8. DIAGNOSIS SECTION

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Contents

8 DIAGNOSIS

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8 DIAG(DIAGNOSIS)

8.1 Types of Diagnoses

This subsystem's diagnostics consist of the five types of test routines listed below. They are selected according to the purpose and the part to be tested.

Table 1 Diagnostics Test Routines

Item No.	Type	Diagnosis	Part	Timing
1	CUDG3/ LCDG3	Initial diagnoses	CHA,DKA,CACHE/SHARED MEMORY, CPC(CPM,CPS)	When DKC is powered on or CHA or DKA is replaced (automatic)
2	CUDG4 /LCDG4	Functional diagnoses executed when the unit is offline	CHA,DKA,CACHE/SHARED MEMORY, CPC(CPM,CPS)	During installation (as specified by service personnel)
3	INLINE CUDG	Functional diagnoses executed when the unit is online	CACHE/SHARED MEMORY, CPC(CPM,CPS)	When Cache or Shared memory is replaced or installed (automatic)
4	DKU INLINE	DKA-HDU functional (connection) check	DKA,SCSI BUFF,SCSI CTL,HDD	When an HDD is replaced (automatic) or during installation (as specified by service personnel)
5	LAN	LAN check between DKC and SVP	SVP,SSVP,DKA,CHA	When LAN communication error or communication time-out error is occurred.

Notes: 1. RUN Option can be set for CUDG4, LCDG4.

2. All RUN Option types are specified in Table 1.1, Table 1.2 and Table 1.3.

3. Because INLINE CUDG and DKU INLINE are executed automatically during Hot Replace, normally they are not executed.

4. Run Option set to a value other than "08" is valid only when performing DKU INLINE for one drive.

Table 1.1 CUDG RUN Option

Item No.	RUN Option	If an Error is not detected	If an Error is detected
1	Normal (N)	A Routine Execution and End	A routine ends if an error is detected. After terminating the CUDG function, refer to Diag Log [Information Icon] for ACC and error information (single error). (See 29 of DIAG04-70)
2	Error Loop (E)	Continuous Execution of the Routine.	Continuous Routines execution. (multiple errors).
3	Loop (L)	Continuous Execution of the Routine.	A routine ends when an error is detected. After terminating the CUDG function, refer to Diag Log [Information Icon] for ACC and error information (single error). (See 29 of DIAG04-70)
4	Error Log (G)	Continuous Execution of the Routine.	Continuous Routines execution. After terminating the CUDG function, refer to Diag Log [Information Icon] for ACC and error information (multiple errors). (See 29 of DIAG04-70)

Note : In case of CUDG RUN Option is specified Normal, Action Times is invalid. (see 8 of DIAG04-30)

Table 1.2 DKU INLINE RUN Option

Item No.	RUN Option	Contents
1	01	Dynamic error display
2	02	Loop routine
3	03	Dynamic error display Loop routine
4	04	Link inhibit
5	05	Dynamic error display Link inhibit
6	06	Loop single routine
7	07	Dynamic error display Loop single routine
8	08	Reset RUN Option

Table 1.3 LCDG4 RUN Option

Item No.	Routine No.	RUN Option	Contents of Test
1	10	Normal (N) Error Loop (E) Loop (L)	(1) LCP Operation (2) LCP Register Test (3) Data Buffer Read/Write (4) SPS Function
2	20		(1) LCP-MP Communication Test (2) Data Transfer Test
3	30		(1) Serial Channel Wraparound Test
4	40	Normal (N)	(1) Optical Signal Defect Test
5	50		(1) Optical Signal Error Rate Check

8.2 DIAG Details

8.2.1 CUDG3 (Control Unit Diagnosis 3)/LCDG3(Link Control module Diagnosis 3)

CUDG3/LCDG3 is a collection of test routines that are started at system start time (when the unit power is turned on), prior to the execution of the main program and automatically check the basic functions of the unit to ensure the normal hardware operation of the system.   The CUDG3/LCDG3 routines are listed in Table 2.

Table 2 CUDG3/LCDG3 Test Routines

Item No.	Routine Name	Function
1	CUDG3B	Local memory/RCHK diagnosis
2	CUDG3C0	MIC timer #5,6/interrupt diagnosis, LANC self-diagnosis
3	CUDG3C1	CHA P/K self-diagnosis
4	CUDG3C2	DKA P/K self-diagnosis
5	CUDG3C3	Shared resource diagnosis by all processors(SMP,SMC)
6	CUDG3C4	Shared resource diagnosis by all processors(DRR,CACHE,CPC)
7	CUDG3C5	Shared resource diagnosis by a delegated processor(SMC)
8	CUDG3C6	Shared resource diagnosis by a delegated processor(CACHE,CPC)
9	LCDG3	CS, for Serial/Parallel port, read/write test, internal diagnostic test, communication diagnostic test

8.2.2 CUDG4(Control Unit Diagnosis 4)/LCDG4(Link Control module Diagnosis 4)

CUDG4/LCDG4 supports Cache memory/Shared memory read after full write tests and other tests that cannot be covered by CUDG3/LCDG3. It is executed by the service personnel when the unit is offline. After CUDG4/LCDG4, the subsystem PS OFF/ON is mandatory in order to return to ONLINE status of the subsystem. The CUDG4/LCDG4 test routines are listed in Table 3 and Table 3.1.

Table 3 CUDG4 Test Routines

Item No.	Routine Name	Function
1	P/K test Group	CHA/DKA diagnosis
2	SMC Normal test Group	SMC, SHARED MEMORY diagnosis (Normal test)
3	Cache Normal test Group	CACHE, CPC (CPM, CPS) P/K, CACHE MEMORY diagnosis (Normal test)
4	SMC test Group	SMC, SHARED MEMORY diagnosis
5	Cache test Group	CACHE, CPC (CPM, CPS) P/K, CACHE MEMORY diagnosis

Table 3.1 LCDG4 Test Routines

Item No.	Routine No.	Parameter	Contents of Test
1	10	—	(1) LCP Operation (2) LCP Register Test (3) Data Buffer Read/Write (4) SPS Function
2	20	—	(1) LCP-MP Communication Test (2) Data Transfer Test
3	30	CB750F	(1) Serial Channel Wraparound Test
4	40	—	(1) Optical Signal Defect Test
5	50	—	(1) Optical Signal Error Rate Check

(Note 1)

Routine 30 is used for running a serial channel wraparound test.

To execute Routine 30, the wraparound test connector is required.

(Note 2)

Routines 40 and 50 are used for checking optical signals for the serial channel.

8.2.3 INLINE CUDG(INLINE Control Unit Diagnosis)

INLINE CUDG checks the validity of Cache memory, Shared memory, and CPC (Cache Port Control) when the entire disk subsystem is running normally. The INLINE CUDG test routines are listed in Table 4.

Table 4 INLINE CUDG Test Routines

Item No.	Routine Name	Function
1	Cache memory system	Cache/CPC (CPM, CPS) P/K diagnosis
2	Shared memory system	SMC (Shared Memory Control) diagnosis

8.2.4 DKU INLINE

The DKU INLINE execute the diagnosis of HDD equipped in DKU. The DKU INLINE test routines are listed in Table 5.

Table 5 DKU INLINE Test Routines

Item No.	Routine Name	Function
1	C1 Link series	HDD standalone test and check for normal operation against accesses from the higher-level unit (DKC)
2	DKU path inline	Check for connection between DKA (Disk Adapter) and HDU

8.2.4.1 C1 Link series

The C1 Link series of test routines are used to ensure that the HDD is accessible to the Disk Controller when one is installed (a new or as an additional unit). This INLINE facility is also executed when a HDD is replaced during online processing as part of the recovery procedure to ensure that the HDD is normal. In this case, this INLINE facility runs automatically (with no SVP manipulation). The C1 Link series test routines are listed in Table 6.

Table 6 C1 Link Series Test Routines

Routine ID	Test Name	Function
C1	TEST UNIT READY & REQ.SENSE	Issues the TEST UNIT READY to the HDD and verifies that the status is GOOD or CHECK. The path is changed during this test to check both paths.
C2	START/STOP TEST	Issues the STOP COMMAND to the HDD and verifies that the command terminates normally. In 10 seconds, the test routine issues the START command and verifies that normal status is returned.
C3	INQUIRY	Checks the HDU-specific information.
C4	REZERO/SEEK TEST	Executes CYL SEEK and REZERO and verifies that they terminate normally. Subsequently, perform seeks between 0 and 1, 0 and 2, 0 and 4, 0 and 8, 0 and 16, ..., 0 and 2048(cyl), 0 and MAX, and MAX and 0 to verify that the seeks terminate normally.
C5	READ/WRITE TEST	Make read/write tests on all heads on the CE cylinders and verifies that the tests terminate normally.
C6	ECC TEST	Writes all zeros to the HEAD#0 sectors on the CE cylinders and reads data including ECC with the READ LONG to verify the validity of the ECC data. The test routine also writes the bit-inverted data with the WRITE LONG and verifies that Correctable or Uncorrectable is reported when the written field is read.
C7	HDU SELF TEST	Activates the SCSI CTL self-diagnostics facility to check the following functions: · HDC functions (SEEK ERROR, SECTOR CHECK, FLAG CHECK, AM CHECK, ID CRC CHECK, DRIVE OVERRUN CHECK) · M-ESDI interface check (WRITE OK, M-ESDI INTERFACE PARITY, ILLEGAL COMMAND) · Drive write fault check (OFFSET WRITE, SERVO AREA WRITE, NRZ DATA PARITY ERROR, SYNCHRONOUS READ/WRITE GATE ON, WRITE TRANSITION)

Notes:

1. All logical devices must be in the "BLOCKED" state. If not, the test routine will error-terminate. Refer to from SVP02-560 to SVP02-610 of SVP SECTION for all logical devices blocked.

2. The previous test routines must have been terminated normally before the pertinent test routine is started.

3. The Disk Controller should have been powered on normally.

4. Run Option setting to a value other than "08" is valid only when performing DKU INLINE for one drive.

5. After performing C1 Link Series, report on two SSB Log. (FM : 9F ErrCode : AE5A, E/F : E0 ErrCode : A772)

8.2.4.2 D8 Routine

D8 routine confirm the connection status of equipped HDD.

Note:

Refer to Notes in C1 Link series.

8.2.4.3 DKU PATH INLINE

DKU PATH INLINE performs diagnostics on the DKAs and HDUs. It fetches the SCSI buffer address from the test DKA and examines it to verifies that the correct HDUs are connected. It also issues the INQUIRY command to verify that correct HDU-specific information can be obtained.

8.2.5 LAN Checker

LAN checker analyses the LAN connection between DKC and SVP to determine whether the LAN error is caused by the physical connection or the communication software.

#	Test Name	Function
1	Hardware check	Checker executes "Ping" to all MPs. If the result is "no-response", for a MP, the physical connection error has occurred between the MP and SVP.
2	Software check	Checker executes the communication between SVP and MPs whose result of #1 is "responsed".

8.3 DIAG Parts

The parts that are diagnosed by the DIAG test routines are shown in Figs. 8.1 through 8.3.
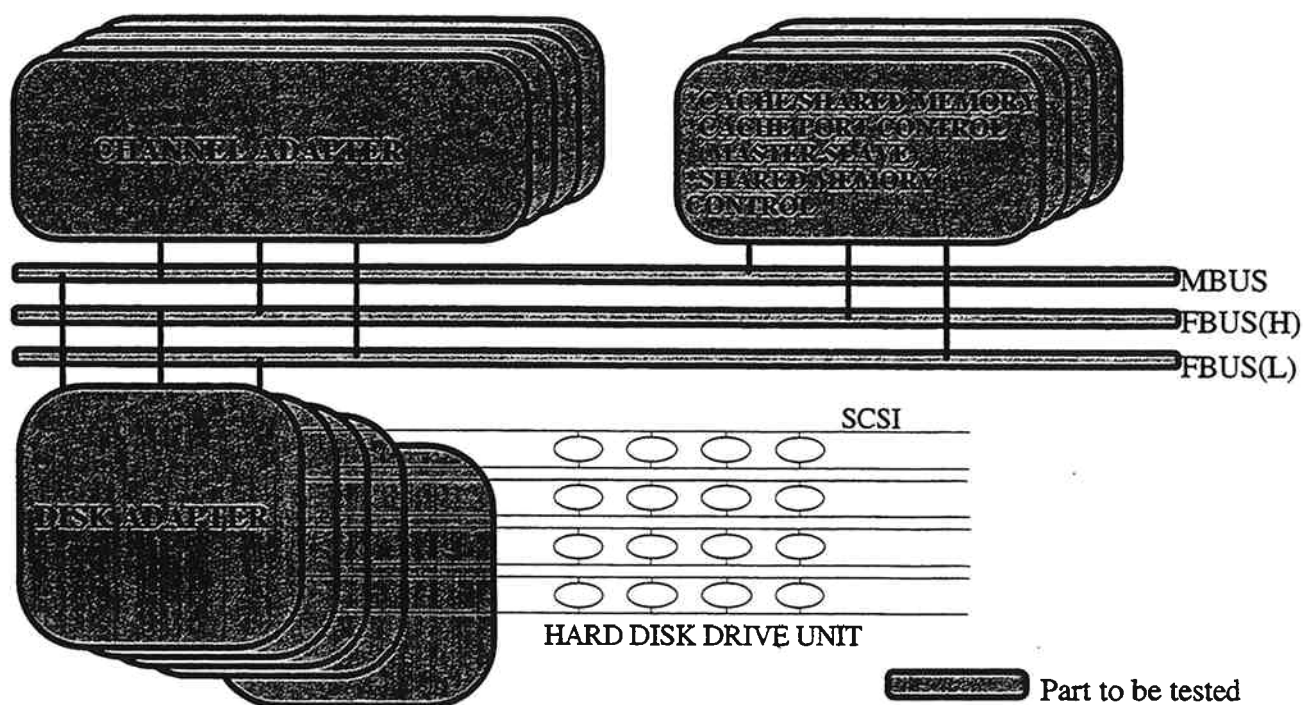
Fig. 8.1 Parts that are Subject to CUDG3/CUDG4 Tests
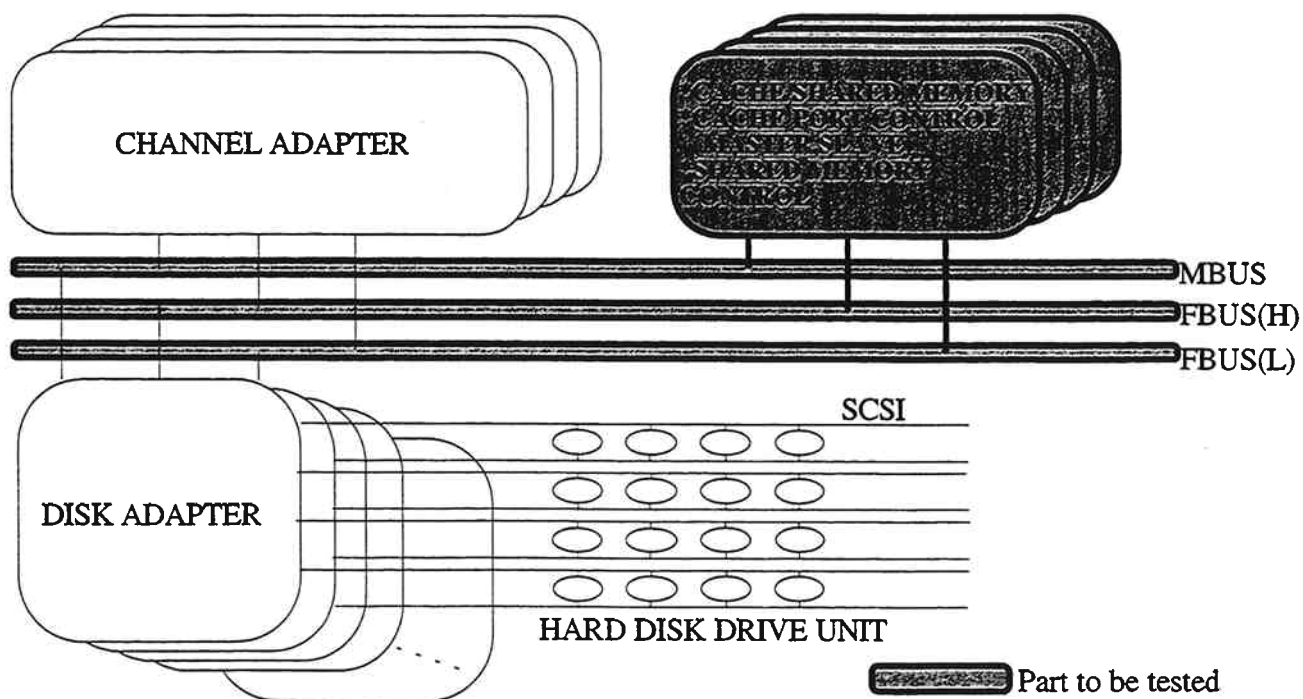
Fig. 8.2 Parts that are Subject to INLINE CUDG Tests

