

REPLACE SECTION



SAFETY SUMMARY

Notes on the operation on the password inputting screen.

The password inputting screen is displayed on the SVP screen to arouse maintenance person's attention when the operation concerned can cause a serious failure such as a system down or a data loss.

- When the password inputting screen is displayed, be sure to observe the cautions given in the procedure concerned in the maintenance manual.
- When a confirmation by the technical support division is required in the maintenance manual, be sure to get it before executing the maintenance procedure concerned.
- Each PCB is operated by the microprogram owned by it individually.

If the PCB is replaced in the procedure that makes the version of the microprogram disagree with that of the PCB, the storage system cannot operate normally. Be sure to make the revisions consistent each other.

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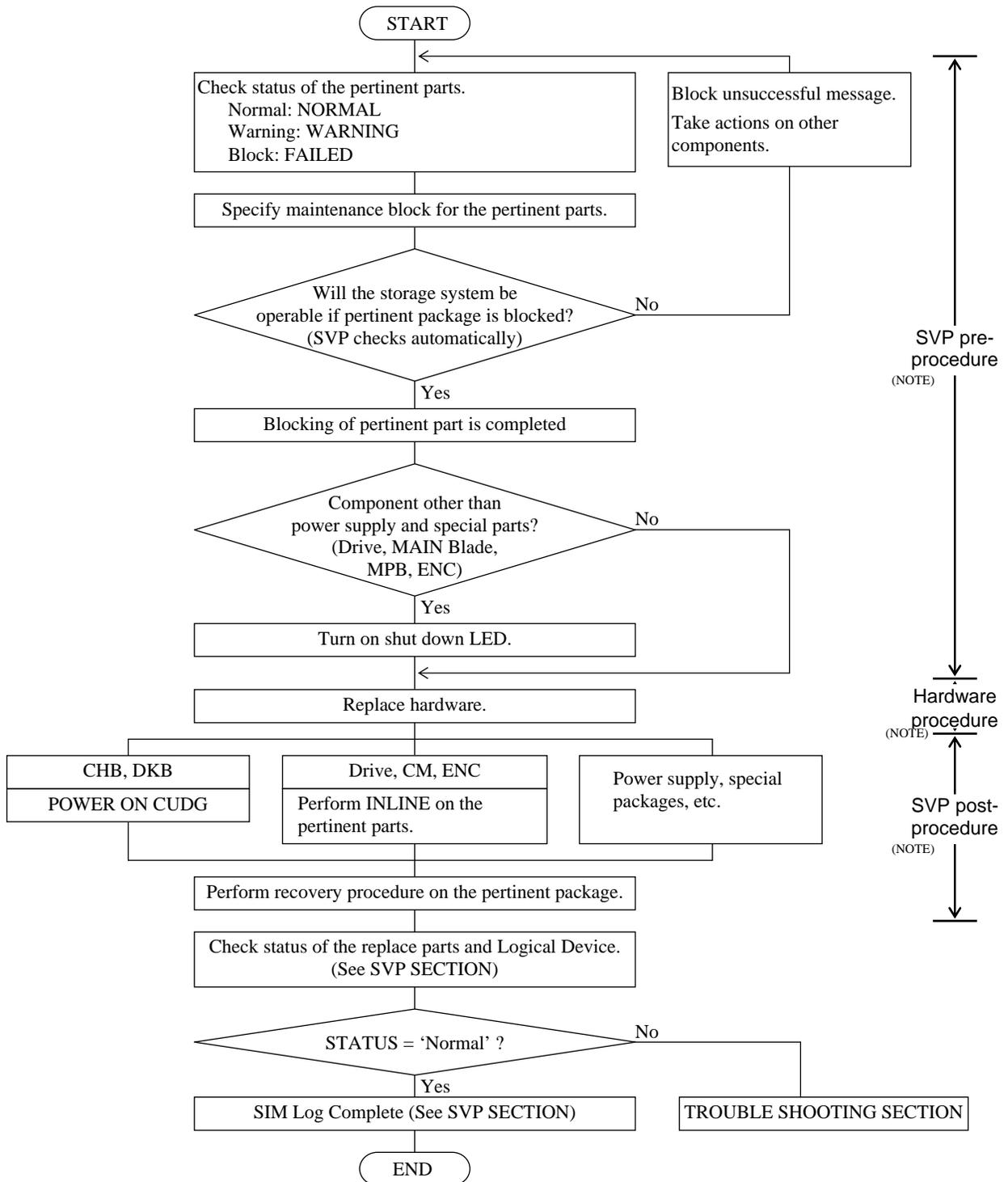
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1. Hot Replace

1.1 Hot Replace Flowchart



NOTE:

- SVP pre-procedure:** An SVP(PC) process of issuing a maintenance block instruction after checking the status of the parts to be replaced so that the live parts can be removed and replaced.
- Hardware procedure:** A process of removing a parts to be replaced (shut down LED on) and installing a maintenance package.
Be sure to wear your wrist strap, and attach to ground, prior to performing the following work.
This will insure that the IC and LSI on the PCB, are protected from static electricity.
- SVP post-procedure:** An SVP(PC) process of making functional checks (CUDG and INLINE) on the replacement package and building it into the storage system.

1.2 Concept of Drive Maintenance

1.2.1 Copy Back Mode

Unified Storage VM has a function that handles a spare drive as a data drive after dynamic sparing and correction copy to eliminate the need for copy back. By changing the Copy Back Mode setting from SVP, it is possible to switch whether copy back is required.

Table 1.2.1-1 Copy Back Mode setting and need for copy back

#	Copy Back Mode setting	Whether copy back is required
1	Copy Back	Required
2	No Copy Back	Not required (*1)

*1: When the drive capacity of the source drive is different from that of the spare drive, copy back needs to be performed.

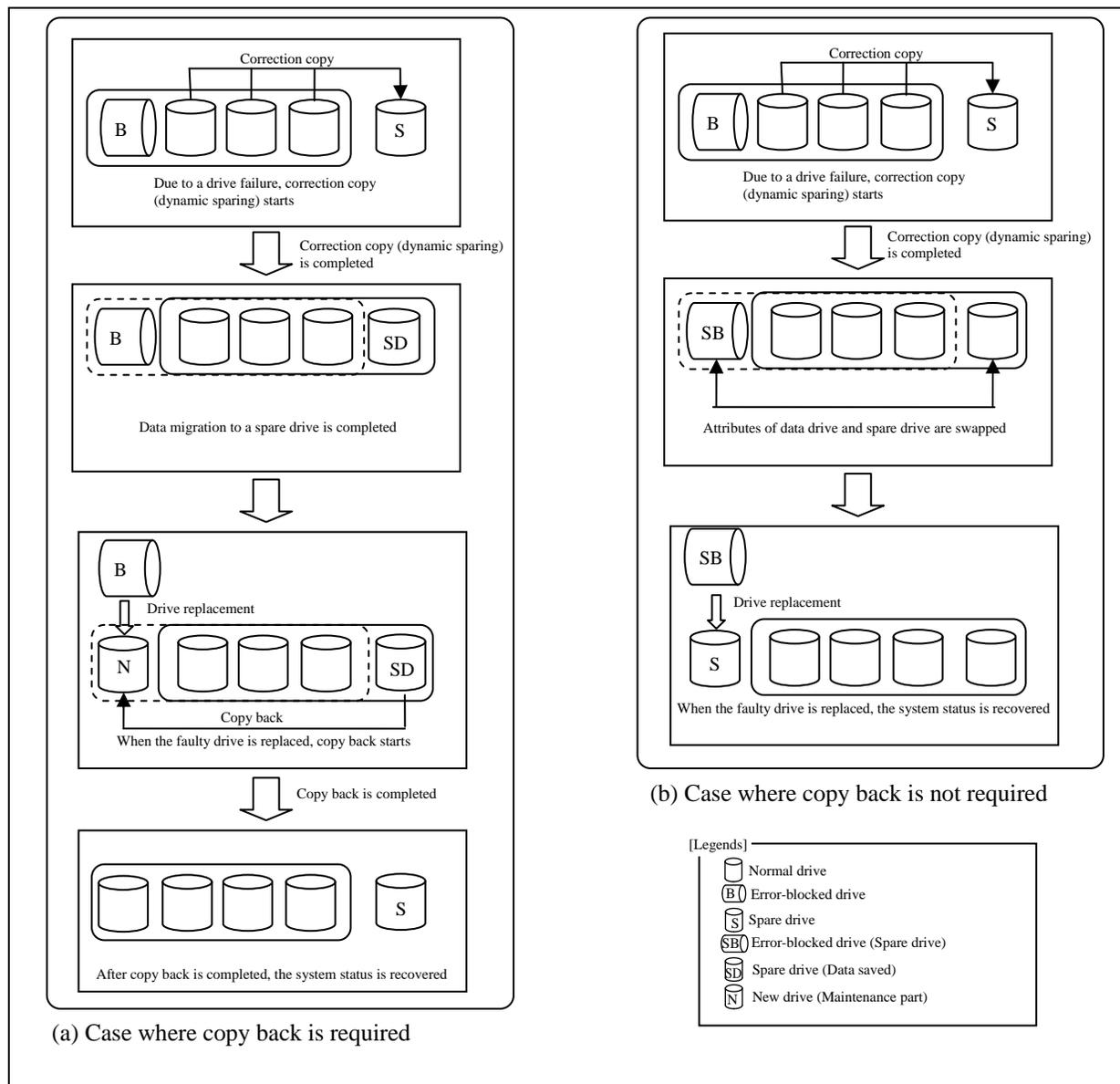
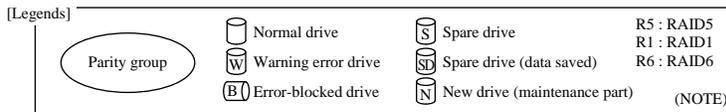
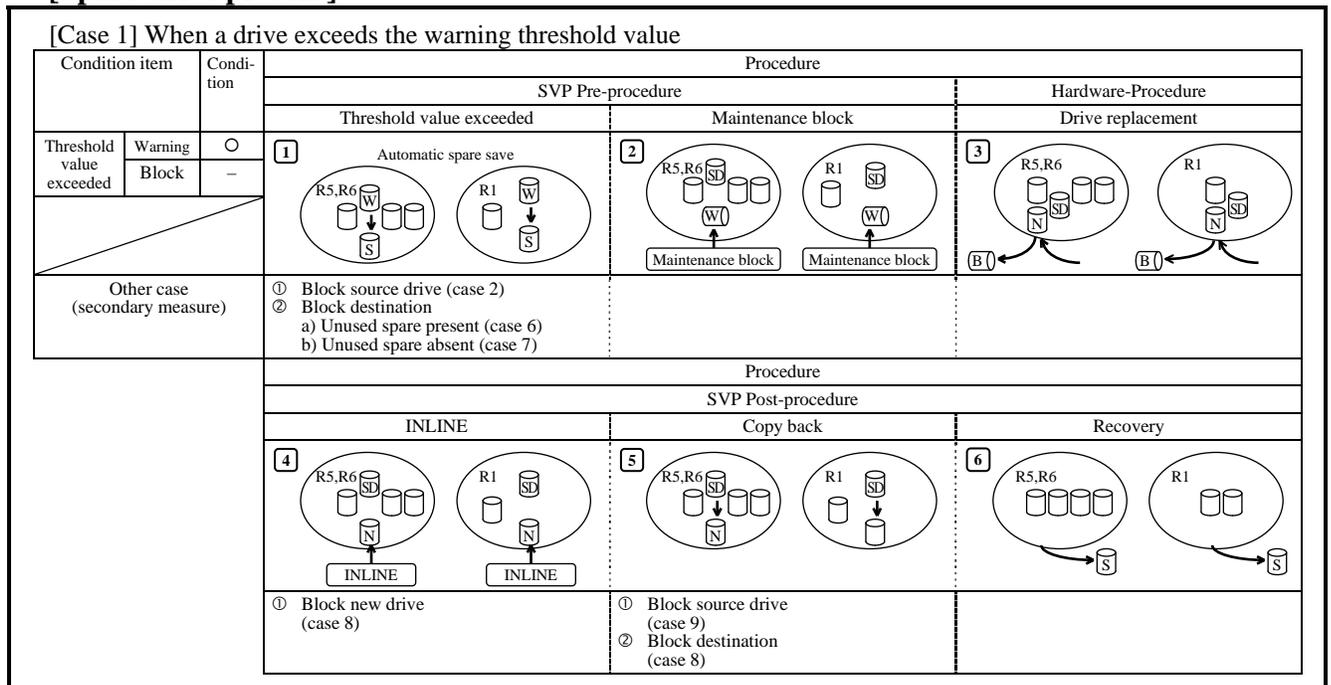


Fig. 1.2.1-1 Maintenance flow when copy back is required/not required

1.2.2 Drive maintenance

[Spare drive present]



NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Spare drive present]

[Case 2] A case where the one drive is blocked

When a spare drive exists, a correction copy from the blocked drive is started automatically.

In this case, go to Case 2.1 when the blocked drive is to be replaced during the correction copy from it and a copy back that follows is to be made automatically, or go to Case 2.2 when the blocked drive is to be replaced after the correction copy is completed.

[Case 2.1] A case where the one drive is blocked and it is replaced during an automatic correction copy is made from it

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	—	SVP Pre-procedure		Hardware-procedure
	Block	○	Block one drive	Maintenance block	Drive replacement
			<p>① Automatic correction copy</p>	<p>② A blocked drive is replaced during an automatic correction copy.</p>	<p>③ A blocked drive is replaced during an automatic correction copy.</p>
Other case (secondary measure)			<p>① When a copy destination drive is blocked</p> <p>a) Unused spare present (case 10)</p> <p>b) Unused spare absent (case 11)</p>	<p>NOTE: When the blocked drive is replaced while the automatic correction copy is being made from it, the copy back written in Item [5] is started automatically. When you replace the drive after the automatic correction copy is completed, refer to Case 2.2.</p>	
			SVP Post-procedure		
			INLINE	Automatic copy back	Recovery
			<p>④</p>	<p>⑤ The copy back is started automatically after the correction copy is completed.</p>	<p>⑥</p>
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	

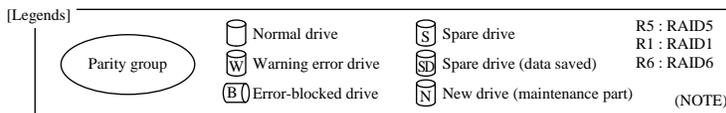
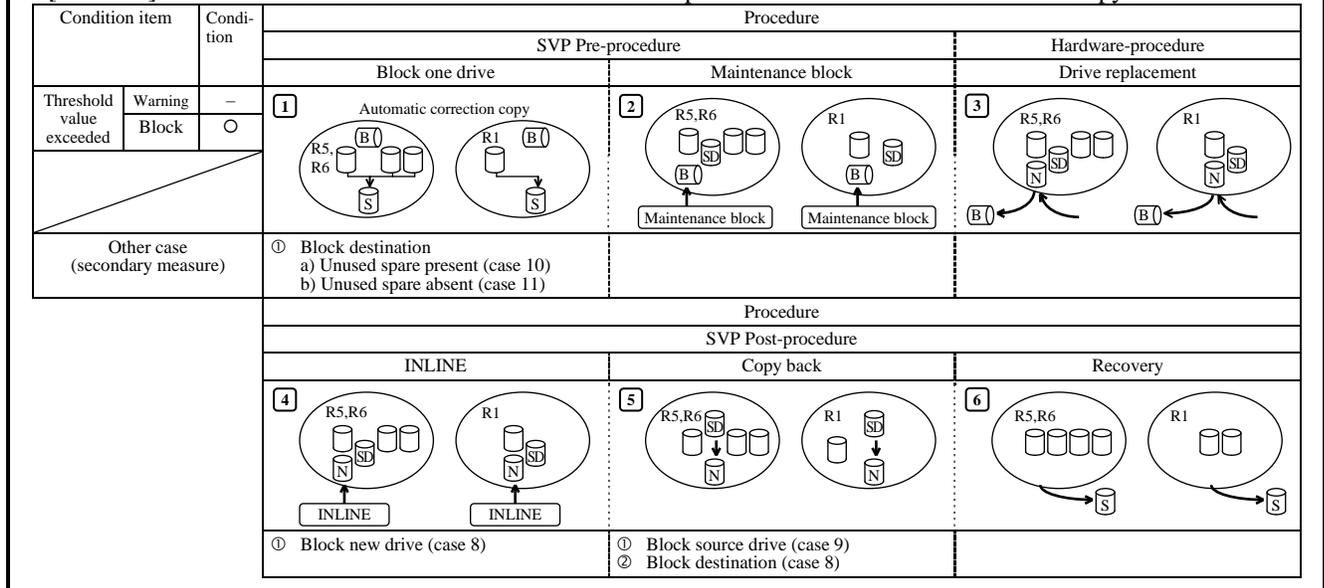
[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Spare drive present]

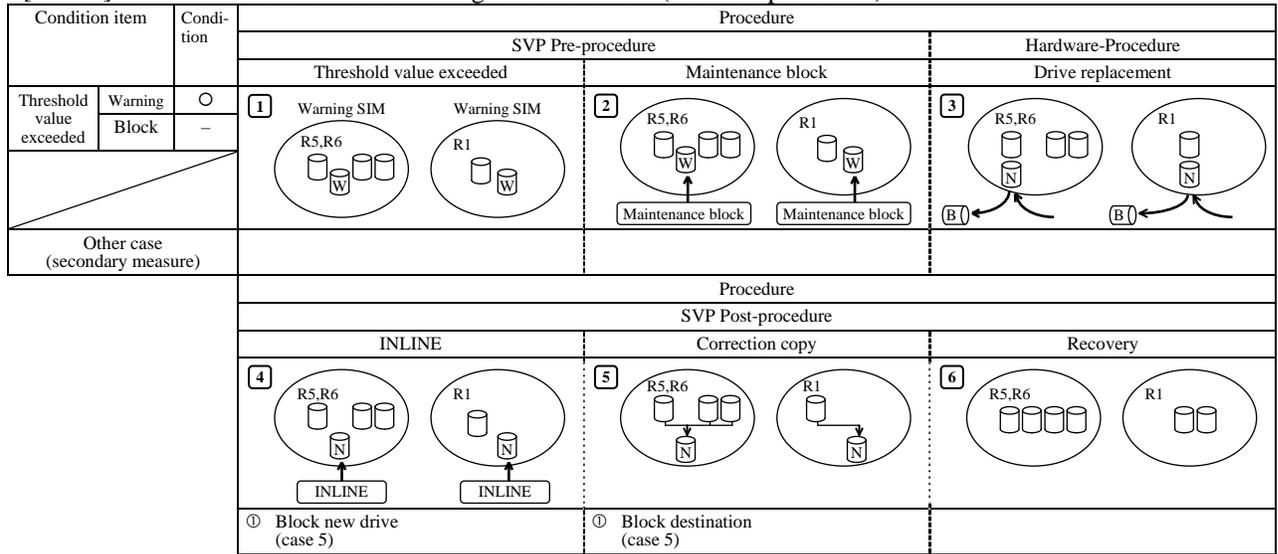
[Case 2.2] A case where the one drive is blocked and it is replaced after an automatic correction copy is made from it



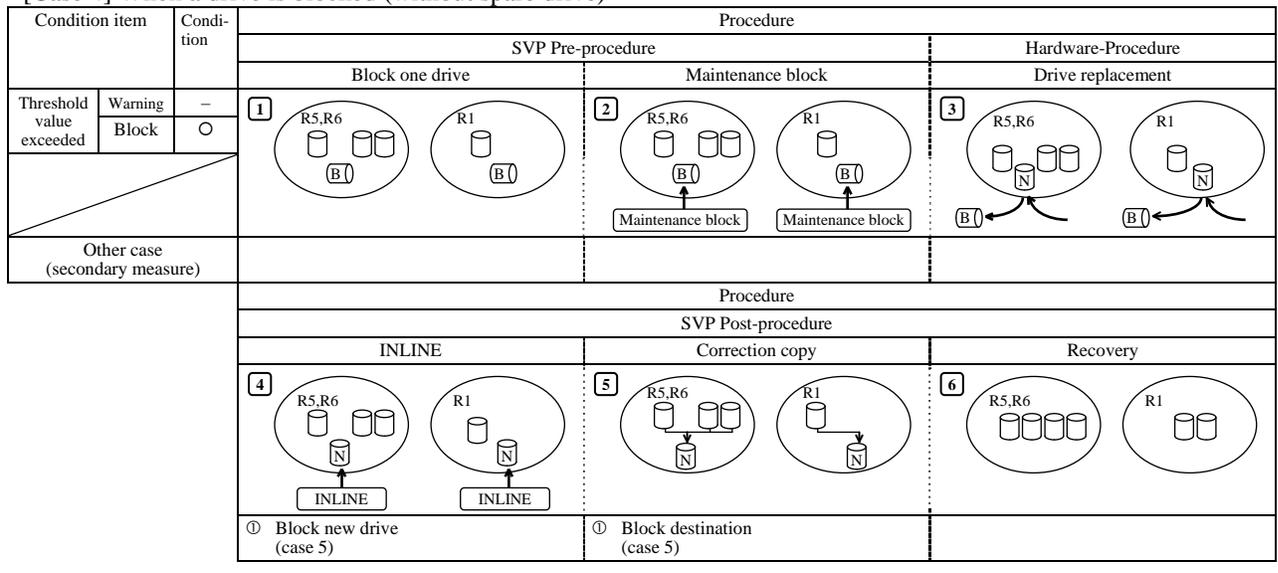
NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Spare drive absent]

[Case 3] When a drive exceeds the warning threshold value (without spare drive)



[Case 4] When a drive is blocked (without spare drive)



[Legends]

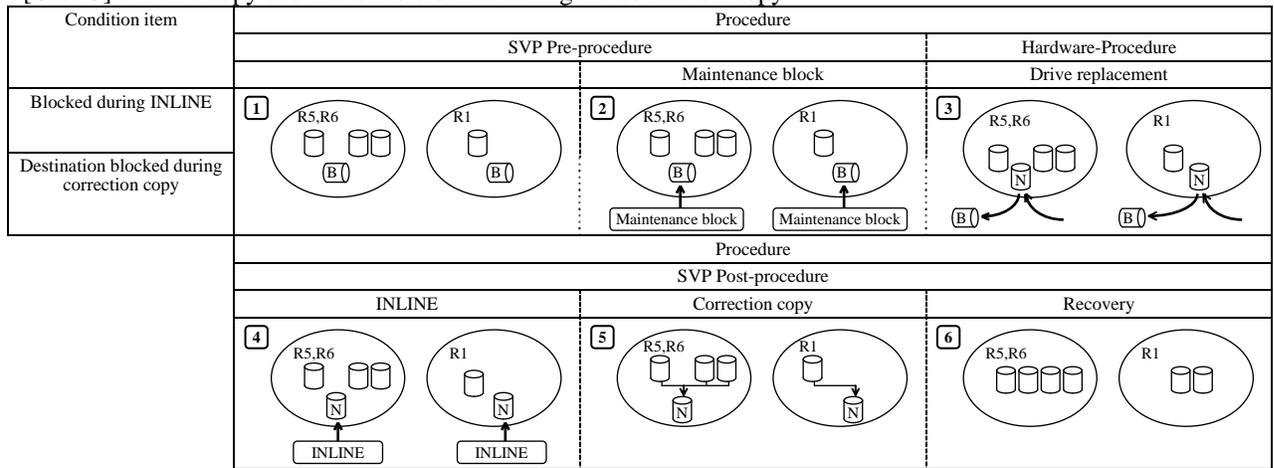
			R5 : RAID5
			R1 : RAID1
			R6 : RAID6

(NOTE)

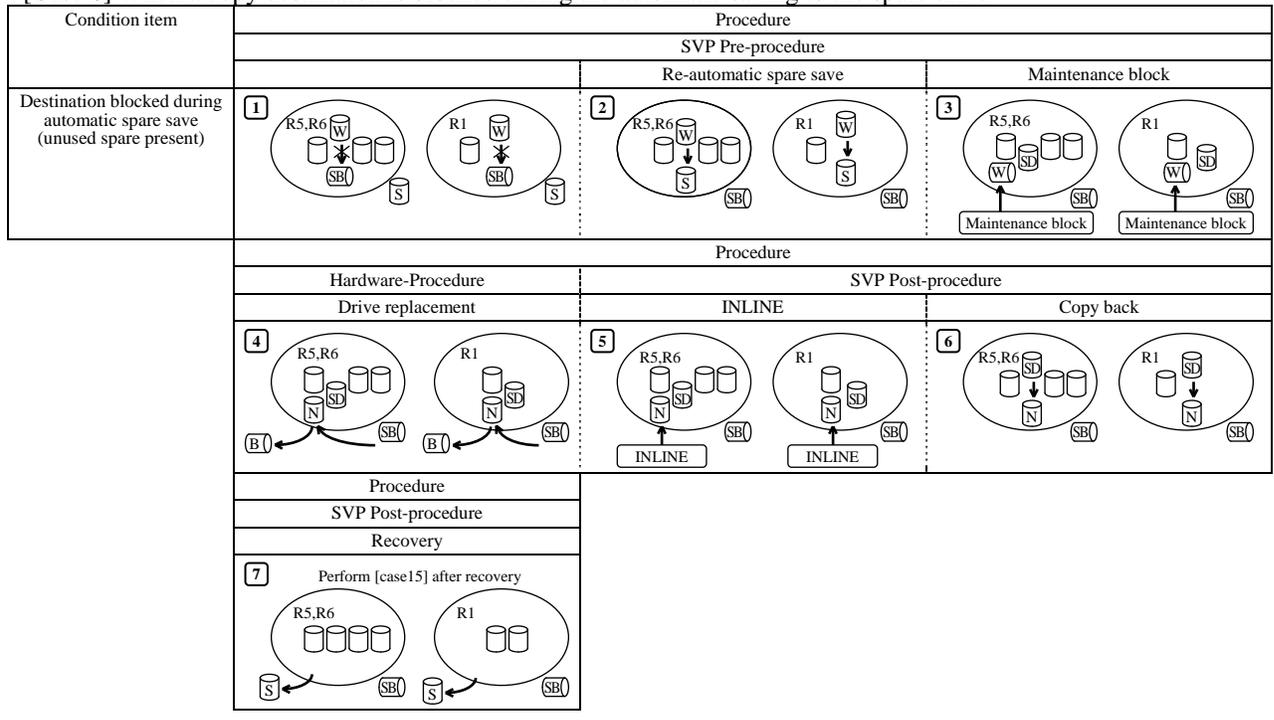
NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error]

[Case 5] When a copy destination is blocked during the correction copy



[Case 6] When a copy destination is blocked during the automatic saving to the spare drive



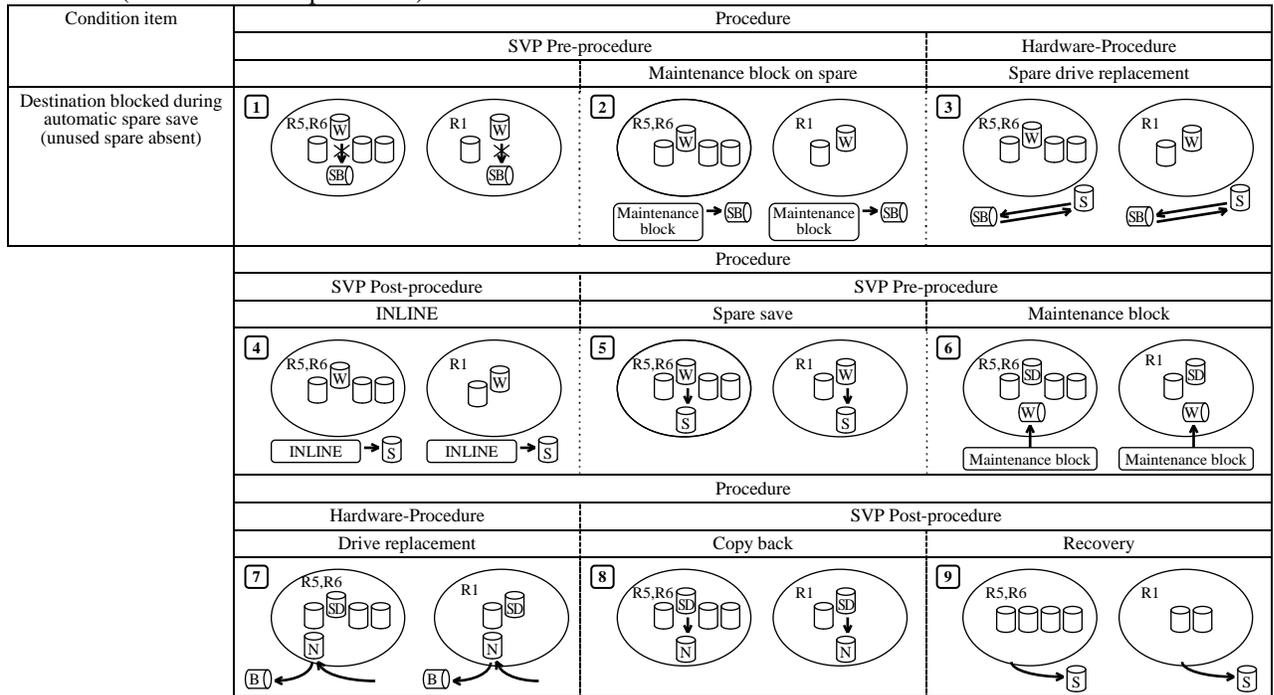
[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

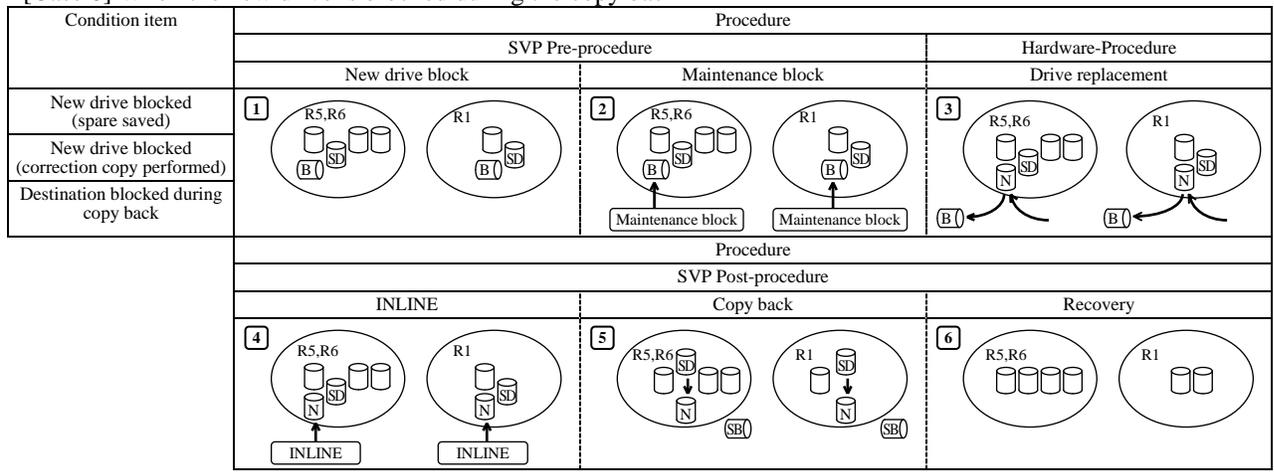
NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error recovery]

[Case 7] When a copy destination drive is blocked during the automatic saving to the spare drive
(without unused spare drive)



[Case 8] When the new drive is blocked during the copy back



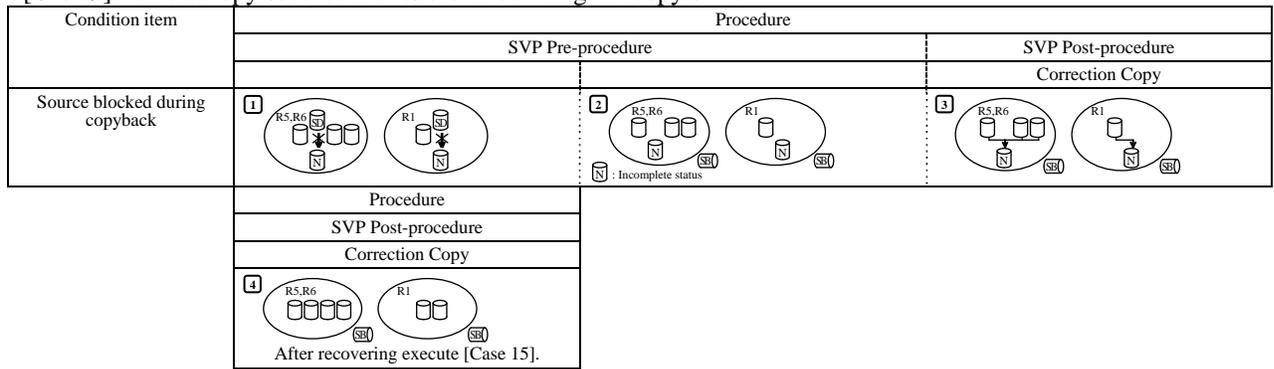
[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error recovery]

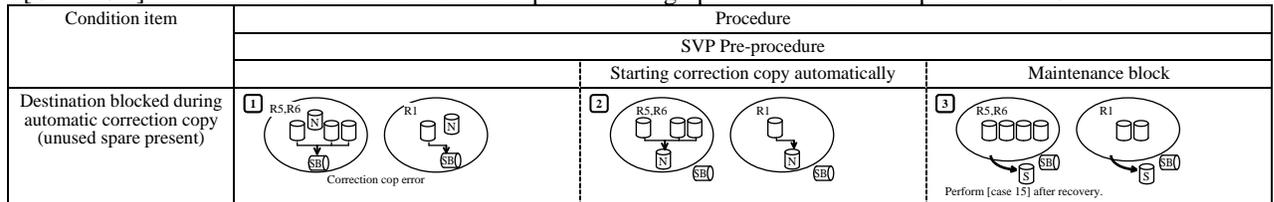
[Case 9] When a copy source drive is blocked during the copy back



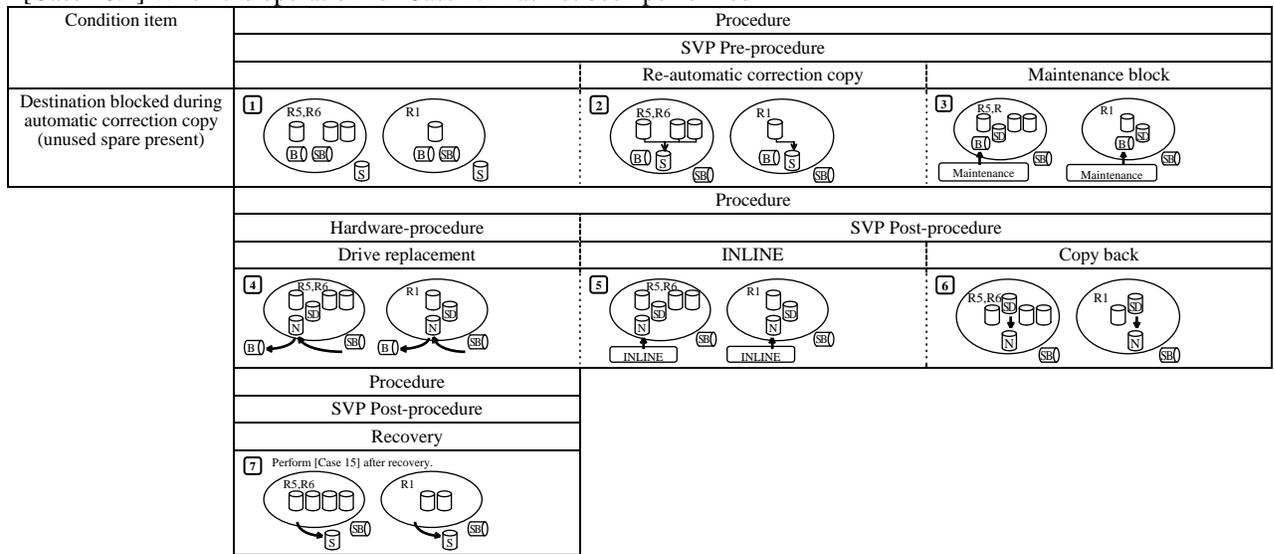
[Case 10] A case where the copy destination drive is blocked during the automatic correction copy (and a unused spare drive exists)

When the blocked drive has been replaced through performance of the operation for Case 2.1, go to Case 10.1 or otherwise, go to Case 10.2.

[Case 10.1] When the blocked drive has been replaced through performance of the operation for Case 2.1



[Case 10.2] When the operation for Case 2.1 has not been performed



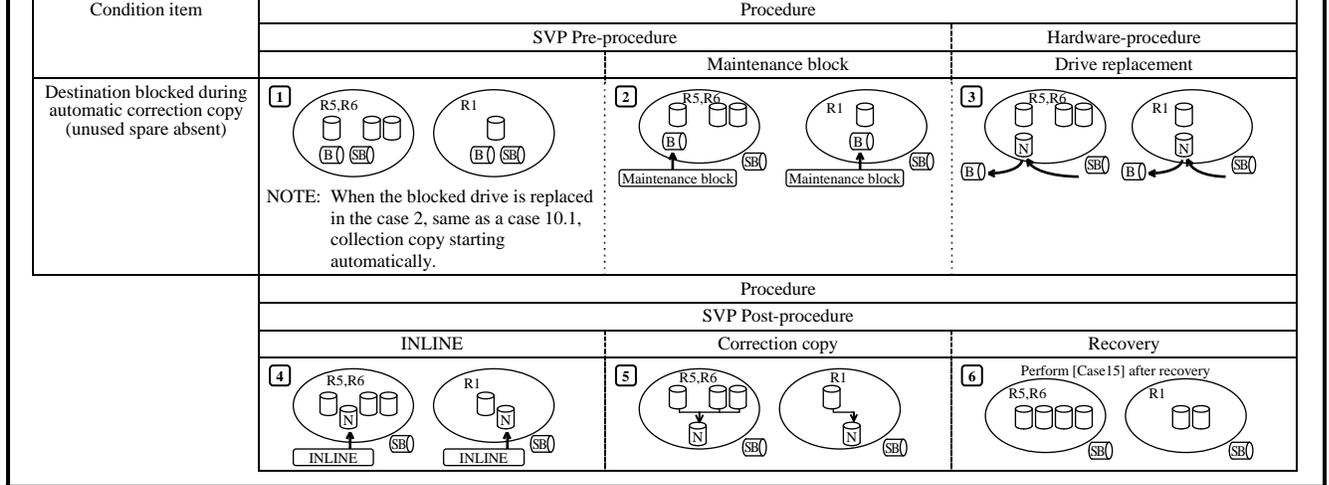
[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error recovery]

[Case 11] When a copy destination drive is blocked during the automatic correction copy (without unused spare drive)



[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Spare drive present]

[Case 12] RAID6 When two drives exceed the warning threshold value

Condition item		Condi-tion	Procedure		
Threshold value exceeded	Warning Block	○ -	SVP Pre-procedure		Hardware-Procedure
			Threshold value exceeded	Maintenance block	Replacement of the first drive
			<p>① Automatic saving(s) to the spare drive allowed to be made up to twice</p>	<p>②</p> <p>Proceed the drive to the next step when the copying from it is completed. It is not necessary to wait until the copying from the two drives is completed.</p>	<p>③</p>
Other case (secondary measure)			<p>① Block source drive (case 2) ② Block destination a) Unused spare present (case 6) b) Unused spare absent (case 7)</p>		
			Procedure		
			SVP Post-procedure		Hardware-procedure
			INLINE test of the first drive	Copy back to the first drive	Replacement of the second drive during the copy back to the first drive
			<p>④</p>	<p>⑤</p>	<p>⑥</p>
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	
			Procedure		
			SVP Post-procedure		Recovery
			INLINE test of the second drive	Copy back to the second drive	
			<p>⑦</p>	<p>⑧</p>	<p>⑨</p>
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	

[Legends]

			R6 : RAID6

[Spare drive present]

[Case 13] RAID6 When two drives are blocked

- When you replace the two blocked drives while making an automatic correction copy from them, go to Case 13.1.
- When you replace the two blocked drives after making an automatic correction copy from them, go to Case 13.2.
- When you replace one of the two blocked drives from each of which an automatic correction copy is being made, go to Case 13.3.

[Case 13.1] RAID6 A case where the two drives are blocked and they are replaced while an automatic correction copy is made from it

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	–	SVP Pre-procedure		Hardware-Procedure
	Block	○	Detachment of the two drives	Maintenance block	Replacement of the first drive
			1 Automatic correction copy (allowed to be made up to twice) 	2 A blocked drive is replaced during an automatic correction copy. 	3 A blocked drive is replaced during an automatic correction copy.
			Other case (secondary measure) ① Block destination a) Unused spare present (case 10) b) Unused spare absent (case 11)		
			NOTICE: When the blocked drive is replaced while an automatic correction copy is being made from it, the copy back written in Item [5] is started automatically. When you replace the drive after the automatic correction copy is completed, refer to Case 13.2.		
			Procedure		
			INLINE test of the first drive	Copy back to the first drive	Recovery
			4 INLINE 	5 The copy-back is started automatically after the correction copy is completed. 	6
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	

[Legends]

			R6 : RAID6

[Spare drive present]

[Case 13.2] RAID6 A case where the two drives are blocked and they are replaced after an automatic correction copy is made from it

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	—	SVP Pre-procedure		Hardware-Procedure
	Block	○	Detachment of the two drives	Maintenance block	Replacement of the first drive
			1 Automatic correction copy or copies allowed to be made up to twice 	2 	3
Other case (secondary measure)			① Block destination a) Unused spare present (case 10) b) Unused spare absent (case 11)		
			Procedure		
			SVP Post-procedure		Hardware-procedure
			INLINE test of the first drive	Copy back to the first drive	Replacement of the second drive during the copy back to the first drive
			4 	5 	6
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	
			Procedure		
			SVP Post-procedure		
			INLINE test of the second drive	Copy back to the second drive	Recovery
			7 	8 	9
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	

[Legends]

			R6 : RAID6

[Spare drive present]

[Case 13.3] RAID6 A case where the two drives are blocked and they are an automatic correction copy from one of the drives is in progress and that from the other drive is completed

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	Block	SVP Pre-procedure		Hardware-Procedure
			Detachment of the two drives		Replacement of the first drive
		–	Maintenance block		
		○	Maintenance block		
			<p>① Automatic correction copy or copies allowed to be made up to twice.</p>		
			<p>② Maintenance block</p>		
			<p>③</p>		
			<p>④ Block destination a) Unused spare present (case 10) b) Unused spare absent (case 11)</p>		
			Procedure		
			SVP Post-procedure		Hardware-procedure
			INLINE test of the first drive		Replacement of the second drive during the copy back to the first drive
			<p>④ INLINE</p>		<p>⑥</p>
			<p>⑤</p>		
			SVP Post-procedure		
			INLINE test of the second drive		Recovery
			<p>⑦ INLINE</p>		<p>⑨</p>
			<p>⑧</p>		
			<p>① Block source drive (case 9) ② Block destination (case 8)</p>		

[Legends]

			R6 : RAID6

[Spare drive present]

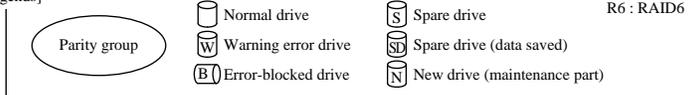
[Case 14] RAID6 When a drive is blocked and another drive exceeds the warning threshold value

- When replacing a blocked drive while an automatic correction copy is being made from it, go to Case 14.1.
- When replacing a blocked drive after the automatic correction copy from it is completed, go to Case 14.2.

[Case 14.1] When replacing a blocked drive while an automatic correction copy is being made from it

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	○	SVP Pre-procedure		Hardware-Procedure
	Block	○	Detachment of the two drives		Maintenance block
			1 Automatic correction copy + Automatic saving to the spare disk 	2 Maintenance block A blocked drive is replaced during an automatic correction copy. 	3 Replacement of the first drive
Other case (secondary measure)			① Block destination a) Unused spare present (case 10) b) Unused spare absent (case 11)	NOTE: When an automatic saving to a spare drive is completed before this operation is performed, the following items [6] and [7] may be executed in advance.	
			Procedure		
			SVP Post-procedure		Hardware-procedure
			INLINE test of the first drive		Copy back to the first drive
			4	5 A blocked drive is replaced during an automatic correction copy.	6 Replacement of the second drive during the copy back to the first drive
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	
			Procedure		
			SVP Post-procedure		Recovery
			INLINE test of the second drive		Copy back to the second drive
			7	8	9 Recovery
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	

[Legends]



[Spare drive present]

[Case 14.2] When replacing a blocked drive after the automatic correction copy from it is completed

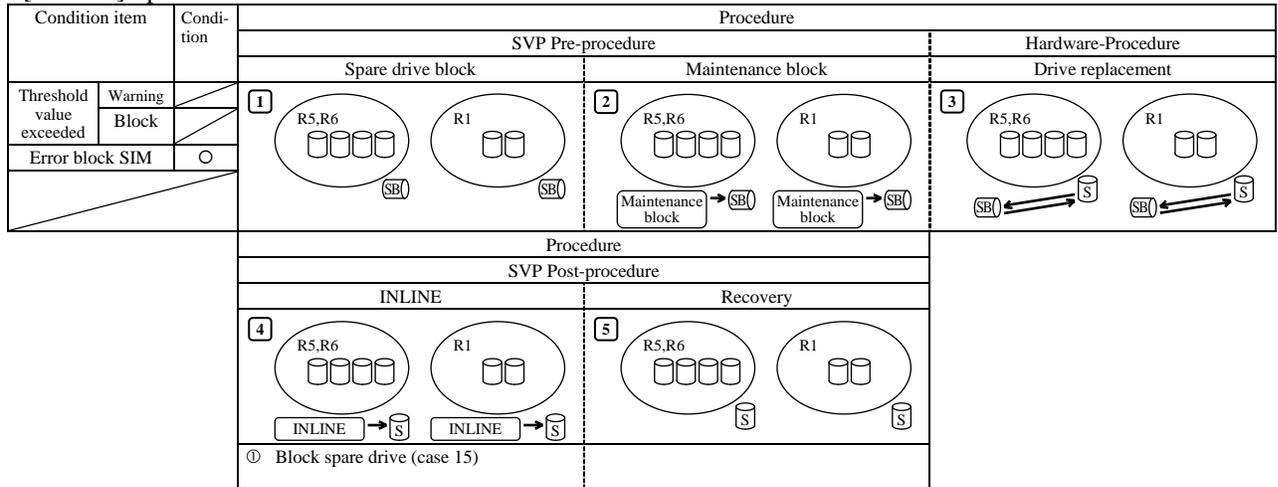
Condition item		Condition	Procedure		
Threshold value exceeded	Warning	○	SVP Pre-procedure		Hardware-Procedure
	Block	○	Detachment of the two drives	Maintenance block	Replacement of the first drive
			<p>① Automatic correction copy + Automatic saving to the spare disk</p>	<p>② Proceed the drive to the next step when the copying from it is completed. It is not necessary to wait until the copying from the two drives is completed.</p>	<p>③</p>
Other case (secondary measure)			<p>① Block destination a) Unused spare present (case 10) b) Unused spare absent (case 11)</p>		
			Procedure		
			SVP Post-procedure		Hardware-procedure
			INLINE test of the first drive	Copy back to the first drive	Replacement of the second drive during the copy back to the first drive
			<p>④</p>	<p>⑤</p>	<p>⑥</p>
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	
			Procedure		
			SVP Post-procedure		Recovery
			INLINE test of the second drive	Copy back to the second drive	
			<p>⑦</p>	<p>⑧</p>	<p>⑨</p>
			① Block new drive (case 8)	① Block source drive (case 9) ② Block destination (case 8)	

[Legends]

			R6 : RAID6

[Other Cases]

[Case 15] Spare drive blocked

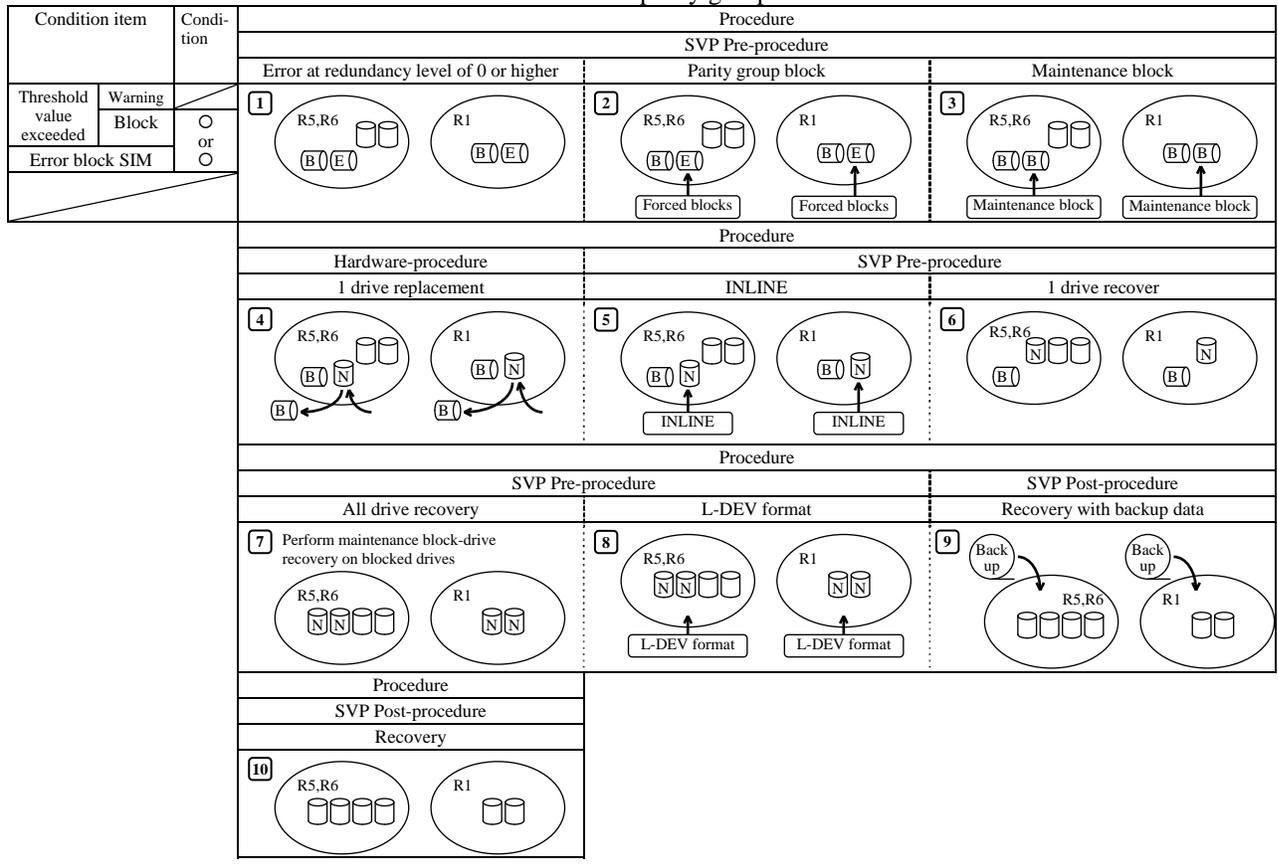


[Case 16] Case in which a block level error occurred in a normal drive with a redundancy level of 0

RAID5 : When two or more drives are blocked in a parity group.

RAID1 : When two drives are blocked in a Mirroring pair.

RAID6 : When three or more drives are blocked in a parity group.



[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Other Cases]

[Case 17] Preventive drive replacement 1

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	-	SVP Pre-procedure		
	Block	-	Replacement	Spare save	Maintenance block
Others (unusual noise, etc.)		○			
Spare drive		○			
Other case (secondary measure)			① Block source drive (case 2) ② Block destination drive a) Unused spare present (case 6) b) Unused spare absent (case 7)		
			Procedure		
			Hardware-procedure	SVP Post-procedure	
			Drive replacement	INLINE	Copy back
			① Block new drive (case 8)		
			① Block source drive (case 9) ② Block destination (case 8)		
			Procedure		
			SVP Post-procedure		
			Recovery		

[Case 18] Preventive drive replacement 2

Condition item		Condition	Procedure		
Threshold value exceeded	Warning	-	SVP Pre-procedure		Hardware-Procedure
	Block	-	Replacement	Maintenance block	Drive replacement
Others (unusual noise, etc.)		○			
Spare drive		-			
Other case (secondary measure)					
			Procedure		
			SVP Post-procedure		
			INLINE	Correction copy	Recovery
			① Block new drive (case 5)		
			① Block new drive (case 5)		

[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Copy back is not required]

[Case 19] When a drive exceeds the warning threshold value

Condition item		Condition	Procedure		
			SVP Pre-procedure		Hardware-Procedure
			Threshold value exceeded	Maintenance block	Drive replacement
Threshold value exceeded	Warning	○	1 Automatic saving to the spare drive 	2 Maintenance block 	3 Drive replacement
	Block	—			
Other case (secondary measure)			① Block source drive (Case 20) ② Block destination a) Unused spare present (Case 21) b) Unused spare absent (Case 22)		
			Procedure		
			SVP Post-procedure		
			INLINE	Recovery	
			4 INLINE 	5 Recovery 	

[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Copy back is not required]

[Case 20.2] A drive is blocked. Drive replacement after an automatic correction copy

Condition item		Condition	Procedure		
			SVP Pre-procedure		Hardware-Procedure
			Blockage of a drive	Maintenance block	Drive replacement
Threshold value exceeded	Warning	○	1 Automatic correction copy 	2 Maintenance block 	3 Drive replacement
	Block	—			
Other case (secondary measure)		① Block destination a) Unused spare present (Case 23) b) Unused spare absent (Case 11)			
			Procedure		
			SVP Post-procedure		
			INLINE	Recovery	
			4 INLINE 	5 Recovery 	

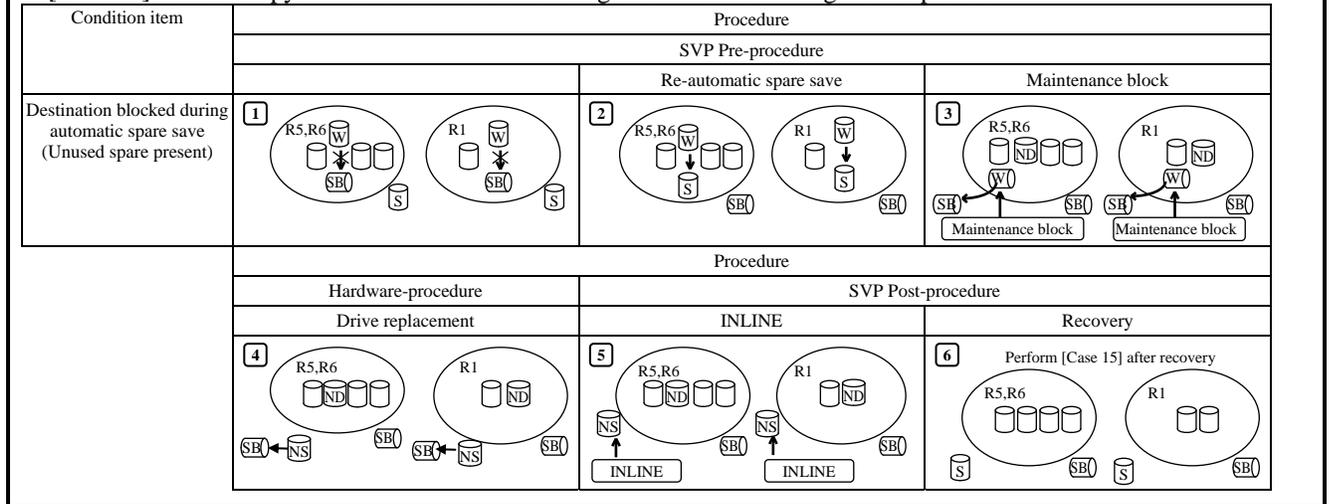
[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error]

[Case 21] When a copy destination is blocked during the automatic saving to the spare disk



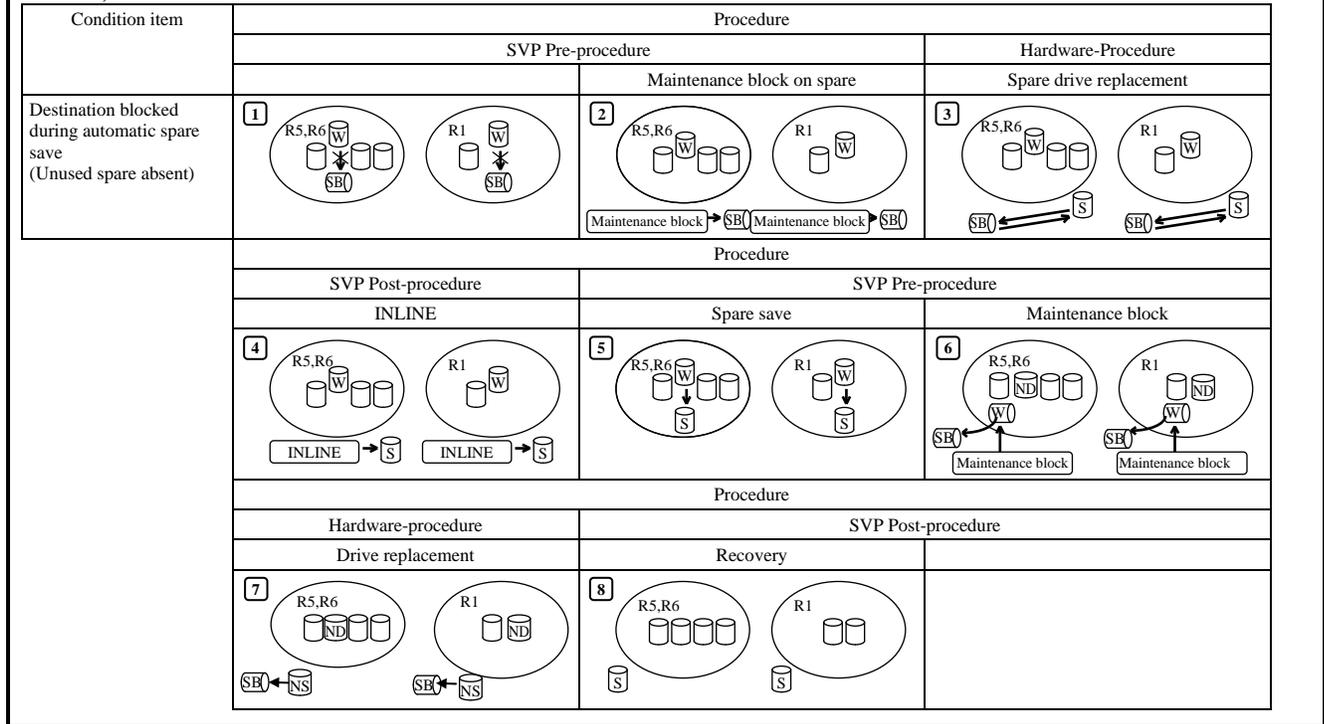
[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error]

[Case 22] When a copy destination is blocked during the automatic saving to the spare disk (without unused spare drive)



[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which a secondary error occurred during error]

[Case 23] When a copy destination is blocked during the automatic correction copy (Unused spare drive exists)

- When Case 20.1 was performed, and the blocked drive has been replaced, go to Case 23.1.
- In other cases, go to Case 23.2.

[Case 23.1] The blocked drive has been replaced in [Case 20.1]

Condition item	Procedure		
	SVP Pre-procedure		
		Starting self-drive correction copy automatically	Maintenance block
Destination blocked during automatic correction copy (Unused spare absent)	<p>1</p> <p>Correction copy fails</p>	<p>2</p>	<p>3</p> <p>Perform [Case 15] after recovery.</p>

[Case 23.2] [Case 20.1] is not performed

Condition item	Procedure		
	SVP Pre-procedure		
		Re-automatic correction copy	Maintenance block
Destination blocked during automatic correction copy (Unused spare present)	<p>1</p>	<p>2</p>	<p>3</p> <p>Maintenance block</p>
	Procedure		
	Hardware-procedure	SVP Post-procedure	
	Drive replacement	INLINE	Recovery
	<p>4</p>	<p>5</p> <p>INLINE</p>	<p>6</p> <p>Perform [Case 15] after recovery</p>

[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

[Case in which copy back is not required]

[Case 24] Preventive drive replacement 1

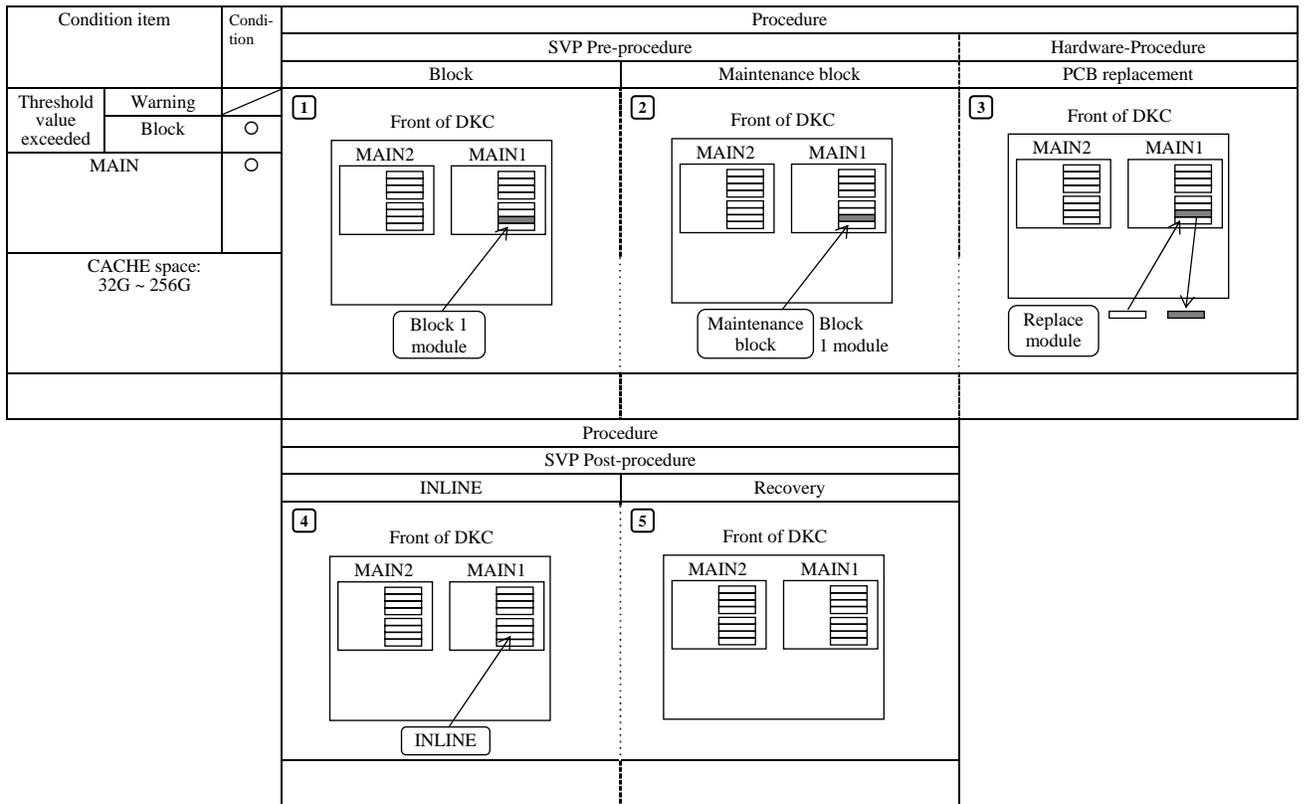
Condition item		Condition	Procedure		
			SVP Pre-procedure		
			Drive replacement	Spare save	Maintenance block
Threshold value exceeded	Warning	—			
	Block	—			
Others (unusual noise, etc.)		○			
Spare drive		○			
Other case (secondary measure)			① Block source drive (Case 20) ② Block destination drive a) Unused spare present (Case 21) b) Unused spare absent (Case 22)		
			Procedure		
			Hardware-procedure	SVP Post-procedure	
			Drive replacement	INLINE	Recovery

[Legends]

			R5 : RAID5
			R1 : RAID1
			R6 : RAID6
			(NOTE)

NOTE: In the RAID1 system, two drives form a mirroring pair and the two mirroring pairs (four drives) compose the RAID group. In the above diagram, only the two mirroring pairs are shown.

1.3 Concept of Cache Maintenance



1.4 How to Interpret the Hot Replace Procedure

[In case of replacement when SIM was reported]

- ① Search a work ID which coincides with the work ID corresponding to SIM ACC (FPC) (refer to FPC list on page [ACC04-10](#)) from Parts Replacement Process Table on page [REP01-250](#).
Search a work ID corresponding to the pertinent condition if “Condition Item” is described in Parts Replacement Process Table.
- ② If the work ID is found,
 - Take actions according to the SVP pre-procedure, hardware procedure, SVP post-procedure number that match the work ID.
 If no work ID is found,
 - Search a work ID corresponding to SIM ACC (FPC, and error details) from Parts Replacement Process Table on page [REP01-250](#).
 - Take actions according to the SVP pre-procedure, hardware procedure, SVP post-procedure number that match the work ID.

NOTE: See page [REP01-230](#) for the procedure for searching a work ID to replace a drive.
When replacing a drive, be sure to see page [REP01-210](#) and [REP01-220](#).

[In case of replacement when SIM was not reported]

- ① Search a work ID corresponding to the part to be replaced from Parts Replacement Process Table on page [REP01-250](#).
- ② Take actions according to the SVP pre-procedure, hardware procedure, SVP post-procedure number that match the work ID.

NOTE: See page [REP01-230](#) for the procedure for searching the work ID to replace a drive.
When replacing a drive, be sure to see page [REP01-210](#) and [REP01-220](#).

-----<Example>-----

Condition to replace

SIM was reported

Work ID corresponding to SIM ACC FPC is RCA1

- * Search an applicable Work ID identified by shaded area in the following sample of Parts Replacement Process Table under the above conditions.

<Cache Memory>

Work ID	Part Name	Procedure			Replacing Time (*1)(*2)
		Pre-procedure	Replacement processing	Post-procedure	
RCA1	MAIN Blade Cache Memory Module	PRE-PROCEDURE A (REP02-01-10)	MAIN Blade REPLACEMENT PROCESSING - RCA1 (REP03-10-10)	POST-PROCEDURE (REP04-01-10)	20 min

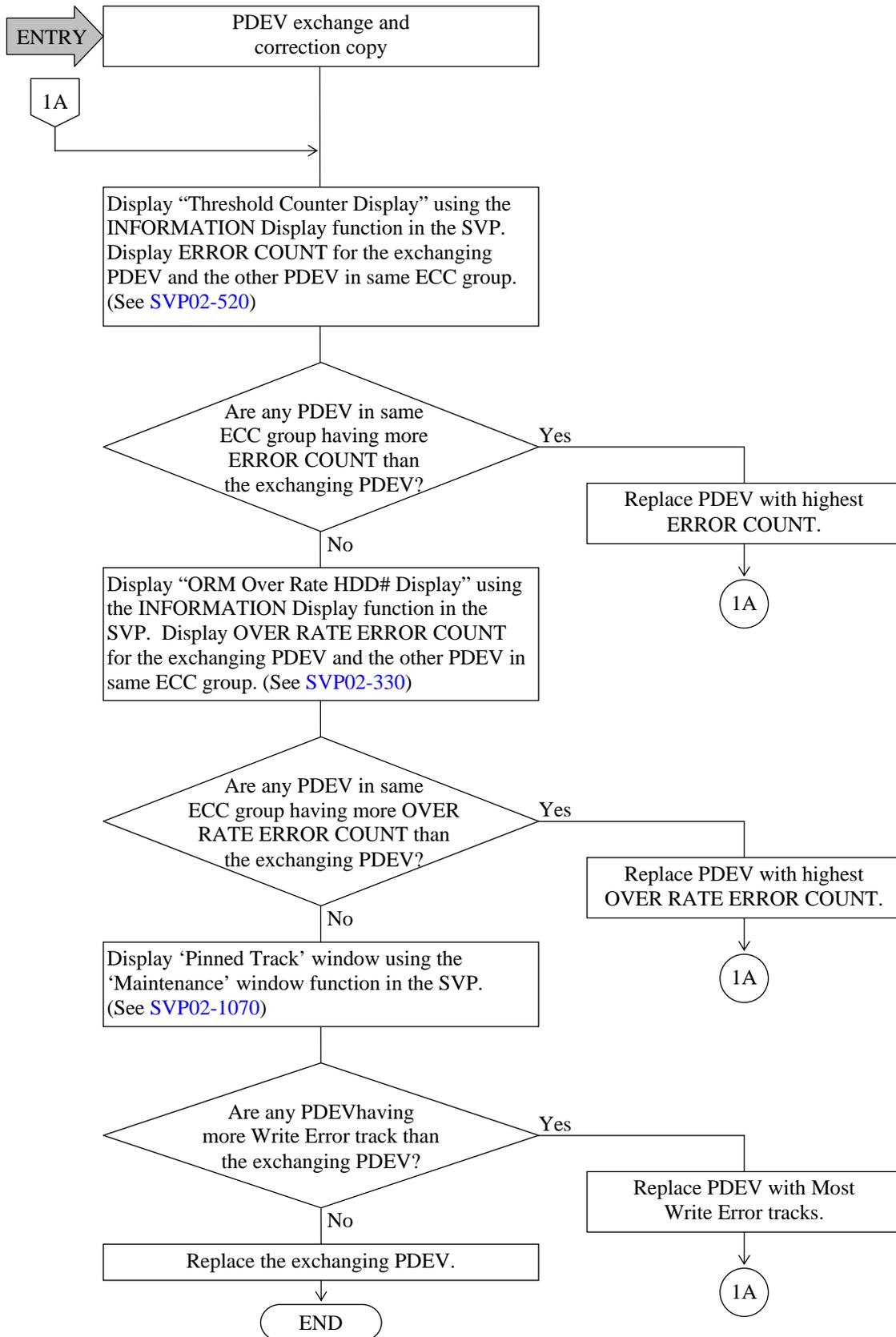
PROCEDURE BEFORE PDEV EXCHANGE AND CORRECTION COPY

NOTICE: Instructions before blocking and exchanging PDEV with a drive failure error is listed below:
When exchanging unblocked PDEV, redundancy in the ECC group is lost. Therefore, during PDEV exchange, the other PDEV in the same ECC group is fenced by a drive failure error, all the LDEV in the ECC group is fenced. Accordingly, to prevent the above problem from occurring, the status of PDEV. When there is a PDEV in the same ECC group having more drive failure errors than the exchanging PDEV exists, replace the PDEV with highest drive failure errors.

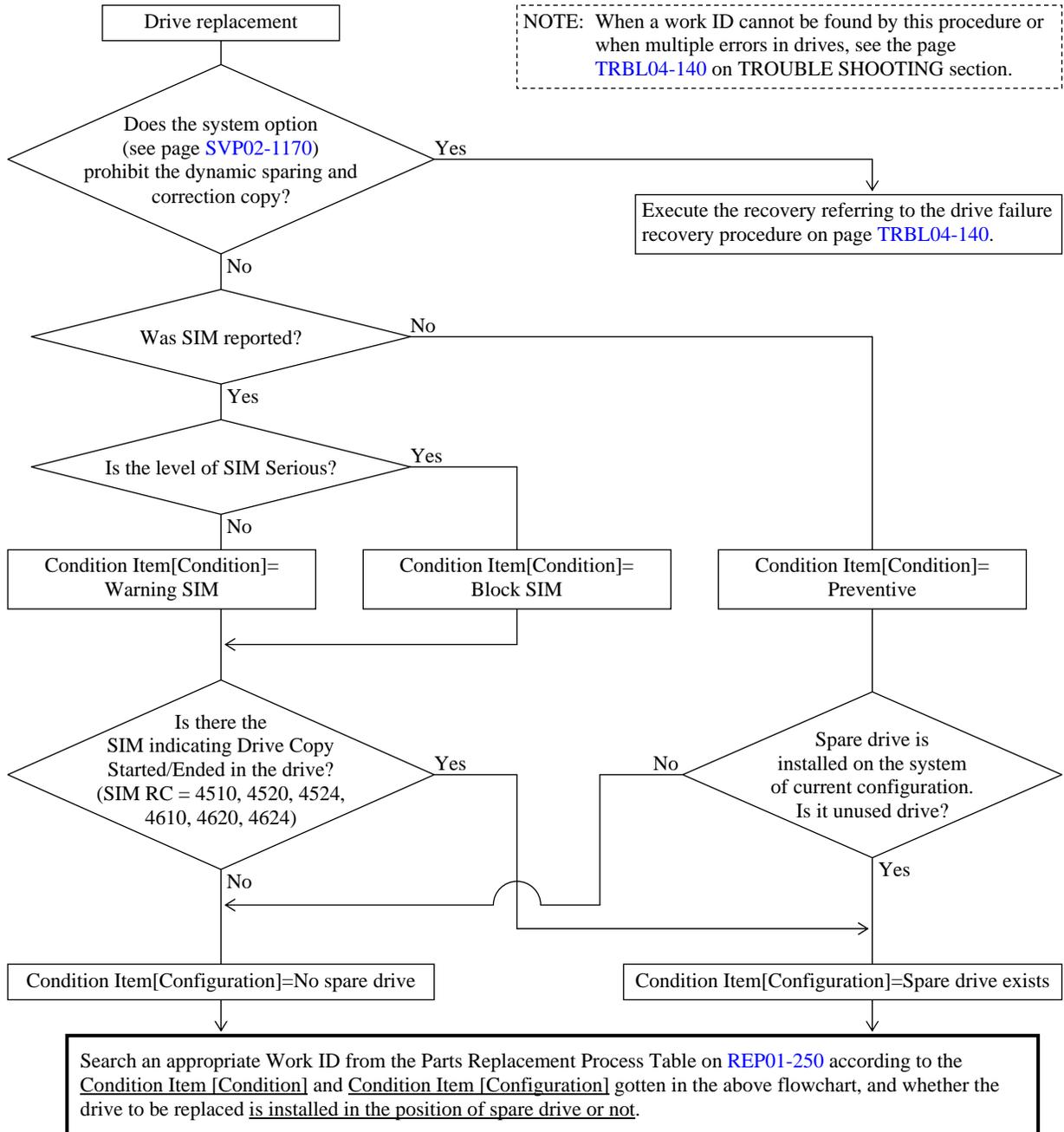
Table 1.4-1 Before PDEV exchange, following items are checked.

#	Items checked	Procedure
1	Error Count	“Threshold Counter Display” (See SVP02-520)
2	ORM Over Rate	“ORM Over Rate HDD# Display” (See SVP02-330)
3	Write Error	“Pinned Track Display” (See SVP02-1070)

PROCEDURE BEFORE PDEV EXCHANGE AND CORRECTION COPY



How to search a Work ID to replace a drive



-----<<Example>>-----

- SIM was reported.
- Level of the SIM is not “Serious”. = Condition Item[Condition] is “Warning SIM”.
- There is the SIM that RC is 4510 in the drive. = Condition Item[Configuration] is “Unused spare drive exists”.
- The drive to be replaced is not a spare drive. = “Data Drive”

NOTE: Under the above conditions, the shaded area is searched from Parts Replacement Process Table. Therefore, in this example Work ID should be RDK1.

<Data Drive, Spare Drive>

Work ID	Parts Name	Condition Item				Procedure			Reference information		
		Condition		Config-uration	Unused Spare drive	Pre-procedure	Replacement processing	Post-procedure	Replacing time	Outline	Case
		Failure Warning SIM	Preventive Block SIM								
				×	×	—	Yes				
RDK1	Data Drive	×	×	—	Yes	PRE-PROCEDURE A (REP02-01-10)	DRIVE REPLACEMENT PROCESSING - RDK1 (REP03-01-10)	POST-PROCEDURE (REP04-01-10)	20 min	Drive replace ~ Copy back	Case 1 Case 2

1.5 Parts Replacement Process Table

NOTE: If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

<Data Drive, Spare Drive>

Work ID	Parts Name	Condition Item				Procedure			Reference information		
		Condition		Config-uration drive	Unused Spare	Pre-procedure	Replacement processing	Post-procedure	Replacing time (*2) (*8) (*9)	Outline	Case (*1)
		Failure Warning SIM	Block SIM								
RDK1	Data Drive (*3)	×	×	—	Yes	PRE-PROCEDURE A (REP02-01-10)	DRIVE REPLACEMENT PROCESSING - RDK1 (REP03-01-10)	POST-PROCEDURE (REP04-01-10)	20 min	Drive replace ~ Copy back	Case 1 Case 2 Case 19 Case 21
RDK2	Data Drive (*3)	—	—	×	Yes	PRE-PROCEDURE A (REP02-01-10)	DRIVE REPLACEMENT PROCESSING - RDK2 (REP03-02-10)	POST-PROCEDURE (REP04-01-10)	—	Copy to Spare drive ~ Drive replace ~ Copy back	Case 17 Case 24
RDK3	Data Drive (*3), (*6)	×	×	×	No	PRE-PROCEDURE A (REP02-01-10)	DRIVE REPLACEMENT PROCESSING - RDK3 (REP03-03-10)	POST-PROCEDURE (REP04-01-10)	20 min	Drive replace ~ Correction copy	Case 3 Case 4 Case 18
RDK4 (*4), (*5)	Data Drive (*3)	(*4)				PRE-PROCEDURE A (REP02-01-10)	DRIVE REPLACEMENT PROCESSING - RDK4 (REP03-04-10)	POST-PROCEDURE (REP04-01-10)	—	LDEV formatting after replacing all the HDDs blocked in a parity group (*5)	Case 16
RDK5	Spare Drive (*3)	—				PRE-PROCEDURE A (REP02-01-10)	DRIVE REPLACEMENT PROCESSING - RDK5 (REP03-05-10)	POST-PROCEDURE (REP04-01-10)	20 min	Spare drive replace	Case 15

- *1: Refer to [REP01-20](#)
- *2: This time does not include copy back time of data in HDD. Refer to (*8) for the HDD copy time.
- *3: Parts Name indicates attribute of a drive.
Data Drive: The drive is installed in the position for a drive except spare drive (Data Drive).
Spare Drive: The drive is installed in the position for a spare drive.
- *4: RDK4 is a Work ID for a work which is applicable to a case that two or more drives in a same parity group are blocked. As to RAID 6, when three or more drives are blocked. When the procedures instructed by RDK7 are executed, data will be lost. Ask the technical support division about the appropriateness of the operation. When you want to restore LDEV status for the purpose of data backup, please go to [TRBL04-350](#).
- *5: Confirm the parity group and the LDEV No. corresponding to the HDD through the SVP STATUS. Refer to “3.4.5 DB information view” ([SVP03-270](#)) for the procedure for referring to SVP STATUS.
- *6: See “PROCEDURE BEFORE PDEV EXCHANGE AND CORRECTION COPY” ([REP01-210](#)).
- *7: In case of RAID6, when two HDDs were blocked in the parity group, you can start the replacement from either of two HDDs.

NOTE: If a Work ID cannot be found or if multiple drive error is occurring, see page [TRBL04-140](#) on TROUBLE SHOOTING SECTION.

*8: HDD copy time

No I/O, OPEN-V : Copy Mode = Interleave Medium

HDD type	Drive copy	Correction copy
K300 (15krpm)	1h00m	←
J900 (10krpm)	3h15m	←
J600 (10krpm)	2h10m	←
H4R0 (7.2kprpm)	13h50m	←
H3R0 (7.2kprpm)	13h30m	←
M800 (SSD)	2h40m	←
M400 (SSD)	1h20m	←
M200 (SSD)	40m	←
P1R6 (FMD)	5h40m	←
P3R2 (FMD)	11h20m	←

- In the case of RAID1 (2D+2D), the copy time of the primary HDD and that of the secondary HDD are the same.
- The copy time of RAID1 (4D+4D) is the same as RAID1 (2D+2D).
- When CVS is used, the copy time is proportional to the amount of LDEV assigned in the parity group.
(Eg: If the amount of LDEV assigned is 50%, the copy time is half the above-mentioned values.)
- When the parity group is used for HTI/HDP/HDT-POOL, depending on the POOL used amount, the copy time becomes shorter than the above-mentioned values.
- When the copy is executed while executing the Quick Format, the copy might be completed earlier than the above-mentioned values because the area under the format is not copied.
- The copy time is not dependent on RAID levels.

- *9: The drive copy to the spare drive of the RAID1 is copied from the drive (normal drive) of the pair of which the failure occurred.
(Because there is a case where a failure occurs in the copy source drive and the copy time is delayed in the usual form that performs copying from the drive of which the failure occurred.)
However, the copy back (copy from the spare drive to the data drive) is copied from the spare drive as usual.
- Time changes by the Device constitution and the Internal re-try processing (Head positioning, Handling of re-covered process).
Please make a range to 1.5 times of above time an aim.

Blank Sheet

<MAIN Blade>

Work ID	Part Name	Procedure			Replacing Time (*1)(*2)
		Pre-procedure	Replacement processing	Post-procedure	
RCA1	MAIN Blade Cache Memory Module	PRE-PROCEDURE A (REP02-01-10)	MAIN Blade REPLACEMENT PROCESSING - RCA1 (REP03-10-10)	POST-PROCEDURE (REP04-01-10)	20 min
RSS1	CFM	PRE-PROCEDURE A (REP02-01-10)	CFM REPLACEMENT PROCESSING - RSS1 (REP03-25-10)	POST-PROCEDURE (REP04-01-10)	20 min

*1: The destaging operation takes 30 minutes to 2 hours (SVP time out).

*2: The time for the dump is not included.

NOTE: When a MAIN Blade is replaced for preventive reasons, one side of cache is blocked.
As a result, the storage system performance may degrade.

<MPB, CHB, DKB>

Work ID	Part Name	Procedure			Replacing Time (*2)
		Pre-procedure	Replacement processing	Post-procedure	
RMP1	MPB	PRE-PROCEDURE A (REP02-01-10)	MPB REPLACEMENT PROCESSING - RMP1 (REP03-11-10)	POST-PROCEDURE (REP04-01-10)	20 min
RCH1	FC CHB	PRE-PROCEDURE A (REP02-01-10)	Fibre CHB REPLACEMENT PROCESSING - RCH1 (REP03-12-10)	POST-PROCEDURE (REP04-01-10)	20 min
RDA1	DKB	PRE-PROCEDURE A (REP02-01-10)	DKB REPLACEMENT PROCESSING - RDA1 (REP03-13-10)	POST-PROCEDURE (REP04-01-10)	20 min

*2: The time for the dump is not included.

NOTE: Replacing a MPB may affect I/O when there is much write pending data in cache. We recommend to replace a MPB when cache write pending rates of all CLPRs in each MPU is less than 40%.

If a failure occurs in replacing a CHB or a DKB, see “4.3 Error Recovery Procedure during CHB/DKB replacement” ([TRBL04-70](#)).

<Other Parts of DKC>

Work ID	Part Name	Procedure			Replacing Time
		Pre-procedure	Replacement processing	Post-procedure	
RTC3	FAN(MAIN)	PRE-PROCEDURE A (REP02-01-10)	FAN(MAIN) REPLACEMENT PROCESSING - RTC3 (REP03-14-10)	POST-PROCEDURE (REP04-01-10)	8 min
RTC4	FAN(MPB)	PRE-PROCEDURE A (REP02-01-10)	FAN(MPB) REPLACEMENT PROCESSING - RTC4 (REP03-15-10)	POST-PROCEDURE (REP04-01-10)	8 min
RTC5	SVP Unit	PRE-PROCEDURE A (REP02-01-10) (*1)	SVP REPLACEMENT PROCESSING - RTC5 (REP03-16-10)	POST-PROCEDURE (REP04-01-10)	40 min
RTC7	Battery	PRE-PROCEDURE A (REP02-01-10)	Battery REPLACEMENT PROCESSING - RTC7 (REP03-17-10)	POST-PROCEDURE (REP04-01-10)	10 min
RTC8	DKCPS	PRE-PROCEDURE A (REP02-01-10)	DKCPS REPLACEMENT PROCESSING - RTC8 (REP03-18-10)	POST-PROCEDURE (REP04-01-10)	11 min
RTC9	Fibre SFP Transceiver	PRE-PROCEDURE A (REP02-01-10)	SFP REPLACEMENT PROCESSING - RTC9 (REP03-19-10)	POST-PROCEDURE (REP04-01-10)	5 min
—	Controller Chassis (CBX)	—	Controller Chassis (CBX)REPLACEMENT PROCESSING (REP03-40-10)	—	60 min (*2) (*3)
—	CBX Bezel	—	Bezel REPLACEMENT PROCESSING (REP03-43-10)	—	5 min

*1: When SVP is not able to operate, start from “2. HARDWARE REPLACEMENT PROCESSING” in “SVP REPLACEMENT PROCESSING - RTC5”.

*2: The time for replacing hardware parts. The time for powering on/off is not included.

*3: The replacement work must be done by two or more personnel.

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<Other Parts of DB>

Work ID	Part Name	Procedure			Replacing Time
		Pre-procedure	Replacement processing	Post-procedure	
RUS1	ENC	PRE-PROCEDURE A (REP02-01-10)	2.5 inch ENC REPLACEMENT PROCESSING - RUS1 (REP03-20-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUL1	ENC	PRE-PROCEDURE A (REP02-01-10)	3.5 inch ENC REPLACEMENT PROCESSING - RUL1 (REP03-21-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUX1	ENC	PRE-PROCEDURE A (REP02-01-10)	DENSE ENC REPLACEMENT PROCESSING - RUX1 (REP03-26-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUF1	ENC	PRE-PROCEDURE A (REP02-01-10)	DBF ENC REPLACEMENT PROCESSING - RUF1 (REP03-28-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUS2	DBPS	PRE-PROCEDURE A (REP02-01-10)	2.5 inch DBPS REPLACEMENT PROCESSING - RUS2 (REP03-22-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUL2	DBPS	PRE-PROCEDURE A (REP02-01-10)	3.5 inch DBPS REPLACEMENT PROCESSING - RUL2 (REP03-23-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUX2	DBPS	PRE-PROCEDURE A (REP02-01-10)	DENSE DBPS REPLACEMENT PROCESSING - RUX2 (REP03-27-10)	POST-PROCEDURE (REP04-01-10)	10 min
RUF2	DBPS	PRE-PROCEDURE A (REP02-01-10)	DBF DBPS REPLACEMENT PROCESSING - RUF2 (REP03-29-10)	POST-PROCEDURE (REP04-01-10)	10 min

(To be continued)

(Continued from the preceding page)

Work ID	Part Name	Procedure			Replacing Time
		Pre-procedure	Replacement processing	Post-procedure	
—	Drive Box (DBL/DBS)	—	Drive Box (DBL/DBS) REPLACEMENT PROCESSING (REP03-41-10)	—	40 min (*1) (*2)
—	Drive Box (DBX)	—	Drive Box (DBX) REPLACEMENT PROCESSING (REP03-42-10)	—	120 min (*1) (*2)
—	Drive Box (DBF)	—	Drive Box (DBF) REPLACEMENT PROCESSING (REP03-44-10)	—	40 min (*1) (*2)
—	DBL/DBS Bezel	—	Bezel REPLACEMENT PROCESSING (REP03-43-10)	—	5 min
—	DBX Bezel	—	Bezel REPLACEMENT PROCESSING (REP03-43-10)	—	3 min
—	DBF Bezel	—	Bezel REPLACEMENT PROCESSING (REP03-43-10)	—	3 min

*1: The time for replacing hardware parts. The time for powering on/off is not included.

*2: The replacement work must be done by two or more personnel.

1.6 Availability of the online maintenance when TrueCopy/HAM is used

Component	Maintenance Type	Condition	TC path established		COPY status		PAIR status	
			MCU	RCU	MCU	RCU	MCU	RCU
Logical Device	Blockade	—	×	×	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Recovery	—	×	×	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Format	—	×	×	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Verify	—	×	×	×	×	×	×
HDD canister	Replace	—	×	×	×	×	×	×
MAIN Blade	Replace	With Alternate path	×	×	SVP2059W	SVP2038W SVP2079W	×	SVP2038W
		Without Alternate path	×	×	SVP2059W SVP2073W	SVP2038W SVP2079W	SVP2074W	SVP2038W
CHB	Replace	With Alternate path	×	×	×	SVP2038W	×	SVP2038W
		Without Alternate path	×	×	SVP2073W	SVP2038W	SVP2074W	SVP2038W
DKB	Replace	—	×	×	×	×	×	×
MPB	Replace	—	×	×	×	×	×	×

Component	Maintenance Type	Condition	PSUS/PSUE status	
			MCU	RCU
Logical Device	Blockade	—	SVP2031W	SVP2034W
	Recovery	—	SVP2031W	SVP2034W
	Format	—	SVP2031W	SVP2034W
	Verify	—	×	×
HDD canister	Replace	—	×	×
MAIN Blade	Replace	With Alternate path	×	SVP2038W
		Without Alternate path	×	SVP2038W
CHB	Replace	With Alternate path	×	SVP2038W
		Without Alternate path	×	SVP2038W
DKB	Replace	—	×	×
MPB	Replace	—	×	×

×: Maintenance is available.

SVPXXXXW : Maintenance is not available based on the specification.

Refer to SVP MESSAGE SECTION.

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The pair can be suspended if paircreate (pairresync) command is issued during the HDD Canister or the Cache PCB replacement. Please ask your customer before the online maintenance operation.

1.7 Availability of the online maintenance when ShadowImage is used

Component	Maintenance Type	Condition	Reserve-Volume	Pending/Resync/ SP-PEND	Duplex	Split	Suspend
				S-VOL/ P-VOL	S-VOL/ P-VOL	S-VOL/ P-VOL	S-VOL/ P-VOL
Logical Device	Blockade	—	SVP2484W	SVP2483W	SVP2483W	SVP2483W	×
	Restore	—	×	SVP2483W	SVP2483W	SVP2483W	×
	Format	—	×	SVP2483W	SVP2483W	SVP2483W	×
	Verify	—	×	×	×	×	×
HDD canister	Replace	—	×	×	×	×	×
	Dynamic Sparing	—	×	×	×	×	×
	Correction Copy	—	×	×	×	×	×
MAIN Blade	Replace	—	×	×	×	×	×
CHB	Replace	—	×	×	×	×	×
DKB	Replace	—	×	×	×	×	×
MPB	Replace	—	×	×	×	×	×

1.8 Availability of the online maintenance when UR is used

JNL-GROUP

Component	Maintenance Type	Condition	Path established		Initial		Active	
			MCU	RCU	MCU	RCU	MCU	RCU
Logical Device	Blockade	—	×	×	SVP3825W	SVP3825W	SVP3825W	SVP3825W
	Recovery	—	×	×	SVP3825W	SVP3825W	SVP3825W	SVP3825W
	Format	—	×	×	SVP3825W	SVP3825W	SVP3825W	SVP3825W
	Verify	—	×	×	×	×	×	×
HDD canister	Replace	—	×	×	×	×	×	×
MAIN Blade	Replace	With Alternate path	×	×	×	×	×	×
		Without Alternate path	×	×	×	×	×	×
CHB	Replace	With Alternate path	×	×	×	×	×	×
		Without Alternate path	×	×	×	×	×	×
DKB	Replace	—	×	×	×	×	×	×
MPB	Replace	—	×	×	×	×	×	×

Component	Maintenance Type	Condition	Halting		Stop		Stopping	
			MCU	RCU	MCU	RCU	MCU	RCU
Logical Device	Blockade	—	SVP3825W	SVP3825W	SVP3825W	SVP3825W	SVP3825W	SVP3825W
	Recovery	—	SVP3825W	SVP3825W	SVP3825W	SVP3825W	SVP3825W	SVP3825W
	Format	—	SVP3825W	SVP3825W	SVP3825W	SVP3825W	SVP3825W	SVP3825W
	Verify	—	×	×	×	×	×	×
HDD canister	Replace	—	×	×	×	×	×	×
MAIN Blade	Replace	With Alternate path	×	×	×	×	×	×
		Without Alternate path	×	×	×	×	×	×
CHB	Replace	With Alternate path	×	×	×	×	×	×
		Without Alternate path	×	×	×	×	×	×
DKB	Replace	—	×	×	×	×	×	×
MPB	Replace	—	×	×	×	×	×	×

DATA-VOL

Component	Maintenance Type	Condition	Path established		During initial copy		After completing initial copy	
			MCU	RCU	MCU	RCU	MCU	RCU
Logical Device	Blockade	—	×	×	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Recovery	—	×	×	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Format	—	×	×	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Verify	—	×	×	×	×	×	×
HDD canister	Replace	—	×	×	×	×	×	×
MAIN Blade	Replace	With Alternate path	×	×	SVP2059W SVP3848W	SVP2079W	SVP3848W	×
		Without Alternate path	×	×	SVP2059W SVP3848W	SVP2073W SVP2079W	SVP3848W	SVP2074W
CHB	Replace	With Alternate path	×	×	SVP3848W (*1)	×	SVP3848W (*1)	×
		Without Alternate path	×	×	SVP3848W (*1)	SVP2073W (*2)	SVP3848W (*1)	SVP2074W (*2)
DKB	Replace	—	×	×	×	×	×	×
MPB	Replace	—	×	×	×	×	×	×

Component	Maintenance Type	Condition	Suspend		Suspending		Deleting	
			MCU	RCU	MCU	RCU	MCU	RCU
Logical Device	Blockade	—	SVP2031W	SVP2034W	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Recovery	—	SVP2031W	SVP2034W	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Format	—	SVP2031W	SVP2034W	SVP2031W	SVP2034W	SVP2031W	SVP2034W
	Verify	—	×	×	×	×	×	×
HDD canister	Replace	—	×	×	×	×	×	×
MAIN Blade	Replace	With Alternate path	×	×	SVP3848W	×	SVP3848W	×
		Without Alternate path	×	×	SVP3848W	SVP2075W	SVP3848W	SVP2075W
CHB	Replace	With Alternate path	×	×	SVP3848W (*1)	×	SVP3848W (*1)	×
		Without Alternate path	×	×	SVP3848W (*1)	SVP2075W (*2)	SVP3848W (*1)	SVP2075W (*2)
DKB	Replace	—	×	×	×	×	×	×
MPB	Replace	—	×	×	×	×	×	×

×: Maintenance is available

SVPXXXXW: Maintenance is not available based on the specification. Refer to SVP MESSAGE SECTION.

