO = 0,
HDV/HIO = undefined.

For meaning of sequence code
Go to Step 040, Entry Point PT.

(Entry Point A8)

Interface Control Check during
CLRIO/HDV/HIO operation:

All Traps are not down after interface
disconnect.

Tag in Trap, unexpected Trap condition.

SERVICE IN / DATA IN = 0

Sequence code: CLRIO = 0
HDV/HIO = undefined.

(Entry Point PT)

For meaning of sequence code use the
following table then continue.

Sequence Code

000 = Channel detected error during TIO or Clear I/O
001 = Command went out, but device status not received
010 = Status received, but no data transferred
011 = At least one byte of data was transferred

(Step 040 continues)

(Step 040 continued)
(Entry Point AD)

Channel Control Check during command chaining:

Tag in Trap, waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 0, or COMMAND OUT = 1

Sequence code = invalid.
Go to Page 54, Step 048, Entry Point T.

(Entry Point AE)

Channel Control Check during initial selection:

Tag in Trap, waiting for STATUS IN.

STATUS IN = 0
ADDRESS IN = 0

Sequence code = 1,
command went out, but device status not received.
Go to Page 54, Step 048, Entry Point T.

(Entry Point AF)

Channel Control Check during initial selection:

Tag in Trap, unexpected Trap condition while waiting for control unit response to ADDRESS OUT.

ADDRESS IN = 0
STATUS IN = 0
SELECT IN = 0.

Sequence code = 4,
command code in current CCW was either not sent out or it was sent out but not accepted by the device.
Go to Page 54, Step 048, Entry Point T.

(Step 040 continues)

(Step 040 continued)
(Entry Point R1)

Error during terminal status handling.

STATUS IN = 1 (ending status)
COMMAND OUT raised by BSM interface card.
Go to Page 62, Step 165, Entry Point R.

(Entry Point R2)

Error during terminal status handling.

STATUS IN = 1 (terminal status)

Paging overrun detected by BSM interface card.
Go to Page 62, Step 165, Entry Point R.

(Entry Point R3)

Error during terminal status handling.

STATUS IN = IN (ending status)

Paging overrun detected by BSM interface card.
Go to Page 62, Step 165, Entry Point R.

(Entry Point R4)

Channel Control Check during ending status handling:

STATUS IN = 1 (ending status)
UNIT STATUS = 0
Go to Page 57, Step 097, Entry Point G.

(Entry Point R5)

Interface Control Check during polling sequence:

STATUS IN = 1 (ending status)
UNIT STATUS = 0
Go to Page 57, Step 097, Entry Point G.

(Step 040 continues)

(Step 040 continued)
(Entry Point R6)

Interface Control Check during initial selection:

Timeout while waiting for response to ADDRESS OUT.
ADDRESS IN = 0
SELECT IN = 0
STATUS IN = 0
Sequence code = 4
Go to Page 25, Step 040, Entry Point GT.

(Entry Point R7)

Channel Control Check during data transfer end:

STATUS IN = 1 (ending status handling)
Go to Page 62, Step 165, Entry Point R.

(Entry Point QE)

Interface Control Check during polling sequence:

Check Trap, waiting for 'status in' or 'service in'/'data in'. (Tag in check, or timeout, or any overcurrent)

STATUS IN = 0
SERVICE IN = 0
DATA IN = 0

See byte 67 of SCA log display:
ADDRESS IN belongs to the device which started poll.
Sequence code = 5:
Command was accepted, but data transfer is disconnected.

When following this MAP consider the device which sent ADDRESS IN.
Go to Page 54, Step 056, Entry Point M.

(Step 040 continues)

(Step 041 continued)
(Entry Point K1)

Check the system configuration and correct it if necessary. If this does not solve the problem

Go To Map 0001, Entry Point O.

042
(Entry Point P)

Problem detected and controlled by control unit. Use device address shown in field C of the SCA log display. Analyse the TAG IN and TAG OUT and the BUS IN and BUS OUT signals obtained from field A of the SCA log display and try to find out the failing signal(s). Go to documentation of addressed control unit/drive(s). If the problem connot be found
Go to Page 54, Step 056, Entry Point M.

043
(Entry Point F)

Suspect the following FRUs:
Replace one FRU at a time and run the MPX adapter test.