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CHANNEL ADAPTER

*CACHE/SHARED MEMORY
*CACHE PORT CONTROL
 (MASTER,SLAVE)
*SHARED MEMORY
CONTROL

MBUS

FBUS(H)

FBUS(L)

SCSI

DISK ADAPTER

HARD DISK DRIVE UNIT

Part to be tested
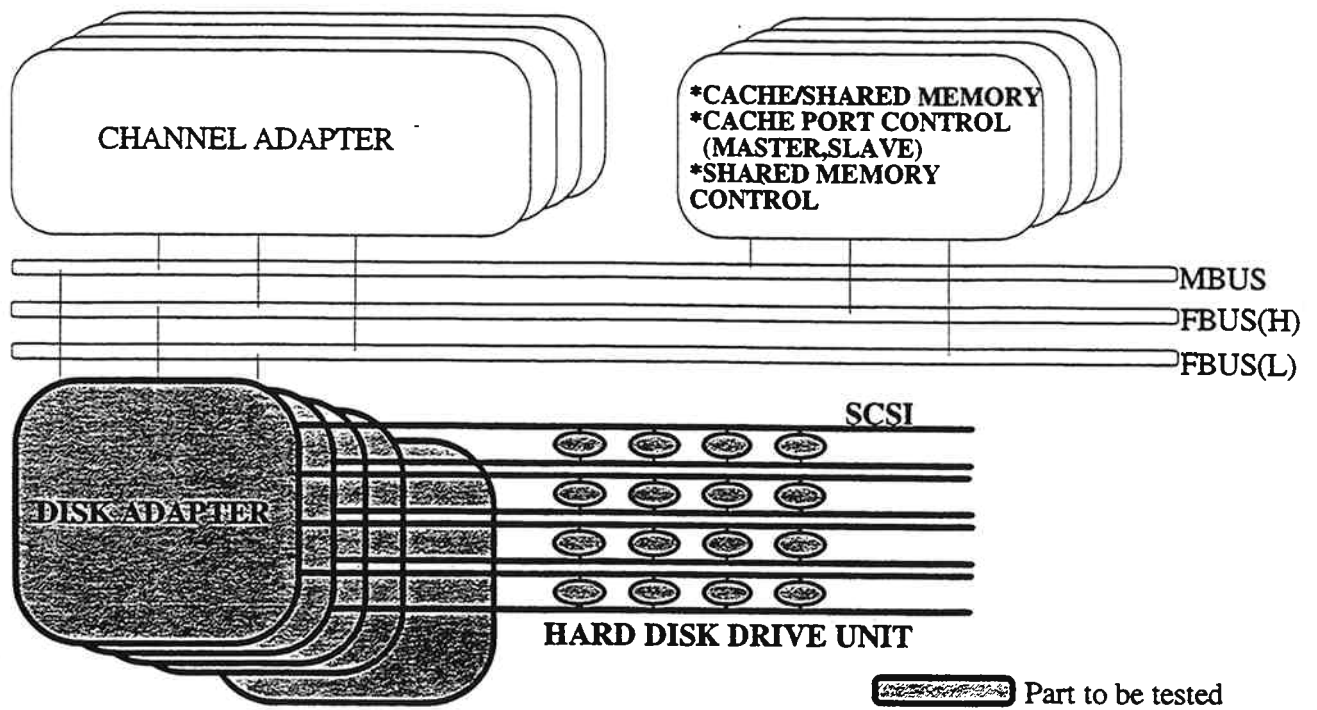
Fig. 8.3 Parts that are Subject to DKU INLINE Tests

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CHANNEL ADAPTER

*CACHE/SHARED MEMORY
*CACHE PORT CONTROL
 (MASTER, SLAVE)
*SHARED MENORY CONTROL

MBUS

FBUS (H)

FBUS (L)

SCSI
BUFF

SCSI
BUFF

DISK ADAPTER

POWER CONTROL

DKU MONITOR

Part to be tested
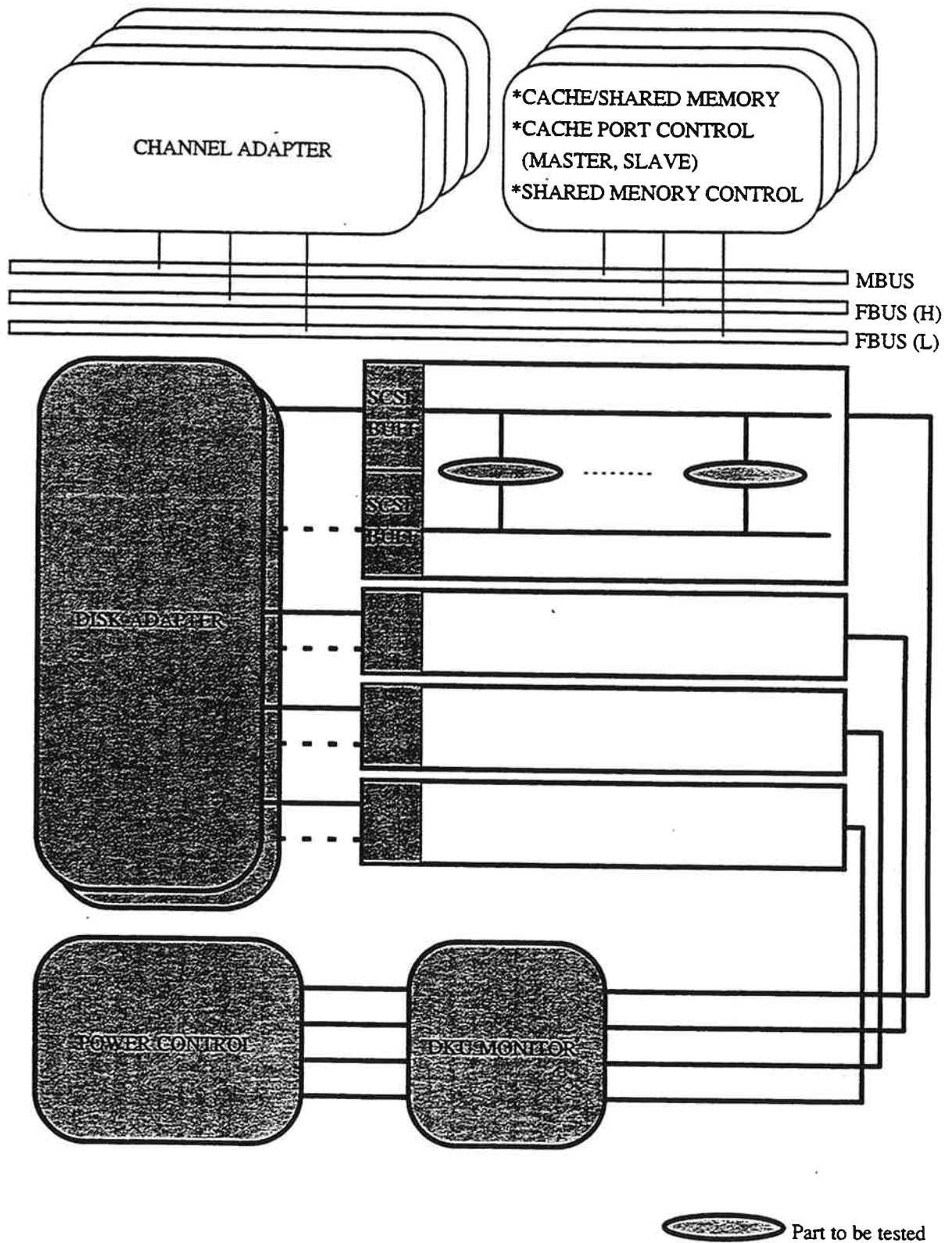
Fig. 8.4 Parts that are Subject to DKU PATH INLINE Tests

REV.0	Dec.1995						
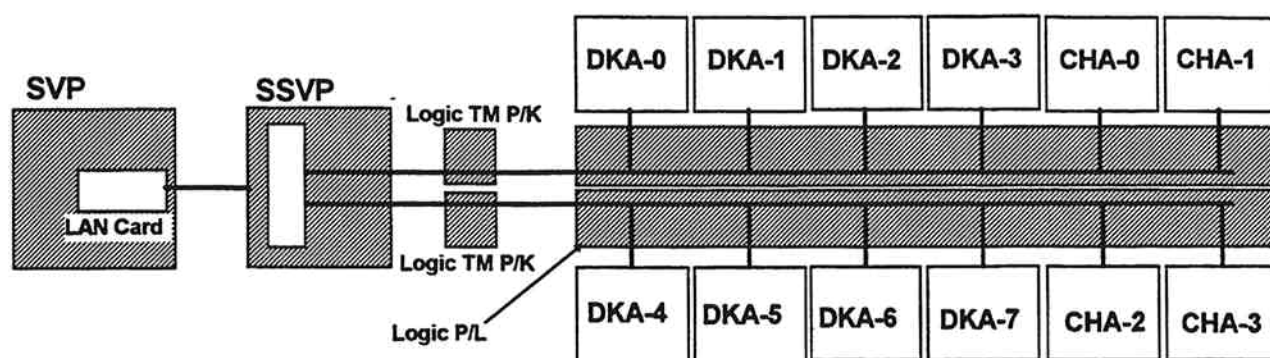
Fig.8.5 Parts that are Subjects to LAN check

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8.4 DIAG Test Procedures (SVP Operations)

8.4.1 CUDG4/LCDG4 Test Procedures

1. **<Open [Diag]>**

   Select [Diag] from 'SVP' (DC).

   Note: Until DKC is started again after execution of CUDG4/LCDG4, the function except a log display of INFORMATION and each function of STATUS ONLINE INSTALL does not operate.

2. **<Check copyrights>**

   Select [OK] (CL).

3. **<Operation mode change>**
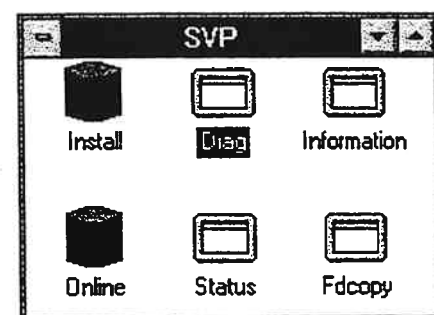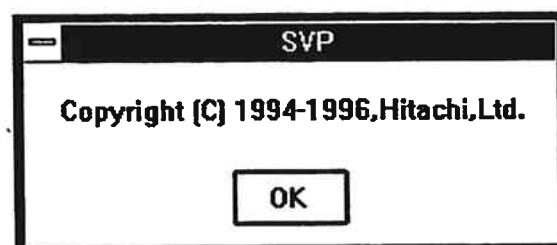
   Select [Modify] from [Mode] on 'Diagnosis' (DR).

4. **<Select [CUDG4]>**

   Select [CUDG4] from [Examination] on 'Diagnosis' (DR).

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5. <Display of "Is DKC subsystem off-line?">
    "Is DKC subsystem off-line?" is displayed.
    Select [Yes] button after switching to OFF for the Channel
    Paths (CL).

    Caution!
    When the SCSI Channel Paths are connected with SCSI host
    systems, shut down the host systems first and then select [Yes]
    button (CL). The shut down of SCSI host systems is a
    mandatory process in order to avoid any unnecessary IOs (e.g. automatic polling IOs) issued from host systems.
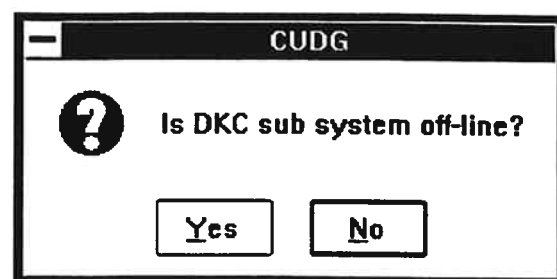
6. <Select [Test items]>
    Select [Test items] in the 'CUDG4' window (DR).
    Jump to 9. when setting RUN Option setting to a
    Normal value.
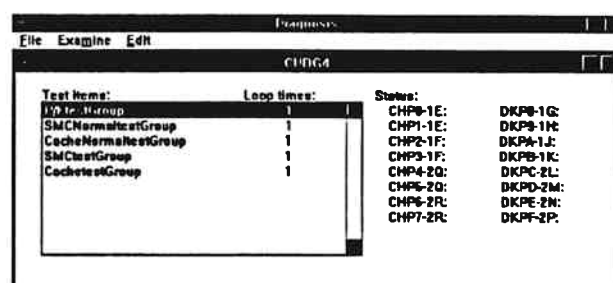
    Test items:
    P/K test Group   : Performs diagnoses of CHA or DKA PCB.
    SMC Normal test Group   : Performs diagnoses of Shared Memory CTL (Normal test).
    Cache Normal test Group : Performs diagnoses of Cache Platter (Normal test).
    SMC test Group   : Performs diagnoses of Shared Memory CTL.
    Cache test Group   : Performs diagnoses of Cache Platter.

    Note:
    P/K test Group, SMC Normal test Group, and Cache Normal test Group can be executed for multiple MPs. SMC
    test Group can be executed for single MP. Cache test Group can be executed for single CHP.

7. <Select [Times...]>
    Select [Times...] from [Edit] on 'CUDG4' (DR).

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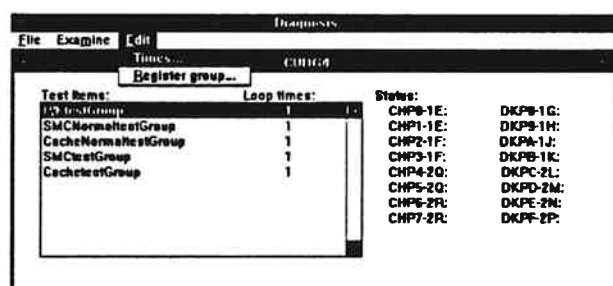
8. <Select [Action Times]>

Select [Action Times] in the 'CUDG Action Times'
dialog box (CL).
Select [OK] button (CL).

9. <Select [Start...]>
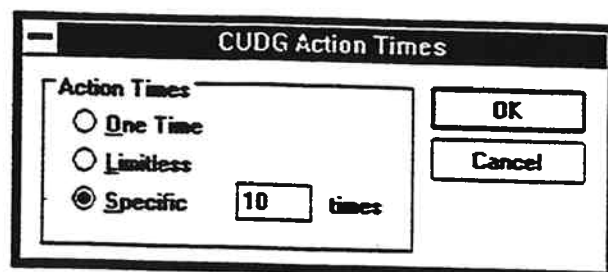
Select [Start...] from [Examine] (DR).

Jump to 19. when executing LCDG4.
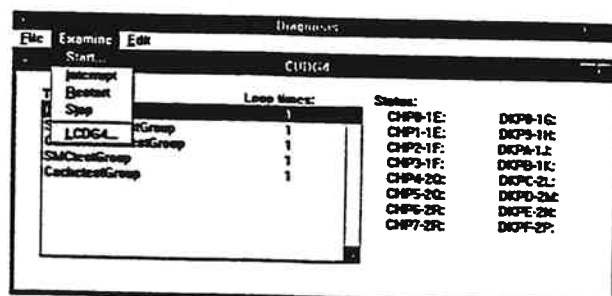
10. <Select [Option] and [Processor]>

Select [Option] and [Processor] in the 'CUDG Start' dialog box (CL).
Select [OK] button (CL).

Note:

Refer to "Option terms" details listed in Table 1.1 for CUDG RUN Options.

If you select [Normal] in 'Option' list box, the item selected at step 8
<Select [Action Times]> is ignored and Loop times is one.
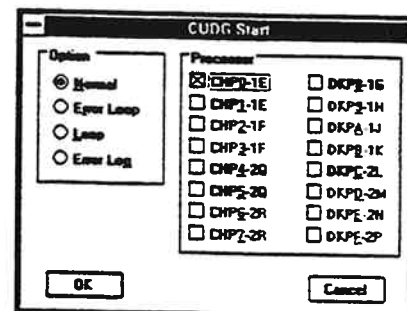
11. <Display of [LOAD]>

Status [INIT], [LOAD], and [WAIT] are displayed in the
'CUDG4' window.