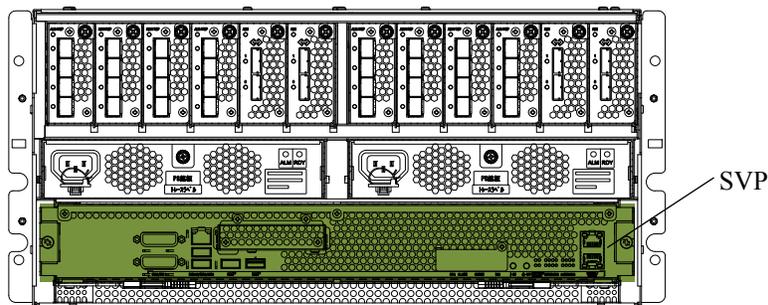
*1: When RCU Target Port is included to the replacing CHB the alert message is outputted. However, even if Initiator Port is included to the replacing CHB the alert message is not outputted.

*2: When Initiator Port is included to the replacing CHB the alert message is outputted. However, even if RCU Target Port is included to the replacing CHB the alert message is not outputted.

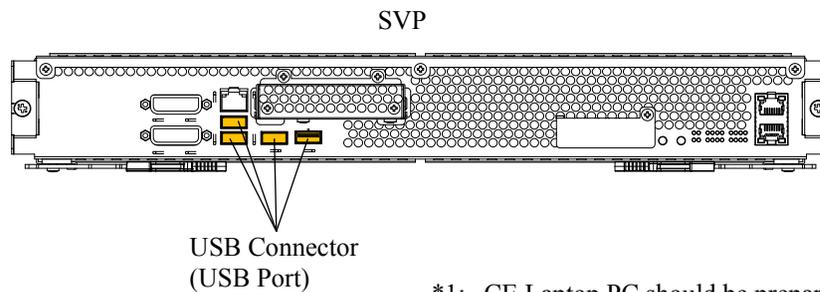
1.9 About the storage media used for installation/maintenance process

The media showed in following table are attached in storage system, in order to advance installation, maintenance, and failure analysis smoothly. Please implement installation or collect information according to the work procedure indicated in each section.

No.	Media	Description	Installation device	Remarks
1	CD-ROM	CD-R for micro-program storage. Used for installation or micro-program download in time of micro FC.	CD-R Drive of CE Laptop PC	Attached to the device
2	USB Memory	USB memory for configuration information backup. Used for configuration information storage in time of device configuration change.	USB Connector of SVP	Attached to the device
3	USB Memory	USB memory for collecting device dump information. Used for collecting dump information in time of failure analysis or operation investigation.	USB Connector of SVP	Attached to the device



Rear View of DKC



*1: CE Laptop PC should be prepared by each maintenance personnel, because it is not attached in the equipment as standard equipment.

Fig. 1.9-1 Information Collection Device for each Media

[PRE-PROCEDURE A]

— OUTLINE —

- ① Display Initial Screen
- ② Change SVP operation mode
- ③ Open Maintenance window
- ④ Confirm the location of DB

1. <Initial screen>

Display the SVP initial screen from SVP SECTION “1. How to Operate the SVP (PC)” (SVP01-10).

For CE Laptop PC, please refer to 3.1.5.3.

- “3.1.5.3 Attachment/Removal Procedure of LAN Cable for CE Laptop PC” (INST03-01-150)

2. <Maintenance Other Components>

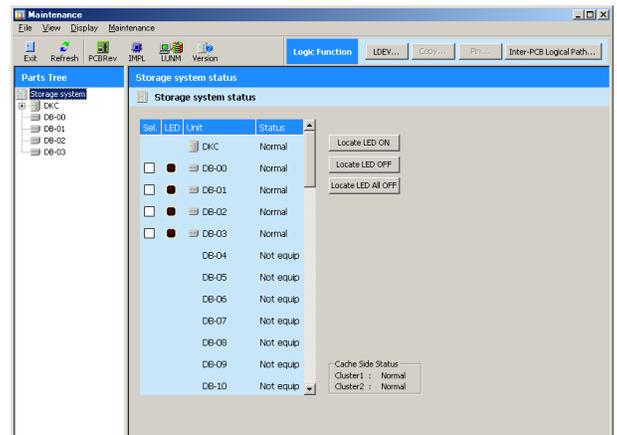
Select the [Maintenance Components]-[Maintenance Other Components] from Action Menu And open the ‘Maintenance Other Components’ window.

3. <Operation mode change>

Change the mode to [Modify Mode].
Select (CL) [Maintenance].

4. <Maintenance window>

The ‘Maintenance’ window is displayed.



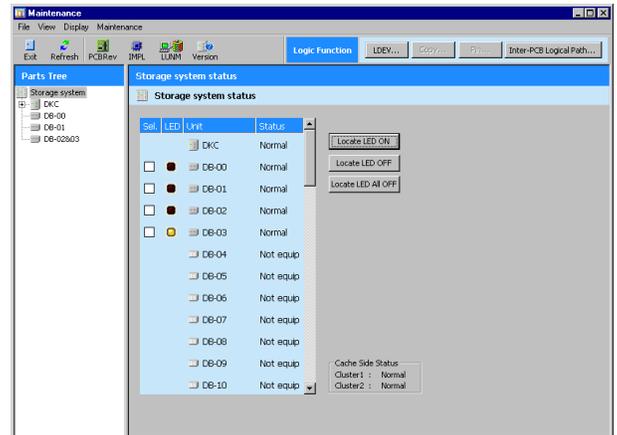
5. <Confirm the location of DB>

When replace the parts mounted in DB, turn on the Locate LED, and confirm the location of DB.

Refer to SVP SECTION (SVP03-120) for the operation to turn on the Locate LED.

Refer to LOCATION SECTION (LOC03-130 through 190) to confirm the location of Locate LED of each parts.

When the Locate LED can't be turned on, refer to LOCATION SECTION (LOC02-30), and confirm the location of DB.



[PRE-PROCEDURE B]

— OUTLINE —

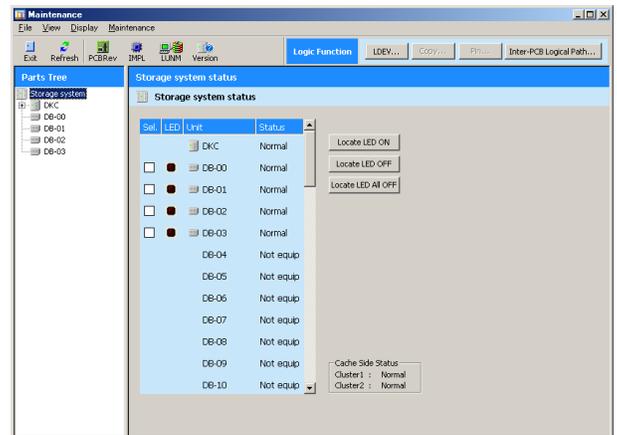
- ① Display Initial Screen
- ② Open Maintenance window

1. <Initial screen>
Display the SVP initial screen from SVP SECTION “1. How to Operate the SVP (PC)” (SVP01-10).

2. <Maintenance Components>
Select the [Maintenance]-[Maintenance Components (General)] from Action Menu.
And open the ‘SVP’ window.

3. <Operation mode change>
Change the mode to [Modify Mode].
Select (CL) [Maintenance].

4. <Maintenance window>
The ‘Maintenance’ window is displayed.



[DRIVE REPLACEMENT PROCESSING - RDK1]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select drive (status check)
 - ② Check progress of copy processing
 - ③ Specify Replacement
 - ④ Place HDD into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on P-DEV
 - ② Specify recovery
 - ③ Copy back

NOTICE: If No Charging of FMD (SIM = 50EXYY) occurs in replacement of a FMD, the FMD ACTIVE LED will change to low-speed blinking. In this case, it takes 90 minutes at most for the FMD ACTIVE LED to go out and for the battery in the FMD to be fully charged.

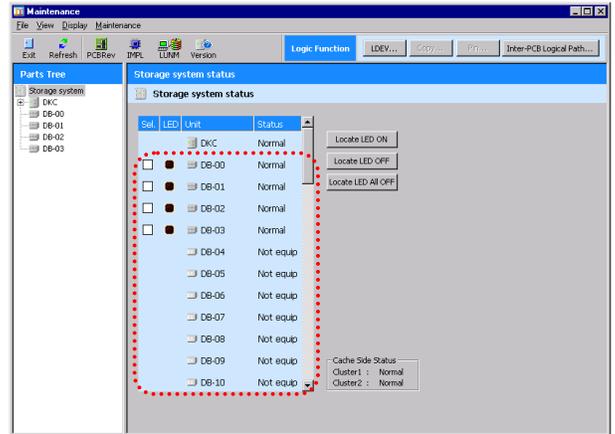
NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

1. PRE-PROCESSING of SVP

1-1. <Maintenance window>

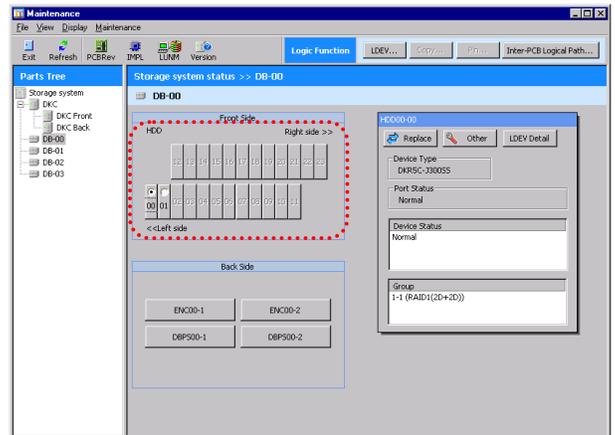
Open the 'Maintenance' window according to PRE PROCEDURE A (REP02-01-10).

Select (CL) the DB information [DB-*nn*] of the DB which installs the HDD to be replaced in the 'Maintenance' window.



1-2. <Select HDD>

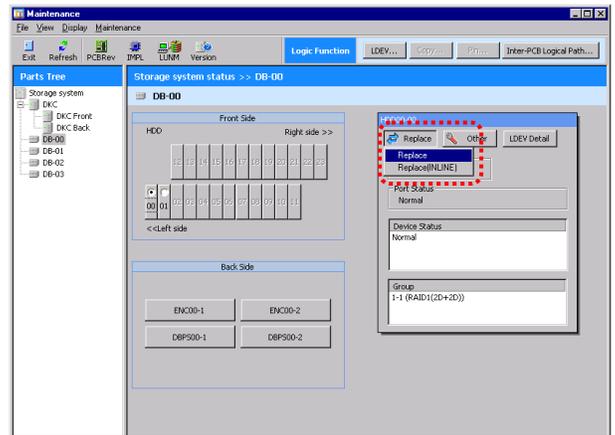
Check and select (CL) [*nn*] to be replaced.



1-3. <Specify replacement of HDD>

Make sure that the “Device Status” is [Failed] or [Warning] or [Reserved].

Select (CL) [Replace]-[Replace].



1-4. <Checking the P-DEV status>

CAUTION

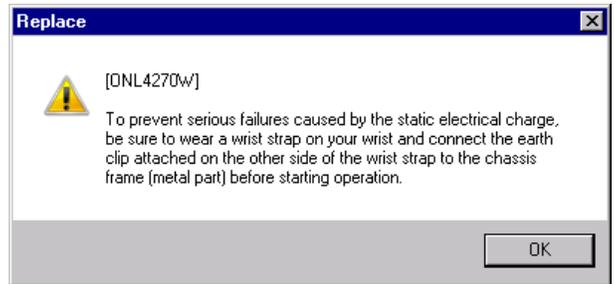
When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

“Checking...” is displayed.

1-5. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



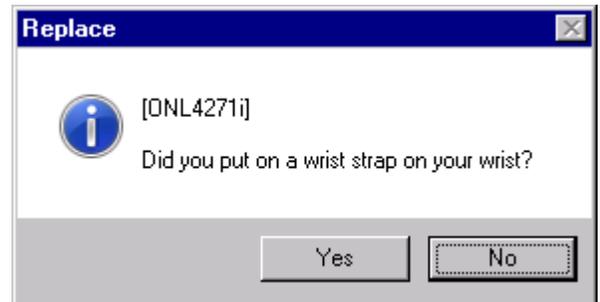
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

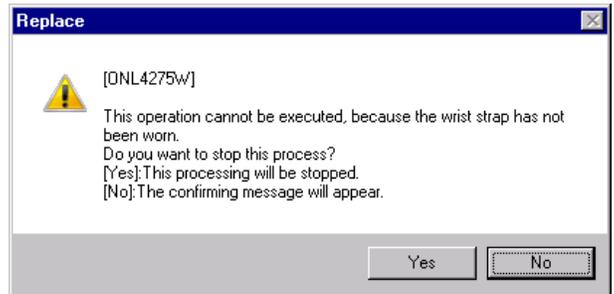


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

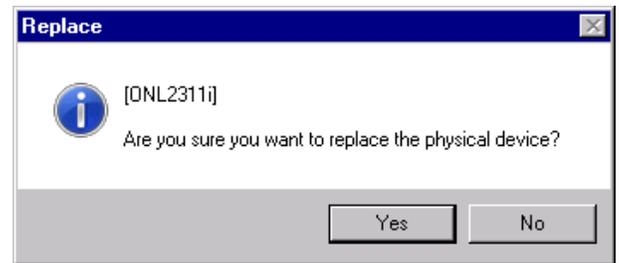


When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-5.

1-6. <P-DEV blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the physical device?”.

**1-7. <Blocking the Physical device>**

“Blocking...” is displayed.

1-8. <Spin down the Physical device>

“Spinning down...” is displayed.

1-9. <Check shut down LED>

CAUTION

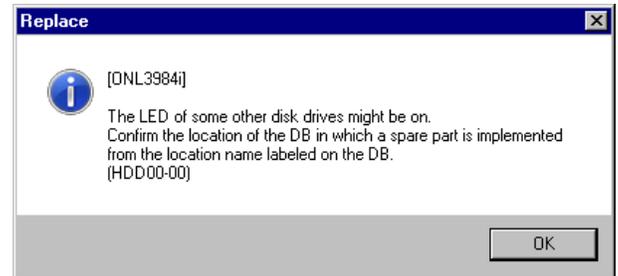
If a wrong HDD is removed, a data loss or a system down may occur. Therefore, reconfirm the location of the HDD to be replaced.

Check the shut down LED and the Locate LED on the HDD to be replaced.

If LED is off, reconfirm the location of the HDD to be replaced with LOCATION SECTION before replacing the hardware.

(1) Confirm the label on DB.

To confirm the label, the right messages are displayed.



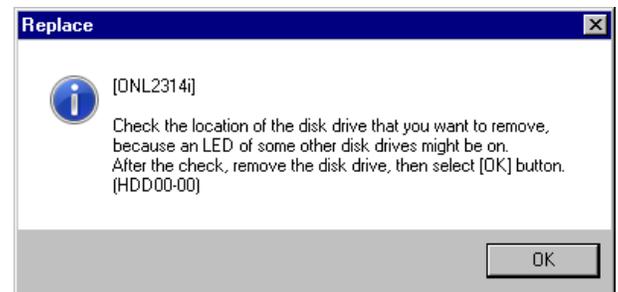
(2) The name in parentheses shows the position where HDD show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-10.

When [No] is selected (CL), returned to Step 1-9 (2).



1-10. <Confirm Removal>

Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-3)



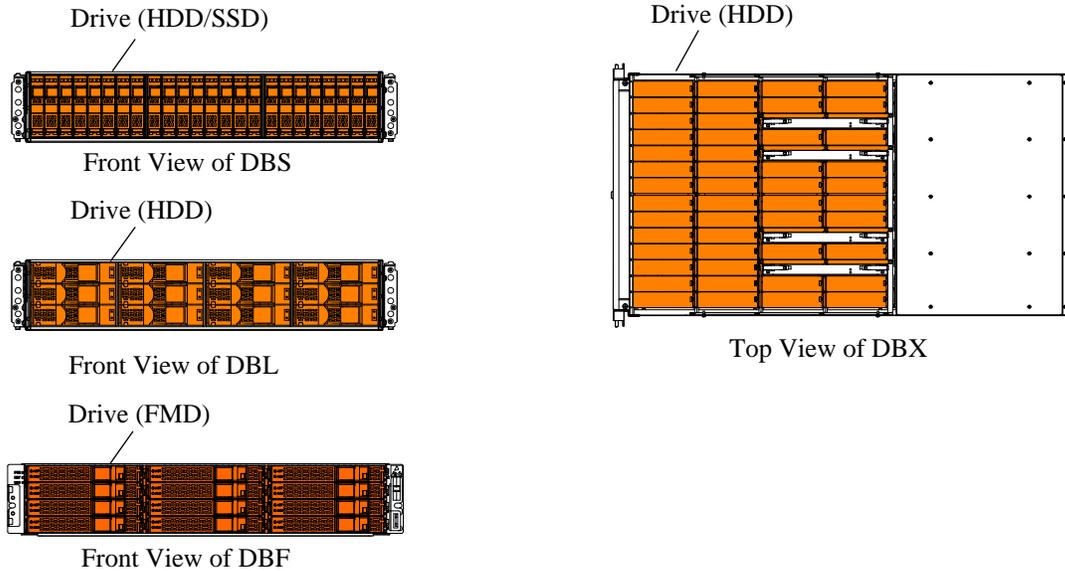
1-11. <Replace HDD>

Replace HDD.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location		Function Name of Component	Part Name	HDA Label
DBS	1	Disk Drive (HDD)	300GB/15k/6Gbps	S5C-K300SS
			600GB/10k/6Gbps	S5D-J600SS
				S5E-J600SS
				R5C-J600SS
				R5D-J600SS
			900GB/10k/6Gbps	S5D-J900SS
	S5E-J900SS			
	2	Flash Drive (SSD)	200GB/6Gbps/MLC	R5B-M200SS
				B5A-M200SS
			400GB/6Gbps/MLC	R5B-M400SS
B5A-M400SS				
800GB/6Gbps/MLC	B5A-M800SS			
	1.2TB/10k/6Gbps	R5E-J1R2SS		
DBL	3	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBX	4	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBF	5	Flash Module Drive (FMD)	1.6TB/6Gbps/MLC	H1A-P1R6SS
			3.2TB/6Gbps/MLC	H1B-P3R2SS



- NOTICE:**
- Replace the drive in the storage system in power on status only. Do not replace the drive in power off status.
 - Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - HDD is a precise component. Be careful in handling HDD to avoid vibration and impact.

2-1	Drive (HDD/SSD/FMD) Replacement Procedure
-----	---

2-1-1. Draw the DBX.

- (1) If the drive to be replaced is installed in the DBX, draw the DBX. (See [INST03-01-60](#))
If the drive to be replaced is installed in the DBL/DBS/DBF, go to the procedure 2-1-2.

2-1-2. Check the Shut Down LED.

- a. Check that the Shut Down LED on drive is turned on.

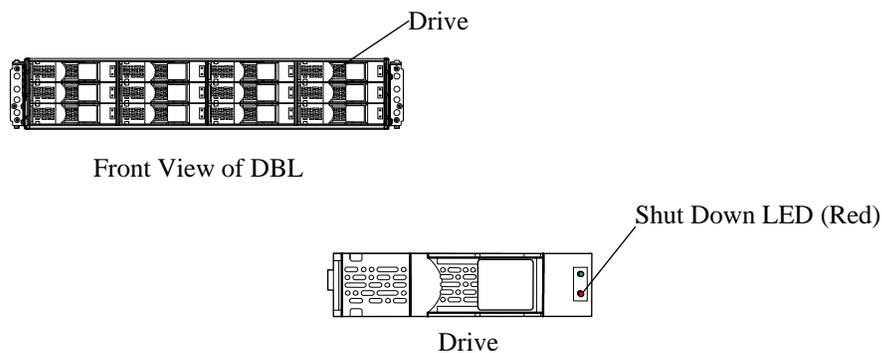


Fig. 3.1.2-1 Checking of Shut Down LED (for DBL)

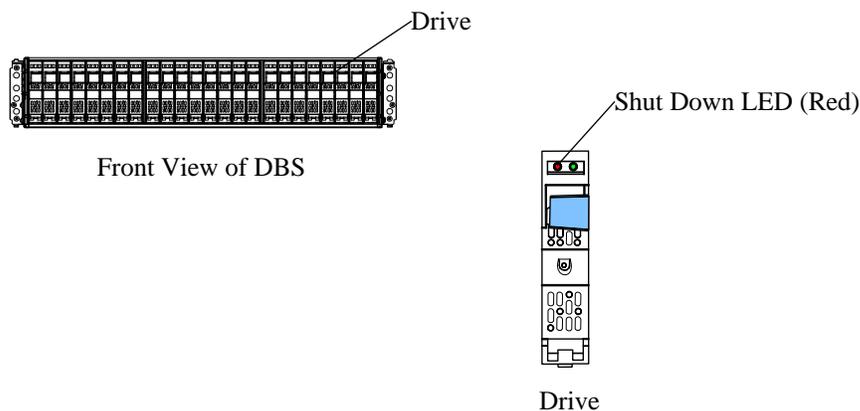


Fig. 3.1.2-2 Checking of Shut Down LED (for DBS)

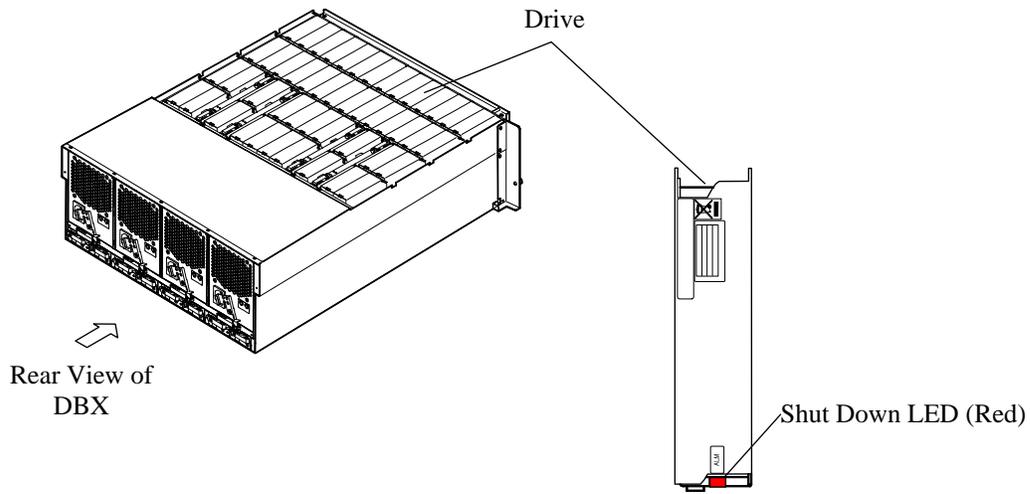


Fig. 3.1.2-3 Checking of Shut Down LED (for DBX)

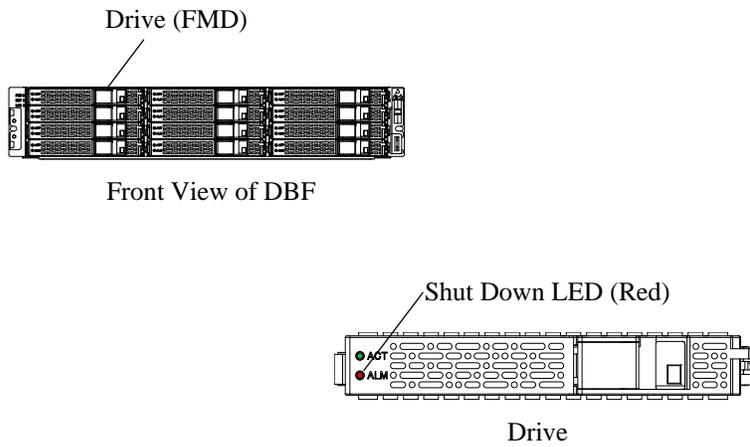


Fig. 3.1.2-3A Checking of Shut Down LED (for DBF)

2-1-3. Remove the drive (HDD/SSD/FMD).

2-1-3.1. Drive for DBL

- Pull the stopper of the drive handle toward you to have the lock off.
- Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

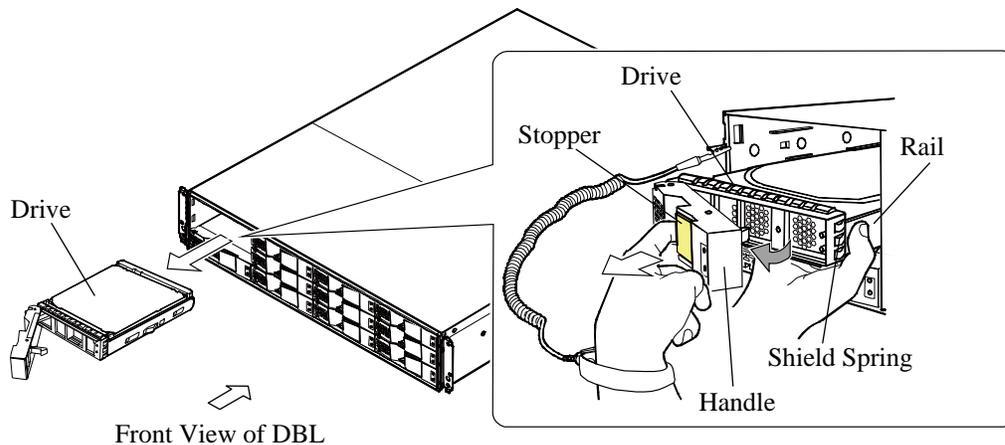


Fig. 3.1.2-4 Removal of Drive (for DBL)

2-1-3.2. Drive for DBS

- Pull up the stopper of the drive handle toward you to release the lock.
- Open the handle toward you, and then pull out and remove the drive to be replaced not to give a shock.

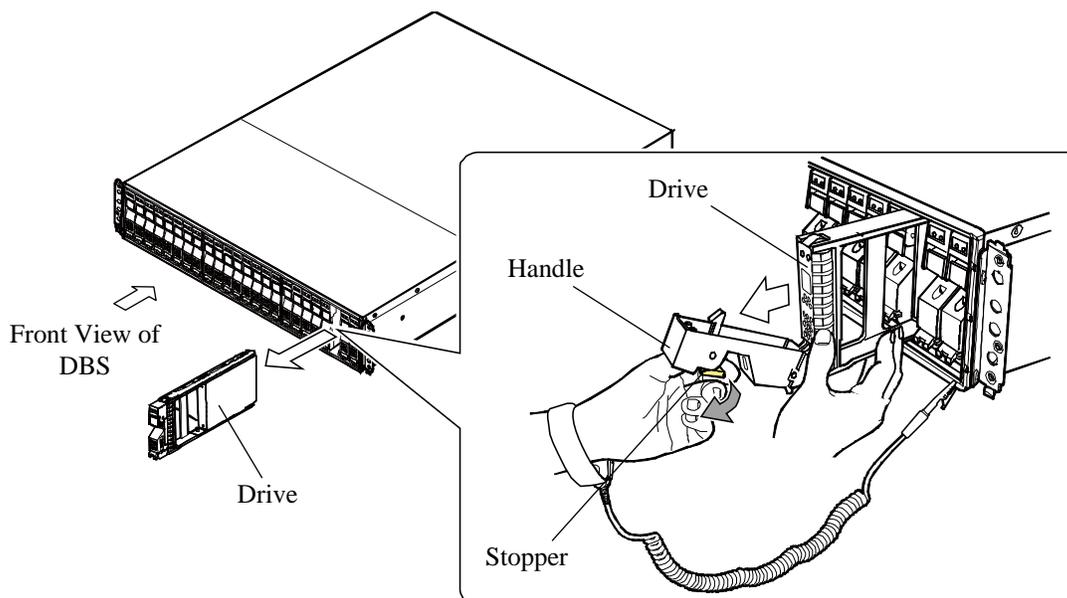


Fig. 3.1.2-5 Removal of Drive (for DBS)

2-1-3.3. Drive for DBX

- a. Slide the latch (blue) on the drive and open the handle.
- b. Pull out and remove the drive to be replaced taking care not to apply a shock to it.

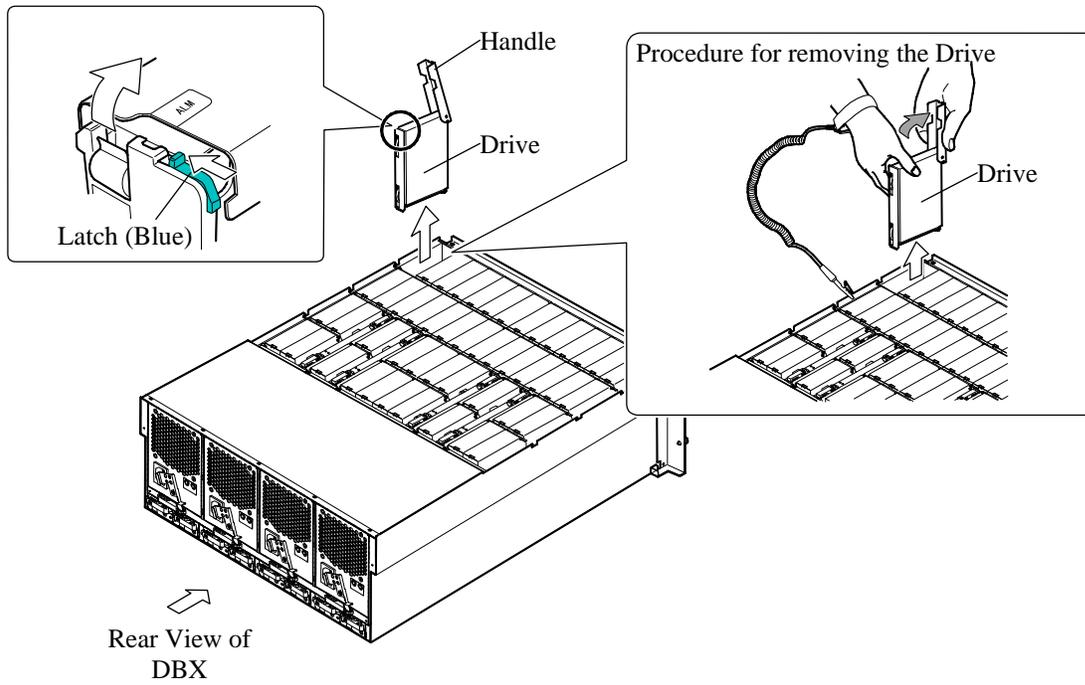


Fig. 3.1.2-6 Removal of Drive (for DBX)

2-1-3.4. Drive for DBF

NOTICE: When the FMD is removed in replacing procedure, the fans of the DBPS equipped in the rear of the DBF rotate at the highest speed. When the spare FMD is installed, the fans of the DBPS rotate at the speed suitable for environmental temperature.

- a. Pull the stopper of the drive handle toward you to have the lock off.
- b. Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

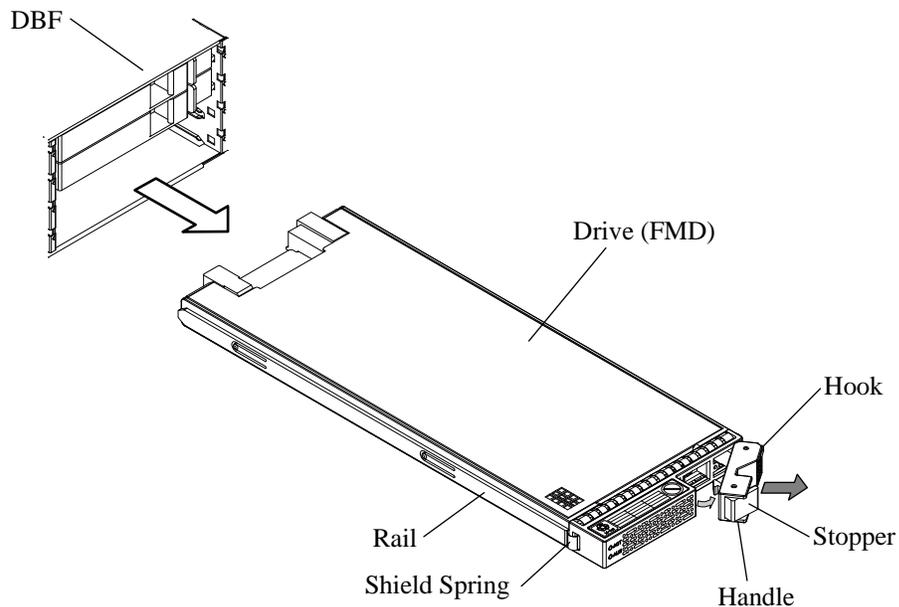
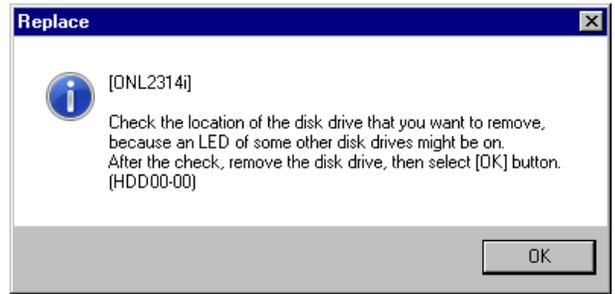


Fig. 3.1.2-6A Removal of Drive (for DBF)

2-1-4. Check and handling of the drive.

(1) <Confirm Removal>

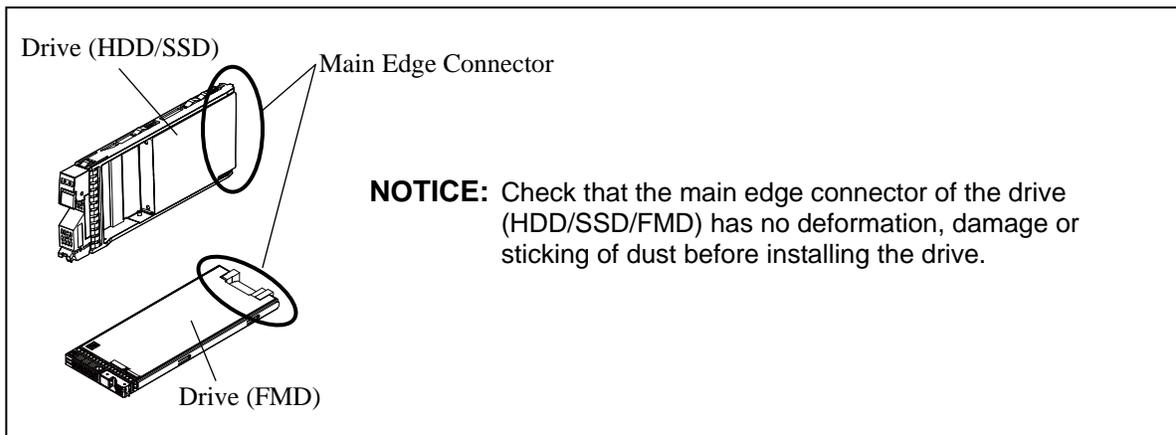
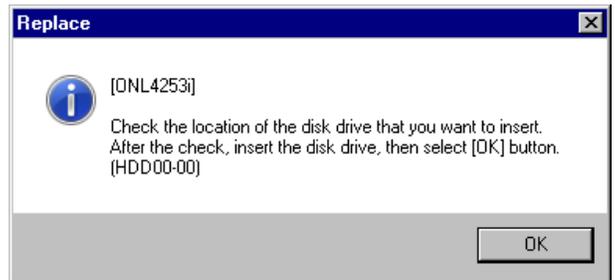
Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-1-3)



(2) <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.

After the unit is installed select (CL) [OK] button. Go to step 2-1-5.



2-1-5. Install the drive.

2-1-5.1. Drive for DBL

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

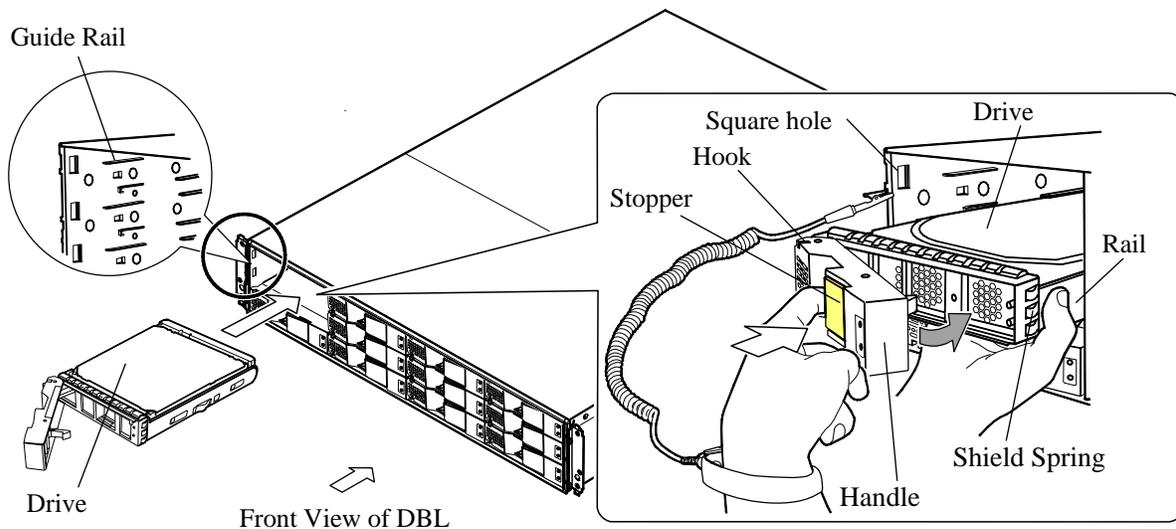


Fig. 3.1.2-7 Installation of Drive (for DBL)

2-1-5.2. Drive for DBS

- Fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the drive array unit.
- Raise the stopper, which has been tilted toward you, and then press the stopper to have the lock on.

If the handle is raised in the state where the hook of the handle cannot enter into each hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

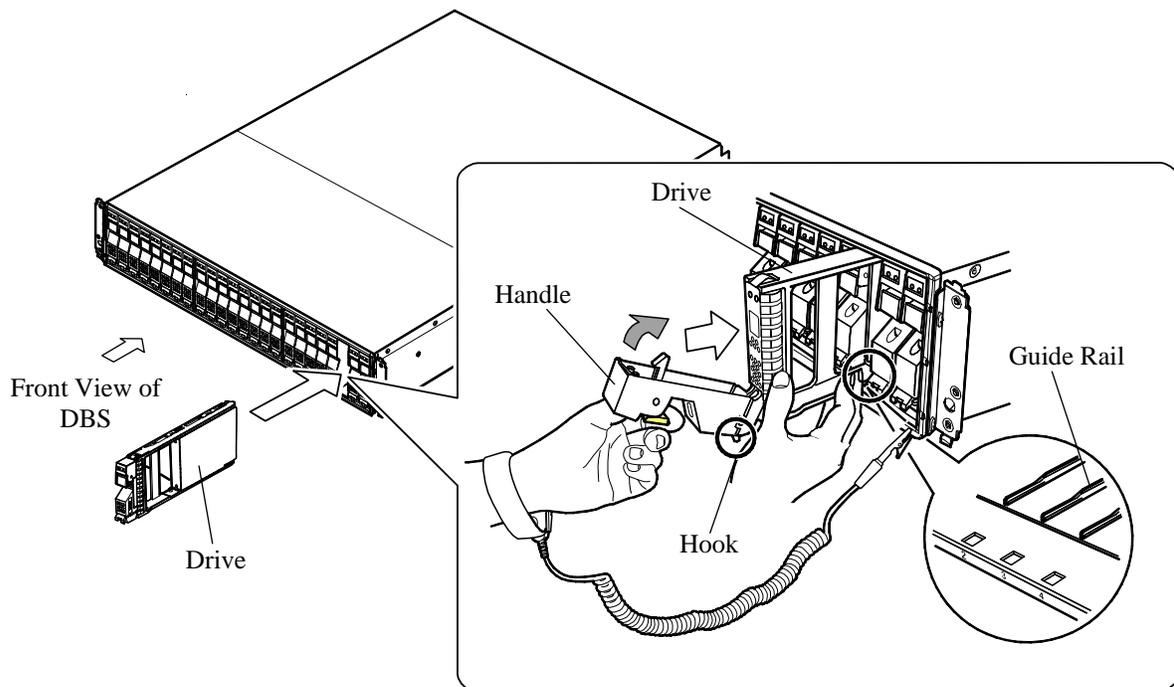


Fig. 3.1.2-8 Installation of Drive (for DBS)

2-1-5.3. Drive for DBX

- a. Open the handle, and insert the drive holding it with both hands.

NOTE: Check that there is no foreign substance near the connector and in the array before inserting the drive.

- b. Close the handle.

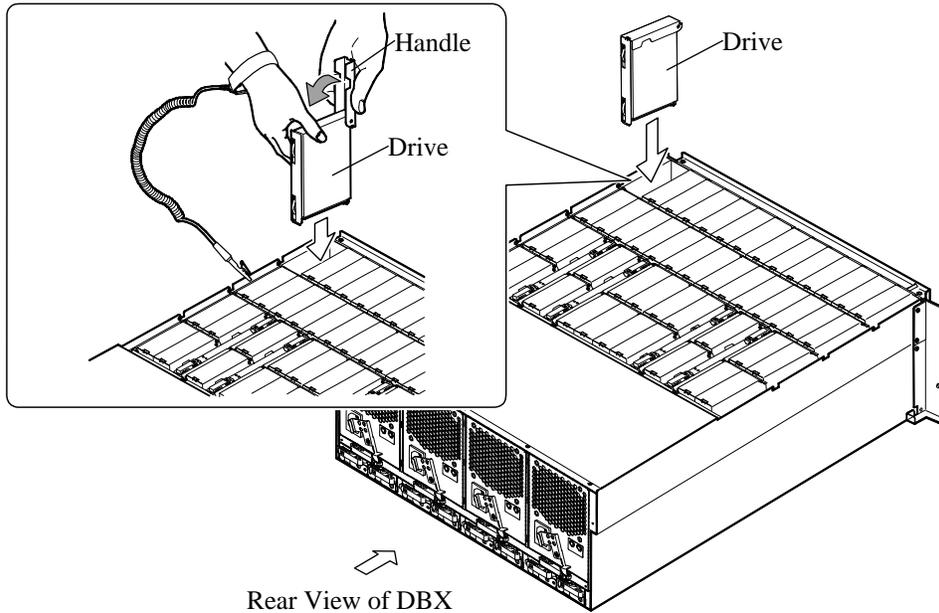


Fig. 3.1.2-9 Installation of Drive (for DBX)

2-1-5.4. Drive for DBF

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the DBF.

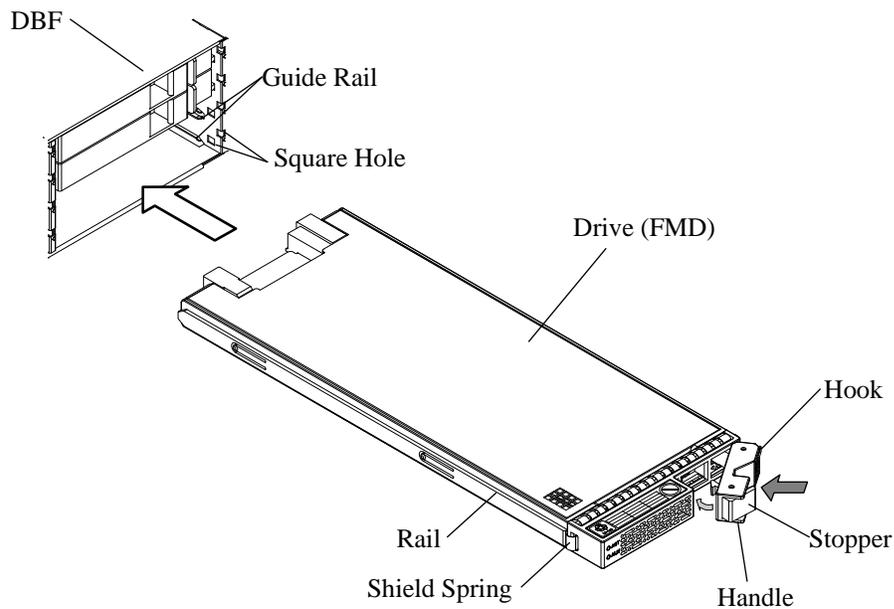


Fig. 3.1.2-10 Installation of Drive (for DBF)

2-1-6. Reinstall the DBX.

- a. If the DBX was drawn in the procedure 2-1-1, reinstall the DBX. (See [INST03-01-80](#).)
If the DBX was not drawn, go to the procedure 2-1-7.

2-1-7. Go to “3. POST-PROCESSING of SVP”.

⚠ CAUTION

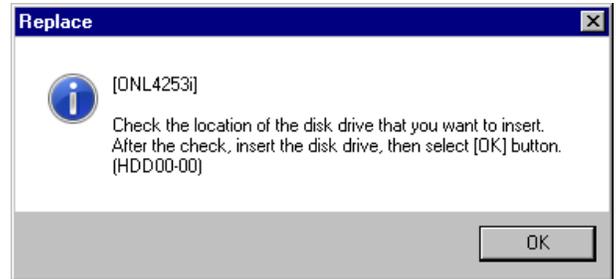
Before starting the <Check the beginning of recovery> operation in POST-PROCEDURES of SVP, be sure to insert a removable media for dump, collect failure information, and return the removable media with the failed HDD.

A dump removable media is attached with a Spare HDD.

3. POST-PROCESSING of SVP

3-1. <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.



3-2. <Get the error information>

NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK].

The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Select a Client PC arbitrary drive, and select (CL) [Ok].

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu.

The drive letter becomes the drive letter of console PC connected with SVP.

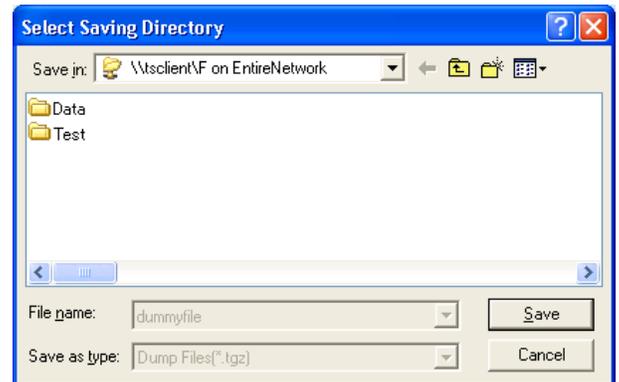
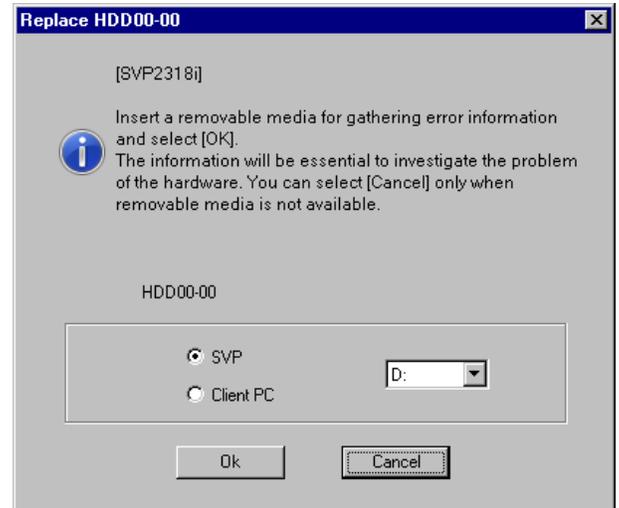
When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

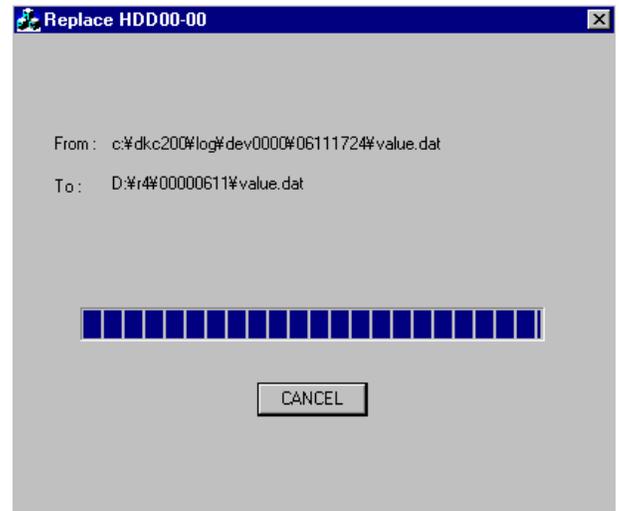
Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



3-3. <Copy of the error information>

The error information is copied onto media.



“Remove the media.” is displayed.
Select (CL) [OK].



3-4. <Spin up the Physical Drive>

“Spinning up...” is displayed.

3-5. <HDD INLINE>

“HDD INLINE is now running...” is displayed.

3-6. <Replacement of the HDD micro-program>

When the revision of the HDD micro-program in the SVP hard disk is newer than that in the PDEV, the following message appears on the screen.

The message “Exchanging HDD micro-program...” appears.

3-7. <Restore Physical Drive>

“Restoring...” is displayed.

3-8. <Check the Physical Drive>

“Checking...” is displayed.

3-9.<Check the beginning of copy back>

A message, which asks for confirmation of whether or not to start a copy back or to make the automatic copy back, is displayed.

[Confirmation of starting a copy back]

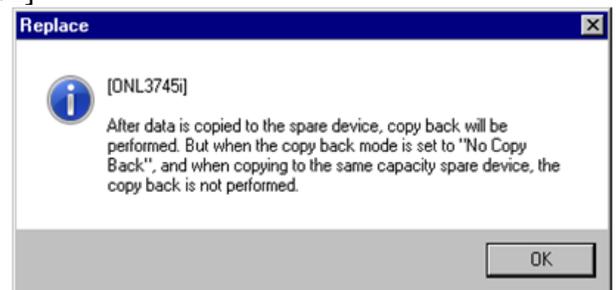
Select (CL) [Yes] in response to “Are you sure you want to copy data in spare device to the physical device?.”.

Go to Step 3-10.



[Confirmation of making an automatic copy back]

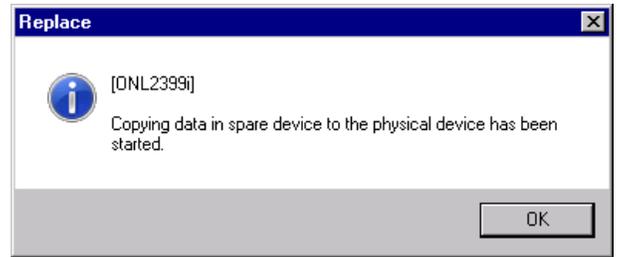
Select (CL) [OK] in response to a message, “After data is copied to the spare device, copy back will be performed. But when the copy back mode is set to “No Copy Back”, and when copying to the same capacity spare device, the copy back is not performed.”.



3-10. <Check starting of copyback>

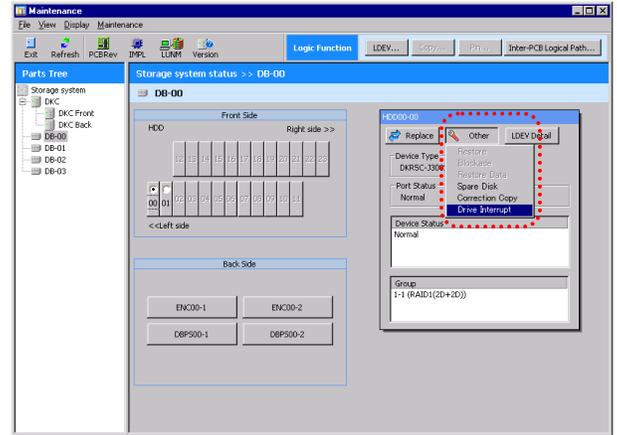
“Copying...” is displayed.

Select (CL) [OK] in response to “Copying data in spare device to the physical device has been started.”.



3-11.

When interrupting a copy, select (CL) the [Drive Interrupt] button.



3-12.

Go to POST-PROCEDURE [\[REP04-01-10\]](#).

[DRIVE REPLACEMENT PROCESSING - RDK2]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select drive (status check)
 - ② Specify Replacement
 - ③ Save Spare
 - ④ Select drive (status check)
 - ⑤ Check progress of copy processing
 - ⑥ Specify Replacement
 - ⑦ Place HDD into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on P-DEV
 - ② Specify recovery
 - ③ Copy back

NOTICE: If No Charging of FMD (SIM = 50EXYY) occurs in replacement of a FMD, the FMD ACTIVE LED will change to low-speed blinking. In this case, it takes 90 minutes at most for the FMD ACTIVE LED to go out and for the battery in the FMD to be fully charged.

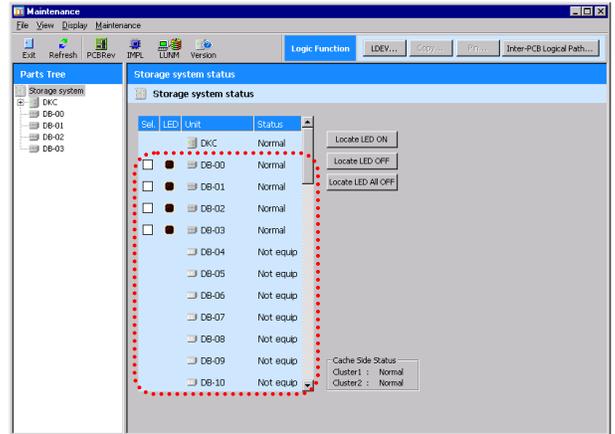
NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

1. PRE-PROCESSING of SVP

1-1. <Maintenance window>

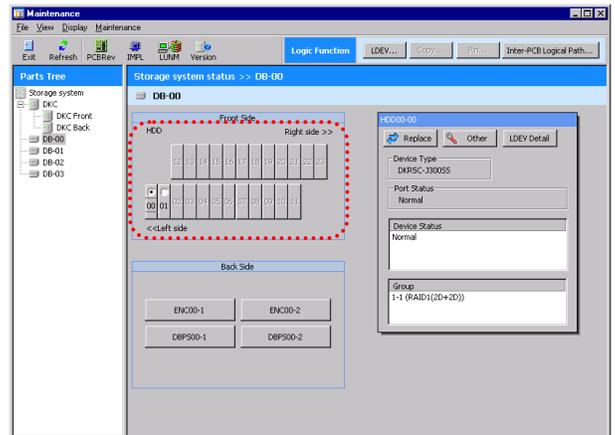
Open the 'Maintenance' window according to PRE PROCEDURE A (REP02-01-10).

Select (CL) the DB information [DB-*nn*] of the DB which installs the HDD to be replaced in the 'Maintenance' window.



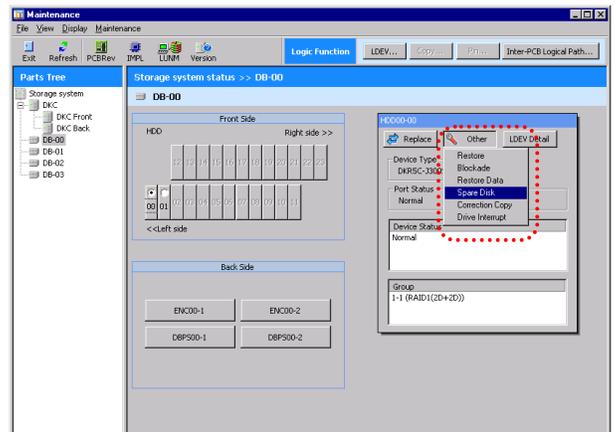
1-2. <Select HDD>

Check and select (CL) [*nn*] to be replaced.



1-3. <Specify replacement of HDD>

Select (CL) [Other]-[Spare Disk].



1-4. <Checking the P-DEV status>

CAUTION

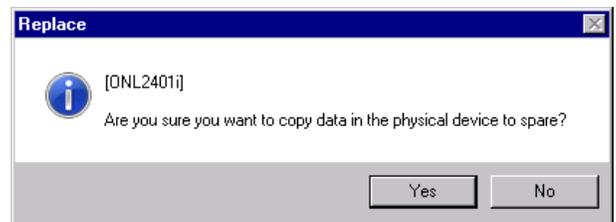
When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

“Checking...” is displayed.

1-5. <Saving the spare>

Select (CL) [Yes] in response to “Are you sure you want to copy data in the physical device to spare?”.



1-6. <Saving in process>

“Copying...” is displayed.

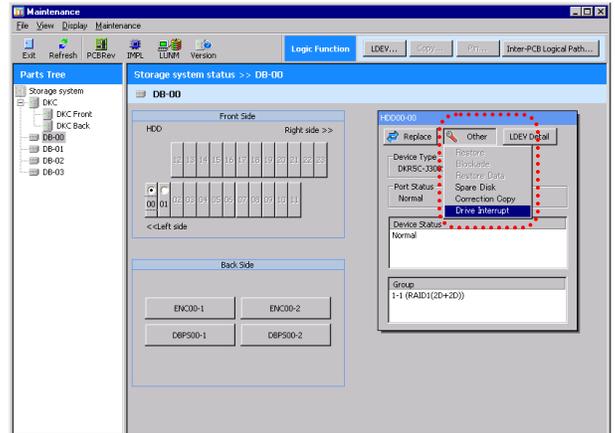
1-7. <End of spare saving>

Select (CL) [OK] in response to “Copying data in the physical device to spare has been started.”.



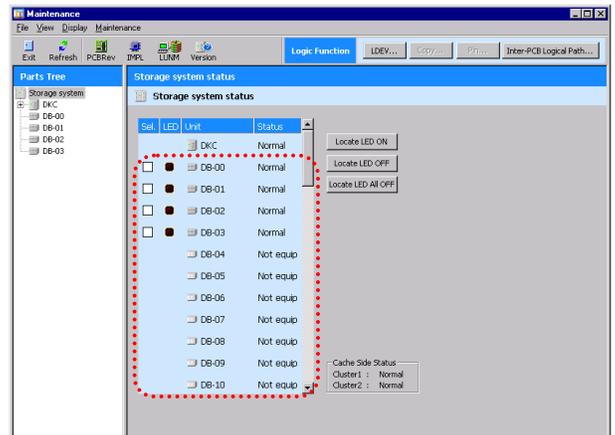
1-8.

When interrupting a copy, select (CL) the [Drive Interrupt] button.



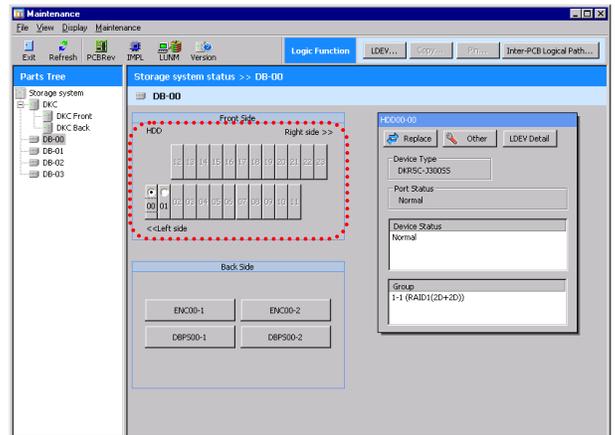
1-9. <Maintenance window>

Select (CL) the DB information [DB-nn] of the DB which installs the HDD to be replaced in the 'Maintenance' window.



1-10. <Select HDD>

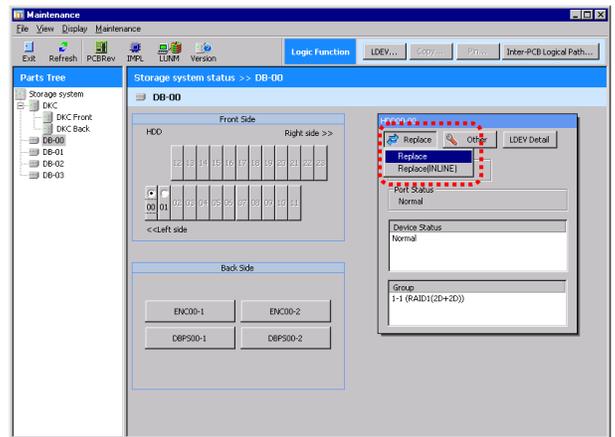
Check and select (CL) [nn] to be replaced.



1-11. <Specify replacement of HDD>

Make sure that the “Device Status” is [Failed] or [Warning] or [Reserved].

Select (CL) [Replace]-[Replace].



1-12. <Checking the P-DEV status>

CAUTION

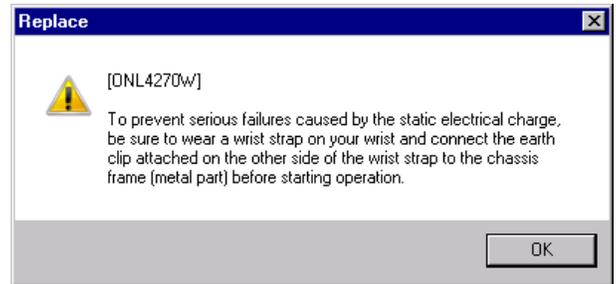
When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

“Checking...” is displayed.

1-13. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



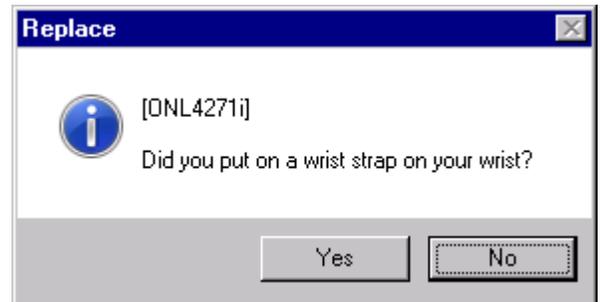
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

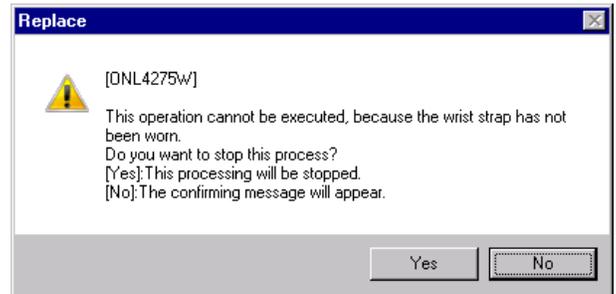


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

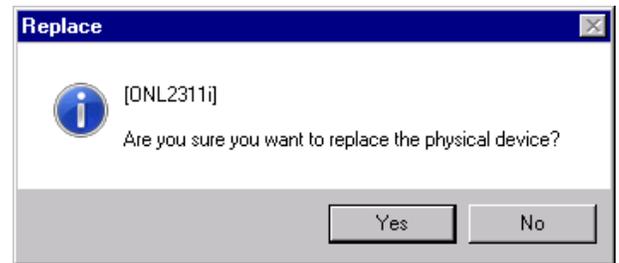


When [Yes] is selected (CL), returned to Step 1-10.

When [No] is selected (CL), returned to Step 1-13.

1-14. <P-DEV blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the physical device?”.



1-15. <Blocking the Physical device>

“Blocking...” is displayed.

1-16. <Spin down the Physical device>

“Spinning down...” is displayed.

1-17. <Check shut down LED>

CAUTION

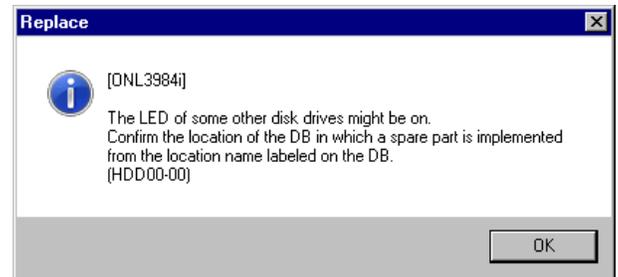
If a wrong HDD is removed, a data loss or a system down may occur. Therefore, reconfirm the location of the HDD to be replaced.

Check the shut down LED and the Locate LED on the HDD to be replaced.

If LED is off, reconfirm the location of the HDD to be replaced with LOCATION SECTION before replacing the hardware.

(1) Confirm the label on DB.

To confirm the label, the right messages are displayed.



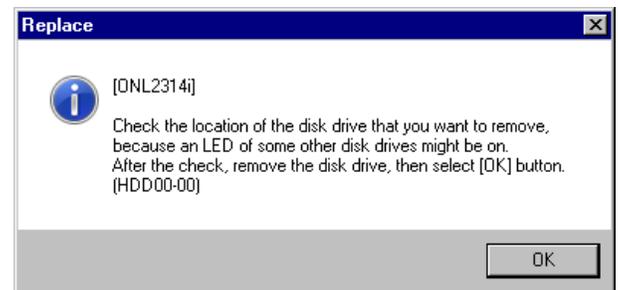
(2) The name in parentheses shows the position where HDD show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-18.

When [No] is selected (CL), returned to Step 1-17 (2).



1-18. <Confirm Removal>

Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-3)



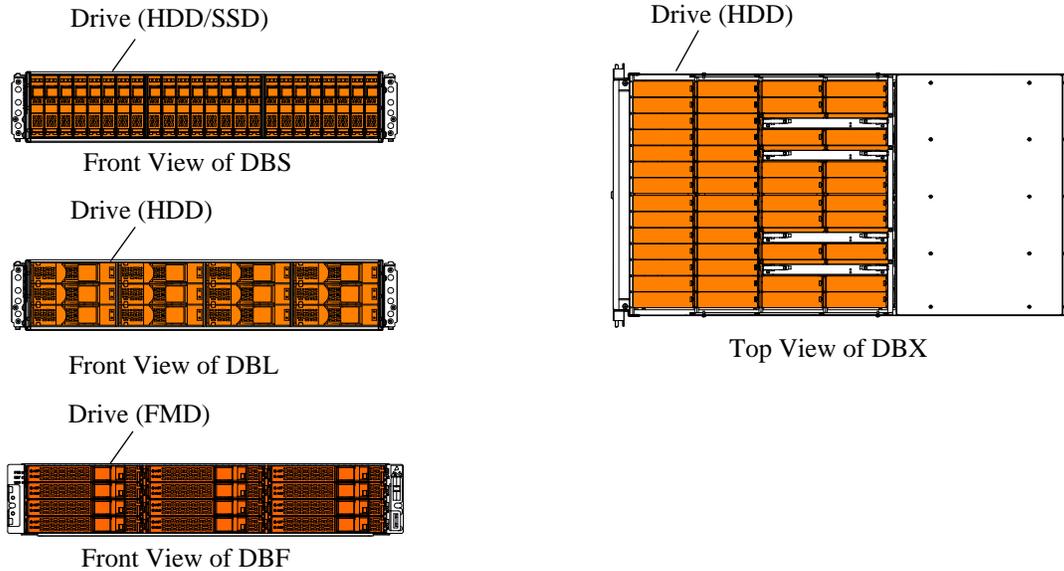
1-19. <Replace HDD>

Replace HDD.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location		Function Name of Component	Part Name	HDA Label
DBS	1	Disk Drive (HDD)	300GB/15k/6Gbps	S5C-K300SS
			600GB/10k/6Gbps	S5D-J600SS
				S5E-J600SS
				R5C-J600SS
	900GB/10k/6Gbps	R5D-J600SS		
		S5D-J900SS		
		S5E-J900SS		
	2	Flash Drive (SSD)	200GB/6Gbps/MLC	R5D-J900SS
				R5E-J1R2SS
			400GB/6Gbps/MLC	R5B-M200SS
B5A-M200SS				
800GB/6Gbps/MLC	R5B-M400SS			
	B5A-M400SS			
DBL	3	Disk Drive (HDD)	3TB/7.2k/6Gbps	B5A-M800SS
				S2D-H3R0SS
				S2E-H3R0SS
			4TB/7.2k/6Gbps	R2D-H3R0SS
DBX	4	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2E-H4R0SS
				S2D-H3R0SS
				S2E-H3R0SS
			4TB/7.2k/6Gbps	R2D-H3R0SS
DBF	5	Flash Module Drive (FMD)	1.6TB/6Gbps/MLC	S2E-H4R0SS
			3.2TB/6Gbps/MLC	H1A-P1R6SS
				H1B-P3R2SS



- NOTICE:**
- Replace the drive in the storage system in power on status only. Do not replace the drive in power off status.
 - Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - HDD is a precise component. Be careful in handling HDD to avoid vibration and impact.

2-1	Drive (HDD/SSD/FMD) Replacement Procedure
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2-1-1. Draw the DBX.

- (1) If the drive to be replaced is installed in the DBX, draw the DBX. (See [INST03-01-60](#))
 If the drive to be replaced is installed in the DBL/DBS/DBF, go to the procedure 2-1-2.

2-1-2. Check the Shut Down LED.

- a. Check that the Shut Down LED on drive is turned on.

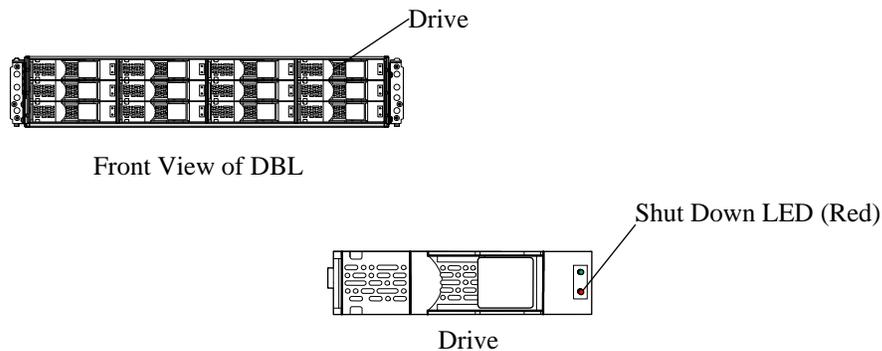


Fig. 3.2.2-1 Checking of Shut Down LED (for DBL)

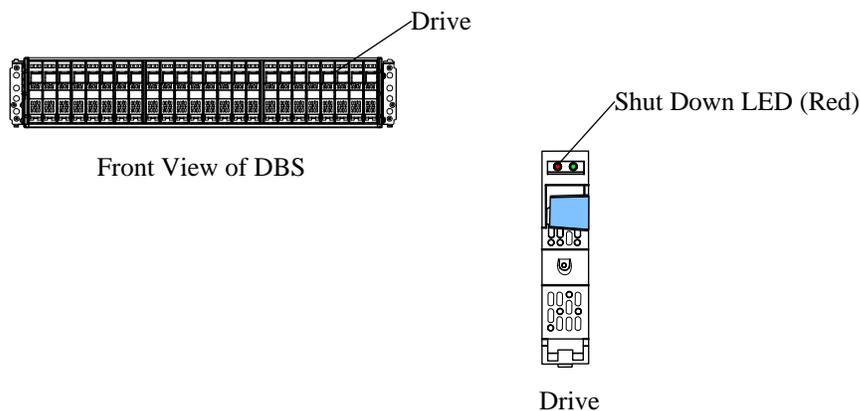


Fig. 3.2.2-2 Checking of Shut Down LED (for DBS)

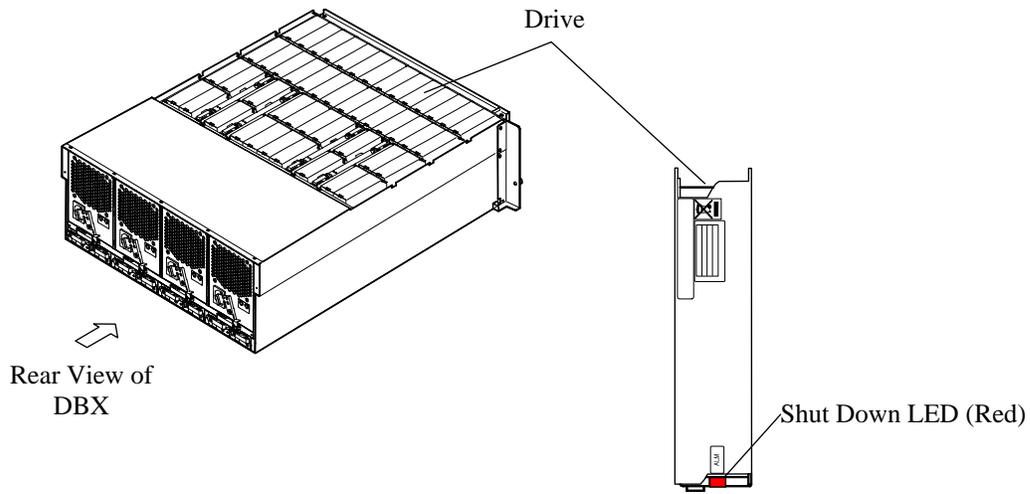


Fig. 3.2.2-3 Checking of Shut Down LED (for DBX)

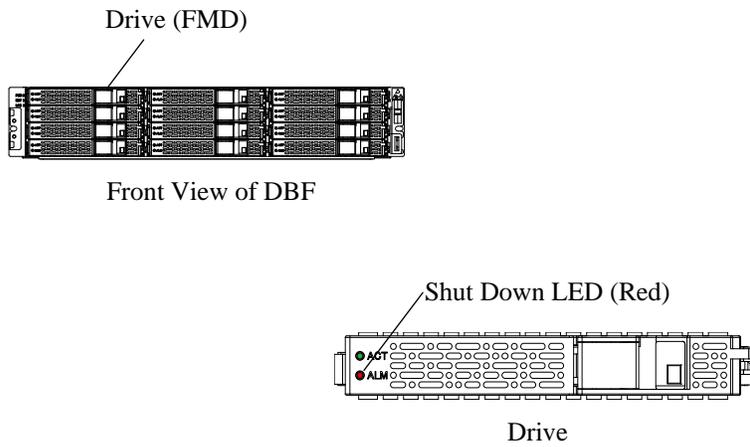


Fig. 3.2.2-3A Checking of Shut Down LED (for DBF)

2-1-3. Remove the drive (HDD/SSD/FMD).

2-1-3.1. Drive for DBL

- Pull the stopper of the drive handle toward you to have the lock off.
- Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

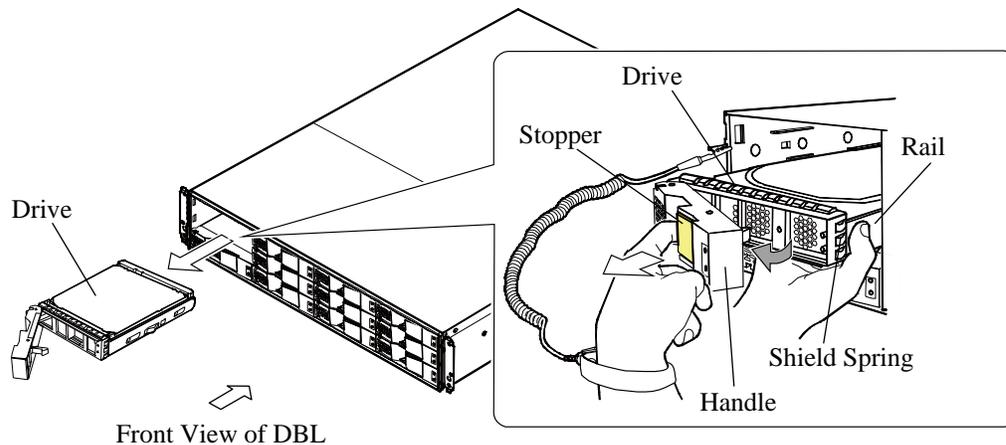


Fig. 3.2.2-4 Removal of Drive (for DBL)

2-1-3.2. Drive for DBS

- Pull up the stopper of the drive handle toward you to release the lock.
- Open the handle toward you, and then pull out and remove the drive to be replaced not to give a shock.

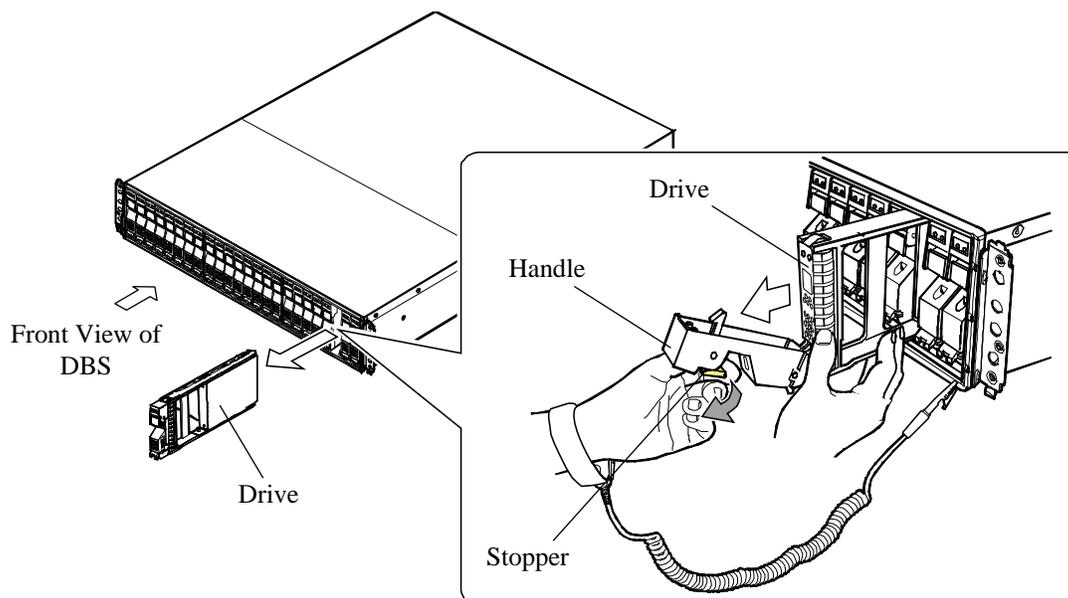


Fig. 3.2.2-5 Removal of Drive (for DBS)

2-1-3.3. Drive for DBX

- a. Slide the latch (blue) on the drive and open the handle.
- b. Pull out and remove the drive to be replaced taking care not to apply a shock to it.

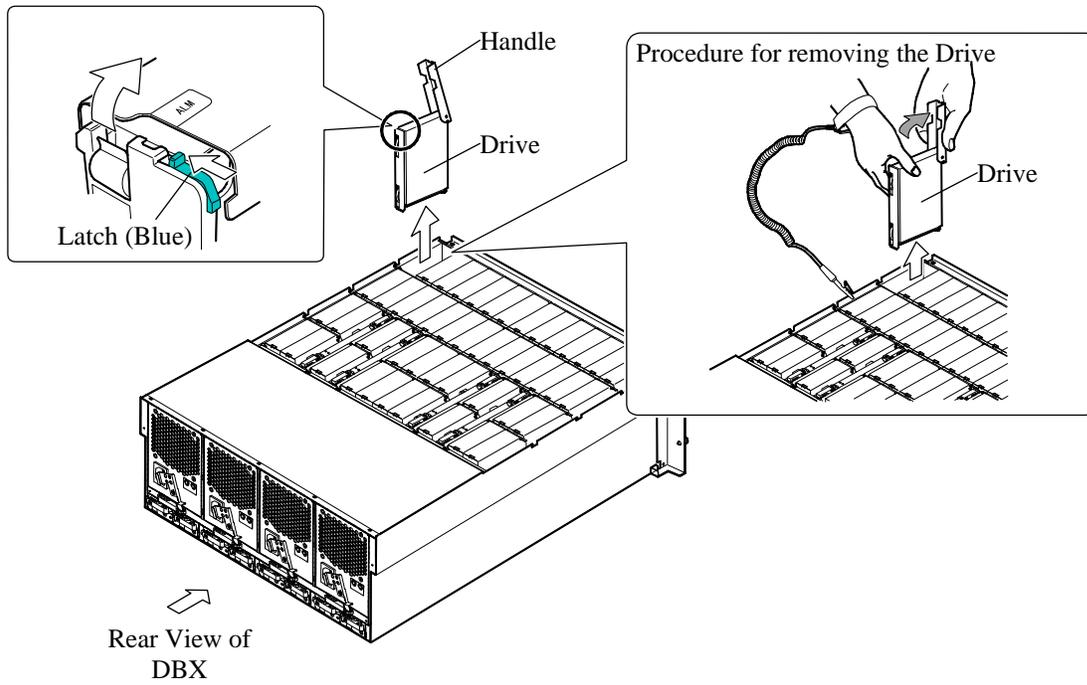


Fig. 3.2.2-6 Removal of Drive (for DBX)

2-1-3.4. Drive for DBF

NOTICE: When the FMD is removed in replacing procedure, the fans of the DBPS equipped in the rear of the DBF rotate at the highest speed. When the spare FMD is installed, the fans of the DBPS rotate at the speed suitable for environmental temperature.

- Pull the stopper of the drive handle toward you to have the lock off.
- Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

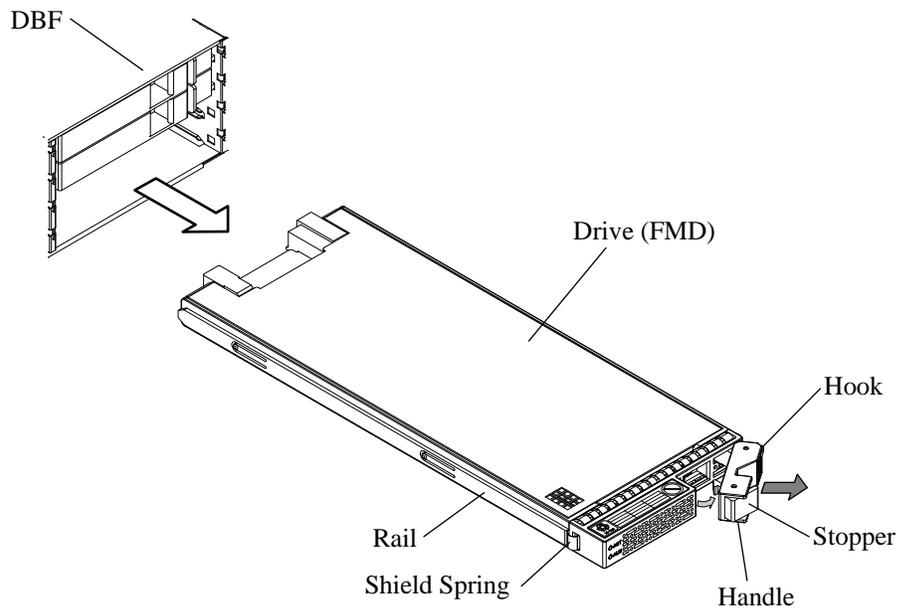
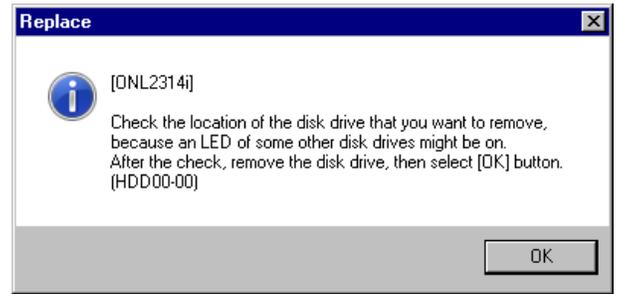


Fig. 3.2.2-6A Removal of Drive (for DBF)

2-1-4. Check and handling of the drive.

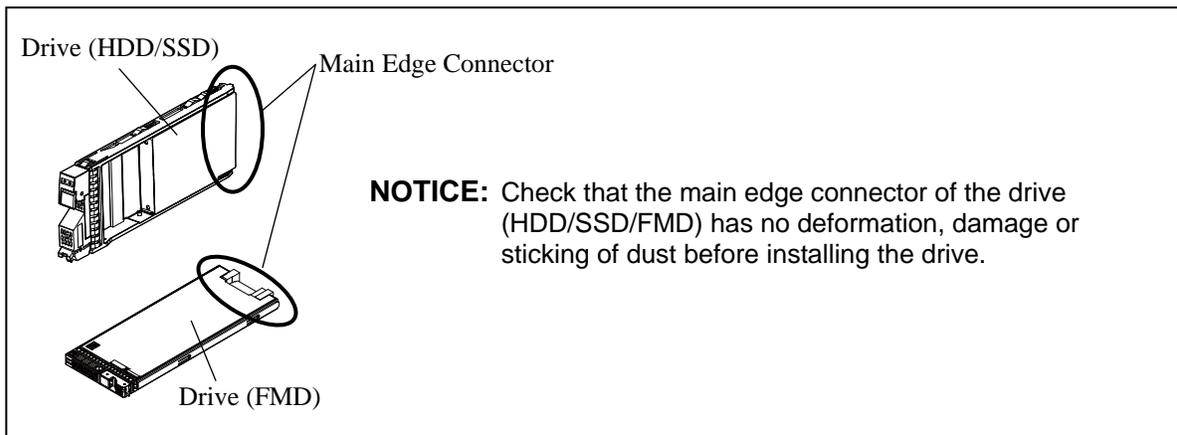
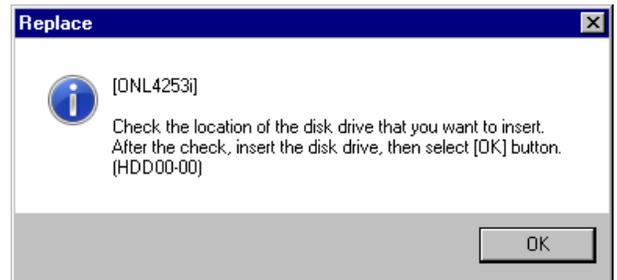
(1) <Confirm Removal>

Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-1-3)



(2) <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed. After the unit is installed select (CL) [OK] button. Go to step 2-1-5.



2-1-5. Install the drive.

2-1-5.1. Drive for DBL

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

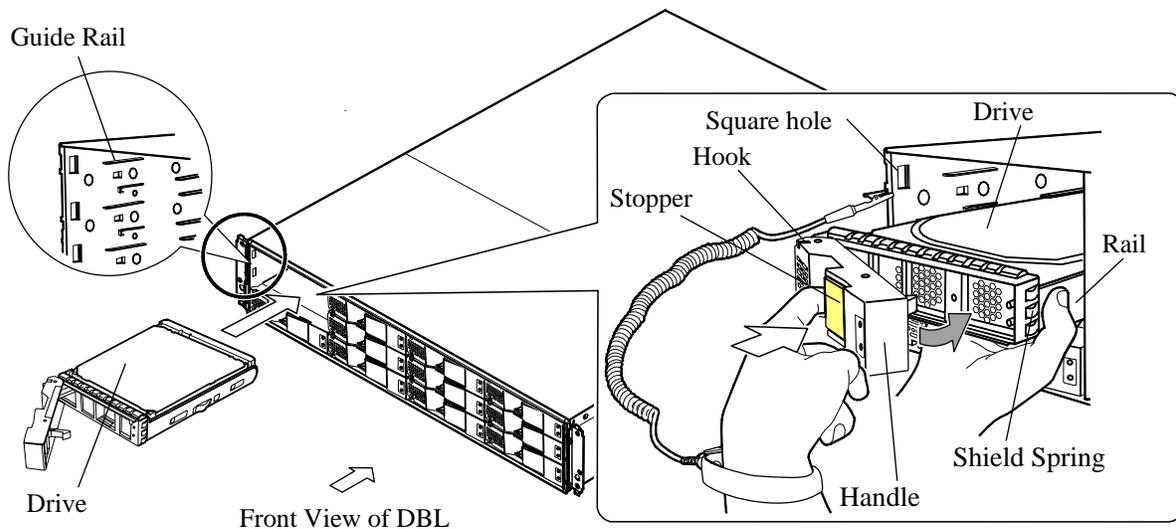


Fig. 3.2.2-7 Installation of Drive (for DBL)

2-1-5.2. Drive for DBS

- Fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the drive array unit.
- Raise the stopper, which has been tilted toward you, and then press the stopper to have the lock on.

If the handle is raised in the state where the hook of the handle cannot enter into each hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

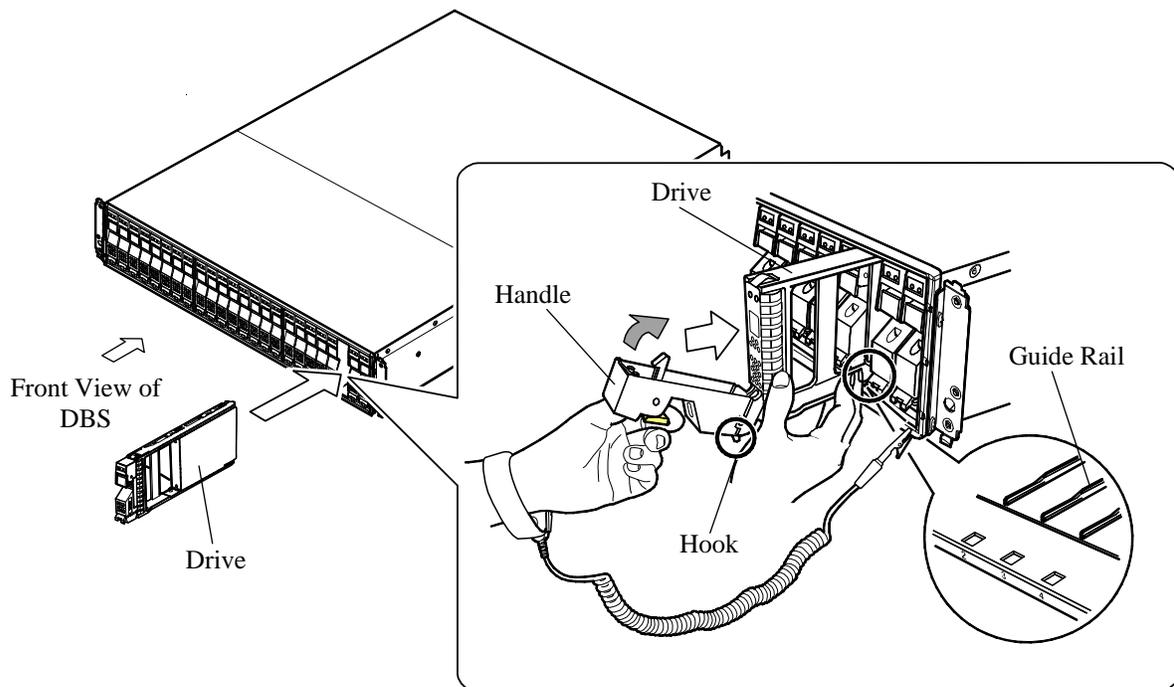


Fig. 3.2.2-8 Installation of Drive (for DBS)

2-1-5.3. Drive for DBX

- a. Open the handle, and insert the drive holding it with both hands.

NOTE: Check that there is no foreign substance near the connector and in the array before inserting the drive.

- b. Close the handle.

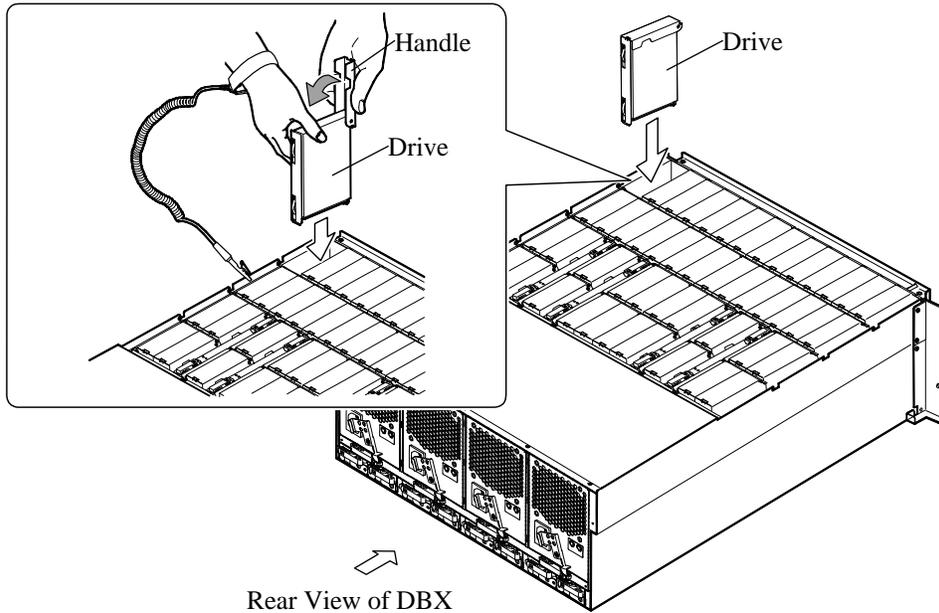


Fig. 3.2.2-9 Installation of Drive (for DBX)

2-1-5.4. Drive for DBF

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the DBF.