(Entry Point FF)

1.MPX card 2; 01A-B2U2
2.ACC card 1; 01A-B2V2
3.Crossovers W/X/Y/Z; 01A-B2U2, V2
01A-B2U3, V3
01A-B2T4, V4
01A-B2T5, V5

Any reference code when running MPX adapter test after a FRU replacement?
Y N

044
Go to Page 56, Step 077, Entry Point W.

(Step 056 continued)
Look for broken loose or bent contact pins in the connectors.

A pushed back pin of a signal shield will cause intermittent interface control checks.

Repair or replace, if needed.

Run MPX adapter test.

Any error?
Y N

057
(Entry Point MA)

For further verification run and loop the MPX standard interface test and apply stress to the connectors by hitting them with your hand.

Any error?
Y N

058
Run the application which showed the error.

Does the error come up again?
Y N

059
(Entry Point Z)

Go To Map 0001, Entry Point A.

060
Same error symptom as before?
Y N

061
Go to Page 56, Step 071, Entry Point Y.

062
Have you already been told to replace the MPX card 1: 01A-B2W2 during this call?
Y N

063
Now replace the tag drivers and receivers of the MPX adapter:
MPX card 1; 01A-B2W2

(Entry Point XY)

Run MPX adapter test and BMPX standard interface test.

Any error?
Y N

064
(Entry Point MB)

Run the application which showed the error.

Does the error come up again?
Y N

065
Go to Step 059, Entry Point Z.

066
Same error symptom as before?
Y N

067
Go to Page 56, Step 071, Entry Point Y.

084
Same error symptoms as before?
Y N

085
Go To Map 0000, Entry Point A.

086
Suspect now the board 01A-B2.
Before you replace a board invoke your support structure.
Therefore write down all error symptoms for possible later use and
Go To Map 0001, Entry Point O.

087
Go to appropriate MAP.

088
Go to Page 56, Step 077, Entry Point W.

089
The new card may also be defective, correct it.
Run MPX adapter test and the BMPX standard interface test.

Successful?
Y N

090
Second error may be in the adapter.
Go To Map 8470, Entry Point A.

091
Go to Page 55, Step 064, Entry Point MB.

092
Go to Page 56, Step 068, Entry Point ZW.

093
Go To Map 8480, Entry Point A.

094
(Entry Point AM)

Disconnect interface cables.

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

Any error?
Y N

095
Go to Page 55, Step 057, Entry Point MA.

096
Go To Map 8470, Entry Point A.

097
(Entry Point G)

Suspect first
MPX card 1 ; 01A-B2W2 (you may swap with BMPX card 01A-B2B2) then suspect control unit/device the address of which is shown in field C of SCA log display. Proceed with the documentation of the addressed control unit/drive(s).
If the problem cannot be found,
Go to Page 54, Step 056, Entry Point M.

114
See device address shown in field C of the SCA log display.

Are all logs from the same control unit/device?
Y N

115
Go to Page 62, Step 165, Entry Point R.

116
Go to Page 57, Step 097, Entry Point G.

117
Go to Page 53, Step 042, Entry Point P.

118
Are there more than one time-out logs?
Y N

119
Go to Page 57, Step 097, Entry Point G.

120
See device address shown in field C of the SCA log display.

Are all logs from the same control unit/device?
Y N

121
Go to Page 62, Step 165, Entry Point R.

122
Go to Page 57, Step 097, Entry Point G.

123
(Entry Point D)

See the adapter checks shown in field B of the SCA log display:

MAP Column 2:						
Additional SCA log informat						
Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Time-out?
Y N

124
Tag In Check?
Y N

125
Overcurrent?
Y N

126
Go to Page 54, Step 056, Entry Point M.

127
Go to Page 54, Step 056, Entry Point Q.

128
Disconnect In?
Y N

129
Go to Page 54, Step 056, Entry Point M.

130
Operational In?
Y N

148
Tag In Check?
Y N

149
Overcurrent?
Y N

150
Go to Page 54, Step 056, Entry Point M.

151
Go to Page 54, Step 056, Entry Point M.

152
Disconnect IN?
Y N

153
Go to Page 54, Step 056, Entry Point M.

154
Operational IN?
Y N

155
Go to Page 54, Step 056, Entry Point M.

156
Go to Page 53, Step 042, Entry Point P.

157
Are there more than one time-out logs?

Y N

158
Go to Page 57, Step 097, Entry Point G.

159
See field C of the SCA log control unit/device.

Are all time-out logs from the same divice?
Y N

(Step 165 continued)
not solved,
Go To Map 0001, Entry Point O.