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12. \<Display of [RUN]\>
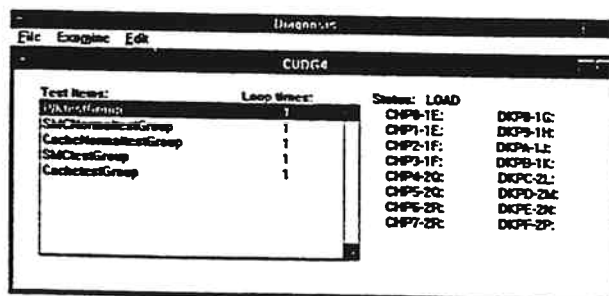
Status [RUN] is displayed in the 'CUDG4' window.

Go to 14. in case of Normal End.
Go to 13. in case of Abnormal End.

```
                                    Diagnosis
 File  Examine  Edit
                              CUDG4
 Test Items:              Loop times:    Status:
 P/Ktest Group               1           CHP0-1E:  RUN   DKP8-1G:
 SMCNormaltestGroup          1           CHP1-1E:        DKP9-1H:
 CacheNormaltestGroup        1           CHP2-1F:        DKPA-1J:
 SMCtestGroup                1           CHP3-1F:        DKPB-1K:
 CachetestGroup              1           CHP4-2O:        DKPC-2L:
                                         CHP5-2O:        DKPD-2M:
                                         CHP6-2R:        DKPE-2N:
                                         CHP7-2R:        DKPF-2P:
```

13. \<Display of [CUDG Error]\>
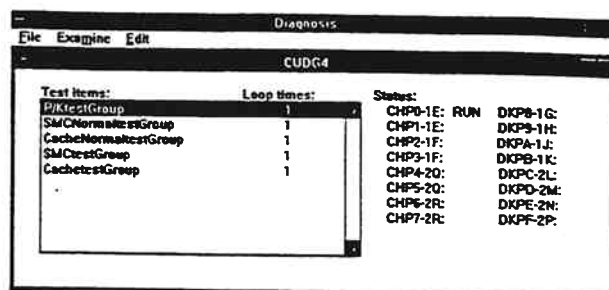
After the 'CUDG Error' is displayed, select [OK] button (CL).

Go to 29 in order to see Diag Log.
Go to 6 in case of CUDG4 continued.
Go to 15 in case of CUDG4 finished.

```
 ─                    CUDG Error

    Time:  4/18/95 17:12:26

    Processor: CHP0-1E

    Object: cache,shared memory

    CUDG type: CUDG4

    Test item: 409

 ( ! )  Error code: 12324

    PCB location: CACHE-1C or CACHE
    PORT[MASTER]

    Detail information:
        000ffff100000000
        0000010203040000
        0000000000000000
        000000000000ff06


                [  OK  ]
```

```
 ─                    CUDG Error

 ( i )   Refer to DIAG LOG in SVP for maintenance
         Action Code.


                [  OK  ]
```

14. \<Display of [END]\>
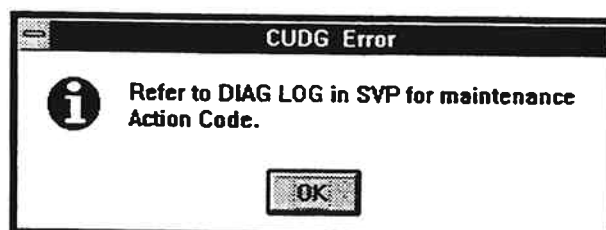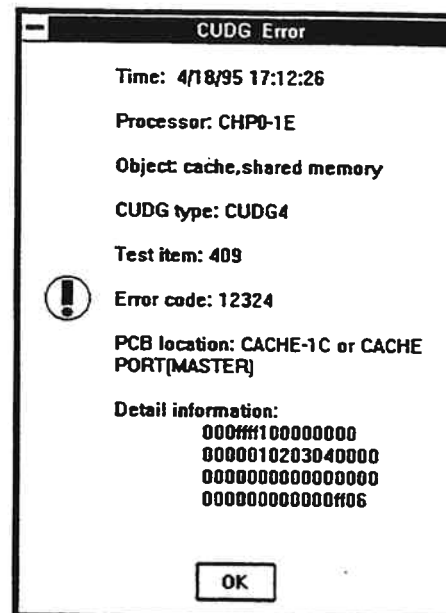
Status [END] is displayed in the 'CUDG4' dialog box.
Go to 6 in case of CUDG4 continued.
Go to 15 in case of CUDG4 finished.
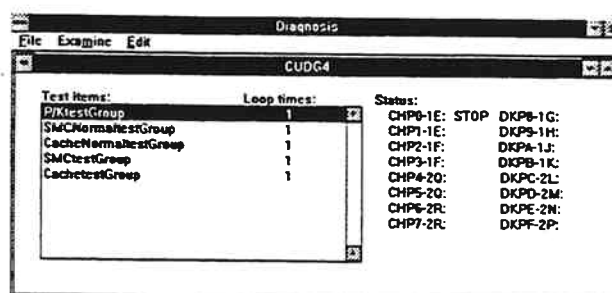
```
                                    Diagnosis
 File  Examine  Edit
                              CUDG4
 Test Items:              Loop times:    Status:
 P/Ktest Group               1           CHP0-1E:  STOP  DKP8-1G:
 SMCNormaltestGroup          1           CHP1-1E:        DKP9-1H:
 CacheNormaltestGroup        1           CHP2-1F:        DKPA-1J:
 SMCtestGroup                1           CHP3-1F:        DKPB-1K:
 CachetestGroup              1           CHP4-2O:        DKPC-2L:
                                         CHP5-2O:        DKPD-2M:
                                         CHP6-2R:        DKPE-2N:
                                         CHP7-2R:        DKPF-2P:
```

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15. <Select [Exit]>

Select [Exit] from [File] on 'CUDG4' (DR).

16. <Display of "This will end the Diagnosis.">
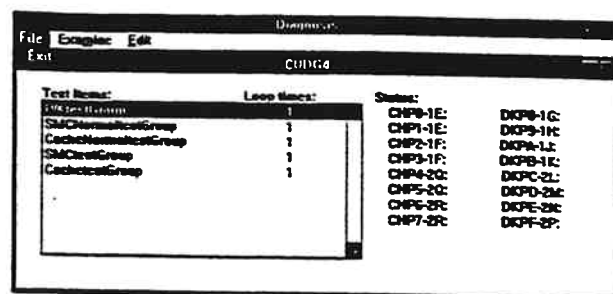
After the "This will end the Diagnosis." is displayed, select [OK] button (CL).

17. <PS-OFF>
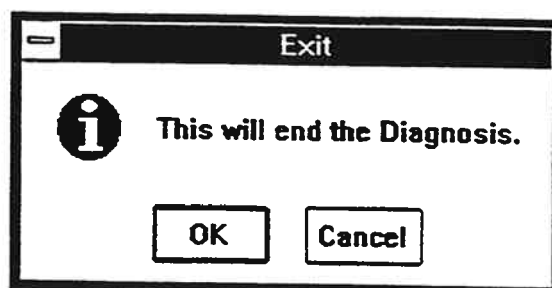
After the "Turn off the DKC subsystem." is displayed, turn off the DKC subsystem by the PS-OFF operation and then select [OK] button (CL).
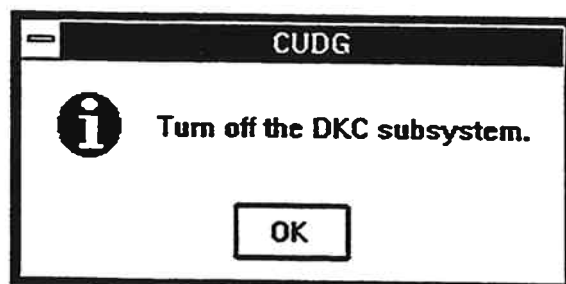
18. <End of the DIGNOSIS screen and PS-ON>

The Initial screen is displayed.
In case of error go to 29.

Turn on PS switch and perform step 1 on DIAG04-10 to step 8 on DIAG04-30.

19. <Select [LCDG4...]>
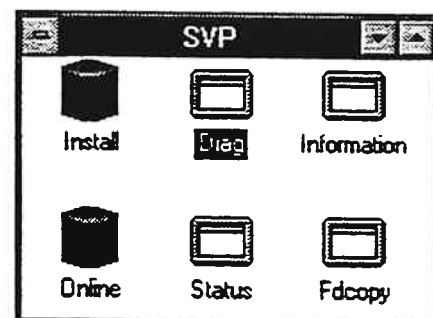
Select [LCDG4...] from [Examine] on 'Diagnosis' (DR).
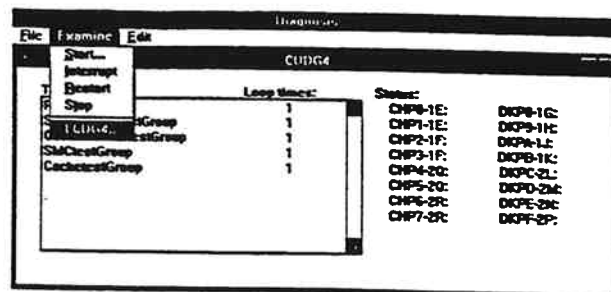
20. <Select [CHA], [LCP], [Run Option] and [Routine No.]>

Select [CHA], [LCP], [Run Option] and [Routine No.] in the
'LCDG4' dialog box (CL).
Select [Start] button (CL).

21. <Display of [LOAD]>
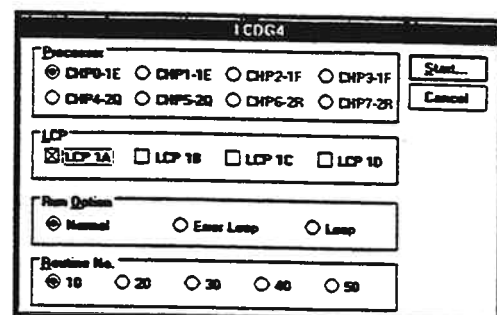
Status [INIT], [LOAD], and [WAIT] are displayed in the
'CUDG4' dialog box.

22. <Display of [Running]>
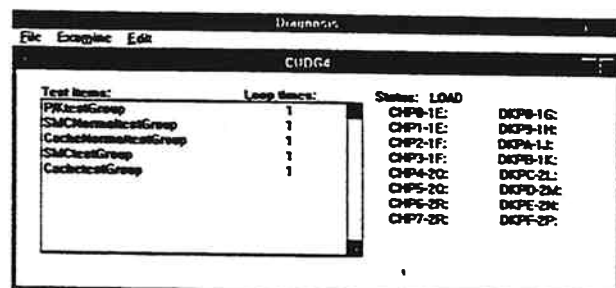
Status [Running] is displayed in the 'LCDG4 Status' dialog
box.

Go to 23. in case of Normal End.
Go to 24. in case of Abnormal End.

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23. <Display of [End]>
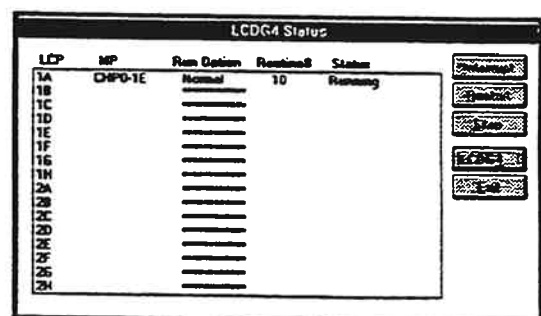
Status [End] is displayed in the 'LCDG4 Status' dialog box.

When the routine number is 40, 'Optical Power' is displayed. When the routine number is 50, 'Bit Error Rate' is displayed.

Go to 25.

LCDG4 Status

LCP	MP	Run Option	Routine#	Status
1A	CHP0-1E	Normal	10	End
1B	CHP0-1E	Normal	10	End
1C	CHP0-1E	Normal	10	End
1D	CHP0-1E	Normal	10	End
1E				
1F				
1G				
1H				
2A				
2B				
2C				
2D				
2E				
2F				
2G				
2H				

Optical Power

Time: 9/18/95 20:40:49

Processor: CHP2-1F[LCP-1G]

Object: CHA

CUDG type: LCDG4

Test item: 40

Optical Power: Not Detected

PCB location: CHA-1F

Detail information:
80140000036c000
0000800000000000
0000000000000000
0000000000000000
1400000036c00000
0080000000000000
0000000000000000
8000000000000001

[OK]

Bit Error Rate

Time: 9/18/95 20:42:13

Processor: CHP2-1F[LCP-1G]

Object: CHA

CUDG type: LCDG4

Test item: 50

Bit Error Rate: Not Detected

PCB location: CHA-1F

Detail information:
80140000ffffff
0000000000000000
0000000000000000
0000000000000000
140000ffffff00
0000000000000000
0000000000000000
0000000000000000

[OK]

24. <Display of 'CUDG Error'>

After 'CUDG Error' is displayed, select [OK] (CL).

Go to 29 in order to see Diag Log.

CUDG Error

Time: 9/18/95 20:35:45

Processor: CHP2-1F[LCP-1G]

Object: CHA

CUDG type: LCDG4

Test item: 10

Error code: 0000

PCB location: CHA-1F

Detail information:
80f4a3080033910b
900bffff00000000
0000000000000000
0000000000000000
f4a3080033910b90
0bffff0000000000
0000000000000000
0000000000000000

[OK]

CUDG Error

Refer to DIAG LOG in SVP for maintenance Action Code.

[OK]

25. <Select [Exit]>

Select [Exit] from [File] on 'CUDG4' (DR).

26. <Display of "This will end the Diagnosis.">
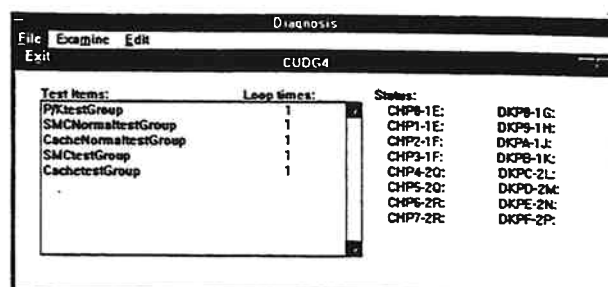
After "This will end the Diagnosis." is displayed, select [OK] (CL).

27. <PS-OFF>
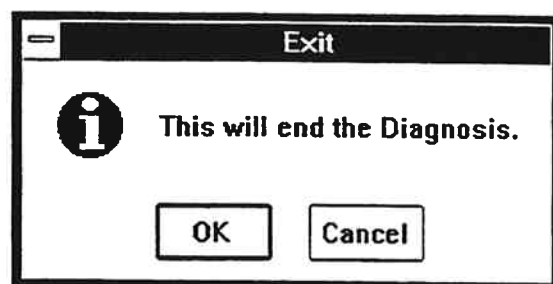
After "Turn off the DKC subsystem." is displayed, turn off the DKC subsystem by the PS-OFF operation and then select [OK] (CL).

28. <End of the DIAGNOSIS screen>
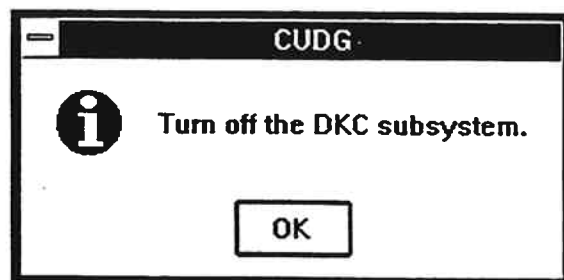
The Initial screen is displayed.

In case of error go to 29.

29. <See 'Diag Log'>
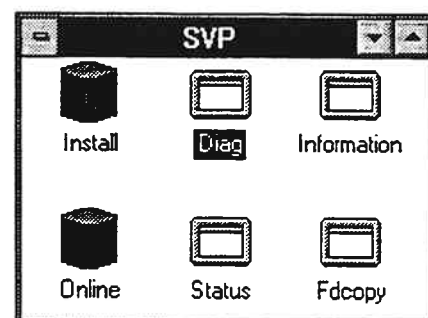
If CUDG4/LCDG4 ends with an error, select ACC from the 'Diag Log' dialog box in [INFORMATION] ICON.