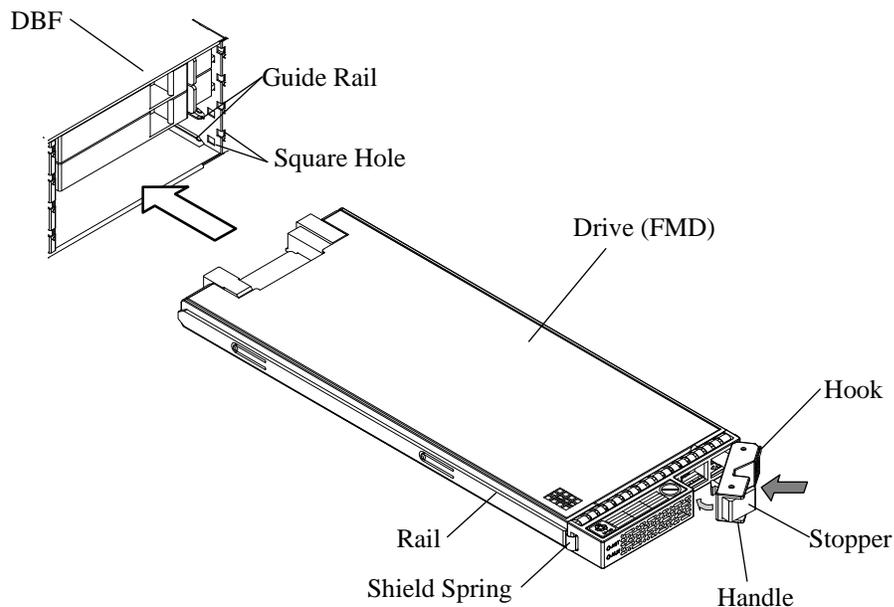


Fig. 3.2.2-10 Installation of Drive (for DBF)

2-1-6. Reinstall the DBX.

- a. If the DBX was drawn in the procedure 2-1-1, reinstall the DBX. (See [INST03-01-80](#).)
If the DBX was not drawn, go to the procedure 2-1-7.

2-1-7. Go to “3. POST-PROCESSING of SVP”.

⚠ CAUTION

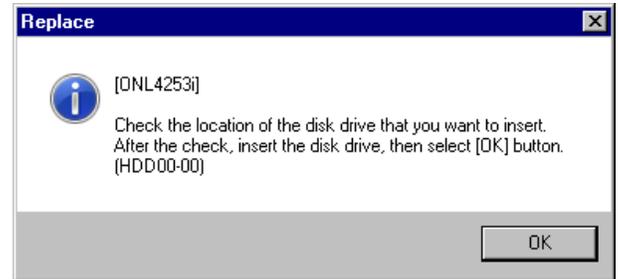
Before starting the <Check the beginning of recovery> operation in POST-PROCEDURES of SVP, be sure to insert a removable media for dump, collect failure information, and return the removable media with the failed HDD.

A dump removable media is attached with a Spare HDD.

3. POST-PROCESSING of SVP

3-1. <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.



3-2. <Get the error information>

NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK].

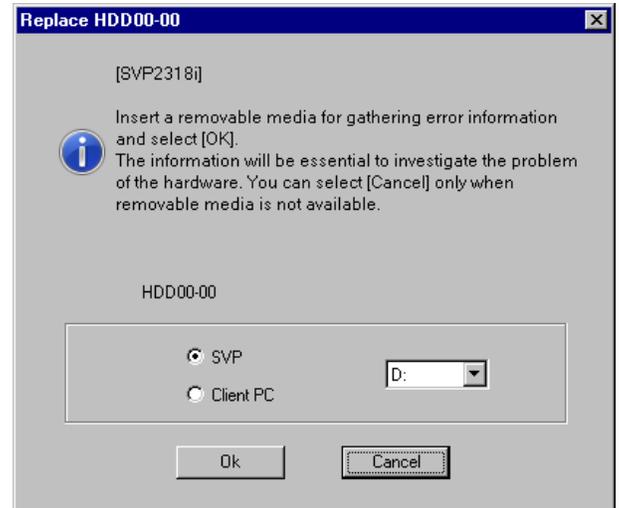
The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Select a Client PC arbitrary drive, and select (CL) [Ok].

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu.

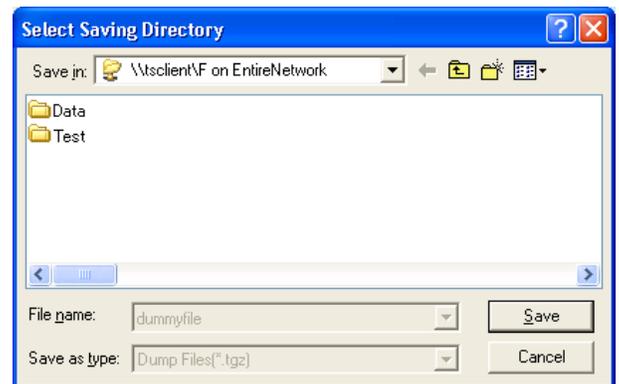
The drive letter becomes the drive letter of console PC connected with SVP.



When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

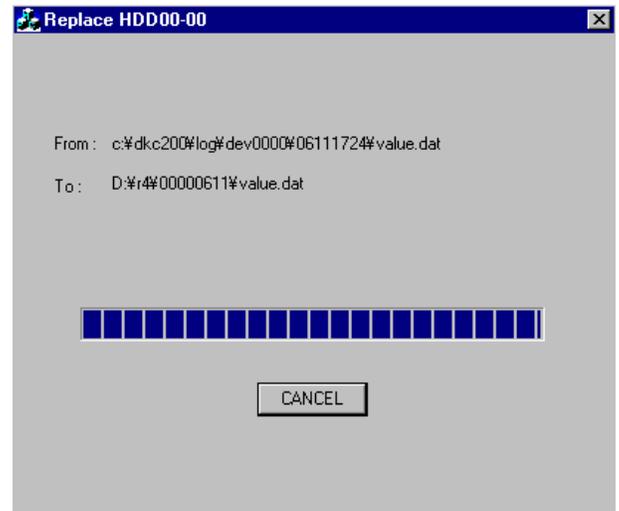


Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).

3-3. <Copy of the error information>

The error information is copied onto media.



“Remove the media.” is displayed.
Select (CL) [OK].



3-4. <Spin up the Physical Drive>

“Spinning up...” is displayed.

3-5. <HDD INLINE>

“HDD INLINE is now running...” is displayed.

3-6. <Replacement of the HDD micro-program>

When the revision of the HDD micro-program in the SVP hard disk is newer than that in the PDEV, the following message appears on the screen.

The message “Exchanging HDD micro-program...” appears.

3-7. <Restore Physical Drive>

“Restoring...” is displayed.

3-8. <Check the Physical Drive>

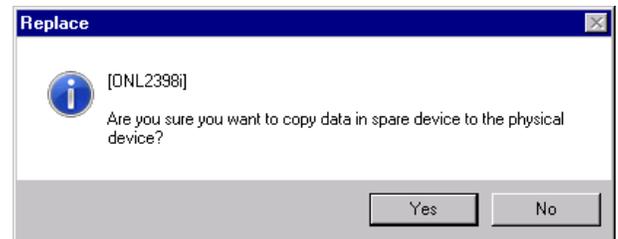
“Checking...” is displayed.

3-9. <Check the beginning of copy back>

A message, which asks for confirmation of whether or not to start a copy back or to make the automatic copy back, is displayed.

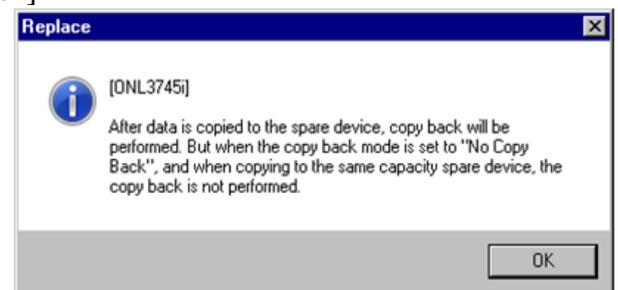
[Confirmation of starting a copy back]

Select (CL) [Yes] in response to “Are you sure you want to copy data in spare device to the physical device?”.
Go to Step 3-10.



[Confirmation of making an automatic copy back]

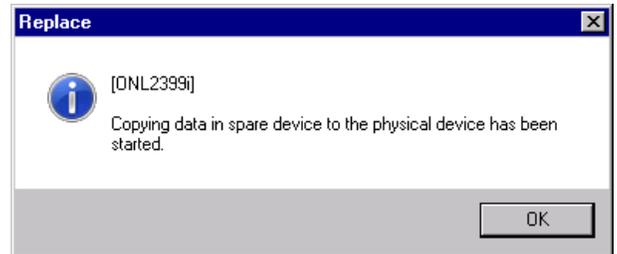
Select (CL) [OK] in response to a message, “After data is copied to the spare device, copy back will be performed. But when the copy back mode is set to “No Copy Back”, and when copying to the same capacity spare device, the copy back is not performed.”.



3-10. <Check starting of copyback>

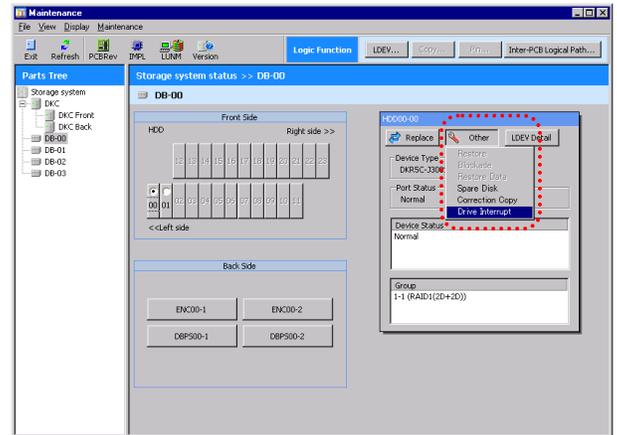
“Copying...” is displayed.

Select (CL) [OK] in response to “Copying data in spare device to the physical device has been started.”.



3-11.

When interrupting a copy, select (CL) the [Drive Interrupt] button.



3-12.

Go to POST-PROCEDURE [\[REP04-01-10\]](#).

[DRIVE REPLACEMENT PROCESSING - RDK3]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select P-DEV (status check)
 - ② Specify Replacement
 - ③ Place HDD into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on P-DEV
 - ② Specify recovery
 - ③ Correction copy

NOTICE: If No Charging of FMD (SIM = 50EXYY) occurs in replacement of a FMD, the FMD ACTIVE LED will change to low-speed blinking. In this case, it takes 90 minutes at most for the FMD ACTIVE LED to go out and for the battery in the FMD to be fully charged.

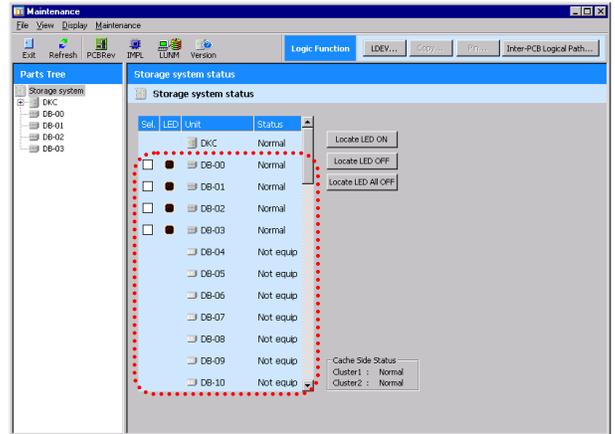
NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

1. PRE-PROCESSING of SVP

1-1. <Maintenance window>

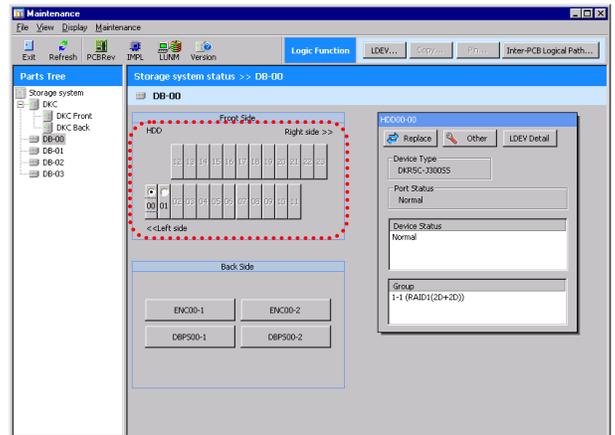
Open the 'Maintenance' window according to PRE PROCEDURE A (REP02-01-10).

Select (CL) the DB information [DB-*nn*] of the DB which installs the HDD to be replaced in the 'Maintenance' window.



1-2. <Select HDD>

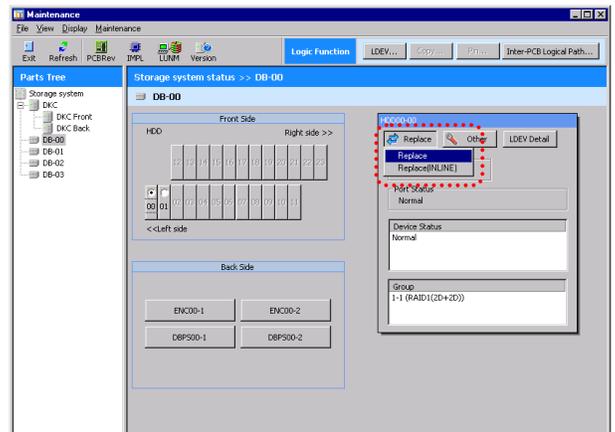
Check and select (CL) [*nn*] to be replaced.



1-3. <Specify replacement of HDD>

Make sure that the "Device Status" is [Failed] or [Warning].

Select (CL) [Replace]-[Replace].



1-4. <Checking the P-DEV status>

CAUTION

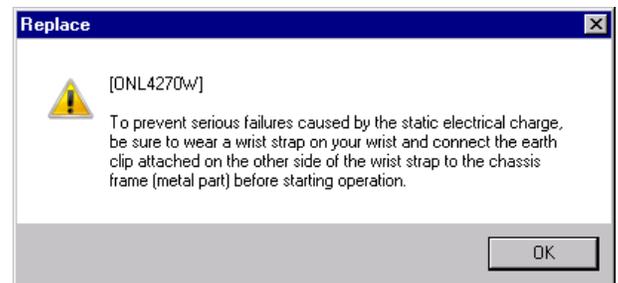
When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMMSG00-00](#)).

“Checking...” is displayed.

1-5. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



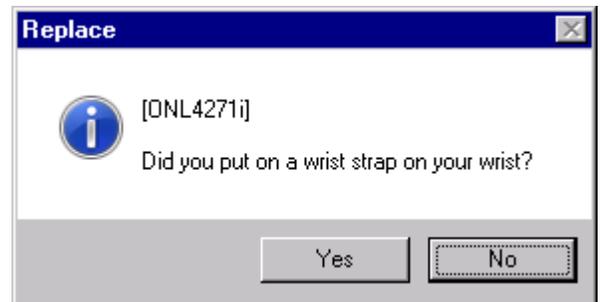
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

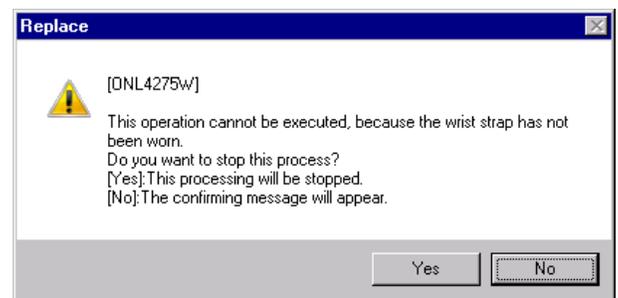


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

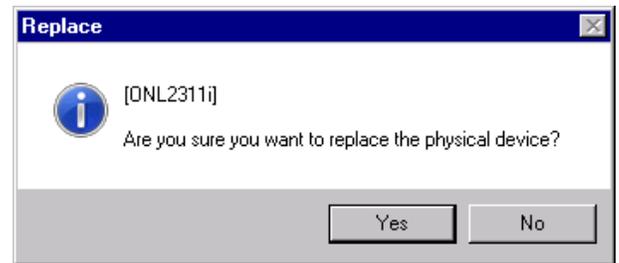


When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-5.

1-6. <P-DEV blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the physical device?”.



1-7. <Blocking the Physical device>

“Blocking...” is displayed.

1-8. <Spin down the Physical device>

“Spinning down...” is displayed.

1-9. <Check shut down LED>

CAUTION

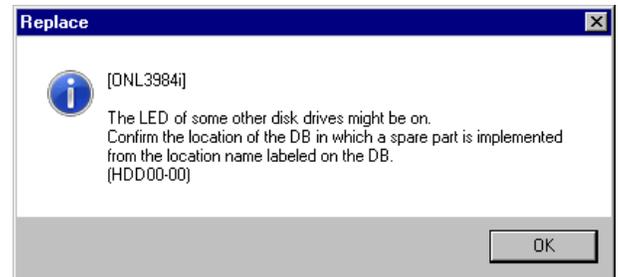
If a wrong HDD is removed, a data loss or a system down may occur. Therefore, reconfirm the location of the HDD to be replaced.

Check the shut down LED and the Locate LED on the HDD to be replaced.

If LED is off, reconfirm the location of the HDD to be replaced with LOCATION SECTION before replacing the hardware.

(1) Confirm the label on DB.

To confirm the label, the right messages are displayed.



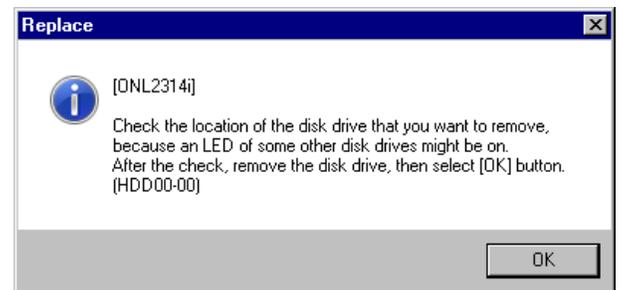
(2) The name in parentheses shows the position where HDD show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-10.

When [No] is selected (CL), returned to Step 1-9 (2).



1-10. <Confirm Removal>

Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-3)



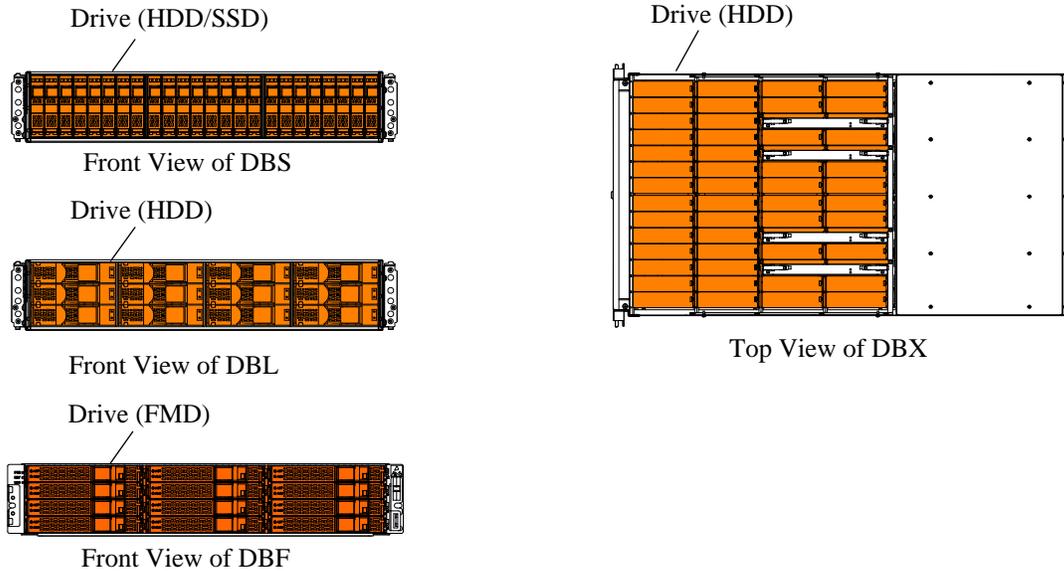
1-11. <Replace HDD>

Replace HDD.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location		Function Name of Component	Part Name	HDA Label
DBS	1	Disk Drive (HDD)	300GB/15k/6Gbps	S5C-K300SS
			600GB/10k/6Gbps	S5D-J600SS
				S5E-J600SS
				R5C-J600SS
				R5D-J600SS
			900GB/10k/6Gbps	S5D-J900SS
	S5E-J900SS			
	2	Flash Drive (SSD)	200GB/6Gbps/MLC	R5B-M200SS
				B5A-M200SS
			400GB/6Gbps/MLC	R5B-M400SS
B5A-M400SS				
800GB/6Gbps/MLC	B5A-M800SS			
	1.2TB/10k/6Gbps	R5E-J1R2SS		
DBL	3	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBX	4	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBF	5	Flash Module Drive (FMD)	1.6TB/6Gbps/MLC	H1A-P1R6SS
			3.2TB/6Gbps/MLC	H1B-P3R2SS



- NOTICE:**
- Replace the drive in the storage system in power on status only. Do not replace the drive in power off status.
 - Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - HDD is a precise component. Be careful in handling HDD to avoid vibration and impact.

2-1	Drive (HDD/SSD/FMD) Replacement Procedure
-----	---

2-1-1. Draw the DBX.

- (1) If the drive to be replaced is installed in the DBX, draw the DBX. (See [INST03-01-60](#))
If the drive to be replaced is installed in the DBL/DBS/DBF, go to the procedure 2-1-2.

2-1-2. Check the Shut Down LED.

- a. Check that the Shut Down LED on drive is turned on.

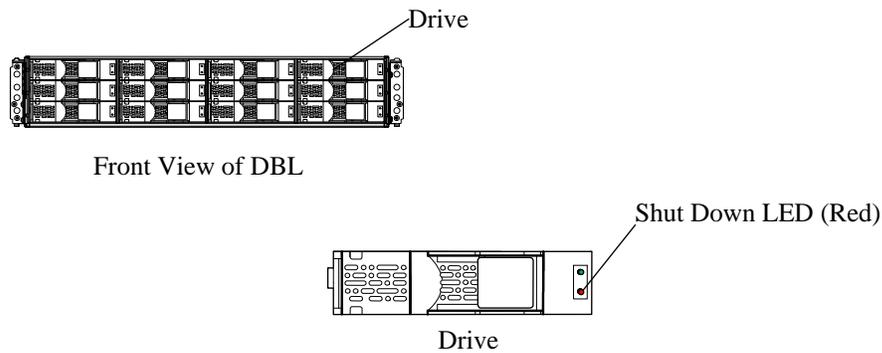


Fig. 3.3.2-1 Checking of Shut Down LED (for DBL)

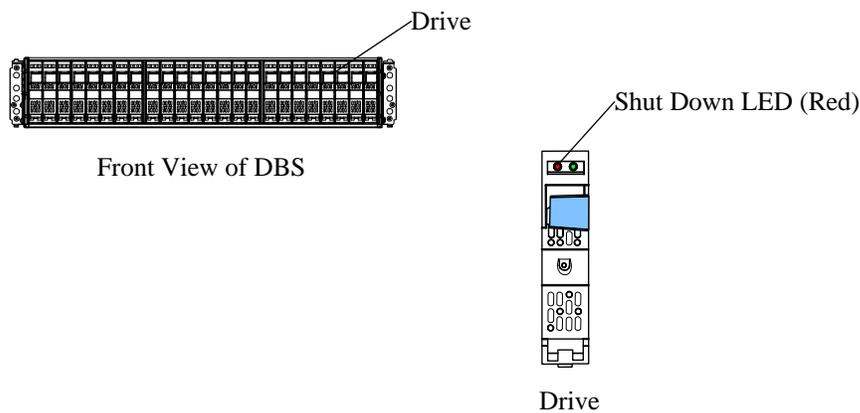


Fig. 3.3.2-2 Checking of Shut Down LED (for DBS)

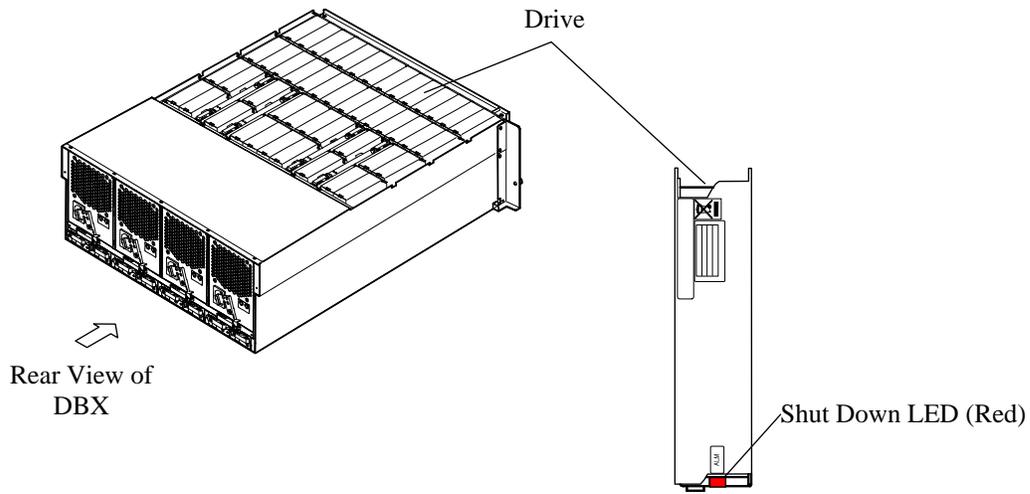


Fig. 3.3.2-3 Checking of Shut Down LED (for DBX)

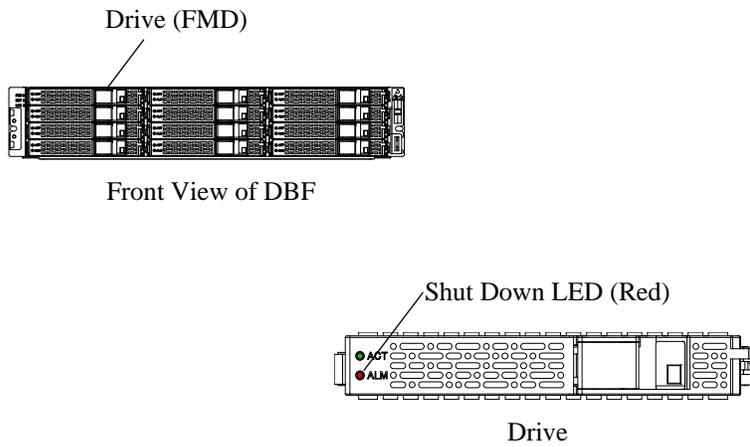


Fig. 3.3.2-3A Checking of Shut Down LED (for DBF)

2-1-3. Remove the drive (HDD/SSD/FMD).

2-1-3.1. Drive for DBL

- Pull the stopper of the drive handle toward you to have the lock off.
- Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

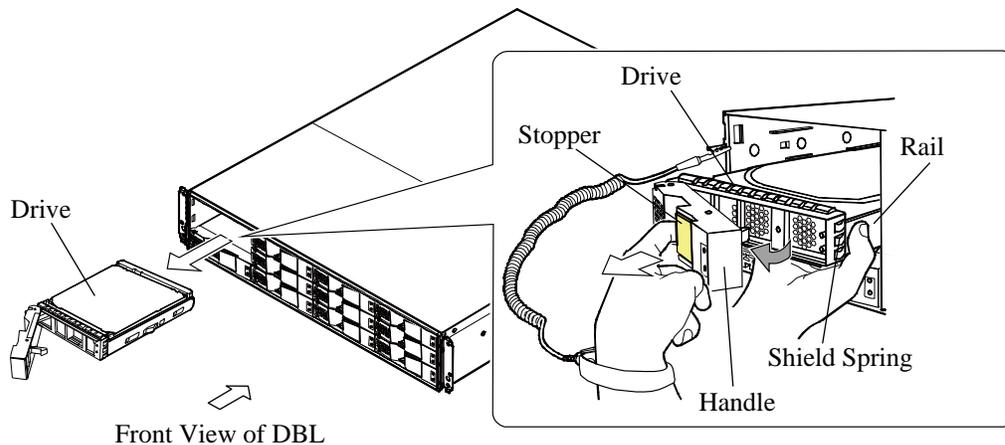


Fig. 3.3.2-4 Removal of Drive (for DBL)

2-1-3.2. Drive for DBS

- Pull up the stopper of the drive handle toward you to release the lock.
- Open the handle toward you, and then pull out and remove the drive to be replaced not to give a shock.

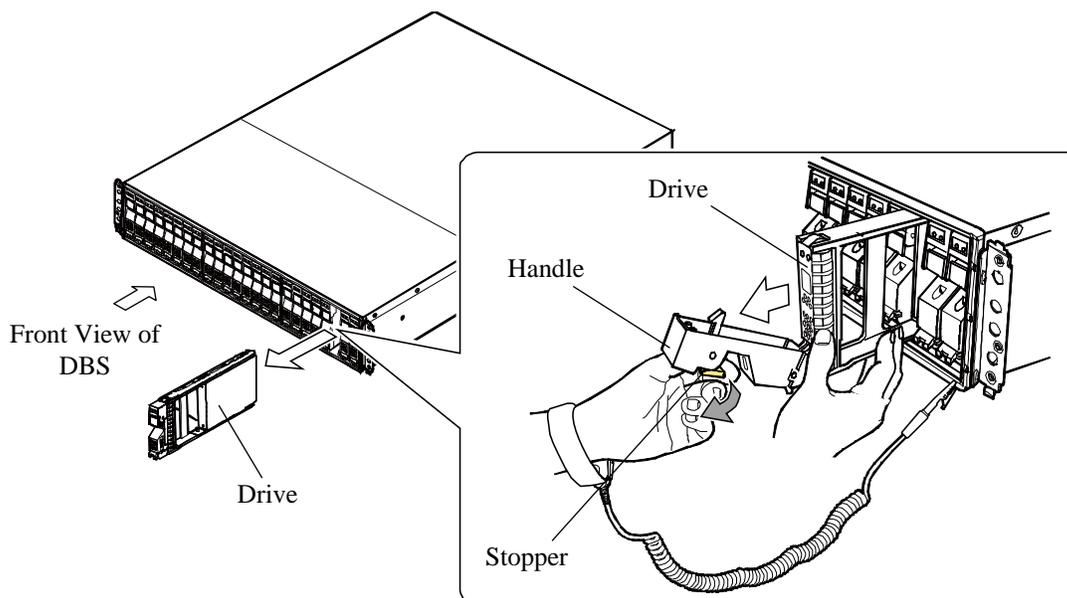


Fig. 3.3.2-5 Removal of Drive (for DBS)

2-1-3.3. Drive for DBX

- a. Slide the latch (blue) on the drive and open the handle.
- b. Pull out and remove the drive to be replaced taking care not to apply a shock to it.

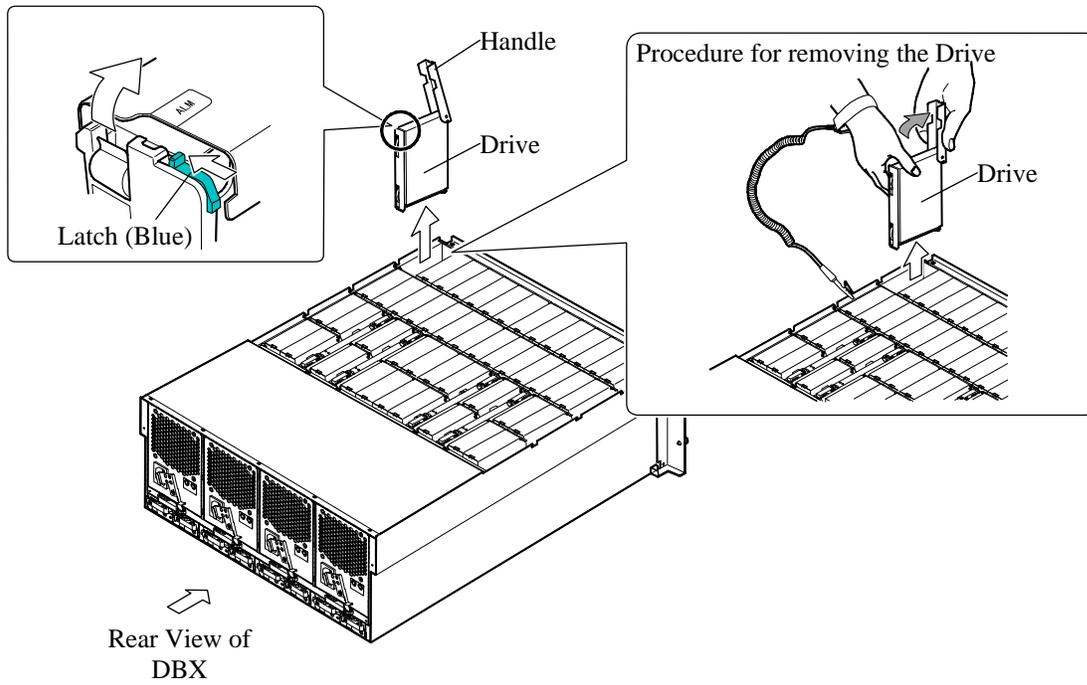


Fig. 3.3.2-6 Removal of Drive (for DBX)

2-1-3.4. Drive for DBF

NOTICE: When the FMD is removed in replacing procedure, the fans of the DBPS equipped in the rear of the DBF rotate at the highest speed. When the spare FMD is installed, the fans of the DBPS rotate at the speed suitable for environmental temperature.

- a. Pull the stopper of the drive handle toward you to have the lock off.
- b. Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

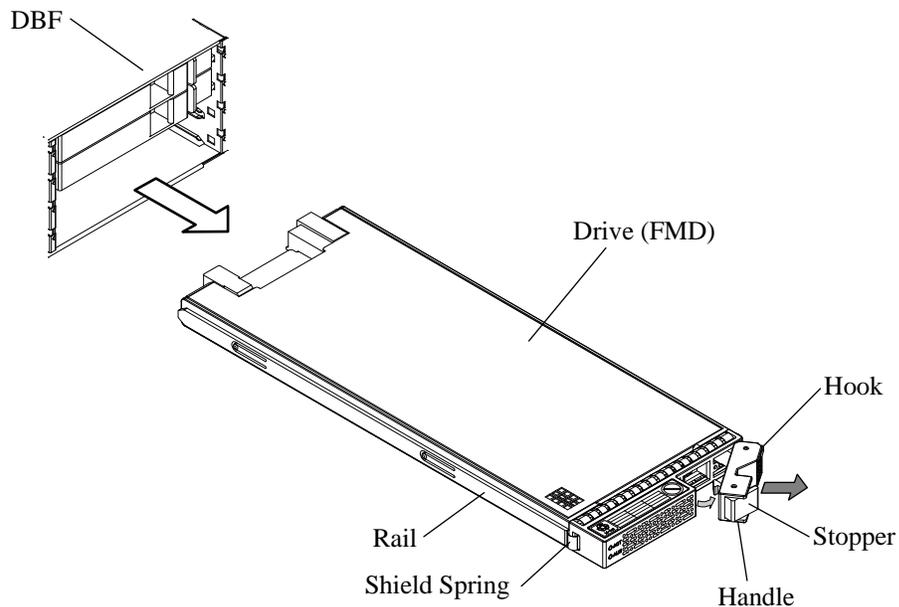
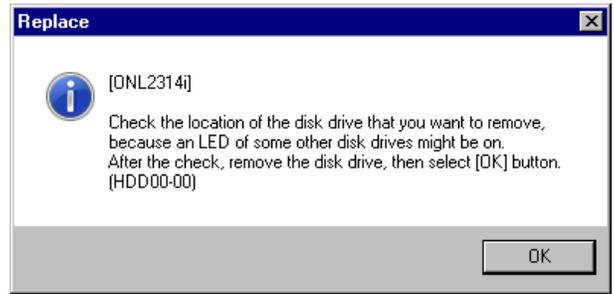


Fig. 3.3.2-6A Removal of Drive (for DBF)

2-1-4. Check and handling of the drive.

(1) <Confirm Removal>

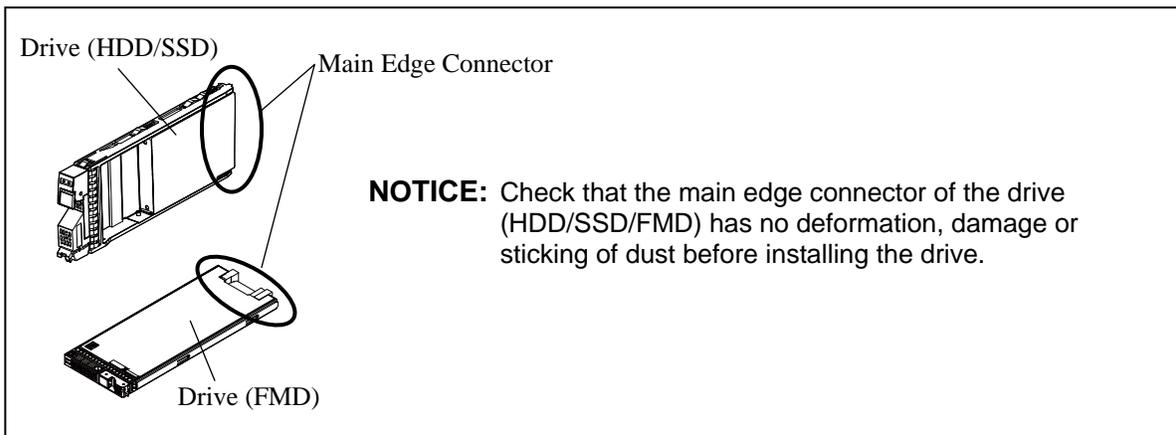
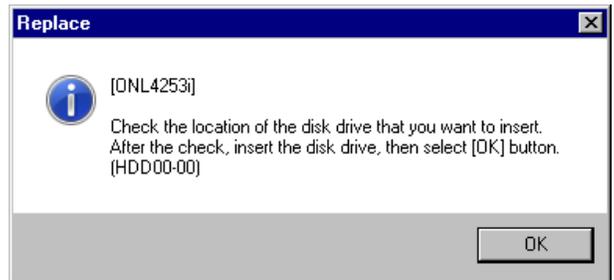
Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-1-3)



(2) <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.

After the unit is installed select (CL) [OK] button. Go to step 2-1-5.



2-1-5. Install the drive.

2-1-5.1. Drive for DBL

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

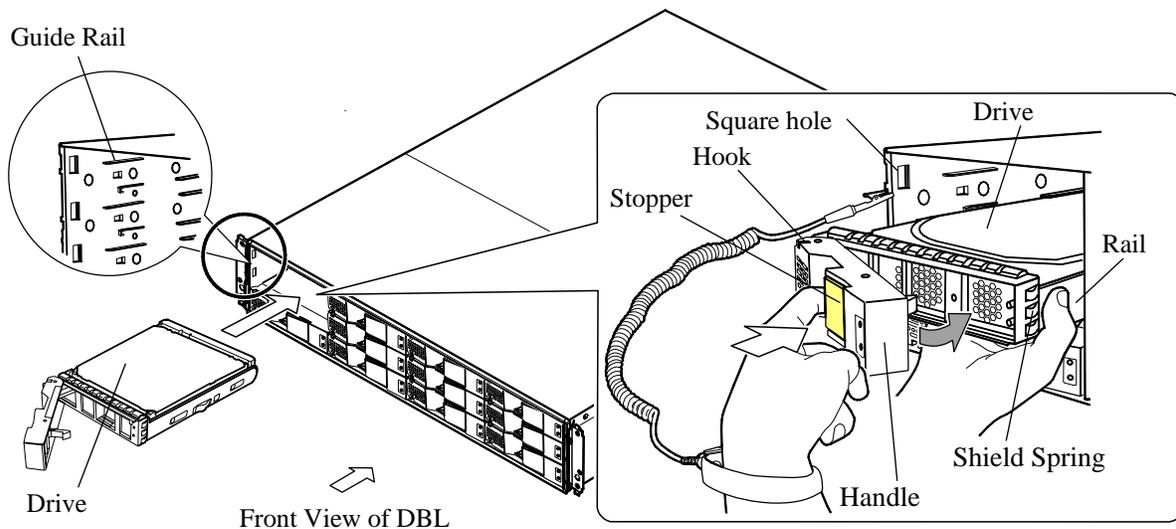


Fig. 3.3.2-7 Installation of Drive (for DBL)

2-1-5.2. Drive for DBS

- Fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the drive array unit.
- Raise the stopper, which has been tilted toward you, and then press the stopper to have the lock on.

If the handle is raised in the state where the hook of the handle cannot enter into each hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

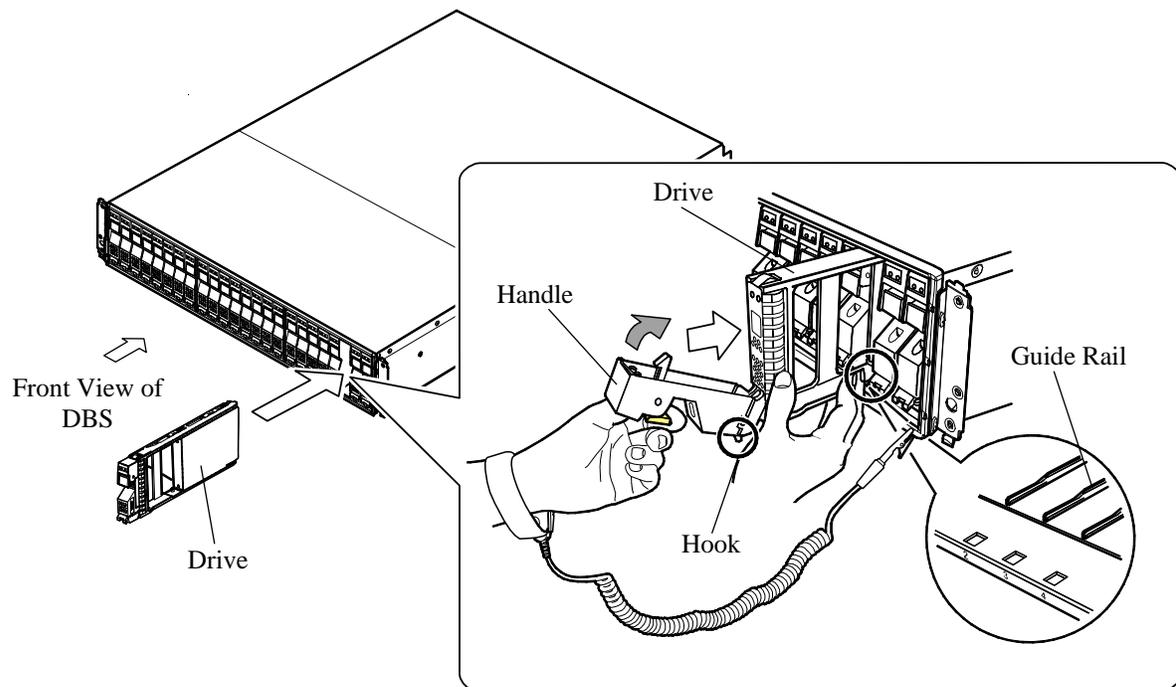


Fig. 3.3.2-8 Installation of Drive (for DBS)

2-1-5.3. Drive for DBX

- a. Open the handle, and insert the drive holding it with both hands.

NOTE: Check that there is no foreign substance near the connector and in the array before inserting the drive.

- b. Close the handle.

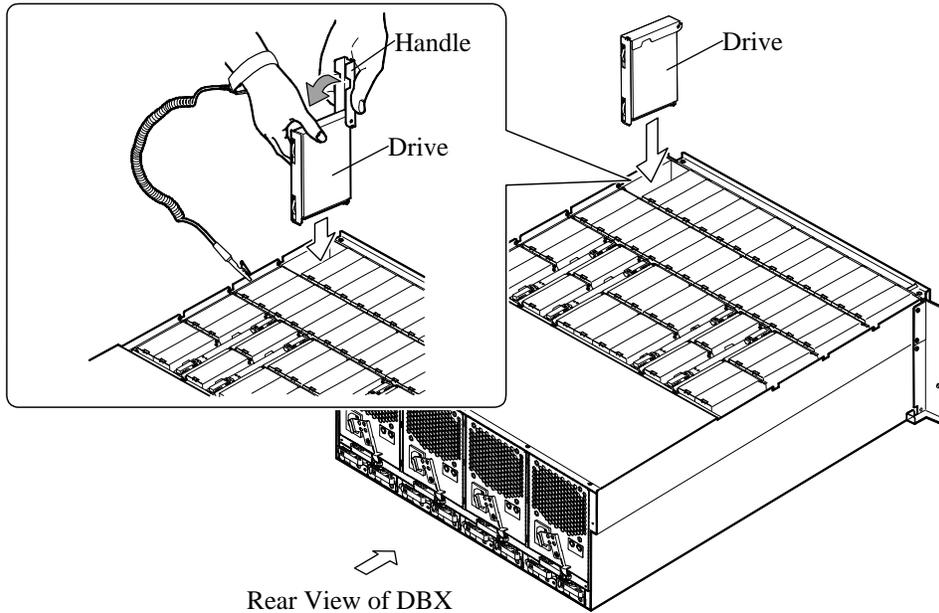


Fig. 3.3.2-9 Installation of Drive (for DBX)

2-1-5.4. Drive for DBF

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the DBF.

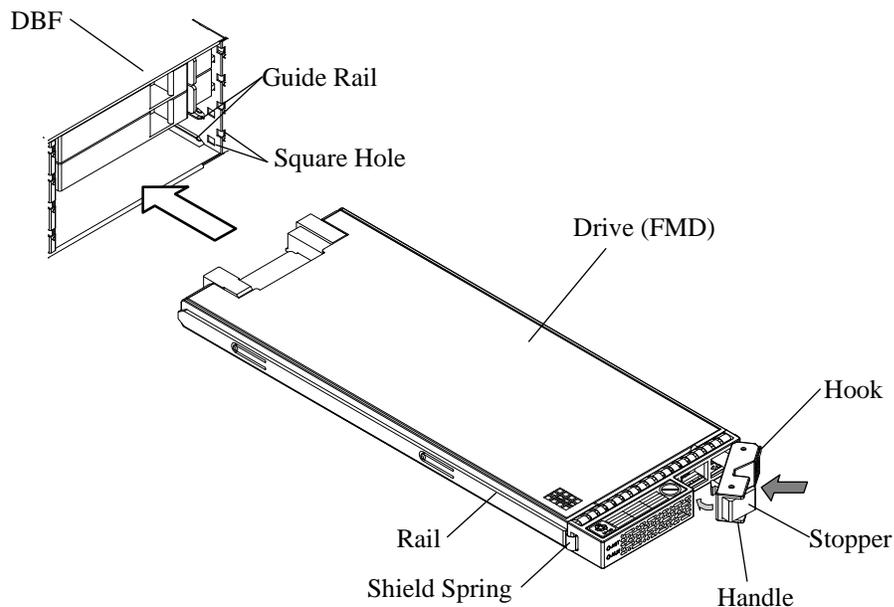


Fig. 3.3.2-10 Installation of Drive (for DBF)

2-1-6. Reinstall the DBX.

- a. If the DBX was drawn in the procedure 2-1-1, reinstall the DBX. (See [INST03-01-80](#).)
If the DBX was not drawn, go to the procedure 2-1-7.

2-1-7. Go to “3. POST-PROCESSING of SVP”.

⚠ CAUTION

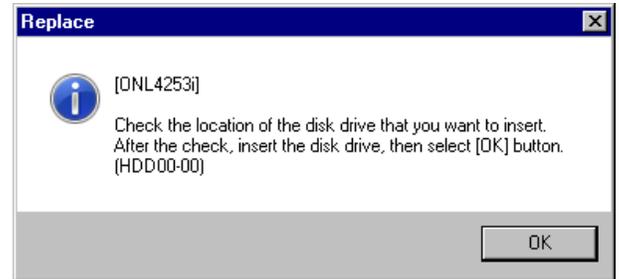
Before starting the <Check the beginning of recovery> operation in POST-PROCEDURES of SVP, be sure to insert a removable media for dump, collect failure information, and return the removable media with the failed HDD.

A dump removable media is attached with a Spare HDD.

3. POST-PROCESSING of SVP

3-1. <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.



3-2. <Get the error information>

NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK].

The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Select a Client PC arbitrary drive, and select (CL) [Ok].

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu.

The drive letter becomes the drive letter of console PC connected with SVP.

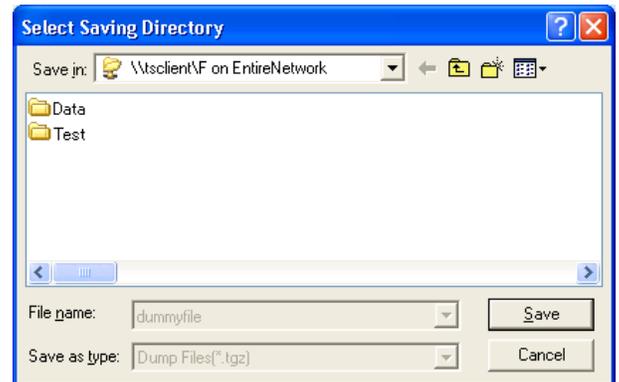
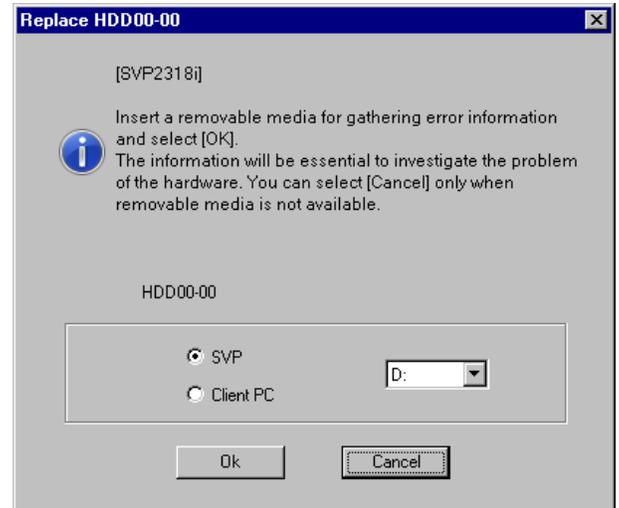
When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

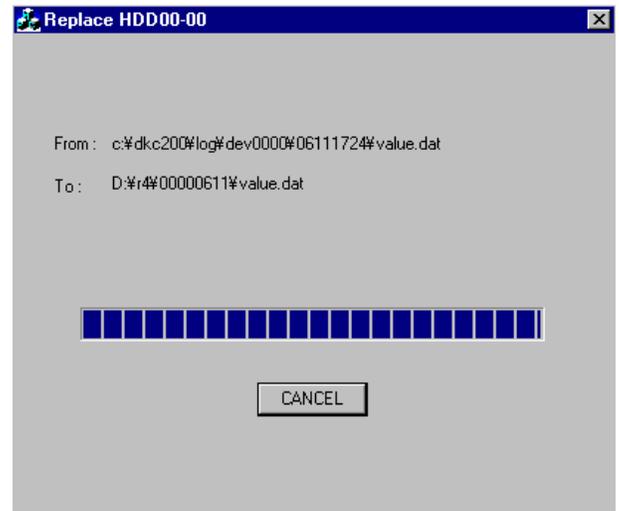
Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



3-3. <Copy of the error information>

The error information is copied onto media.



“Remove the media.” is displayed.
Select (CL) [OK].



3-4. <Spin up the Physical Drive>

“Spinning up...” is displayed.

3-5. <HDD INLINE>

“HDD INLINE is now running...” is displayed.

3-6. <Replacement of the HDD micro-program>

When the revision of the HDD micro-program in the SVP hard disk is newer than that in the PDEV, the following message appears on the screen.

The message “Exchanging HDD micro-program...” appears.

3-7. <Restore Physical Drive>

“Restoring...” is displayed.

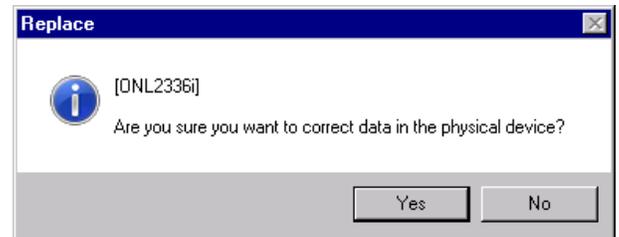
3-8. <Check the Physical Drive>

“Checking...” is displayed.

Device is still blocked.

3-9. <Check the beginning of correction copy>

Select (CL) [Yes] in response to “Are you sure you want to correct data in the physical device?”.

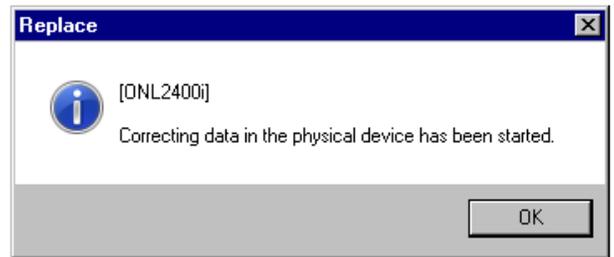


3-10. <Correct data>

“Correcting...” is displayed.

3-11. <Check the starting of Correction copy>

Select (CL) [OK] in response to “Correcting data in the physical device has been started.”.



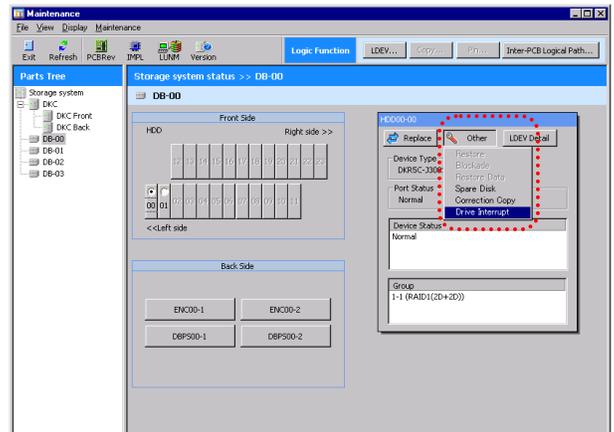
3-12. <Check the end of P-DEV recovery>

Select (CL) [OK] in response to “Replace finished.”.



3-13.

When interrupting the correction copy, select the PDEV to which the copy is being made and select (CL) the [Drive Interrupt] button.



3-14.

Go to POST-PROCEDURE [REP04-01-10].

[DRIVE REPLACEMENT PROCESSING - RDK4]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select P-DEV (status check)
 - ② Specify Replacement
 - ③ Block parity group (enter password)
 - ④ Restore the Logical Device
 - ⑤ Place HDD into unpluggable state
 - ⑥ Replace HDD
 - ⑦ Perform steps ② to ⑤ on blocked drives in parity group
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on P-DEV
 - ② Perform L-DEV formatting on P-DEV
 - ③ Recover with backup data

CAUTION

This is a special (exceptional) operation that can cause a serious failure such as a system down or a data loss and requires an input of a password. Ask the technical support division about the appropriateness of the operation, and input the password after getting an approval of executing the operation.

NOTICE: If No Charging of FMD (SIM = 50EXYY) occurs in replacement of a FMD, the FMD ACTIVE LED will change to low-speed blinking. In this case, it takes 90 minutes at most for the FMD ACTIVE LED to go out and for the battery in the FMD to be fully charged.

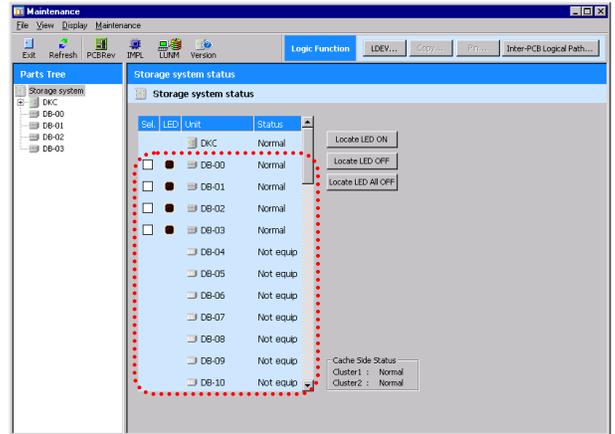
NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

1. PRE-PROCESSING of SVP

1-1. <Maintenance window>

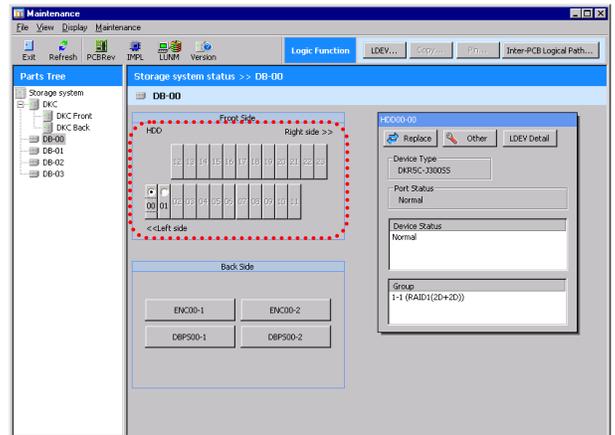
Open the 'Maintenance' window according to PRE PROCEDURE A (REP02-01-10).

Select (CL) the DB information [DB-*nn*] of the DB which installs the HDD to be replaced in the 'Maintenance' window.



1-2. <Select HDD>

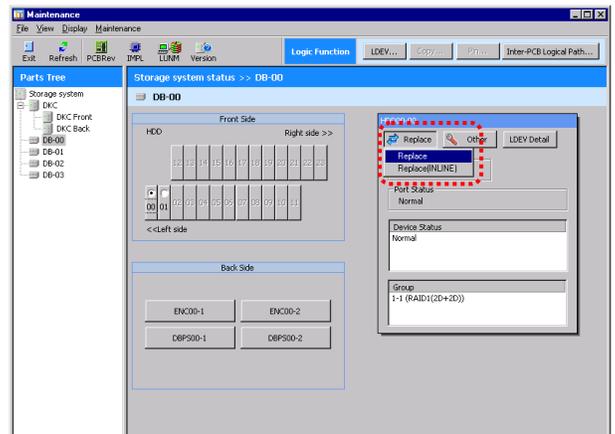
Check and select (CL) [*nn*] to be replaced.



1-3. <Specify replacement of HDD>

Make sure that the "Device Status" is [Failed].

Select (CL) [Replace]-[Replace].

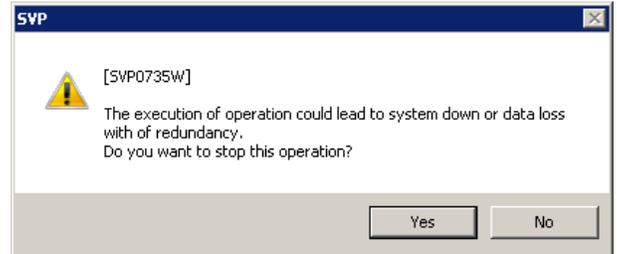


1-4. <Confirm lost data>

⚠ CAUTION

Executing this operation may cause a serious error such as a system down or a data loss. Accordingly, confirmation of the appropriateness of the operation and input of a password on the succeeding password input screen is required.

Select (CL) [No] in response to “The execution of operation could lead to system down or data loss with of redundancy. Do you want to stop this operation?”.

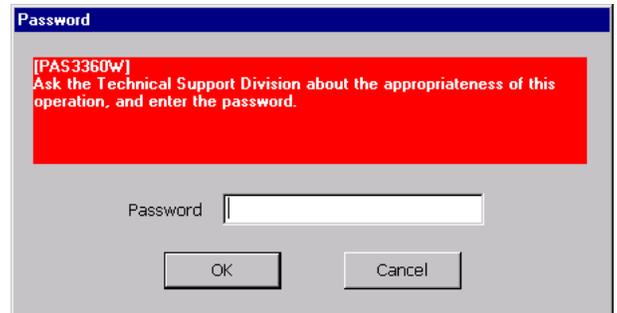


1-5. <Enter password>

⚠ CAUTION

This is a special (exceptional) operation that can cause a serious failure such as a system down or a data loss and requires an input of a password. Ask the technical support division about the appropriateness of the operation, and input the password after getting an approval of executing the operation.

Enter the password in response to “Ask the Technical Support Division about the appropriateness of this operation, and enter the password.” and select (CL) [OK]. Password is needed for this operation.



1-6. <Checking the P-DEV status>

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

“Checking...” is displayed.

When “You can restore the replaced physical device by restoring logical devices. Do you continue to this operation?” is displayed, PDEV is automatically recovered by recovering LDEV.



When you replace PDEV and format LDEV, please select (CL) [Yes]. Go to step 1-7.

When you want to change LDEV into a collection access state for the purpose of data backup, please select [No] and go to LDEV recovery for multiple PDEV failures (step 1-6-1).

1-6-1. Restore the Logical Device

CAUTION

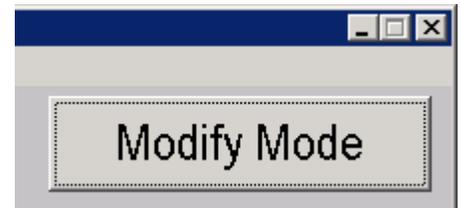
Executing this operation may cause a serious error such as a system down or a data loss. Accordingly, confirmation of the appropriateness of the operation and input of a password on the succeeding password input screen is required.

(1) <Preparation>

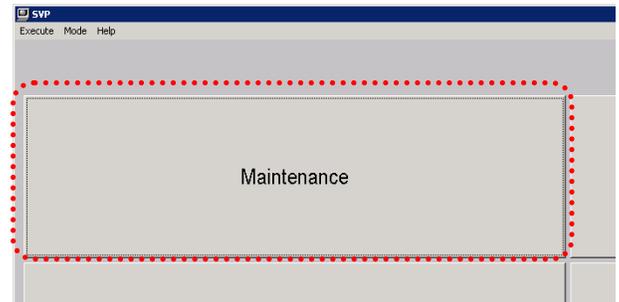
Close each menu of the starting SVP entirely.

(2) <Start>

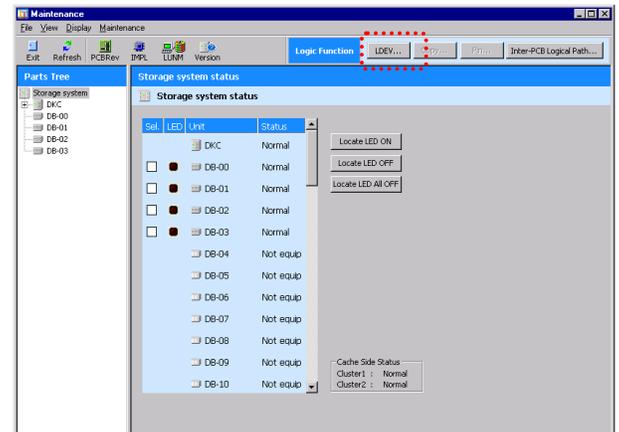
Change the mode to [Modify Mode].



Select (CL) the [Maintenance] in the 'SVP' window.



Select (CL) [LDEV...] on the dialog bar in the 'Maintenance' window.

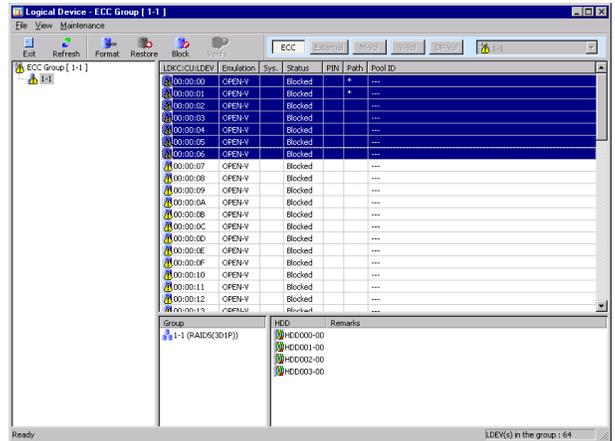


(3) <Selection of Logical Device>

⚠ CAUTION

Be careful enough not to make a mistake in selecting a device.

Select (CL) the target device (or group) from the list in the right of the 'Logical Device' window.



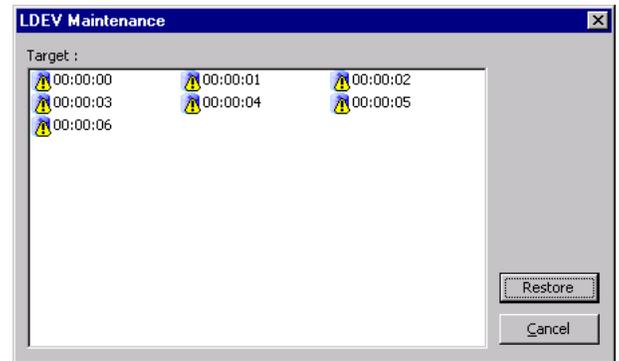
(4) <Execution>

Select (CL) [Restore] on the tool bar in the 'Logical Device' window.



(5) <Check>

Check the device (or group) to be restored in the 'LDEV Maintenance' window, and select (CL) [Restore].



(6) <Selection of Recovery Processing>

Select (CL) [Restore Type] in the 'Restore Logical Devices' window, and select (CL) [OK].

“Normal Restoration”
“Forcible Restoration”



■ Normal Restoration

Explanation:

In case LDEV(s) is (are) blocked due to multiple PDEV failures in one parity group, this option spins up the PDEV which was blocked last to restore the LDEV(s).

When to choose this option?

Use this option when you would like to restore the LDEV(s) that is (are) blocked due to multiple PDEV failures in one parity group.

⚠ CAUTION

The purpose of this action is to restore the PDEV blocked last and restore the parity group status to “correction access”. Therefore do not replace or self-replace any failed HDD in the parity group before performing this action.

■ Forcible Restoration

Explanation:

This option restores only the LDEV status forcibly without considering data consistency etc.

When all PDEV status in the parity group is “normal”, the LDEV status is changed from “blocked” to “normal”.

When to choose this option?

In case “Normal Restoration” cannot restore LDEV, use this option by following the instructions of the technical support division.

After PDEV is manually restored, the LDEV status is changed to “normal” forcibly.

CAUTION

The data consistency may not be guaranteed. Contact the technical support division to ask for instructions.

(7) <Password Input>

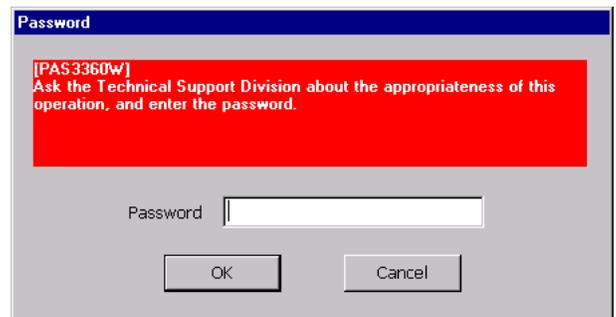
This operation is required only when “Forcible Restoration” is selected in Step (6).

CAUTION

This is a special (exceptional) operation that can cause a serious failure such as a system down or a data loss and requires an input of a password. Ask the technical support division about the appropriateness of the operation, and input the password after getting an approval of executing the operation.

Corresponding to the following message, enter the password and select (CL) the [OK] button.

“Ask the Technical Support Division about the appropriateness of this operation, and enter the password.”



(8) <Processing Wait>

The following message is displayed.

“Restoring the logical device...”

In case that, “Normal Restoration” is selected in Step (6).

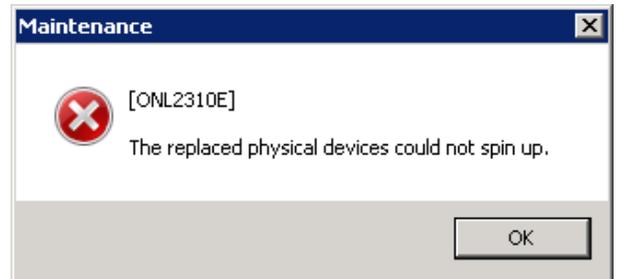
If multiple PDEV failures, the restoration processing of the recoverable PDEV is performed here.

This processing cannot recover it when the following message is displayed.

“The replaced physical devices could not spin up.”

Perform the procedure RDK4 refer to

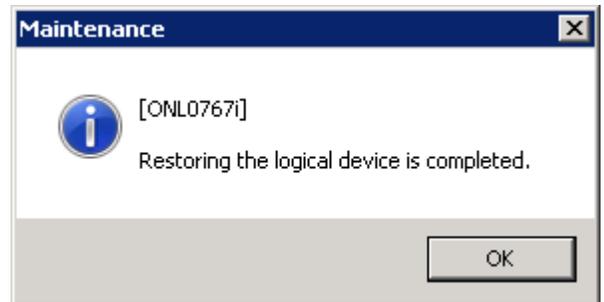
[REP01-250](#).



(9) <Completion Check>

When the restoration is completed, the following message is displayed. Select (CL) [OK].

“Restoring the logical device is completed.”



(10) <Check of Device Status>

Check the target device status in the 'Logical Device' window.

(11) <Post-processing>

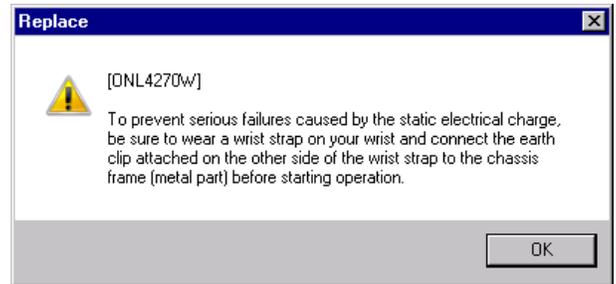
Close the 'Logical Device' window.

Close the 'Maintenance' window.

Change the mode to [View Mode].

1-7. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



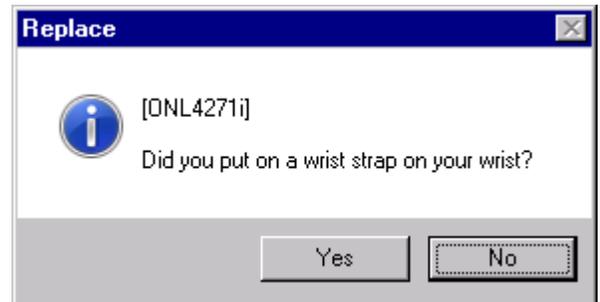
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

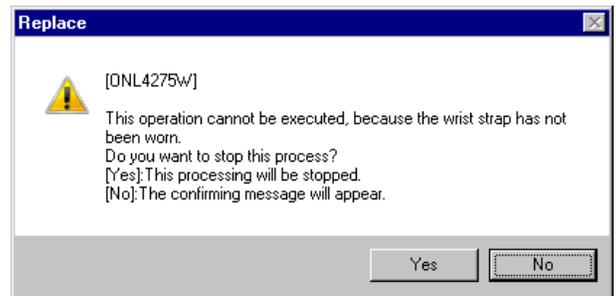


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

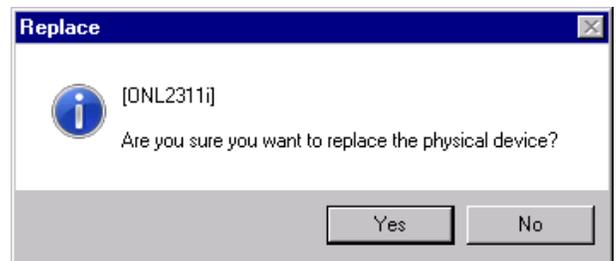


When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-7.

1-8. <P-DEV blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the physical device?”.



1-9. <Blocking the Physical device>

“Blocking...” is displayed.

1-10. <Spin down the Physical device>

“Spinning down...” is displayed.
The Shut down LED is lit.

1-11. <Check shut down LED>

CAUTION

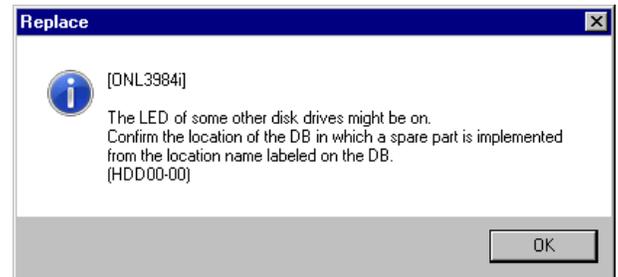
If a wrong HDD is removed, a data loss or a system down may occur. Therefore, reconfirm the location of the HDD to be replaced.

Check the shut down LED and the Locate LED on the HDD to be replaced.

If LED is off, reconfirm the location of the HDD to be replaced with LOCATION SECTION before replacing the hardware.

(1) Confirm the label on DB.

To confirm the label, the right messages are displayed.



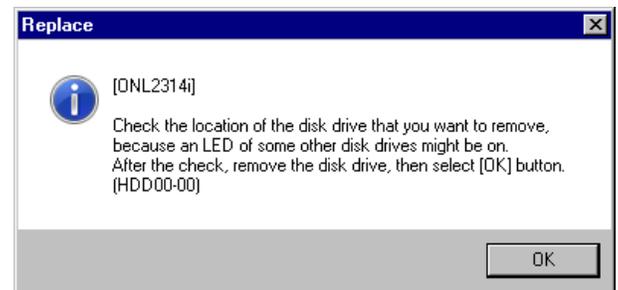
(2) The name in parentheses shows the position where HDD show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-12.

When [No] is selected (CL), returned to Step 1-11 (2).



1-12. <Confirm Removal>

Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-3)



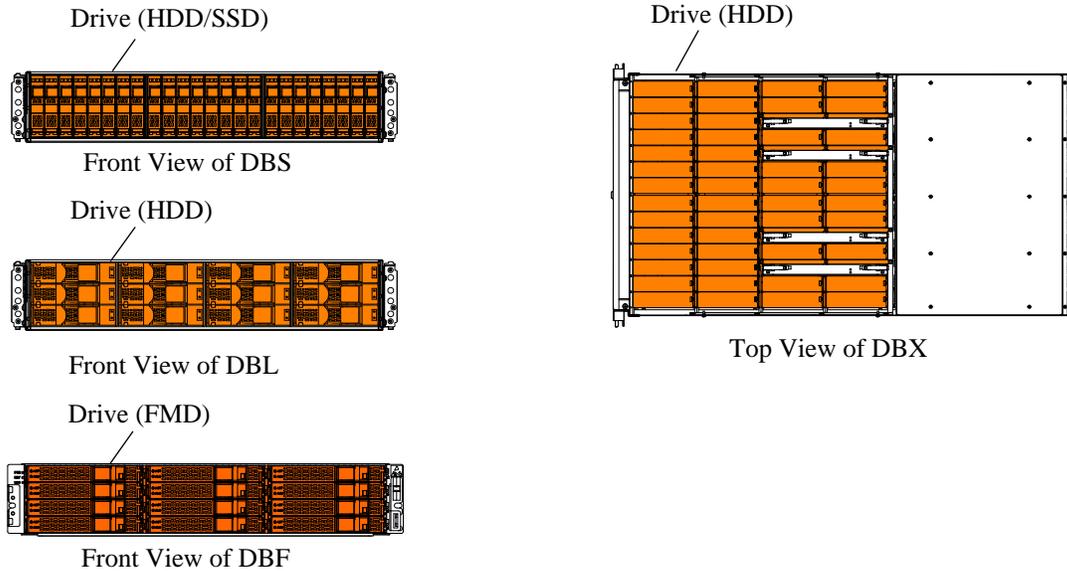
1-13. <Replace HDD>

Replace HDD.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location		Function Name of Component	Part Name	HDA Label
DBS	1	Disk Drive (HDD)	300GB/15k/6Gbps	S5C-K300SS
			600GB/10k/6Gbps	S5D-J600SS
				S5E-J600SS
				R5C-J600SS
				R5D-J600SS
			900GB/10k/6Gbps	S5D-J900SS
	S5E-J900SS			
	2	Flash Drive (SSD)	200GB/6Gbps/MLC	R5B-M200SS
				B5A-M200SS
			400GB/6Gbps/MLC	R5B-M400SS
B5A-M400SS				
800GB/6Gbps/MLC	B5A-M800SS			
	1.2TB/10k/6Gbps	R5E-J1R2SS		
DBL	3	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBX	4	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBF	5	Flash Module Drive (FMD)	1.6TB/6Gbps/MLC	H1A-P1R6SS
			3.2TB/6Gbps/MLC	H1B-P3R2SS



- NOTICE:**
- Replace the drive in the storage system in power on status only. Do not replace the drive in power off status.
 - Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - HDD is a precise component. Be careful in handling HDD to avoid vibration and impact.

2-1	Drive (HDD/SSD/FMD) Replacement Procedure
-----	---

2-1-1. Draw the DBX.

- (1) If the drive to be replaced is installed in the DBX, draw the DBX. (See [INST03-01-60](#))
If the drive to be replaced is installed in the DBL/DBS/DBF, go to the procedure 2-1-2.

2-1-2. Check the Shut Down LED.

- a. Check that the Shut Down LED on drive is turned on.

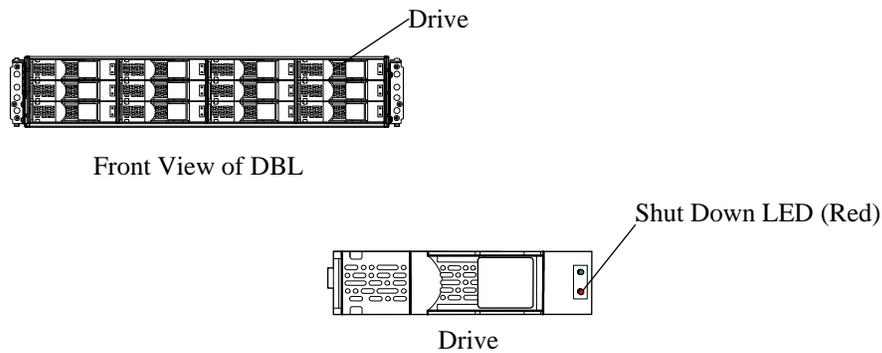


Fig. 3.4.2-1 Checking of Shut Down LED (for DBL)

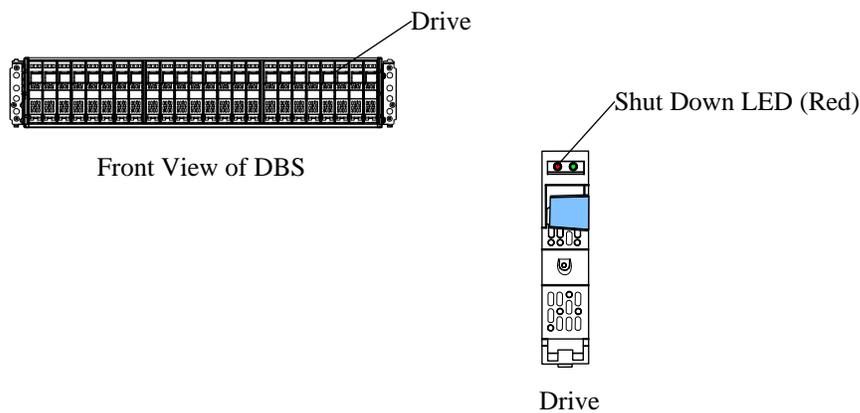


Fig. 3.4.2-2 Checking of Shut Down LED (for DBS)

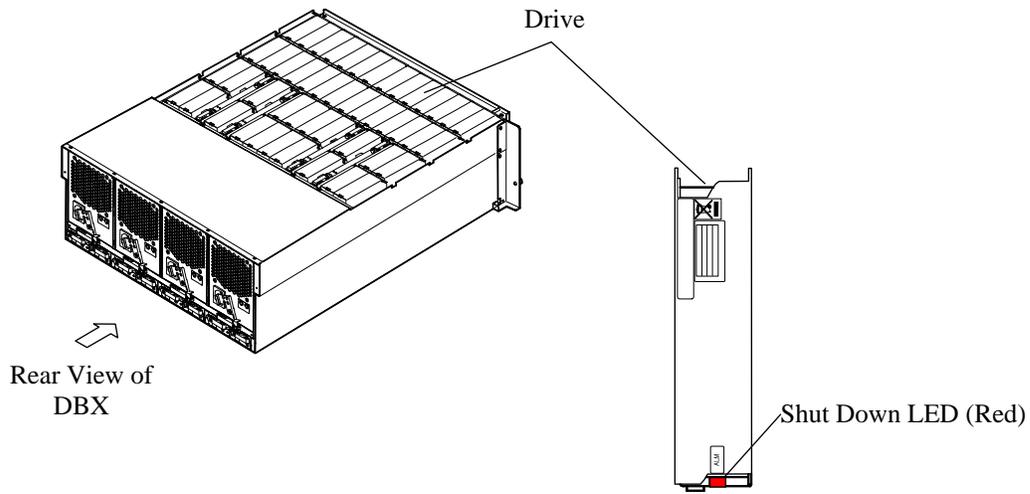


Fig. 3.4.2-3 Checking of Shut Down LED (for DBX)

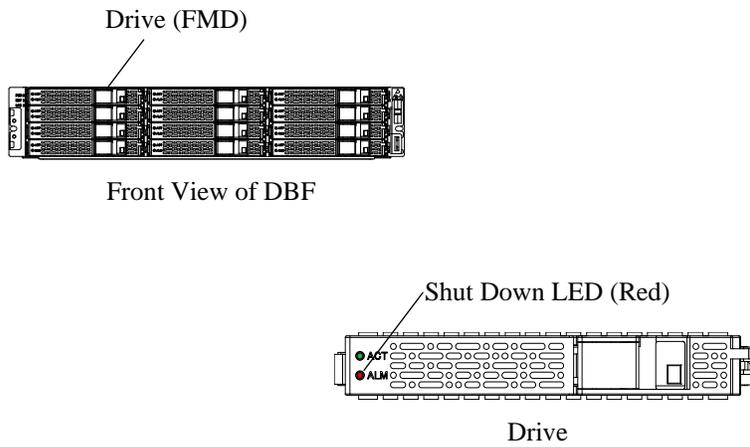


Fig. 3.4.2-3A Checking of Shut Down LED (for DBF)

2-1-3. Remove the drive (HDD/SSD/FMD).

2-1-3.1. Drive for DBL

- Pull the stopper of the drive handle toward you to have the lock off.
- Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

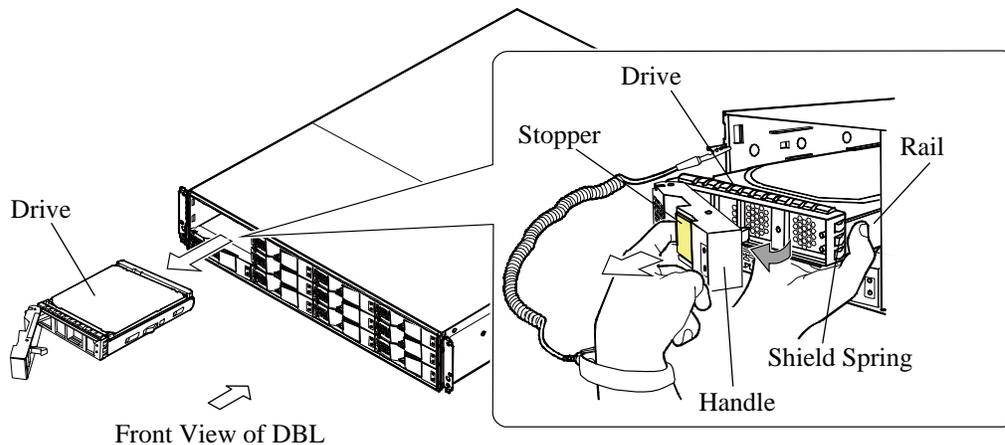


Fig. 3.4.2-4 Removal of Drive (for DBL)

2-1-3.2. Drive for DBS

- Pull up the stopper of the drive handle toward you to release the lock.
- Open the handle toward you, and then pull out and remove the drive to be replaced not to give a shock.

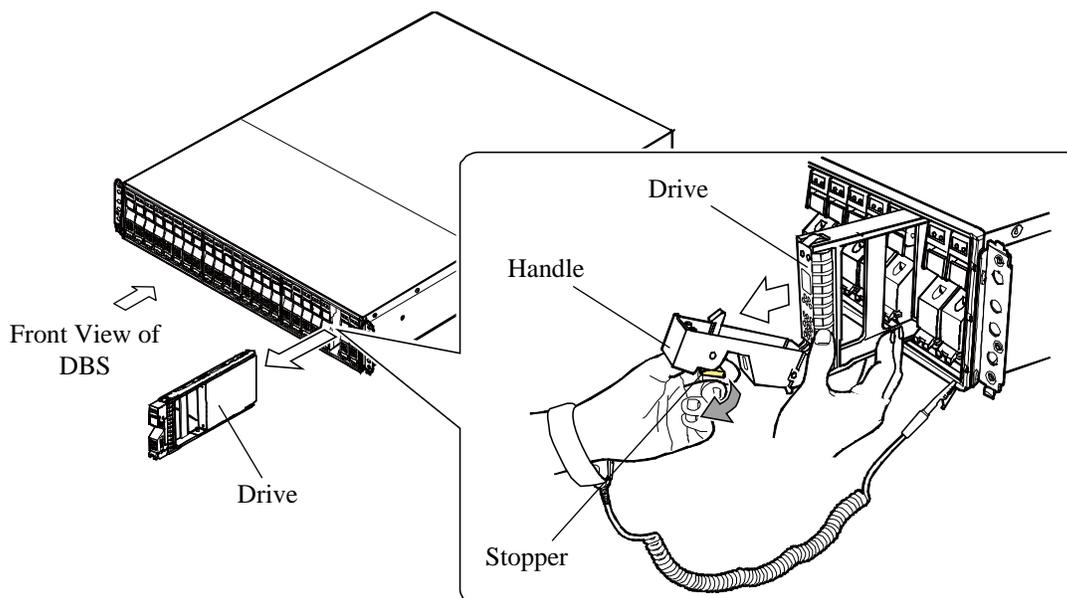


Fig. 3.4.2-5 Removal of Drive (for DBS)

2-1-3.3. Drive for DBX

- a. Slide the latch (blue) on the drive and open the handle.
- b. Pull out and remove the drive to be replaced taking care not to apply a shock to it.

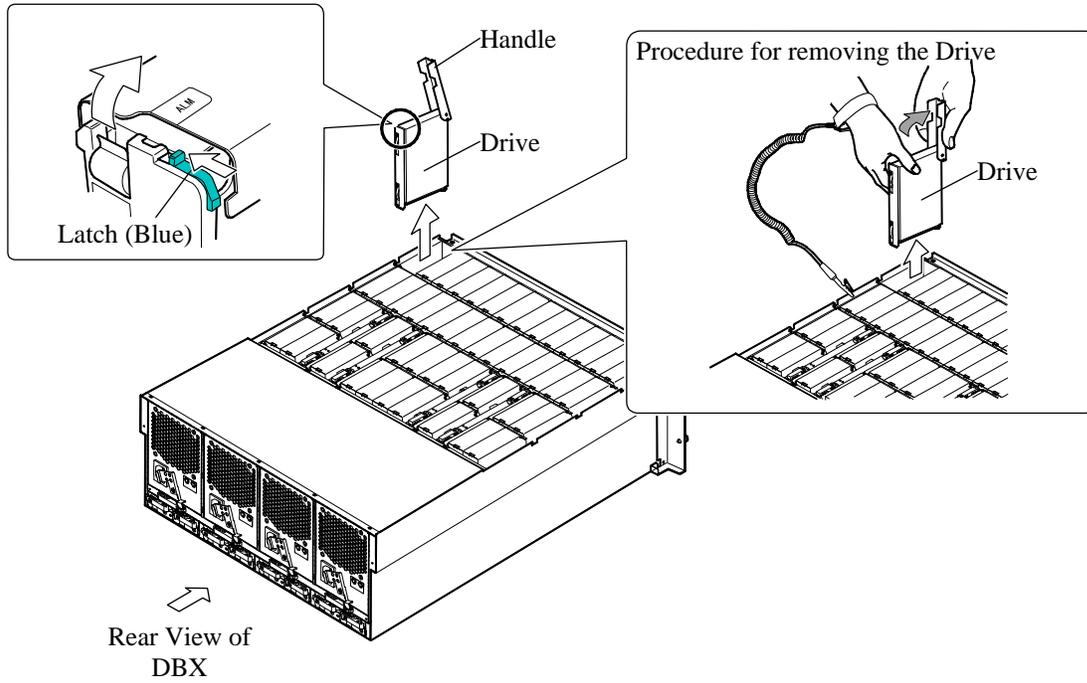


Fig. 3.4.2-6 Removal of Drive (for DBX)

2-1-3.4. Drive for DBF

NOTICE: When the FMD is removed in replacing procedure, the fans of the DBPS equipped in the rear of the DBF rotate at the highest speed. When the spare FMD is installed, the fans of the DBPS rotate at the speed suitable for environmental temperature.

- a. Pull the stopper of the drive handle toward you to have the lock off.
- b. Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

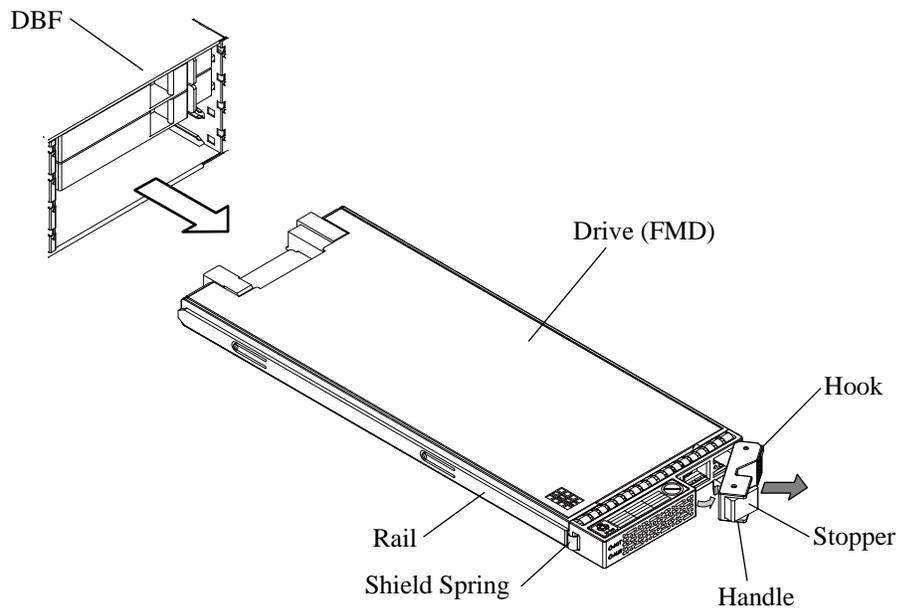
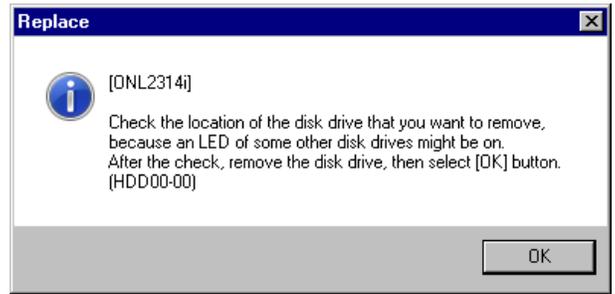


Fig. 3.4.2-6A Removal of Drive (for DBF)

2-1-4. Check and handling of the drive.

(1) <Confirm Removal>

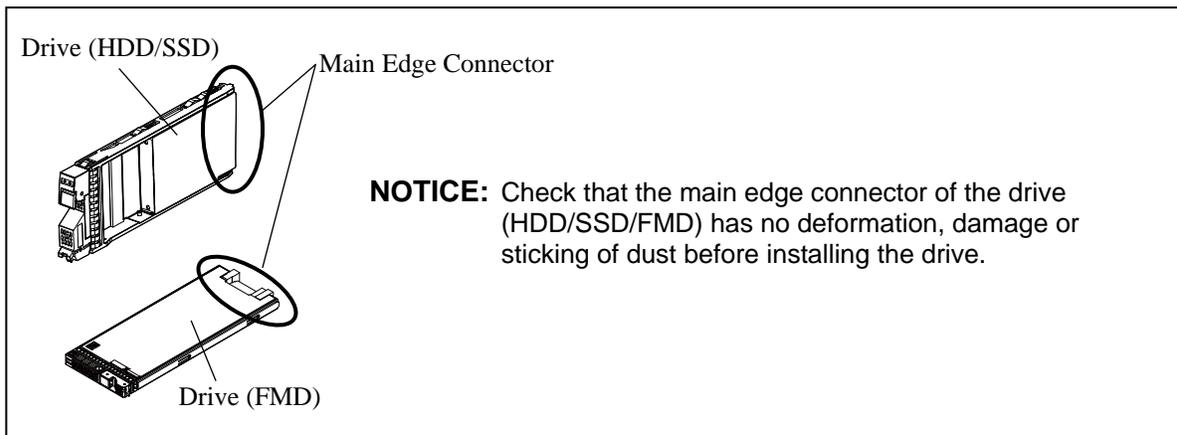
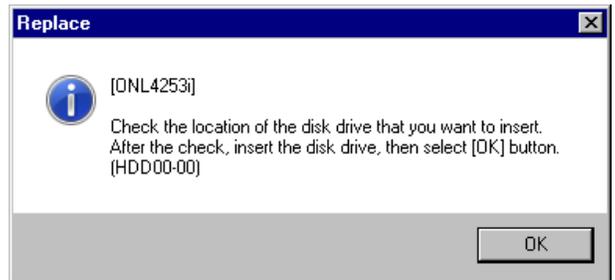
Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-1-3)



(2) <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.

After the unit is installed select (CL) [OK] button. Go to step 2-1-5.



2-1-5. Install the drive.