166
(Entry Point C)

No tag in check, nor time-out, nor any overcurrent.

See the adapter checks shown in field B of the SCA log display.

MAP Column 2:						
Additional SCA log informat						
Tme Out	Tag Chk	Ov. Cur Chk	Sns Bus Chk	Bus Par Chk	Dsc In	Op. In
1	2	3	4	5	6	7

Sense Bus Check?
Y N

167
Bus Parity Check?
Y N

168
(Entry Point CB)

Suspect the following FRUs:

Replace one FRU at a time and run the MPX adapter test as well as the application which caused the error.

(Entry Point CX)

1.ACC card 1; 01A-B2V2
2.MPX card 2; 01A-B2U2

3.Crossovers W/X/Y/Z ; 01A-B2U2, V2
01A-B2U3, V3

(Step 168 continues)

MPX ADAPTER TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
RFCA	A	1	001
RFCA	P	2	003
0C00	A	1	001
8XXX	A	1	001
8400	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
2	009	0001	K
2	005	0001	0
2	007	0001	0

001

(Entry Point A)
****

MPX Adapter Test MAP

```
**************************************************
**************************************************
**  WARNING,                                    **
**  errors may come up, if the interface cable  **
**  is too near any power cable.                **
**************************************************
**************************************************
```

Are you led to this MAP by the REFCODE ANALYSIS?
Y N

002
Select the IBM MAINTENANCE AND SERVICE PROGRAM SELECTION.

Invoke the REFCODE ANALYSIS.

Key in the reference code and the first symptom code from the MPX Adapter test.
Go to Page 2, Step 003, Entry Point P.

MPX STANDARD INTERFACE TEST

ENTRY POINTS

FROM	ENTER THIS MAP		
MAP NUMBER	ENTRY POINT	PAGE NUMBER	STEP NUMBER
0C00	A	1	001
8XXX	A	1	001
8400	A	1	001

EXIT POINTS

EXIT THIS MAP		TO	
PAGE NUMBER	STEP NUMBER	MAP NUMBER	ENTRY POINT
10	022	0001	A
10	024	0001	0

001
(Entry Point A)

```
**************************************************
**************************************************
**  Caution:                                    **
**  Errors may occur if the interface cable     **
**  is too near power cable!                    **
**************************************************
**************************************************
```

Important hints:

Before testing the standard interface, be sure that the MPX operates properly by running the MPX adapter test. This test should have run error free before testing the STANDARD INTERFACE.

For handling of the Standard Interface Test, see Supplement to MAPs, section 4: Diagnostic Run Procedures (MPX/BMPX Standard Interface Test).

(Step 001 continues)

002
Are the following symptoms displayed:
01FFFFFF Bus Interface
02FFFFFF Tag Interface

Y N

003
Compare the displayed symptoms with the ones listed here:

0100 0002	BOB NOT ZERO
0100 0003	TOR NOT ZERO
0100 0004	BIB NOT ZERO
0100 0005	TIR NOT ZERO
0100 0006	BOB BIT P ERROR
0100 0008	BOB NOT BIT 0
0100 0009	BOB NOT BIT 1
0100 000B	BOB NOT BIT 2
0100 000C	BOB NOT BIT 3
0100 000D	BOB NOT BIT 4
0100 000E	BOB NOT BIT 5
0100 000F	BOB NOT BIT 6
0100 0010	BOB NOT BIT 7
0200 0002	BOB NOT ZERO
0200 0003	TOR NOT ZERO
0200 0004	BIB NOT ZERO
0200 0005	TIR NOT ZERO
0200 0006	NOT ADDRESS OUT
0200 0008	NOT COMMAND OUT
0200 000A	NOT SERVICE OUT
0200 000C	NOT DATA OUT
0200 000E	NOT SUPPRESS OUT
0200 0010	NOT OPERATION OUT
0200 0012	NOT HOLD OUT
0200 0014	NOT CONDITION SUP OUT
0300 0002	BOB NOT ZERO
0300 0003	TOR NOT ZERO
0300 0004	BIB NOT ZERO
0300 0005	TIR NOT ZERO
0300 0006	BOB NOT BIT P
0300 0007	BIB NOT BIT P
0300 000F	METERING NOT IN OFF