Note:

Refer to ACC (ACTION-CODE) SECTION for ACC analysis.

```
┌─────────────────────────────────────────────────┐
│                    Diag Log                      │
├─────────────────────────────────────────────────┤
│ Date/Time:      4/18/95 17:12:23    ┌────────┐   │
│ ACC[EFC/ESC]:  20 c0                │ Close  │   │
│ ACC[FPC]:      2110 0000 0000 0000 0000 30240000 │
│ Processor:     CHP0-1E                            │
│ Object:        CACHE+SHARED                       │
│ CUDG Type:     CUDG4                              │
│ Test Number:   409                               │
│ Error Code:    3024                              │
│ PCB Location:  CACHE-1C or CACHE PORT(MASTER)    │
│ Detail:        000ffff1 00000000 00000102 03040000 │
│  Information   00000000 00000000 00000000 0000ff06 │
│                                                  │
└─────────────────────────────────────────────────┘
```

REV.0	Apr.1996					

8.4.2 DKU INLINE Test Procedures

8.4.2.1 C1 Link series Test Procedures

1. <Open [Online]>
   Select [Online] from SVP (DC).
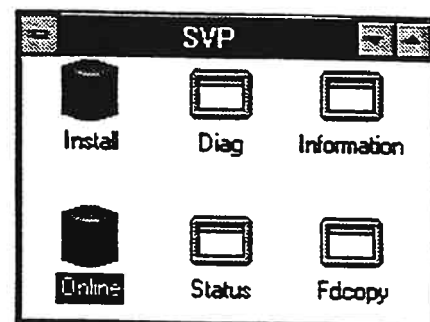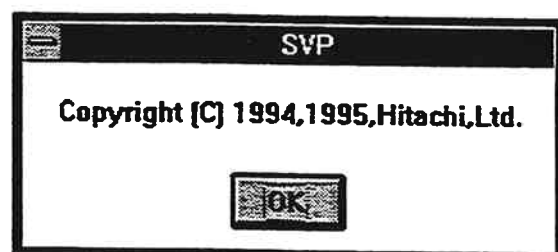
2. <Check copyrights>
   Select [OK] (CL).

3. <Display of "Reading the subsystem configuration data...">
   "Reading the subsystem configuration data..." is displayed.

4. <Operation mode change>
   Select [Modify] from [Mode] on 'Maintenance Online' (DR).

| REV.4 | Apr.1995 | Jun.1995 | Jul.1995 | Oct.1995 | Mar.1996 | |

5. <Select [Hardware Maintenance]>

Select [Hardware Maintenance] from [Maintenance]
(DR).

6. <Select HDU group to be tested>

Select the HDU group for which the test routine is to be
executed from 'Hardware Maintenance' (CL).

Then select [Maintenance] from [Maintenance] (DR).

7. <Display of [HDU group XX]>
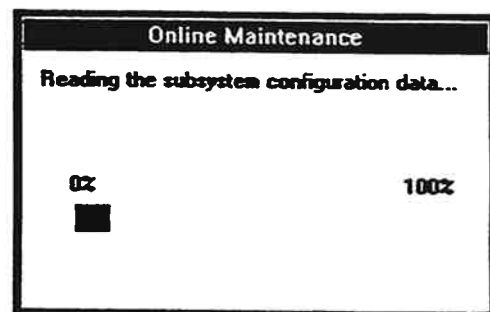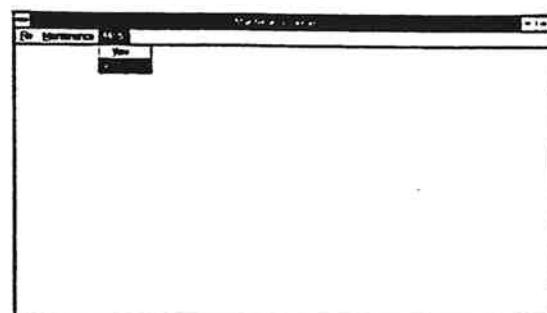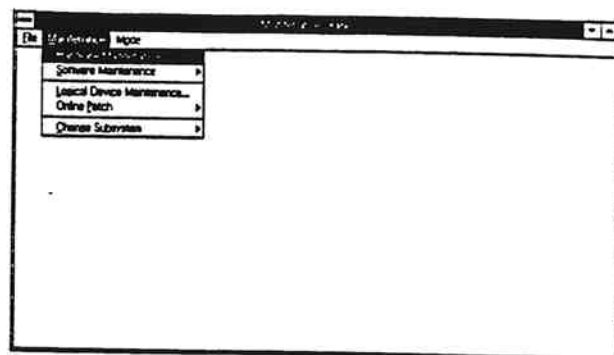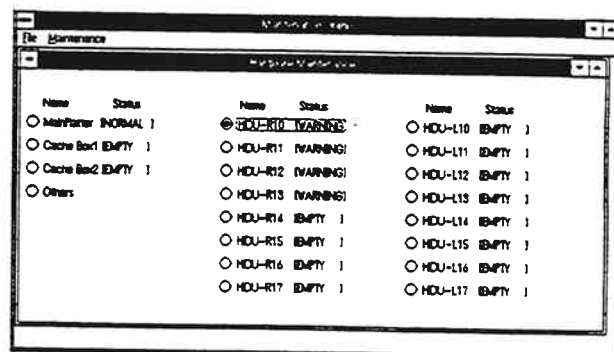
[HDU group XX] is displayed.

Then select the HDD for which the test routine is to be
executed from HDU group XX (CL).

8. <Load routine>
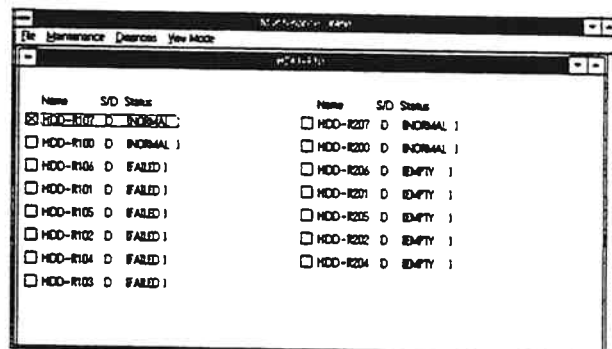
Select [DKU Inline] from [Diagnosis] (DR).

Notes:

Refer to from SVP02-560 to SVP02-610 of SVP
SECTION for all logical devices blocked.
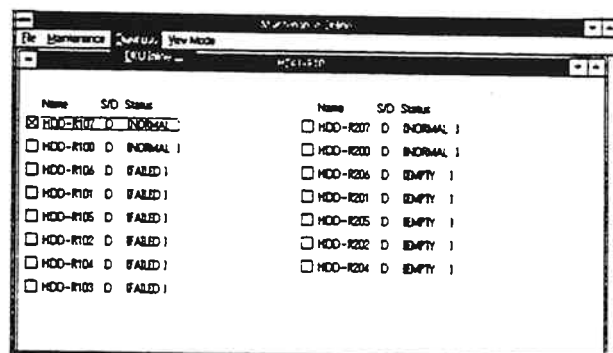
| REV.5 | Apr.1995 | May.1995 | Jun.1995 | Jul.1995 | Oct.1995 | Dec.1995 |

DIAG04-90

9. <Check beginning of DKU INLINE>

Select [Yes] (CL) in response to "Are you sure you want to perform DKU INLINE for the physical device?".

10. <Select [Start]>
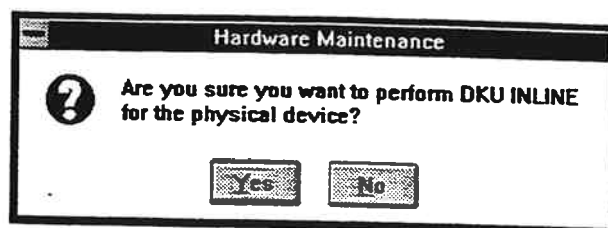
Select [Start] form [Diag] (DR).

11. <Select HDU group to be tested>

Select the HDU group for which the test routine is to be executed from 'EXECUTE' (CL).
Then select [SELECT] button (CL).

12. <Select HDD to be tested>
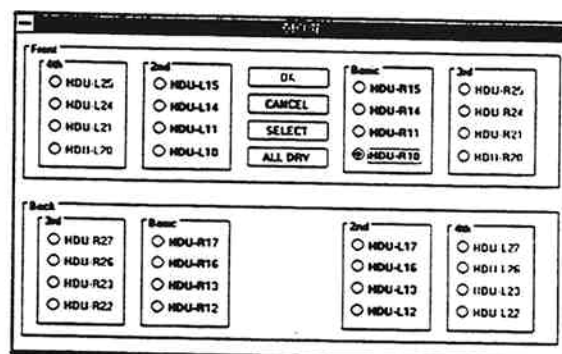
Select HDD for which the test routine is to be executed from 'HDD SELECT' (CL).
Then select [OK] button (CL).

REV.5	Apr.1995	May.1995	Jun.1995	Jul.1995	Oct.1995	Dec.1995

13. <Select [OK]>
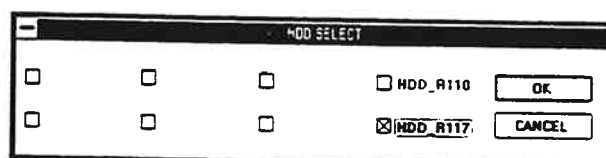
Select [OK] button (CL).
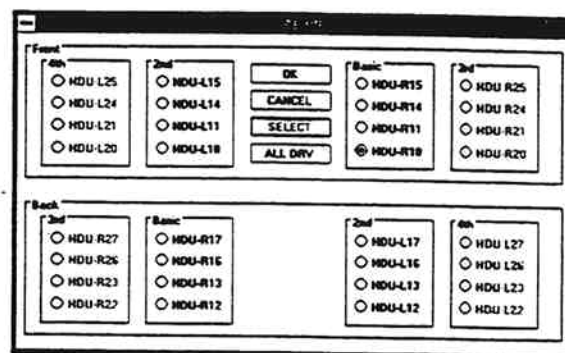
14. <Confirm HDD to be tested>

Confirm HDD to be tested in the 'DRIVE LIST'.
Then select [OK] (CL).
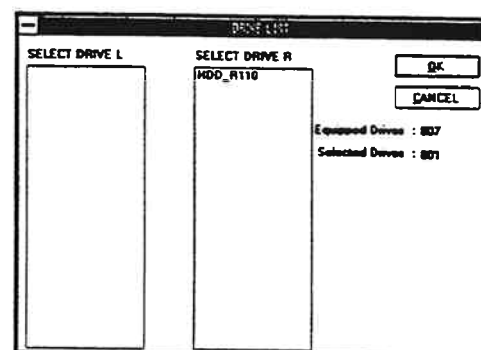
15. <Select [EXECUTE TEST NO] and [RUN OPTION]>

Select [EXECUTE TEST NO] and [RUN OPTION] from 'ROUTINE
SELECT' (DR).

Note:
Refer to "RUN OPTION terms" details listed in Table 1.1 for CUDG
RUN Options.
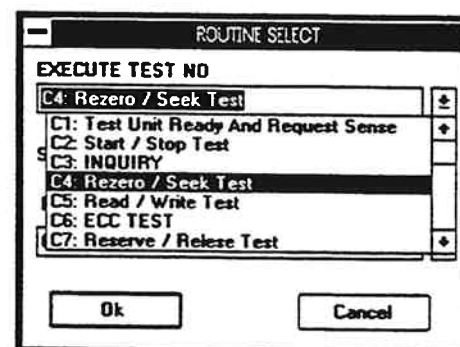
16. <Execute routine>

Select [OK] button (CL).

17. <Display of "RUNNING">
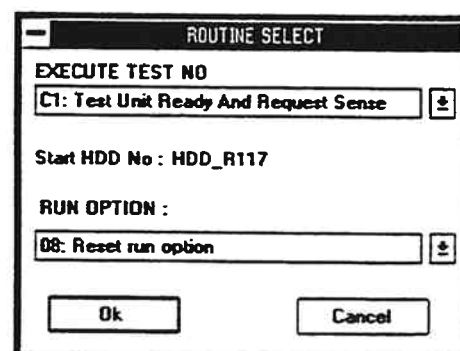
Status "RUNNING" is displayed.

Go to 18. in case of Normal End.

Go to 21. in case of Abnormal End.
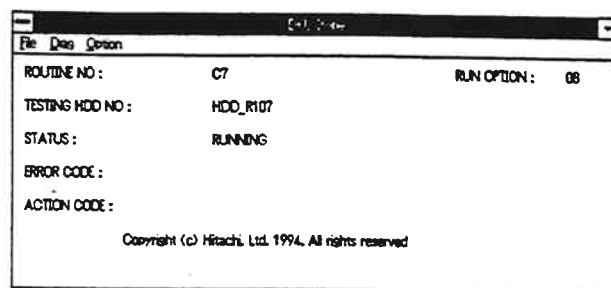
ROUTINE NO :	C7	RUN OPTION :	08
TESTING HDD NO :	HDD_R107		
STATUS :	RUNNING		
ERROR CODE :			
ACTION CODE :			

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18. <Diagnosis end>

After the status "INLINE NORMAL END" is displayed, select [Exit] from [File] (DR).

ROUTINE NO :	C7	RUN OPTION :	08
TESTING HDD NO :	HDD_R107		
STATUS :	INLINE NORMAL END		
ERROR CODE :			
ACTION CODE :			

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19. <Display of "INLINE END">
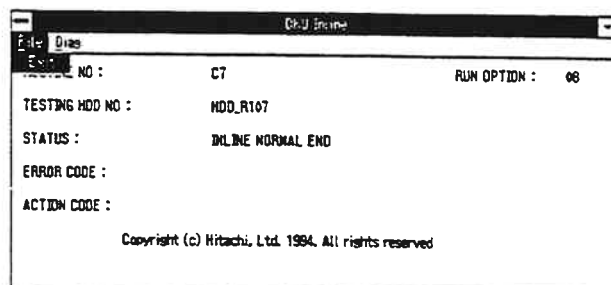
After the "INLINE END" is displayed, select [OK] button (CL).

20. <End of [ONLINE]>
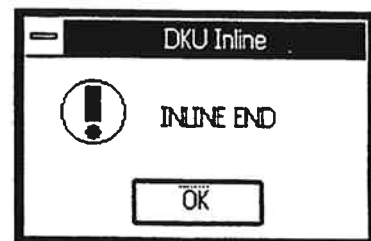
Select [Close] from SYSTEM MENU (CL).

REV.1	Oct.1995	Dec.1995				
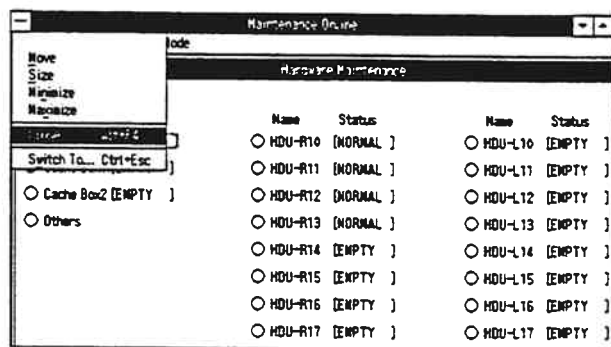
21. <Pick up ACC, then select [Exit]>

In case DKU INLINE Test ends with an error, pick up
ACC from the 'DKU Inline' dialog box. Then select
[Exit] from [File] (DR).

Go to 29 of DIAG04-70 in order to see Diag Log.

Note:

Refer to ACC (ACTION-CODE) SECTION for ACC
analysis.

Dias		
NO :	CS	RUN OPTION : 08
TESTING HDD NO :	HDD_R117	
STATUS :	ERROR STOP	
ERROR CODE :	C5 02 03 00 00 00 00 00 00 00 00 00 00 00 00 00	
ACTION CODE :	21 D0 C3 8F 00 00 00 00 00 00 00 C5 02 00 00	
	Copyright (c) Hitachi, Ltd. 1994. All rights reserved	

REV.0	Dec.1995					

DIAG04-121

8.4.2.2 D8 routine Test Procedures

1. <Refer to C1 Link Procedures>
    Refer from 1 to 10 in C1 Link series Test Procedures.

2. <Select HDU group to be tested>
    Select HDU group to be tested, then select [SELECT], or
    [ALL DRV] (CL).

    In case of select [SELECT], go to 3.
    In case of select [ALL DRV], go to 5.

3. <Select HDD to be tested>
    Select HDD to be tested.
    Then select [OK] (CL).

4. <Select [OK]>
    Select [OK] (CL).

REV.2	Oct.1995	Nov.1995	May.1996			

5. <Confirm of HDD>

Confirm HDD from 'DRIVE LIST'.

Then select [OK] (CL).