2-1-5.1. Drive for DBL

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

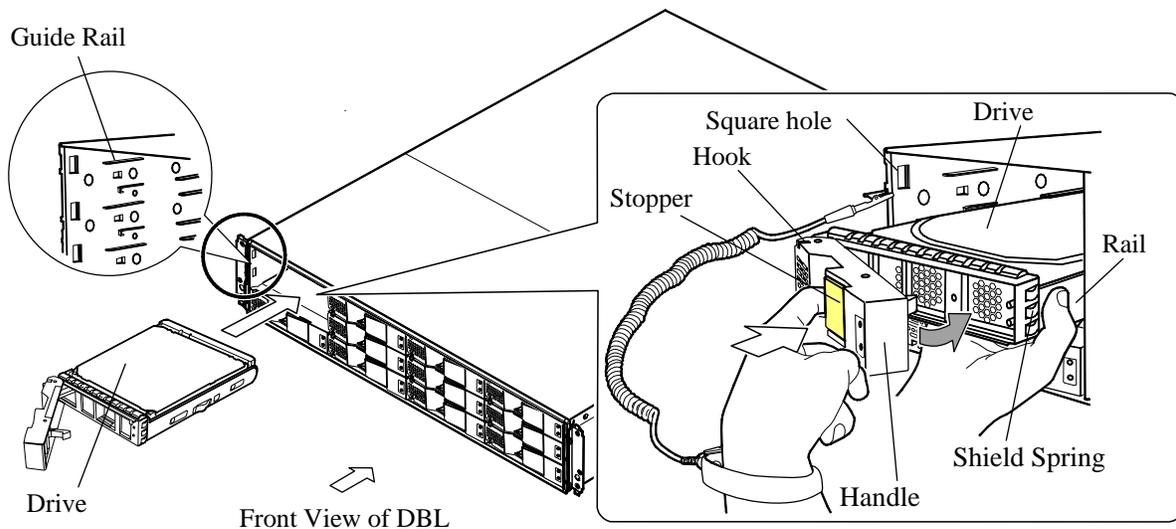


Fig. 3.4.2-7 Installation of Drive (for DBL)

2-1-5.2. Drive for DBS

- Fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the drive array unit.
- Raise the stopper, which has been tilted toward you, and then press the stopper to have the lock on.

If the handle is raised in the state where the hook of the handle cannot enter into each hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

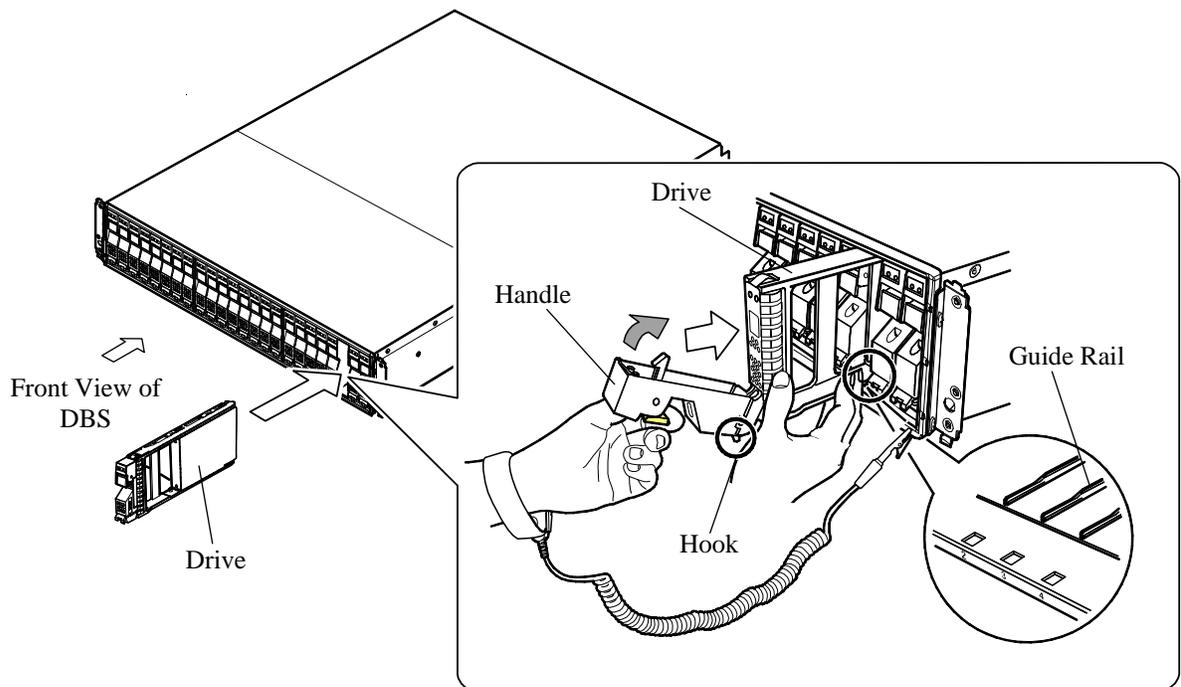


Fig. 3.4.2-8 Installation of Drive (for DBS)

2-1-5.3. Drive for DBX

- a. Open the handle, and insert the drive holding it with both hands.

NOTE: Check that there is no foreign substance near the connector and in the array before inserting the drive.

- b. Close the handle.

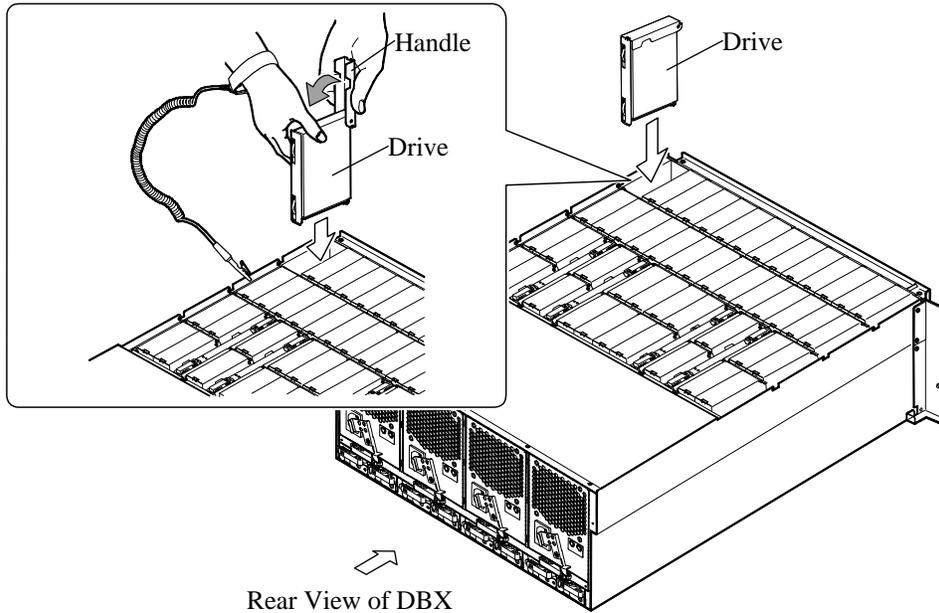


Fig. 3.4.2-9 Installation of Drive (for DBX)

2-1-5.4. Drive for DBF

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the DBF.

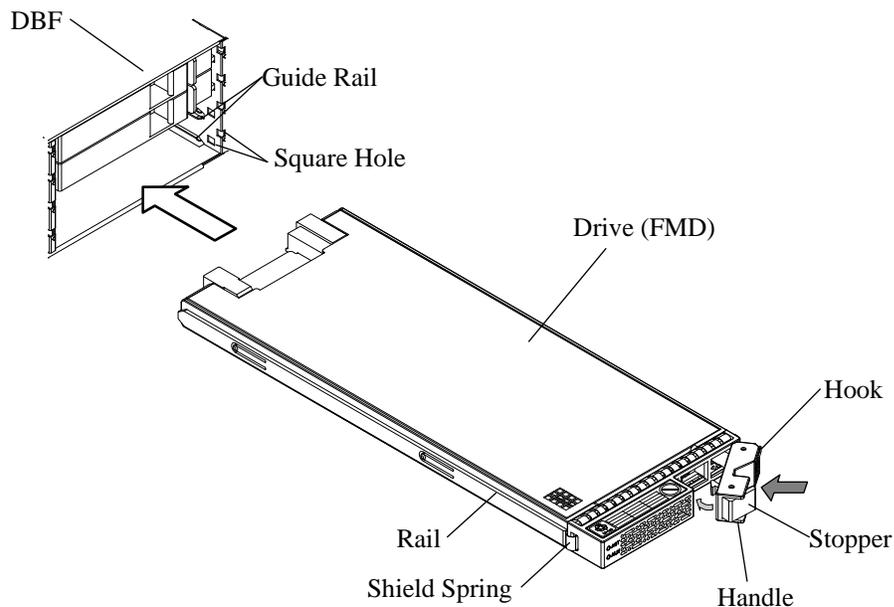


Fig. 3.4.2-10 Installation of Drive (for DBF)

2-1-6. Reinstall the DBX.

- a. If the DBX was drawn in the procedure 2-1-1, reinstall the DBX. (See [INST03-01-80](#).)
If the DBX was not drawn, go to the procedure 2-1-7.

2-1-7. Go to “3. POST-PROCESSING of SVP”.

⚠ CAUTION

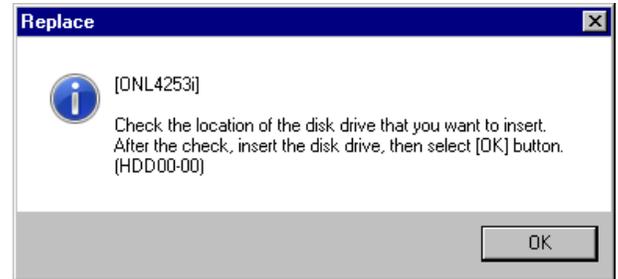
Before starting the <Check the beginning of recovery> operation in POST-PROCEDURES of SVP, be sure to insert a removable media for dump, collect failure information, and return the removable media with the failed HDD.

A dump removable media is attached with a Spare HDD.

3. POST-PROCESSING of SVP

3-1. <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.



3-2. <Get the error information>

NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK].

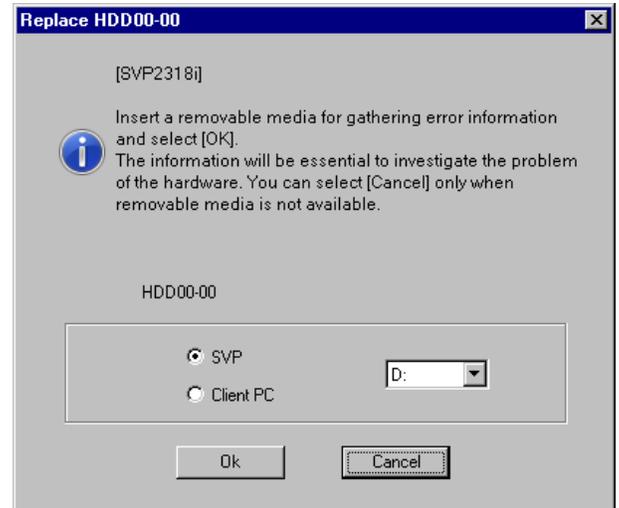
The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Select a Client PC arbitrary drive, and select (CL) [Ok].

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu.

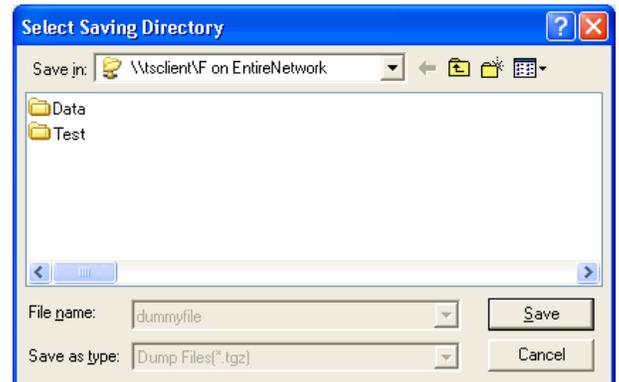
The drive letter becomes the drive letter of console PC connected with SVP.



When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

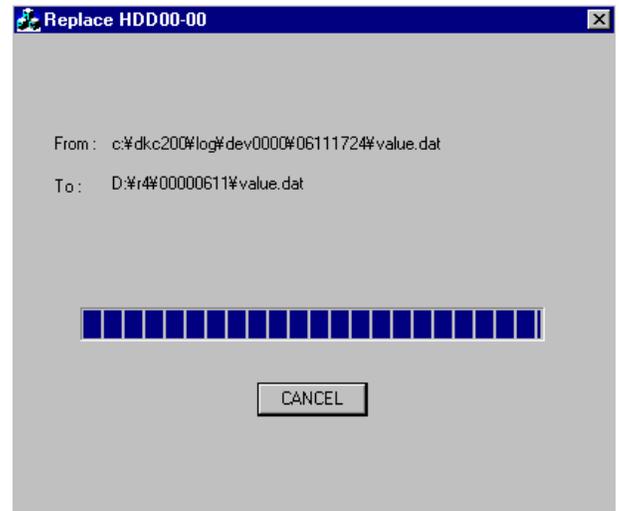


Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).

3-3. <Copy of the error information>

The error information is copied onto media.



“Remove the media.” is displayed.
Select (CL) [OK].



3-4. <Spin up the Physical Drive>
“Spinning up...” is displayed.

3-5. <HDD INLINE>
“HDD INLINE is now running...” is displayed.

3-6. <Replacement of the HDD micro-program>
When the revision of the HDD micro-program in the SVP hard disk is newer than that in the PDEV, the following message appears on the screen.
The message “Exchanging HDD micro-program...” appears.

3-7. <Restore Physical Drive>
“Restoring...” is displayed.

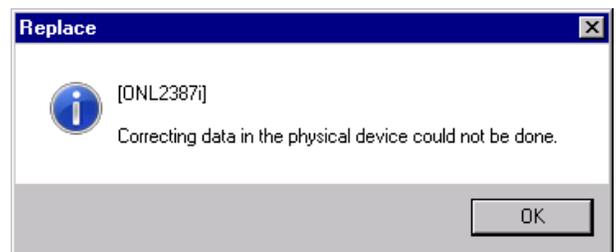
3-8. <Check the Drive status>
“Checking...” is displayed.

3-9. <Correction Copy disable message>

 **CAUTION**

If a blocked HDD exists in the same parity group, replace the HDD.
After confirming that "NORMAL" is indicated for all the HDDs in the same parity group, execute an L-DEV formatting following the procedure below.

Select (CL) [OK] in response to “Correcting data in the physical device could not be done.”.

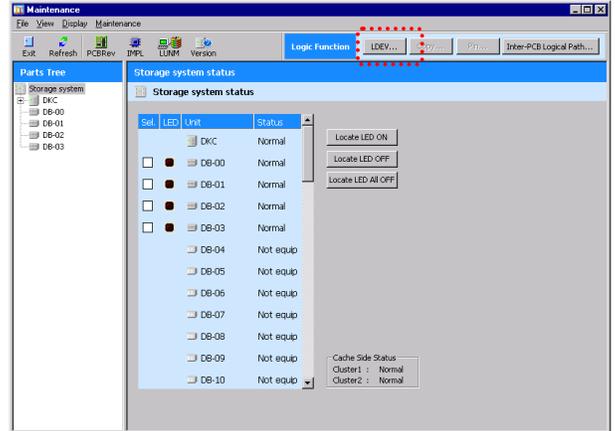


3-10. <Select [LDEV...]>

CAUTION

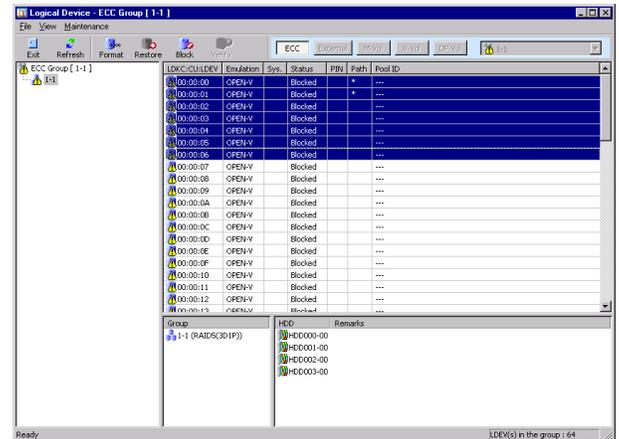
Before you perform following steps, be sure to call T.S.D.
Data stored in Logical Device will be lost due to formatting Logical Device.

Select (CL) [LDEV...] from [Maintenance].



3-11. <Logical Device Status>

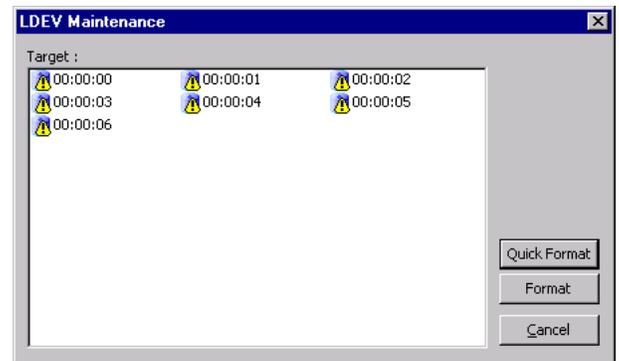
Select (CL) [Format].



3-12. <Format Logical Device>

Select (CL) [Format] or [Quick Format].

If the target LDEV is not blocked, return to 'Logical Device' dialog box.

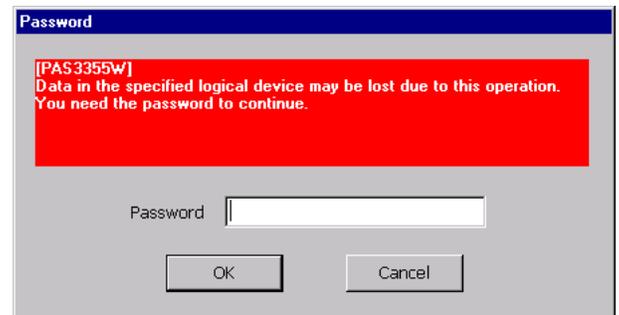


3-13. <Caution message for DATA lost>

⚠ CAUTION

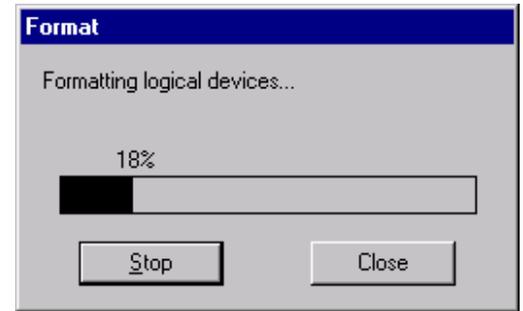
This is a special (exceptional) operation that can cause a serious failure such as a system down or a data loss and requires an input of a password. Ask the technical support division about the appropriateness of the operation, and input the password after getting an approval of executing the operation.

“Data in the specified logical device may be lost due to this operation. You need the password to continue.” is displayed. Enter the password and select (CL) [OK].

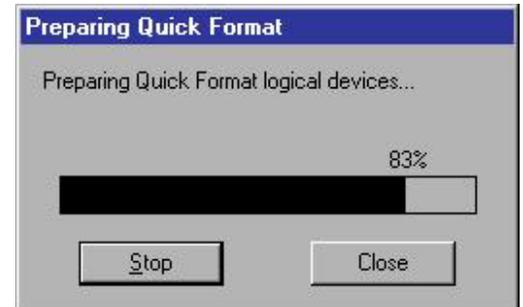


3-14. <Confirmation of processing progress>

- In case of LDEV formatting
“Formatting logical devices...” is displayed.

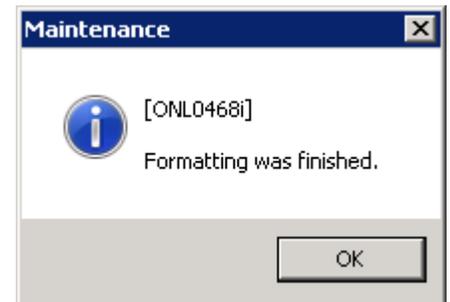


- In case of Quick Format
“Preparing Quick Format logical devices...” is displayed.

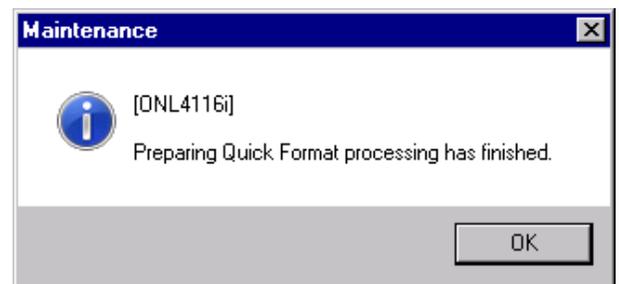


3-15. <Confirmation of processing end>

- In case of LDEV formatting
Select (CL) [OK] in response to “Formatting was finished.”.



- In case of Quick Format
Select (CL) [OK] in response to “Preparing Quick Format processing has finished.”.



3-16. <Recover data>

- Ask the customer for recovering data with backup data.
Go to POST-PROCEDURE [\[REP04-01-10\]](#).

[DRIVE REPLACEMENT PROCESSING - RDK5]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select P-DEV (status check)
 - ② Specify Replacement
 - ③ Place HDD into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on P-DEV
 - ② Specify recovery

NOTICE: If No Charging of FMD (SIM = 50EXYY) occurs in replacement of a FMD, the FMD ACTIVE LED will change to low-speed blinking. In this case, it takes 90 minutes at most for the FMD ACTIVE LED to go out and for the battery in the FMD to be fully charged.

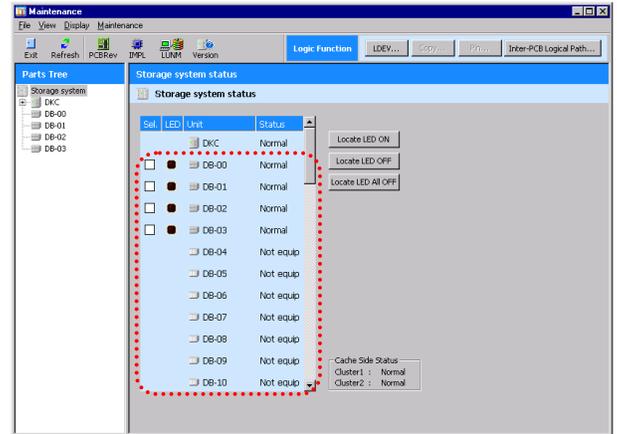
NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

1. PRE-PROCESSING of SVP

1-1. <Maintenance window>

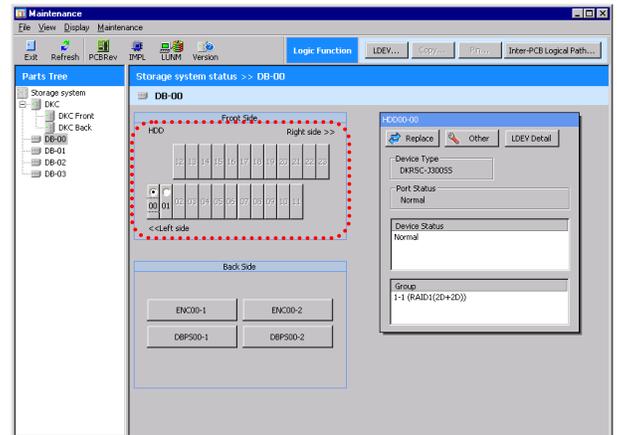
Open the 'Maintenance' window according to PRE PROCEDURE A (REP02-01-10).

Select (CL) the DB information [DB-*nn*] of the DB which installs the HDD to be replaced in the 'Maintenance' window.



1-2. <Select HDD>

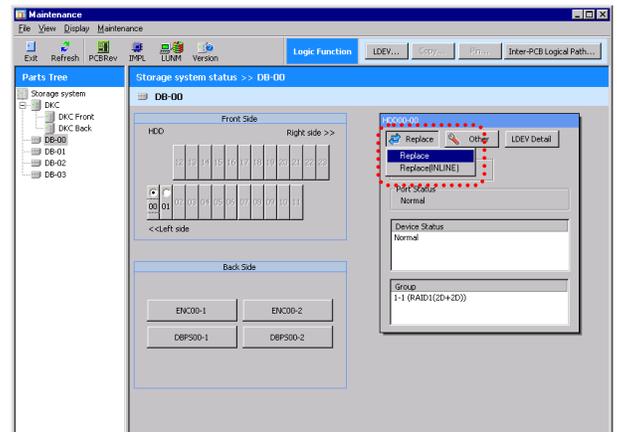
Check and select (CL) [*nn*] to be replaced.



1-3. <Specify replacement of HDD>

Make sure that the "Device Status" is [Failed] or [Warning].

Select (CL) [Replace]-[Replace].



1-4. <Checking the P-DEV status>

CAUTION

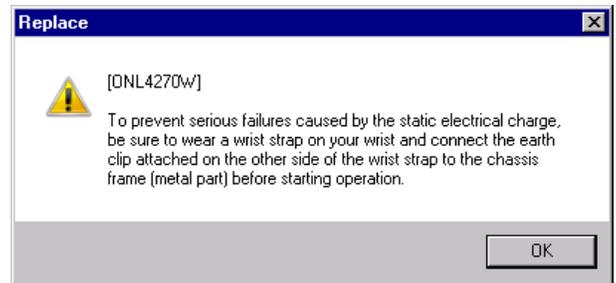
When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

“Checking...” is displayed.

1-5. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



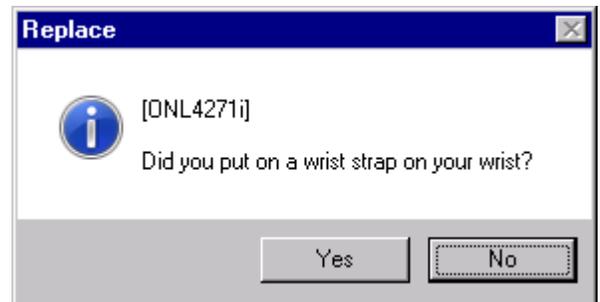
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

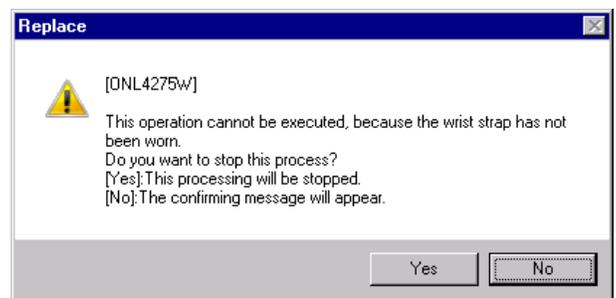


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

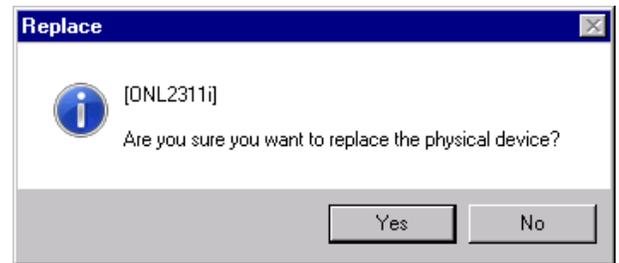


When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-5.

1-6. <P-DEV blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the physical device?”.



1-7. <Blocking the Physical device>

“Blocking...” is displayed.

1-8. <Spin down the Physical device>

“Spinning down...” is displayed.

1-9. <Check shut down LED>

CAUTION

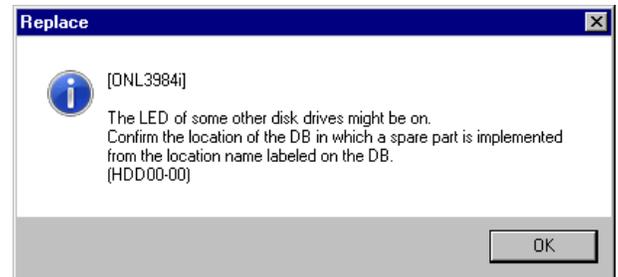
If a wrong HDD is removed, a data loss or a system down may occur. Therefore, reconfirm the location of the HDD to be replaced.

Check the shut down LED and the Locate LED on the HDD to be replaced.

If LED is off, reconfirm the location of the HDD to be replaced with LOCATION SECTION before replacing the hardware.

(1) Confirm the label on DB.

To confirm the label, the right messages are displayed.



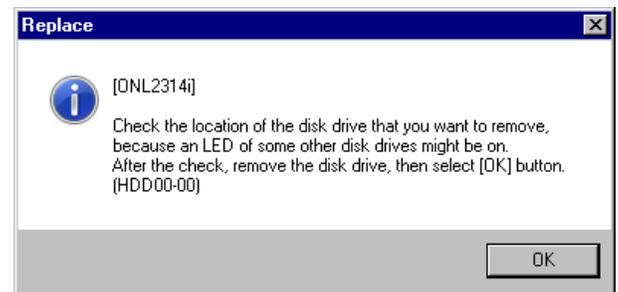
(2) The name in parentheses shows the position where HDD show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-10.

When [No] is selected (CL), returned to Step 1-9 (2).



1-10. <Confirm Removal>

Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-3)



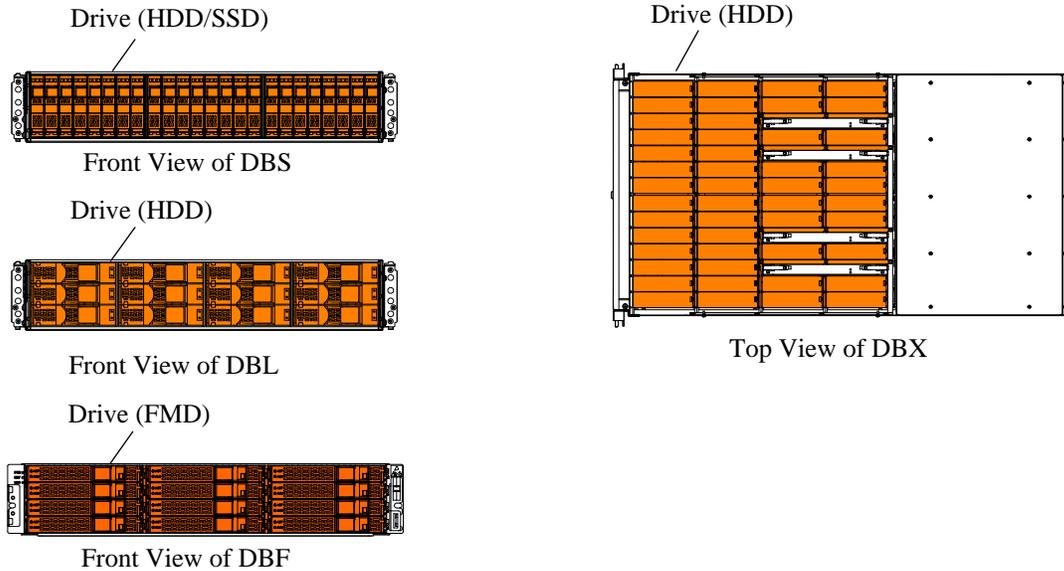
1-11. <Replace HDD>

Replace HDD.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location		Function Name of Component	Part Name	HDA Label
DBS	1	Disk Drive (HDD)	300GB/15k/6Gbps	S5C-K300SS
			600GB/10k/6Gbps	S5D-J600SS
				S5E-J600SS
				R5C-J600SS
				R5D-J600SS
			900GB/10k/6Gbps	S5D-J900SS
	S5E-J900SS			
	2	Flash Drive (SSD)	200GB/6Gbps/MLC	R5B-M200SS
				B5A-M200SS
			400GB/6Gbps/MLC	R5B-M400SS
B5A-M400SS				
800GB/6Gbps/MLC	B5A-M800SS			
	1.2TB/10k/6Gbps	R5E-J1R2SS		
DBL	3	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBX	4	Disk Drive (HDD)	3TB/7.2k/6Gbps	S2D-H3R0SS
				S2E-H3R0SS
				R2D-H3R0SS
			4TB/7.2k/6Gbps	S2E-H4R0SS
DBF	5	Flash Module Drive (FMD)	1.6TB/6Gbps/MLC	H1A-P1R6SS
			3.2TB/6Gbps/MLC	H1B-P3R2SS



- NOTICE:**
- Replace the drive in the storage system in power on status only. Do not replace the drive in power off status.
 - Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - HDD is a precise component. Be careful in handling HDD to avoid vibration and impact.

2-1	Drive (HDD/SSD/FMD) Replacement Procedure
-----	---

2-1-1. Draw the DBX.

- (1) If the drive to be replaced is installed in the DBX, draw the DBX. (See [INST03-01-60](#))
If the drive to be replaced is installed in the DBL/DBS/DBF, go to the procedure 2-1-2.

2-1-2. Check the Shut Down LED.

- a. Check that the Shut Down LED on drive is turned on.

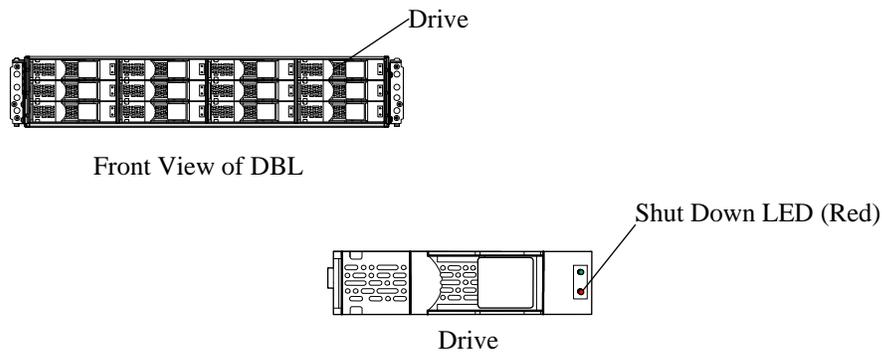


Fig. 3.5.2-1 Checking of Shut Down LED (for DBL)

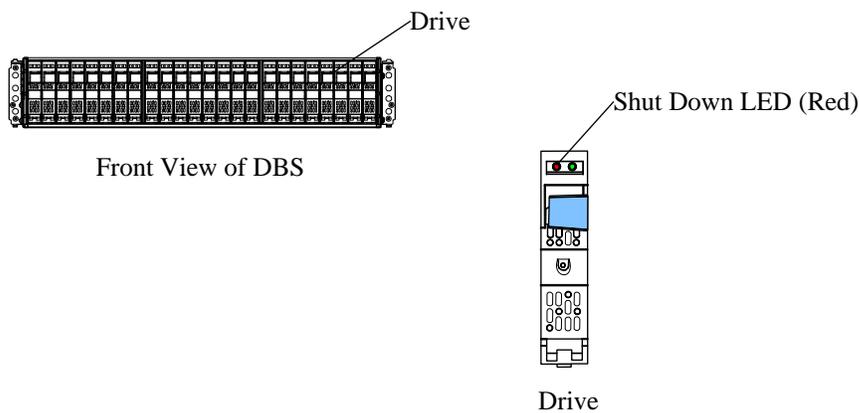


Fig. 3.5.2-2 Checking of Shut Down LED (for DBS)

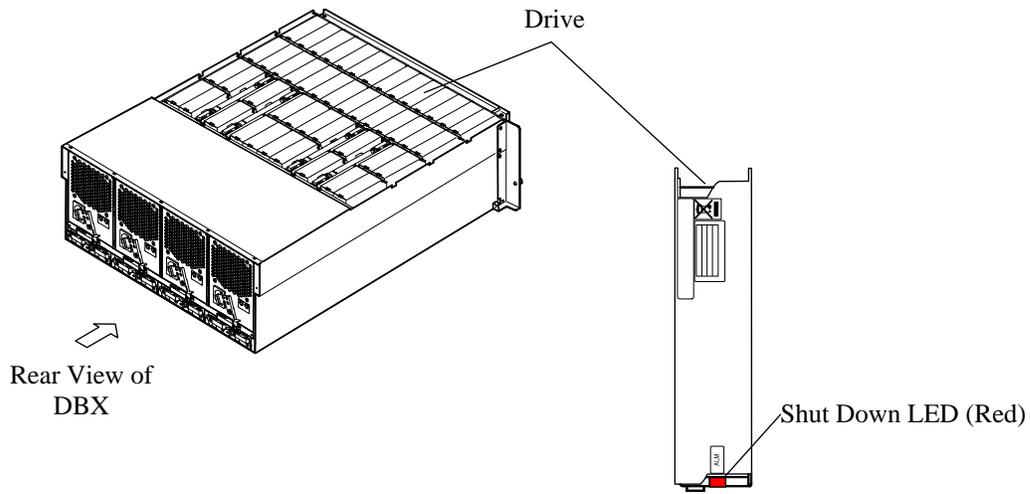


Fig. 3.5.2-3 Checking of Shut Down LED (for DBX)

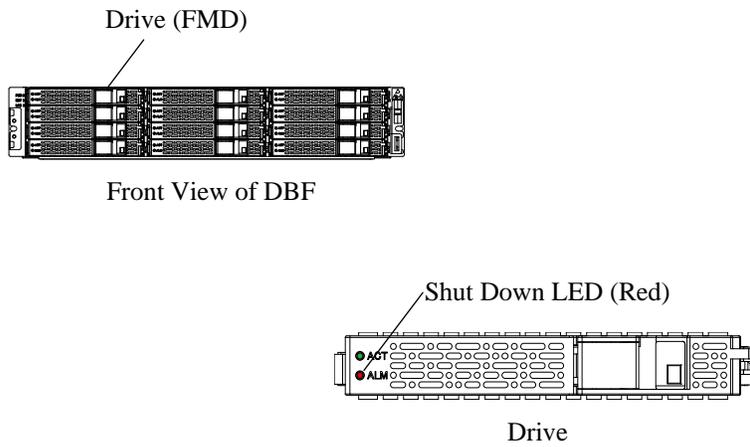


Fig. 3.5.2-3A Checking of Shut Down LED (for DBF)

2-1-3. Remove the drive (HDD/SSD/FMD).

2-1-3.1. Drive for DBL

- Pull the stopper of the drive handle toward you to have the lock off.
- Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

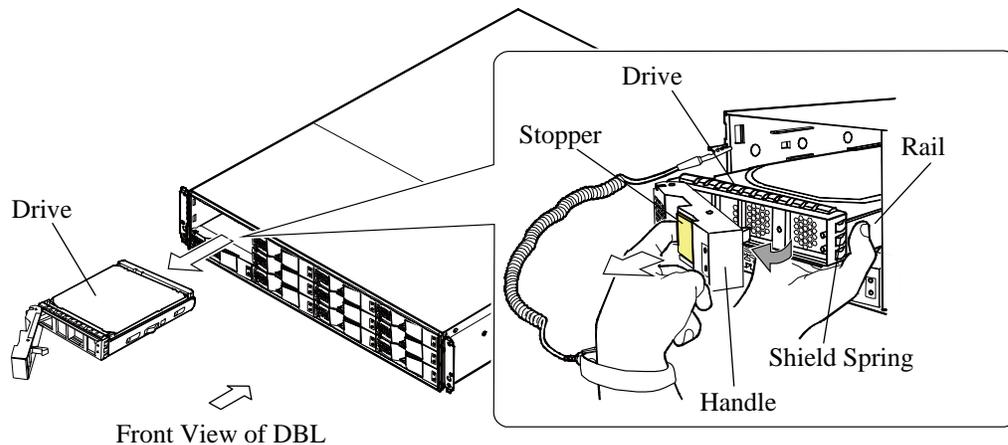


Fig. 3.5.2-4 Removal of Drive (for DBL)

2-1-3.2. Drive for DBS

- Pull up the stopper of the drive handle toward you to release the lock.
- Open the handle toward you, and then pull out and remove the drive to be replaced not to give a shock.

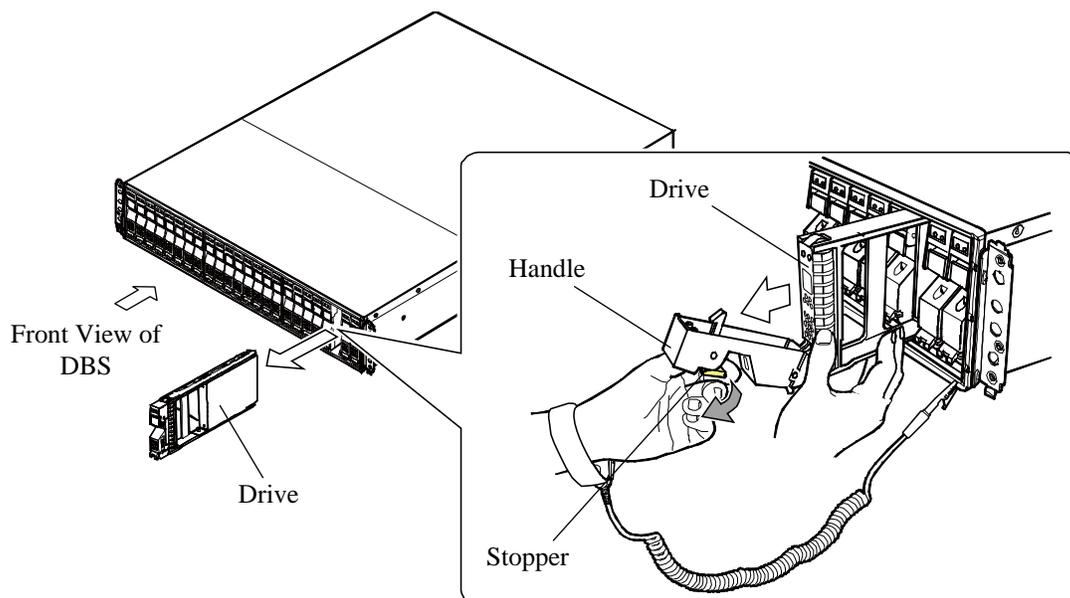


Fig. 3.5.2-5 Removal of Drive (for DBS)

2-1-3.3. Drive for DBX

- a. Slide the latch (blue) on the drive and open the handle.
- b. Pull out and remove the drive to be replaced taking care not to apply a shock to it.

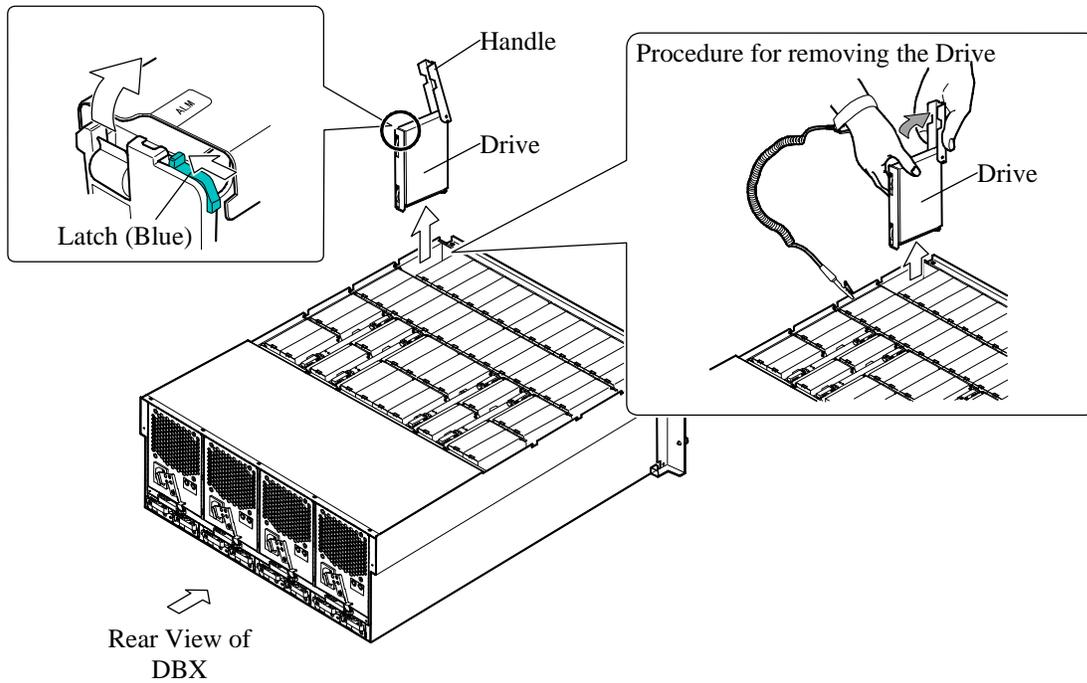


Fig. 3.5.2-6 Removal of Drive (for DBX)

2-1-3.4. Drive for DBF

NOTICE: When the FMD is removed in replacing procedure, the fans of the DBPS equipped in the rear of the DBF rotate at the highest speed. When the spare FMD is installed, the fans of the DBPS rotate at the speed suitable for environmental temperature.

- a. Pull the stopper of the drive handle toward you to have the lock off.
- b. Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

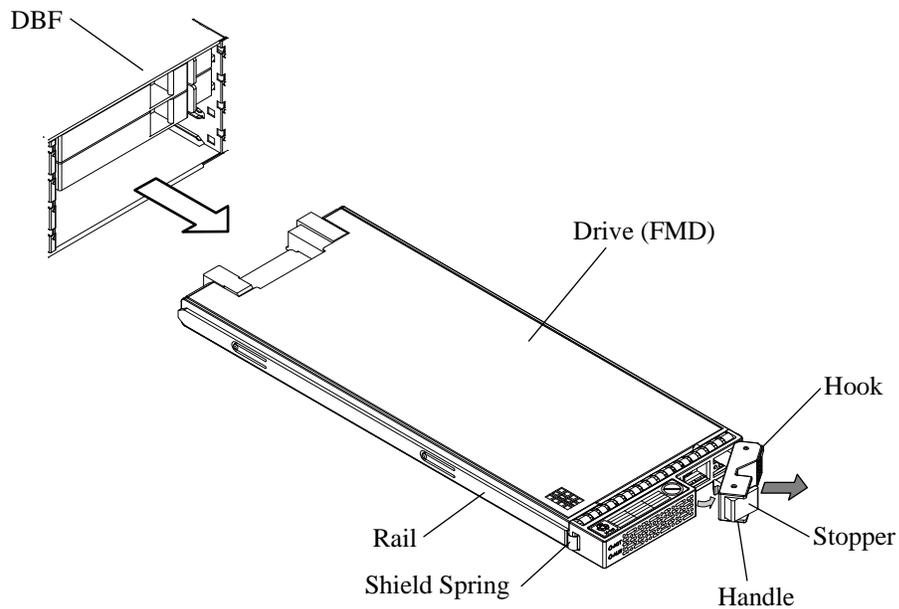
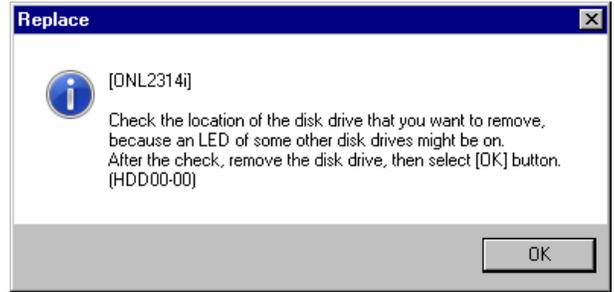


Fig. 3.5.2-6A Removal of Drive (for DBF)

2-1-4. Check and handling of the drive.

(1) <Confirm Removal>

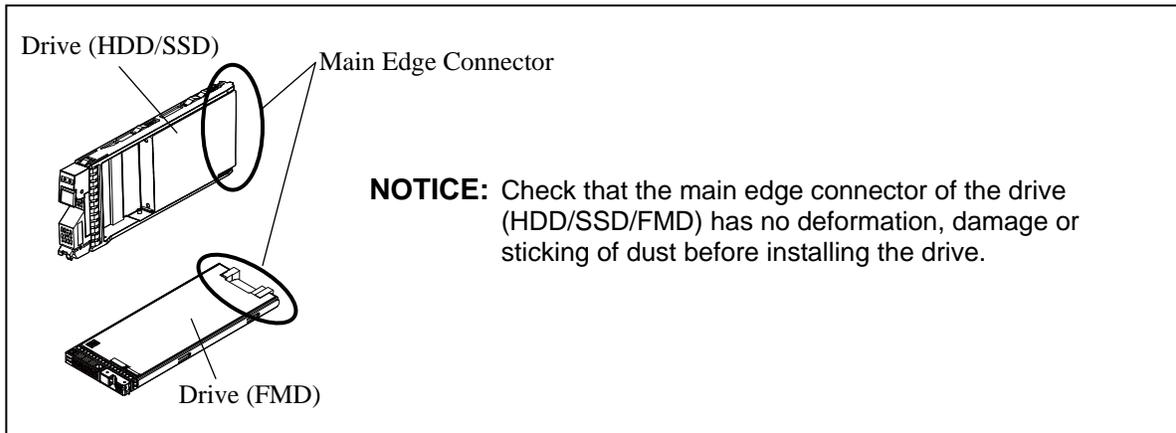
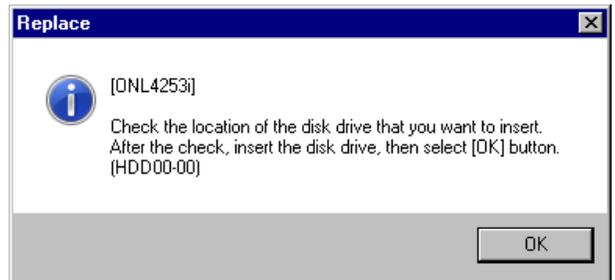
Select (CL) [OK] in response to “Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnn-nn)” after the unit is removed. (Step 2-1-3)



(2) <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.

After the unit is installed select (CL) [OK] button. Go to step 2-1-5.



2-1-5. Install the drive.

2-1-5.1. Drive for DBL

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

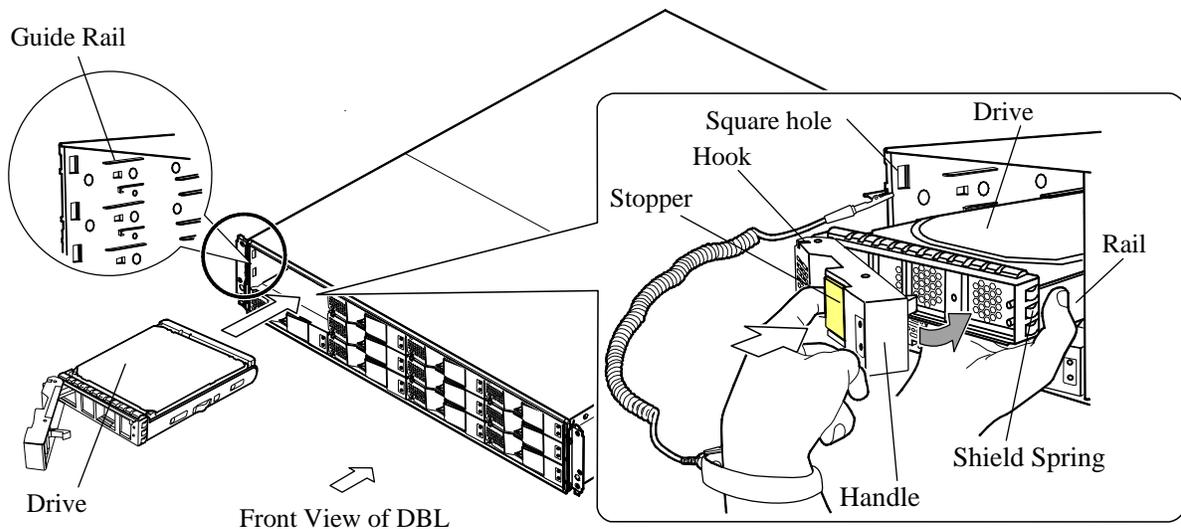


Fig. 3.5.2-7 Installation of Drive (for DBL)

2-1-5.2. Drive for DBS

- Fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the drive array unit.
- Raise the stopper, which has been tilted toward you, and then press the stopper to have the lock on.

If the handle is raised in the state where the hook of the handle cannot enter into each hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.

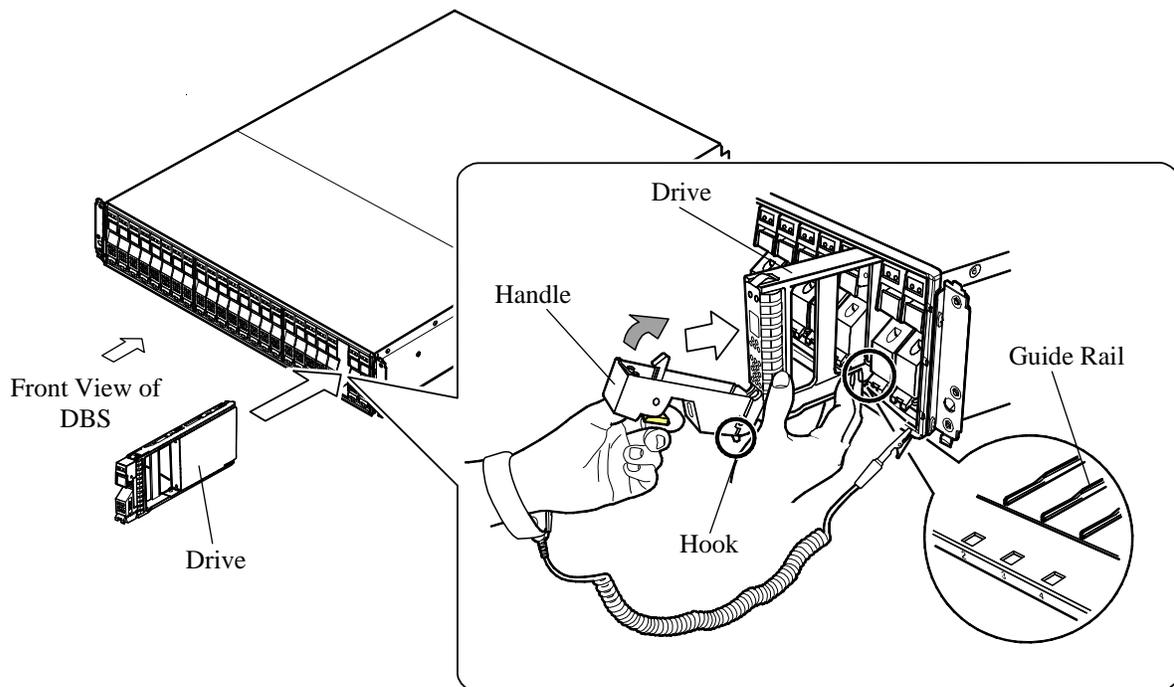


Fig. 3.5.2-8 Installation of Drive (for DBS)

2-1-5.3. Drive for DBX

- a. Open the handle, and insert the drive holding it with both hands.

NOTE: Check that there is no foreign substance near the connector and in the array before inserting the drive.

- b. Close the handle.

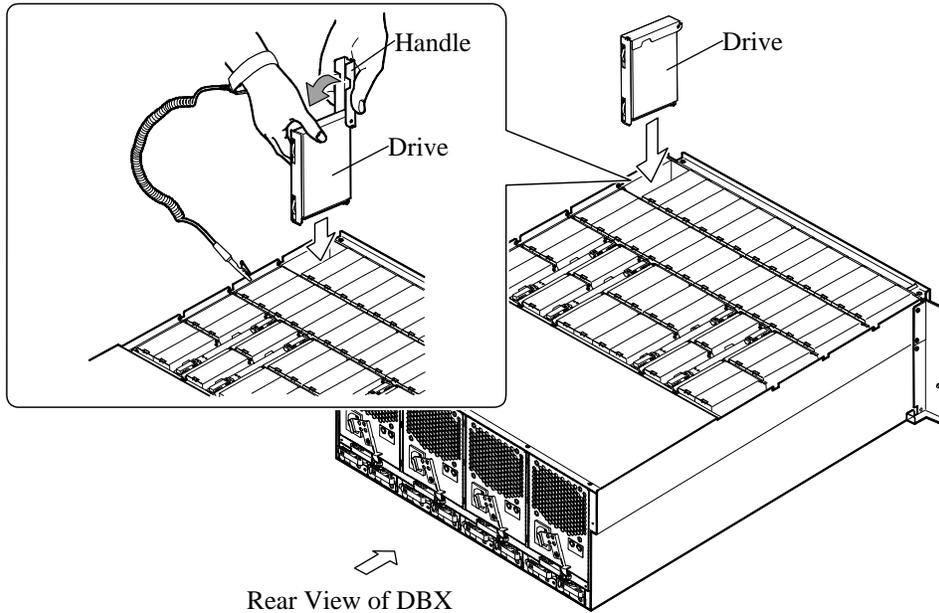


Fig. 3.5.2-9 Installation of Drive (for DBX)

2-1-5.4. Drive for DBF

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the DBF.

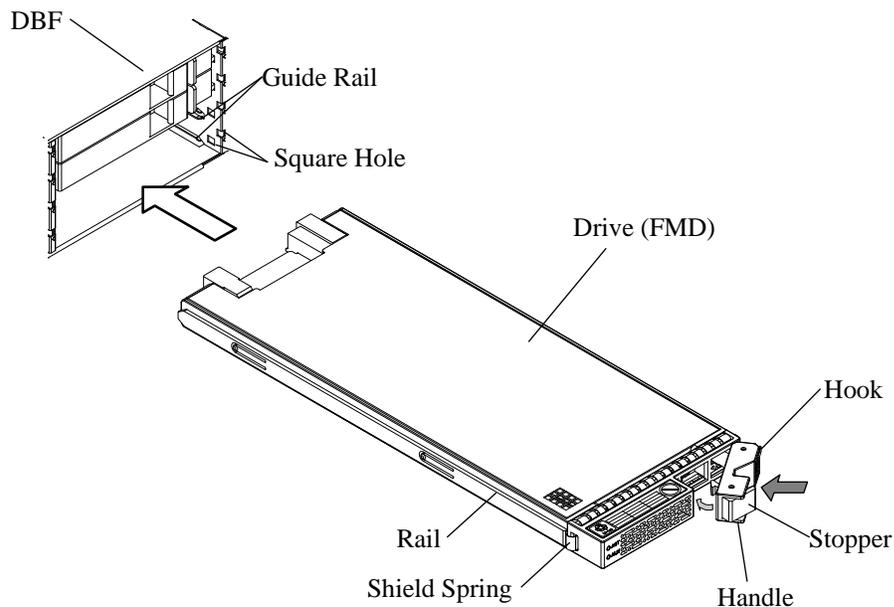


Fig. 3.5.2-10 Installation of Drive (for DBF)

2-1-6. Reinstall the DBX.

- a. If the DBX was drawn in the procedure 2-1-1, reinstall the DBX. (See [INST03-01-80](#).)
If the DBX was not drawn, go to the procedure 2-1-7.

2-1-7. Go to “3. POST-PROCESSING of SVP”.

⚠ CAUTION

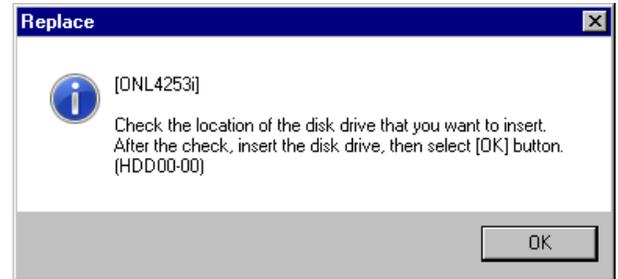
Before starting the <Check the beginning of recovery> operation in POST-PROCEDURES of SVP, be sure to insert a removable media for dump, collect failure information, and return the removable media with the failed HDD.

A dump removable media is attached with a Spare HDD.

3. POST-PROCESSING of SVP

3-1. <Confirm Insertion>

“Check the location of the disk drive that you want to insert. After the check, insert the disk drive, then select [OK] button. (HDDnn-nn)” is displayed.



3-2. <Get the error information>

NOTICE: Do not use the CD-R that is included in the spare drive in this replacement procedure. Enclose the CD-R with a replaced drive and return them.

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK].

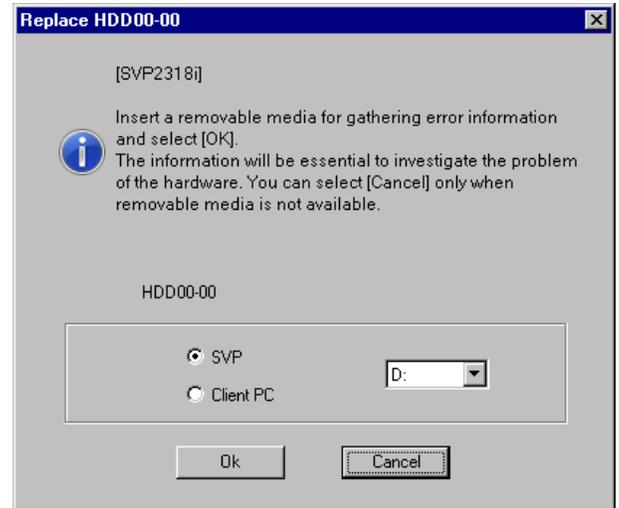
The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Select a Client PC arbitrary drive, and select (CL) [Ok].

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu.

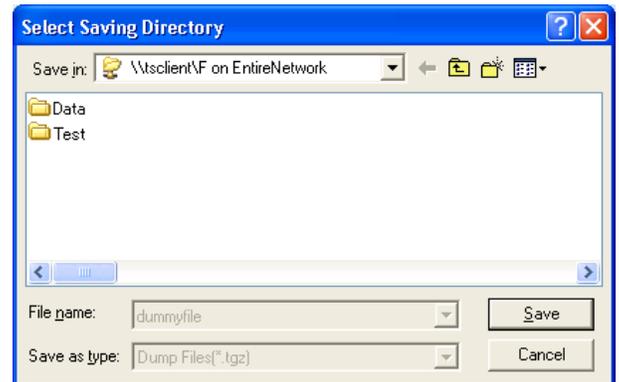
The drive letter becomes the drive letter of console PC connected with SVP.



When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

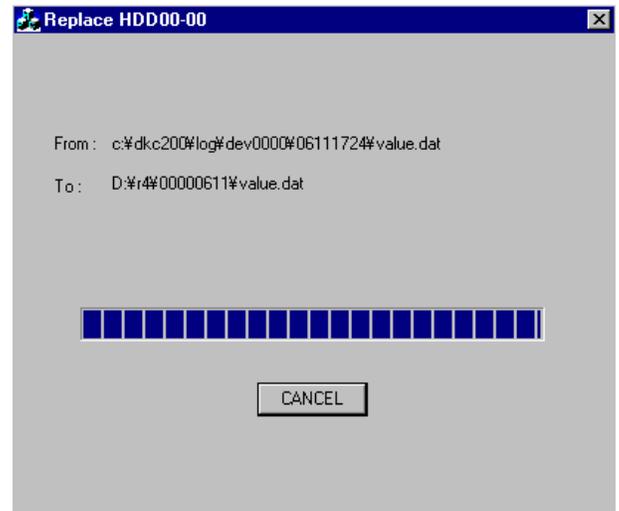


Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).

3-3. <Copy of the error information>

The error information is copied onto media.



“Remove the media.” is displayed.
Select (CL) [OK].



3-4. <Check the spin up process>
“Spinning up...” is displayed.

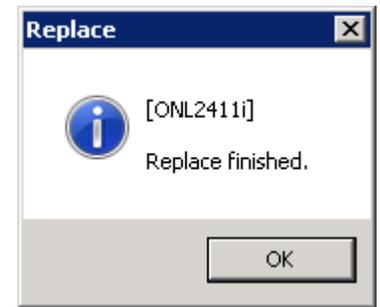
3-5. <Check the INLINE process>
“HDD INLINE is now running...” is displayed.

3-6. <Replacement of the HDD micro-program>
When the revision of the HDD micro-program in the SVP hard disk is newer than that in the PDEV, the following message appears on the screen.
The message “Exchanging HDD micro-program...” appears.

3-7. <Restore Physical Drive>
“Restoring...” is displayed.

3-8. <Check the end of PDEV recovery>

Select (CL) [OK] in response to “Replace finished.”.

**3-9.**

Go to POST-PROCEDURE [[REP04-01-10](#)].

[MAIN BLADE REPLACEMENT PROCESSING - RCA1]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select Main Blade (status check)
 - ② Specify Replacement
 - ③ Place PCB into blocked state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on cache
 - ② Specify recovery
 - ③ Version of Micro-program
 - ④ Path online (for CHB)

1. PRE-PROCESSING of SVP

1-1. <Set path offline or switch of channel path>

CAUTION

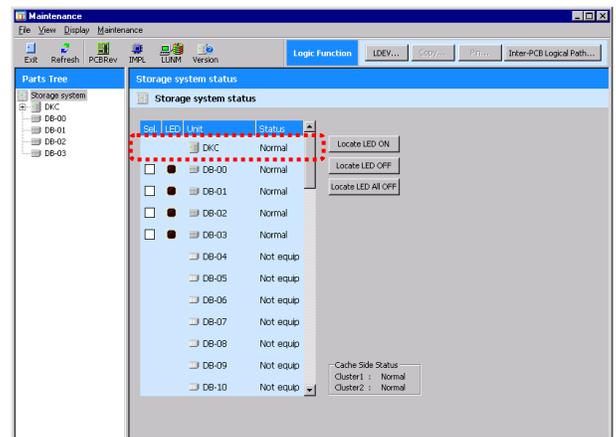
The switch to the alternate channel path or host shutdown is that connected with the CHB concerned.

As for other channel path, switching to the alternate channel path or host shutdown is unnecessary.

However, the host must be shut down when the Pinned track in CHB connected port.

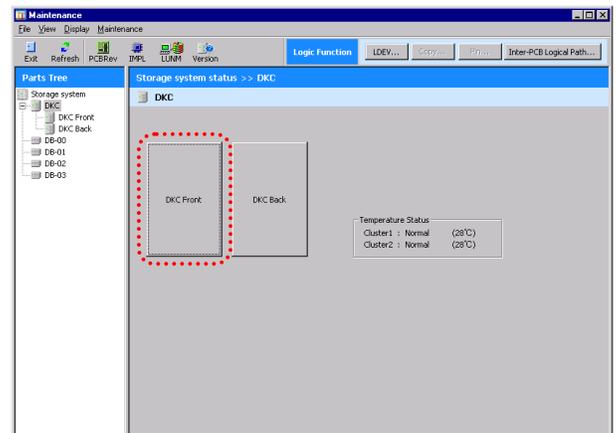
1-2. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.

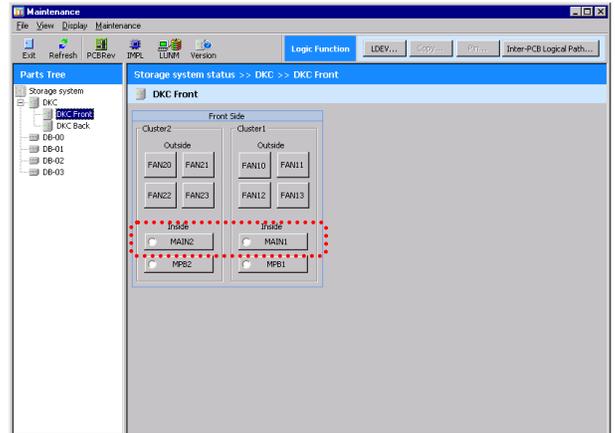


1-3. <DKC window>

Select (CL) [DKC Front] in the 'DKC' window.



1-4. <Select Main Blade> Select (CL) [MAINn].



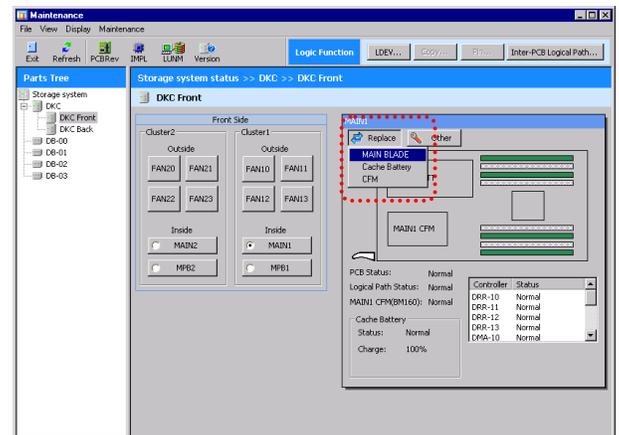
1-5. <Specify replacement of cache>

CAUTION

When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

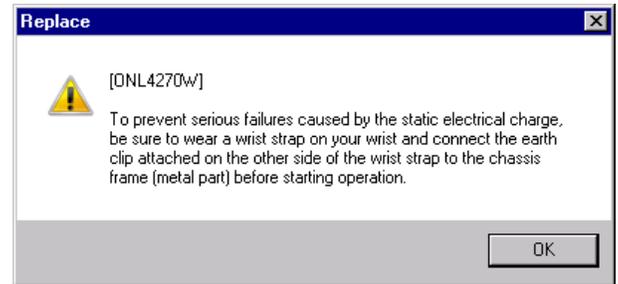
If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

Check status display.
Select (CL) [Replace], and select (CL) [MAIN Blade].



1-6. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



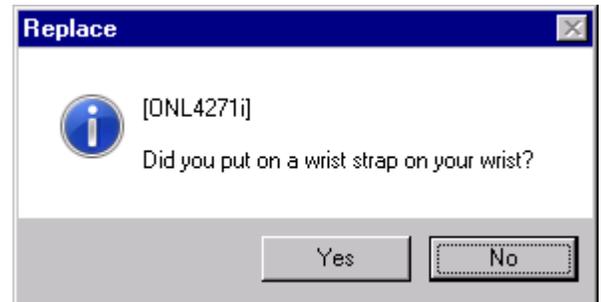
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).



(2)

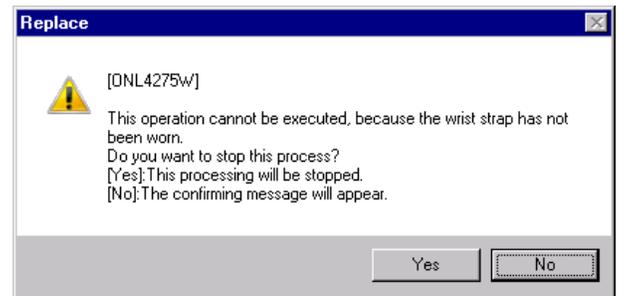
In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

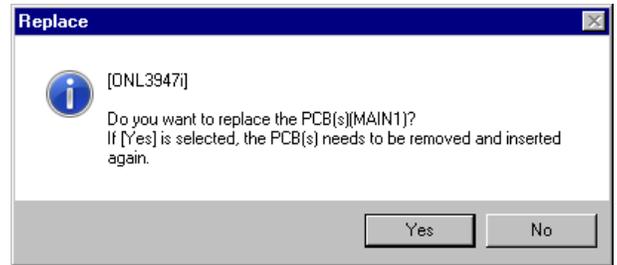
When [Yes] is selected (CL), returned to Step 1-5.

When [No] is selected (CL), returned to Step 1-6.



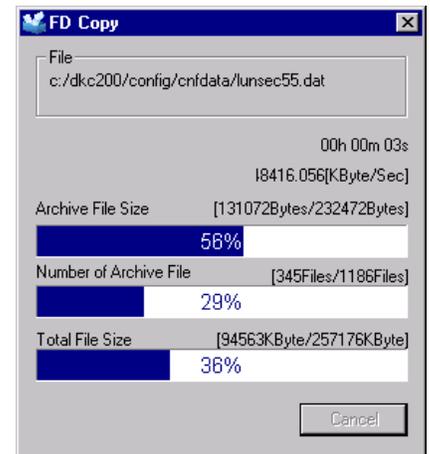
1-7. <Check the beginning of Main Blade replace>

Select (CL) [Yes] after making sure that the package to be replaced is correct in response to “Do you want to replace the PCB(s)(MAINn)? If [Yes] is selected, the PCB(s) needs to be removed and inserted again.”.



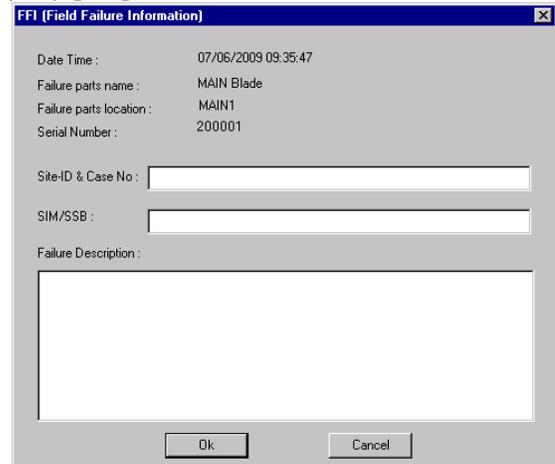
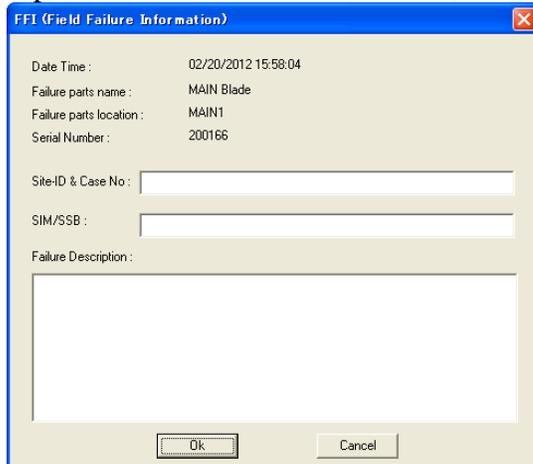
1-8. <Compression of the error information>

The error information is compressed.
The dialog of FD Copy is displayed.



1-9. <Get the error information>

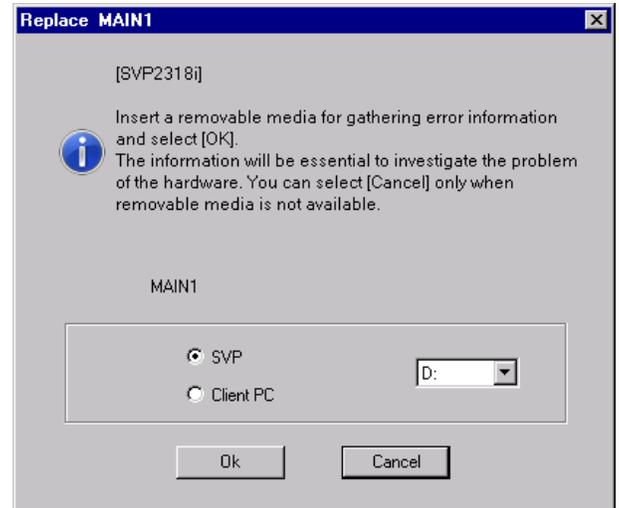
Input the Field Failure Information, and select (CL) [Ok].



“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.



NOTE: When Cache Memory Module is replaced, select (CL) [Cancel] because the dump is not required.

A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format

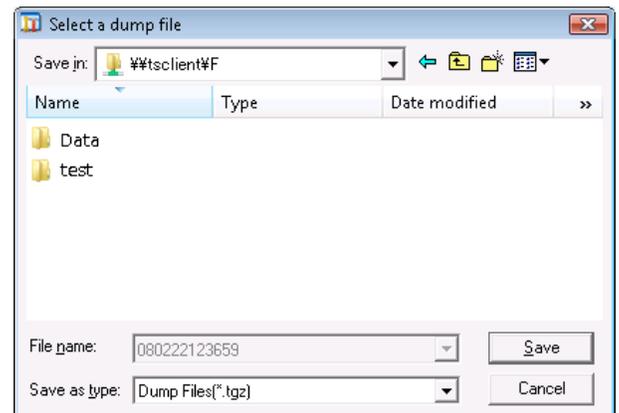
“[factory_cd]_[Pcb_type]_[Pcb_SerialNo]_YYMMDDhhmmss.tgz”.

(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.



Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).

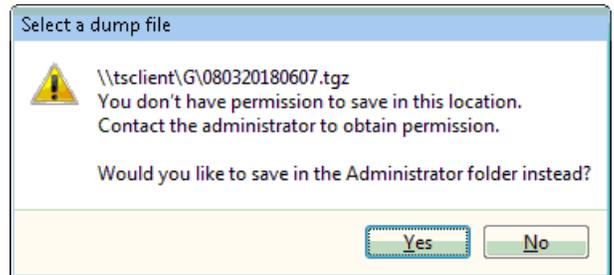
- When the destination media is write-protected.

<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the “C:\users\Administrator” folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.



Please appoint another destination whether you remove write protect when you save it and carry it out.

- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

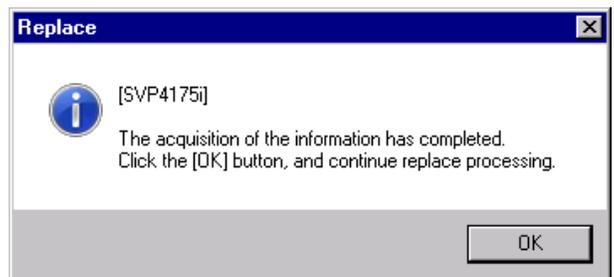
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].



At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.

Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.

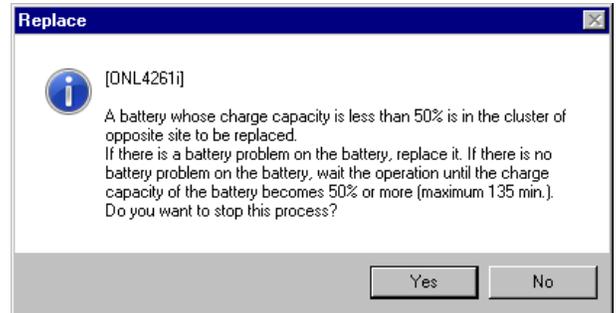


1-10. <Confirmation of amount of opposite cluster battery charge>

(1)

- When there is PCB whose amount of battery charge is less than 50% in the opposite cluster:

“A battery whose charge capacity is less than 50% is in the cluster of opposite site to be replaced. If there is a battery problem on the battery, replace it. If there is no battery problem on the battery, wait the operation until the charge capacity of the battery becomes 50% or more (maximum 135 min.). Do you want to stop this process?”



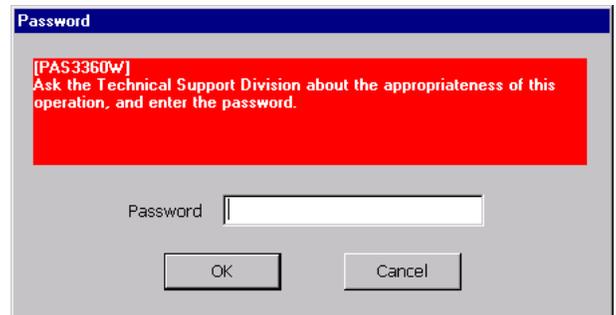
When [Yes] is selected (CL), returned to [REP03-10-30 Step 1-5](#).

When [No] is selected (CL), go to Step (2)

- When there is no PCB whose amount of charge of the Cache battery is less than 50%: go to Step 1-11.

(2) <Input password>

Enter the password and select (CL) [OK].



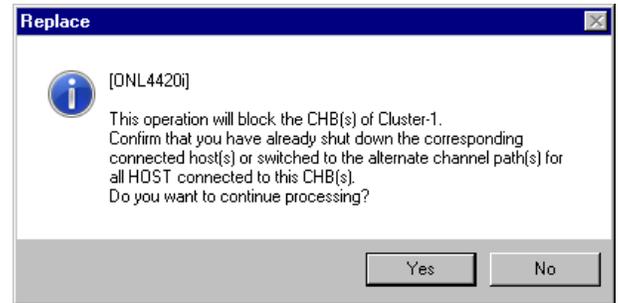
CAUTION

This is a special (exceptional) operation that can cause a serious failure such as a system down or a data loss if a wrong part to be removed is selected, and requires an input of a password. Ask the technical support division about the appropriateness of the operation, and input the password after getting an approval of executing the operation.

1-11. <Confirm Channel Path offline>

Select (CL) [Yes] in response to following message.

“This operation will block the CHB(s) of Cluster-n. Confirm that you have already shut down the corresponding connected host(s) or switched to the alternate channel path(s) for all HOST connected to this CHB(s). Do you want to continue processing?”



1-12. <Main Blade blocking>

“The Main Blade (MAINn) is being blocked.” is displayed.

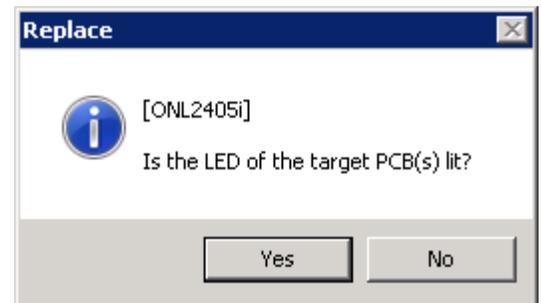
1-13. <Check shut down LED>

Select (CL)

* [Yes] if LED is on

* [No] if LED is off

in response to “Is the LED of the target PCB(s) lit?”.

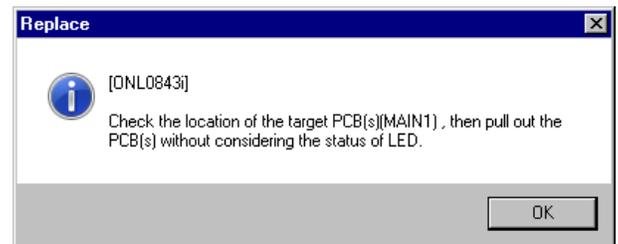


If [No] is selected:

Select (CL) [OK] in response to “Check the location of the target PCB(s)(MAINn), then pull out the PCB(s) without considering the status of LED.”. (Refer to “2. HARDWARE REPLACEMENT PROCESSING”)

NOTE: Select (CL) [OK] after pulling out the PCB.

Go to Step 1-14.

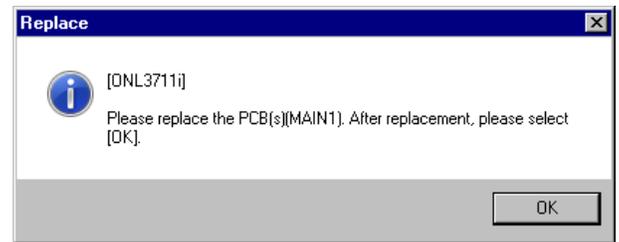


1-14. <Main Blade Replacement>

“Please replace the PCB(s)(MAINn). After replacement, please select [OK].” is displayed.

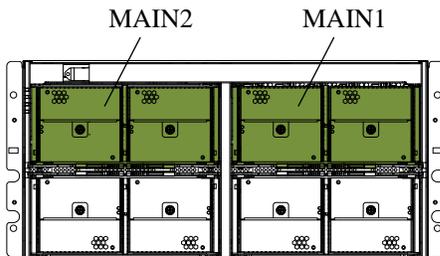
Select (CL) [OK] after replacing the PCB.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.



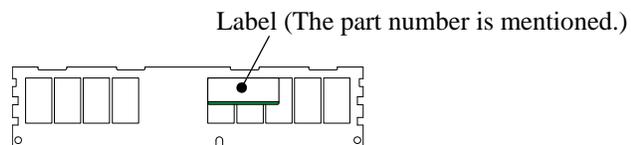
2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Front View of DKC	1	MAIN Blade	• WP770-A
	2	CM Module (*1)	<ul style="list-style-type: none"> • 4GB DIMM (4GB) • 8GB DIMM (8GB) • 16GB DIMM (16GB)



Front View of DKC

*1: Confirm the part number of the Cache Memory Module referring to Spare Parts List ([PARTS04-10](#)). Do not use the MP Memory Module by mistake.



Cache Memory (CM) Module

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1	Replacement of MAIN Blade
-----	---------------------------

2-1-1. Check that the Shut Down LED is on.

- a. Check that the Shut Down LED is on.

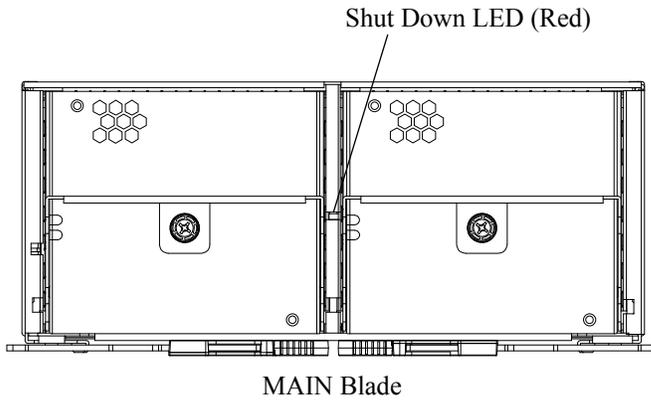


Fig. 3.10.2-1 Confirmation of Shut Down LED

2-1-2. Remove the MAIN Blade.

- a. Slide the lock on the levers of the MAIN Blade outward and open the levers.
- b. Open the levers completely and remove the MAIN Blade.

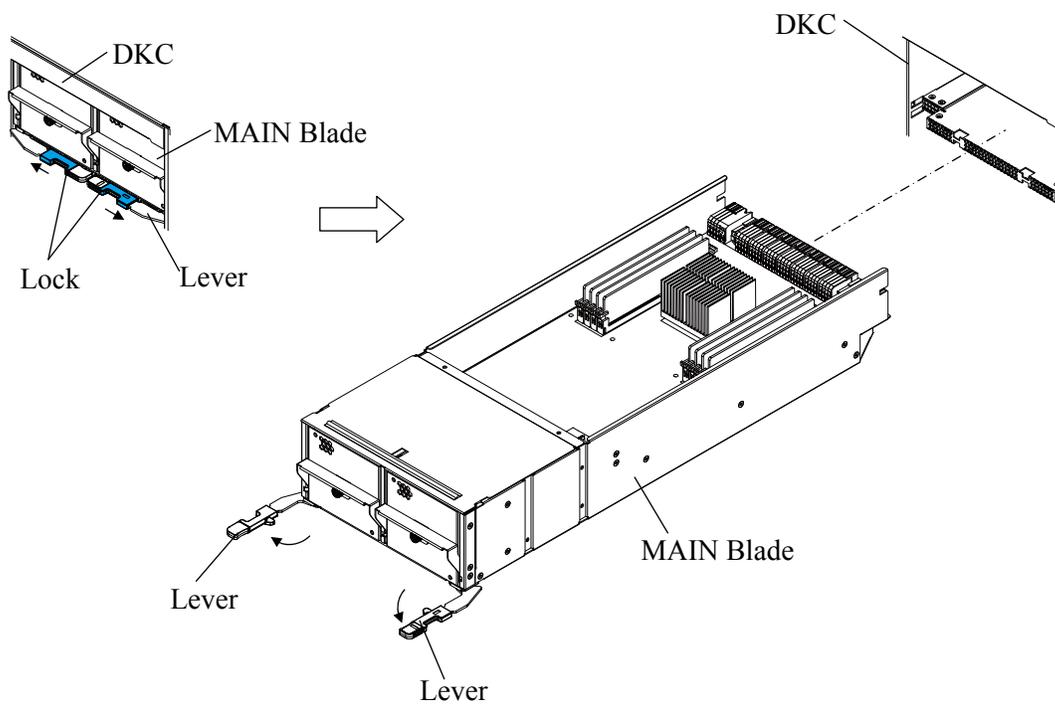
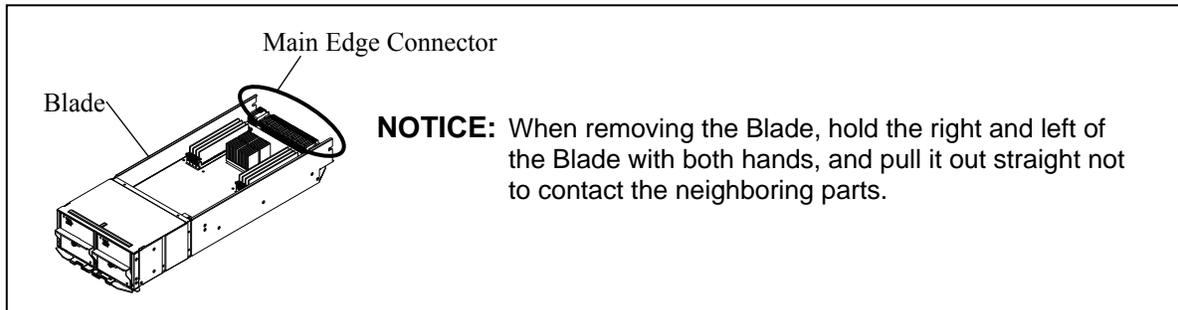
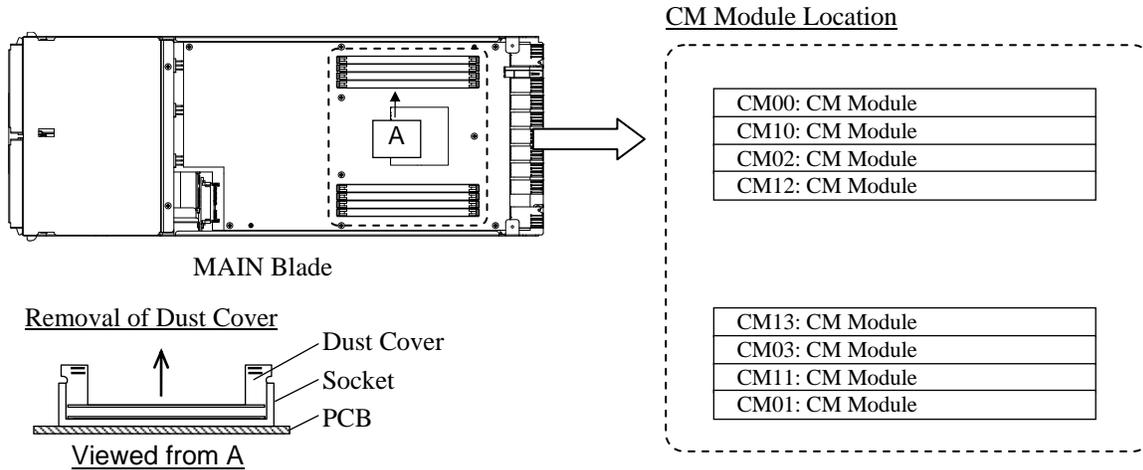


Fig. 3.10.2-2 Removal of MAIN Blade

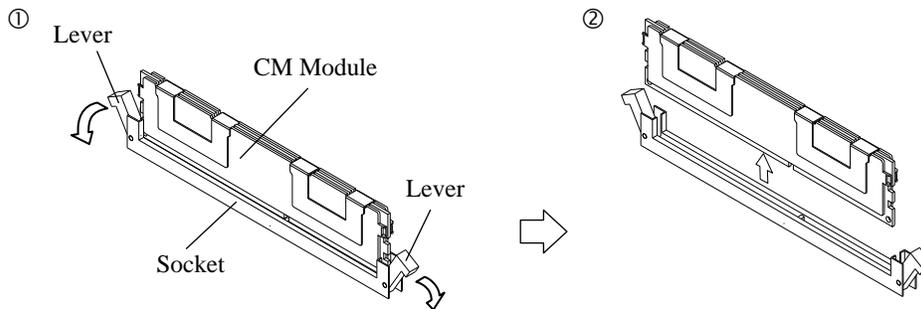
2-1-3. Move the CM module.

- a. Move all the CM modules (including dust covers if any) mounted on an extracted MAIN Blade to the same mounting positions on the spare MAIN Blade.



Removal

- ① Pull the lever outward.
- ② Hold both ends of the CM Module by the fingers, and pull out the CM Module from the socket.



Installation

- ① Position the cut of the CM module with the projection inside the slot, and place the CM module on the socket.
- ② Hold both ends of the CM module by the fingers, and fit it into the socket.
- ③ Make sure that the lever is firmly fitted in the CM module.

NOTICE: Do not put intense pressure on the CM Module to the extent that the PCB greatly bends after the CM Module is secured with the levers in installation procedure of the CM Module. The PCB may be damaged when intense pressure is applied.

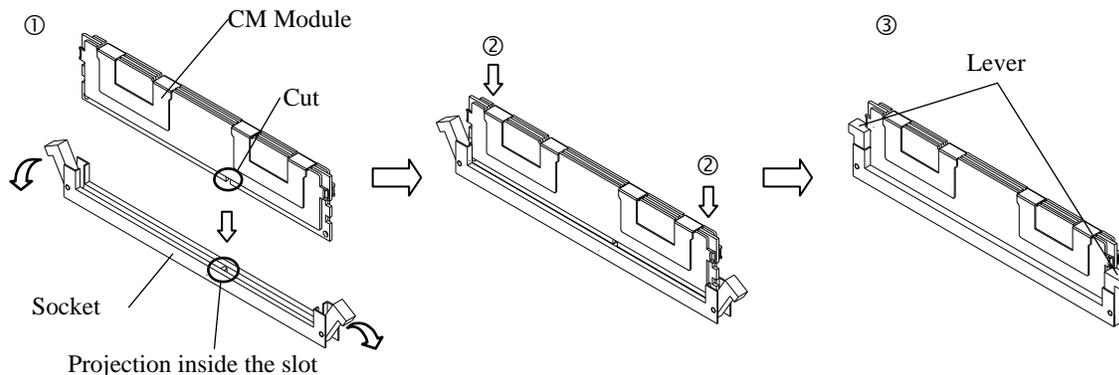


Fig. 3.10.2-3 Insertion Location of CM Module

2-1-4. Move the CFM, Battery, and DKCFAN.

- a. Loosen the screw on the right DKCFAN installed in the failed MAIN Blade and bring the handle down.
- b. Pull the handle and remove the DKCFAN from the MAIN Blade.
- c. Remove the left DKCFAN in the same way.