(Step 003 continues)

006

Remove the interface cable, which was identified by the symptom code, from the next control unit (if more than one control unit is attached to this interface) or the MPX respectively, thus eliminating this cable as the error cause.
Plug the respective plug connector to the interface connector of the control unit or the MPX.
Run the MPX standard interface cable test again!

Same error symptoms?

Y N

8 6
F G

(Step 007 continued)

		BUS OUT CONNECTORS		BUS IN CONNECTORS	
XX	YY	NAME	PIN	PIN	NAME
01	FF	BUS OUT BIT P	B03	G03	BUS IN BIT P
01	80	BUS OUT BIT 0	D04	J04	BUS IN BIT 0
01	40	BUS OUT BIT 1	B05	G05	BUS IN BIT 1
01	20	BUS OUT BIT 2	D06	J06	BUS IN BIT 2
01	10	BUS OUT BIT 3	B08	G08	BUS IN BIT 3
01	08	BUS OUT BIT 4	D09	J09	BUS IN BIT 4
01	04	BUS OUT BIT 5	B10	G10	BUS IN BIT 5
01	02	BUS OUT BIT 6	D11	J11	BUS IN BIT 6
01	01	BUS OUT BIT 7	B12	G12	BUS IN BIT 7
03	10	MARK OUT	D13	J13	MARK IN

		TAG OUT CONNECTORS		TAG IN CONNECTORS	
XX	YY	NAME	PIN	PIN	NAME
02	80	ADDRESS OUT	B10	B05	ADDRESS IN
02	40	COMMAND OUT	D11	D04	STATUS IN
02	20	SERVICE OUT	D13	D06	SERVICE IN
02	10	DATA OUT	G10	G08	DATA IN
02	08	SUPPRESS OUT	G12	J11	DISCONNECT IN
02	04	OPERATION.OUT	J13	B03	OPERATION.IN
02	06	OPERATION.OUT	J13	B03	MARK IN with SELECT IN +)
02	02	HOLD/SELC. OUT	D09	B08	SELECT IN
02	0A	HOLD/SELC. OUT	D09	B08	DISCONNECT IN with SELECT IN +)
02	01	COND,SUPR.OUT	B12	J06	REQUEST IN
03	20	METERING OUT	J04	G05	METERING IN

+) These 'IN' signals are turned on in a combination with YY= 04/02

Repair the defective line.

(Step 007 continues)

Suspect bad connection or broken wire in one or both of the interface cable connectors. Open the interface connector covers and make the
(Step 007 continues)

012
Check the 'wrap' connectors to be sure that they are correct. Check for any loose or broken wire or damaged pin!

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

```
FLATCABLE BUS OUT 01A-B2W2(W) TO BUS SERPENT CONN. 01D-D3(BD) 2-13
FLATCABLE BUS IN  01A-B2W3(X) TO BUS SERPENT CONN. 01D-D3(GJ) 2-13
FLATCABLE TAG 1   01A-B2W4(Y) TO TAG SERPENT CONN. 01D-E3(BD) 2-13
FLATCABLE TAG 2   01A-B2W5(Z) TO TAG SERPENT CONN. 01D-E3(GJ) 2-13
```

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

Run MPX standard interface cable test again!

Same error symptoms?
Y N

013
The error was caused by bad contact in the flat cable area of the MPX.
Go to Page 10, Step 021, Entry Point C.

014
(Entry Point K)

Replace MPX card 1, 01A-B2W2.

Run MPX standard interface cable test again!

Same error symptoms?
Y N

015
Error was caused by bad MPX card 1, 01A-B2W2.
Go to Page 10, Step 021, Entry Point C.

026
These symptom codes indicate that either one ore both of the interfaces are not properly terminated; check and reseat the terminators.

027
The error was caused by the IC-bus.
Run IC-bus test.