6. <Select D8 routine>
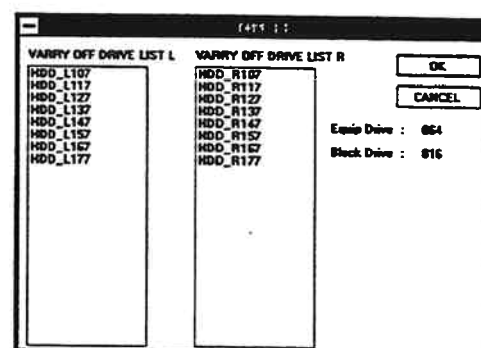
Select "D8: Confirm of Connection" from [Execute ROUTINE NO :].
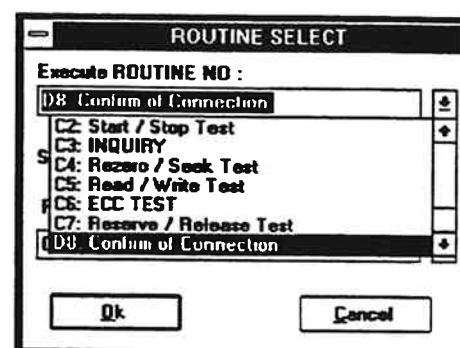
7. <Select Run Option>

Select Run Option from [RUN OPTION :].

Then select [OK] (CL).

Explanation of Run Option:

01   : All drive running.

02 ~ 08 : End when Error occurred.

("Restart" to next drive.)

8. <Select cluster>
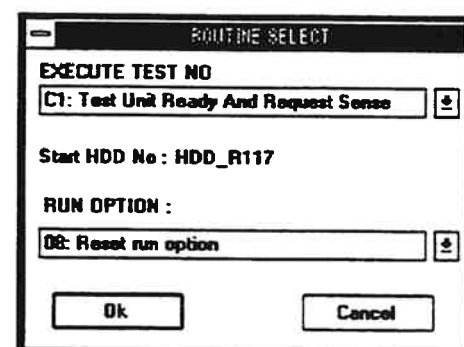
Select cluster to be tested.

Select [CLUSTER1] or [CLUSTER2] (CL).

| REV.2 | Oct.1995 | Nov.1995 | May.1996 | | | |

9. <Display of "RUNNING">
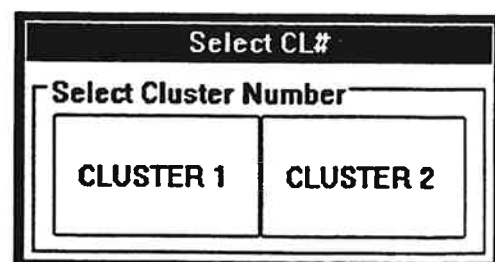
Status "RUNNING" is displayed.

In case of normal end, go to 10.
In case of abnormal end (Single), go to 14.
In case of abnormal end (Multi), go to 13.

10. <Diagnosis end>

After the status "INLINE NORMAL END" is
displayed, select [Exit] from [File] (DR).

11. <Display of "INLINE END">

After the "INLINE END" is displayed.
Select [OK] (CL).

12. <End of [ONLINE]>

Select [Close] from SYSTEM MENU (DR).

| REV.2 | Oct.1995 | Nov.1995 | May.1996 | | | |

DIAG04-150

13. <Display of Error Drives>
Error Drives are displayed.
Change "FRONT" or "REAR" by [FRONT] and [REAR] button.
In case of End, select [OK] (CL).

Explanation of symbol:
"—" : Unequipped drive.
"EQ" : Equipped drive.
"OK" : Normal end of select drive.
"NG" : Abnormal end of select drive.
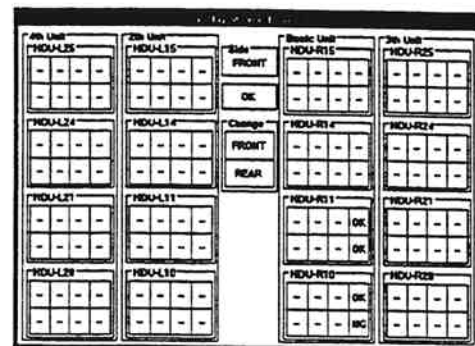
14. <Error End>
"STATUS : ERROR STOP" is displayed.
Refer to Diag Log for details information.
Select [Exit] from [File] (DR).
Go to 11.

Diag Log Procedure:
1. Select [INFORMATION] from SVP.
2. Copyrights is displayed. Select [OK] (CL).
3. Select [Log] from [View] (DR).
4. Select "Diag Log". Then select [List] from [View] (DR).
5. Select Log. Then select [Content..] (CL).

| REV.2 | Oct.1995 | Nov.1995 | May.1996 | | | |

DIAG04-160

Blank Sheet

REV.1	Oct.1995	Nov.1995				

DIAG04-170
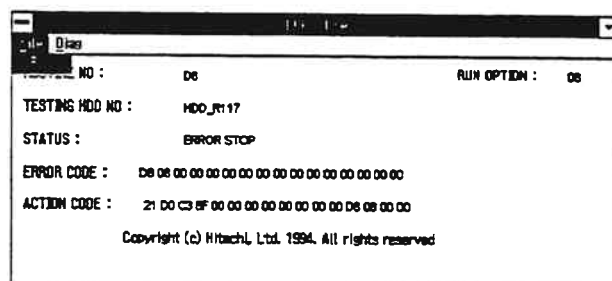
Blank Sheet

REV.1	Oct.1995	Nov.1995				

8.4.2.3 DKU PATH INLINE Test Procedures
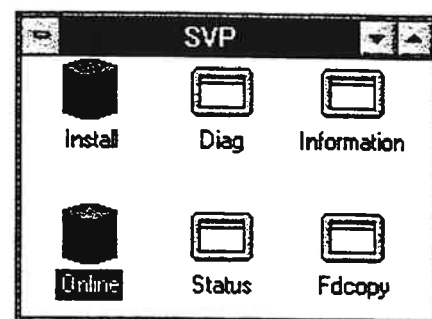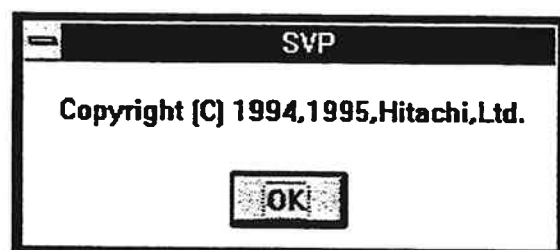
1. <Open [Online]>
   Select [Online] from SVP (DC).

2. <Check copyrights>
   Select [OK] (CL).

3. <Display of "Reading the subsystem configuration data...">
   "Reading the subsystem configuration data..." is displayed.

4. <Operation mode change>
   Select [Modify] from [Mode] on 'Maintenance Online' (DR).

| REV.3 | Oct.1995 | Nov.1995 | Mar.1996 | May.1996 | | |

DIAG04-190

5. <Select [Hardware Maintenance]>
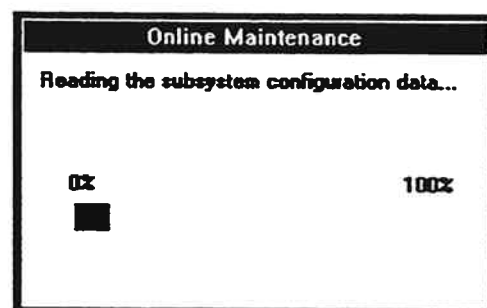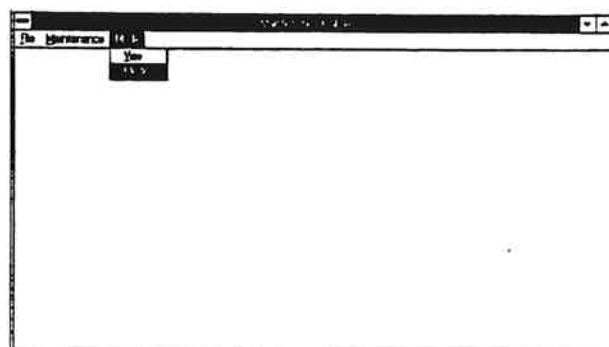
   Select [Hardware Maintenance] from [Maintenance]
   (DR).

6. <Select [Main Platter] to be tested>
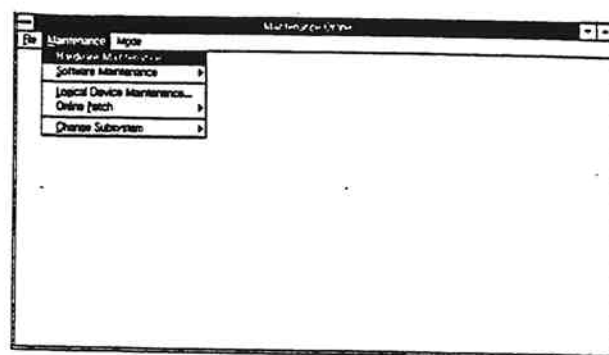
   Select [Main Platter] for which the test routine is to be
   executed from 'Hardware Maintenance' (CL).
   Then select [Maintenance] from [Maintenance] (DR).

7. <Select DKA to be tested>
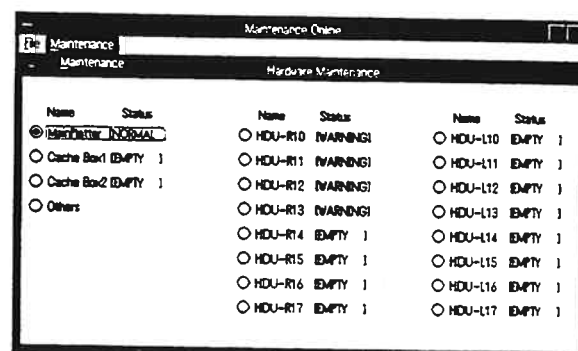
   Select DKA for which the test routine is to be executed
   from 'Main Platter Maintenance' (CL).
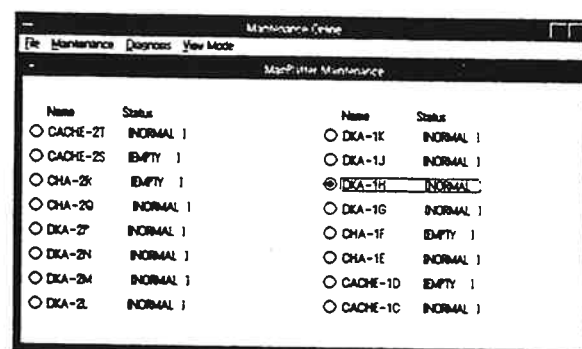
8. <Select [DKU Path INLINE]>

   Select [DKU Path INLINE] from [Diagnosis] (DR).
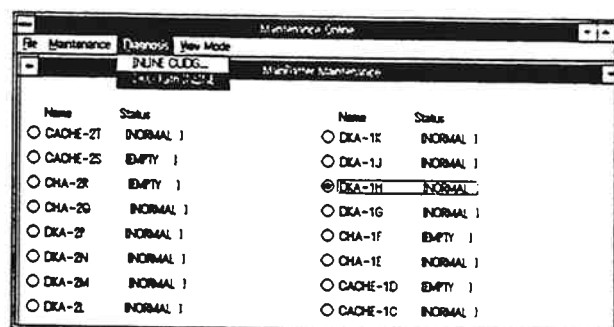
REV.0	Oct.1995				

9. <Check beginning of DKU Path INLINE>

Select [Yes] (CL) in response to "Are you sure you want to perform DKU PATH INLINE for the physical device?".

10. <Select [Start]>
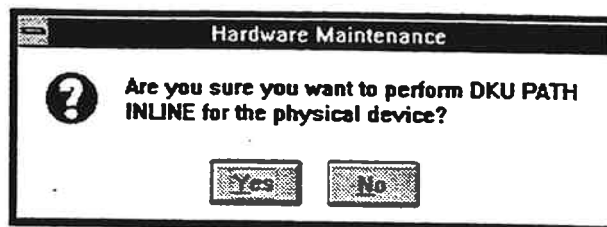
Select [Start] from [Diag] (DR).

11. <Select DKA to be tested>
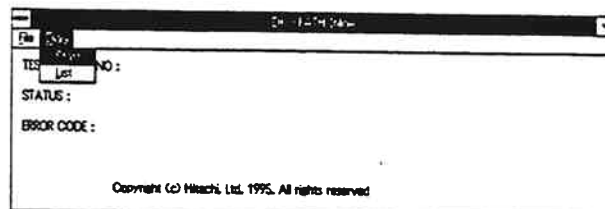
Select DKA for which the test routine is to be executed from 'EXEC PATH CHECK' (CL).

12. <Display of "RUNNING">
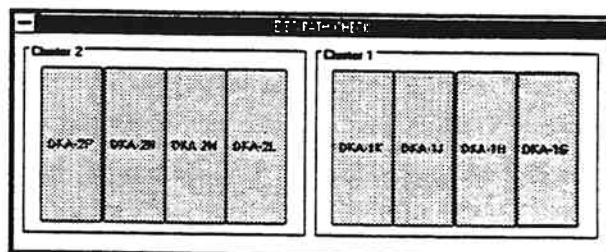
Status "RUNNING" is displayed.

Go to 13. in case of Normal End.
Go to 14. in case of Abnormal End.
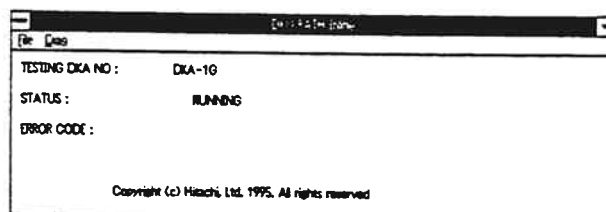
REV.1	Oct.1995	Dec.1995				

DIAG04-210

13. <Diagnosis end>

After the status "INLINE NORMAL END" is displayed, select [Exit] from [File] (DR).

Go to 18.

Dag	
DKA NO :	DKA-1G
STATUS :	INLINE NORMAL END
ERROR CODE :	

14. <Select [Basic] and [Option]>

Select [Basic] and [Option] from 'PATH LIST' (CL).

15. <Display of [Result]>

After the [Result] is displayed, select [OK] button (CL).

Result	
DKA :	DKA-1G
Port No. :	SCSI-1G2
Expected SCSI buffer data :	2C
Location :	SC BFR-R11U
Received SCSI buffer data :	2C
Location :	SC BFR-R11U
Option Unit :	Exist
Terminator :	Off

16. <Picking up end>

After picking all [Result] up, select [END] button (CL).

REV.1	Oct.1995	Dec.1995				

17. <Diagnosis end>

After the status "ERROR STOP" is displayed, select
[Exit] from [File] (DR).

18. <Display of [INLINE END]>
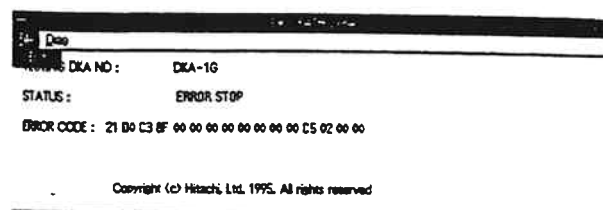
After the "INLINE END" is displayed, select [OK] button(CL).

19. <End of [ONLINE]>
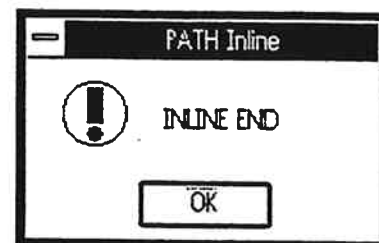
Select [Close] from SYSTEM MENU.
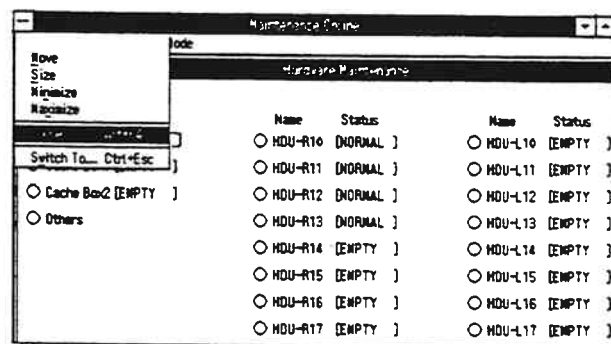
8.5 DIAG Trouble shooting

8.5.1 CUDG Trouble shooting

Procedures of CUDG Trouble Shooting vary with CUDG Error Opportunity.
The procedures are listed in Table 8.5.1 CUDG Trouble shooting Types.