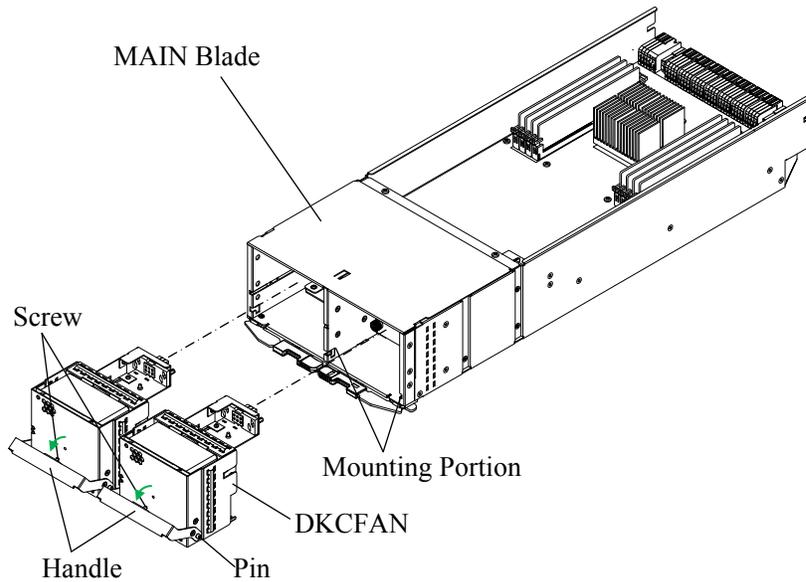


Fig. 3.10.2-4 Removal of DKCFAN

- d. Loosen the screw on the CFM installed in the failed MAIN Blade and open the handle.
- e. Pull the handle and remove the CFM.
- f. Loosen the screw on the Battery installed in the failed MAIN Blade and open the handle.
- g. Pull the handle and remove the Battery.

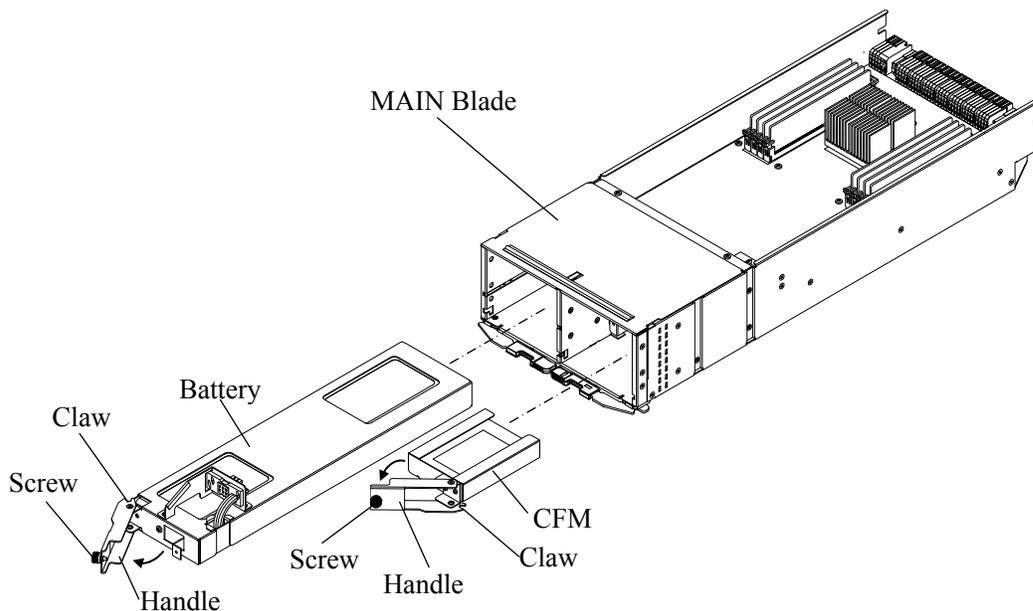
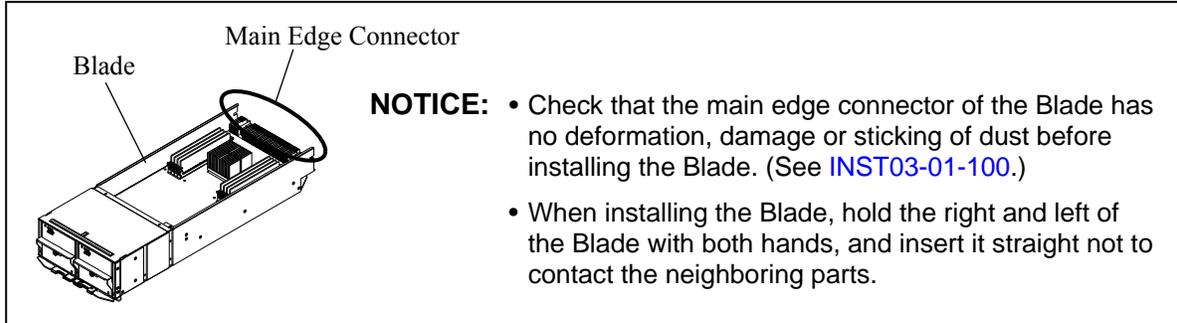


Fig. 3.10.2-5 Removal of Battery and CFM

- h. Insert the CFM until the claw of the handle of the CFM comes into contact with the mounting portion of the spare MAIN Blade. (See Fig. 3.10.2-5)
- i. Push the handle and fully insert the CFM.
- j. Tighten the screw and fix the CFM.
- k. Insert the Battery until the claw of the handle of the Battery comes into contact with the mounting portion of the spare MAIN Blade.
- m. Push the handle and fully insert the Battery.
- n. Tighten the screw and fix the Battery.
- p. Install the two removed DKCFANs in the procedures a to c in the spare MAIN Blade. (See Fig. 3.10.2-4)

2-1-5. Insert the MAIN Blade.

- a. Insert the MAIN Blade until its lever edges reach the DKC.
- b. Close the levers inward and fully insert the MAIN Blade. Then confirm that the lever locks are fastened to the DKC.

**2-1-6.** Go to “3. POST-PROCESSING of SVP” ([REP03-10-210](#)).

2-2	Replacement of CM Module
-----	--------------------------

- 2-2-1. Check that the Shut Down LED is on.
- Check that the Shut Down LED is on.

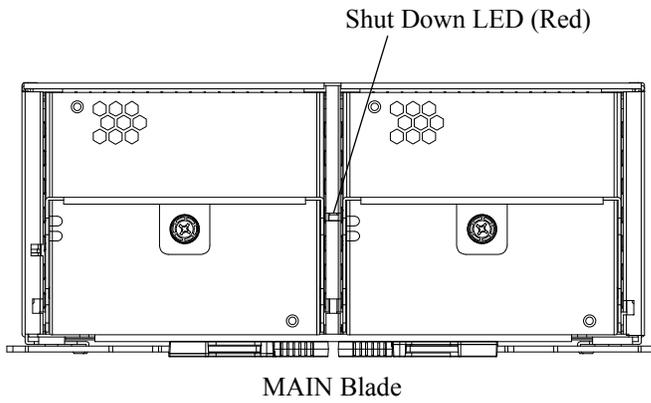


Fig. 3.10.2-6 Confirmation of Shut Down LED

2-2-2. Remove the MAIN Blade.

- a. Slide the lock on the levers of the MAIN Blade outward and open the levers.
- b. Open the levers completely and remove the MAIN Blade.

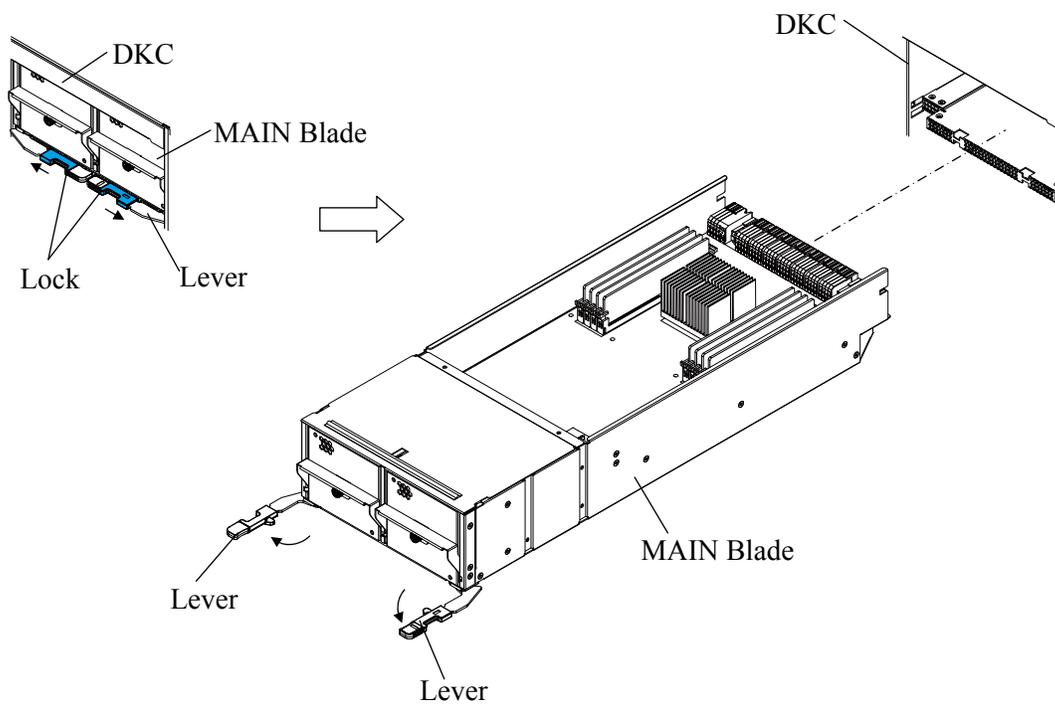
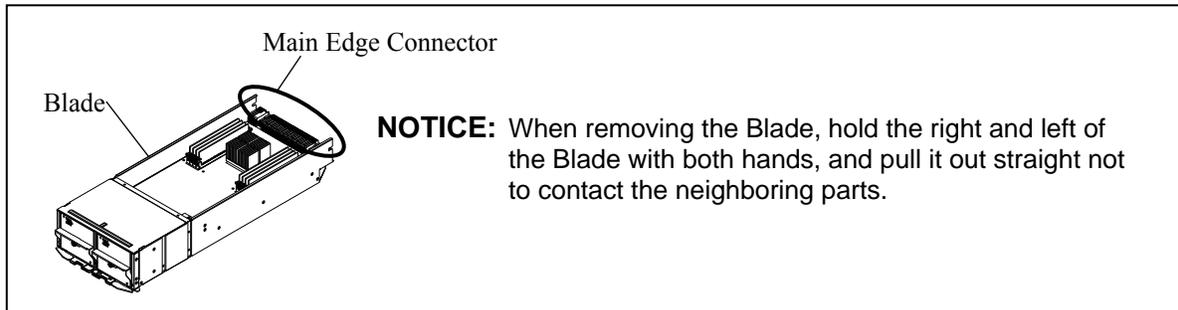


Fig. 3.10.2-7 Removal of MAIN Blade

2-2-3. Replace the CM module.

- a. Replace the failed CM module with the spare CM module.

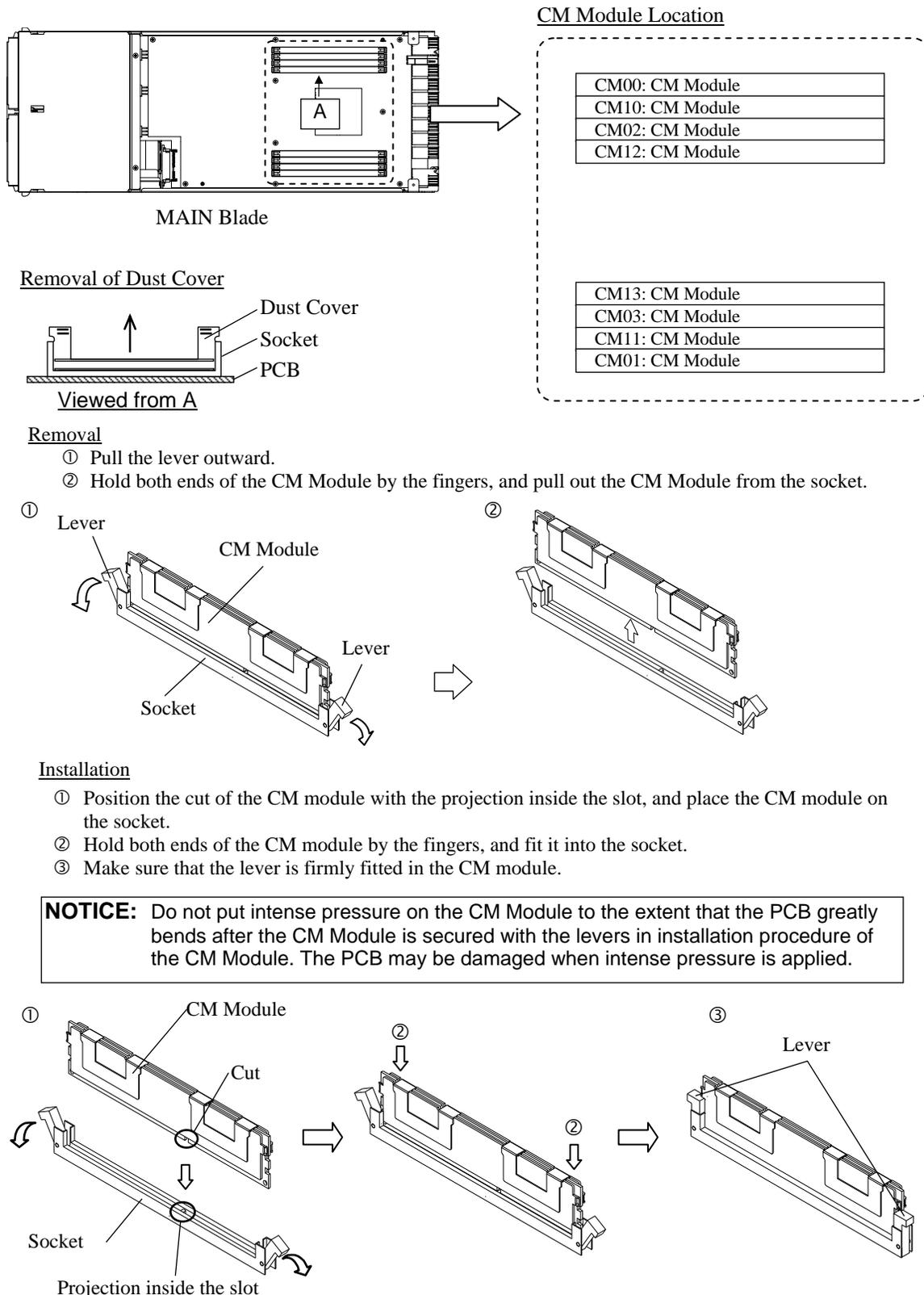
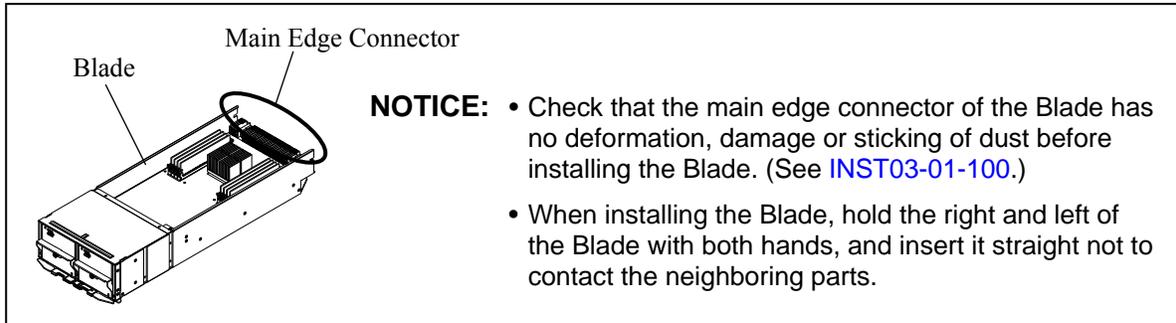


Fig. 3.10.2-8 Replacement of CM Module

2-2-4. Insert the MAIN Blade.

- a. Insert the MAIN Blade until its lever edges reach the DKC.
- b. Close the levers inward and fully insert the MAIN Blade. Then confirm that the lever locks are fastened to the DKC.

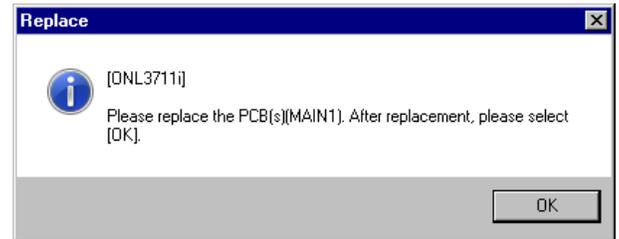


2-2-5. Go to “3. POST-PROCESSING of SVP” ([REP03-10-210](#)).

3. POST-PROCESSING of SVP

3-1. <MAIN Blade Replacement>

Select (CL) [OK] in response to “Please replace the PCB(s)(MAINn). After replacement, please select [OK].” after replacement.



3-2. <INLINE CUDG>

“INLINE CUDG is now running...” is displayed.

3-3. <Restore the Cache Memory>

“Restoring the Main Blade...” is displayed.

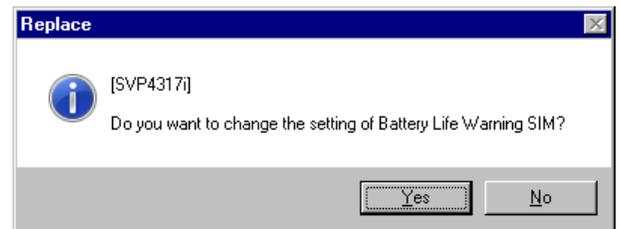
If the display of Battery Life Warning SIM is disabled, go to step 3-6.

3-4.

In response to a message, “Do you want to change the setting of Battery Life Warning SIM?”.

Select [Yes] when you exchange Battery.
Go to step 3-5.

Select [No] when you use existing Battery.
Go to step 3-6.



3-5. <Setting Battery Life>

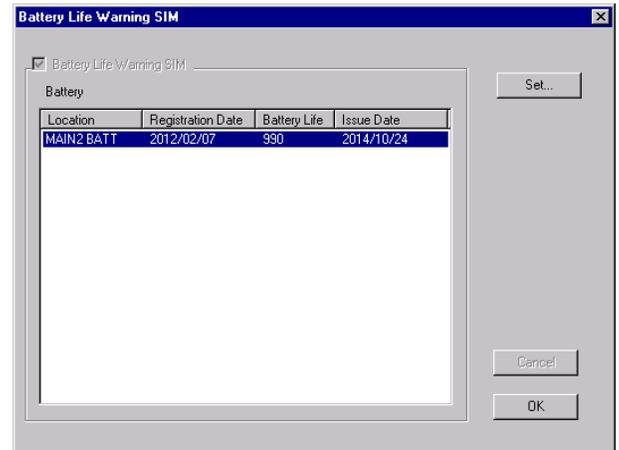
(1)

Select (CL) the target Battery in the 'Battery Life Warning SIM' screen, and then select (CL) [Set...].

Go to step (2).

Make sure that the all input items are correct and select (CL) [OK].

NOTE: If the date is displayed as "****/**/**", follow step (2) to set the date.



(2)

Select (CL) [OK] after inputting the remainder days until Warning SIM is reported.

Return to step (1).



NOTE: After executing the periodical exchange of a battery, set 33 month (990 days).

NOTE: Default value is 33 month (990 days), which is 3 month earlier than the lifetime of a battery (3 years).

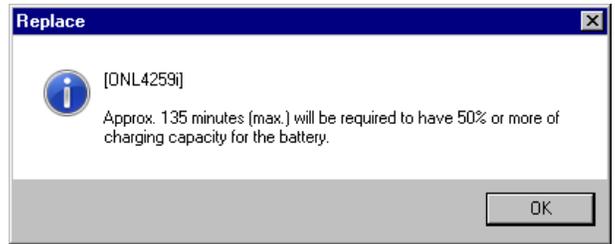
Determine the number of days remained based on your maintenance plan.

NOTE: The input ranges of "Remained Battery life" are from 1 to 3650.

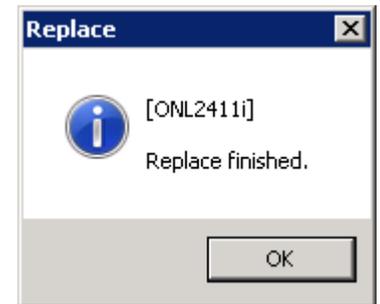
3-6.

Select (CL) [OK] in response to “Approx. 135 minutes (max.) will be required to have 50% or more of charging capacity for the battery.”.

NOTE: A message that charging capacity for the battery is 1% may be displayed for about 15 to 20 minutes after the MAIN Blade is replaced.

**3-7. <Check the end of Cache recovery>**

Select (CL) [OK] in response to “Replace finished.”.

**⚠ CAUTION**

Confirm the version of the exchanged MAIN Blade Micro-program on the 'STATUS' screen.

If the CMBK Micro-program version of the MAIN Blade that is target to be maintained is lower than in the SVP, replace MAIN Blade again.

3-8. <Version of Micro-program>

Select (CL) [Version]-[CM Ver.] in the 'Maintenance' window.

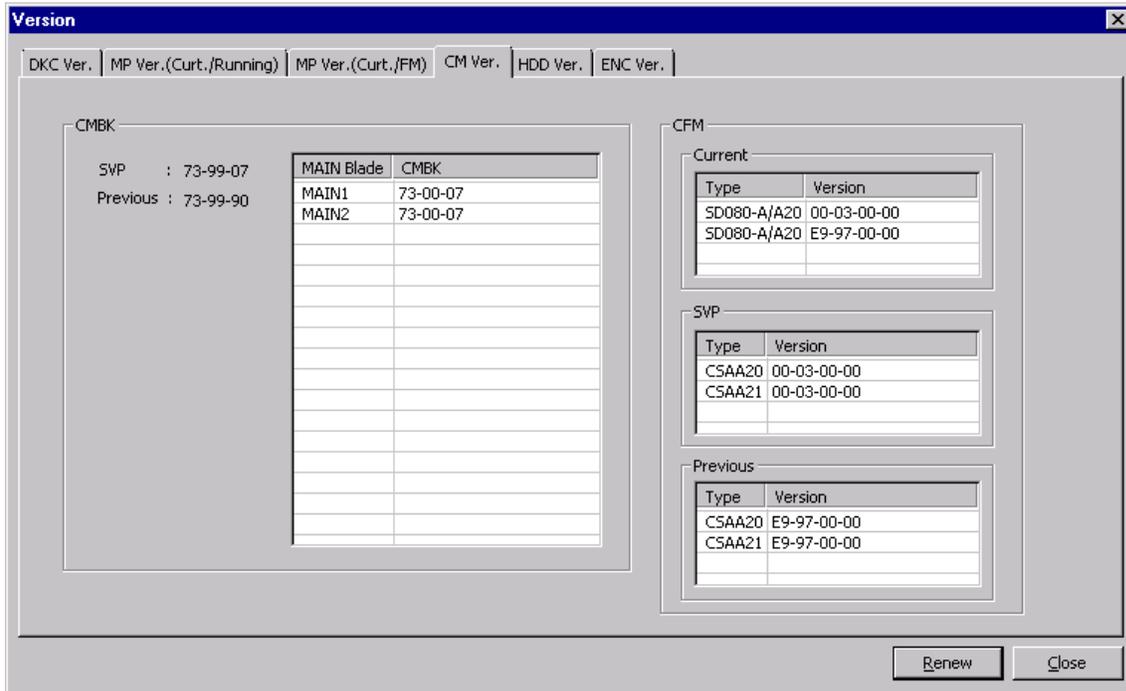


Table 3.10.3-1 Information to Be Displayed

Item	Description
• Display of "CMBK"	
Display of "Current"	"SVP" : Latest version of the drive micro-program stored in the SVP. "Previous" : Previous version of the drive micro-program stored in the SVP. "MAIN Blade" : MAIN name "CMBK" : CMBK micro-program version information (It is stored in FM) that each MAIN Blade has is displayed.
• Display of "CFM"	
Display of "Current"	Current Version. "Type" : CFM type model "Version" : Version of CFM micro-program
Display of "SVP"	Latest version of the CFM micro-program stored in the SVP. "Type" : CFM type "Version" : Version of CFM micro-program
Display of "Previous"	Former version of the CFM micro-program stored in the SVP. "Type" : CFM type "Version" : Version of CFM micro-program

3-9. <Path online>

Set the stopped channel path online by your customer.

3-10.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[MPB REPLACEMENT PROCESSING - RMP1]

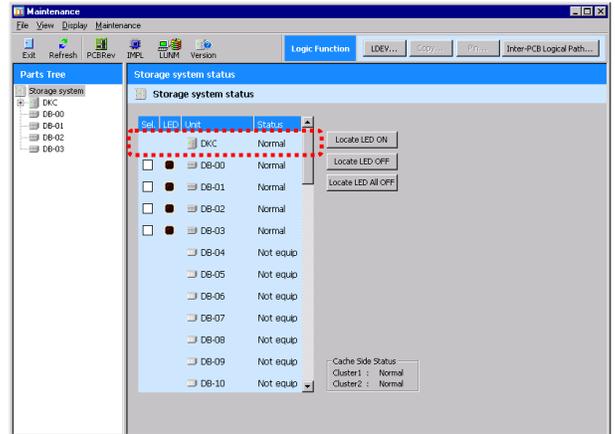
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select MPB (status check)
 - ② Specify Replacement
 - ③ Place PCB into blocked state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery for MPB
 - ② Version of Micro-program

1. PRE-PROCESSING of SVP

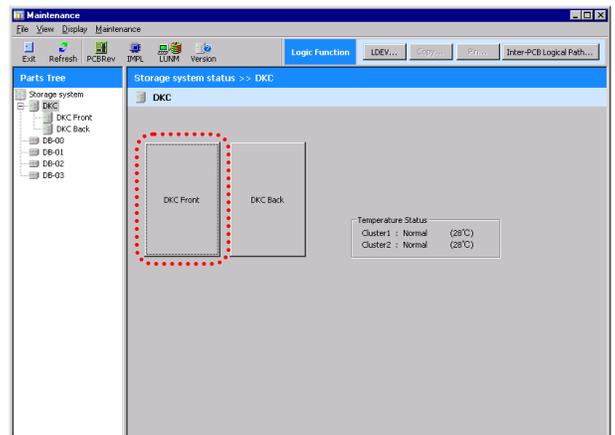
1-1. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.



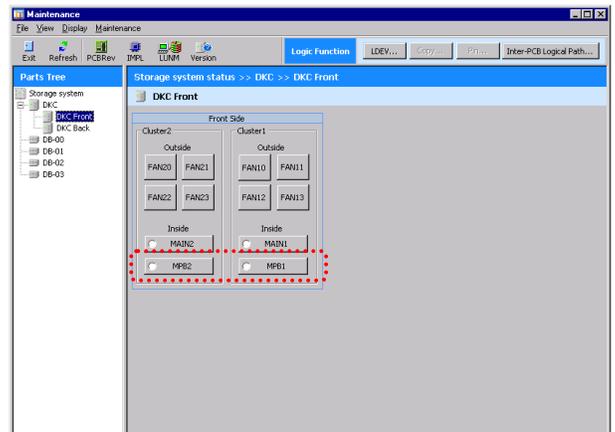
1-2. <DKC window>

Select (CL) [DKC Front] in the 'DKC' window.



1-3. <Select MPB>

Select (CL) [MPBn].



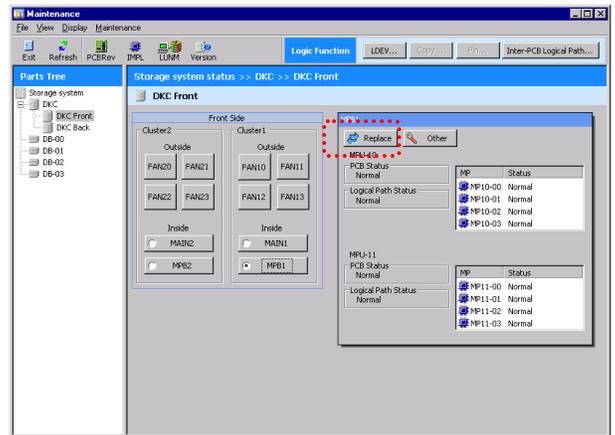
1-4. <Specify replacement of MPB>

CAUTION

When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

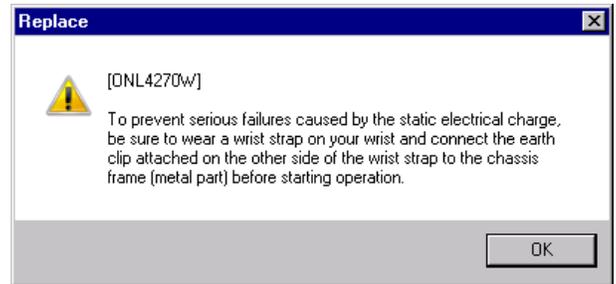
If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

Check status display.
Select (CL) [Replace].



1-5. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



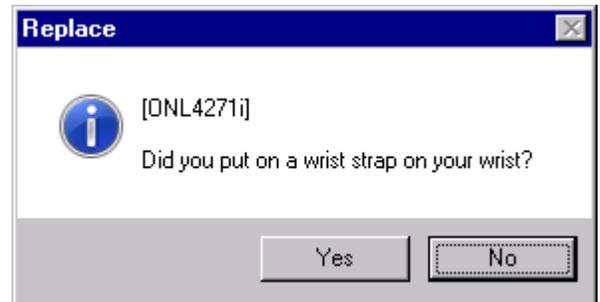
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).



(2)

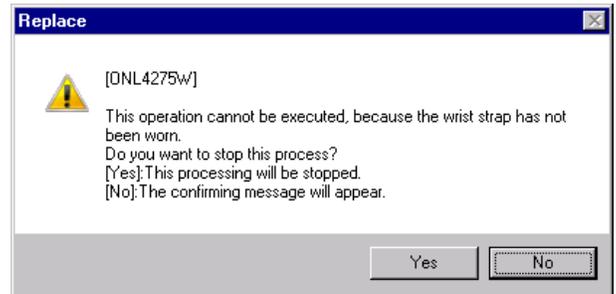
In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

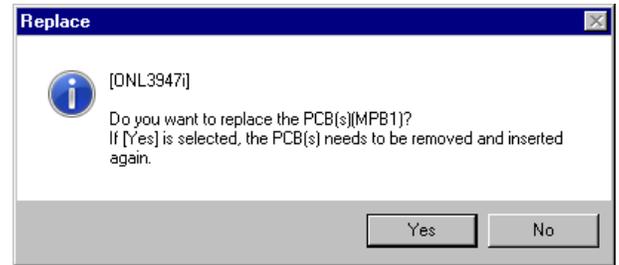
When [Yes] is selected (CL), returned to Step 1-4.

When [No] is selected (CL), returned to Step 1-5.

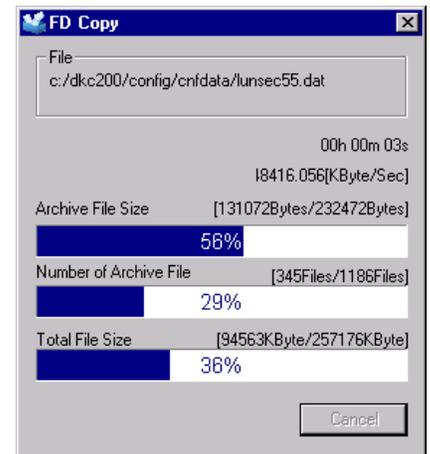


1-6. <Check the beginning of MPB replace>

Select (CL) [Yes] after making sure that the package to be replaced is correct in response to “Do you want to replace the PCB(s)(MPBn)? If [Yes] is selected, the PCB(s) needs to be removed and inserted again.”.

**1-7. <Compression of the error information>**

The error information is compressed.
The dialog of FD Copy is displayed.



1-8. <Get the error information>

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.

A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format

“[factory_cd]_[Pcb_type]_[Pcb_SerialNo]_YYMMDDhhmmss.tgz”.

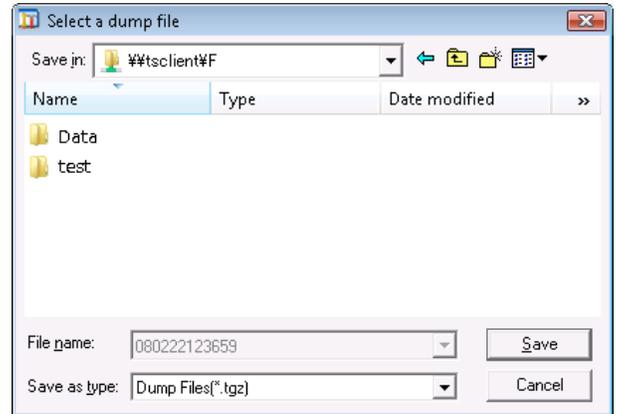
(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed. Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).

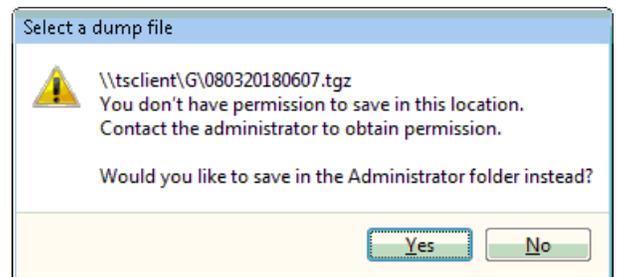


<For Windows Vista>

Selecting (CL) [Yes] displays the “C:\users\Administrator” folder of SVP. Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination

whether you remove write protect when you save it and carry it out.



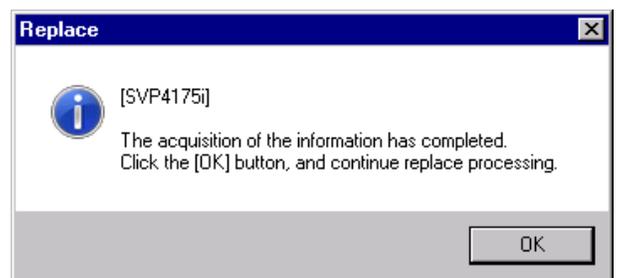
- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.



Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.

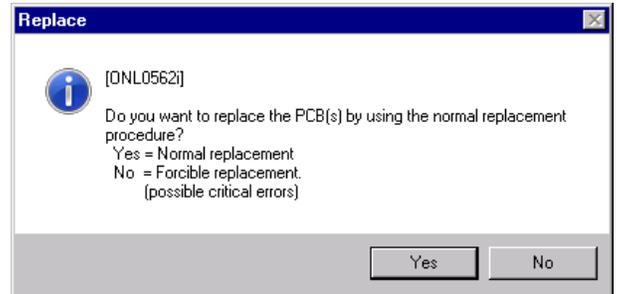


1-9. <Caution message for system down>



Select (CL) [Yes] in response to the message below.

“Do you want to replace the PCB(s) by using the normal replacement procedure?
Yes = Normal replacement
No = Forcible replacement.
(Possible critical errors)” is displayed.



1-10. <MPB blocking>

“MPBn is being blocked... Usually, several minutes(maximum 15 minutes)” is displayed.

1-11. <Check shut down LED>

Select (CL)

* [Yes] if LED is on

* [No] if LED is off

in response to “Is the LED of the target PCB(s) lit?”.

When [No] is selected, the same message is displayed again.

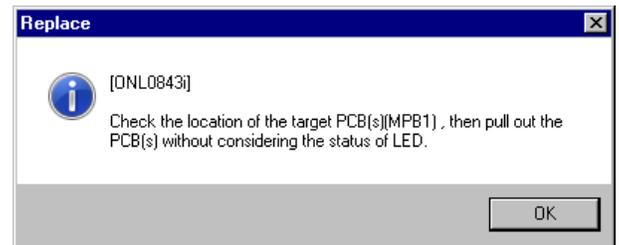
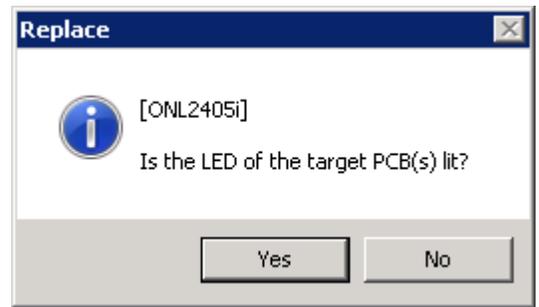
Check the LED and then reply to the message.

If [No] is selected twice:

Select (CL) [OK] in response to “Check the location of the target PCB(s)(MPBn), then pull out the PCB(s) without considering the status of LED.”. (Refer to “2. HARDWARE REPLACEMENT PROCESSING”)

NOTE: Select (CL) [OK] after pulling out the PCB.

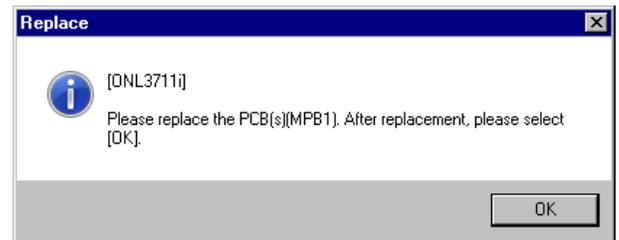
Go to Step 1-12.



1-12. <MPB Replacement>

“Please replace the PCB(s)(MPBn). After replacement, please select [OK].” is displayed.

Select (CL) [OK] after replacing the PCB.



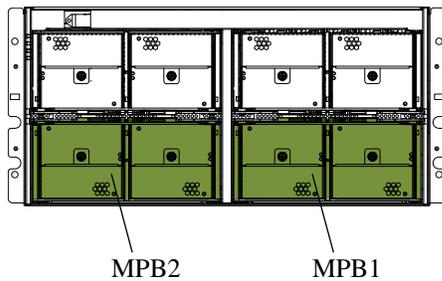
1-13. <Replace MPB>

Replace MPB.

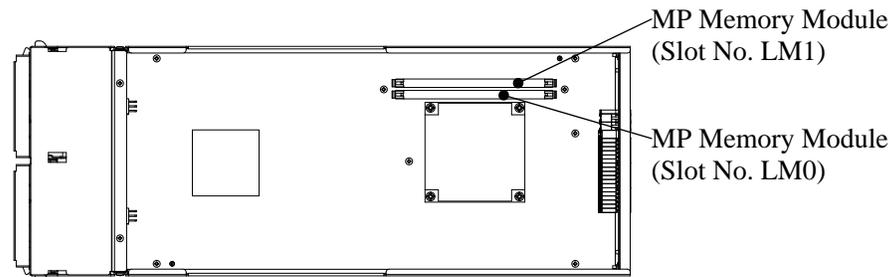
Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Front View of DKC	1	MPB (Two MP Memory Modules are included.)	• WP790-A
	2	MP Memory Module	(*1)

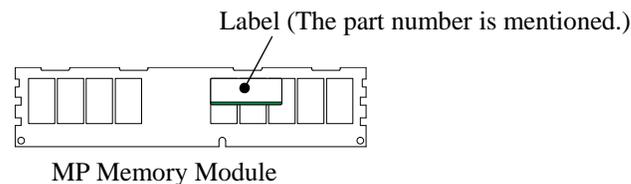


Front View of
DKC



MPB (Viewed from the top)

*1: Confirm the part number of the MP Memory Module referring to Spare Parts List ([PARTS04-10](#)). Do not use the Cache Memory Module by mistake.



NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1	Replacement of MPB
-----	--------------------

2-1-1. Check that the Shut Down LED is on.

- a. Check that the Shut Down LED is on. (only hot replace)

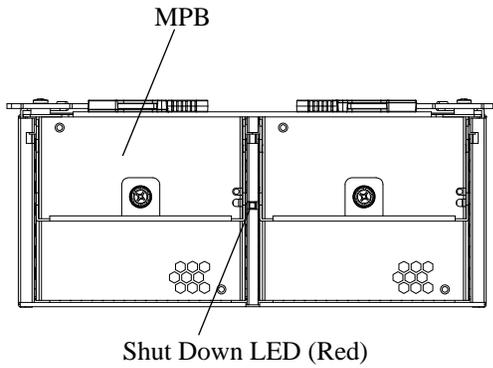


Fig. 3.11.2-1 Confirmation of Shut Down LED

2-1-2. Remove the MPB.

- a. Slide the lock on the levers of the MPB outward and open the levers.
- b. Open the levers completely and remove the MPB.

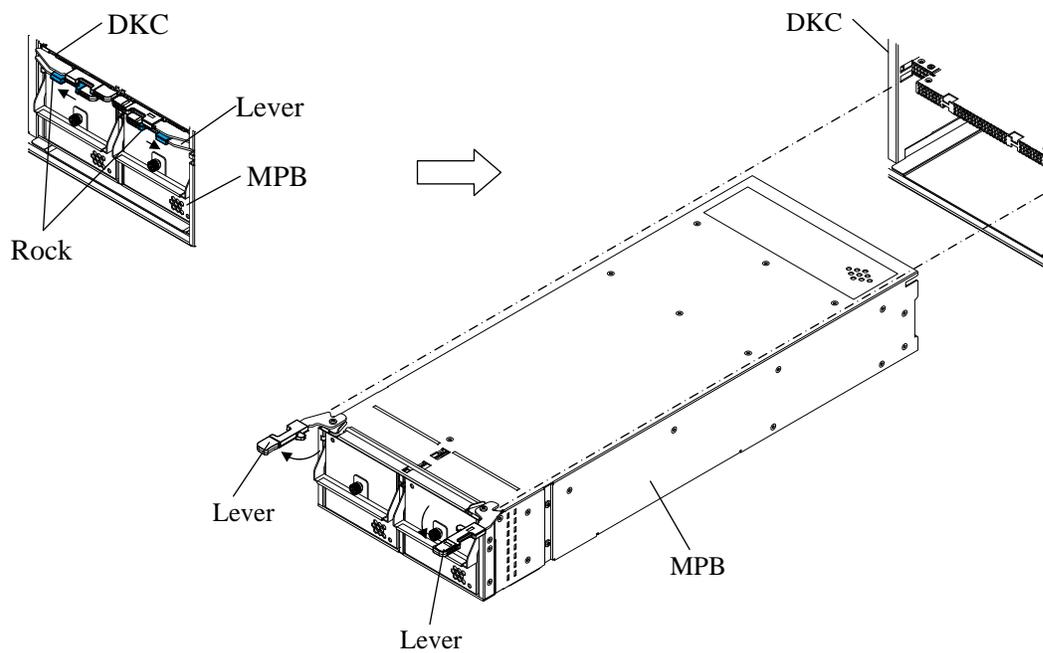
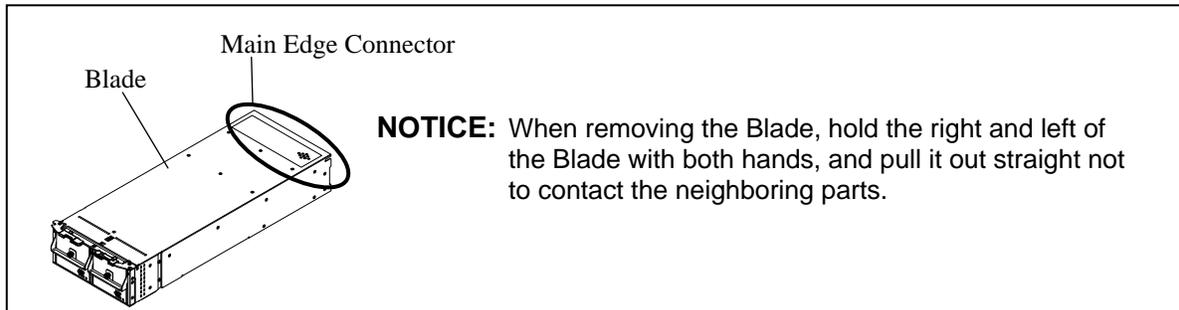


Fig. 3.11.2-2 Removal of MPB

2-1-3. Move the DKCFANs.

- a. Loosen the screw on the right DKCFAN installed in the failed MPB and bring up the handle.
- b. Pull the handle and remove the DKCFAN from the MPB.
- c. Remove the left DKCFAN in the same way.
- d. Install the two removed DKCFANs in the spare MPB.

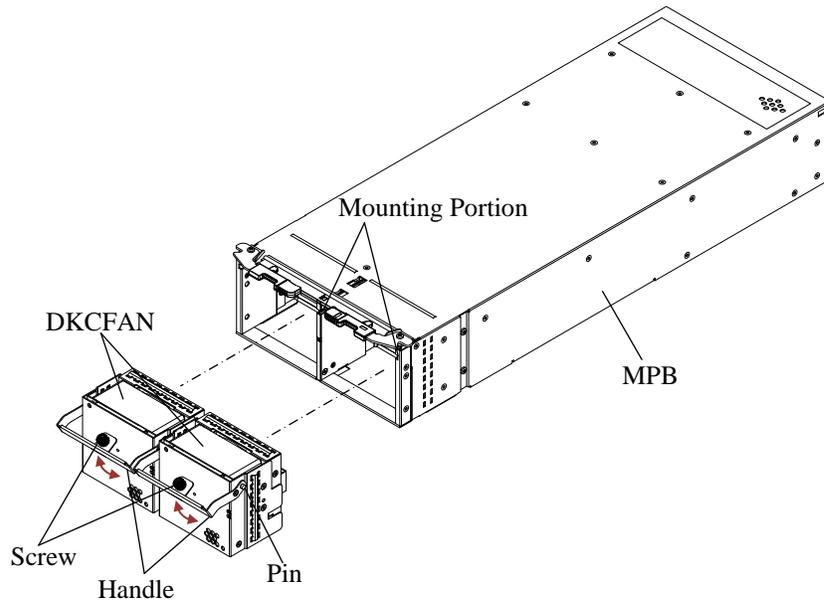
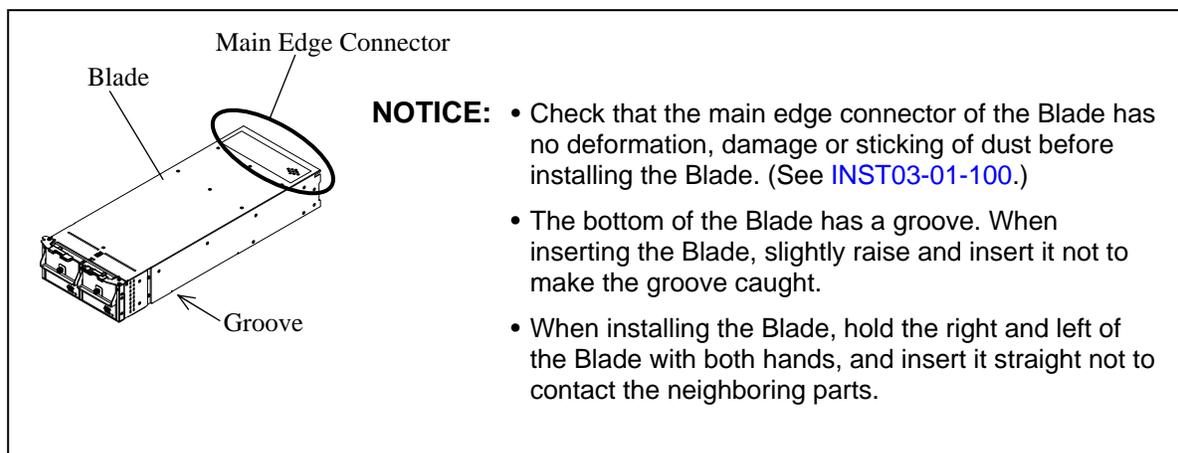


Fig. 3.11.2-3 Movement of DKCFAN

2-1-4. Insert the spare MPB.

- a. Insert the MPB until its lever edges reach the DKC.
- b. Close the levers inward and fully insert the MPB. Then confirm that the lever locks are fastened to the DKC.



2-1-5. Go to “3. POST-PROCESSING of SVP”.

2-2	Replacement of MP Memory Module
-----	---------------------------------

2-2-1. Check that the Shut Down LED is on.

- a. Check that the Shut Down LED is on. (only hot replace)

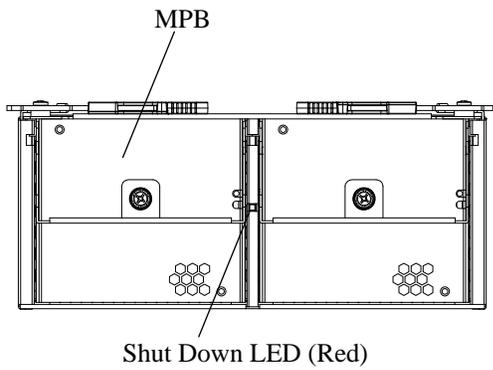


Fig. 3.11.2-4 Confirmation of Shut Down LED

2-2-2. Remove the MPB.

- a. Slide the lock on the levers of the MPB outward and open the levers.
- b. Open the levers completely and remove the MPB.

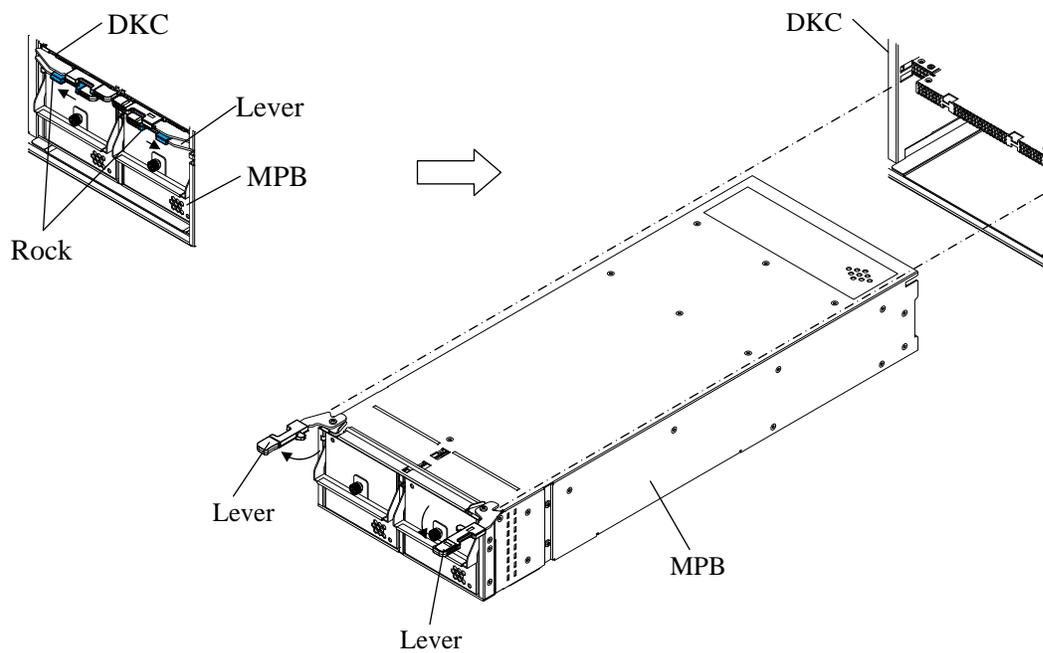
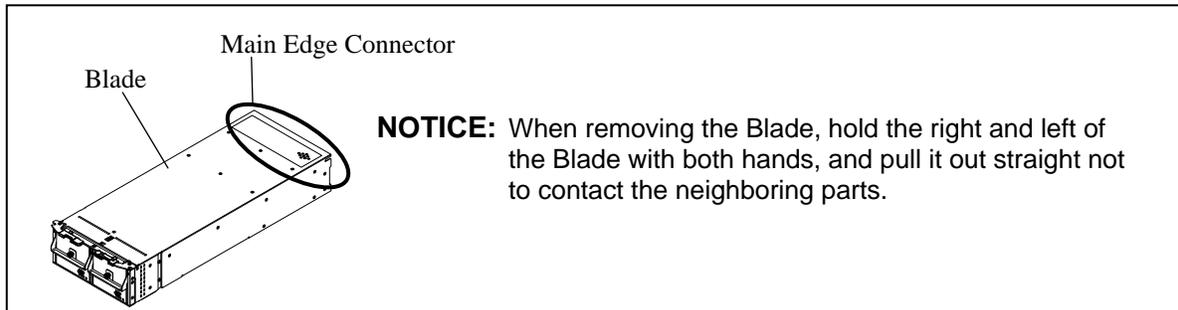


Fig. 3.11.2-5 Removal of MPB

2-2-3. Replace the MP Memory Module.

- a. Loosen the two screws and remove the cover.

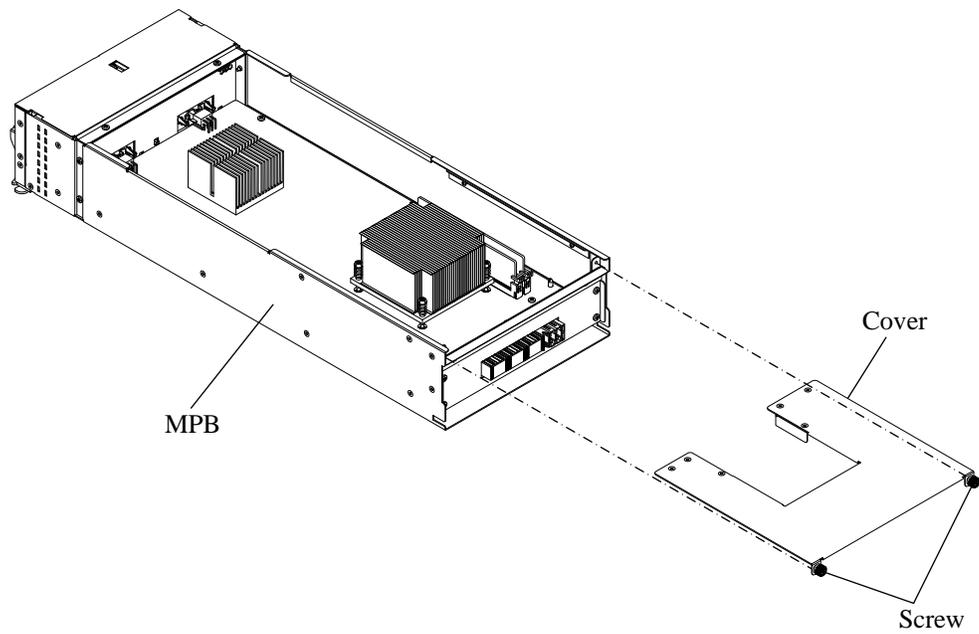
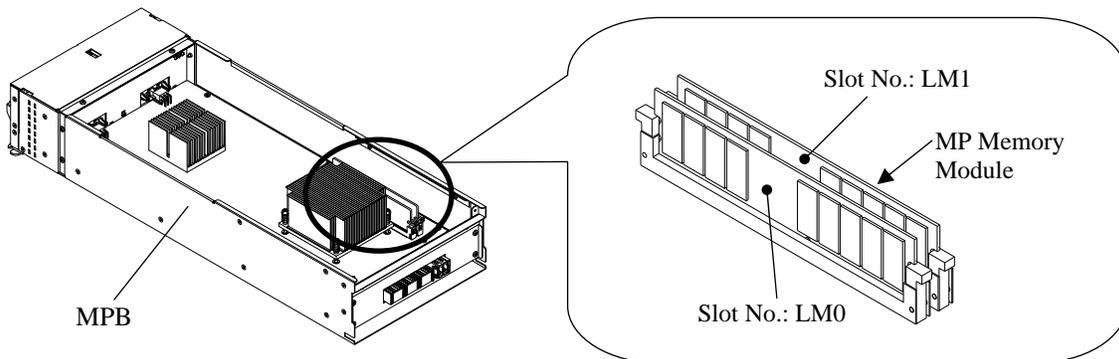


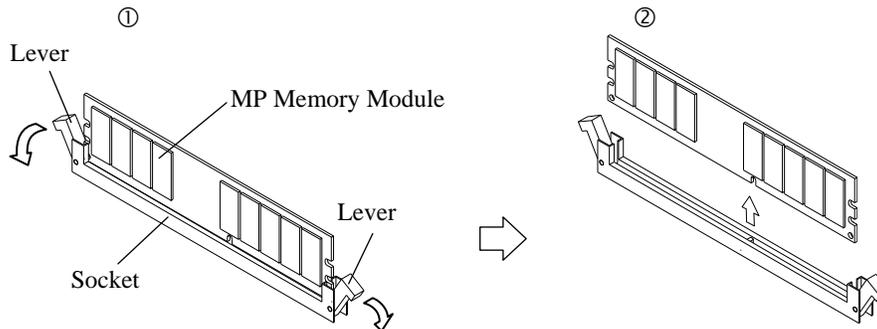
Fig. 3.11.2-6 Removal of Cover

- b. Remove the failed MP memory module and insert the spare MP memory module.
- c. Attach the cover and tighten the two screws. (Refer to Fig. 3.11.2-6.)



Removal

- ① Pull the lever outward.
- ② Hold both ends of the memory module by the fingers, and pull out the MP memory module from the socket.



Installation

- ① Position the cut of the MP memory module with the projection inside the slot, and place the MP memory module on the socket.
- ② Hold both ends of the MP memory module by the fingers, and fit it into the socket.
- ③ Make sure that the lever is firmly fitted in the MP memory module.

NOTICE: Do not put intense pressure on the memory module to the extent that the PCB greatly bends after the memory module is secured with the levers in installation procedure of the memory module. The PCB may be damaged when intense pressure is applied.

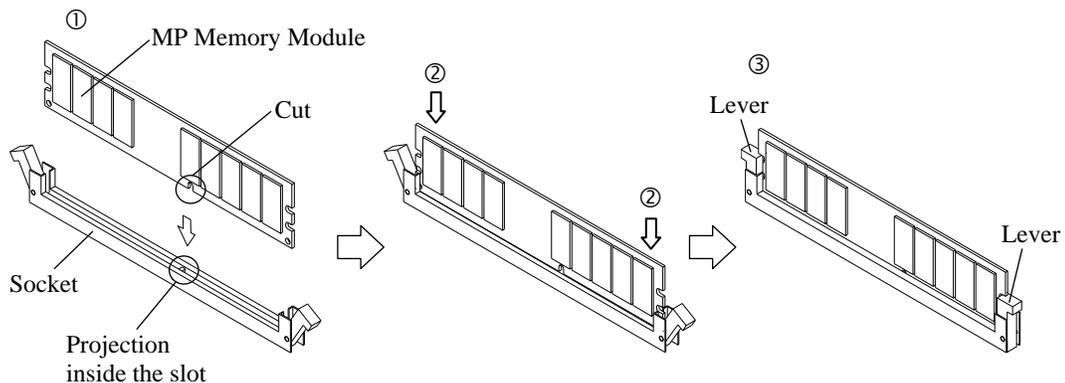
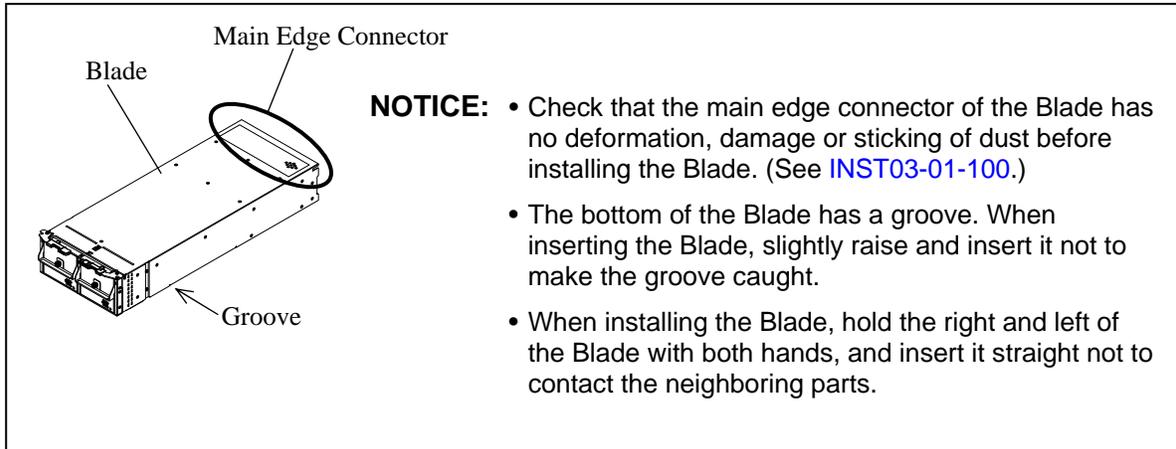


Fig. 3.11.2-7 Replacement of MP Memory Module

2-2-4. Insert the spare MPB.

- a. Insert the MPB until its lever edges reach the DKC.
- b. Close the levers inward and fully insert the MPB. Then confirm that the lever locks are fastened to the DKC.

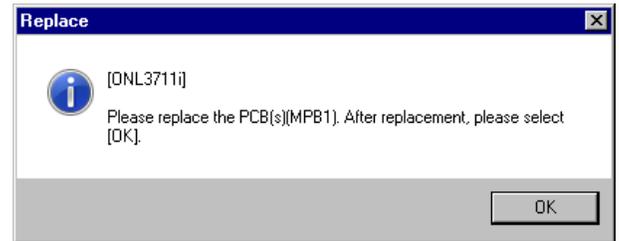


2-2-5. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <MPB Replacement>

Select (CL) [OK] in response to “Please replace the PCB(s)(MPBn). After replacement, please select [OK].”



3-2. <Waiting for Power Event>

“Waiting for Power Event...”

Usually several minutes (maximum 15 minutes).” is displayed.

CAUTION

Confirm the version of the exchanged MP Micro-program on the ‘STATUS’ screen. Check whether the version of all processors accords.

If the DKCMAIN Micro-program version of the MPB that is target to be maintained is lower than in the SVP, replace MPB again.

3-3. <Check the end of MPB recovery>

Select (CL) [OK] in response to “Replace finished.”.



3-4. Version of Microprogram

Select (CL) [Version]-[MP Ver.(Curt./Running)] in this order in the 'Maintenance' window.
The 'Version' window is displayed.

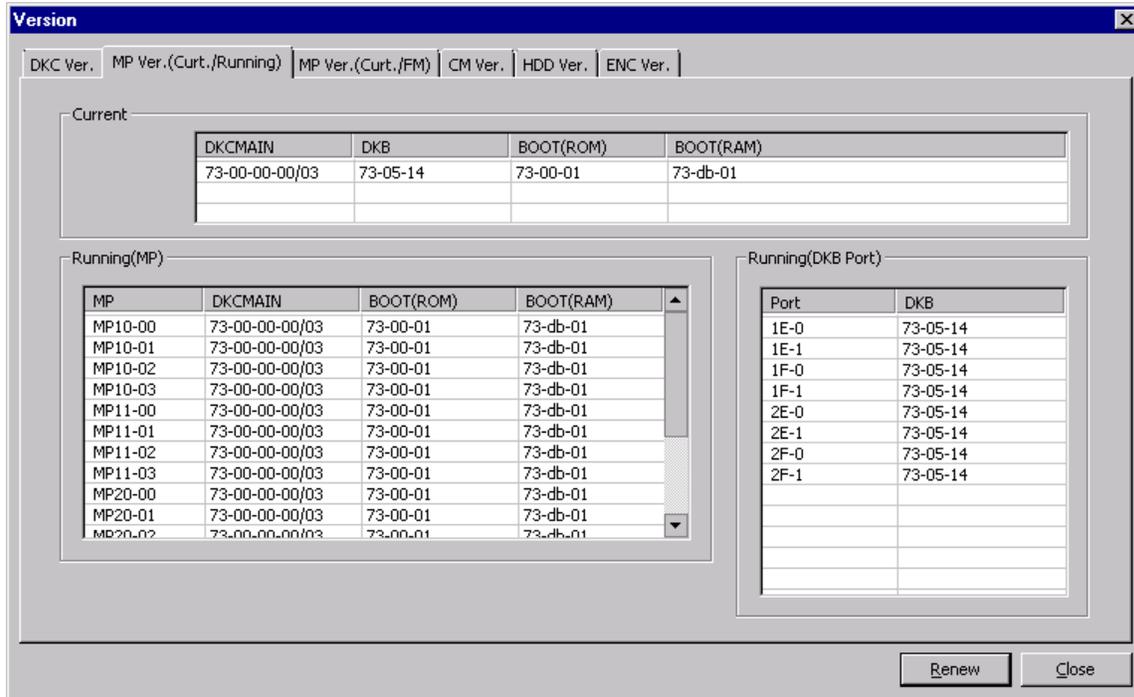


Table 3.11.3-1 Information to Be Displayed

Item	Description
DKC Current Version area	Major version of the microprogram currently running. In regard to a version inconsistent with a corresponding version in the MP Version area or a binary version (Internal administrative information), the area concerned is displayed in red-white-reversal with an asterisk (“*”).
MP Version area	Version of the microprogram of each processor currently running. A version, which is displayed in red-white-reversal, is inconsistent with the DKC Current Version. A version displayed with an asterisk (“*”) at the end of it is the inconsistent one.
DKB PORT area	The SAS-CON Running version is displayed. The Location name is displayed.

Concerning this item, when even a single piece of information is inconsistent, an icon “”, which shows an error, is displayed in the tab portion.

Select (CL) [Version]-[MP Ver.(Curt./FM)] in this order in the ‘Maintenance’ window.

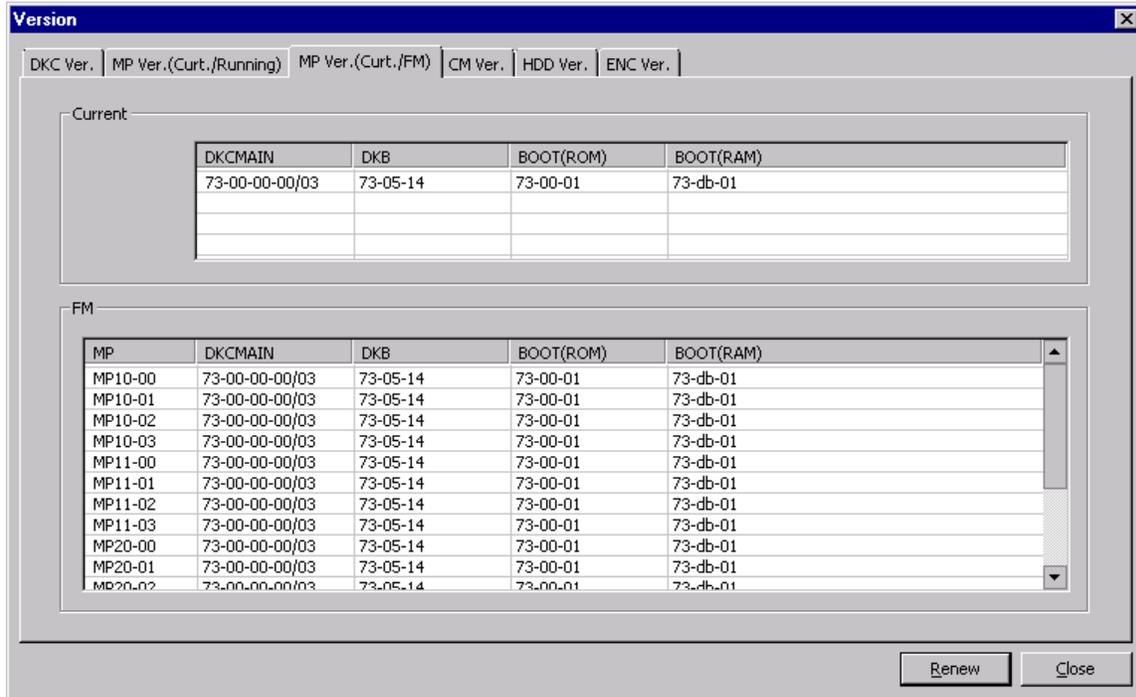


Table 3.11.3-2 Information to Be Displayed

Item	Description
DKC Current Version area	Major version of the microprogram currently running. In regard to a version inconsistent with a corresponding version in the MP Version area or a binary version (Internal administrative information), the area concerned is displayed in red-white-reversal with an asterisk (“*”).
FM Version area	Version of FM microprogram of each processor. A version, which is displayed in red-white-reversal, is inconsistent with the DKC Current Version. A version displayed with an asterisk (“*”) at the end of it is the inconsistent one.

Concerning this item, when even a single piece of information is inconsistent, an icon “” which shows an error, is displayed in the tab portion.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[Fibre CHB REPLACEMENT PROCESSING - RCH1]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select CHB (status check)
 - ② Specify Replacement
 - ③ Place PCB into blocked state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery for CHB
 - ② Path online (for CHB)

1. PRE-PROCESSING of SVP

1-1. <Set path offline or switch of channel path>

CAUTION

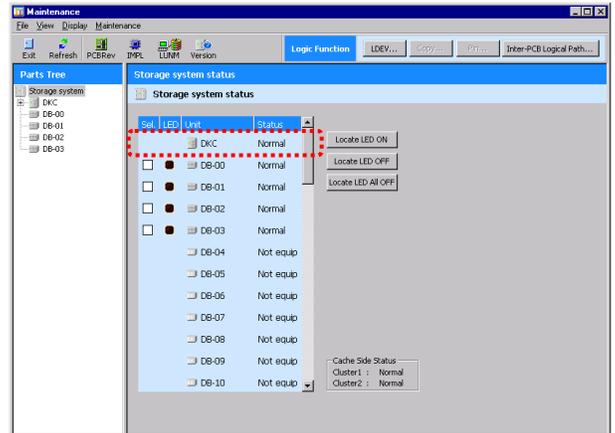
The switch to the alternate channel path or host shutdown is that connected with the CHB concerned.

As for other channel path, switching to the alternate channel path or host shutdown is unnecessary.

However, the host must be shut down when the Pinned track in CHB connected port.

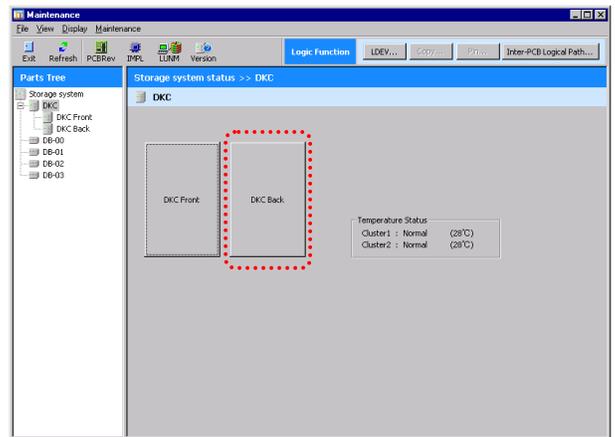
1-2. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.



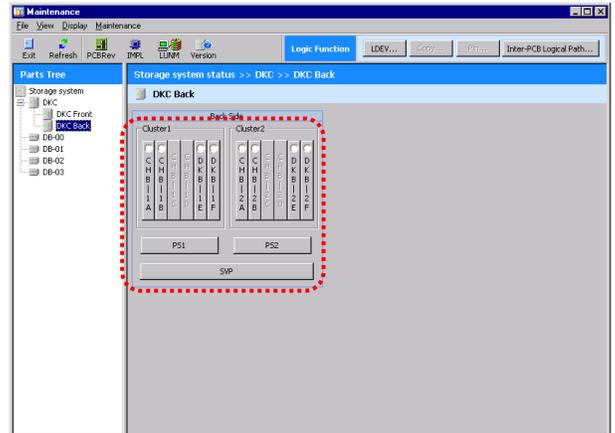
1-3. <DKC window>

Select (CL) [DKC Back] in the 'DKC' window.



1-4. <Select CHB>

Select (CL) [CHB-nX].



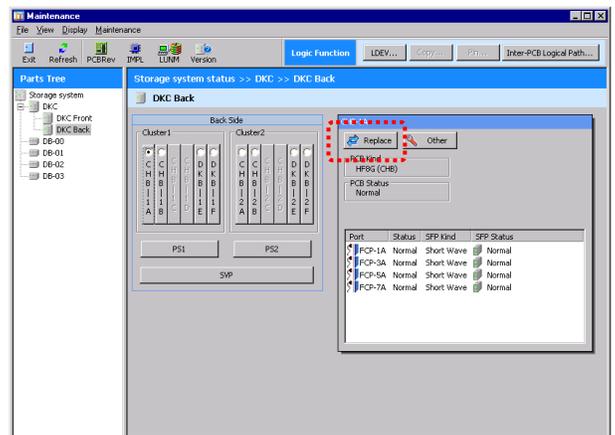
1-5. <Specify Replacement of CHB>

⚠ CAUTION

- When the path to the PCB to be replaced is online, ask the customer to place it offline. (For CHB replacement)
- For Open host, switch to the alternate channel path or shut down the host. However, the host must be shut down when the Pinned track in CHB connected port.
- When the screen requests an operator to input a password in order to prevent multiple maintenance, contact the technical support division to ask for instructions.

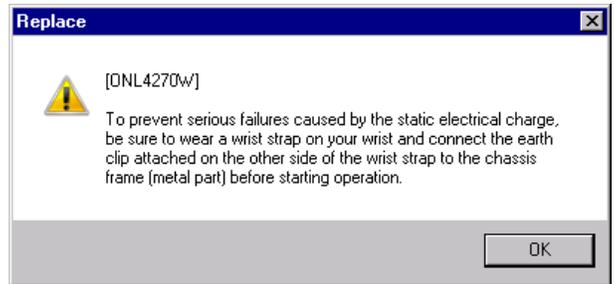
If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

Make sure that the status is WARNING.
Select (CL) [Replace].



1-6. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



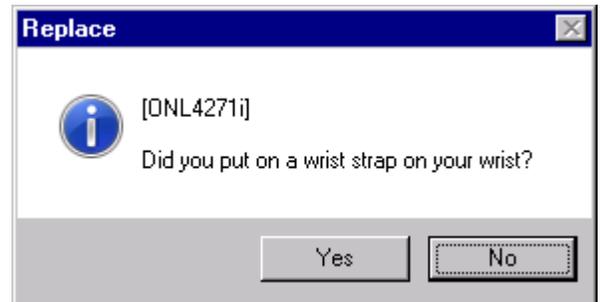
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

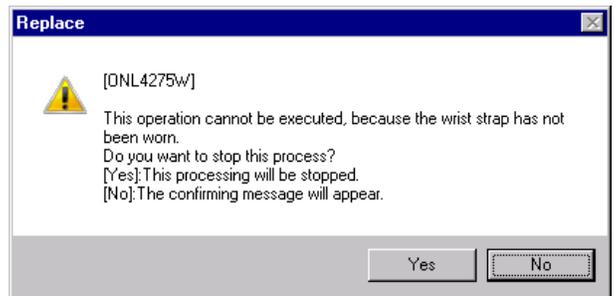


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.



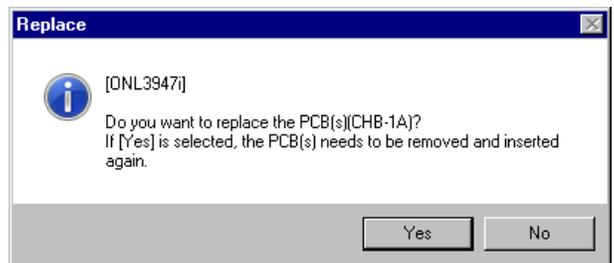
When [Yes] is selected (CL), returned to Step 1-5.

When [No] is selected (CL), returned to Step 1-6.

1-7.<CHB replace>

Select (CL) [Yes] in response to:

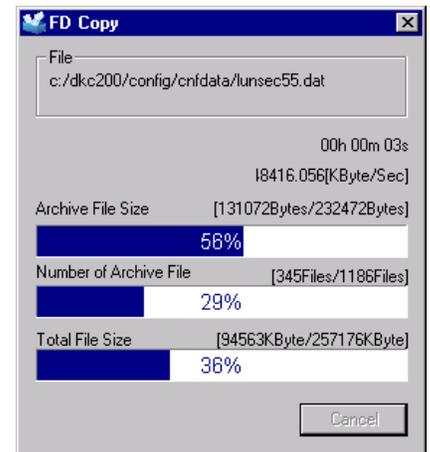
“Do you want to replace the PCB(s)(CHB-nn)? If [Yes] is selected, the PCB(s) needs to be removed and inserted again.”.



1-8. <Compression of the error information>

The error information is compressed.

The dialog of FD Copy is displayed.



1-9. <Get the error information>

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.

A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format

“[factory_cd]_[Pcb_type]_[Pcb_SerialNo]_YYMMDDhhmmss.tgz”.

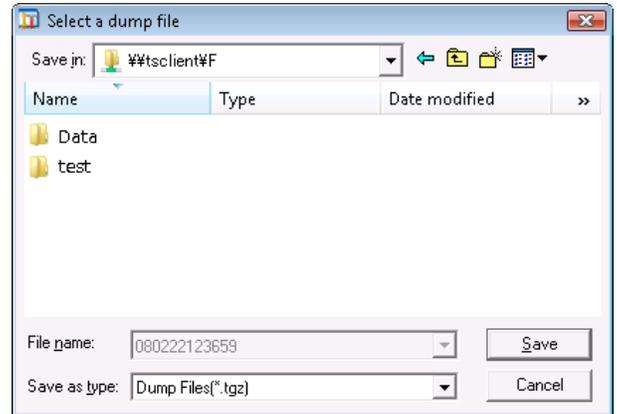
(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed.
Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



- When the destination media is write-protected.

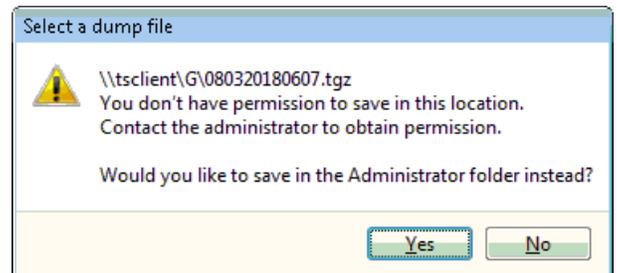
<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the "C:\users\Administrator" folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination whether you remove write protect when you save it and carry it out.

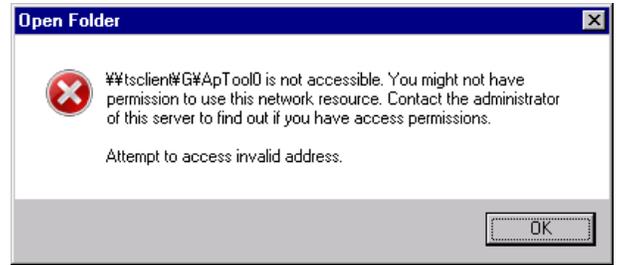


- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

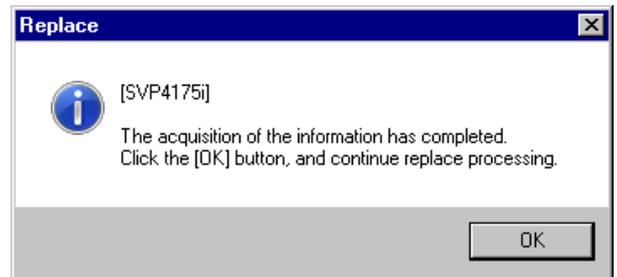
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.



Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.

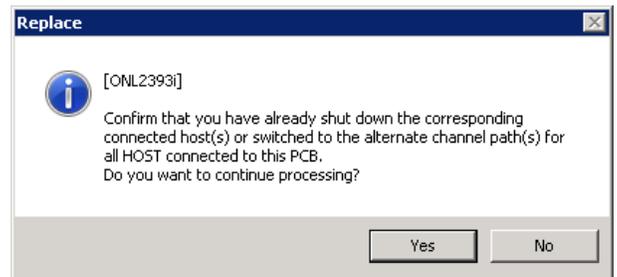


1-10. <Confirm Channel Path offline>

Select (CL) [Yes] in response to following message.

For Fiber CHB:

“Confirm that you have already shut down the corresponding connected host(s) or switched to the alternate channel path(s) for all HOST connected to this PCB. Do you want to continue processing?”.



1-11. <Caution message for system down>



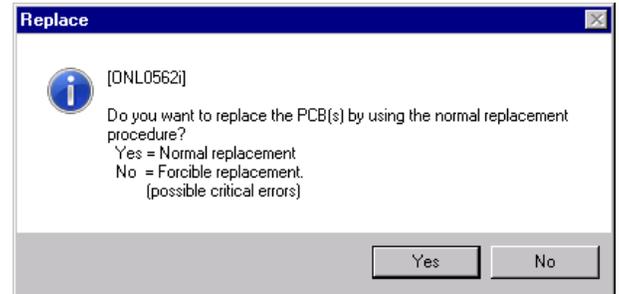
Select (CL) [Yes] in response to the message below.

“Do you want to replace the PCB(s) by using the normal replacement procedure?”

Yes = Normal replacement

No = Forcible replacement.

(Possible critical errors)”.



1-12. <CHB blocking>

“CHB-*nn* is being blocked... Usually, several minutes (maximum 15 minutes)”

“CHB-*nn* is lighting the LED...”

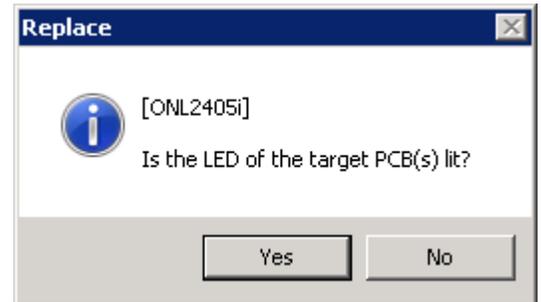
1-13. <Check shut down LED>

Select (CL)

* [Yes] if LED is on

* [No] if LED is off

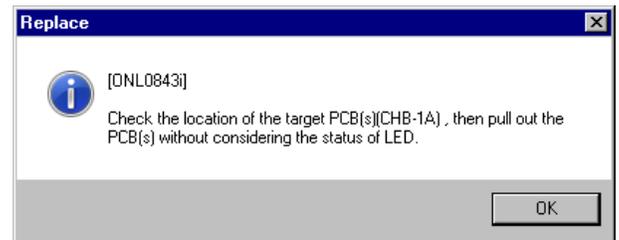
in response to “Is the LED of the target PCB(s) lit?”.



If [No] is selected:

Select (CL) [OK] in response to “Check the location of the target PCB(s)(CHB-*nn*), then pull out the PCB(s) without considering the status of LED.”. (Refer to “2. HARDWARE REPLACEMENT PROCESSING”)

NOTE: Select (CL) [OK] after pulling out the PCB.



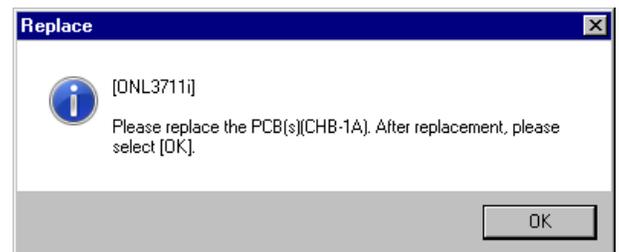
Go to Step 1-14.

1-14. <Beginning of CHB replacement>

“Please replace the PCB(s)(CHB-*nn*). After replacement, please select [OK].” is displayed.

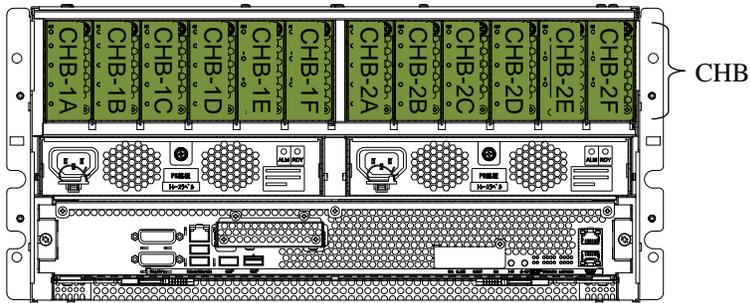
Select (CL) [OK] after replacing the CHB.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.



2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear View of DKC	1	CHB for FC	• SH559-C (HF8GR)



Rear View of DKC

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1	Replacement of CHB
-----	--------------------

2-1-1. Check that the Shut Down LED is on.

- a. Check that the Shut Down LED is on.

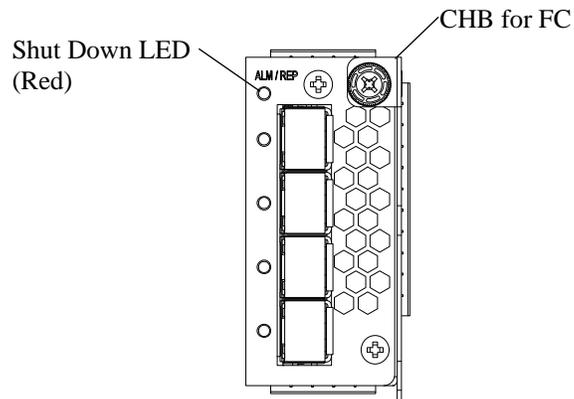


Fig. 3.12.2-1 Confirmation of Shut Down LED

2-1-2. Remove the CHB.

- a. Disconnect the optical fibre cables from the failed CHB.
- b. Loosen the screw that fastens the CHB and let the handle fall down.
- c. Push down the handle and remove the CHB.

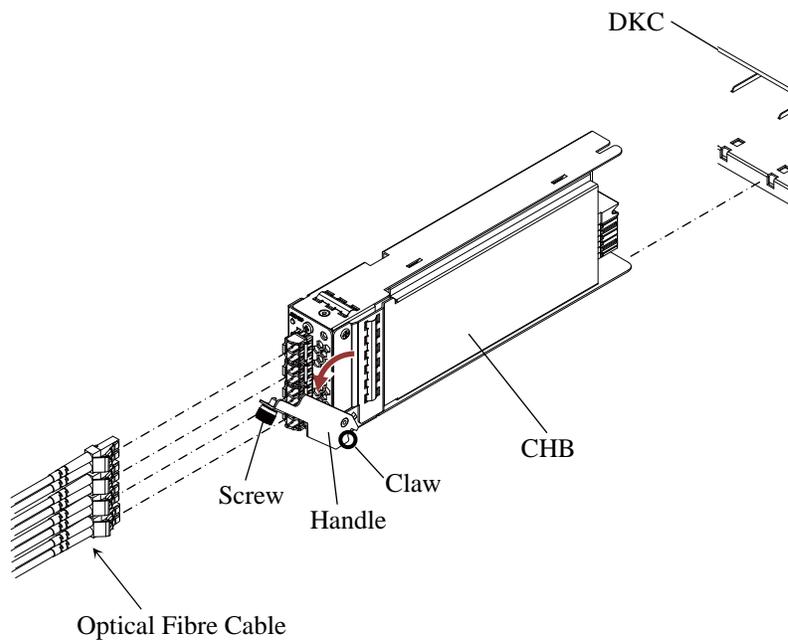
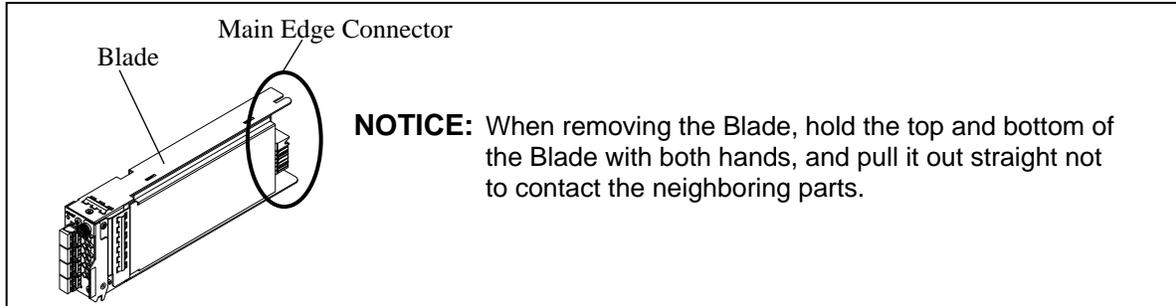
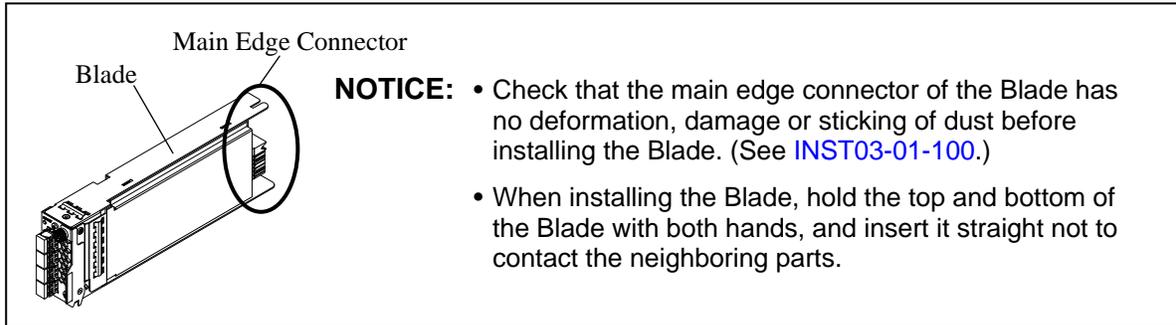


Fig. 3.12.2-2 Removal of CHB

2-1-3. Insert the spare CHB.

- a. Insert the CHB until the claw on the lower part of the handle of the CHB reaches the front of the DKC.
- b. Push up the handle and fully insert the CHB.
- c. Tighten the screw and fasten the CHB. (When it is difficult to tighten the screw, use a screw driver.)



2-1-4. Cleaning the fibre cable connectors.

For the tools needed for the cleaning, refer to the tool list on page [PARTS05-10](#).

- a. Blow compressed gas against the connector using an air sprayer (for about five seconds).
- b. Wipe the connector lightly with a piece of cut gauze wet with ethyl alcohol.
- c. Blow compressed air again and check the result of the cleaning. (None of dust, sticking of foreign matter, and dirt must be observed.)

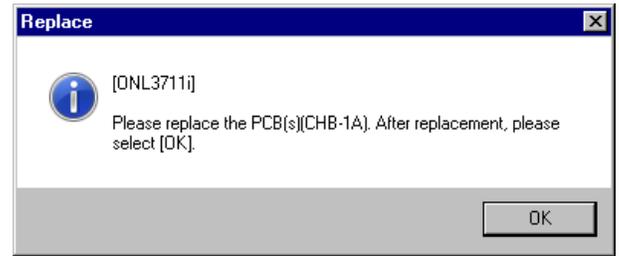
2-1-5. Connect the optical fibre cables to the spare PCB.

2-1-6. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Beginning of CHB Replacement>

Select (CL) [OK] in response to “Please replace the PCB(s)(CHB-*nn*). After replacement, please select [OK].” after replacement.



3-2. <Check the end of CHB recovery>

Select (CL) [OK] in response to “Replace finished.”.



3-3. <Path on-line when CHB is replaced>

When a CHB is replaced, set the path (from the host) on the replaced CHB to ONLINE by your customer.

3-4.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[DKB REPLACEMENT PROCESSING - RDA1]

— OUTLINE —

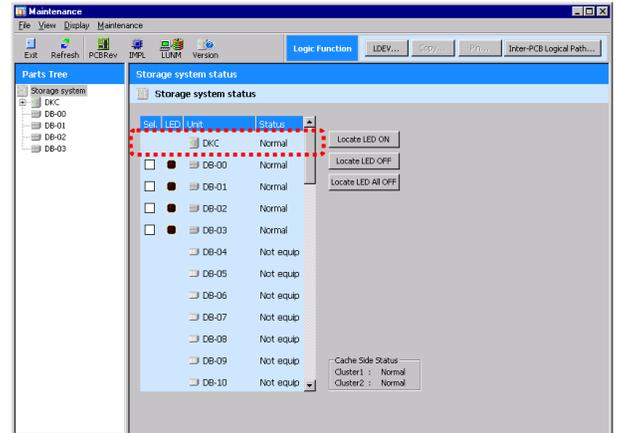
1. PRE-PROCESSING of SVP
 - ① Select DKB (status check)
 - ② Specify Replacement
 - ③ Place PCB into blocked state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery for DKB

NOTICE: If encryption DKB (BS6GE) have been blocked when restoring encryption keys, please execute not dummy replacement but replacement under technical support division's guidance.

1. PRE-PROCESSING of SVP

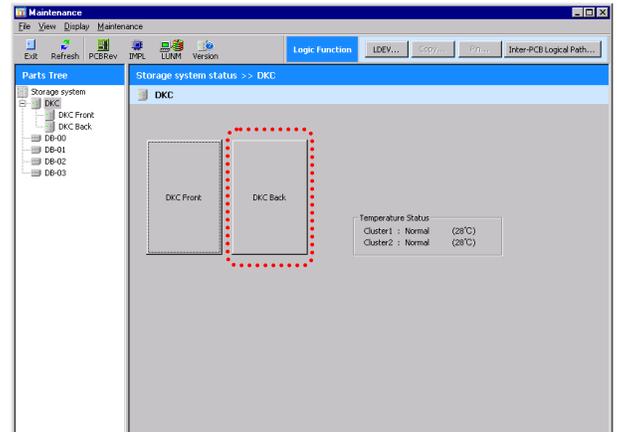
1-1. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.



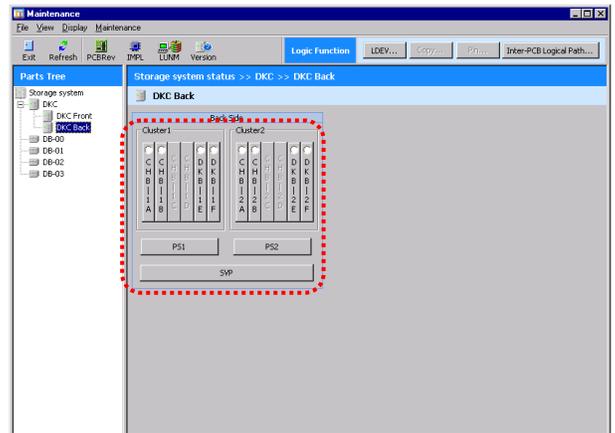
1-2. <DKC window>

Select (CL) [DKC Back] in the 'DKC' window.



1-3. <Select DKB>

Select (CL) [DKB-nX].