Table 8.5.1 CUDG Trouble shooting Types

CUDG Error Opportunity	CUDG Trouble shooting Types	Procedure
IMPL, CHA/DKA Replace	CUDG3 Trouble shooting	Following Subsection 8.5.1.1
CUDG4	CUDG4 Trouble shooting	Following Subsection 8.5.1.2
CACHE Replace	INLINE CUDG Trouble shooting	Following Subsection 8.5.1.3

Note : If FPC is CACHE P/K or CACHE MEMORY MODULE, see Subsection 8.5.1.4 (DIAG05-41).

8.5.1.1 CUDG3 Trouble shooting

```
                          *1
                   ┌──────────────┐
                   │  CUDG Error  │
                   └──────┬───────┘
                          │
        ┌─────────────────▼─────────────────┐
        │ Open the SIM LOG or SSB LOG of SVP.│
        │ (Refer to SVP SECTION "SIM LOG" or │
        │  SSB LOG".)                        │
        └─────────────────┬─────────────────┘
                          │
        ┌─────────────────▼─────────────────┐
        │ Examine the object parts.          │
        │ (Refer to ACC SECTION "FPC TABLE".)│
        └─────────────────┬─────────────────┘
                          │
        ┌─────────────────▼─────────────────┐
        │ Replace the object parts.          │
        │ (Refer to REPLACE SECTION.)        │
        │ In case of multiple parts, replace │
        │ according to the following priority.│
        │   1. CACHE MEMORY MODULE  ⎫        │
        │   2. CACHE P/K            ⎬ *2     │
        │   3. CHA/DKA P/K          ⎭        │
        │   4. TERMINATOR P/K                │
        │ (If CUDG error occurs after        │
        │ replacing all of above parts,      │
        │ replace a PLATTER.)                │
        └─────────────────┬─────────────────┘
                          │
        ┌─────────────────▼─────────────────┐
        │ In case of CUDG error in replacing │
        │ CHA/DKA, replace the CHA/DKA once  │
        │ more.                              │
        │ In case of CUDG error in IMPL,     │
        │ execute the IMPL once more.        │
        └─────────────────┬─────────────────┘
                          │
        Y         ◇───────▼───────◇
        ┌─────────│   CUDG Error?  │
        │         ◇───────┬───────◇
        │                 │ N
        │          ┌──────▼───────┐
        │          │     END      │
        │          └──────────────┘
```

*1 CUDG Error Code is SIM REFERENCE CODE = (7601xx) or SSB ERROR CODE = (3306).

*2 See Subsection 8.5.1.4 (DIAG05-41).

REV.1	Dec.1995	Mar.1996				

8.5.1.2 CUDG4 Trouble shooting

```
                    ╭─────────────────╮
                    │   CUDG Error    │
                    ╰─────────────────╯
                             │
        ┌────────────────────┼───────────────────────────┐
        │                    ▼                            │
        │    ┌──────────────────────────────────────┐     │
        │    │ Open the DIAG LOG of SVP.             │     │
        │    │ (Refer to SVP SECTION "DIAG LOG".)    │     │
        │    └──────────────────────────────────────┘     │
        │                    │                            │
        │    ┌──────────────────────────────────────┐     │
        │    │ Examine the object parts.             │     │
        │    │ (Refer to ACC SECTION "FPC TABLE".)   │     │
        │    └──────────────────────────────────────┘     │
        │                    │                            │
        │    ┌──────────────────────────────────────┐     │
        │    │ Replace the object parts after turn off. │   │
        │    │ In case of multiple parts, replace according to │
        │    │ the following priority.               │     │
        │    │  1. CACHE MEMORY MODULE  ⎫            │     │
        │    │  2. CACHE P/K            ⎬ *1         │     │
        │    │  3. CHA/DKA P/K          ⎭            │     │
        │    │  4. TERMINATOR P/K                    │     │
        │    │ (If CUDG error occurs after replacing all of │
        │    │ above parts, replace a PLATTER.)      │     │
        │    └──────────────────────────────────────┘     │
        │                    │                            │
        │    ┌──────────────────────────────────────┐     │
        │    │ Execute the CUDG4.                    │     │
        │    └──────────────────────────────────────┘     │
        │                    │                            │
        │              ◇─────────────◇                    │
        └──── Y ───────│ CUDG Error? │                    │
                       ◇─────────────◇                    │
                             │ N
                    ╭─────────────────╮
                    │      END        │
                    ╰─────────────────╯
```

*1 See Subsection 8.5.1.4 (DIAG05-41).

8.5.1.3 INLINE CUDG Trouble shooting

CUDG Error

CACHE capacity increase or decrease processing?

N:(CACHE Replace)

Open the DIAG LOG of SVP.
(Refer to SVP SECTION "DIAG LOG".)

Y

Examine the object parts.
(Refer to ACC SECTION "FPC TABLE".)

Select the retry instruction.
Y or N

N *1

Replace the object parts.
(Refer to REPLACE SECTION.)
In case of multiple parts, replace according to the following priority.
1. CACHE MEMORY MODULE
2. CACHE P/K   } *3
3. CHA/DKA P/K
4. TERMINATOR P/K
(If CUDG error occurs after replacing all of above parts, replace a PLATTER.)

Y *2

After pulling out CACHE P/K, check the CACHE MEMORY MODULE setting.

After pulling in CACHE P/K, press the 'OK' button.

Replace the CACHE.

Y

CUDG Error?

N

Y

CUDG Error?

N

END

*1 In case of referring to DIAG LOG.

*2 In case of checking the CACHE MEMORY MODULE setting.

*3 See Subsection 8.5.1.4 (DIAG05-41).

REV.1	Dec.1995	Mar.1996				

8.5.1.4 CACHE P/K, CACHE MEMORY MODULE Trouble shooting

If FPC is CACHE P/K, CACHE MEMORY MODULE, execute the following process.

Start

Are 5, 3.3 voltages normal? — N → Examine the PS.

Y

CACHE capacity increase processing? — N →

Is increased memory module type correct? (CM/SM) — N → Replace correct memory module.

Y

Is the memory module inserted correctly? (CM/SM) — N → Insert it correctly.

Y

Was increased memory module replaced? (CM/SM) — N → *1 Replace increased memory module. (CM/SM)

Y

Was CACHE P/K replaced? — N → Replace CACHE P/K.

Y

Were replaced all of memory modules? (CM/SM) — N → Replace memory module. (CM/SM)

Y

Execute the INLINE CUDG

*1 In case of multiple module groups, replace module groups one by one.
   If CUDG error occurs after replacing , put them original position.

| REV.0 | Mar.1996 | | | | | |

DIAG05-41

8.5.2 DKU INLINE Trouble shooting

Trouble shoot procedures (Except Error Code = "xx e3")

```
   ( DKU Inline error analysis procedures )
                    |
   [ Refer to "Diag Log" of SVP SECTION ]
                    |
   [ Detect the obstacle part.  Refer to ACC SECTION. ]
                    |
   [ "Replace" the obstacle part.  Refer to
            REPLACE SECTION. ]
                    |
            (      End      )
```

Trouble shoot procedures (In case of Error Code = "xx e3")

```
   ( DKU Inline error analysis procedures )
                    |
   [ "Replace" the object DKA.  Refer to
            REPLACE SECTION. ]
                    |
            (      End      )
```

REV.0	Dec.1995					
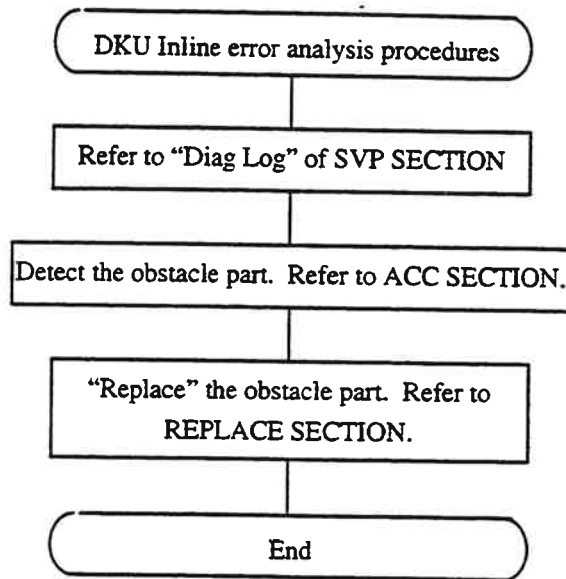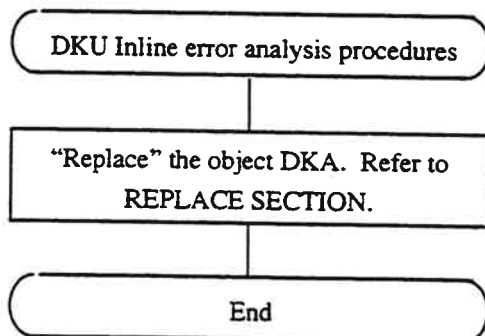
8.5.3 DKU PATH INLINE Trouble shooting

Trouble shoot procedures (In case of Error Code = "00 1c", "01 9c", "02 1d", "03 9d", "04 14", "05 94", "06 15" "07 95", "00 0c", "01 8c", "02 0d", "03 8d", "04 04", "05 84", "06 05", "07 85")

```
        ( DKU Path Inline error analysis procedures )
                          │
        ┌─────────────────────────────────────┐
        │ Refer to "Diag Log" of SVP SECTION   │
        └─────────────────────────────────────┘
                          │
        ┌─────────────────────────────────────┐
        │ Detect the obstacle part.  Refer to ACC SECTION. │
        └─────────────────────────────────────┘
                          │
        ┌─────────────────────────────────────┐ ◄────────────────────┐
        │ Check the connection of a cable between │                   │
        │         DKA and SC BFR               │                      │
        └─────────────────────────────────────┘                      │
                          │                                           │
                   ╱ Is the connection of a ╲   NO    ┌──────────────────────────┐
                  ╲    cable correct?      ╱ ────────►│ Connect a cable between DKA and SC │
                          │ YES                       │     BFR correctly.       │
                          │                           └──────────────────────────┘
        ┌─────────────────────────────────────┐ ◄────────────────────┐
        │ Check the setting of object DKUMN jumper │                  │
        └─────────────────────────────────────┘                      │
                          │                                           │
                   ╱ Is the setting of ╲    NO       ┌──────────────────────────┐
                  ╲ jumper correct?    ╱ ───────────►│ Correct the setting of object DKUMN │
                          │ YES                      │         jumper           │
                          │                          └──────────────────────────┘
        ┌─────────────────────────────────────┐
        │ Execute the DKU Path Inline to object DKA │
        └─────────────────────────────────────┘
                          │
                   ╱  Normal End?  ╲   NO     ┌─────────────────────────────────────┐
                  ╲               ╱ ─────────►│ Refer to "Diag Log" of SVP SECTION   │
                          │ YES              └─────────────────────────────────────┘
                          │                                   │
                          │                  ┌─────────────────────────────────────┐
                          │                  │ Detect the obstacle part.  Refer to ACC SECTION. │
                          │                  └─────────────────────────────────────┘
                          │                                   │
                          │                  ┌─────────────────────────────────────┐
                          │                  │ "Replace" the obstacle part.  Refer to │
                          │                  │      REPLACE SECTION.            │
                          │                  └─────────────────────────────────────┘
                          │ ◄────────────────────────────────┘
                   (        End        )
```

REV.0	Dec.1995					

Trouble shoot procedures (Except Error Code = "a0 01", "a0 02")

```
┌─────────────────────────────────────────┐
│  DKU Path Inline error analysis procedures │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│    Refer to "Diag Log" of SVP SECTION    │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│ Detect the obstacle part.  Refer to ACC SECTION. │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│   "Replace" the obstacle part.  Refer to │
│            REPLACE SECTION.              │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│                   End                    │
└─────────────────────────────────────────┘
```

Trouble shoot procedures (In case of Error Code = "xx e3")

```
┌─────────────────────────────────────────┐
│  DKU Path Inline error analysis procedures │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│     "Replace" the object DKA.  Refer to  │
│            REPLACE SECTION.              │
└─────────────────────────────────────────┘
                    │
┌─────────────────────────────────────────┐
│                   End                    │
└─────────────────────────────────────────┘
```

REV.0	Dec.1995					
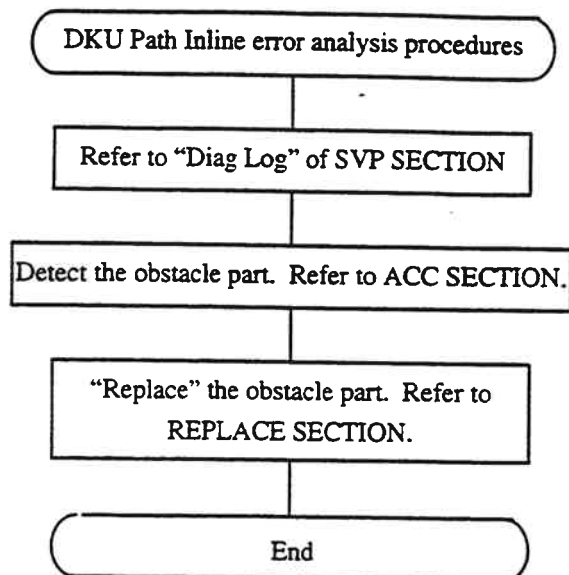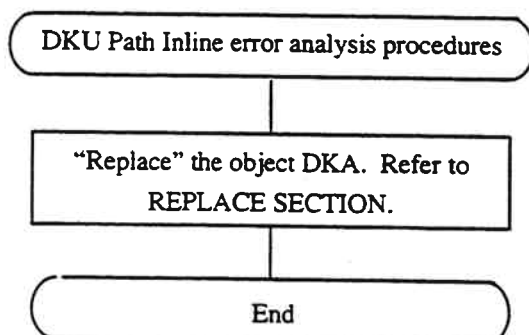
8.6 LAN Check Procedure

1. <Open [Diag]>
    Select [Diag] from 'SVP' (DC).

    Note: Until DKC is started again after execution of CUDG4/LCDG4, the
    function except a log display of INFORMATION and each function
    of STATUS ONLINE INSTALL does not operate.

2. <Check copyrights>
    Select [OK] (CL).
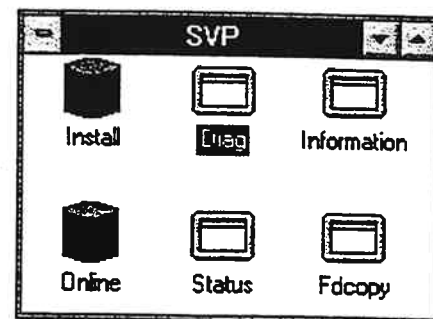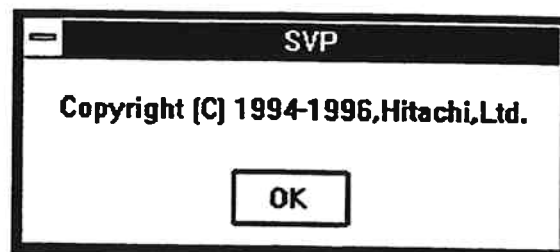
3. <Operation mode change>
    Select [Modify] from [Mode] on 'Diagnosis' (DR).

4. <Select [LAN...]>
    Select [LAN...] from [Examination] on 'Diagnosis' (DR).
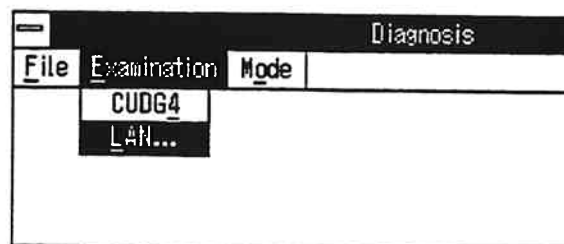
5. <Display a message while checking>

Please wait for a few minutes while checking.

```
Checking the LAN

Please wait ...

<< Start Time - 10:37 >>

Hardware Check : DKPC-2L
```

6. <Result of check>

After checking, the LAN checker displays the result as the table.

<Contents of table>

(1) Normal case

```
*____*    *_____*    *_____*    *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---( MP Name )---( O )---( O )---( O )---( O )
*____*    *_____*    *_____*    *_____*
```

A communication is normal.

(2) Hardware error case 1

```
*____*      *_____*      *_____*      *_____*
|SVP+XXX+SSVP/+XXX+ LTM +XXX+ PLT +XXX( MP Name )  (  )  (  )  (  )  (  )
*____*      *_____*      *_____*      *_____*
```

SVP-SSVP/HUB error. If the cables has already connected, the cause might be SVP or SSVP itself.

(3) Hardware error case 2

```
*____* *_____*      *_____*        *_____*
|SVP+---+SSVP/+XXX+ LTM +XXX+ PLT +XXX( MP Name )  (  )  (  )  (  )  (  )
*____* *_____*      *_____*        *_____*
```

SSVP/HUB-MP error. The MP has connected to SVP physically.
If the MP has already installed, please check the LAN connectivity.

(4) Software error case 1

```
*____* *_____*    *_____*    *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---( MP Name )---( O )---( O )---( O )---( X )
*____* *_____*    *_____*    *_____*
```

A communication software in the MP has not execute correctly.

REV.2	May.1996	Aug.1996	Jun.1997			

(5) Software error case 2

```
*____*   *_____*     *_____*   *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---( MP Name )---( O )---( O )---( X )   (   )
*____*   *_____*     *_____*   *_____*
```

The top level of the communication layer(R-Job) in DKC side does not reply.

(6) Software error case 3

```
*____*   *_____*     *_____*   *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---( MP Name )---( O )---( X )   (   )---(   )
*____*   *_____*     *_____*   *_____*
```

The middle level of the communication layer (I/F-Job) in DKC side does not reply.

(7) Software error case 4

```
*____*   *_____*     *_____*   *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---( MP Name )---( X )   (   )   (   )   (   )
*____*   *_____*     *_____*   *_____*
```

The bottom level of the communication layer (Rcv.) in DKC side does not reply.

(8) Not-install case

```
*____*   *_____*      *_____*      *_____*
|SVP+---+SSVP/+XXX+ LTM +XXX+ PLT +XXX( MP Name )  ( - )  ( - )  ( - )  ( - )
*____*   *_____*      *_____*      *_____*
```

The software check did not execute because the MP had not installed.

(9) Not-support case

```
*____*   *_____*     *_____*   *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---( MP Name )---( N )   (   )   (   )   (   )
*____*   *_____*     *_____*   *_____*
```

The loop check was not supported in the DKC main programs.

(10) "FF"-install case

```
*____*   *_____*     *_____*   *_____*
|SVP+---+SSVP/+---+ LTM +---+ PLT +---(#MP Name )   (   )   (   )   (   )   (   )
*____*   *_____*     *_____*   *_____*
```

In this case, the IP address of the target MP might be set as "FF" so that lan check did not examin in the software level.

---

7. <Exit the LAN Check>

Select [Exit] from [File] (DR).

| REV.2 | May.1996 | Aug.1996 | Jun.1997 | | | |

DIAG06-30
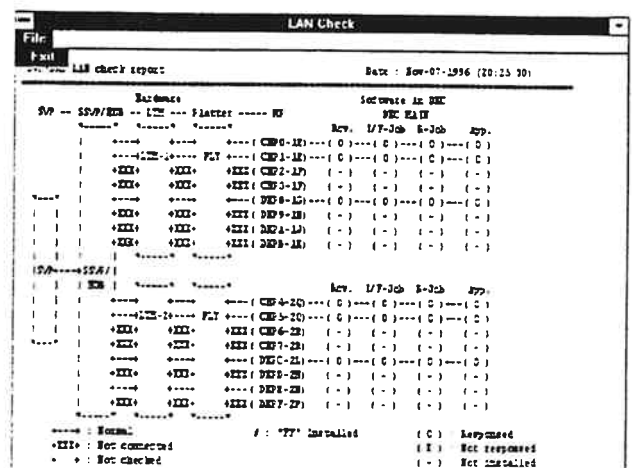
8.7 DIAG ERROR

8.7.1 DKU INLINE ERROR CODE DICTIONARY

Error Byte									Contents
01	02	03	04	05	06	07	08	09	
xx	E0								TEST UNIT READY command was failed.
xx	E1								CE MODE cannot be reset.
xx	E2			Eye-catcher					Got bad Structure Information.
xx	E3								Comunication of between DKC and SVP was TIME OUT.
xx	E4								Invalid SENSE KEY in TEST UNIT READY. Ev:0x00
xx	E5								Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x00
xx	E6								Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
xx	E8		RETURN CODE			FC	FD		Structure Information command was failed.
xx	E9								CE MODE cannot be set.
xx	EA		Parameter from ONLINE						There is no Selected HDD.

Ev : Expected value   FC : Function Code   FD : Function Detail

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C0	01	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.
C0	02	DE								PHYSICAL WRITE was failed.
C0	03	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C0	04	DE								PHYSICAL READ was failed.
C0	05	RV	EV	BYTE	HD#					READ DATA compare error. (Expected Value=0xe5)
C0	08									TEST UNIT READY command was failed.
C0	10	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL WRITE command was failed.
C0	11	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ command was failed.

KEY : SENSE KEY   FA : Factor   DE : Detail   RV : Receive Value   EV : Expected Value

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C1	01									Invalid SENSE KEY in TEST UNIT READY. Ev:0x00
C1	02									Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x00
C1	03									Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
C1	04									Invalid Error Factor in TEST UNIT READY failed. Ev:0x12
C1	05									Invalid SENSE KEY in TEST UNIT READY failed. Ev:0x06
C1	06									Invalid SENSE CODE-HI in TEST UNIT READY failed. Ev:0x29
C1	07									Invalid SENSE CODE-LO in TEST UNIT READY failed. Ev:0x00
C1	08									TEST UNIT READY command was failed.
C1	09									Invalid SENSE KEY in TEST UNIT READY. Ev:0x00
C1	0A									Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x00
C1	0B									Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
C1	0C									Hard Error of SCSI BUFF has occurred.

Ev : Expected value

REV.1	May.1996	Aug.1996				

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C2	01	RETURN CODE				FA	KEY	SENSE CODE		STOP UNIT command was failed.
C2	02	RETURN CODE				FA	KEY	SENSE CODE		Return Code in TEST UNIT READY Command reported 0x00000000.
C2	03	RETURN CODE				FA	KEY	SENSE CODE		Return Code in TEST UNIT READY Command reported 0x0F001740.
C2	04									Invalid Error Factor in TEST UNIT READY failed. Ev:0x17
C2	05									Invalid SENSE KEY in TEST UNIT READY failed. Ev:0x02
C2	06									Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x04
C2	07									Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
C2	08									2nd TEST UNIT READY command was failed.
C2	09									Invalid SENSE KEY in TEST UNIT READY. Ev:0x00
C2	0A									Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x00
C2	0B									Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
C2	0C	RETURN CODE				FA	KEY	SENSE CODE		START UNIT command was failed.

KEY : SENSE KEY FA : Factor Ev : Expected value

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C3	01	RETURN CODE				FA	KEY	SENSE CODE		INQUIRY command was failed.
C3	02	ED								Data compare error.

KEY : SENSE KEY   FA : Factor   ED : Expected Data

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C4	01	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed.
C4	02	DE								Error occured during SEEK TEST.

KEY : SENSE KEY   FA : Factor   DE : Detail

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

DIAG07-60

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C5	01	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.
C5	02	DE								PHYSICAL WRITE was failed.
C5	03	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C5	04	DE								PHYSICAL READ was failed.

KEY : SENSE KEY   FA : Factor   DE : Detail

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C5	10	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL WRITE was failed.
C5	11	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ was failed.

KEY : SENSE KEY   FA : Factor

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C6	01	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.
C6	02	DE								PHYSICAL WRITE1 operation was failed.
C6	03	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C6	04	DE								PHYSICAL READ2 operation was failed.
C6	05	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.
C6	06	DE								WRITE LONG3 operation was failed.
C6	07	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C6	08	DE								PHYSICAL READ4 operation was failed.
C6	09	DE								READ DATA compare error. (Expected value=0x00)
C6	0A	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.
C6	0B	DE								WRITE LONG5 operation was failed.
C6	0C	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C6	0D	DE								PHYSICAL READ6 operation was failed.
C6	0E	DE								READ DATA compare error. (Expected value=0x00)
C6	0F	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.

KEY : SENSE KEY   FA : Factor   DE : Detail

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C6	10	DE								WRITE LONG7 operation was failed.
C6	11	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C6	12	DE								Not became uncorrectable error during PHYSICAL READ8.
C6	13	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during WRITE OP CHK.
C6	14	DE								WRITE LONG9 operation was failed.
C6	15	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG command was failed during READ OP CHK.
C6	16	DE								Not became uncorrectable error during PHYSICAL READ10.

KEY : SENSE KEY   FA : Factor   DE : detail

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C6	20	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL WRITE1 command was failed.
C6	21	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ2 command was failed.
C6	22	RETURN CODE				FA	KEY	SENSE CODE		WRITE LONG3 command was failed.
C6	23	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ4 command was failed.
C6	24	RETURN CODE				FA	KEY	SENSE CODE		WRITE LONG5 command was failed.
C6	25	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ6 command was failed.
C6	26	RETURN CODE				FA	KEY	SENSE CODE		WRITE LONG7 command was failed.
C6	27	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ8 command was failed.
C6	28	RETURN CODE				FA	KEY	SENSE CODE		WRITE LONG9 command was failed.
C6	29	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ10 command was failed.
C6	2E									Not became Correctable error.
C6	2F									Not became Uncorrectable error.

KEY : SENSE KEY   FA : Factor

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

DIAG07-110

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
C7	01	RETURN CODE				FA	KEY	SENSE CODE		SELF TEST command was failed.
C7	02	RE	FA	KEY	SENSE CODE					Error occured during SELF TEST. (Result=00)

KEY : SENSE KEY   FA : Factor   RE : Result

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	Contents
D1	01	RETURN CODE				FA	KEY	SENSE CODE		STOP UNIT command was failed.
D1	02	RETURN CODE				FA	KEY	SENSE CODE		Return Code in TEST UNIT READY Command reported 0x00000000.
D1	03	RETURN CODE				FA	KEY	SENSE CODE		Return Code in TEST UNIT READY Command reported 0x0F001740.
D1	04									Invalid Error Factor in TEST UNIT READY failed. Ev:0x17
D1	05									Invalid SENSE KEY in TEST UNIT READY failed. Ev:0x02
D1	06									Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x04
D1	07									Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
D1	08									2nd TEST UNIT READY command was failed.
D1	09									Invalid SENSE KEY in TEST UNIT READY. Ev:0x00
D1	0A									Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x00
D1	0B									Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
D1	0C									RESET CE MODE command was failed.
D1	0D									SET CE MODE command was failed.

KEY : SENSE KEY   FA : Factor

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

| Error Byte | | | | | | | | | | Contents |
01	02	03	04	05	06	07	08	09	10	
D2	20	Input value				FD value				Invalid Product Number.
D2	22									FD Read Error.
D2	23									FD Write Error.
D2	24	BYTE#		HD	FD	HEAD				Compare Error of Management Area.

SC : SENSE CODE   HD : HD value   FD : FD value

REV.0	May.1996				

DIAG07-140

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D2	30									PHYSICAL READ command was failed.
D2	31									RECEIVE DIAG command was failed.
D2	32									PHYSICAL READ was failed.
D2	33									PHYSICAL WRITE command was failed.
D2	34									RECEIVE DIAG command was failed.
D2	35									PHYSICAL WRITE was failed.

REV.0	May.1996					

DIAG07-150

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D2	40									Invalid Phase Data.
D2	41									Sum check error.

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	01									Correction coefficient of servo side position sensitivity is below "0.7".
D3	02									Correction coefficient of servo side position sensitivity is above "1.3".
D3	03									Correction coefficient of following gain is below "0.7".
D3	04									Correction coefficient of following gain is above "1.3".
D3	05									Correction coefficient of seek loop gain is below "0.7".
D3	06									Correction coefficient of seek loop gain is above "1.3".

REV.0	May.1996				

DIAG07-170

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	10									Get TABLE ADDRESS command was failed. (M-ESDI)
D3	11									NOP command was failed. (M-ESDI)
D3	13									RECEIVE DIAG command was failed. (SCSI)
D3	14									COMMAND STATUS ERROR.

REV.0	May.1996				

DIAG07-180

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	20									Set HI ADDRESS command was failed. (M-ESDI)
D3	21									Set LOW ADDRESS command was failed. (M-ESDI)
D3	22									2 BYTE MEMORY READ command was failed. (M-ESDI)
D3	23									NOP command was failed. (M-ESDI)
D3	24									RECEIVE DIAG command was failed. (SCSI)
D3	25									COMMAND STATUS ERROR.

REV.0	May.1996				

DIAG07-190

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	30									Get VYESDI RTN ADDRESS command was failed. (M-ESDI)
D3	31									NOP command was failed. (M-ESDI)
D3	32									RECEIVE DIAG command was failed. (SCSI)
D3	33									COMMAND STATUS ERROR.

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	40									Set HI ADDRESS command was failed. (M-ESDI)
D3	41									Set LOW ADDRESS command was failed. (M-ESDI)
D3	42									Set command value (measurement option) was failed.
D3	43									Set HI ADDRESS command was failed. (M-ESDI)
D3	44									Set LOW ADDRESS command was failed. (M-ESDI)
D3	45									Set command value (measurement cylinder) was failed.
D3	46									Set HI ADDRESS command was failed. (M-ESDI)
D3	47									Set LOW ADDRESS command was failed.(M-ESDI)
D3	48									Set command value (measurement command) was failed.
D3	49									Measurement execution command was failed. (M-ESDI)
D3	4A									REQUEST STATUS command was failed. (M-ESDI)
D3	4B									NOP command was failed. (M-ESDI)
D3	4C									RECEIVE DIAG command was failed. (SCSI)
D3	4D									Measurement result is abnormal.
D3	4E									ATTENTION RESET command was failed. (M-ESDI)
D3	4F									REZERO command was failed. (M-ESDI)

REV.0 May.1996

DIAG07-210

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	50									Set HI ADDRESS command was failed. (M-ESDI)
D3	51									Set LOW ADDRESS command was failed. (M-ESDI)
D3	52									Get measurement value command was failed. (M-ESDI)
D3	53									NOP command was failed. (M-ESDI)
D3	54									RECEIVE DIAG commnad was failed. (SCSI)
D3	55									COMMAND STATUS ERROR.

REV.0	May.1996					

DIAG07-220

			Error Byte							Contents
01	02	03	04	05	06	07	08	09	10	
D3	60									PHYSICAL READ command was failed.
D3	61									RECEIVE DIAG command was failed.
D3	62									COMMAND STATUS ERROR.
D3	63									PHYSICAL WRITE command was failed.
D3	64									RECEIVE DIAG command was failed.
D3	65									COMMAND STATUS ERROR.

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D3	70									Set HI ADDRESS command was failed. (M-ESDI)
D3	71									Set LOW ADDRESS command was failed. (M-ESDI)
D3	72									Set write data command was failed. (M-ESDI)
D3	73									Set HI ADDRESS command was failed. (M-ESDI)
D3	74									Set LOW ADDRESS command was failed. (M-ESDI)
D3	75									2 BYTE MEMORY READ command was failed. (M-ESDI)
D3	76									NOP command was failed. (M-ESDI)
D3	77									RECEIVE DIAG command was failed. (M-ESDI)
D3	78									COMMAND STATUS ERROR.
D3	79									Write data compare error.

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D4	03	RETURN CODE				FA	KEY	SENSE CODE		RECEIVE DIAG was command failed.
D4	04									READ operation was failed.
D4	11	RETURN CODE				FA	KEY	SENSE CODE		PHYSICAL READ command was failed.

KEY : SENSE KEY   FA : Factor

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D6	20	Input value			·	FD value				Invalid Product Number.
D6	22									FD Read Error.
D6	23									FD Write Error.
D6	24	BYTE#		HD	FD	HEAD				Compare Error of Management Area.

SC : SENSE CODE   HD : HD value   FD : FD value

REV.0	May.1996				

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D6	30									PHYSICAL READ command was failed.
D6	31									RECEIVE DIAG command was failed.
D6	32									PHYSICAL READ was failed.
D6	33									PHYSICAL WRITE command was failed.
D6	34									RECEIVE DIAG command was failed.
D6	35									PHYSICAL WRITE was failed.

REV.0	May.1996					

DIAG07-270

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D7	20	Input value				FD value				Invalid Product Number.
D7	22									FD Read Error.
D7	23									FD Write Error.
D7	24	BYTE#		HD	FD	HEAD				Compare Error of Management Area.

SC : SENSE CODE   HD : HD value   FD : FD value

REV.0 May.1996

DIAG07-280

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D7	30									PHYSICAL READ command was failed.
D7	31									RECEIVE DIAG command was failed.
D7	32									PHYSICAL READ was failed.
D7	33									PHYSICAL WRITE command was failed.
D7	34									RECEIVE DIAG command was failed.
D7	35									PHYSICAL WRITE was failed.