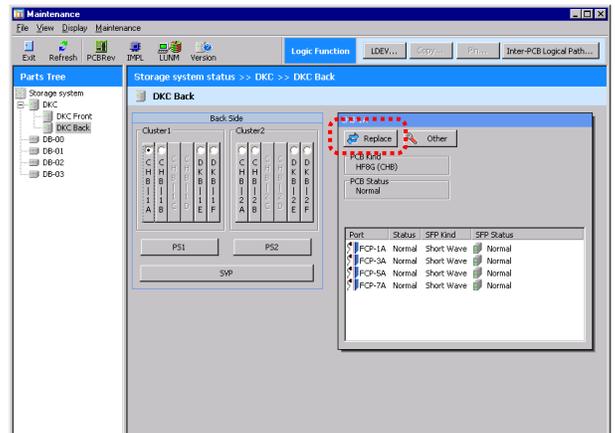
1-4. <Specify Replacement of DKB>

CAUTION

When the screen requests an operator to input a password in order to prevent multiple maintenance, contact the technical support division to ask for instructions.

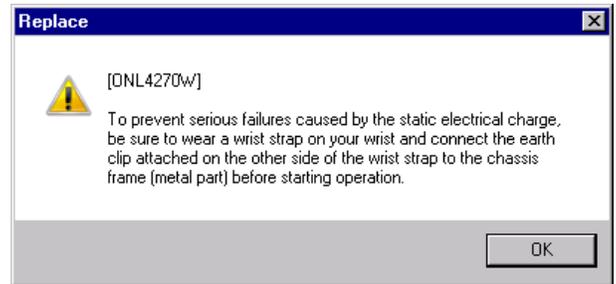
If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

Make sure that the status is WARNING.
Select (CL) [Replace].



1-5. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



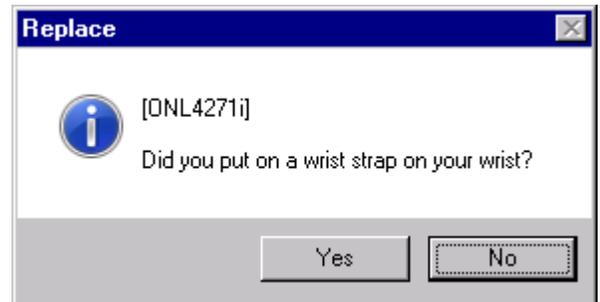
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).



(2)

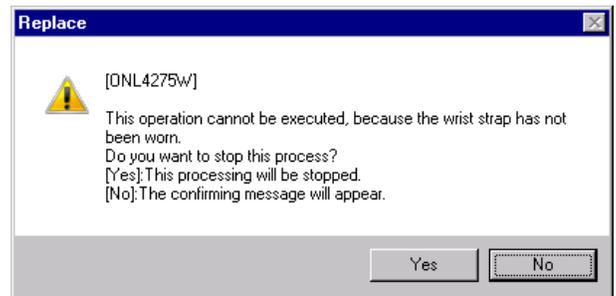
In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

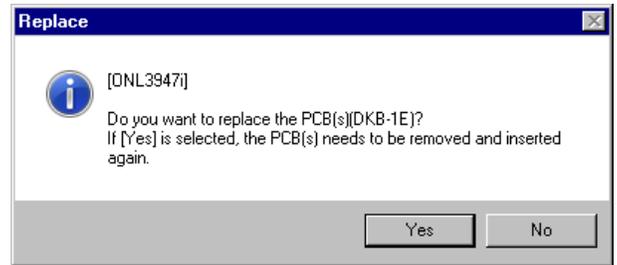
When [Yes] is selected (CL), returned to Step 1-4.

When [No] is selected (CL), returned to Step 1-5.



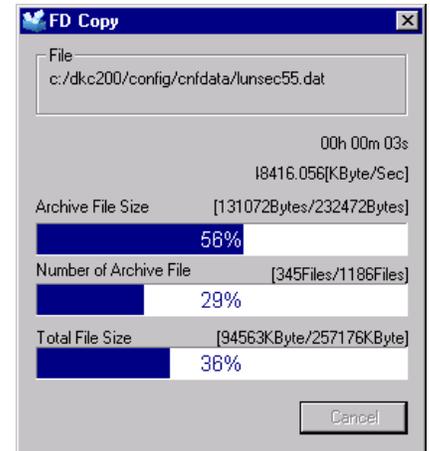
1-6. <DKB replace>

Select (CL) [Yes] in response to:
“Do you want to replace the PCB(s)(DKB-
nn)? If [Yes] is selected, the PCB(s) needs to
be removed and inserted again.”



1-7. <Compression of the error information>

The error information is compressed.
The dialog of FD Copy is displayed.



1-8.<Get the error information>

Input the Field Failure Information, and select (CL) [Ok].

“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.

A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format

“[factory_cd]_[Pcb_type]_[Pcb_SerialNo]_YYMMDDhhmmss.tgz”.

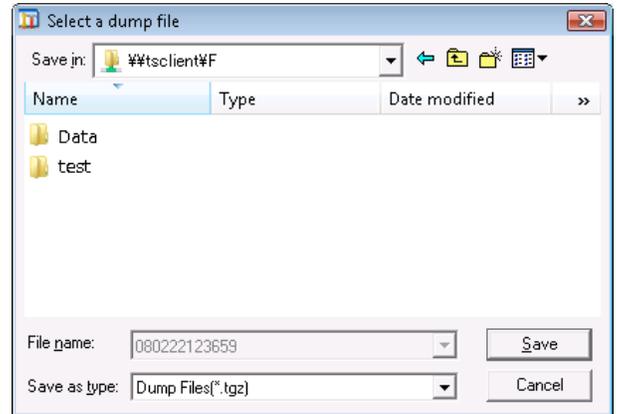
(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed.
Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



- When the destination media is write-protected.

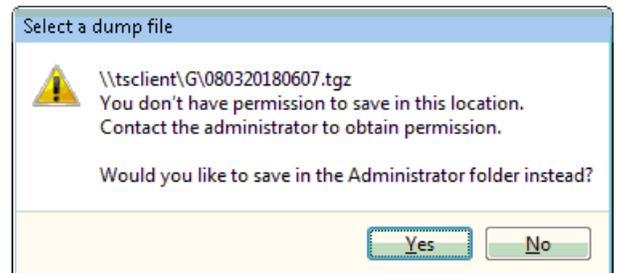
<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the "C:\users\Administrator" folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination whether you remove write protect when you save it and carry it out.

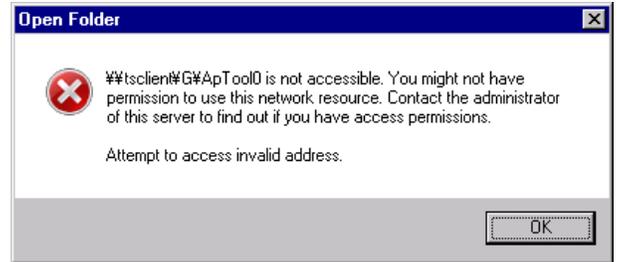


- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

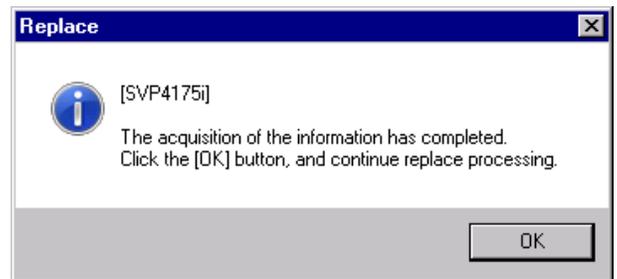
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.



Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.

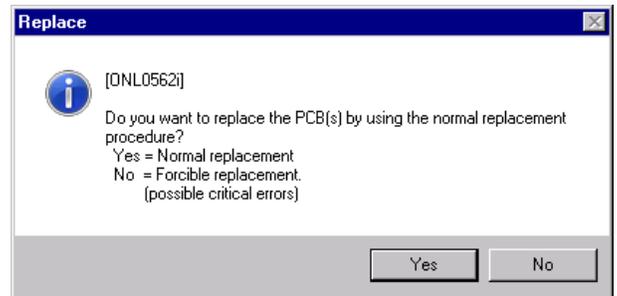


1-9. <Caution message for system down>



Select (CL) [Yes] in response to the message below.

“Do you want to replace the PCB(s) by using the normal replacement procedure?
Yes = Normal replacement
No = Forcible replacement.
(Possible critical errors)”.



1-10. <DKB blocking>

“DKB is being blocked...”
“DKB-nn is lighting the LED...”

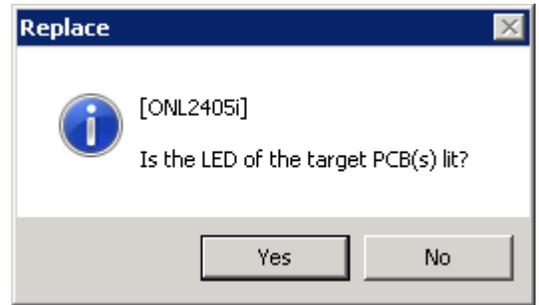
1-11. <Check shut down LED>

Select (CL)

* [Yes] if LED is on

* [No] if LED is off

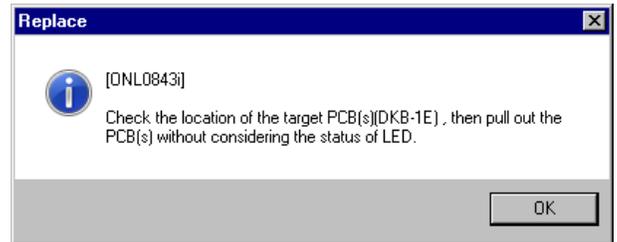
in response to “Is the LED of the target PCB(s) lit?”.



If [No] is selected:

Select (CL) [OK] in response to “Check the location of the target PCB(s)(DKB-nn), then pull out the PCB(s) without considering the status of LED.”. (Refer to “2. HARDWARE REPLACEMENT PROCESSING”)

NOTE: Select (CL) [OK] after pulling out the PCB.



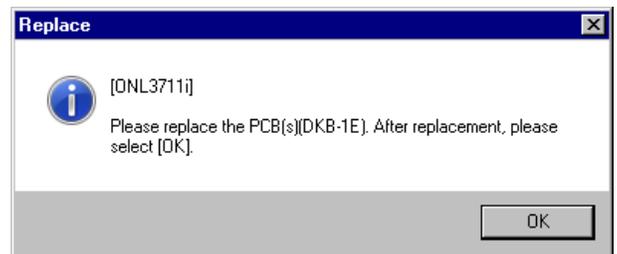
Go to Step 1-12.

1-12. <Beginning of DKB replacement>

“Please replace the PCB(s)(DKB-nn). After replacement, please select [OK].” is displayed.

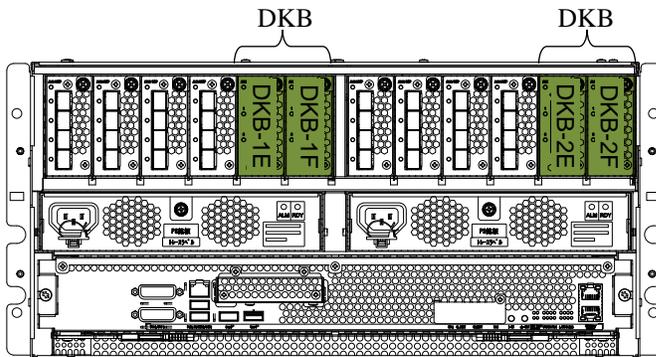
Select (CL) [OK] after replacing the PCBs.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.



2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear DKC	1	DKB	<ul style="list-style-type: none"> • SH561-B (BS6G) • SH561-D (BS6GE)



Rear View of DKC

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1	Replacement of DKB
-----	--------------------

2-1-1. Check that the Shut Down LED is on.

- a. Check that the Shut Down LED is on. (only hot replace)

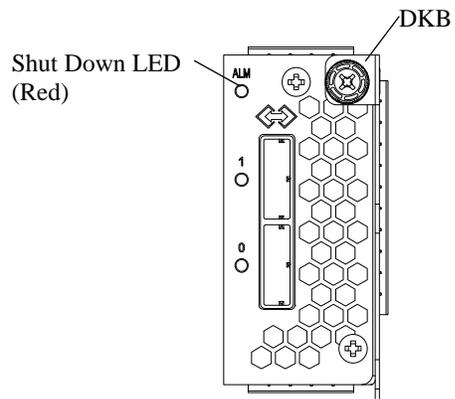


Fig. 3.13.2-1 Confirmation of Shut Down LED

2-1-2. Remove the DKB.

- a. Disconnect the cables from the failed DKB.
- b. Loosen the screw that fastens the DKB and let the handle fall down.
- c. Push down the handle and remove the DKB.

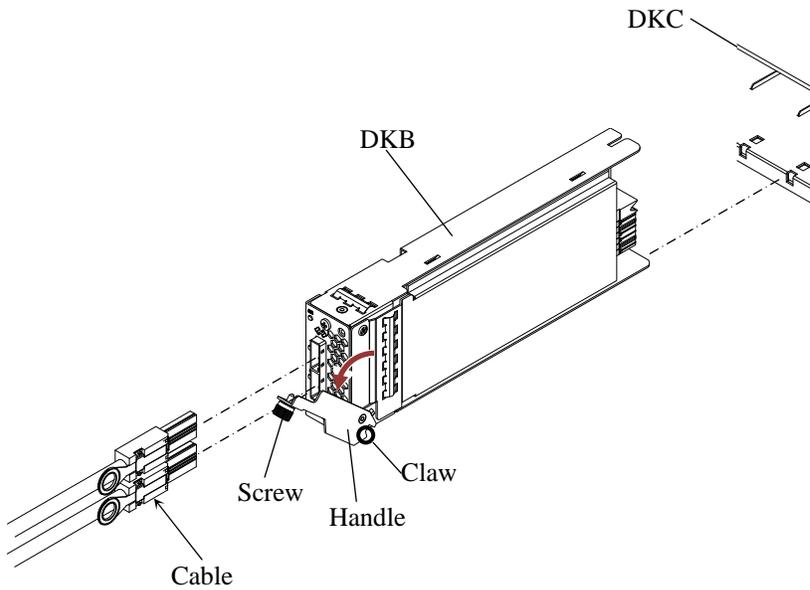
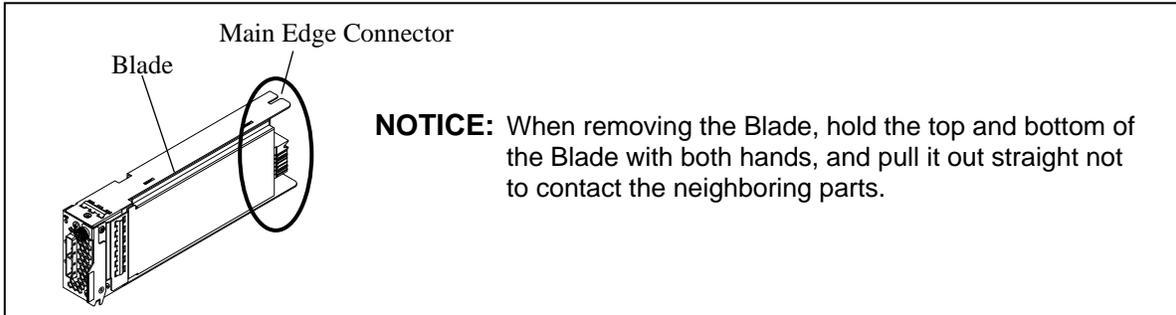
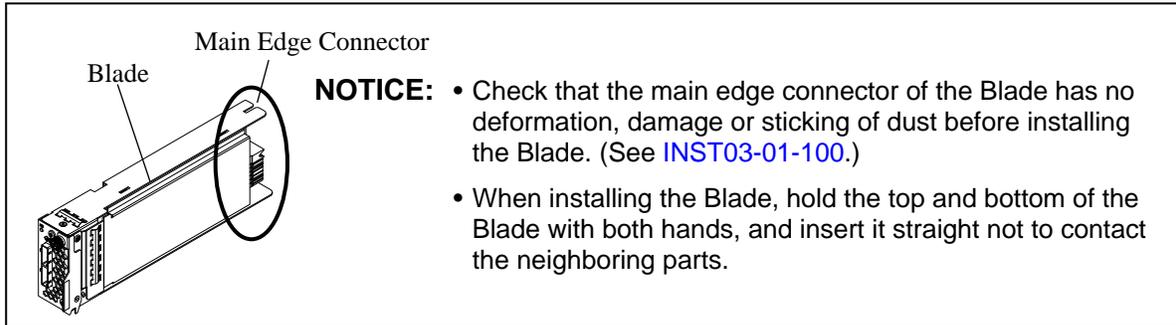


Fig. 3.13.2-2 Removal of DKB

2-1-3. Insert the spare DKB.

- a. Insert the DKB until the claw on the lower part of the handle of the DKB reaches the front of the DKC.
- b. Push up the handle and fully insert the DKB.
- c. Tighten the screw and fasten the DKB. (When it is difficult to tighten the screw, use a screw driver.)



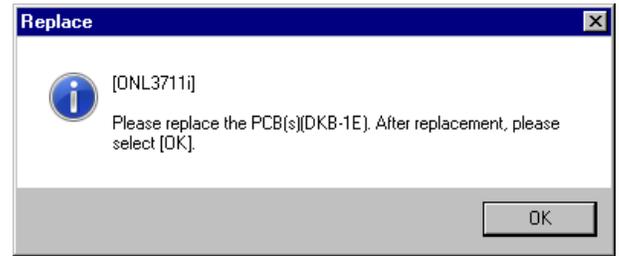
- d. Connect the cables to the spare DKB after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).

2-1-4. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Beginning of DKB Replacement>

Select (CL) [OK] in response to “Please replace the PCB(s)(DKB-nn). After replacement, please select [OK].” after replacement.



3-2. <Check the recovery processing>

The following message is displayed:
“Restoring the DKB-nn...”
“DKB-nn is being path recovered...”

3-3.

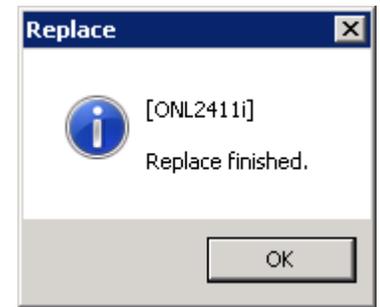
“PATH INLINE is now running...” is displayed.

3-4. <Check the recovery processing>

The following message is displayed:
“Restoring the DKB-nn...”

3-5. <Check the end of DKB recovery>

Select (CL) [OK] in response to “Replace finished.”.

**3-6.**

Go to POST-PROCEDURE [[REP04-01-10](#)].

[FAN(MAIN) REPLACEMENT PROCESSING - RTC3]

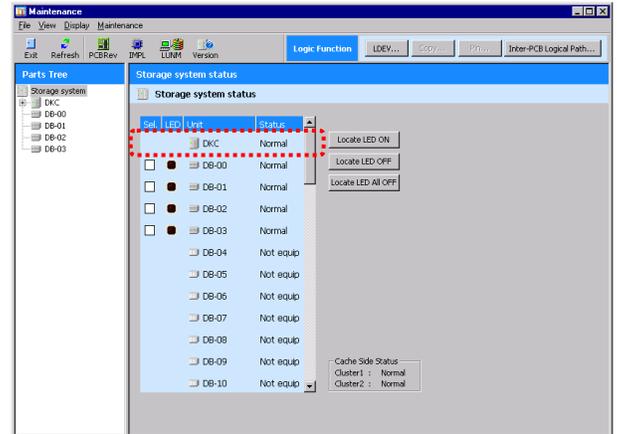
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select FAN(MAIN) (status check)
 - ② Stop environment monitor
 - ③ Specify Replacement
 - ④ Detach FAN(MAIN)
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of FAN(MAIN) replacement
 - ② Reinstall related parts
 - ③ Start environment monitor

1. PRE-PROCESSING of SVP

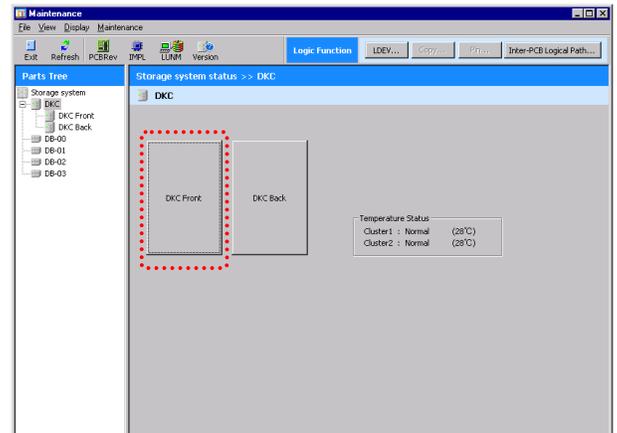
1-1. <Maintenance window>

In the 'Maintenance' window, check and select (CL) [DKC] to be replaced.



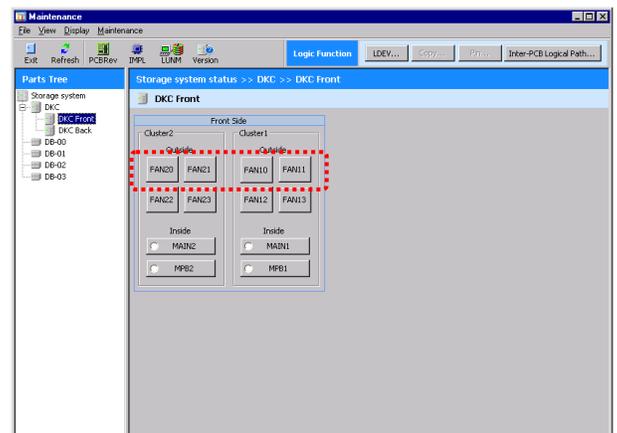
1-2. <Specify special part FAN(MAIN)>

Select (CL) [DKC Front].



[DKC Front]

Select (CL) [FANnn].



1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

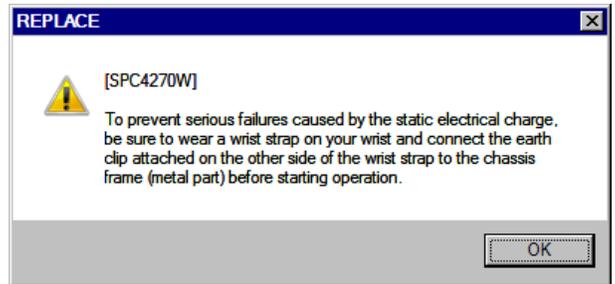
A window shown on the right is displayed.
Select (CL) [Execute].



(Eg. DKCFAN10)

1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



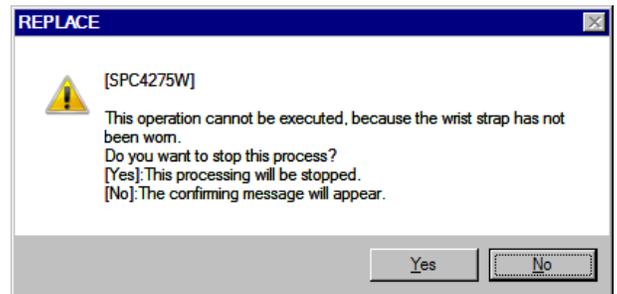
“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



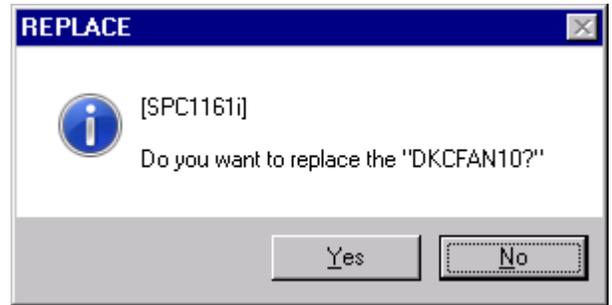
“This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process? [Yes] : This processing will be stopped. [No] : The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of FAN(MAIN) Replacement>

Select (CL) [Yes] in response to “Do you want to replace “DKCFANnn?””.



(Eg. DKCFAN10)

1-6. <Checking the FAN(MAIN)>

The SVP automatically checks the FAN(MAIN) to see if it is replaceable.

1-7. <Checking the environment monitor stopped and turning on the REPLACE LED>

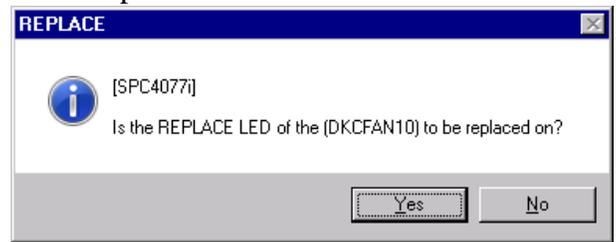
The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-8. <Checking lighting of the LED on the component to be pulled out>

The message “Is the REPLACE LED of the (DKCFANnn) to be replaced on?” is displayed.

When the REPLACE LED on the component to be pulled out is on, select (CL) [Yes] and go to Step 1-10.

When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-9.

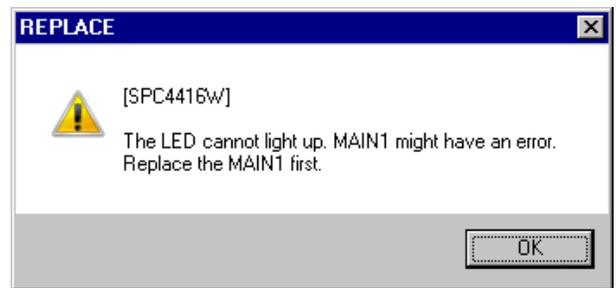


(Eg. DKCFAN10)

1-9. <Warning of the FAN(MAIN)>

The message “The LED cannot light up. MAINn might have an error. Replace the MAINn first.” is displayed.

Select (CL) [OK] and go to Step 3-4.



1-10. <Check beginning of FAN(MAIN) Replacement>

The message “Please replace the “DKCFANnn.” After replacement, press OK.” is displayed.
(Reply with [OK] after replacing the special part.)

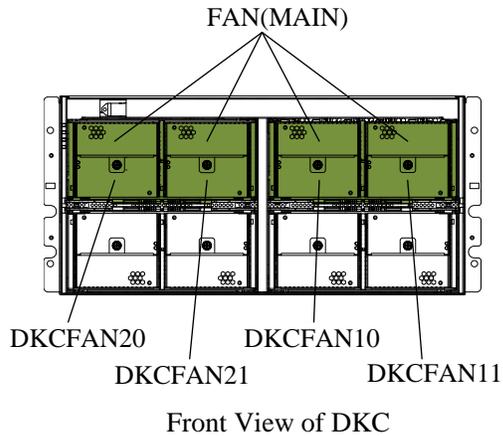
Go to “2. HARDWARE REPLACEMENT PROCESSING”.



(Eg. DKCFAN10)

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Front of DKC	1	FAN(MAIN)	• DKCFAN



NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of FAN(MAIN)

CAUTION

Hazardous rotating mechanism:

Can cause injury if touched. Stay clear of it when machine is running.

2-1-1. Replace the FAN(MAIN).

- a. Check that the REPLACE LED is on.
- b. Loosen the screw on the failed FAN(MAIN) and make the handle fall down.
- c. Pull the handle and remove the FAN(MAIN) from the MAIN Blade.
- d. Loosen the screw on the spare FAN(MAIN) and open the handle.
- e. Insert the spare FAN(MAIN) until the pin on it comes into contact with the mounting portion of the MAIN Blade.

NOTE: The screw is attached to the partition at the center of the MAIN Blade. When replacing the FAN on the right of the MAIN Blade, insert the FAN(MAIN) straight not to make it touch the screws.

- f. Push up the handle and fully insert the FAN(MAIN).
- g. Tighten the screw and fix the FAN(MAIN).

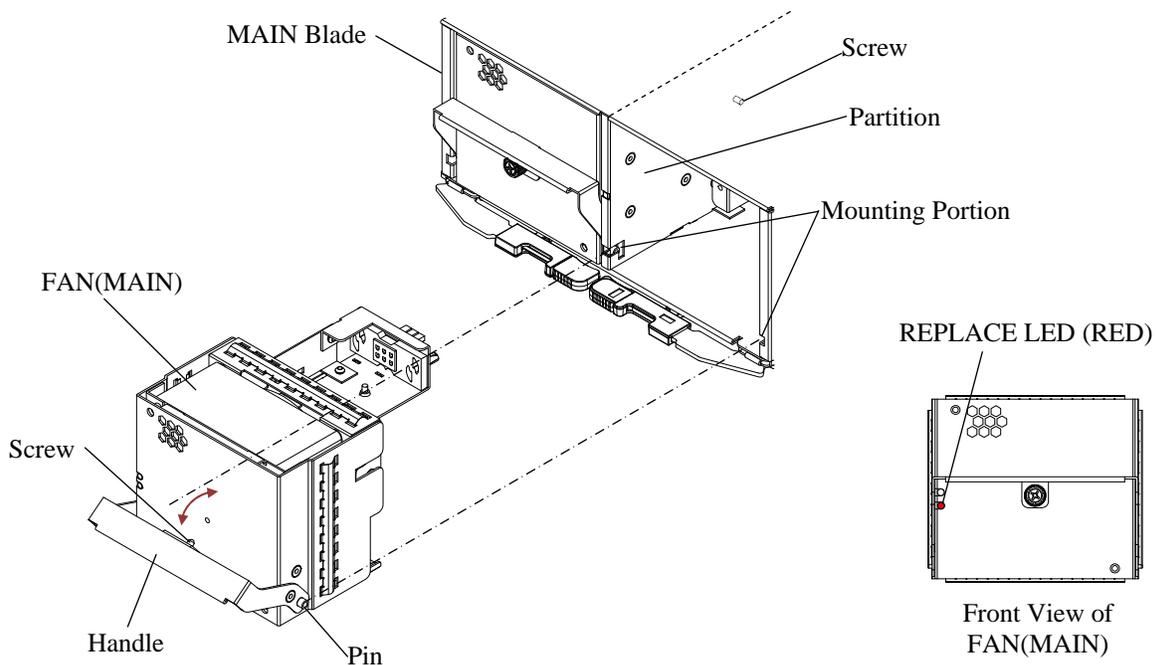


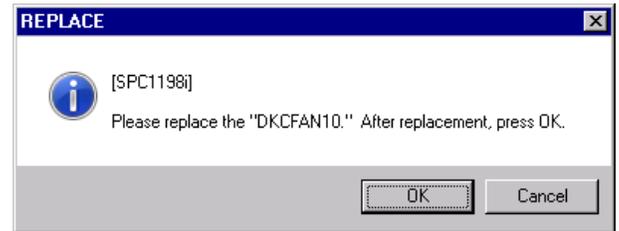
Fig. 3.14.2-1 Replacement of FAN(MAIN)

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of FAN(MAIN)>

Select (CL) [OK] in response to “Please replace the “DKCFANnn.” After replacement, press OK.” After replacement, press OK.”



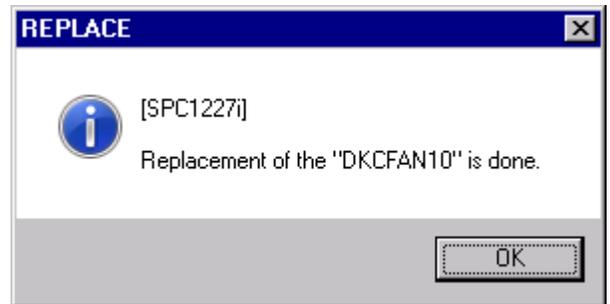
(Eg. DKCFAN10)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If RPELACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DKCFANnn” is done.”.



(Eg. DKCFAN10)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[FAN(MPB) REPLACEMENT PROCESSING - RTC4]

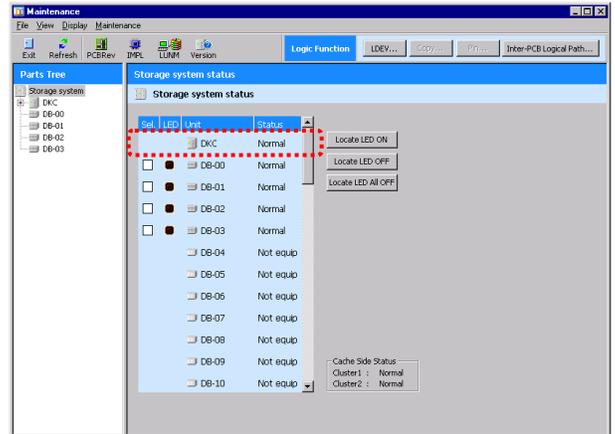
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select FAN(MPB) (status check)
 - ② Stop environment monitor
 - ③ Specify Replacement
 - ④ Detach FAN(MPB)
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of FAN(MPB) replacement
 - ② Reinstall related parts
 - ③ Start environment monitor

1. PRE-PROCESSING of SVP

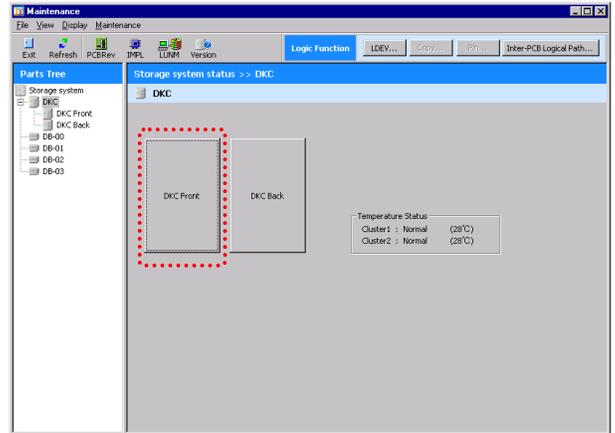
1-1. <Maintenance window>

In the 'Maintenance' window, check and select (CL) [DKC] to be replaced.

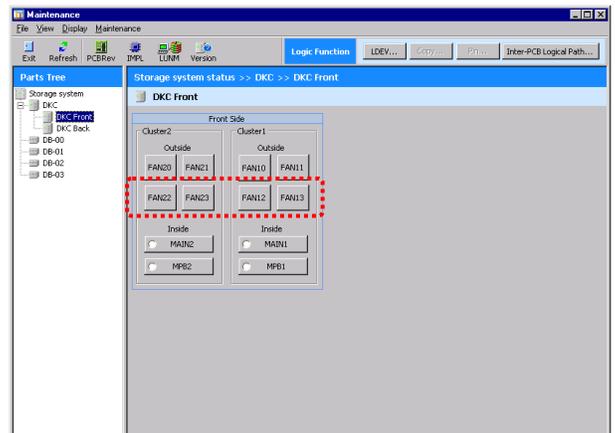


1-2. <Specify FAN(MAIN)>

Select (CL) [DKC Front]



Select (CL) [FANnn].



1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

A window shown on the right is displayed.
Select (CL) [Execute].



(Eg. DKCFAN12)

1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



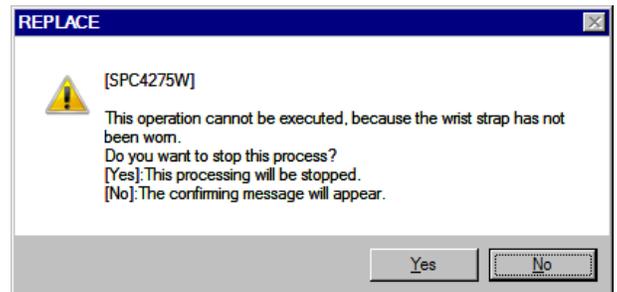
“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



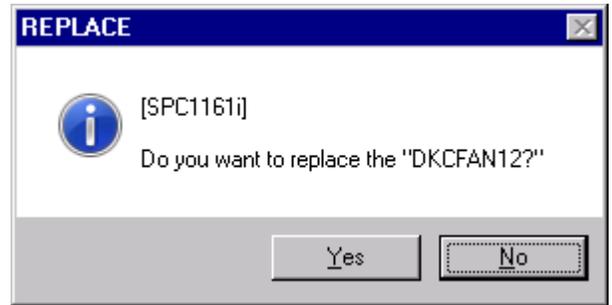
“This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process? [Yes] : This processing will be stopped. [No] : The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of FAN(MPB) Replacement>

Select (CL) [Yes] in response to “Do you want to replace “DKCFANnn?””.



(Eg. DKCFAN12)

1-6. <Checking the FAN(MPB)>

The SVP automatically checks the FAN(MPB) to see if it is replaceable.

1-7. <Checking the environment monitor stopped and turning on the REPLACE LED>

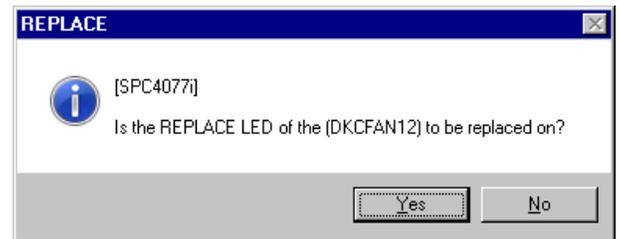
The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-8. <Checking lighting of the LED on the component to be pulled out>

The message “Is the REPLACE LED of the (DKCFANnn) to be replaced on?” is displayed.

When the REPLACE LED on the component to be pulled out is on, select (CL) [Yes] and go to Step 1-10.

When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-9.

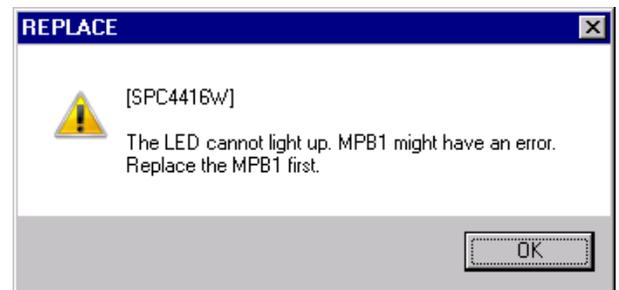


(Eg. DKCFAN12)

1-9. <Warning of the FAN(MPB)>

The message “The LED cannot light up. MPBn might have an error. Replace the MPBn first.” is displayed.

Select (CL) [OK] and go to Step 3-4.



1-10. <Check beginning of FAN(MPB) Replacement>

The message “Please replace the “DKCFANnn.” After replacement, press OK.” is displayed.
(Reply with [OK] after replacing the special part.)

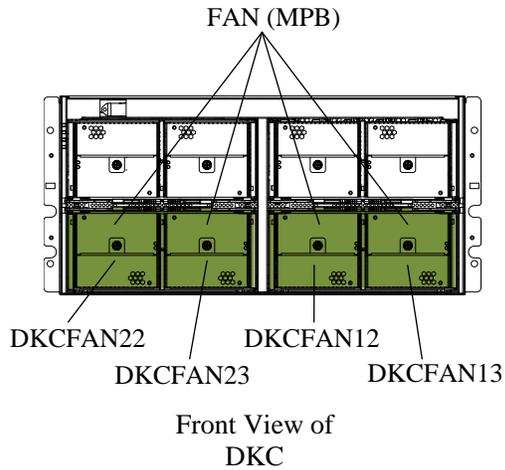
Go to “2. HARDWARE REPLACEMENT PROCESSING”.



(Eg. DKCFAN12)

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Front of DKC	1	FAN (MPB)	• DKCFAN



NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of FAN (MPB)

 **CAUTION**

Hazardous rotating mechanism:

Can cause injury if touched. Stay clear of it when machine is running.

2-1-1. Replace the FAN (MPB).

- a. Check that the REPLACE LED is on.
- b. Loosen the screw on the failed FAN (MPB) and bring up the handle.
- c. Pull the handle and remove the FAN (MPB) from the MPB.
- d. Take time for 10 seconds from removing the FAN (80sq) Assembly to the installation.
- e. Loosen the screw on the spare FAN (MPB) and open the handle.
- f. Insert the spare FAN (MPB) until the pin on it comes into contact with the mounting portion of the MPB.
- g. Bring down the handle of the FAN (MPB) and fully insert the FAN (MPB).
- h. Tighten the screw and fix the FAN (MPB).
- j. Make sure the replaced LED has been turned off after 30 seconds have passed since the FAN (MPB) was replaced.

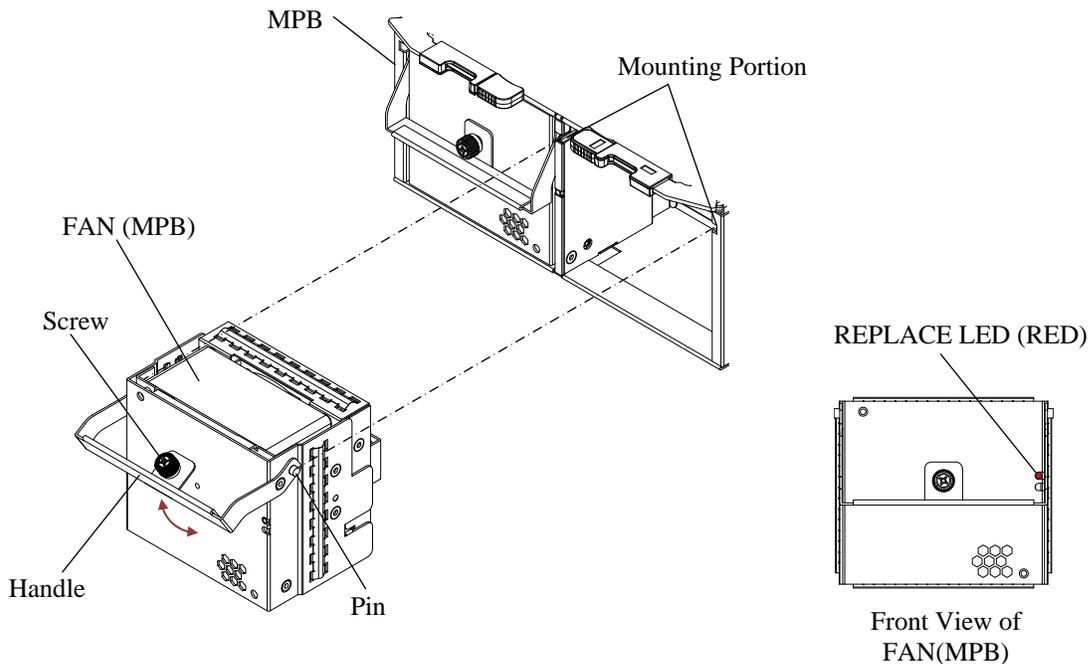


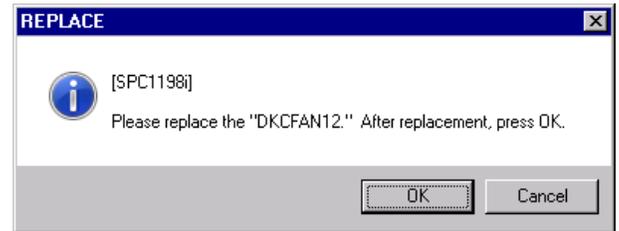
Fig. 3.15.2-1 Replacement of FAN (MPB)

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of FAN(MPB)>

Select (CL) [OK] in response to “Please replace the “DKCFANnn.” After replacement, press OK.”.



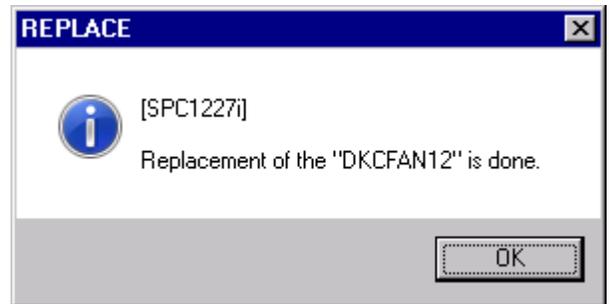
(Eg. DKCFAN12)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If RPELACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DKCFANnn” is done.”.



(Eg. DKCFAN12)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[SVP REPLACEMENT PROCESSING - RTC5]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select SVP (status check)
 - ② Specify Replacement
 - ③ Detach SVP
2. HARDWARE REPLACEMENT PROCESSING
3. Setup for SVP
 - ① Installation of SVP micro-program
 - ② Various setting for SVP
 - ③ Config Backup

— Advance preparation —

OSS media
Micro-program media
Backup Config media

1. PRE-PROCESSING of SVP

CAUTION

<When the parts to be replaced is the SVP>

When the Audit Log information which is not downloaded remains, ask the customer to download the Audit Log information as needed.

When the customer needed to download Performance Monitor of Web Console, ask the customer to download the Performance data.

When the customer uses original key and manifest file for SSL communication of Web Console, ask the customer to prepare these data, see “Hitachi Storage Navigator User Guide”.

Prepare the Config media which did backup.

1-1. <Operation Mode Change>

Change the mode to [Modify Mode].

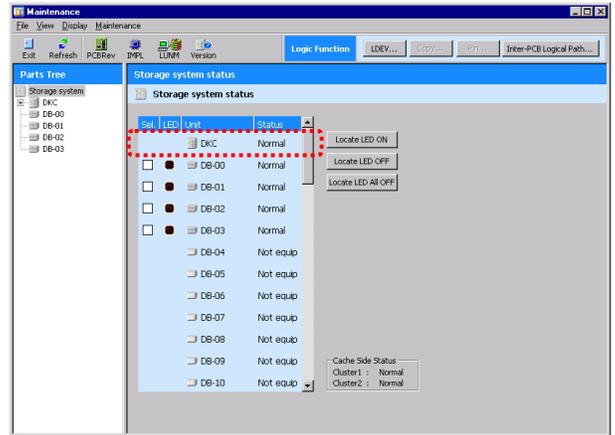
Select (CL) the [Maintenance] button.

Ask the customer to backup the user account information and the environment setting information of Web Console. Please refer to “Hitachi Storage Navigator User Guide” for the backup method.

Go to step 1-2.

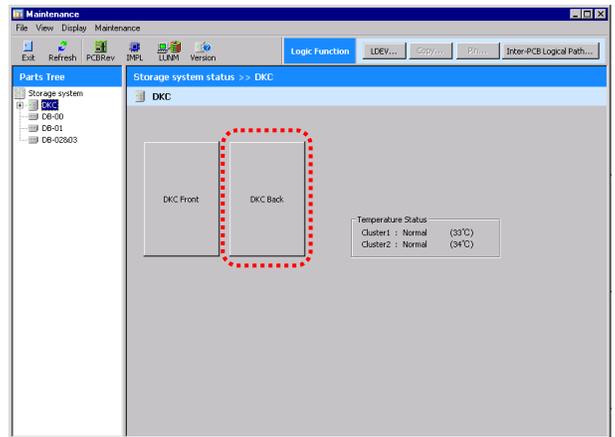
1-2. <Maintenance window>

In the 'Maintenance' window, check and select (CL) [DKC] to be replaced.

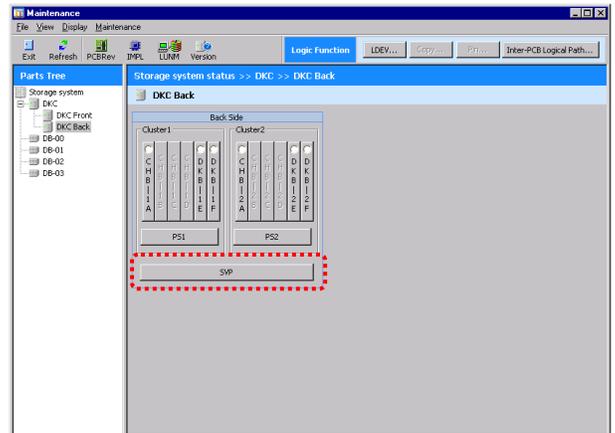


1-3. <Specify SVP>

Select (CL) [DKC Back].



Select (CL) [SVP].



1-3-1. SVP

1-3-1.1. <Execute>

CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

A window shown on the right is displayed.

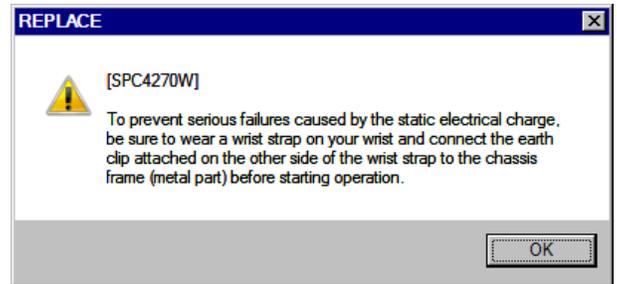
Select (CL) [Execute].

Go to Step 1-3-1.2.



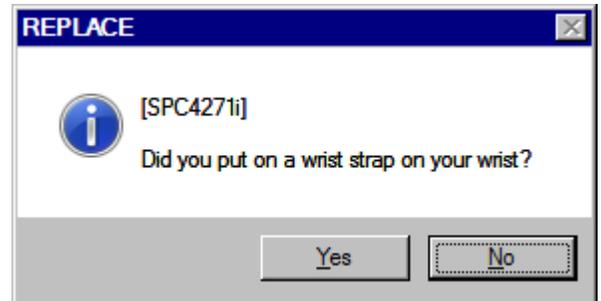
1-3-1.2. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-3-1.3.

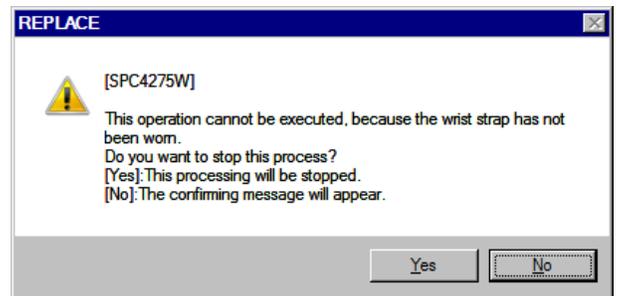


“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes] : This processing will be stopped.

[No] : The confirming message will appear.” is displayed.



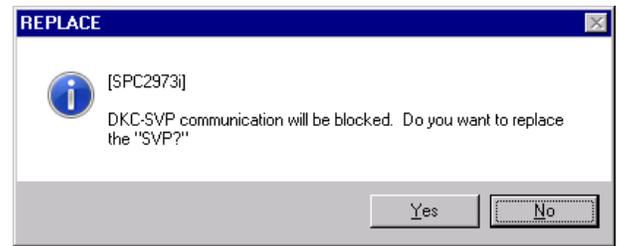
When the processing will be stopped, select (CL) [Yes].

1-3-1.3. <Check beginning of SVP Replacement>

The message, “DKC-SVP communication will be blocked. Do you want to replace the “SVP?”” is displayed.

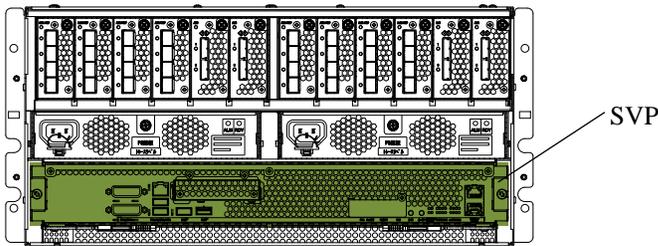
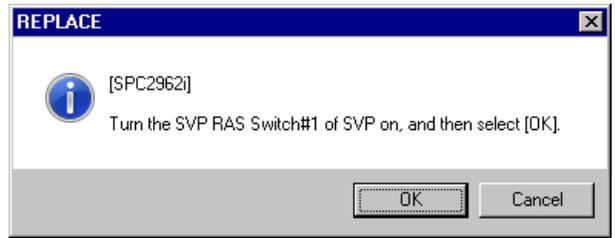
When you perform the replacement, select (CL) [Yes].

Go to Step 1-3-1.4.

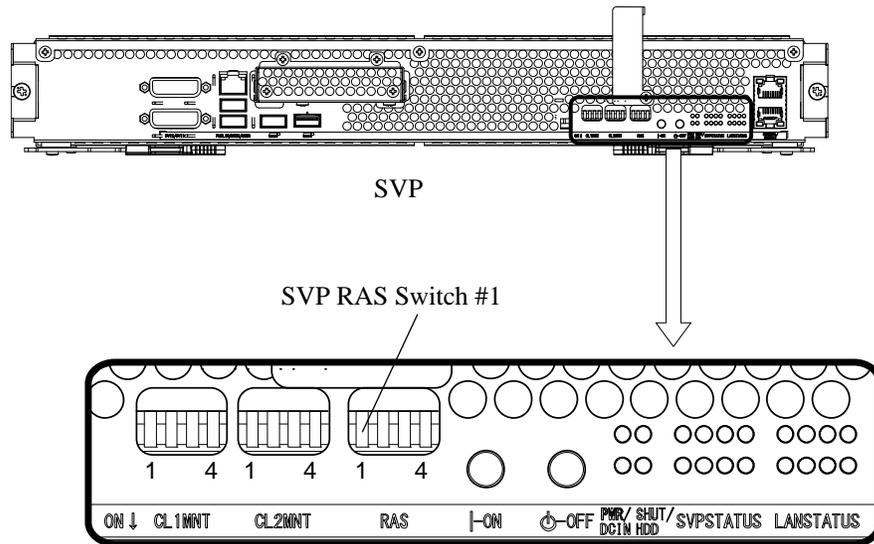


1-3-1.4. <Change of the Switch>

Turn on the SVP RAS Switch#1 of the SVP to be replaced and select (CL) [OK] following the message, “Turn the SVP RAS Switch#1 of SVP on, and then select [OK].”



Rear View of DKC



Go to Step 1-3-1.6.

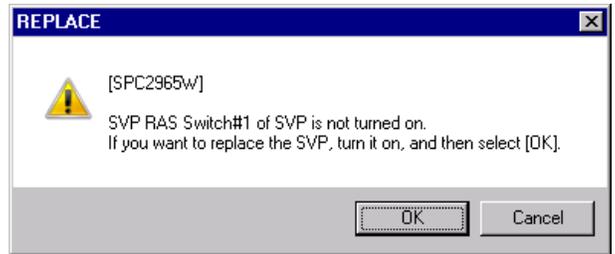
When the SVP RAS Switch #1 is set to OFF, go to Step 1-3-1.5.

1-3-1.5. <Confirm the State of the Switch>

When the switch is not turned on attached the message “SVP RAS Switch#1 of SVP is not turned on. If you want to replace the SVP, turn it on, and then select [OK].” is displayed. Turn on the SVP RAS Switch#1 of the SVP to be replaced and select (CL) [OK].

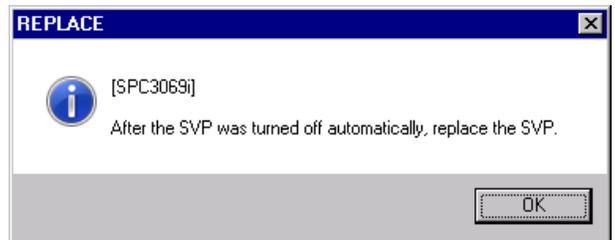
Go to Step 1-3-1.6.

When the jumper plug is not attached, re-execute Step 1-3-1.4.



1-3-1.6. <Powering off the SVP>

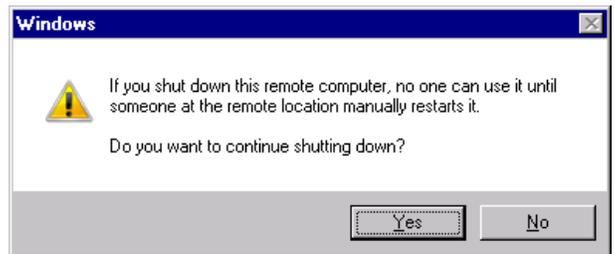
The message, “After the SVP was turned off automatically, replace the SVP.” is displayed. Select (CL) [OK].



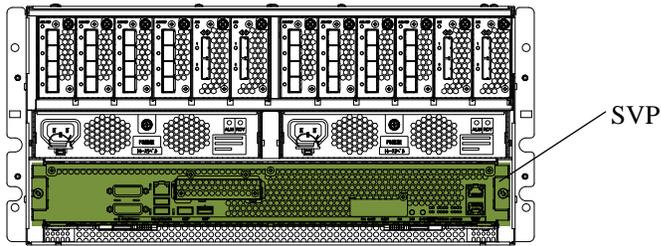
1-3-1.7. <Console PC shut down>

The message, “If you shut down this remote computer, no one can use it until someone at the remote location manually restarts it. Do you want to continue shutting down?” is displayed.

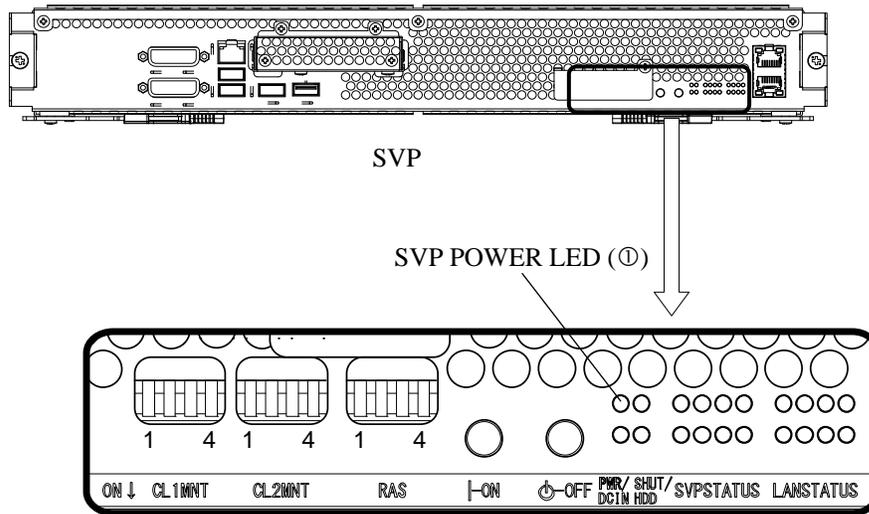
Select (CL) [Yes].



1-3-1.8. <SVP power supply OFF confirmation>



Rear View of DKC

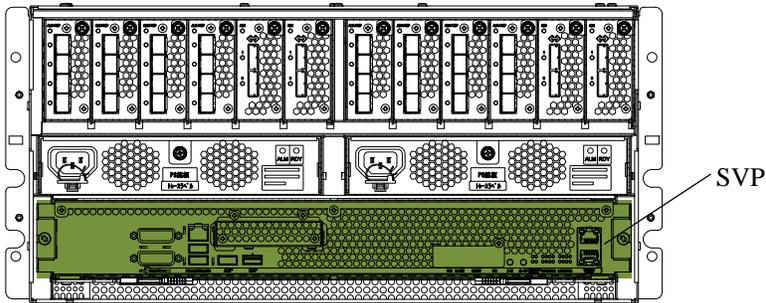


It is confirmed that SVP POWER LED(1) in front of the main body of SVP disappears.

Go to “2. HARDWARE REPLACEMENT PROCESSING”. ([REP03-16-100](#))

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DKC	1	SVP	



Rear View of DKC

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of SVP

2-1-1. SVP PS OFF

- a. Check that the SVP POWER LED is off.

When the SVP POWER LED is still on, press the SVP PS OFF switch on the SVP and check if the SVP POWER LED is off.

When the SVP POWER LED is still on even if three minutes have passed since the SVP PS OFF switch was pressed, press the SVP PS OFF switch on the SVP for five seconds or more (forced power off) and check if the SVP POWER LED is off.

- b. Check that the SVP SHUT DOWN LED of the SVP is on.

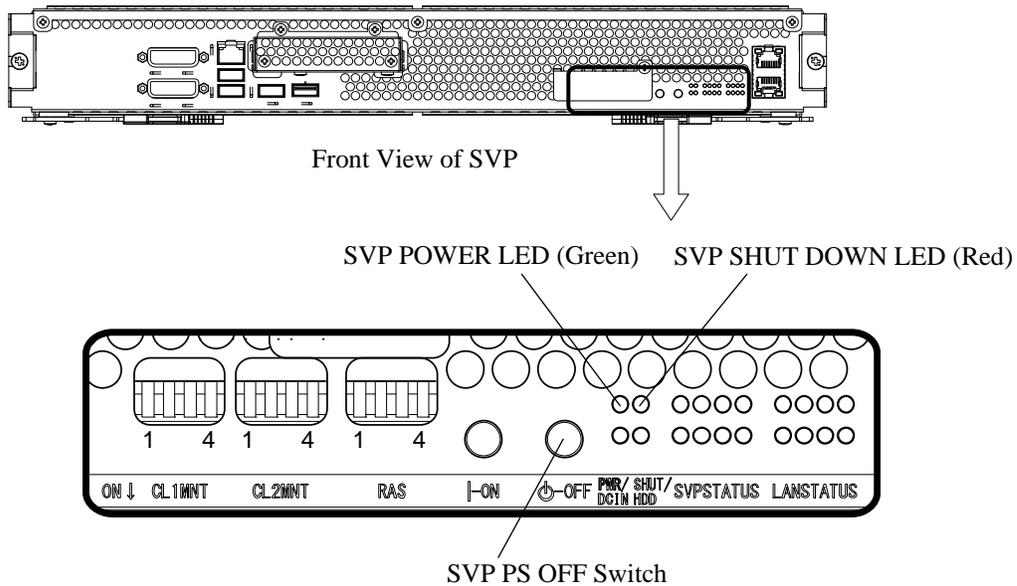


Fig. 3.16.2-1 SVP PS OFF

2-1-2. Remove the SVP

- a. Disconnect all the cables from the failed SVP.
- b. Loosen the two screws on the front of the SVP.
- c. Slide the lock on the levers of the SVP outward and open the levers.
- d. Open the levers completely and remove the SVP.

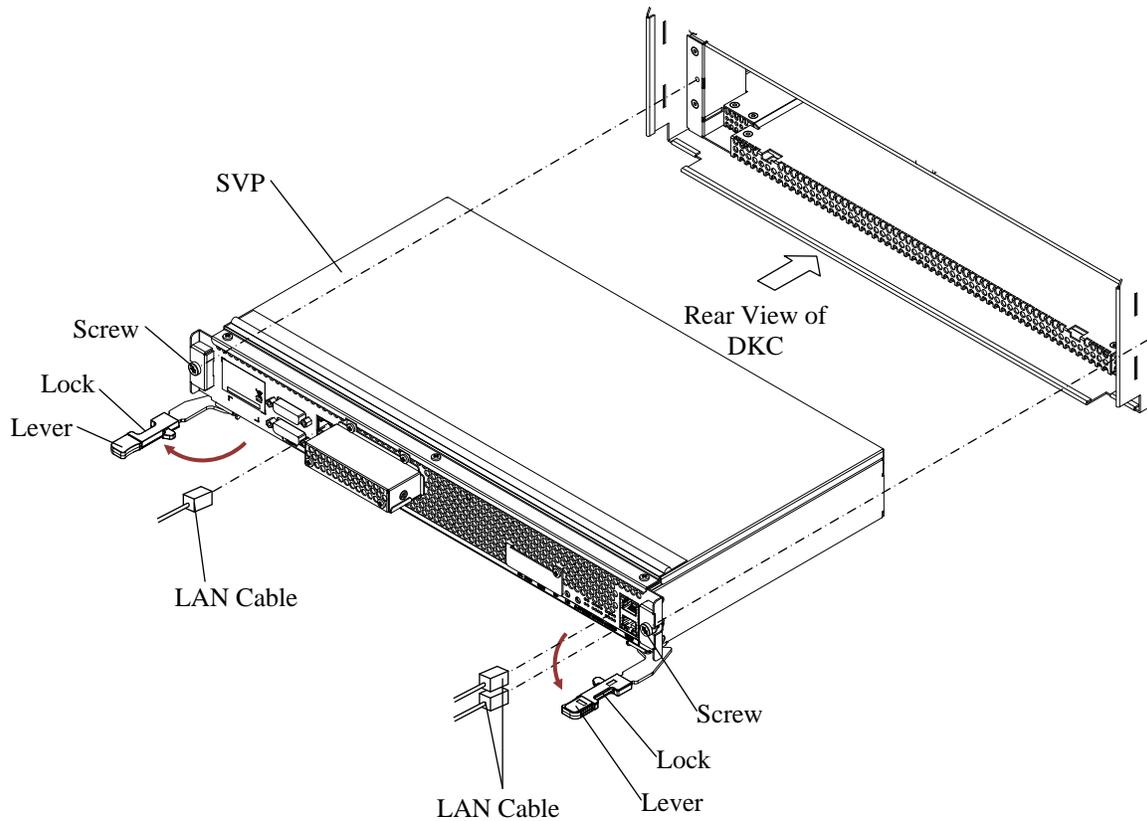


Fig. 3.16.2-2 Removal of SVP

2-1-3. Set the Switch

- a. Set the SVP RAS Switch #1 on the spare SVP to ON (lower position).
Use something sharp (eg. a pen or a mini screwdriver etc) when set the SVP RAS Switch #1.

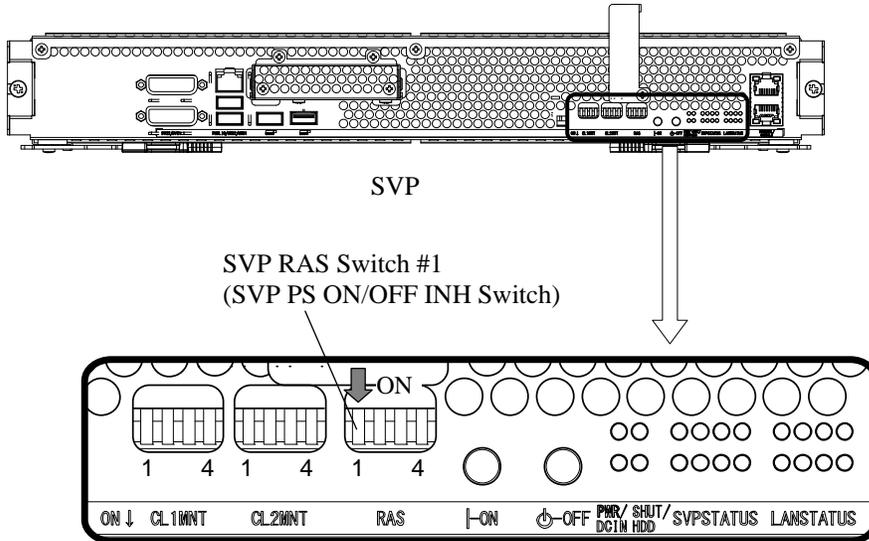


Fig. 3.16.2-3 Setting of SVP RAS Switch #1

2-1-4. Install the spare SVP

- a. Insert the spare SVP until its lever edges reach the DKC. (Refer to Fig. 3.16.2-2.)
- b. Close the levers inward and fully insert the spare SVP. Then confirm that the lever locks are fastened to the DKC.
- c. Tighten the two screws.
- d. Connect all the cables to the spare SVP.

2-1-5. SVP PS ON

- a. Check that the SVP POWER LED of the SVP is on. (Refer to Fig. 3.16.2-1.)

2-1-6. Go to “3. Setup for SVP”.

3. Setup for SVP

This chapter explains the procedure of software installation after the hardware replace and various setting.

3-1-1. PRE-PROCESSING of the Setup for SVP

CAUTION

If the MESSAGE LED on DKCPANEL has lit on when power on SVP, please complete SIM before operation.

CAUTION

If the message “Do you want to restart your computer now?” is displayed during the SVP reboot after replacement, select (CL) [Yes].

3-1-2. Connecting the Console PC

Connect the console PC to the SVP has been replaced using the utility for connection. The login user is different by the presence of the micro-program.

[Connection destination] 126.255.255.15

NOTE: Keep the IP address of Console PC, and set it to 126.255.255.x (x is the available value which is 13 or less. For example 12.) before connection. Reset it after the SVP setup.

The SVP and the Console PC communicate by the auto negotiation, 1Gbps or less (Depend on the specification of console PC).

It waits for about 10 minutes the start.

In this section, using two user types to connect with the SVP. If you don't know the password, please contact with the technical support division. When there is no description, using “Installed User”.

user type	reference
Installed User	Contact with the technical support division
Preinstalled User	Contact with the technical support division

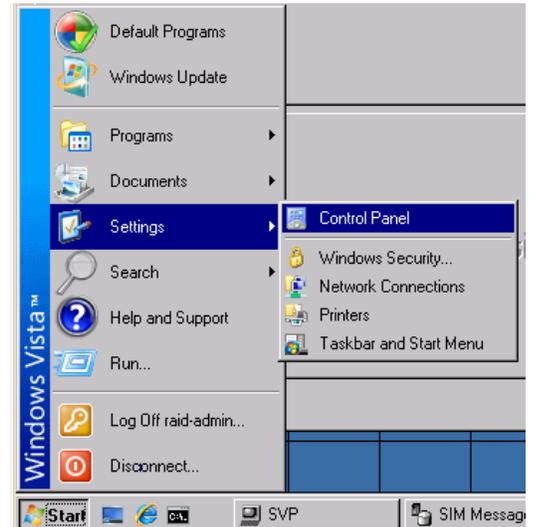
After you input a user name and the password, input “Maintenance Password”. If you don't know the “Maintenance Password”, please contact with the technical support division.

3-1-3. Setting the Data and Time

<Making sure of the setting of a time zone>

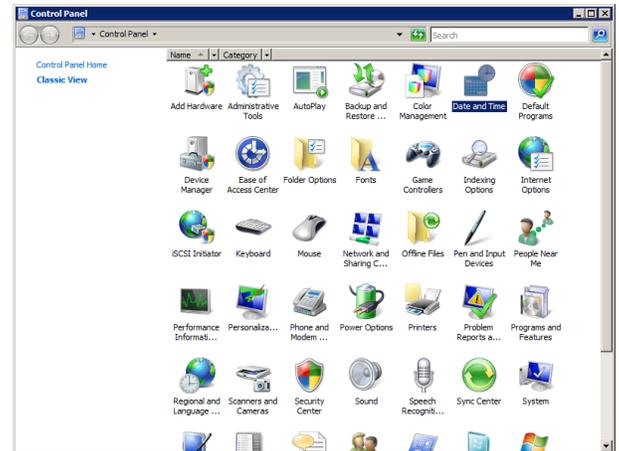
(1) Open the 'Control Panel' window.

Select (DR) [Settings]-[Control Panel] from the [Start] menu.



(2) Open the 'Date and Time' window.

Select (DC) [Date and Time] in the [Control Panel] window.



(3) Select "Time zone".

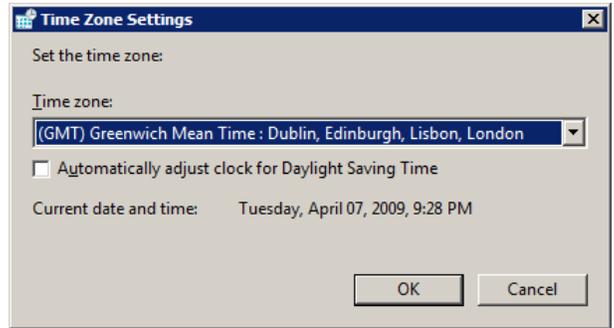
Select (CL) [Change time zone...].



- (4) Make sure of the setting of the “Time zone”.

Make sure that the “Time zone” is set as “[GMT] Greenwich Mean Time; Dublin, Edinburgh, Lisbon, London” irrespective of a place where the storage system is installed.

Besides, make sure that the check box to the left of the statement, “Automatically adjust clock for Daylight Saving Time” is blank (not checked).

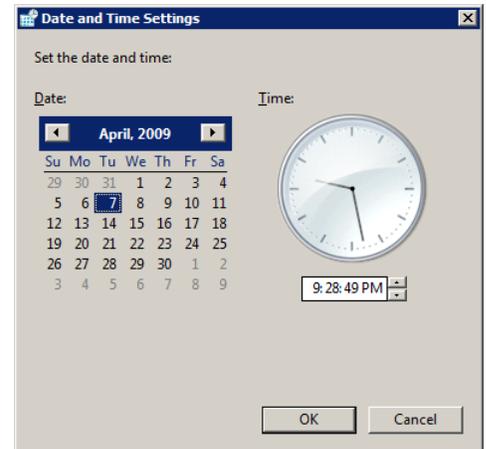


NOTICE: When a setup of [Time Zone] and “Automatically adjust clock for daylight saving changes” are changed after installation of a SVP micro program, please be sure to reboot SVP after a setup.

- (5) <Set the [Date and Time Settings]>

Check if the [Date and Time Settings] is set to the current time and date.

If not, reset it correctly. Then, select (CL) [OK].



- (6) Close the ‘Control Panel’ window.

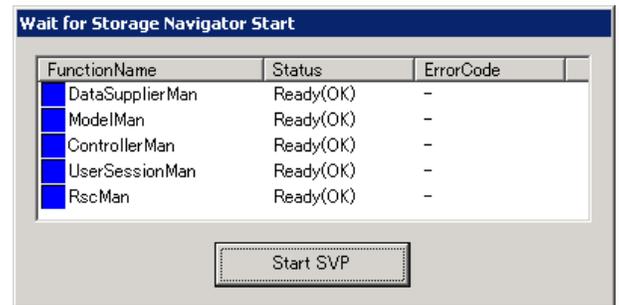
Select (DR) [File] and [Close] in this order in the “Control Panel” window.

3-2. Installing the Micro-program

3-2-1. Preparation

When the Micro-program has already been installed in the SVP (when “Wait for Storage Navigator Start” is displayed in desktop window) in replaced SVP (service parts), perform the following operations. When the Micro-program is not installed, go to 3-2-2.

- ① Perform uninstalling Apache program.
(Go to 3-2-1.1 Uninstalling Apache)
- ② Perform uninstalling Tomcat program. (Go to 3-2-1.2 Uninstalling Tomcat program)
- ③ Perform uninstalling SMI-S Provider program. (Go to 3-2-1.3 Uninstalling SMI-S Provider program)
- ④ Perform uninstalling Java program. (Go to 3-2-1.4 Uninstalling Java program)
- ⑤ Perform uninstalling Perl program. (Go to 3-2-1.5 Uninstalling Perl program)
- ⑥ Perform uninstalling Flash Player program. (Go to 3-2-1.6 Uninstalling Flash Player program)



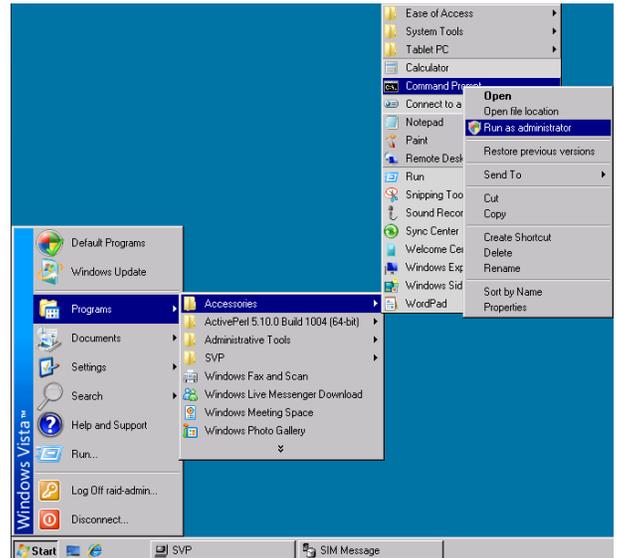
3-2-1.1. Uninstalling Apache

(1) Mount the OSS media

Insert the OSS media (the second media) to the CD-ROM drive in the Console PC.

(2) Launch the Command Prompt as administrator

Select (CL) [Start]-[Programs]-[Accessories], and launch the Command Prompt with 'Run as administrator' in right-click menu.

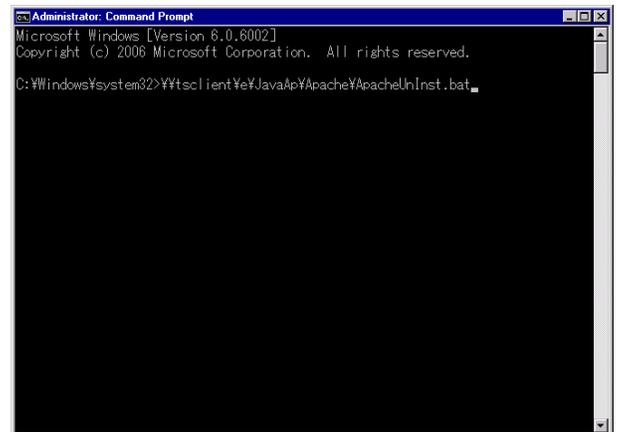


(3) Launch the uninstallation batch

Enter

“\\tsclient\e\JavaAp\Apache\ApacheUnInst.bat” into the Command Prompt, and press the Enter key.

At the end of this process, the Command Prompt will close automatically.



NOTE: The input value is the form of “\\tsclient\

The above is a case where the CD-ROM drive is assigned a drive letter E.

(4) Take out the OSS media

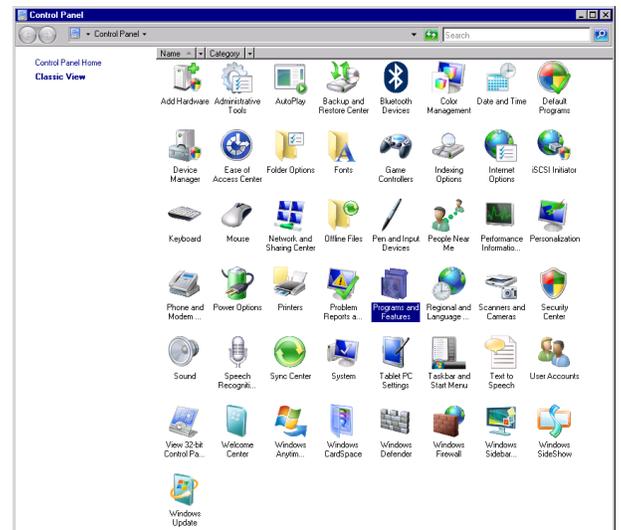
Take out the OSS media (the second media) from the CD-ROM drive in the Console PC.

3-2-1.2. Uninstalling Tomcat program

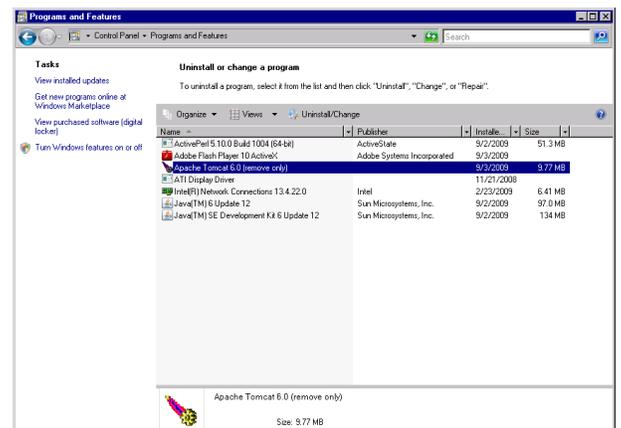
- (1)
Select (CL) [Start]-[Settings]-[Control Panel].



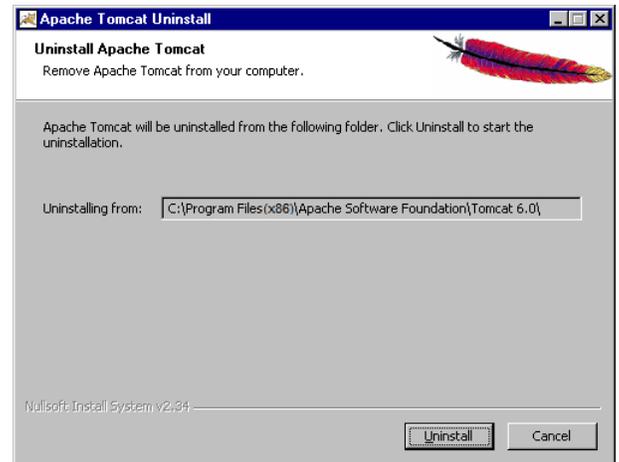
- (2)
Select (DC) [Programs and Features].



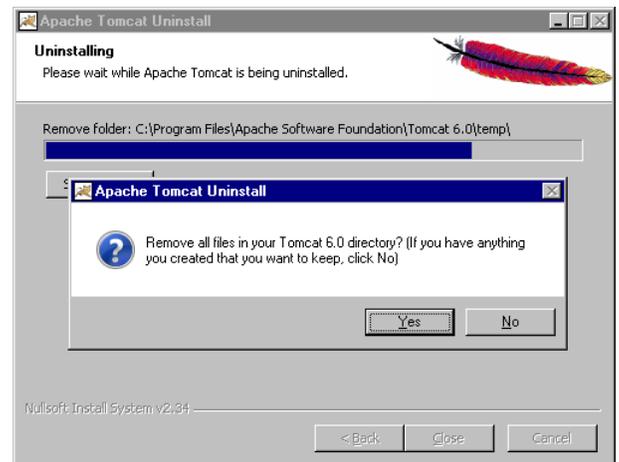
- (3)
Select (CL) [Apache Tomcat 6.0 (remove only)], and select (CL) [Uninstall/Change].
If there is no [Apache Tomcat 6.0 (remove only)] in the list, go to 3-2-1.3.



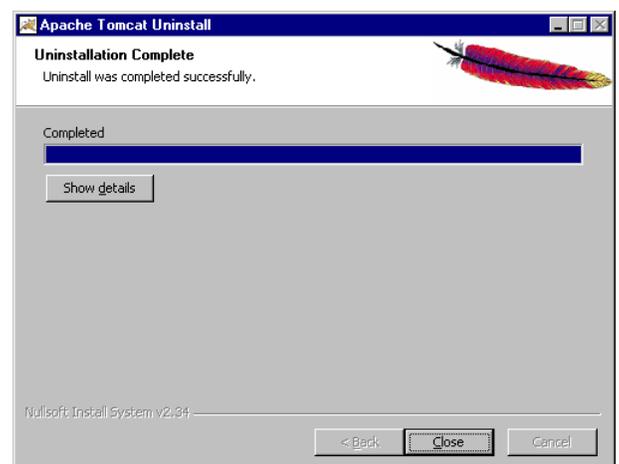
- (4)
Select (CL) [Uninstall].



- (5)
If the following message box is displayed, select (CL) [Yes].



- (6)
When “Uninstallation Complete”
dialogue box is displayed, select (CL)
[Close].

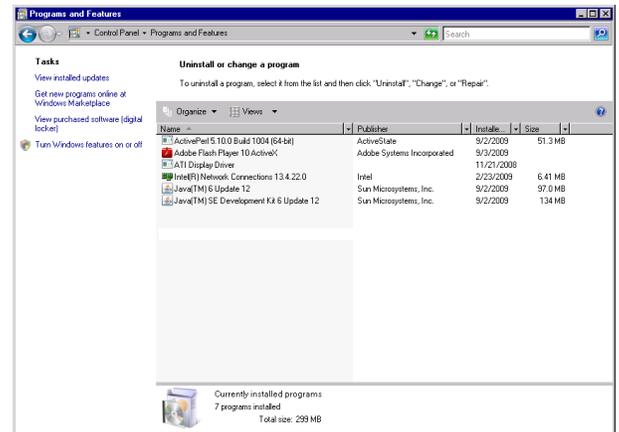


(7)

[Apache Tomcat 6.0 (remove only)] in 'Programs and Features' window (*1) was deleted.

Close the window.

*1: When 'Programs and Features' window is not reloaded, press [F5] key of keyboard to reload window.



NOTE: Until procedure 3-2-1 is finished, please don't logout or shutdown SVP. If you do them, SVP may no longer work properly. If a shutdown request message is displayed, please don't shutdown.

3-2-1.3. Uninstalling SMI-S Provider program

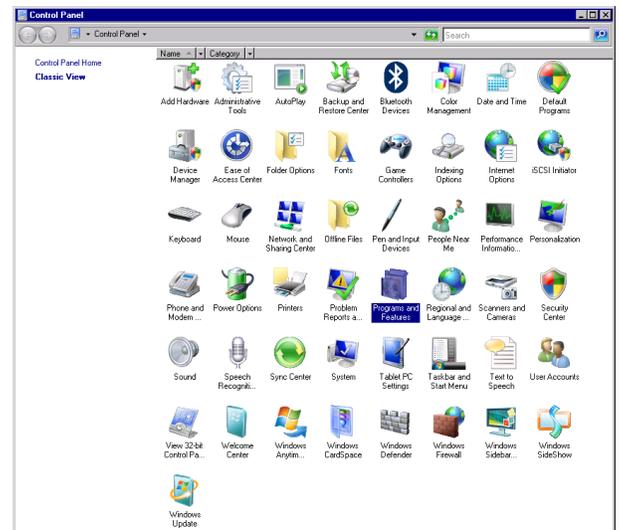
(1) Launch the Control Panel

Select (CL) [Start]-[Settings]-[Control Panel].



(2) Launch the Program and Features

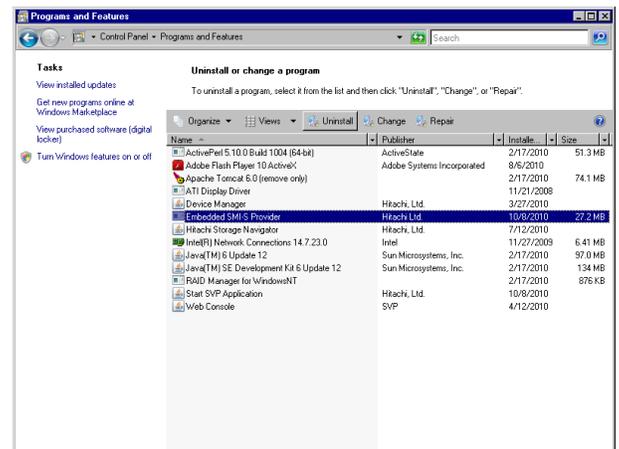
Select (DC) [Programs and Features].



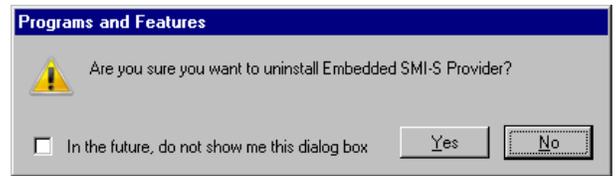
(3) Run uninstallation

Select (CL) [Embedded SMI-S Provider], and select (CL) [Uninstall] button.

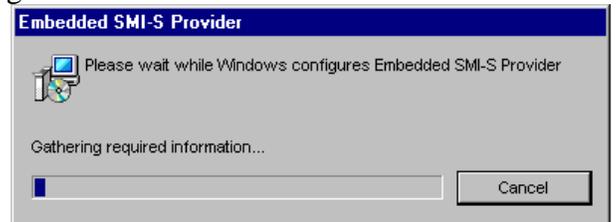
If there is no [Embedded SMI-S Provider] in the list, go to 3-2-1.4.



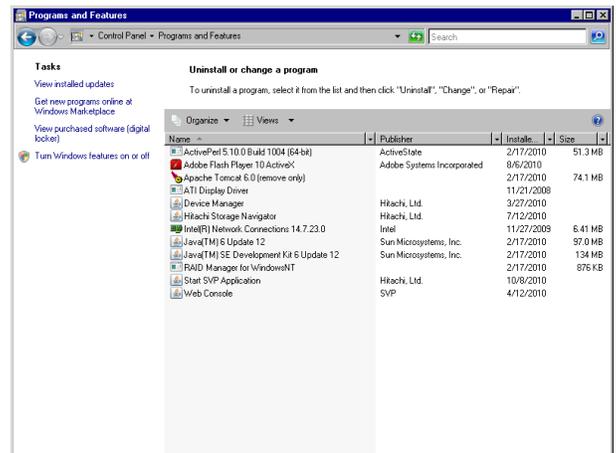
- (4) Make sure the message
If following message box is displayed,
select (CL) [Yes].
“Are you sure you want to uninstall
Embedded SMI-S Provider?”



- (5) The dialog box is displayed while processing the uninstallation.
At the end of this process, the dialog box
will close automatically.



- (6) Check the result and close the window.
[Embedded SMI-S Provider] in
‘Programs and Features’ window was
deleted.
Close the window.

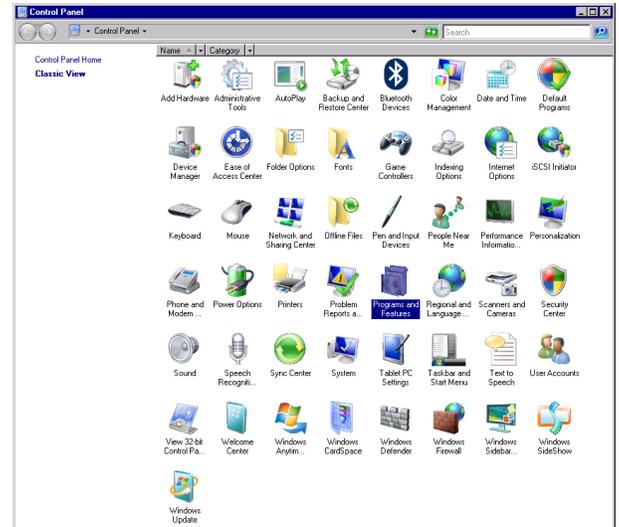


3-2-1.4. Uninstalling Java program

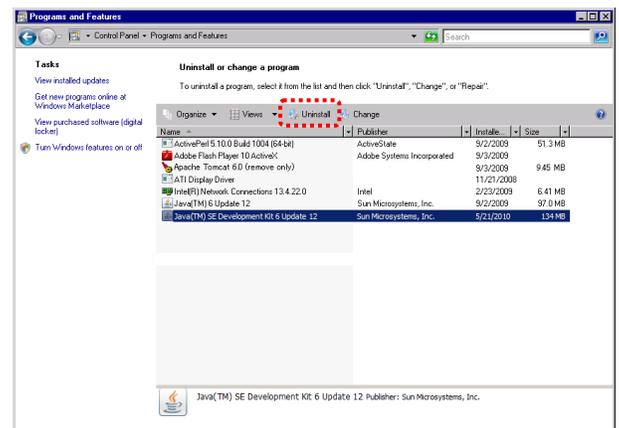
- (1) Select (CL) [Start]-[Settings]-[Control Panel] in this order.



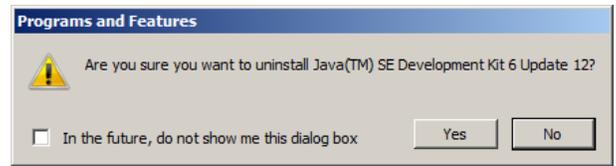
- (2) Select (DC) [Programs and Features].



- (3) Select [Java(TM) SE Development Kit 6 Update 12], and then select (CL) [Uninstall].
If there is no [Java(TM) SE Development Kit 6 Update 12] in the list, go to (8).



- (4) A message, “Are you sure you want to uninstall Java(TM) SE Development Kit 6 Update 12?” is displayed. Select (CL) [Yes].

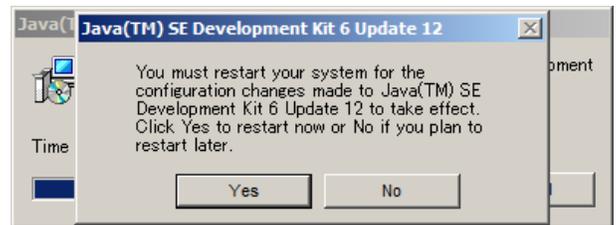


- (5) Uninstallation of Java is started.



- (6) When this window is not displayed, go to (7).
When this window is displayed, select (CL) [No]. (*1)

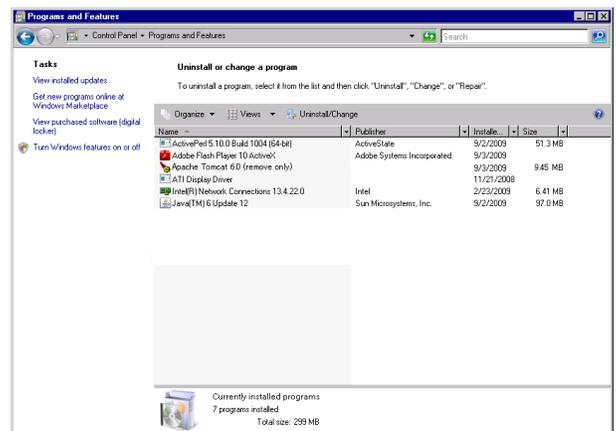
NOTE: Don't select [Yes]. If you do them, SVP may no longer work properly.



*1: If selecting (CL) [Yes], SVP will be rebooted. In this case, follow the procedures below.

- Login to SVP after rebooting.
Refer to “3-1-2. Connecting the Console PC” ([REP03-16-150](#)) to choose login user name.
- When the following message is displayed, select (CL) [OK].
“Unable to log into the SVP, because there is a problem with its system requirements. Reboot it, and then reconfigure the SVP.”
- Continue procedures from (8) after SVP rebooting.
Refer to “3-1-2. Connecting the Console PC” ([REP03-16-150](#)). Please use “Preinstalled User”.

- (7) The [Java(TM) SE Development Kit 6 Update 12] is deleted from the ‘Programs and Features’ window (*1).
Close the window by selecting (CL) the [×] button.

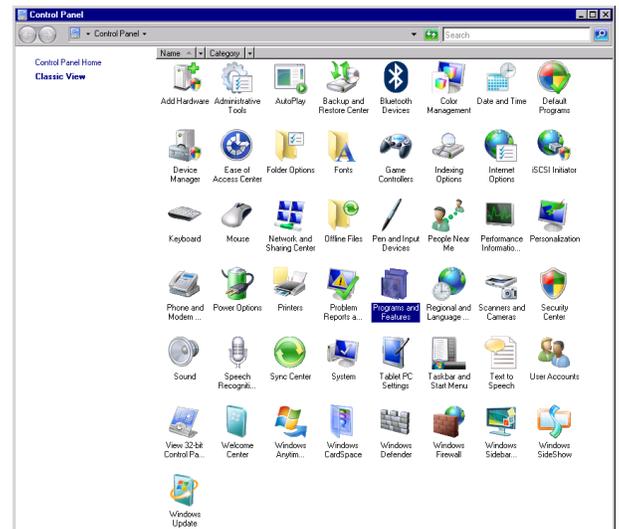


- *1: When ‘Programs and Features’ window is not reloaded, press [F5] key of keyboard to reload window.