REV.0	May.1996					

Error Byte										Contents
01	02	03	04	05	06	07	08	09	10	
D8	08									TEST UNIT READY command was failed.

REV.0	May.1996					

DIAG07-300

8.7.2 PATH INLINE ERROR CODE DICTIONARY

Error Byte								Contents
01	02	03	04	05	06.	07	08	
A0	E0							CE MODE cannot be set.
A0	E1							CE MODE cannot be reset.
A0	E2			Eye-catcher				Got bad Structure Information.
A0	E3							Comunication of between DKC and SVP was TIME OUT.
A0	E4							Invalid SENSE KEY in TEST UNIT READY. Ev:0x00
A0	E5							Invalid SENSE CODE-HI in TEST UNIT READY. Ev:0x00
A0	E6							Invalid SENSE CODE-LOW in TEST UNIT READY. Ev:0x00
A0	E7			Eye-catcher				No equipped DKA!
A0	E8		RETURN CODE			FC	FD	Structure Information command was failed.

FC : Function Code   FD : Function Detail

REV.0	May.1996				

DIAG07-310

Error Byte											Contents
01	02	03	04	05	06	07	08	09	10	11	
A0	01	RETURN CODE				FA	KEY	SENSE CODE			INQUIRY command was failed.
A0	02		ED								Data compare error.
A0	03										Hard Error of SCSI BUFF has occurred.
A0	10	DKA#	CDEV	RDEV	CDEV	RDEV	CDEV	RDEV	CDEV	RDEV	There was N.G. error to a part of PATH.
A0	20	DKA#	CDEV	RDEV	CDEV	RDEV	CDEV	RDEV	CDEV	RDEV	There was N.G. error to all PATH.
A0	01	FF	FF	FF	FF	00	00	00		00	There is no Connected Drive in DKA.

KEY : SENSE KEY   ED : Expected Data   FA : Factor

In case of KEY is "E0", refer to Interuption Status Code in SSBLOG05-4334.

(SENSE CODE HI = Interuption Status Code)

In case of KEY isn't "E0", refer to SSBLOG05-4360.

(SENSE CODE HI = ADDITIONAL SENSE CODE,

 SENSE CODE LO = ADDITIONAL SENSE CODE QUOLIFIRE)

REV.1	May.1996	Aug.1996				

Error Byte																	Contents
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	
DKA#	EV	RV	EV	RV	EV	RV	EV	RV	EV	RV	EV	RV	EV	RV	EV	RV	SCSI data compare error.
	Port 1		Port 2		Port 3		Port 4		Port 1		Port 2		Port 3		Port 4		
	Basic Unit								Option Unit								

EV : Expected Value   RV : Received Value*

* See attached sheets (A) ~ (C) for detailed definition.

REV.0	May.1996					

DIAG07-330

(A) Error Bit definition

PA4	PA5	PA6	TERM	PA0	PA1	PA2	PA3

2^0 (leftmost) ... 2^8 (rightmost)

PA4, 5, 6 : HDU BOX#

TERM : Terminator '0': Termination off / '1': Terminator on

PA0 : CL# '1': CL PATH / '0': CL2 PATH

PA1, 2, 3 : DKU# (DKUMN-XXX : determined by JP1 jumper setting)

Ex : DKA00, CDEV#0, RDEV#0

　　　　Expected value　　0x0C

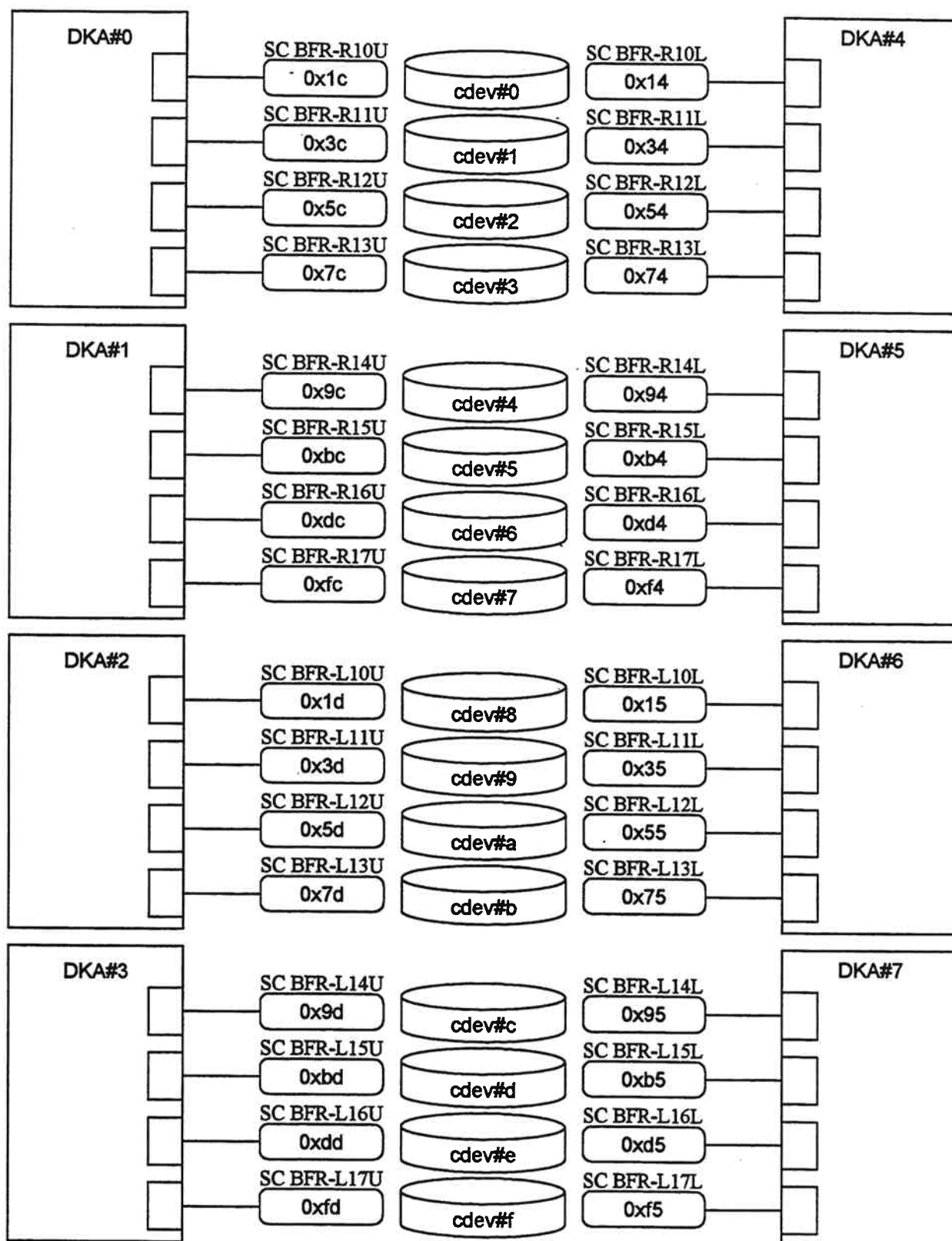| REV.0	May.1996					

(B) SCSI Buffer Address (Expected Value)

DKA#0				DKA#4
	SC BFR-R10U 0x1c	cdev#0	SC BFR-R10L 0x14	
	SC BFR-R11U 0x3c	cdev#1	SC BFR-R11L 0x34	
	SC BFR-R12U 0x5c	cdev#2	SC BFR-R12L 0x54	
	SC BFR-R13U 0x7c	cdev#3	SC BFR-R13L 0x74	

DKA#1				DKA#5
	SC BFR-R14U 0x9c	cdev#4	SC BFR-R14L 0x94	
	SC BFR-R15U 0xbc	cdev#5	SC BFR-R15L 0xb4	
	SC BFR-R16U 0xdc	cdev#6	SC BFR-R16L 0xd4	
	SC BFR-R17U 0xfc	cdev#7	SC BFR-R17L 0xf4	

DKA#2				DKA#6
	SC BFR-L10U 0x1d	cdev#8	SC BFR-L10L 0x15	
	SC BFR-L11U 0x3d	cdev#9	SC BFR-L11L 0x35	
	SC BFR-L12U 0x5d	cdev#a	SC BFR-L12L 0x55	
	SC BFR-L13U 0x7d	cdev#b	SC BFR-L13L 0x75	

DKA#3				DKA#7
	SC BFR-L14U 0x9d	cdev#c	SC BFR-L14L 0x95	
	SC BFR-L15U 0xbd	cdev#d	SC BFR-L15L 0xb5	
	SC BFR-L16U 0xdd	cdev#e	SC BFR-L16L 0xd5	
	SC BFR-L17U 0xfd	cdev#f	SC BFR-L17L 0xf5	

Fig.8.6 DKA Path Address mapping (No Extended Unit : Basic Unit)

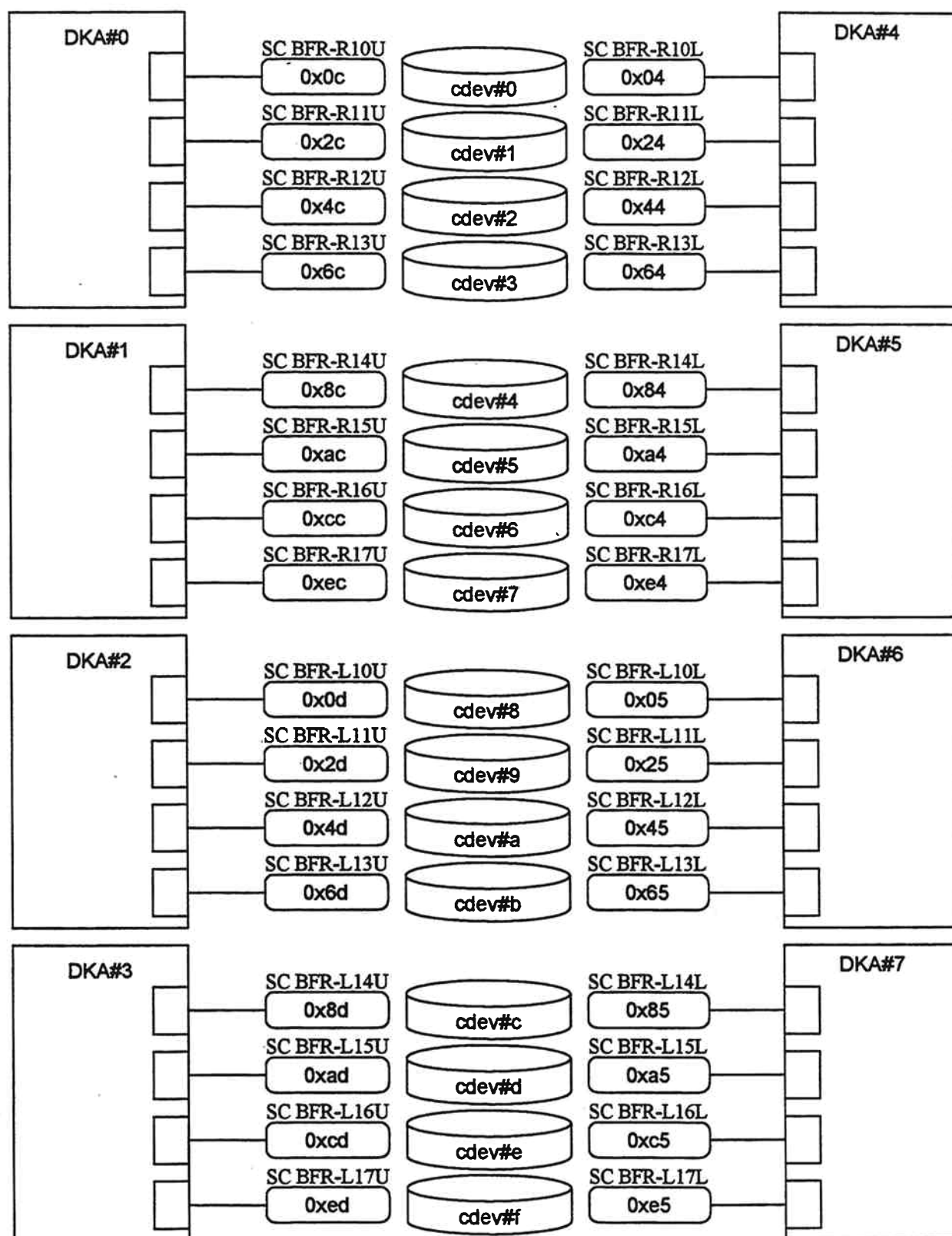| REV.0	May.1996					

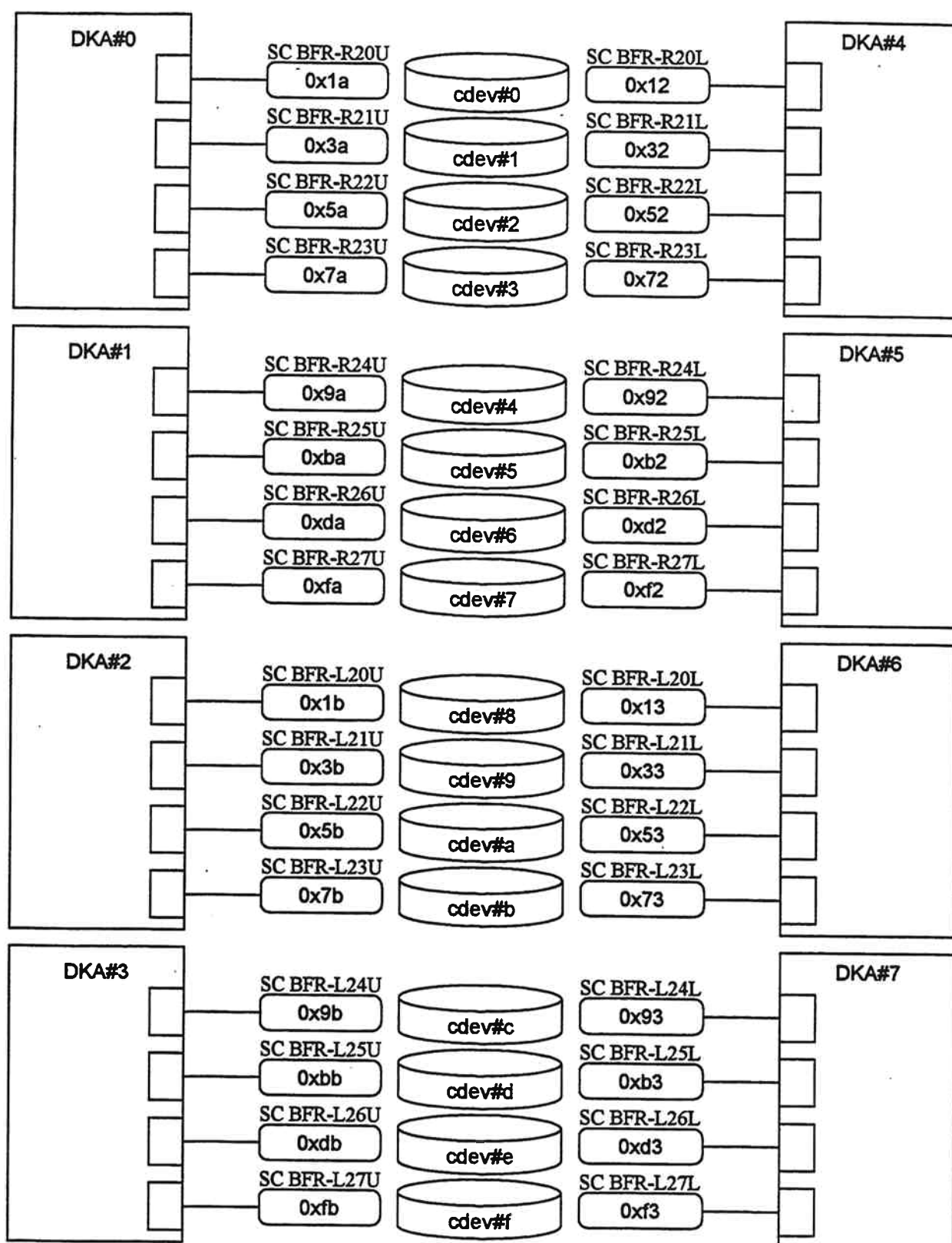Fig.8.7 DKA Path Address mapping (Equipped Extended Unit : Basic Unit)

DIAG07-360

Fig.8.8 DKA Path Address mapping (Extended Unit)

REV.0	May.1996						