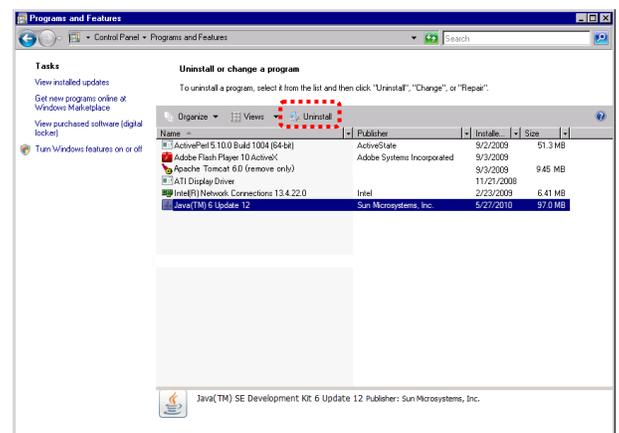
- (8) Select (CL) [Start]-[Settings]-[Control Panel] in this order.



- (9) Select (DC) [Programs and Features].



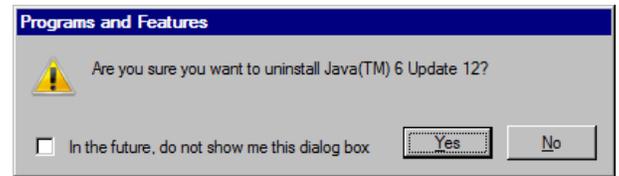
- (10) Select [Java(TM) 6 Update 12], and then select (CL) [Uninstall].
If there is no [Java(TM) 6 Update 12] in the list, go to 3-2-1.5.



(11)

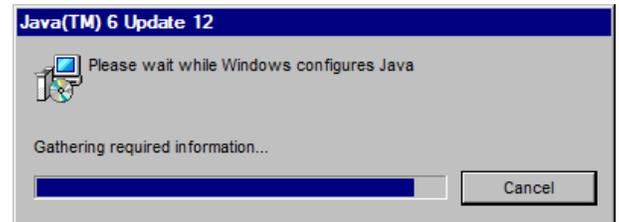
A message, “Are you sure you want to uninstall Java(TM) 6 Update 12?” is displayed.

Select (CL) [Yes].



(12)

Uninstallation of Java is started.

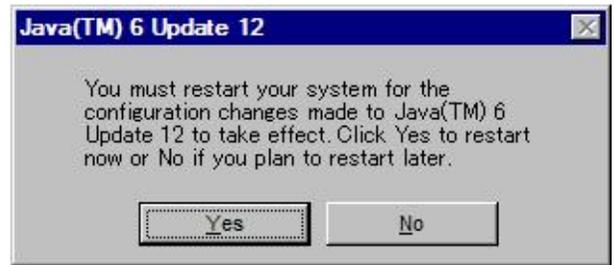


(13)

When this window is not displayed, go to (14).

When this window is displayed, select (CL) [No]. (*1)

NOTE: Don't select [Yes]. If you do them, SVP may no longer work properly.



*1: If selecting (CL) [Yes], SVP will be rebooted. In this case, follow the procedures below.

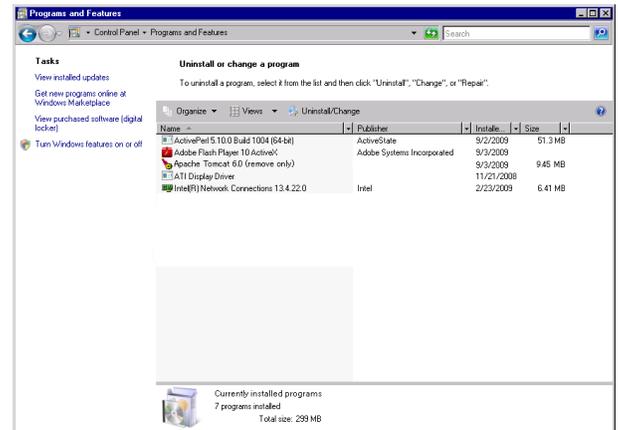
- Login to SVP after rebooting.
Refer to “3-1-2. Connecting the Console PC” ([REP03-16-150](#)) to choose login user name.
- When the following message is displayed, select (CL) [OK].
“Unable to log into the SVP, because there is a problem with its system requirements. Reboot it, and then reconfigure the SVP.”
- Continue procedures from 3-2-1.5 after SVP rebooting.
Refer to “3-1-2. Connecting the Console PC” ([REP03-16-150](#)). Please use “Preinstalled User”.

(14)

The [Java(TM) 6 Update 12] is deleted from the ‘Programs and Features’ window (*1).

Close the window by selecting (CL) the [×] button.

*1: When ‘Programs and Features’ window is not reloaded, press [F5] key of keyboard to reload window.

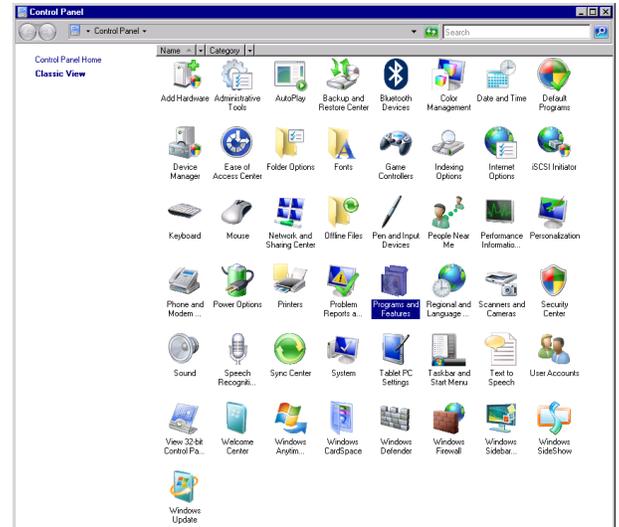


3-2-1.5. Uninstalling Perl program

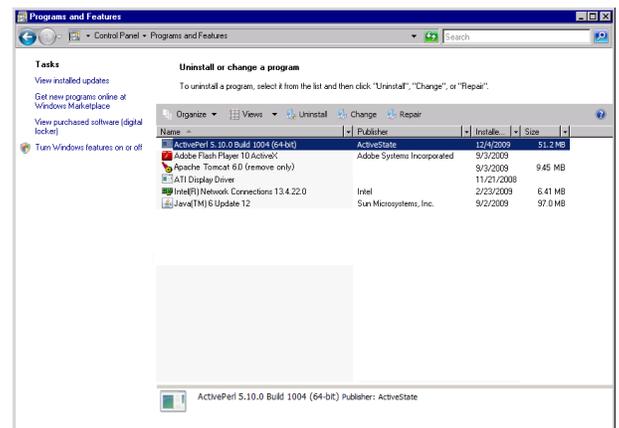
- (1) Select (CL) [Start] -[Settings]-[Control Panel] in this order.



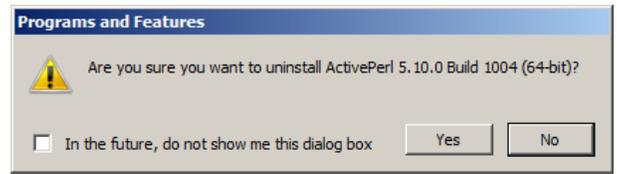
- (2) Select (DC) [Programs and Features].



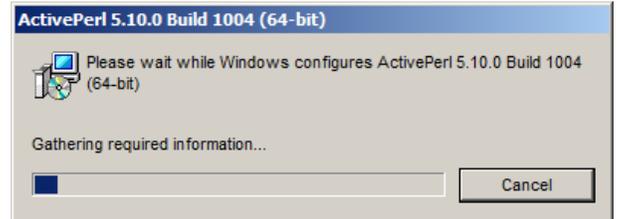
- (3) Select [ActivePerl 5.10.0 Build 1004 (64-bit)], and then select (CL) [Uninstall]. If there is no [ActivePerl 5.10.0 Build 1004 (64-bit)] in the list, go to 3-2-1.6.



- (4) A message, “Are you sure you want to uninstall ActivePerl 5.10.0 Build 1004 (64-bit)?” is displayed. Select (CL) [Yes].

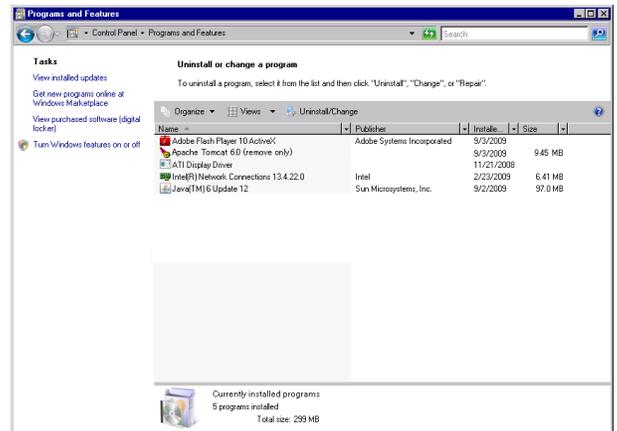


- (5) Uninstallation of Perl is started.



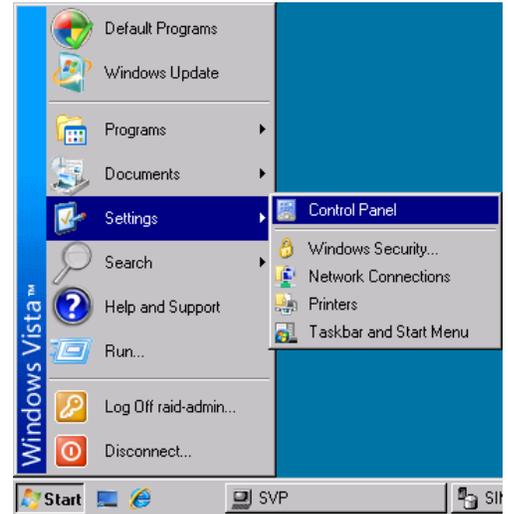
- (6) The [ActivePerl 5.10.0 Build 1004 (64-bit)] is deleted from the ‘Programs and Features’ window (*1). Close the window by selecting (CL) the [×] button.

*1: When ‘Programs and Features’ window is not reloaded, press [F5] key of keyboard to reload window.

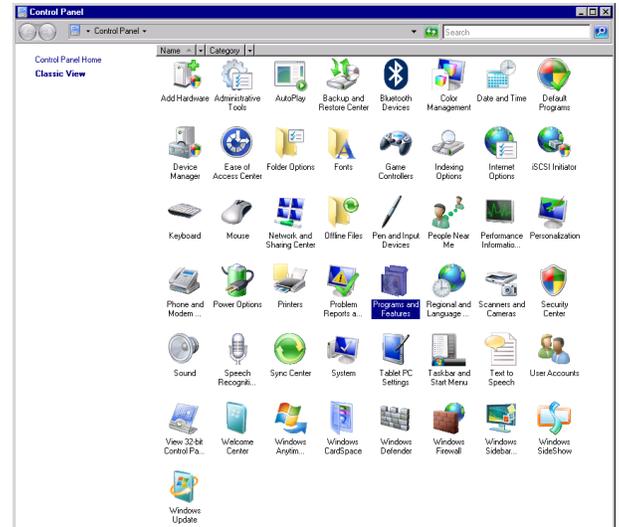


3-2-1.6. Uninstalling Flash Player program

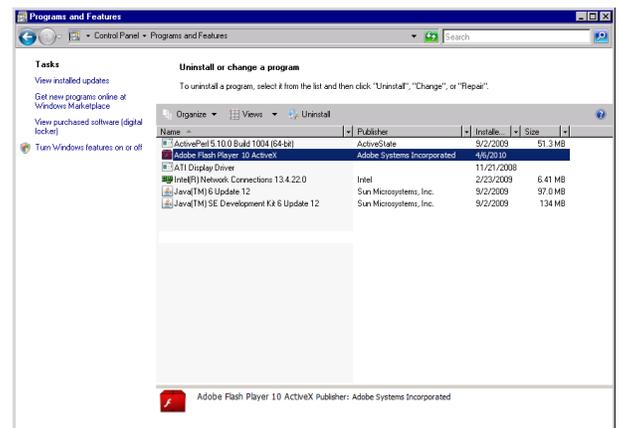
- (1) Select (CL) [Start] -[Settings]-[Control Panel] in this order.



- (2) Select (DC) [Programs and Features].



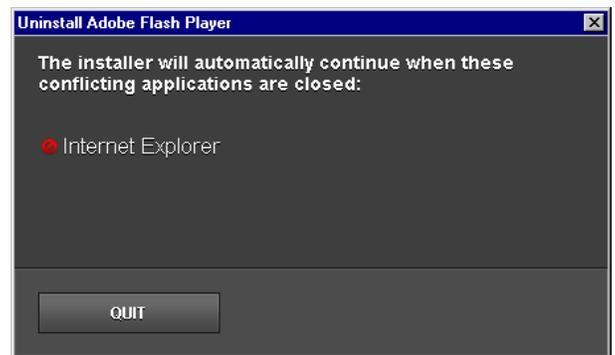
- (3) Select [Adobe Flash Player 10 ActiveX], and then select (CL) [Uninstall].
If there is no [Adobe Flash Player 10 ActiveX] in the list, go to 3-2-2.



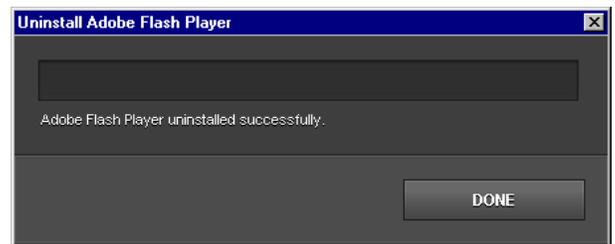
- (4) Starting uninstallation
Select (CL) [UNINSTALL].



- (5) Finishing application
If some applications were using Flash Player, the application name is displayed.
Please finish the applications.

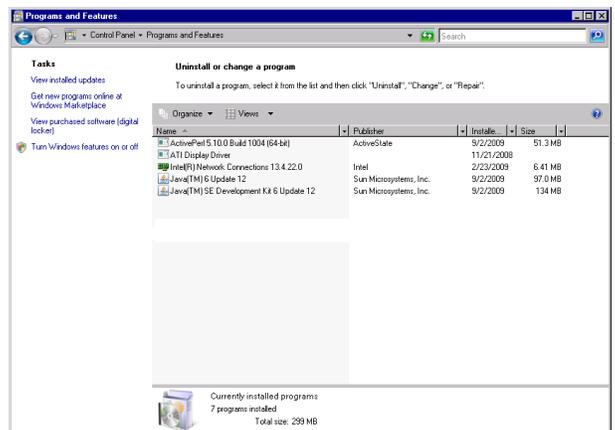


- (6) Finishing uninstallation
Select (CL) [DONE].



- (7)
The [Adobe Flash Player 10 ActiveX] is deleted from the 'Programs and Features' window. (*1)
Close the window by selecting (CL) the [×] button.

*1: When 'Programs and Features' window is not reloaded, press [F5] key of keyboard to reload window.



3-2-2. Starting Installation

- ① Insert a micro-program media in the CD-ROM drive of Client PC and wait for one minutes or so.
- ② Select (CL) [RUN...] from the “Start” menu on SVP. Enter “\\tsclient\E\setup.exe” and select (CL) the [OK] button.

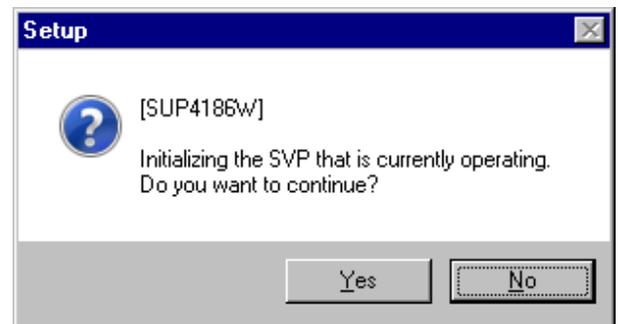
NOTE 1: Select the drive which inserted a CD-R in ②.

“\\tsclient\E\setup.exe”

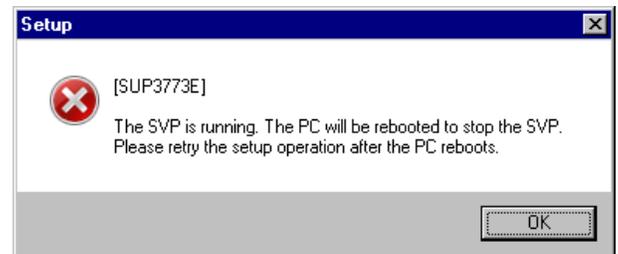
Input the drive name of the CD-ROM drive of Client PC.

Indicate Client PC. (This spelling is inputted.)

- ③ When the SVP is running, the message [SUP4186W] (cf. Right window) is displayed. Select (CL) [Yes].



- ④ The message [SUP3773E] (cf. Right window) is displayed successively. SVP reboots when you select (CL) [OK]. Retry installation the micro-program from procedure ② after the SVP reboot. Refer to “3-1-2. Connecting the Console PC” (REP03-16-150). Please use “Preinstalled User” to connect with SVP.



- ⑤ When you retry the installation micro-program after the SVP reboot, the message of the right window is displayed. Select (CL) [Run].



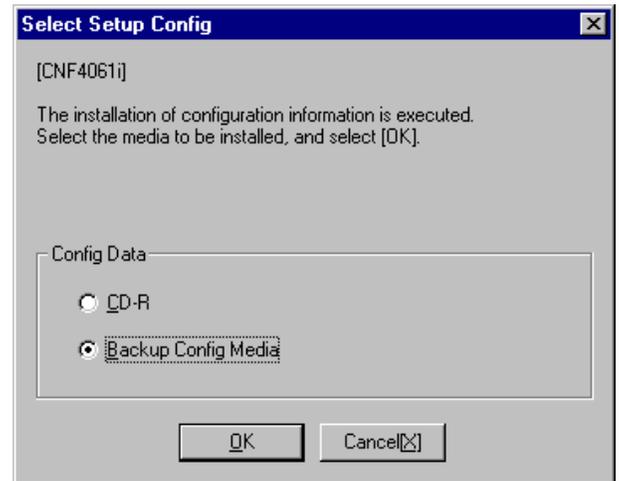
3-2-3. Installing the Configuration Information

(1)

When installation processing advances, the screen of the right window is displayed.

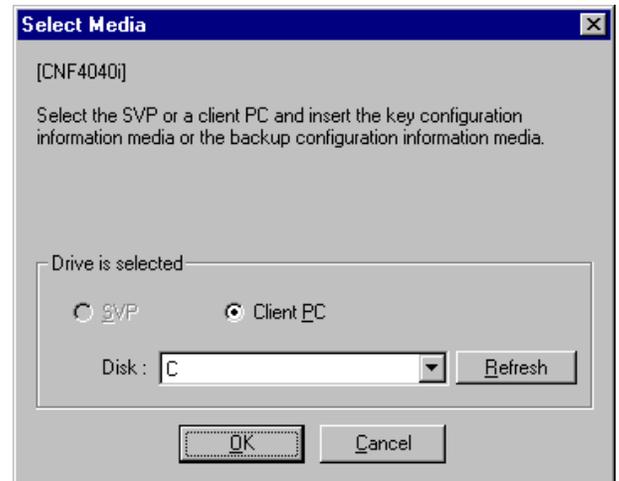
Insert the media which stored backup configuration information in the drive of the client PC.

Select “Backup Config Media”, and select (CL) the [OK].

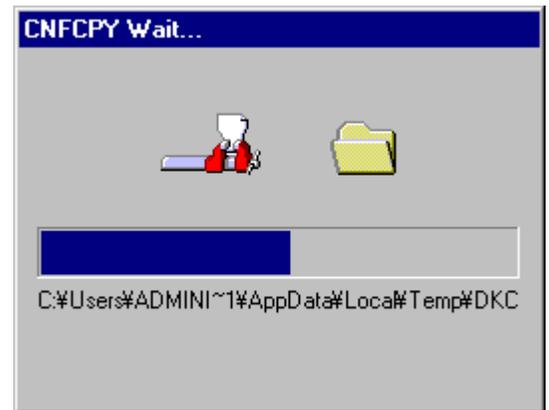


- (2) Select the drive which insert the Backup Config Media (prepared with step (1)), and select (CL) the [OK] button.

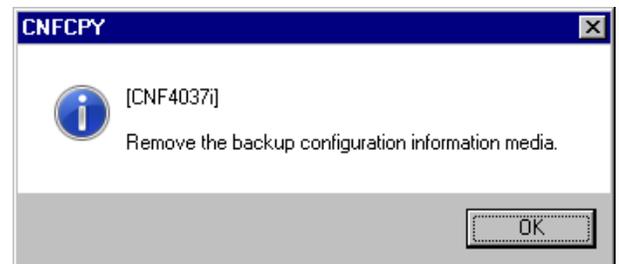
Select (CL) [Refresh] button, Disk is updated to the latest information.



- (3) Perform copy processing of the configuration information from the Backup Config Media to the SVP. The 'CNFCPY Wait...' window is displayed during this time.



- (4) Select (CL) the [OK] button after removing the configuration information media.



3-2-4. Installing the RAID Manager

(1)

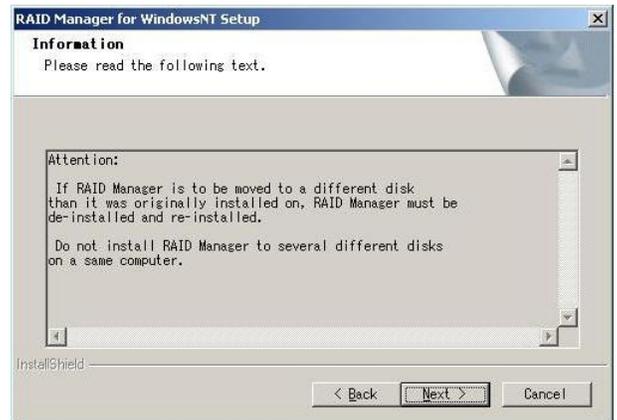
When installation of the configuration information is finished, the screen of the right window is displayed.

Select (CL) [Next>].



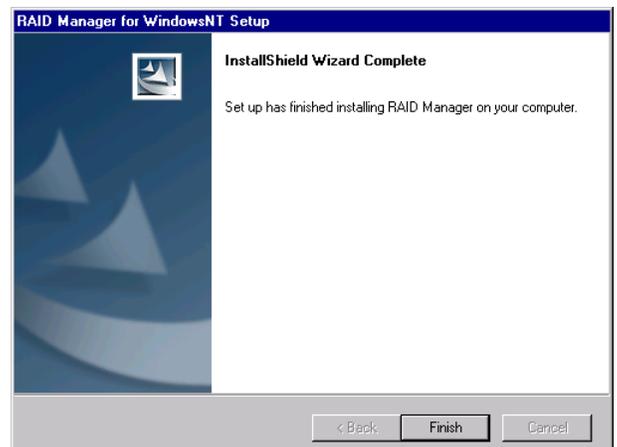
(2)

Select (CL) [Next>].



(3)

Select (CL) [Finish].



3-2-5. Installing the OSS

(1)

When the message of “Insert the second CD-R.” is displayed, replace it to the second media. Select (CL) [OK] after the replacement.



3-2-5.1. Setting Up JAVA

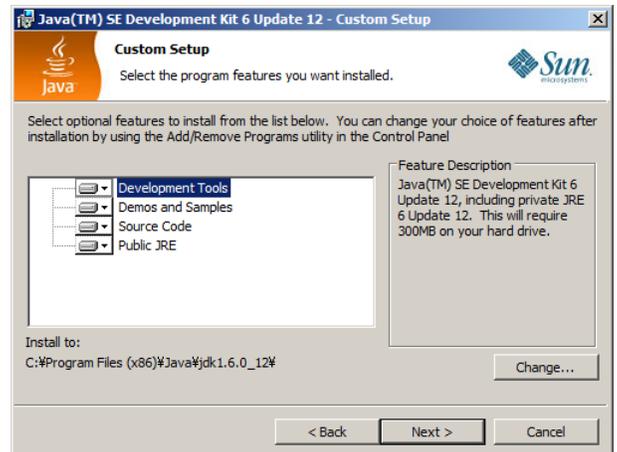
Perform setting up operation of Java.

When JAVA has already been installed, go to Section 3-2-5.3.

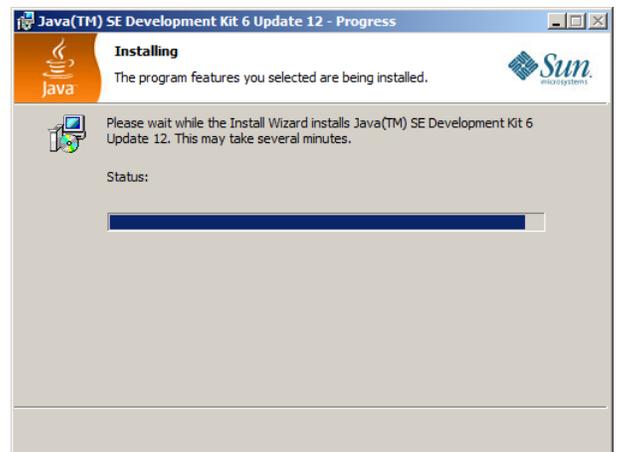
- (1) Select (CL) [Accept>].



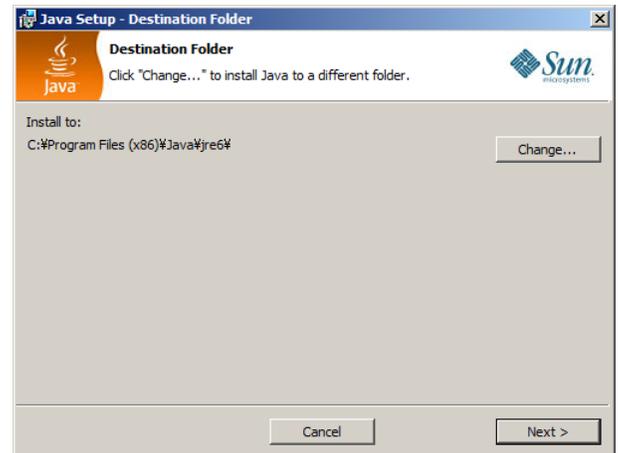
- (2) Select (CL) [Next>].



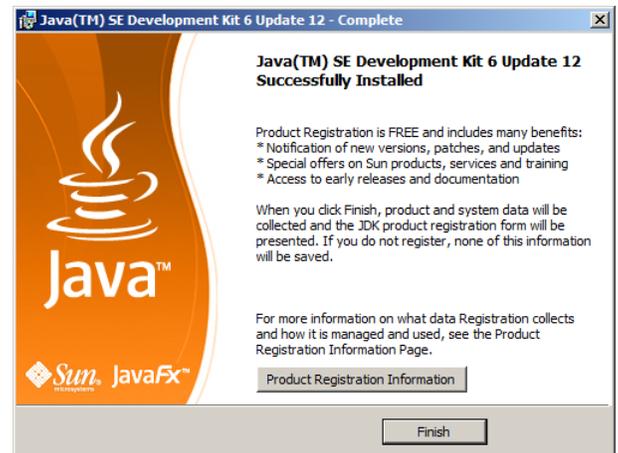
- (3) Copying of the file is started.



- (4)
Select (CL) [Next>].

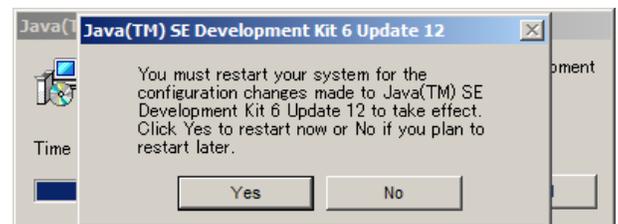


- (5)
Select (CL) [Finish].
If [Register your JDK] window opens,
close it.



- (6)
When this window is not displayed, go to
Section 3-2-5.2.
When this window is displayed, select
(CL) [No].

NOTE: Don't select [Yes]. If you do them,
SVP may no longer work properly.



NOTE: Until SVP is shutdown in procedure 3-2-6, please don't logout or shutdown SVP.
If you do them, SVP may no longer work properly. If a shutdown request message is displayed, please don't shutdown.

3-2-5.2. The Setting of Apache SSL communication

The things of default are set in the key creation for SSL communication and the certificate file. When you install an SSL communication key and a certificate file responding to the customer's request, see "Hitachi Storage Navigator User Guide". It advances to step 3-2-5.3 when setting it by default.

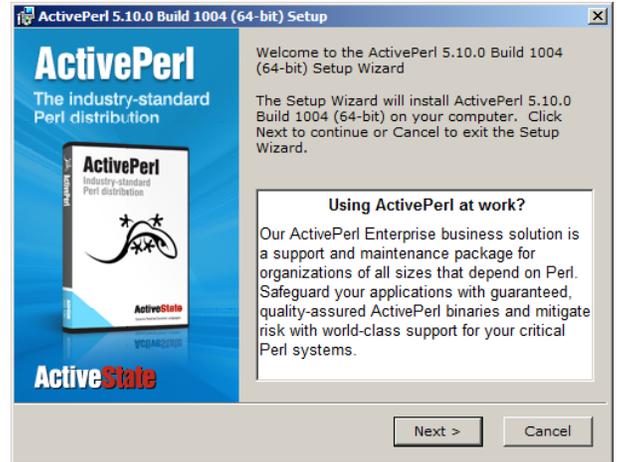
3-2-5.3. Setting Up of Perl

Perform setting up operation of Perl.

When Perl has already been installed, go to Section 3-2-5.4.

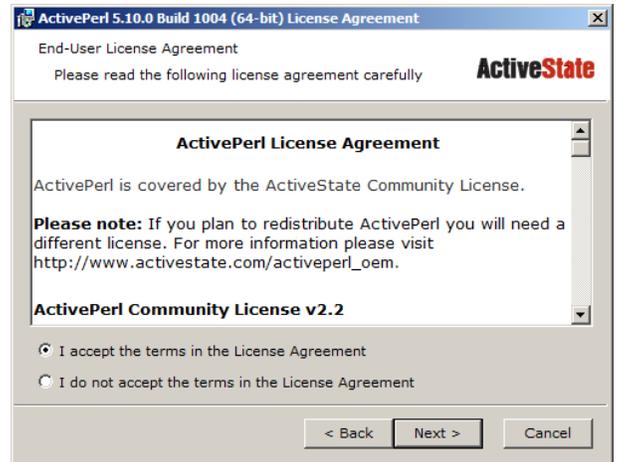
(1)

Select (CL) [Next>].



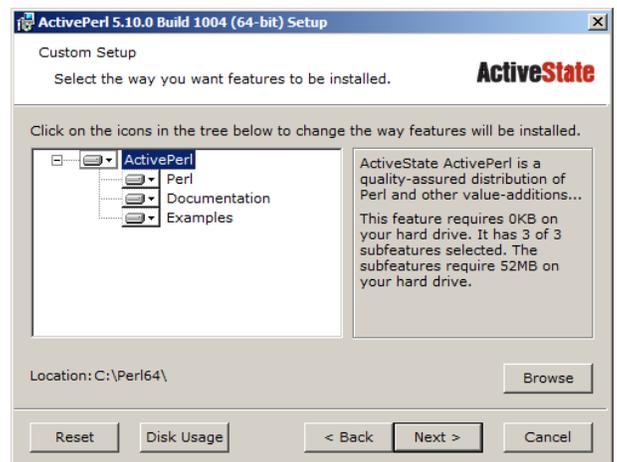
(2)

After selecting “I accept the terms in the License Agreement”, select (CL) [Next>].

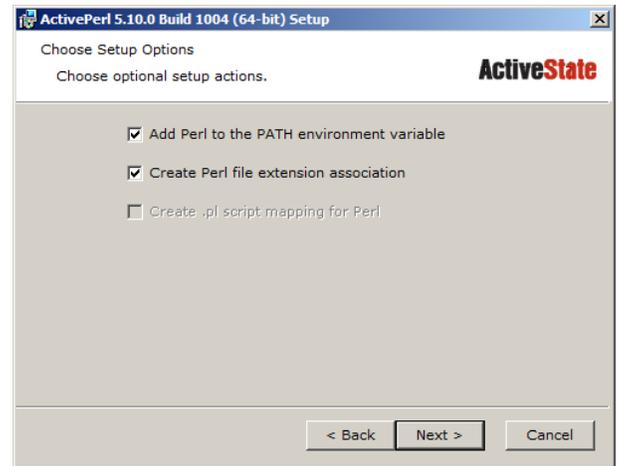


(3)

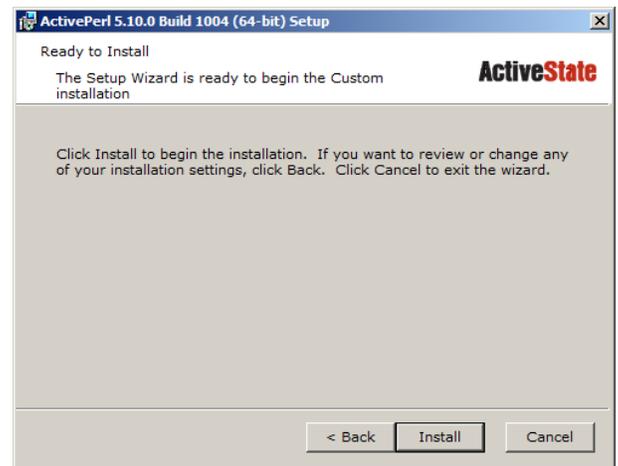
Select (CL) [Next>].



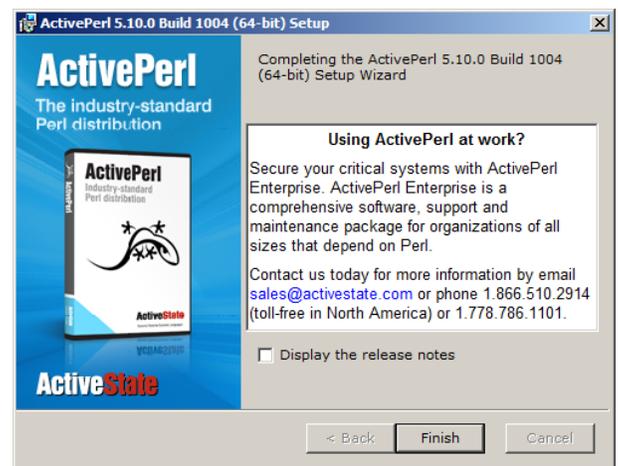
- (4)
Select (CL) [Next>].



- (5)
Select (CL) [Install].
Copying of the file is started.



- (6)
When the copying of the file is completed, this window is displayed. Remove the check mark from the left side check box of the “Display the release notes” and select (CL) [Finish].



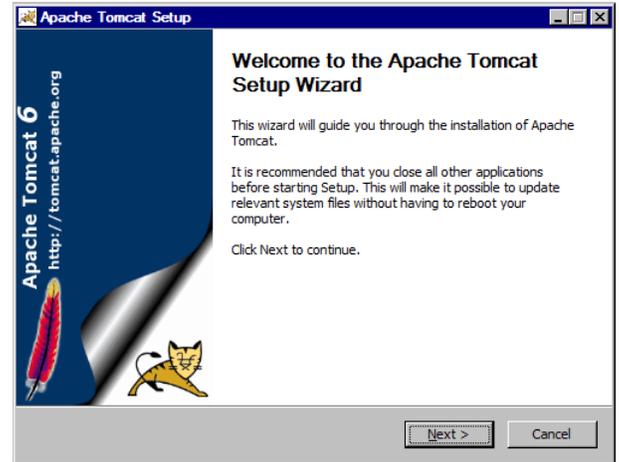
3-2-5.4. Setting Up of Tomcat

Perform setting up operation of Tomcat.

When Tomcat has already been installed, go to Section 3-2-5.5.

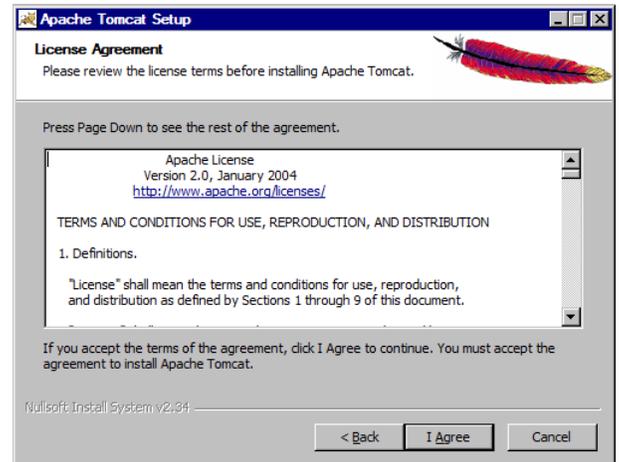
(1)

Select (CL) [Next>].



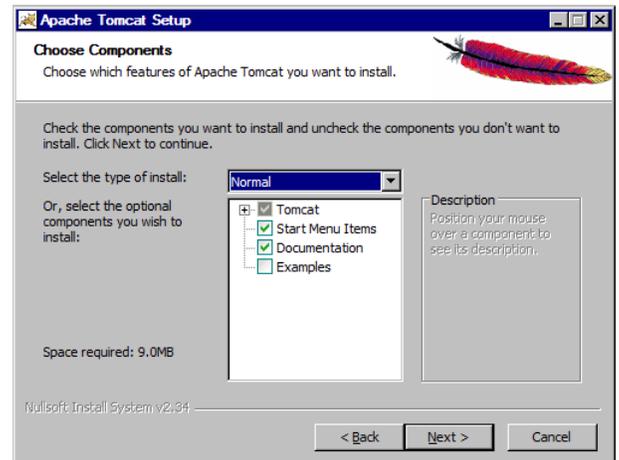
(2)

Select (CL) [I Agree].

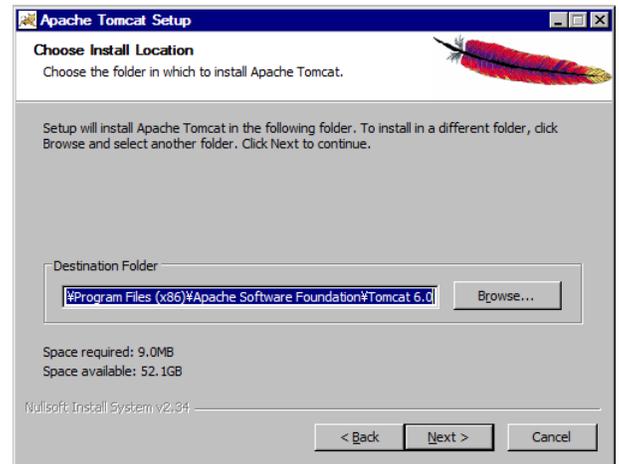


(3)

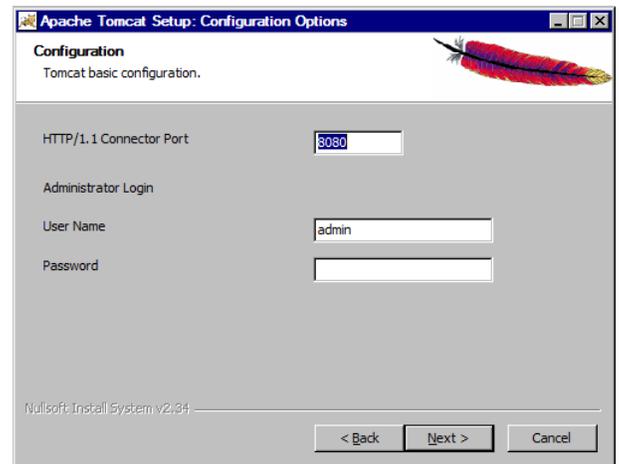
Select (CL) [Next>].



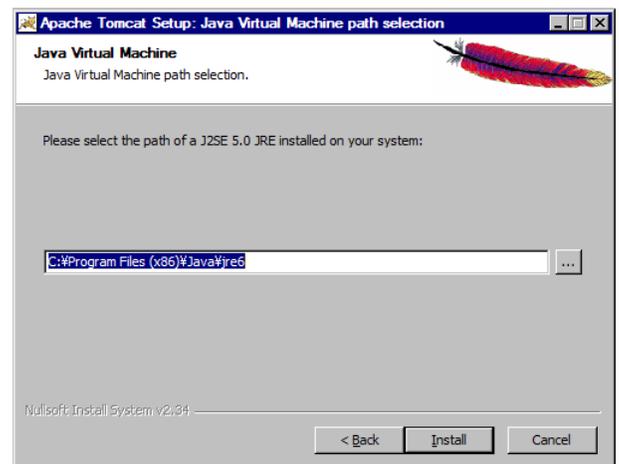
- (4)
Select (CL) [Next>].



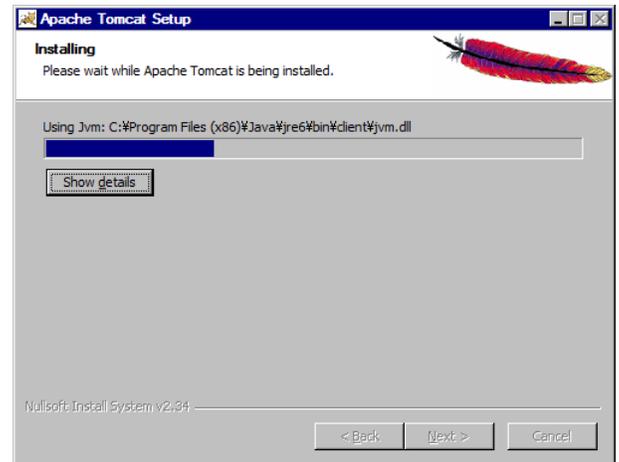
- (5)
Select (CL) [Next>].



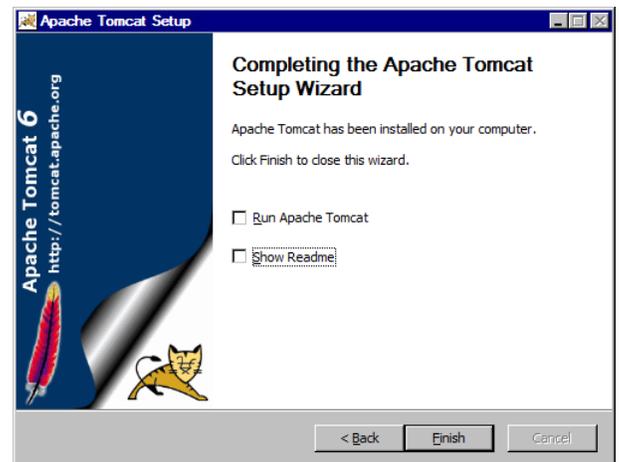
- (6)
Select (CL) [Install].



- (7)
Wait while installing.



- (8)
Uncheck all the checkboxes, and select (CL) [Finish].



3-2-5.5. Setting Up of Flash Player

Perform setting up operation of Flash Player.

When Flash Player has already been installed, go to Section 3-2-6.

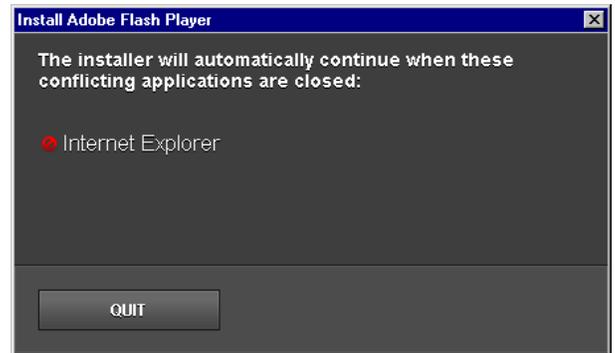
(1) Starting installation

Select (CL) [I have read and agree to the terms of the license agreement], and select (CL) [INSTALL].



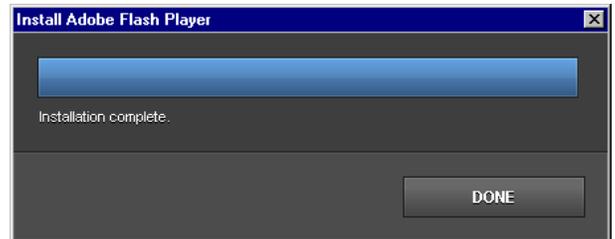
(2) Finishing application

If some applications were using Flash Player, the application name is displayed. Please finish the applications.



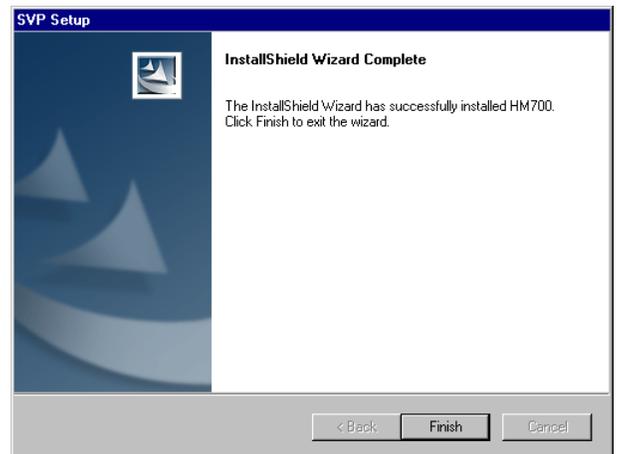
(3) Finishing installation

Select (CL) [DONE].



3-2-6. Restarting the SVP

When the installation of the micro-program is completed, the following window is displayed. Take out the CD-ROM and select (CL) [Finish]. The SVP is restarted (disconnected from the Console PC). After waiting for about five minutes, reconnect the Console PC to the SVP that has been replaced.



3-3. Turn off a SVP RAS Switch#1

Turn off the SVP RAS Switch#1 of the SVP.

 **CAUTION**

The SIM bf85a3 may be reported, however, it is not a problem because it is one of the normal processes of the SVP replacement.

Complete the SIM concerned.

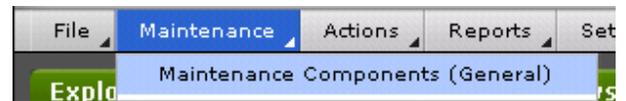
3-4. Various setting for SVP

3-4-1. Setting the IP Address of the SVP

- (1) <Starting SVP program>
<When Web Console isn't working>
Select (CL) [Start SVP].



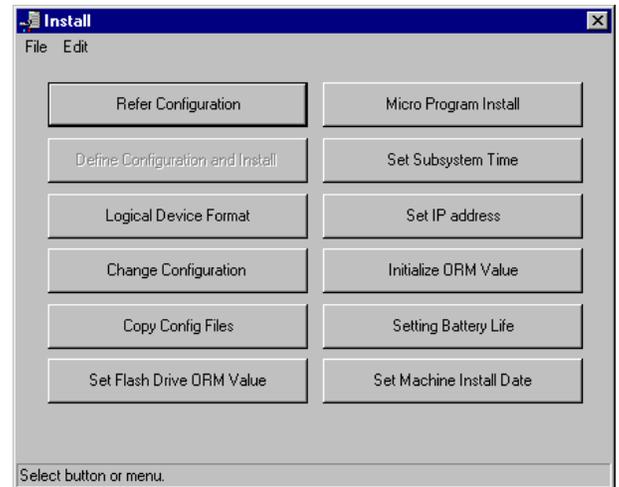
- <When Web Console is working>
Select (CL) [Maintenance] -
[Maintenance Components
(General)].



-
- (2) <Mode change>
Change the mode to Modify Mode.

-
- (3) <Opening the 'Install' window>
Select (CL) [Install] in the [SVP] menu.

- (4) <Selecting [Set IP address]>
Select (CL) [Set IP address] in the
'Install' window.



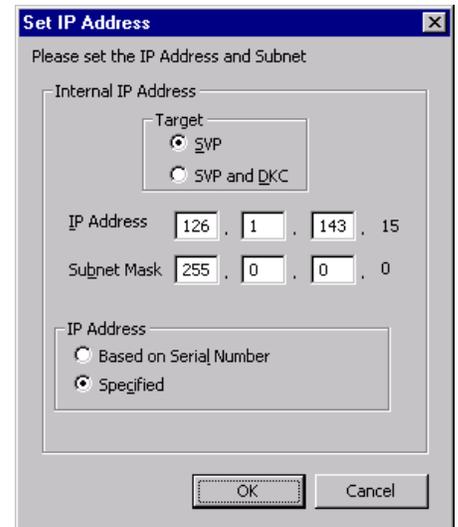
NOTE: Although it may be an error display if the Web Server Status window is displayed before the IP address setting work of SVP is completed, there is no problem because it is the one by the process of the SVP replacement.

(5) <Setting the IP address>

Select (CL) [SVP], make sure of the IP Address and Subnet Mask of the Internal IP Address and select (CL) the [OK] button.

When the “IP Address” and/or “Subnet Mask” are/is wrong, enter the correct one(s).

NOTE: Please select [OK] absolutely (CL). And, [Cancel] is not reflected in the setting.



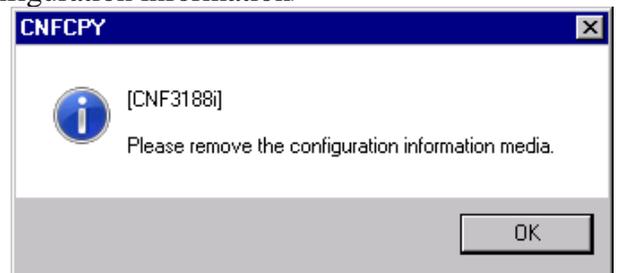
(6) <Inserting the medium containing the configuration information>

Insert the medium containing the configuration information in the specified location and select (CL) the [OK] button.



(7) <Taking out the medium containing the configuration information>

When the copying of the configuration information is completed, a message, "Please remove the configuration information media." is displayed. Take out the medium containing the configuration information and select (CL) the [OK] button.



- (8) <Making sure of the restart of the SVP>
Select (CL) the [OK] button.

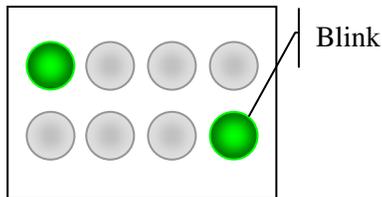
The SVP is disconnected from the Console PC.
After waiting for about five minutes, reconnect the SVP
that has been replaced to the Console PC.



- (9) <LED state confirmation of SVP>

It confirms it with LED of SVP. Please do over again from (2) when you turn off LED.

Lighting at the time of SVP action.
(SVP STATUS LED)



[Connection destination]

- xxx.xxx.xxx.15

NOTE: If the IP address of the Console PC has been changed to 126.255.255.x, reset to the original IP address before connection.

When the SVP, which is an object of the operation, cannot be detected, retry the connection after a while (about one minute).

(10) <Setting the external IP address>

(a) <Opening the Control Panel window>

Select (DR) [Settings]-[Control Panel] from the [Start] menu.

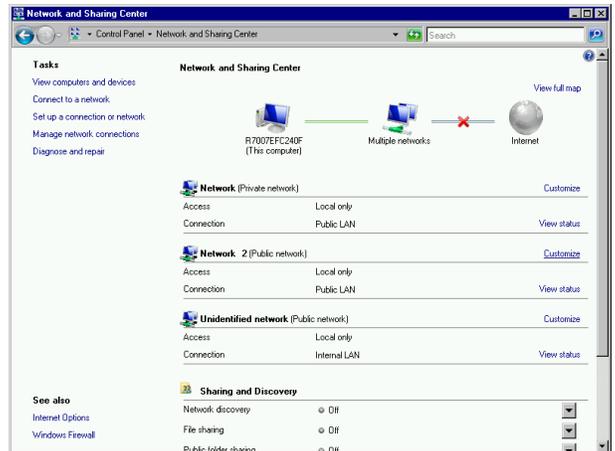
(b) <Opening the Network and Sharing Center window>

Select (CL) [Network and Sharing Center] in the 'Control Panel' window.



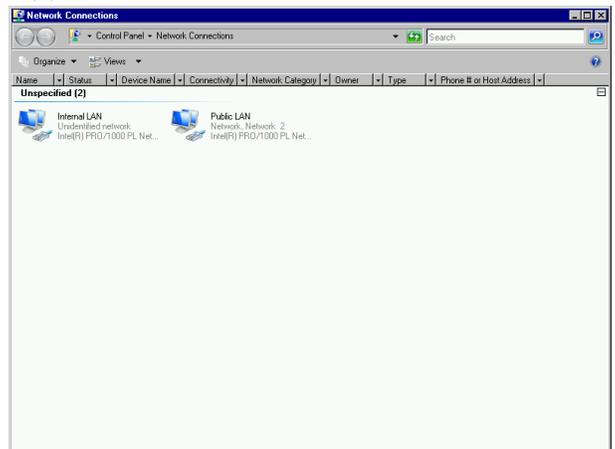
(c) <Opening the Manage network connections window>

Select (CL) [Manage network connections] in the 'Network and Sharing Center' window.

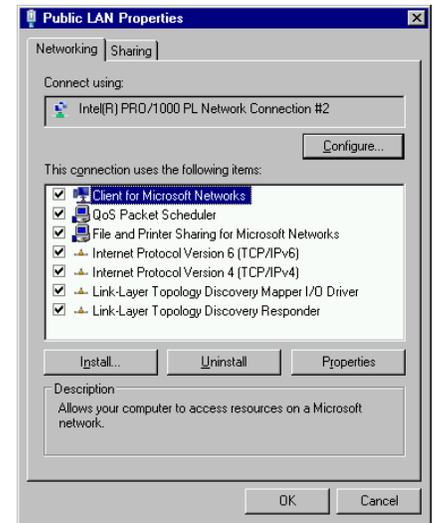


(d) <Opening the Public LAN Properties window>

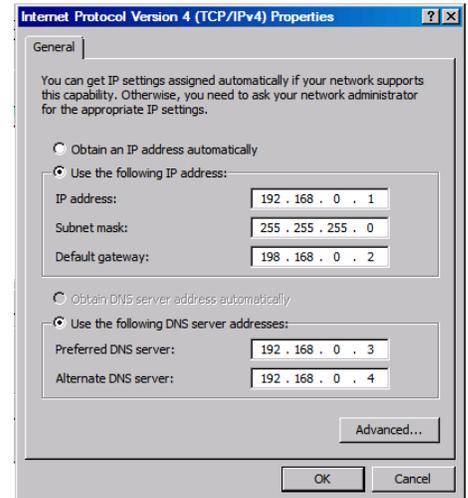
Select (CL) [Public LAN] in the 'Network Connections' window and select (CL) [Properties] by clicking the right mouse button.



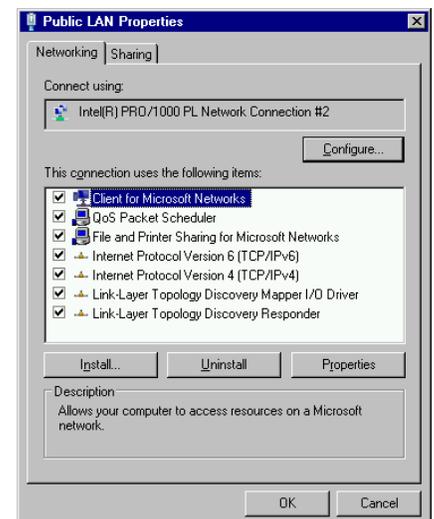
- (e) Select (CL) [Internet Protocol Version 4 (TCP/IPv4)] in the 'Public LAN Properties' window and select (CL) the [Properties] button.



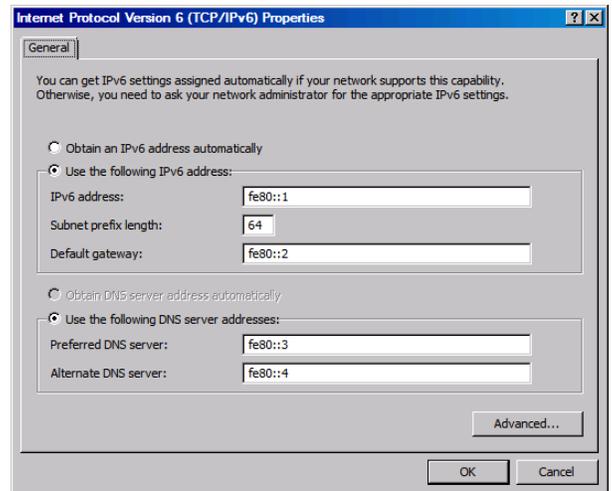
- (f) <Setting the external IP address>
Set the "IP address", "Subnet mask", "Default gateway", "Preferred DNS server" and "Alternate DNS server" and select (CL) the [OK] button.
When you do not set IPv6, go to step (i).



- (g) Select (CL) [Internet Protocol Version 6 (TCP/IPv6)] in the 'Public LAN Properties' window and select (CL) the [Properties] button.



- (h) <Setting the external IP address>
Set the “IPv6 address”, “Subnet prefix length”, “Default gateway”, “Preferred DNS server” and “Alternate DNS server” and select (CL) the [OK] button.



- (i) After the setting is completed, select (CL) the [OK] button in the “Public LAN Properties” window.
Close the ‘Manage network connections’ window.

3-4-2. Setting the TOD

Set the TOD after the message, “Loading SVP Program... SVP requests to DKC cannot be performed presently. Please wait...” disappears.

(1) <Changing the mode>

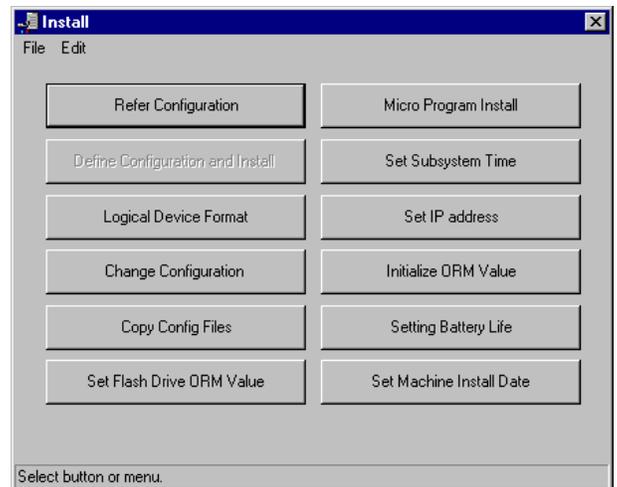
Change the mode to Modify Mode.

(2) <Opening the ‘Install’ window>

Select (CL) [Install] in the [SVP] menu.

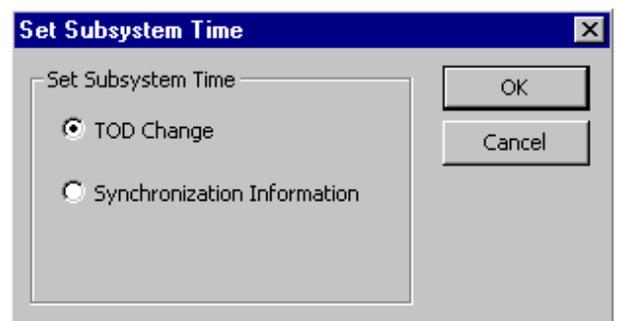
(3) <Selecting [Set Subsystem Time]>

Select (CL) [Set Subsystem Time] in the ‘Install’ window.

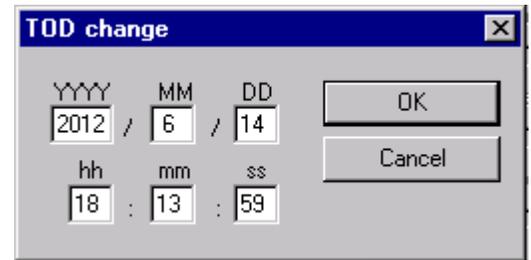


(4)

Select (CL) [TOD Change] in the ‘Set Subsystem Time’ window, and then select (CL) [OK].



- (5)
Enter a date (year, month, and day) and time (hours, minutes, and seconds), and then select (CL) the [OK] button.



- (6)
Close the 'Install' window.

3-4-3. Loading the configuration information from the SM to an HDD of the SVP

Load the configuration information from the SM to an HDD of the SVP.

- (1) <Opening the 'Maintenance' window>
Select (CL) [Maintenance] from the "SVP" window.
- (2)
Make sure that the message, "Connection error occurred SVP-DKC," is not displayed.
If the above message is displayed, refer to page [TRBL04-80](#).
- (3) <Selecting [Exit]>
Select (CL) [File] from the 'Maintenance' window.
Select (CL) the [Exit] button.

3-4-4. Setting the Web Console

If the customer don't use Web Console (Storage Navigator), 3-4-4.3 and 3-4-4.4 are not required.

If the customer uses neither Web Console nor SNMP Agent, 3-4-4.1 ~ 3-4-4.4 are not required.

3-4-4.1. Setting the Web Console

(1) Setting Network Connection Properties

Checking whether the setting of the network (setting of Config) must be changed or not. Ask the customer about the setting of the switch (HUB) connected to the SVP. When the case is not the above, terminate the operation by selecting (CL) the [OK] button.

There is a case where the setting must be changed depending on the customer's environment. The case where the change is required is as follows.

(Normally, no setting change is required.)

When the switch (HUB), setting of which is fixed as '100M Full Duplex', is connected to the PC of the SVP

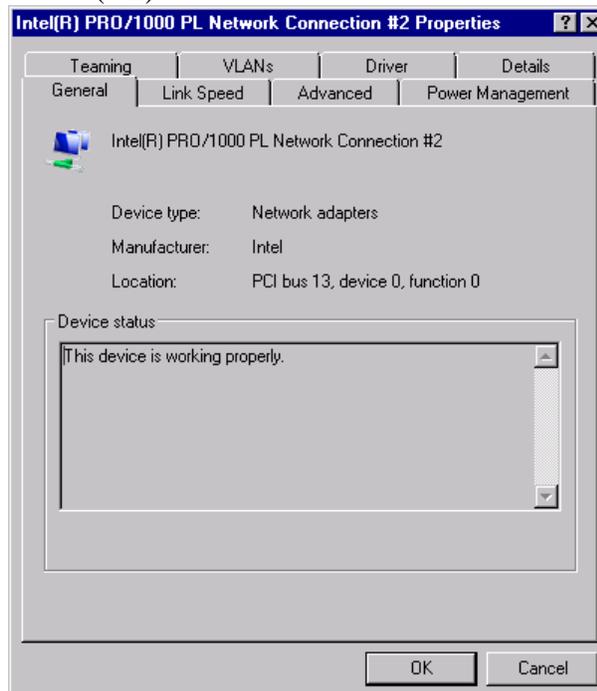
NOTE: The setting of the SVP made is "Auto Negotiation".

(a) Opening the configuration windows

Select (CL) the [Configure] button in the window for Step 3-4-1 (10) (d), Step 3-4-1 (10) (g).

(b) Switching the tab

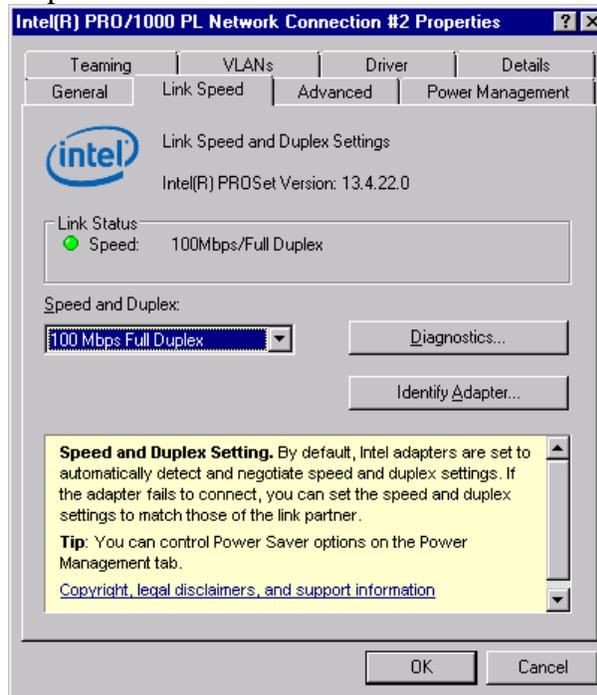
After the [Configure] button is pressed, the following window is displayed. Select (CL) the 'Advanced' tab in the following window.



(c) Setting the Connection Properties

After the 'Advanced' tab is selected, the following window is displayed.

Change the value of 'Speed and Duplex' from 'Auto Detect' to '100Mbps Full Duplex'.



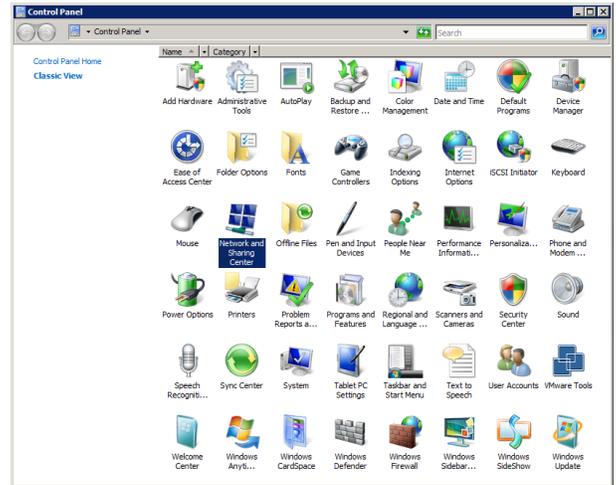
(d) Applying the settings and closing the window

Return the window to 'Public LAN Properties' by pressing (CL) the [OK] button and close the window by pressing the [OK] button.

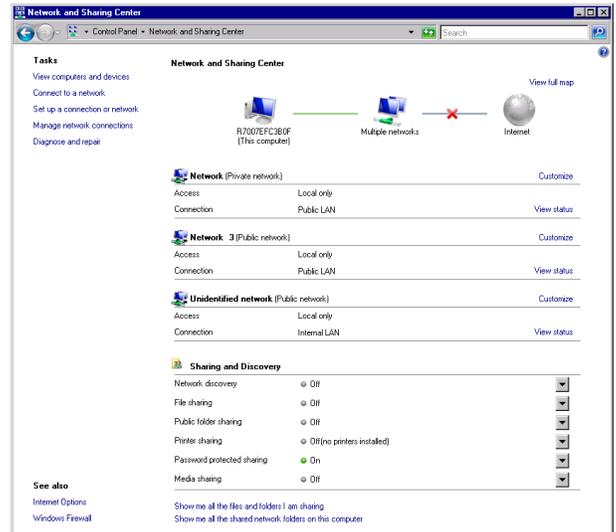
NOTE: When you use Web Console only with the IPv6 connection, set it referring to next step.

Perform the following when using Web Console only with IPv6.

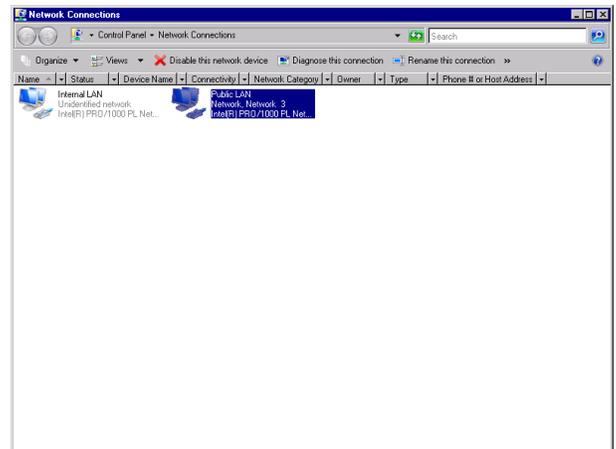
- (1) Launch the Network and Sharing Center
Select (CL) [Start]-[Settings]-[Control Panel] and launch (double-click) the “Network and Sharing Center”.



- (2) Launch the Network Connections
Select (CL) “Manage network connections”.

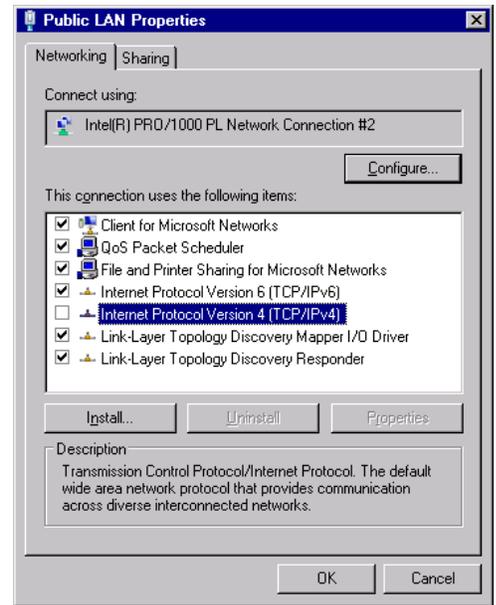


- (3) Open the Connection Properties window
Right-click on the icon of “Public LAN” and select “Properties” from the displayed popup menu. Select (CL) “Continue” when the confirmation window is displayed.



(4) Set properties

When the property is displayed, uncheck the checkbox of “Internet Protocol Version 4 (TCP/IPv4)” in the list. Select (CL) [OK] and close the window.



(5) Reboot the SVP

Select (CL) [Start]-[Run...].

Enter “shutdown /r /t 0” and press the Enter key.

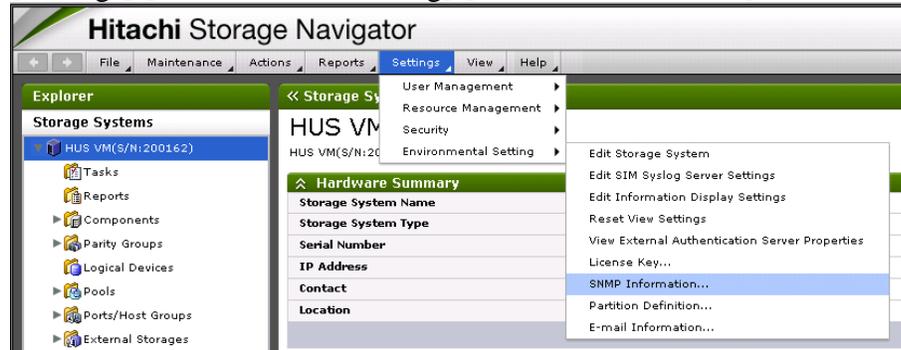
The SVP will be rebooted.

3-4-4.2. Setting SNMP

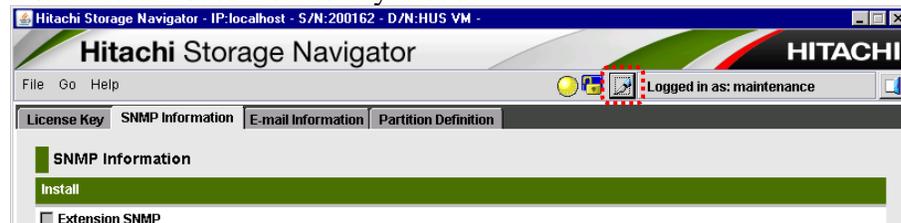
① Please perform the following procedure, when you use SNMP Agent.

1. Select (CL) the following menu item on Web Console.

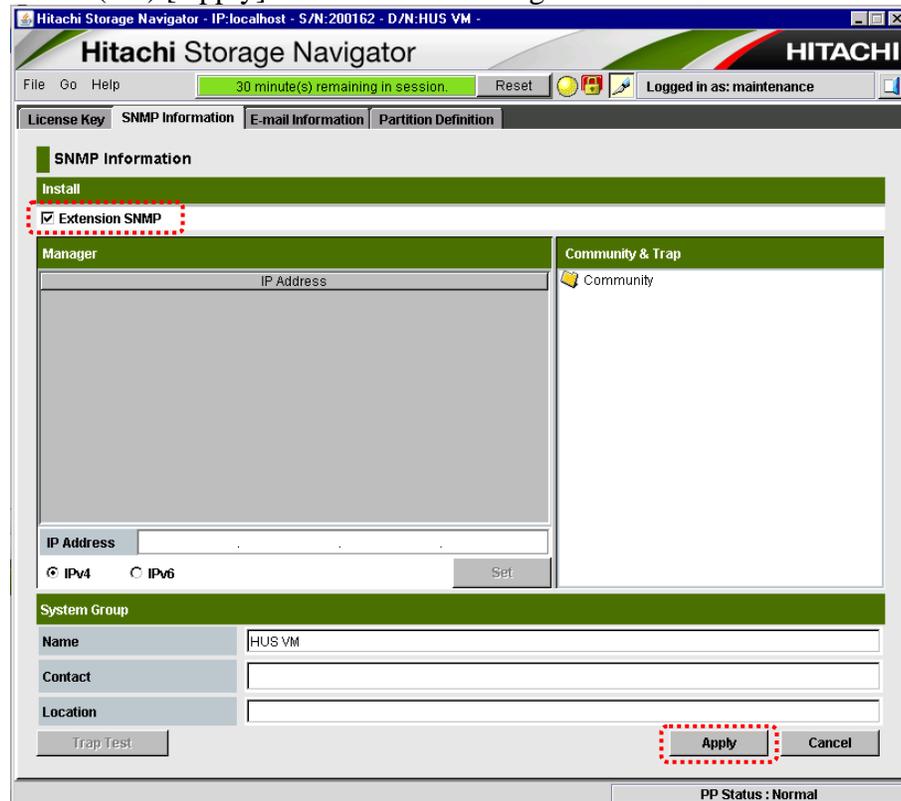
[Settings]-[Environmental Setting]-[SNMP Information...]



2. Displays 'SNMP Information' window. Select (CL) [mode change] button to change from View mode into Modify mode.



3. Select (CL) [Apply] button after checking Extension SNMP.



- ② Please perform the following procedure, when you don't use SNMP Agent.
 1. Select (CL) the following menu item on Web Console.
[Settings]-[Environmental Setting]-[SNMP Information...] (same as ① step 1.)
 2. Select (CL) [mode change] button to change from View mode into Modify mode.
(same as ① step 2.)
 3. Select (CL) [Apply] button after un-checking Extension SNMP.

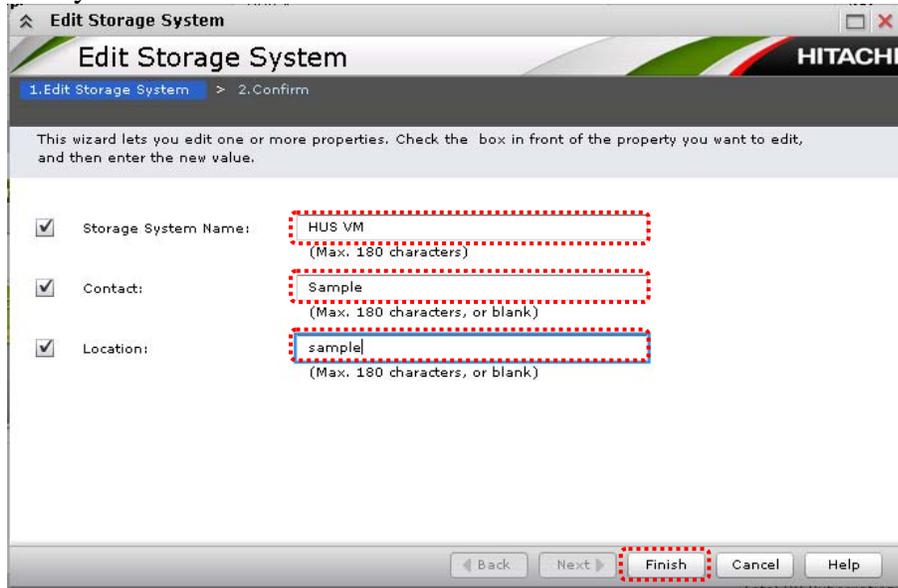
The screenshot displays the Hitachi Storage Navigator web interface. The title bar indicates the user is logged in as 'maintenance' and shows a session timer of 27 minutes remaining. The main navigation tabs include License Key, SNMP Information, E-mail Information, and Partition Definition. The 'SNMP Information' section is active, showing an 'Install' header with an unselected checkbox for 'Extension SNMP'. Below this, there are two columns: 'Manager' with an 'IP Address' field and 'Community & Trap' with a 'Community' field. At the bottom, the 'System Group' section contains fields for Name (HUS VM), Contact, and Location. The 'Apply' button is highlighted with a red dashed box, and the 'Cancel' button is also visible. The status bar at the bottom shows 'PP Status : Normal'.

Following procedures are common to ① and ②.

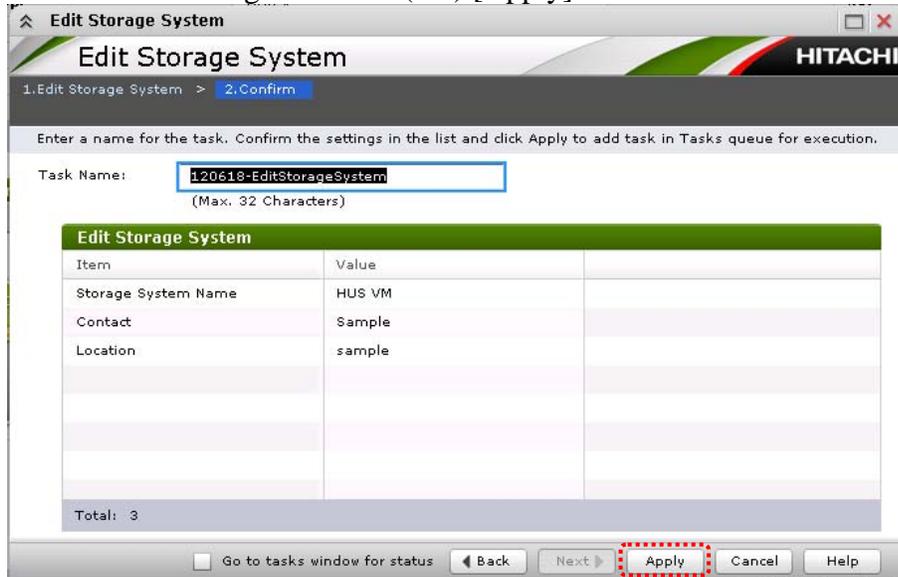
4. Select (CL) [Edit Storage System] button on Web Console.



5. Set Storage System / Contact / Location again and then select (CL) [Finish] button after your confirmation.



6. Confirm the Setting and select (CL) [Apply] button.



Refer to “Hitachi SNMP Agent User Guide”, “The operation of SNMP” to know how to setting.

3-4-4.3. Setting the user account information and the environment setting information

Ask the customer to restore the user account information and the environment setting information of Web Console using the backup which he/she is keeping.

If the backup is not kept, ask him/her to reset it.

Please refer to “Hitachi Storage Navigator User Guide”, “New Users”, “Environment Parameters”, and “Restoring Backups of Configuration Files” for the restoration method and the setting method.

3-4-4.4. Setting Audit Log

When the customer is using the Syslog function of Audit Log or the FTP transfer function, request the customer to restore it by using the backup that he/she is keeping.

If the backup is not kept, ask him/her to reset it.

Please refer to “Hitachi Audit Log User Guide”, “Transferring audit log files to FTP servers”, “Transferring audit log files to syslog servers”, and “Hitachi Storage Navigator User Guide”, “Restoring Backups of the Configuration Files” for the restoration method and the setting method.

3-5. Backing Up the Configuration Information

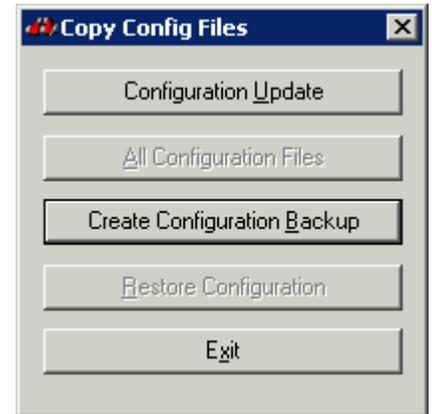
Make a backup of the configuration information.

(1)

Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

(2)

Select (CL) [Create Configuration Backup] in the 'Copy Config Files'.



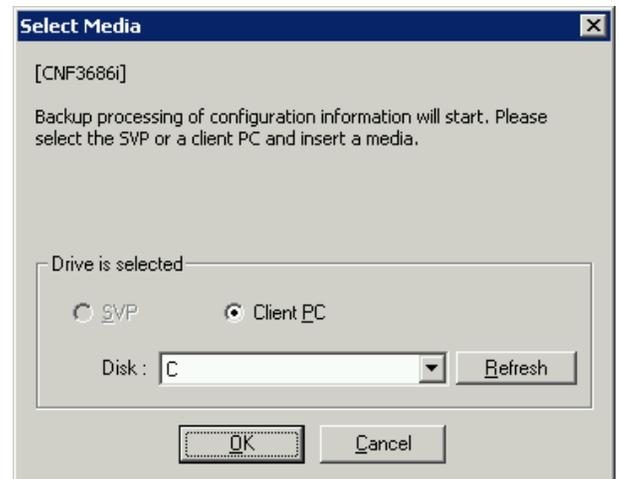
(3)

Execute an operation for backing up the configuration information.

Prepare the removable media for backup and insert the media.

Please select (CL) the [Refresh] button, and update drive information.

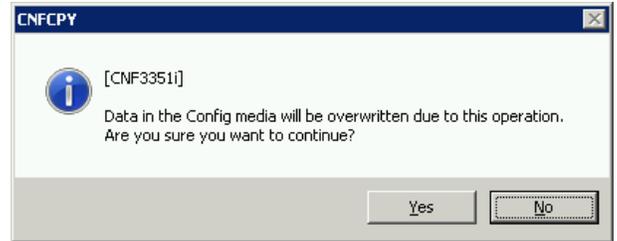
Select (CL) the drive and the PC in which the media was inserted. Select (CL) the [OK] button.



(4)

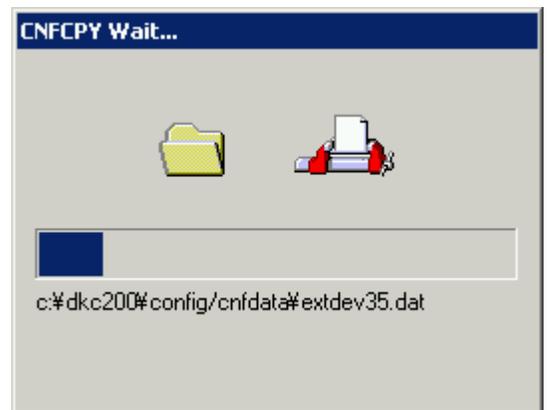
If the configuration information is not saved in the selected media, go to step (5).
If the configuration information is already saved in the selected media, the following information message is displayed.

When you want to continue the process, select the [Yes] button. When the backup to the Config media is not necessary, select the [No] button and go back to step (2).



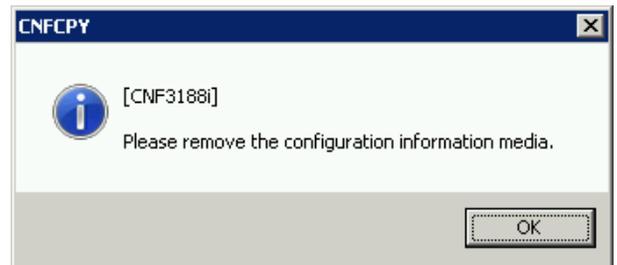
(5)

Backup the configuration information to the Config media for backup. While this operation is being done, the 'CNFCPY Wait...' window is displayed.



(6)

After the Config media is pulled out, select (CL) the [OK] in response to the message "Please remove the configuration information media."



(7)

Select (CL) [Exit] of the 'Copy Config Files' to finish this operation.

3-6. POST-PROCEDURE

Go to POST-PROCEDURE [[REP04-01-10](#)].

[Battery REPLACEMENT PROCESSING - RTC7]

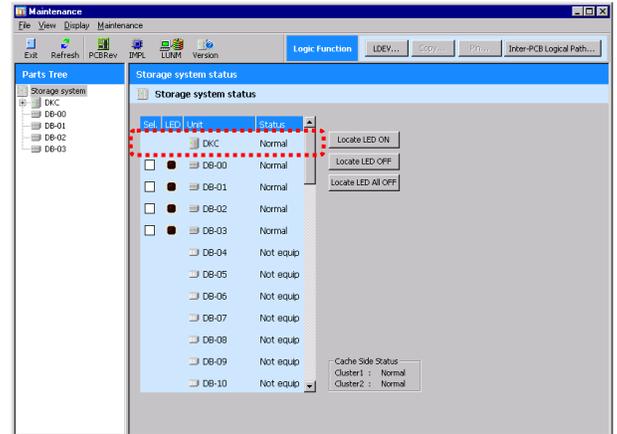
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Check beginning of Battery Replacement
 - ② Check battery charge opposite cluster
 - ③ Enter the password
 - ④ Check with battery storage period
 - ⑤ Check the LED blinks
 - ⑥ Replacement
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Check beginning of Battery Replacement
 - ② Check the battery status
 - ③ Setting Battery Life
 - ④ Check end of replacement

1. PRE-PROCESSING of SVP

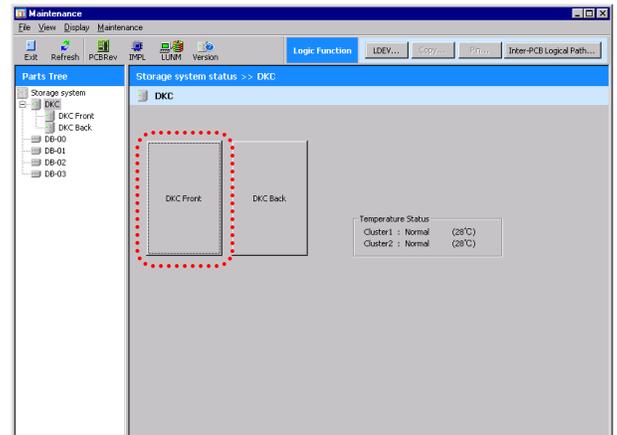
1-1. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.



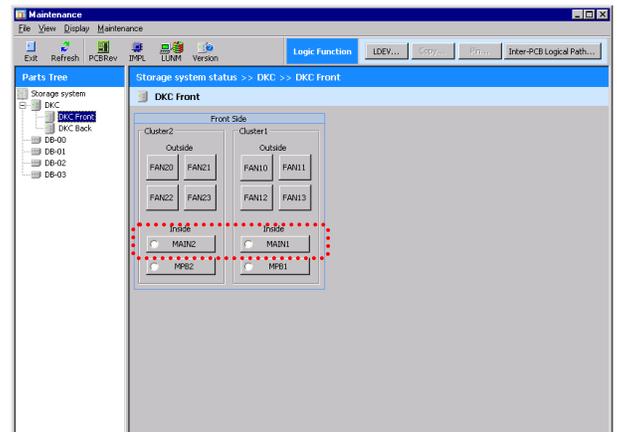
1-2. <DKC window>

Select (CL) [DKC Front] in the 'DKC' window.



1-3. <Select Main Blade>

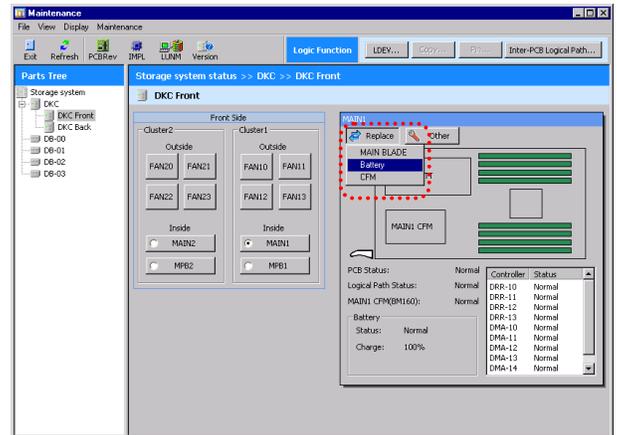
Select (CL) [MAINn].



1-4. <Specify replacement of cache battery>

Check status display.

Select (CL) [Replace], and select (CL) [Battery].



1-5. <Execute>

CAUTION

When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

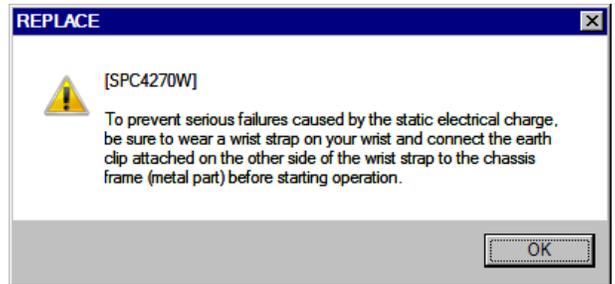
A window shown on the right is displayed.
Select (CL) [Execute].



(Eg. MAIN2 BATT)

1-6. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-7.

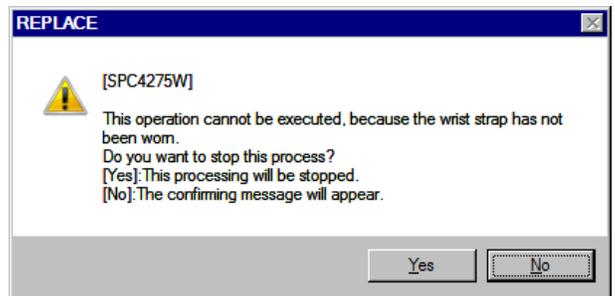


“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes] : This processing will be stopped.

[No] : The confirming message will appear.” is displayed.

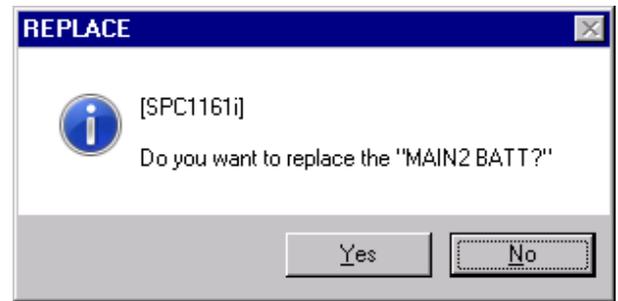


When the processing will be stopped, select (CL) [Yes].

1-7. <Check beginning of Battery Replacement>

Start battery replacement.

Select (CL) [Yes] in response to “Do you want to replace the “MAINn BATT?””.



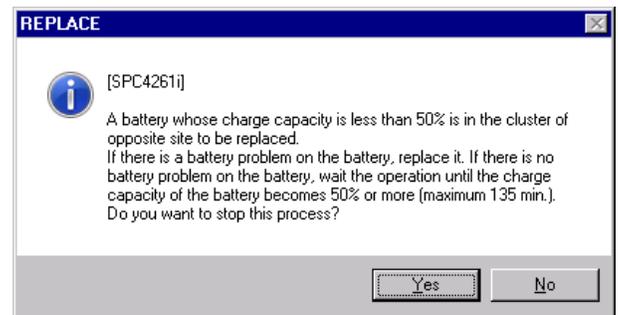
(Eg. MAIN2 BATT)

1-8. <Check battery charge opposite cluster>

Automatically, the battery's charge is measured in the opposite cluster.

- More than 50% charge capacity, or “being measured”, go to Step 1-10.

Charge capacity of less than 50%, the following message “A battery whose charge capacity is less than 50% is in the cluster of opposite site to be replaced. If there is a battery problem on the battery, replace it. If there is no battery problem on the battery, wait the operation until the charge capacity of the battery becomes 50% or more (maximum 135 min.). Do you want to stop this process?” is displayed.



If you stop for battery replacement, select (CL) [Yes], go to Step 3-10.

To continue the replacement battery, select (CL) [No], go to Step 1-9.

1-9. <Enter the password>

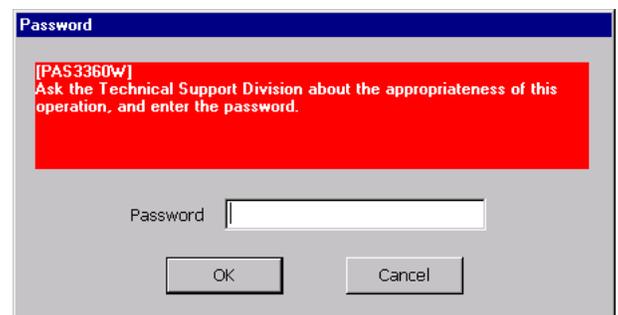
Corresponding to the following message, enter the password and select (CL) the [OK] button.

“Ask the Technical Support Division about the appropriateness of this operation, and enter the password.”

Go to Step 1-10.

If you stop for a replacement, [Cancel].

Go back to Step 1-8.



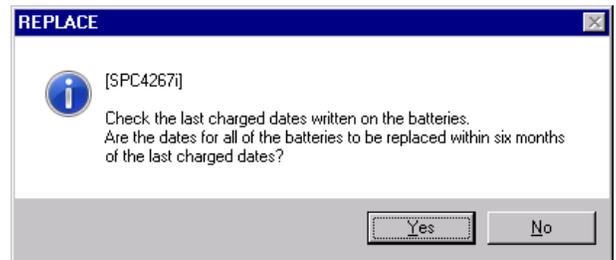
1-10. <Check with battery storage period>

Check the date that is mentioned in the final charge to replace the battery.

“Check the last charged dates written on the batteries. Are the dates for all of the batteries to be replaced within six months of the last charged dates?” is displayed.

- Within six months from the date when the final charge, select (CL) [Yes].
- When more than 6 months from the date of the last charge, select (CL) [No].

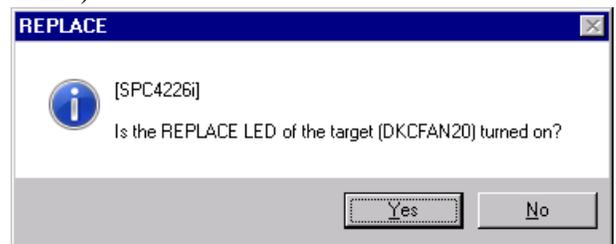
And Processing. Go to Step 1-11.



1-11. <Checking lighting of the LED on the FAN(MAIN)>

The message “Is the REPLACE LED of the (DKCFANnn) to pulled out on?” is displayed. When the REPLACE LED on the component to be pulled out is on, select (CL) [Yes] and go to Step 1-13.

When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-12.

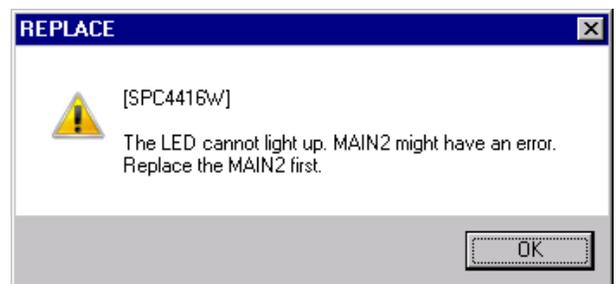


(Eg. DKCFAN20)

1-12. <Warning of the FAN(MAIN)>

The message “The LED cannot light up. MAINn might have an error. Replace the MAINn first.” is displayed.

Select (CL) [OK] and go to Step 3-10.

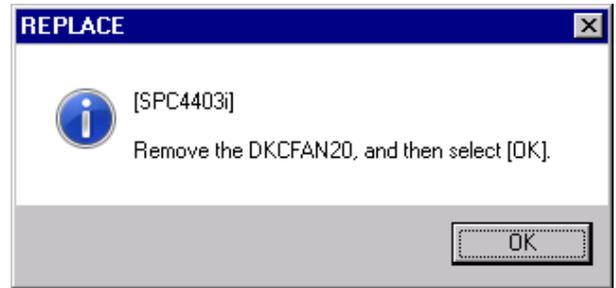


1-13. <Making sure of pulling out the FAN(MAIN)>

The message “Remove the DKCFANnn, and then select [OK].” is displayed.

Do not select (CL) [OK] here.

Go to Step 1-14.



(Eg. DKCFAN20)

1-14. <Pulling out FAN(MAIN) processing>

- Check that the DKCFAN REPLACE LED on the left FAN(MAIN) of the MAIN Blade is on.
- Loosen the screw on the FAN(MAIN) and make the handle fall down.
- Pull the handle and remove the FAN(MAIN) from the MAIN Blade.

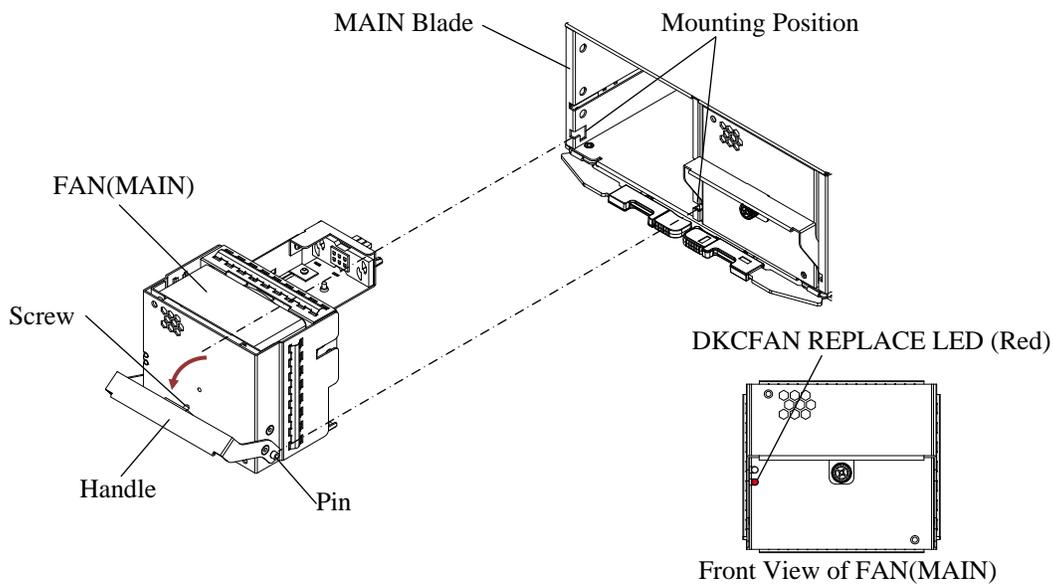
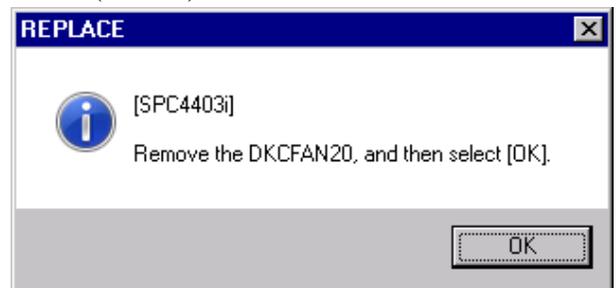


Fig. 3.17.1-1 Removal of FAN(MAIN)

1-15. <Making sure of completion of removal of the FAN(MAIN)>

After removing the FAN(MAIN), select (CL) [OK] in response to “Remove the DKCFANnn, and then select [OK].”.



(Eg. DKCFAN20)

1-16. <Check the LED blinks>

Before replacing the battery, LED blinks to confirm.

(The LED is the back of the FAN(MAIN) which was removed.)

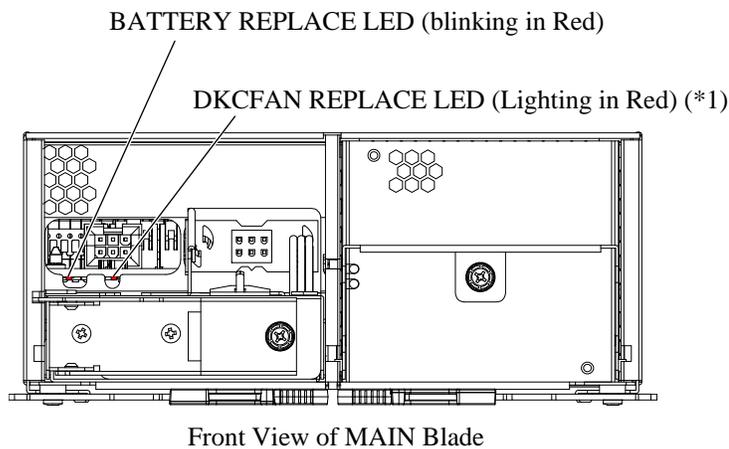
“Is the REPLACE LED of the target parts(MAINn BATT) blinking?” is displayed.



(Eg. MAIN2 BATT)

If the LED is blinking, select (CL) [Yes] and go to Step 1-18.

If the LED is not blinking, select (CL) [No] and go to Step 1-17.



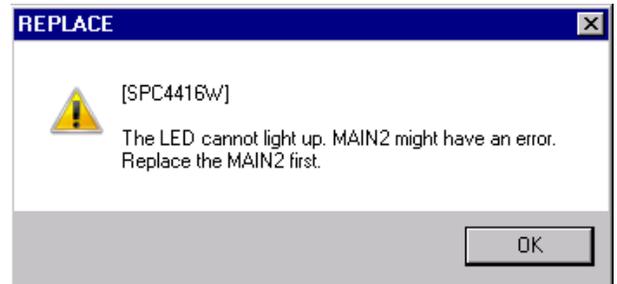
*1: The DKCFAN REPLACE LED still lights after removing the DKCFAN.

Fig. 3.17.1-2 Location of LED

1-17. <Warning of the Battery>

The message “The LED cannot light up. MAIN2 might have an error. Replace the MAINn first” is displayed.

Reply with [OK] and go to Step 3-3.

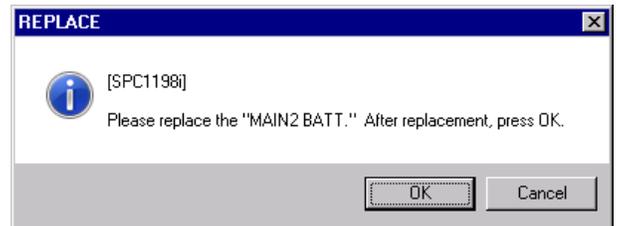


1-18. <Replacement>

The message “Please replace the “MAINn BATT” After replacement, press OK.” is displayed.

Reply with [OK] after replacing the special part.

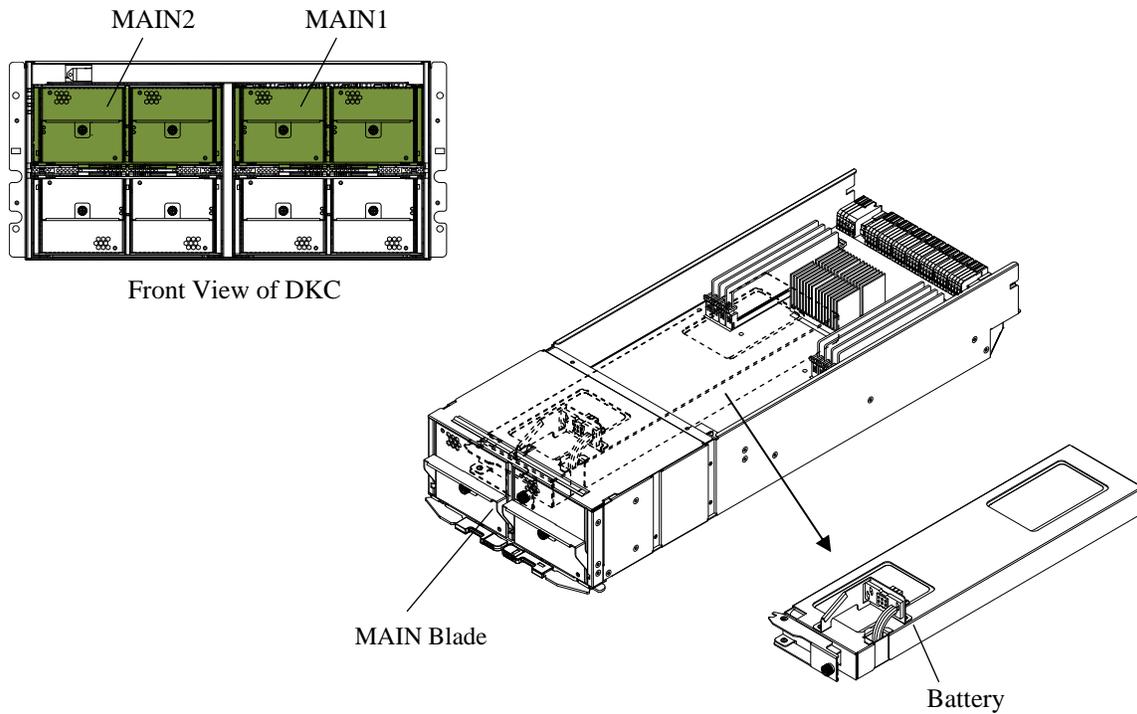
Go to “2. HARDWARE REPLACEMENT PROCESSING”.



(Eg. MAIN2 BATT)

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Inside of MAIN Blade	1	Battery	



NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of Battery

 **CAUTION**

Watching for short-circuits:

A Short-circuit may cause a fire.

Never insert metal or the like into the battery box connector or a short-circuit may occur.

NOTICE: The claw of the handle of the Battery has a sharp edge. Be careful not to touch it.

2-1-1. Replace the Battery.

- a. Loosen the screw on the Battery and open the handle.
- b. Pull the handle and remove the Battery.
- c. Loosen the screw on the spare Battery and open the handle fully.
- d. Insert the spare Battery until the claw of the handle of the Battery comes into contact with the mounting portion of the MAIN Blade.
- e. Push the handle and fully insert the Battery.
- f. Tighten the screw and fix the Battery.

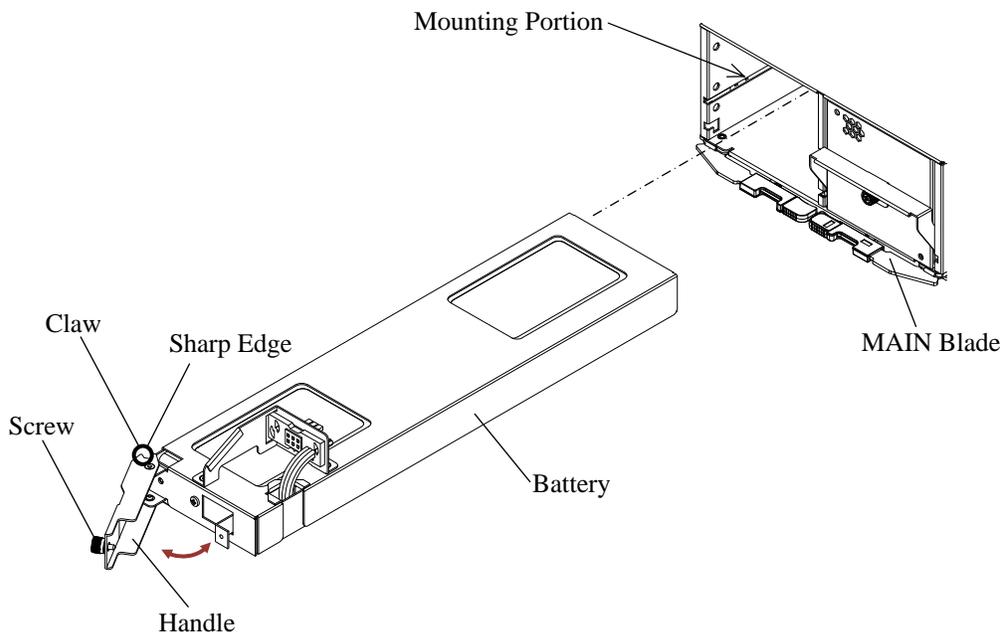


Fig. 3.17.2-1 Replacement of Battery

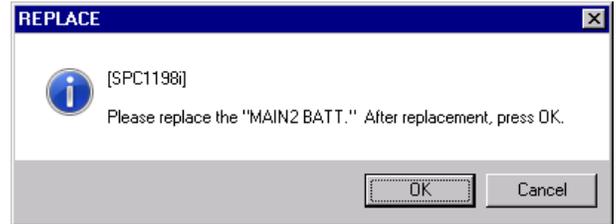
2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check beginning of Battery Replacement>

Select (CL) [OK] in response to “Please replace the “MAINn BATT.” After replacement, press OK.”.

Go to Step 3-2.



(Eg. MAIN2 BATT)

3-2. <Check the battery status>

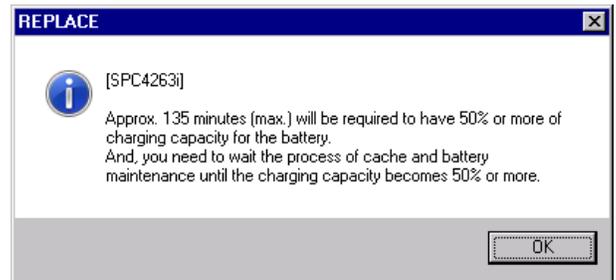
Automatically check the status of the battery replacement.

Select (CL) [OK] after you confirmed the content.

If more than six months from the date of the final charge the battery storage period,

“Approx. 135 minutes (max.) will be required to have 50% or more of charging capacity for the battery. And you need to wait the process of cache and battery maintenance until the charging capacity becomes 50% or more.” is displayed.

Go to Step 3-3.



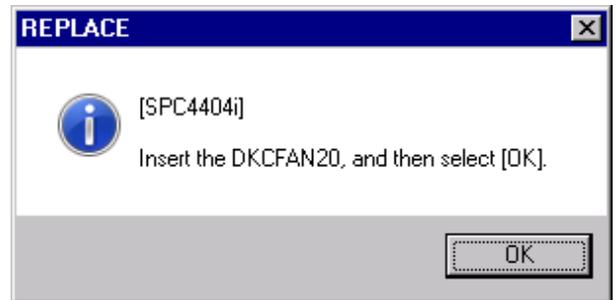
3-3. <Making sure of the FAN(MAIN) insertion>

The message “Insert the DKCFANn, and then select [OK].” is displayed.

Do not select (CL) [OK] here.

If any trouble has not occurred, go to Step 3-4.

If a trouble has occurred, go to Step 3-10.



(Eg. DKCFAN20)

3-4. <Insert FAN(MAIN) processing>

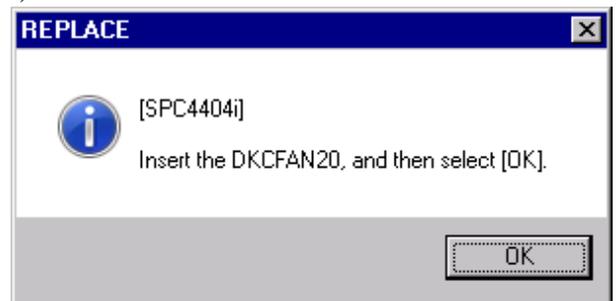
- a. Insert the FAN(MAIN) until its claw reaches the part to attach of the MAIN Blade. (Refer to Fig. 3.17.1-1.)
- b. Push up the handle and fully insert the FAN(MAIN).
- c. Tighten the screw and fix the FAN(MAIN).

If the display of Battery Life Warning SIM is disabled, go to step 3-8.

3-5. <Making sure of completion of the FAN(MAIN) insertion>

After inserting the FAN(MAIN), select (CL) [OK] in response to “Insert the DKCFANnn, and then select [OK].”.

Go to Step 3-6.



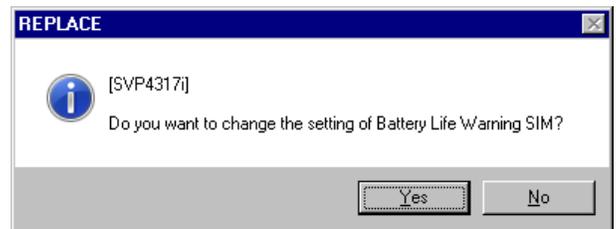
(Eg. DKCFAN20)

3-6. <Setting the Battery life warning SIM>

In response to a message, “Do you want to change the setting of Battery Life Warning SIM?”.

Select [Yes] when you exchange Battery.
Go to step 3-7.

Select [No] when you use existing Battery.
Go to step 3-8.



3-7. <Setting Battery Life>

(1)

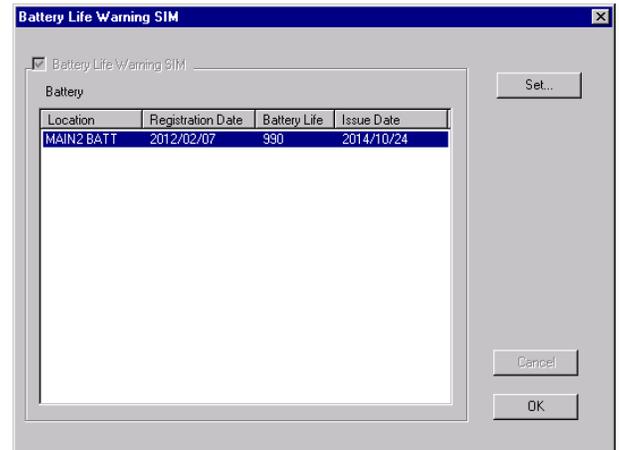
Select (CL) the target Battery in the 'Battery Life Warning SIM' screen, and then select (CL) [Set...].

Go to step (2).

Make sure that the all input items are correct and select (CL) [OK].

Go to step 3-8.

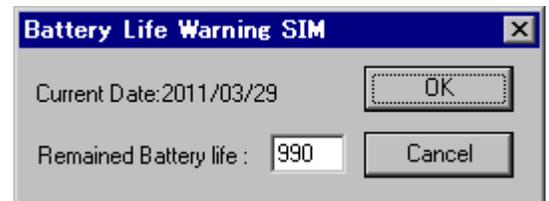
NOTE: If the date is displayed as "****/**/**", follow step (2) to set the date.



(2)

Select (CL) [OK] after inputting the remainder days until Warning SIM is reported.

Return to step (1).



NOTE: After executing the periodical exchange of a battery, set 33 month (990 days).

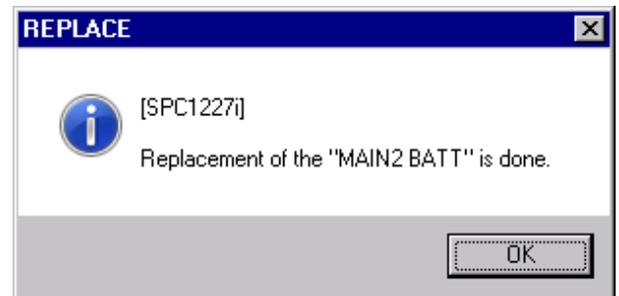
NOTE: Default value is 33 month (990 days), which is 3 month earlier than the lifetime of a battery (3 years).

Determine the number of days remained based on your maintenance plan.

NOTE: The input ranges of "Remained Battery life" are from 1 to 3650.

3-8. <Check end of replacement>

Select (CL) [OK] in response to "Replacement of the "MAINn BATT" is done." and go to Step 3-9.



(Eg. MAIN2 BATT)

3-9.

Go to POST-PROCEDURE [[REP04-01-10](#)].

3-10. <Cancel Replace>

Cancel to replace the battery.

[DKCPS REPLACEMENT PROCESSING - RTC8]

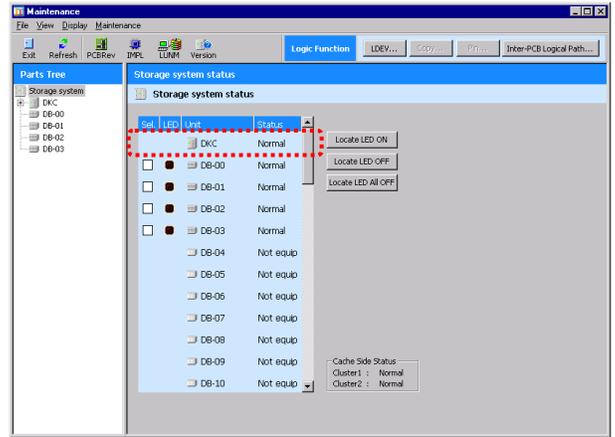
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select DKCPS (status check)
 - ② Specify Replacement
 - ③ Detach DKCPS
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of DKCPS replacement
 - ② Reinstall related parts

1. PRE-PROCESSING of SVP

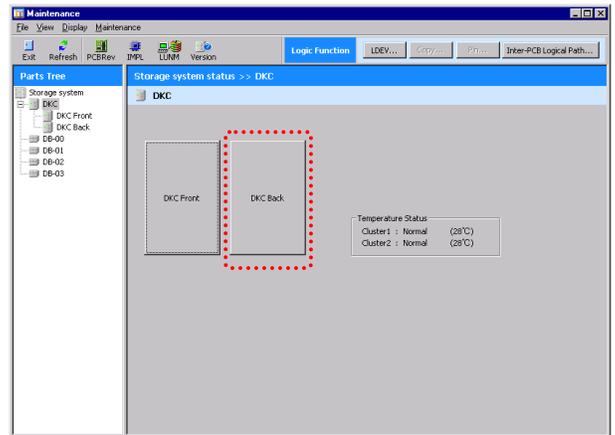
1-1. <Maintenance window>

In the 'Maintenance' window, check and select (CL) [DKC] to be replaced.



1-2. <Specify DKCPS>

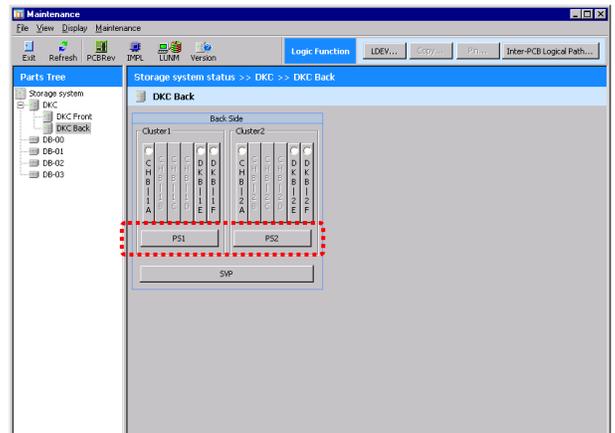
Select (CL) [DKC Back].



Please select replaced parts after selecting the button.

[DKC Back]

Select (CL) [PSn].



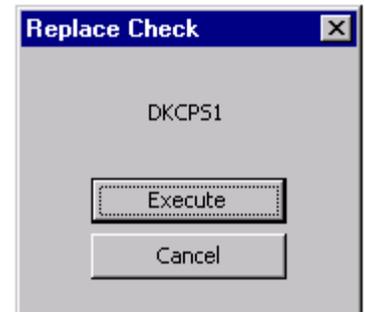
1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

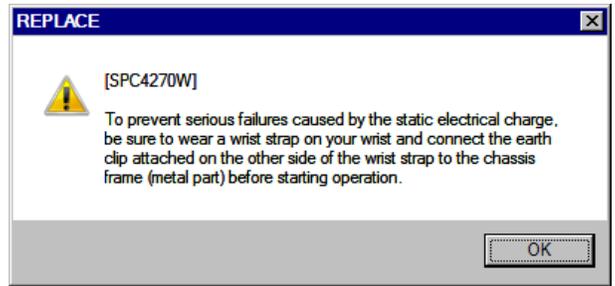
A window shown on the right is displayed.
Select (CL) [Execute].



(Eg. DKCPS1)

1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



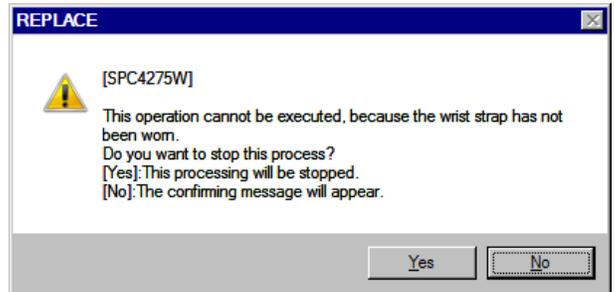
“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



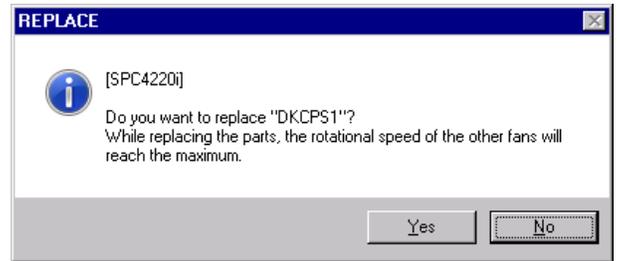
“This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process? [Yes] : This processing will be stopped. [No] : The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of DKCPS Replacement>

Select (CL) [Yes] in response to “Do you want to replace “DKCPSn”? While replacing the parts, the rotational speed of the other fans will reach the maximum.”.



(Eg. DKCPS1)

1-6. <Checking power supply>

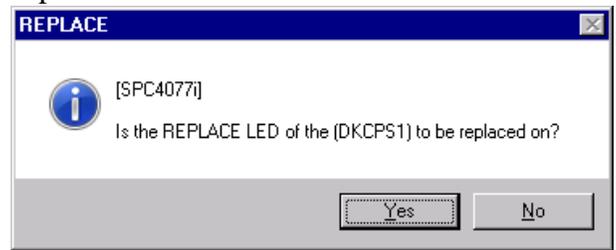
The SVP automatically checks the DKC PS to see if it is replaceable.

1-7. <Checking the environment monitor stopped and turning on the REPLACE LED>

The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-8. <Checking lighting of the LED on the PCB to be pulled out>

The message “Is the REPLACE LED of the (DKCPSn) to be replaced on?” is displayed. When the REPLACE LED on the component to be pulled out is on, select (CL) [Yes] and go to Step 1-10. When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-9.



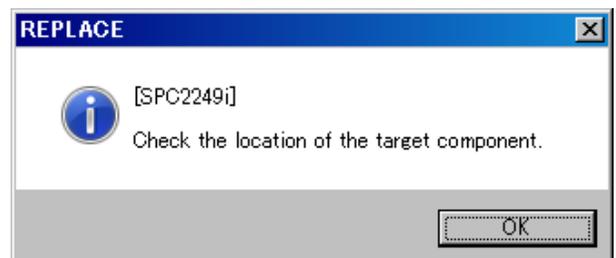
(Eg. DKCPS1)

1-9. <Making sure of the DKCPS location>

The message “Check the location of the target component.” is displayed.

See the “2. HARDWARE REPLACEMENT PROCESSING”.

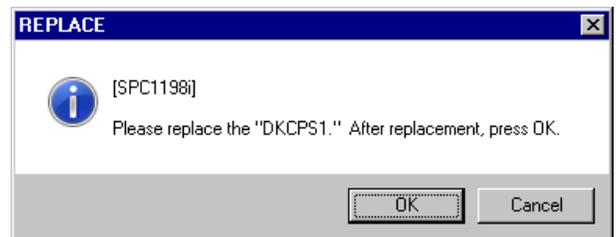
After making sure of the DKCPS location, select (CL) [OK] and go to Step 1-10.



1-10. <Check beginning of DKCPS Replacement>

The message “Please replace the “DKCPSn.” After replacement, press OK.” is displayed. (Reply with [OK] after replacing the special part.)

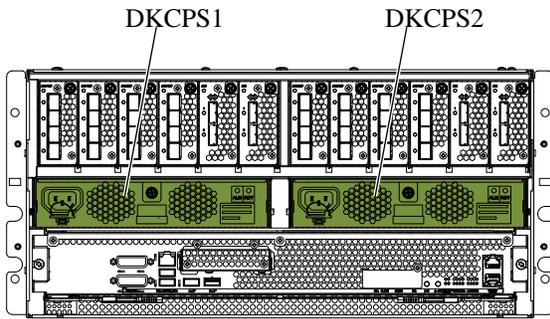
Go to “2. HARDWARE REPLACEMENT PROCESSING”.



(Eg. DKCPS1)

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DKC	1	DKCPS	



Rear View of DKC

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of DKCPS**2-1-1. Replacement of DKCPS**

- a. Check that the REPLACE LED is on.

⚠ CAUTION

A system down may be caused by a replacement of the DKCPS other than that to be replaced. Make sure that it is a DKCPS to be replaced.

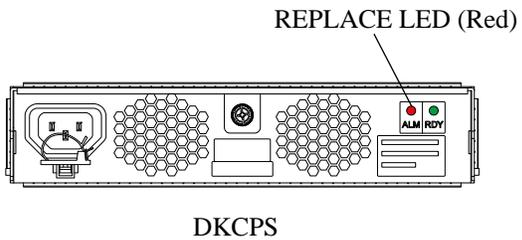


Fig. 3.18.2-1 Confirmation of REPLACE LED

- b. Pull and open the Locking Clamp and disconnect the cable from the DKCPS.

⚠ CAUTION

Watching for short-circuits:

A Short-circuit may cause a fire.

Never insert metal or the like into the cable connector or a short-circuit may occur.

- c. Loosen the screw on the front of the DKCPS and make the handle fall down.
 d. Pull the handle and detach the DKCPS from the DKC.
 e. Loosen the screw on the spare DKCPS and open the handle.
 f. Insert the spare DKCPS until the pin on it comes into contact with the mounting portion of the MAIN Blade.
 g. Push up the handle and fully insert the DKCPS.
 h. Tighten the screw and fix the DKCPS.
 i. Connect the cable to the DKCPS and fix the cable with the Locking Clamp.
 j. Push the Locking Clamp toward the DKCPS.

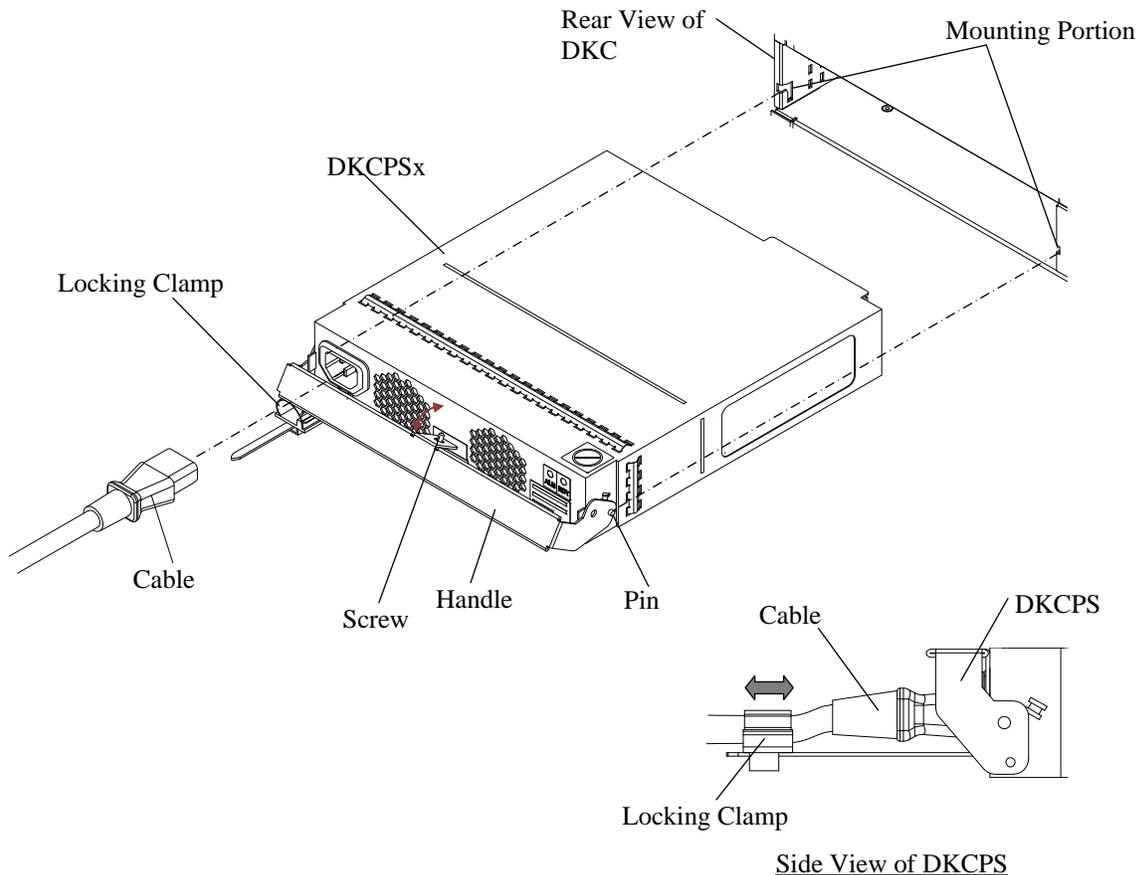


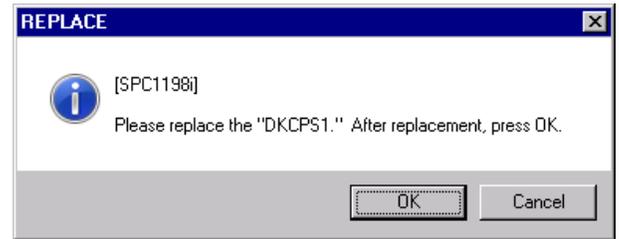
Fig. 3.18.2-2 Replacement of DKCPS

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of DKCPS>

Select (CL) [OK] in response to “Please replace the “DKCPSn.” After replacement, press OK.”.



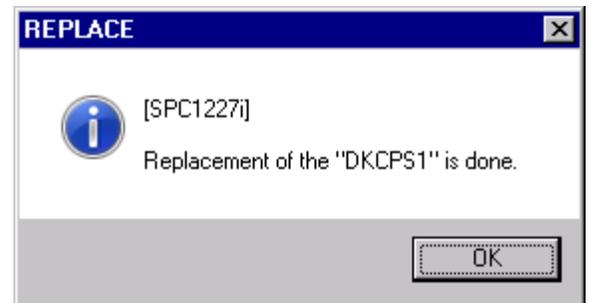
(Eg. DKCPS1)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If RPELACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DKCPSn” is done.”.



(Eg. DKCPS1)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[SFP REPLACEMENT PROCESSING - RTC9]

— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select Port (SFP information check)
 - ② Specify Replacement
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Check the port Wave information

1. PRE-PROCESSING of SVP

1-1. <Set path offline>

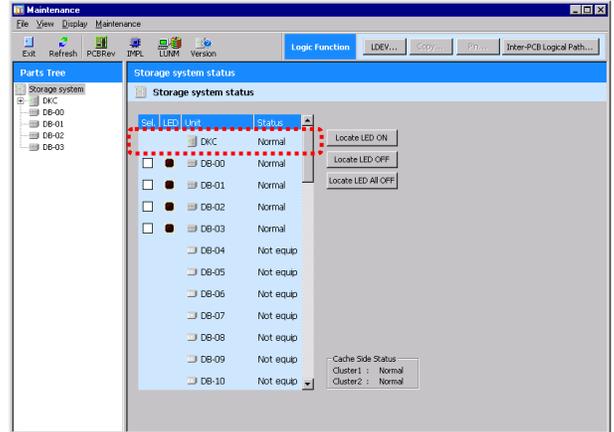


CAUTION

The path to be placed offline is that connected with the CHB concerned.

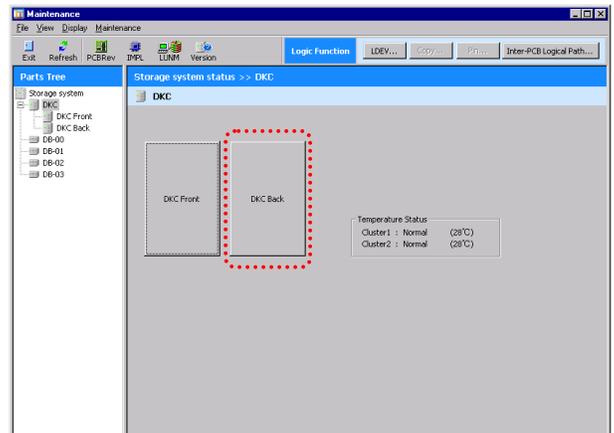
1-2. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.



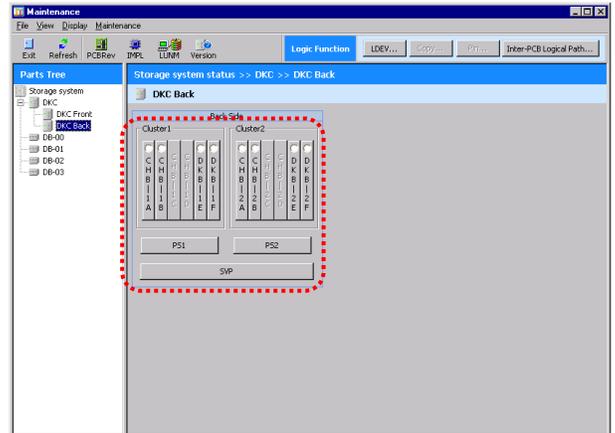
1-3. <DKC window>

Select (CL) [DKC Back] in the 'DKC' window.



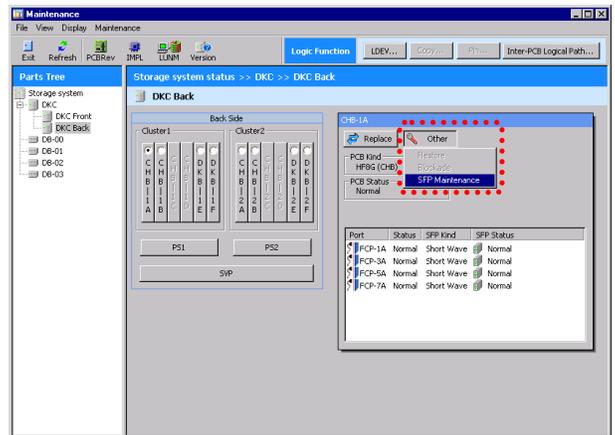
1-4. <Selecting CHB>

Select (CL) the target [CHB-nX].



1-5. <SFP Maintenance window is displayed>

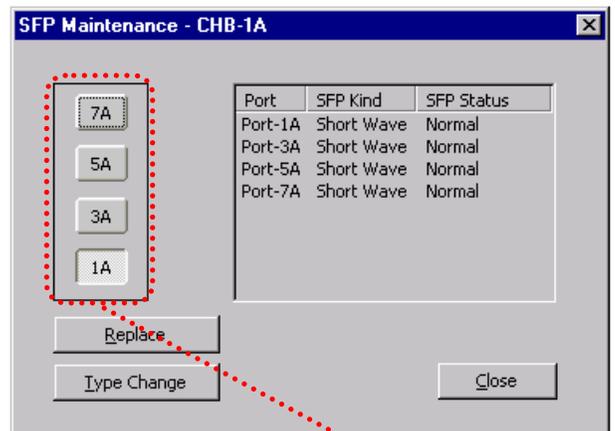
Select (CL) [Other]-[SFP Maintenance].



1-6. <Specify SFP replacement>

Select the button of the port for which the SFP is to be replaced and select (CL) the [Replace] button.

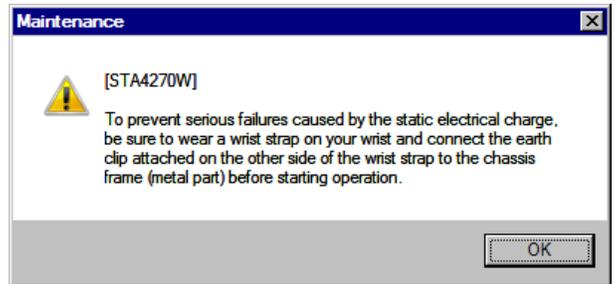
(The plural can be selected.)



port button

1-7. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

select (CL) [Yes] and go to Step 1-8.

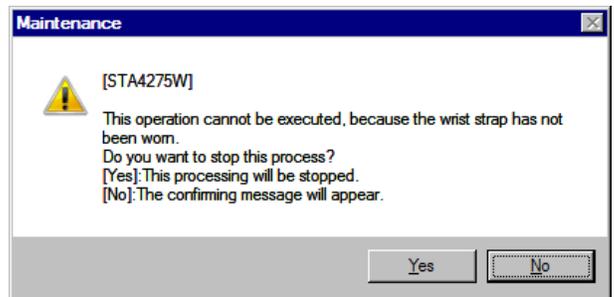


“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes] : This processing will be stopped.

[No] : The confirming message will appear.” is displayed.



When the processing will be stopped, select (CL) [Yes].

1-8. <Replacing the SFP>

A message, “Please replace the “SFP(Port-1n, ...).” After replacement, press OK.” is displayed.

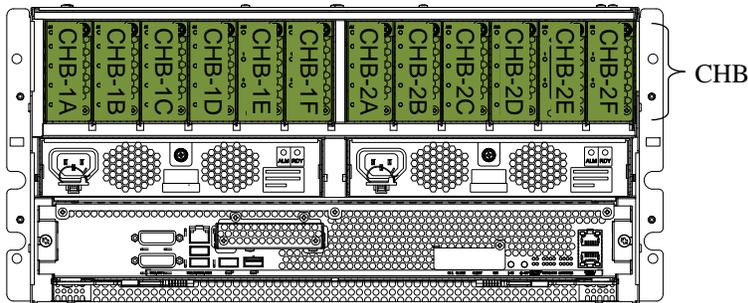
(Select (CL) [OK] after replacing the SFP.)

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

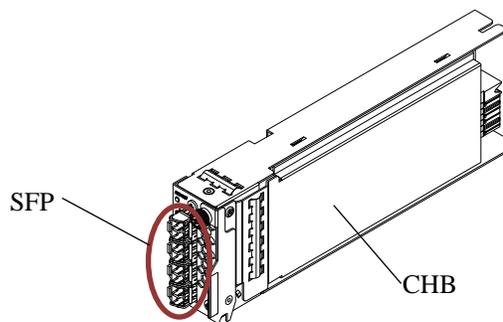


2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DKC	1	SFP (8Gbps) (DF-F850-HF8GR)	<ul style="list-style-type: none"> • SFP (SHORT) • SFP (LONG)



Rear View of DKC



NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 SFP

2-1-1. Replacement of SFP

- a. Make sure of the CHB and Port Locations of the SFP to be replaced. (Refer to pages [LOC04-10](#).)

CAUTION

If the SFP of a wrong port is removed, a system down may be caused. Make sure that the location of the SFP to be replaced is correct.

- b. Disconnect the optical fibre cable from the SFP to be replaced.

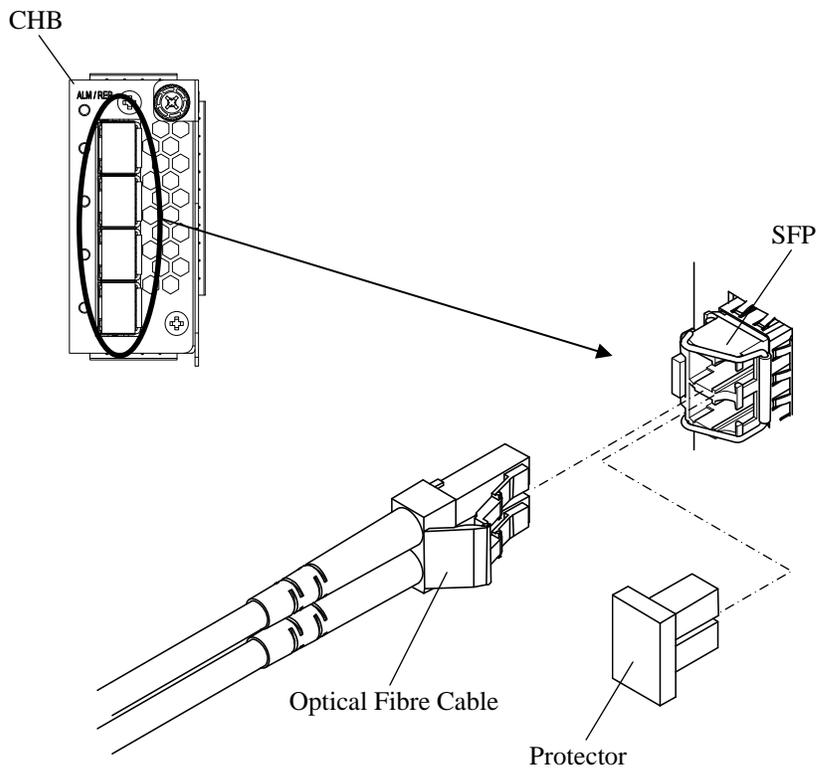


Fig. 3.19.2-1 Disconnection of Cable

c. Pull the lever to the front and remove the SFP.

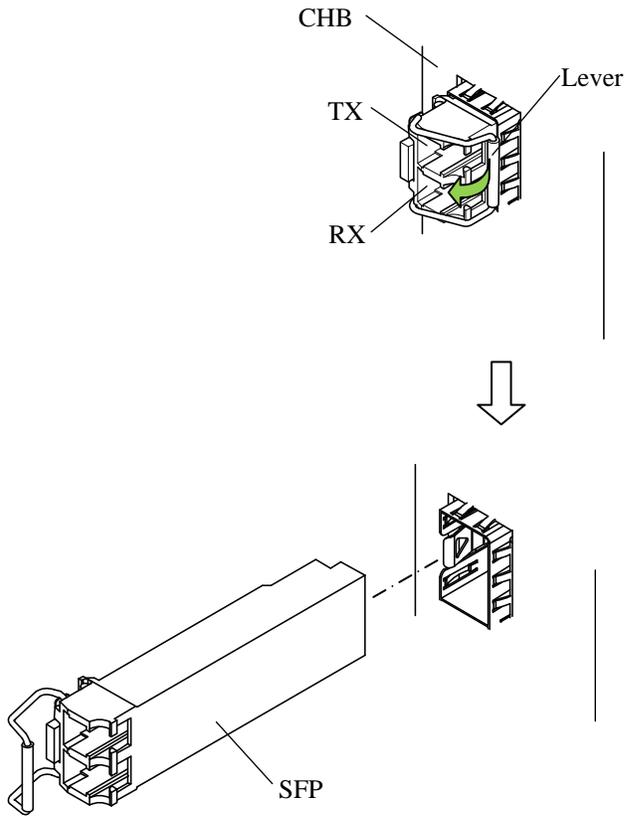


Fig. 3.19.2-2 Removal of SFP

- d. Insert the spare SFP to the CHB.
- e. Connect the optical fibre cable to the SFP.

How to distinguish between SFP (SHORT) and SFP (LONG)

The whole or a part of the lever is a black for the SFP (SHORT).

The whole or a part of the lever is a blue for the SFP (LONG).

[Example]

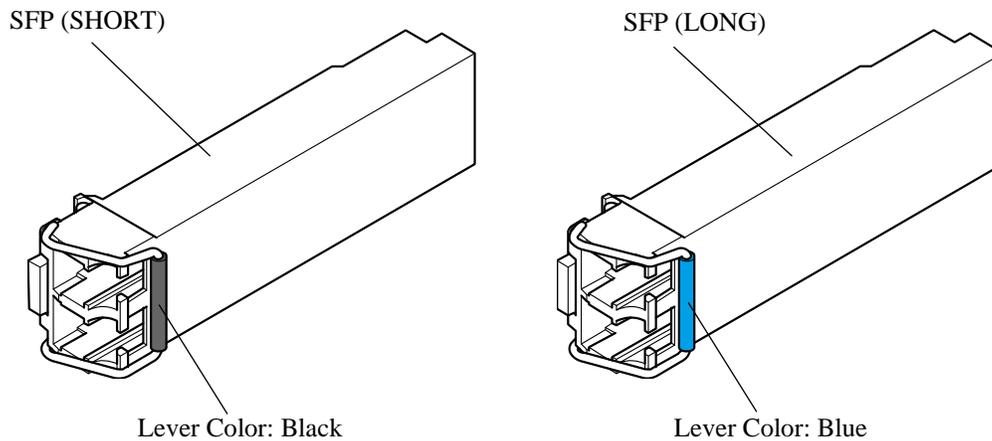


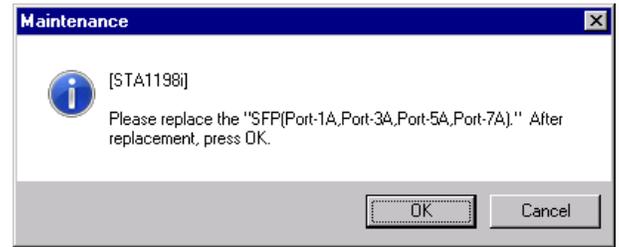
Fig. 3.19.2-3 How to distinguish between SFP(SHORT) and SFP(LONG)

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

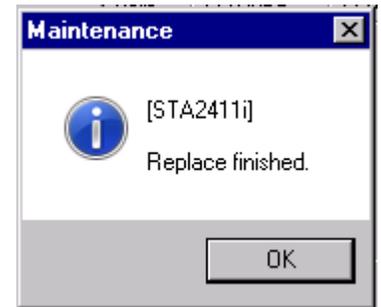
3-1. <Replacing the SFP>

Select (CL) [OK] in response to “Please replace the “SFP(Port-nn, ...).” After replacement, press OK.”.



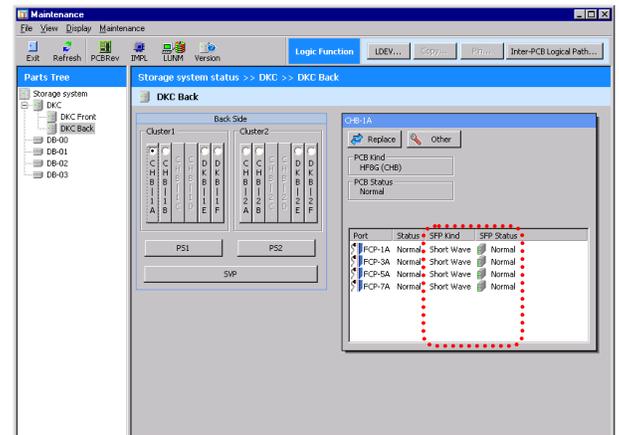
3-2. <Confirm the Replace is finished>

Select (CL) [OK] in response to “Replace finished.”.



3-3. <Confirming SFP type information>

Confirm that the SFP type information on the port information list.



3-4.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[2.5 inch ENC REPLACEMENT PROCESSING - RUS1]

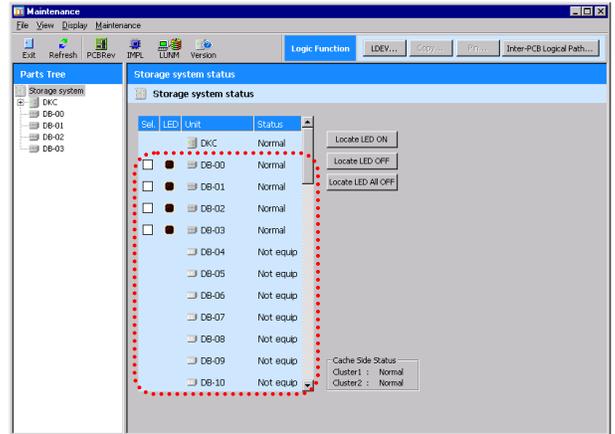
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select ENC
 - ② Specify Replacement
 - ③ Place ENC into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery of DKB Port connected to ENC

1. PRE-PROCESSING of SVP

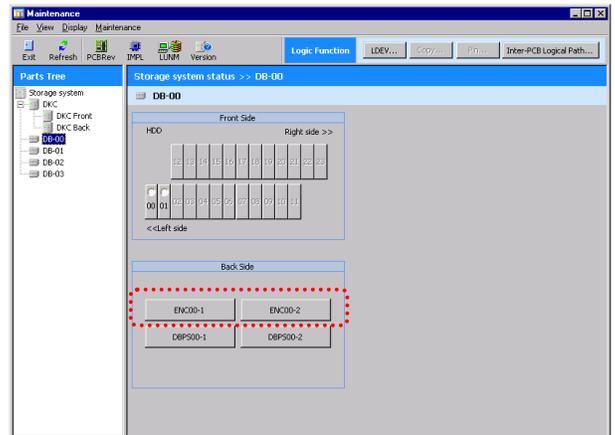
1-1. <Maintenance window>

Select (CL) the DB information [DB-nn] of the DB which installs the ENC to be replaced in the 'Maintenance' window.



1-2. <Select ENC>

Check and select (CL) [ENCnn-n] to be replaced.



1-3. <Specify replacement>

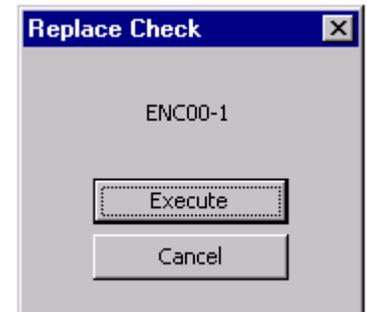
CAUTION

When the screen requests an operator to input a password in order to prevent multiple maintenance, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

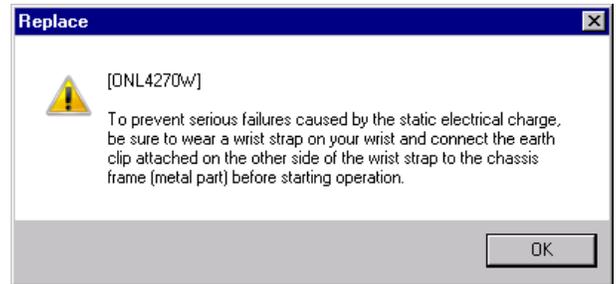
Select (CL) [Execute].

Selecting (CL) [Cancel] returns you to Step 1-2.



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



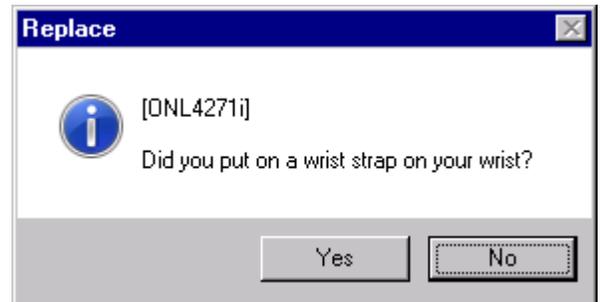
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

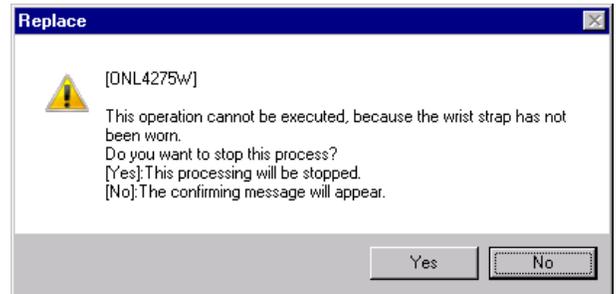


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.



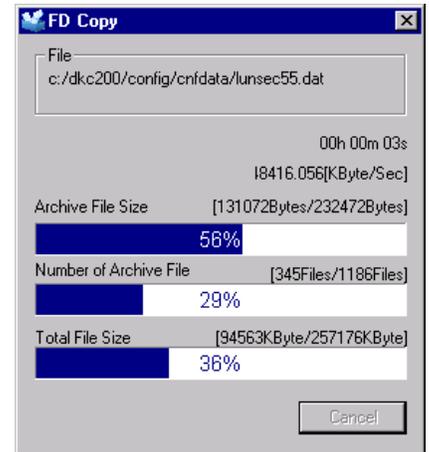
When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-4.

1-5. <Compression of the error information>

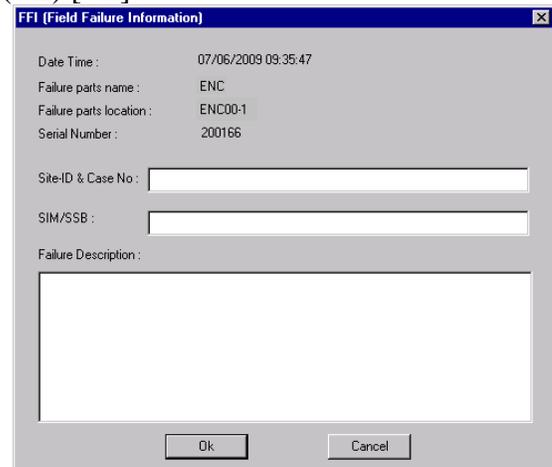
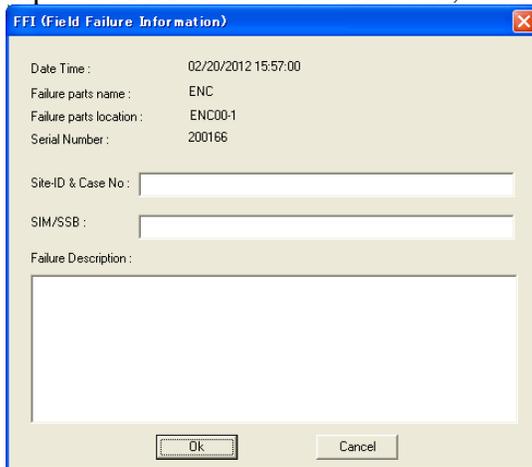
The error information is compressed.

The dialog of FD Copy is displayed.



1-6. <Get the error information>

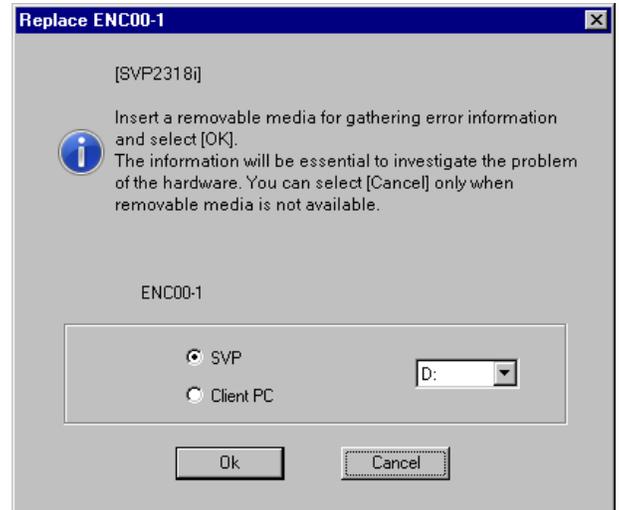
Input the Field Failure Information, and select (CL) [Ok].



“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.



A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format “SH528_YYMMDDhhmmss.tgz”.

(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

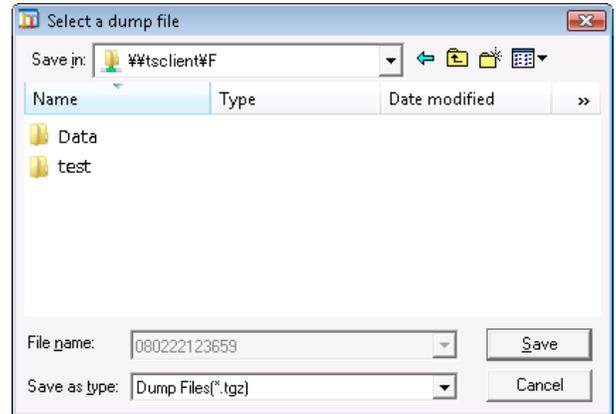
When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



NOTE: The message is displayed two or more times. Please only operate the ENC selected by 1-3. <Specify replacement>.

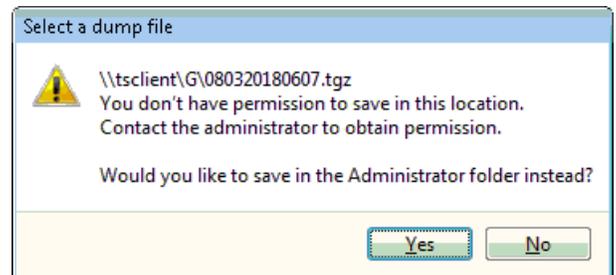
- When the destination media is write-protected.
<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the "C:\users\Administrator" folder of SVP. Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination whether you remove write protect when you save it and carry it out.

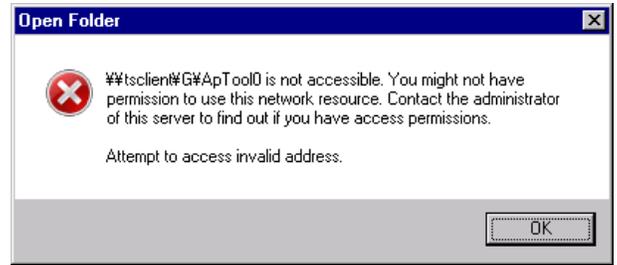


- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

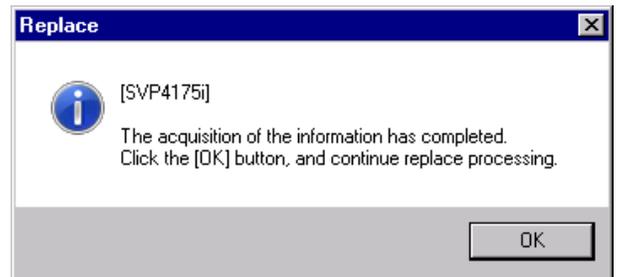
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.

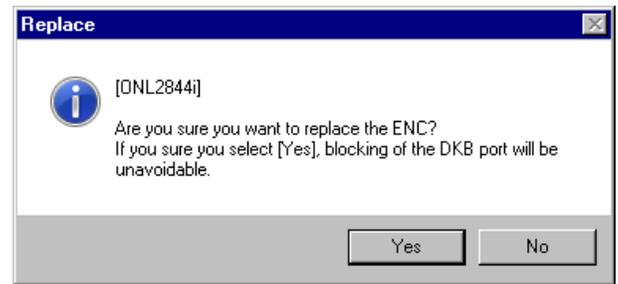


Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.



1-7. <Check beginning of DKB Port blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the ENC? If you select [Yes], blocking of the DKB port will be unavoidable.”.

**1-8. <Check DKB Port blocking>**

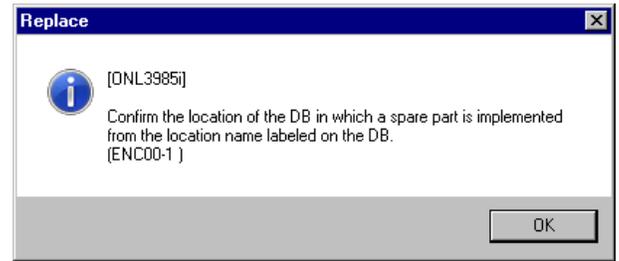
“The DKB Port is being blocked...” is displayed.

1-9. <Replace ENC>

(1)

Confirm the label on DB.

To confirm the label, the right messages are displayed.



(2)

The name in parentheses shows the position where ENC show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-9 (3).

When [No] is selected (CL), returned to Step 1-9 (2).



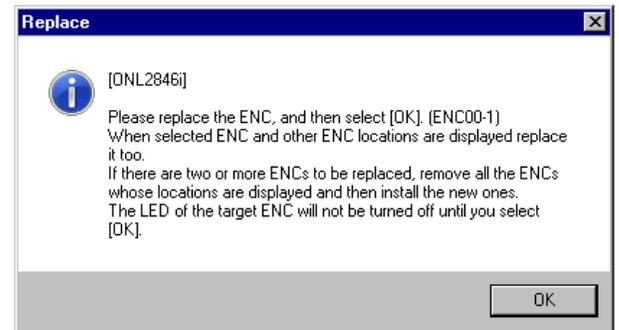
(3)

“Please replace the ENC, and then select [OK]. (ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” is displayed.



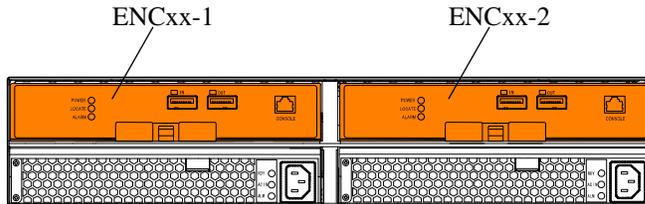
Make sure of the ENC location is displayed, select (CL) the [OK] button after replaced target ENC.

If the ENC Shut Down LED is not turned on, please replace ENC.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component	Part Name
Rear of DBS	1 ENC	



Rear View of DBS

NOTE: ENC_{xx-1}

→ DB No. (0, 1, 2,, 47)

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of ENC**2-1-1.** Check the LED on the ENC.

- a. Check Shut Down LED on the ENC.

CAUTION

A system down is caused by a replacement of the ENC other than that to be replaced.
Make sure that it is the ENC to be replaced.

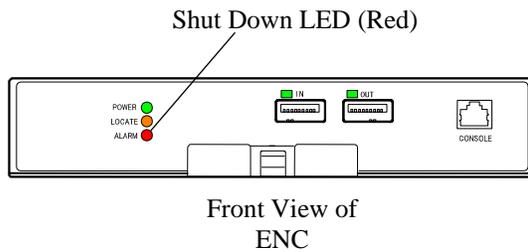


Fig. 3.20.2-1 Confirmation of Shut Down LED

2-1-2. Replace the ENC.

- a. Disconnect the SAS cable which connects to the ENC to be replaced.
- b. Pull the right and left levers and remove the ENC.
- c. Take time for 10 seconds or more from removing the ENC to the installation.
- d. Make the right and left levers of the spare ENC open.
- e. Insert the spare ENC until the edge of the lever comes in contact with the DBS.
- f. Close the right and left levers to insert the ENC completely.
- g. Connect the cables to the ENC after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).

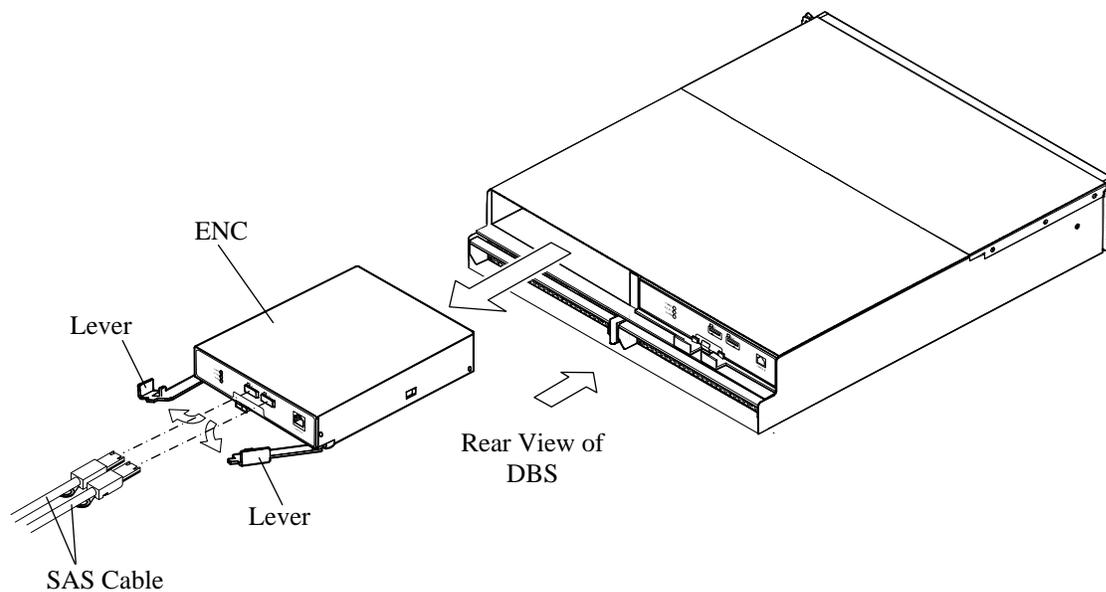
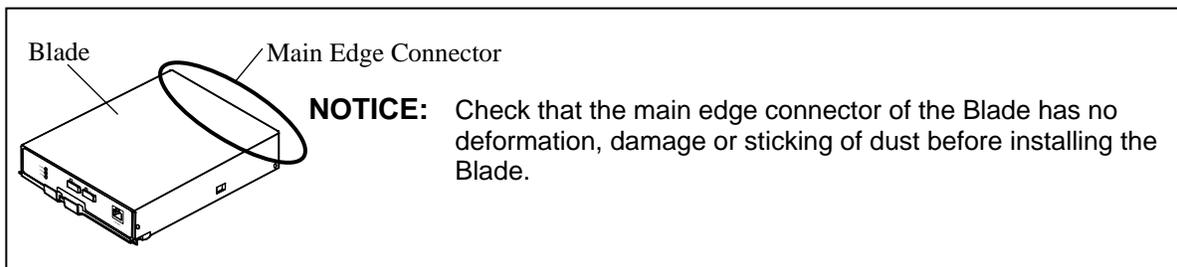


Fig. 3.20.2-2 Replacement of ENC

2-1-3. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of ENC>

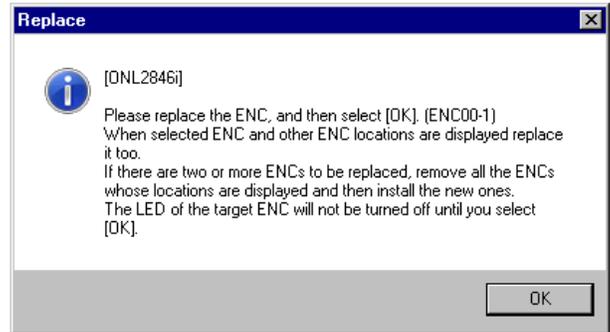
Select (CL) [OK] in response to “Please replace the ENC, and then select [OK].

(ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” After replacement, press OK.



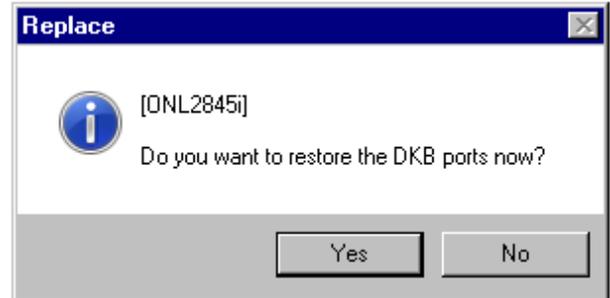
Make sure that the ENC location is displayed, select (CL) the [OK] button after replacing target ENCs.

Even if the ENC Shut Down LED is not turned on, please replace the ENCs.

NOTE: Even though the [OK] button is selected, the Locate LED does not turn off.

3-2. <Check the beginning of DKB Port recovery>

Select (CL) [Yes] in response to “Do you want to restore the DKB ports now?”.



3-3. <PATH INLINE>

“PATH INLINE is now running...” is displayed.

CAUTION

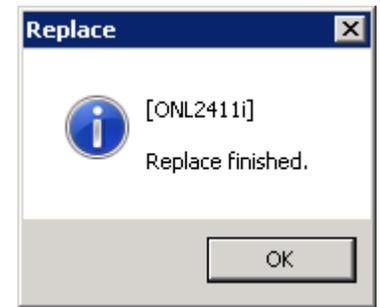
When a failure is found during PATH INLINE, the DKB Port connected to the loop are blocked.

Confirm the Diagnosis Log and solve the problem.

- 3-4. <Check DKB Port recovery processing>
“Restoring the DKB Port...” is displayed.

3-5. <Check the end of ENC replace>

Select (CL) [OK] in response to “Replace finished.”.



3-6.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[3.5 inch ENC REPLACEMENT PROCESSING - RUL1]

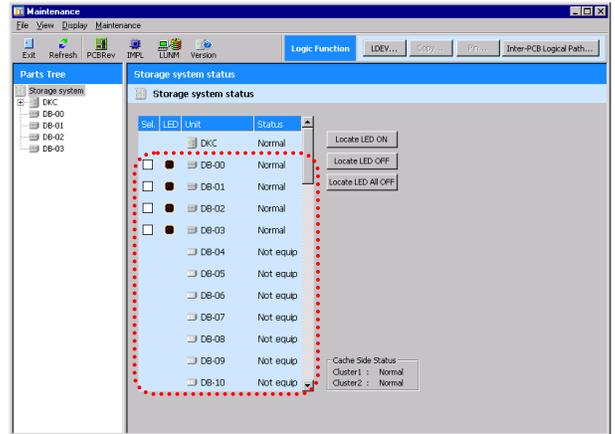
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select ENC
 - ② Specify Replacement
 - ③ Place ENC into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery of DKB Port connected to ENC

1. PRE-PROCESSING of SVP

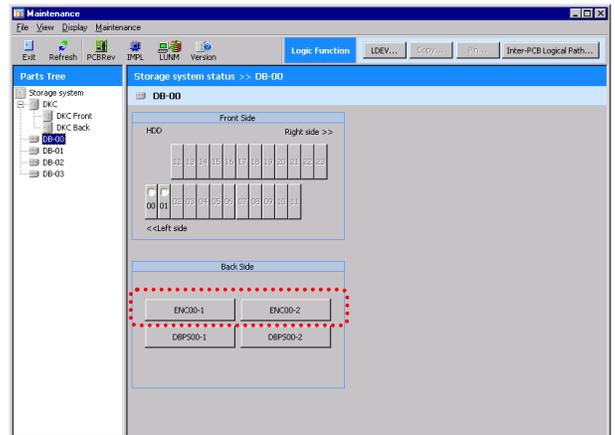
1-1. <Maintenance window>

Select (CL) the DB information [DB-nn] of the DB which installs the ENC to be replaced in the 'Maintenance' window.



1-2. <Select ENC>

Check and select (CL) [ENCnn-n] to be replaced.



1-3. <Specify replacement>

CAUTION

When the screen requests an operator to input a password in order to prevent multiple maintenance, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

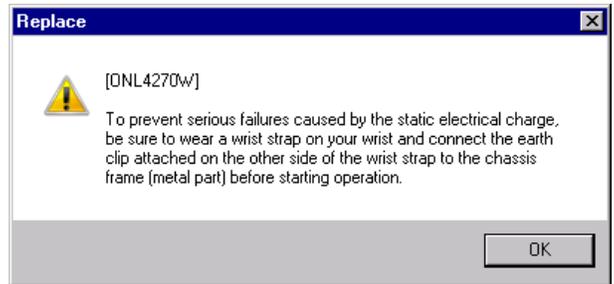
Select (CL) [Execute].

Selecting (CL) [Cancel] returns you to Step 1-2.



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



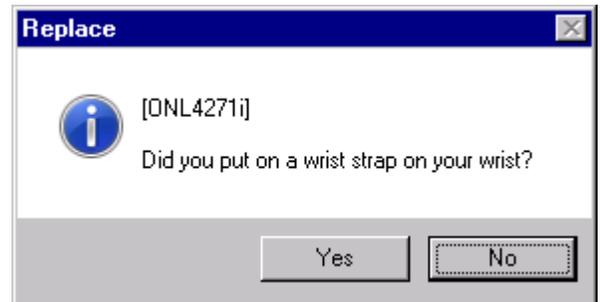
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).



(2)

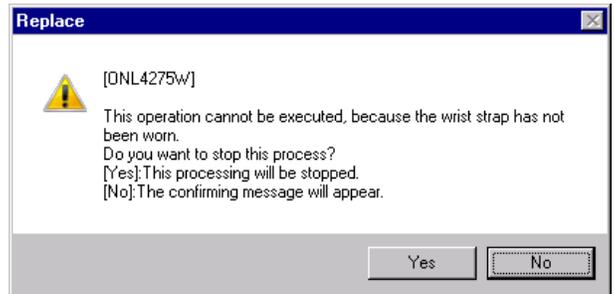
In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

When [Yes] is selected (CL), returned to Step 1-2.

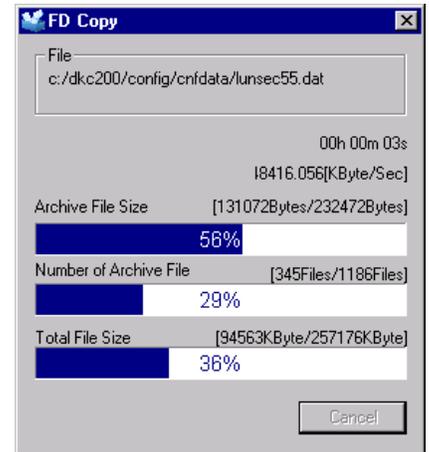
When [No] is selected (CL), returned to Step 1-4.



1-5. <Compression of the error information>

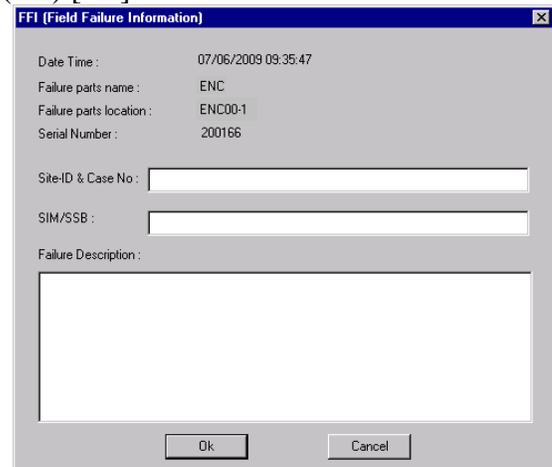
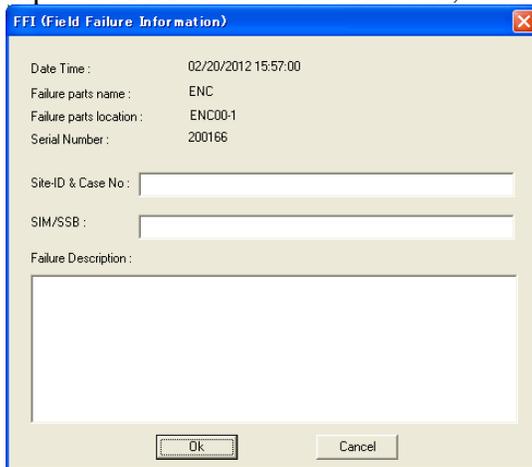
The error information is compressed.

The dialog of FD Copy is displayed.



1-6. <Get the error information>

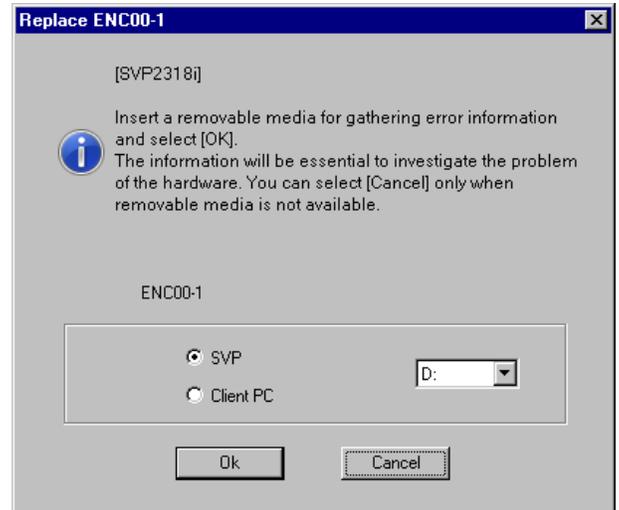
Input the Field Failure Information, and select (CL) [Ok].



“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.



A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format “SH528_YYMMDDhhmmss.tgz”.

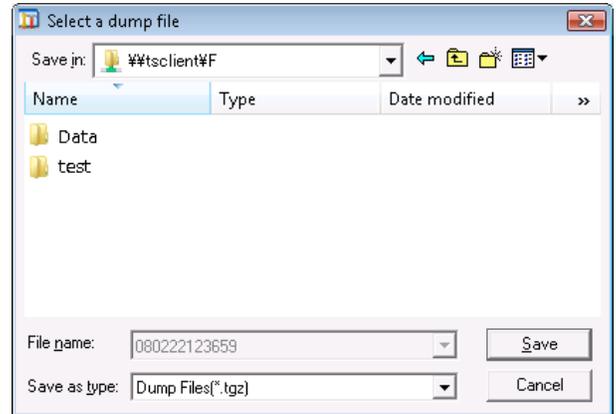
(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed.
Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



NOTE: The message is displayed two or more times. Please only operate the ENC selected by 1-3. <Specify replacement>.

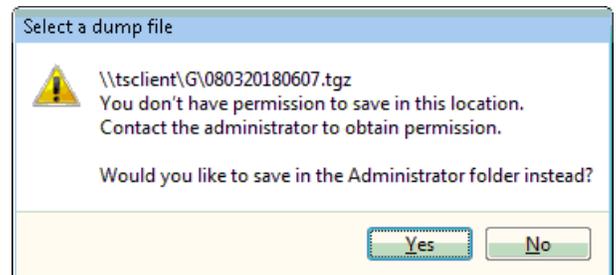
- When the destination media is write-protected.
<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the "C:\users\Administrator" folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination whether you remove write protect when you save it and carry it out.

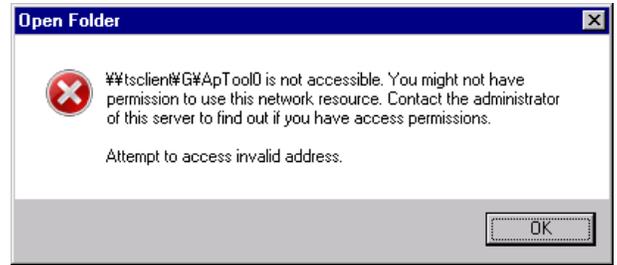


- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

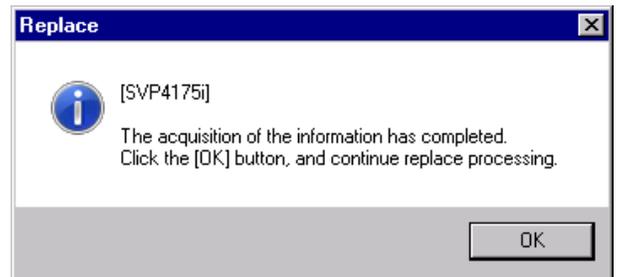
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.

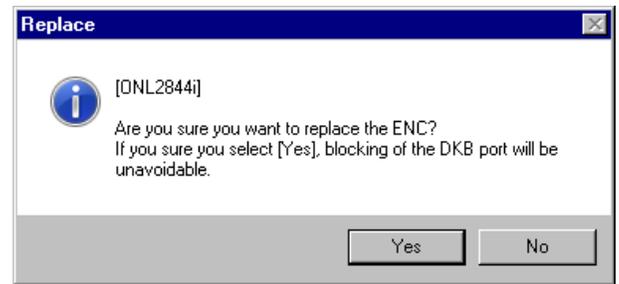


Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.



1-7. <Check beginning of DKB Port blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the ENC? If you select [Yes], blocking of the DKB port will be unavoidable.”.

**1-8. <Check DKB Port blocking>**

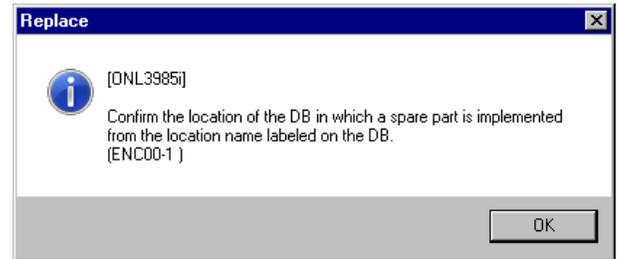
“The DKB Port is being blocked...” is displayed.

1-9. <Replace ENC>

(1)

Confirm the label on DB.

To confirm the label, the right messages are displayed.



(2)

The name in parentheses shows the position where ENC show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-9 (3).

When [No] is selected (CL), returned to Step 1-9 (2).



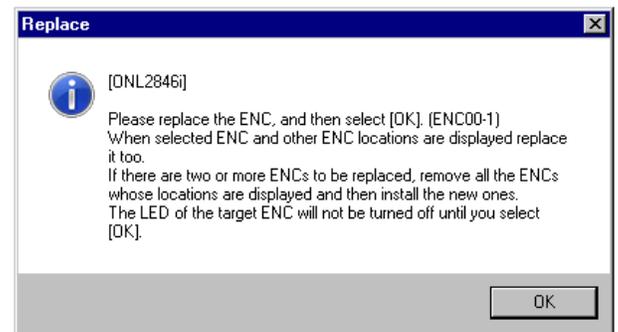
(3)

“Please replace the ENC, and then select [OK]. (ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” is displayed.



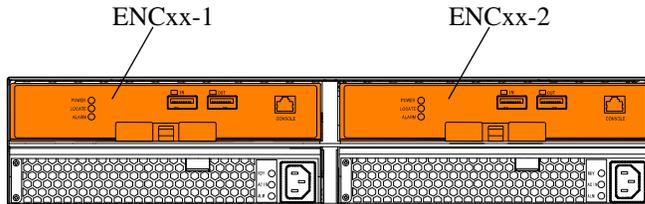
Make sure of the ENC location is displayed, select (CL) the [OK] button after replaced target ENC.

If the ENC Shut Down LED is not turned on, please replace ENC.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component	Part Name
Rear of DBL	1 ENC	



Rear View of DBL

NOTE: ENCxx-1

→ DB No. (0, 1, 2,, 47)

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1	Replacement of ENC
-----	--------------------

2-1-1. Check the LED on the ENC.

- a. Check Shut Down LED on the ENC.

CAUTION

A system down is caused by a replacement of the ENC other than that to be replaced.
Make sure that it is the ENC to be replaced.

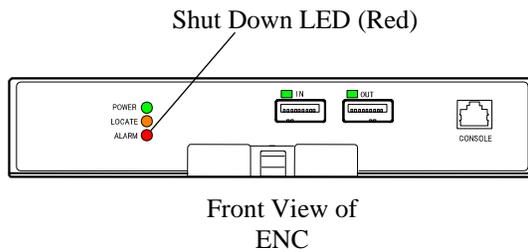


Fig. 3.21.2-1 Confirmation of Shut Down LED

2-1-2. Replace the ENC.

- a. Disconnect the SAS cable which connects to the ENC to be replaced.
- b. Pull the right and left levers and remove the ENC.
- c. Take time for 10 seconds or more from removing the ENC to the installation.
- d. Make the right and left levers of the spare ENC open.
- e. Insert the spare ENC until the edge of the lever comes in contact with the DBL.
- f. Close the right and left levers to insert the ENC completely.
- g. Connect the cables to the ENC after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).

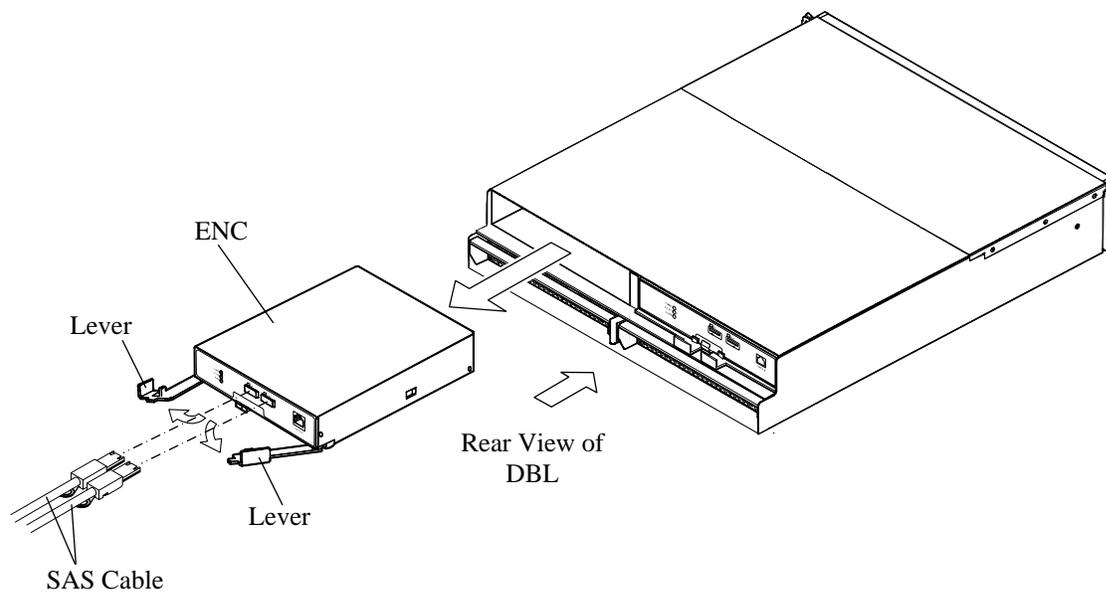
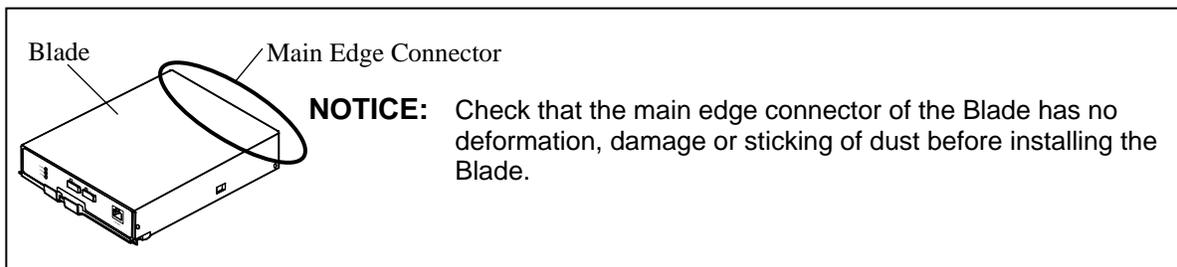


Fig. 3.21.2-2 Replacement of ENC

2-1-3. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of ENC>

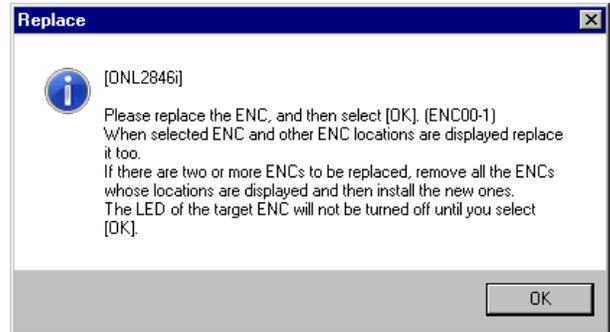
Select (CL) [OK] in response to “Please replace the ENC, and then select [OK].

(ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” After replacement, press OK.



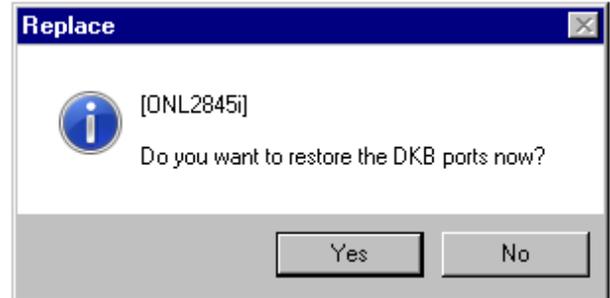
Make sure that the ENC location is displayed, select (CL) the [OK] button after replacing target ENCs.

Even if the ENC Shut Down LED is not turned on, please replace the ENCs.

NOTE: Even though the [OK] button is selected, the Locate LED does not turn off.

3-2. <Check the beginning of DKB Port recovery>

Select (CL) [Yes] in response to “Do you want to restore the DKB ports now?”.



3-3. <PATH INLINE>

“PATH INLINE is now running...” is displayed.

CAUTION

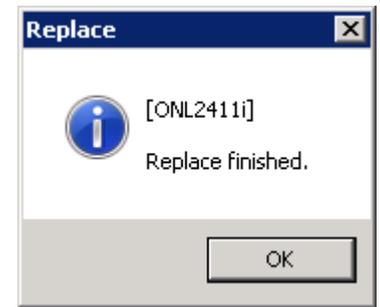
When a failure is found during PATH INLINE, the DKB Port connected to the loop are blocked.

Confirm the Diagnosis Log and solve the problem.

- 3-4. <Check DKB Port recovery processing>
“Restoring the DKB Port...” is displayed.

3-5. <Check the end of ENC replace>

Select (CL) [OK] in response to “Replace finished.”.



3-6.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[2.5 inch DBPS REPLACEMENT PROCESSING – RUS2]

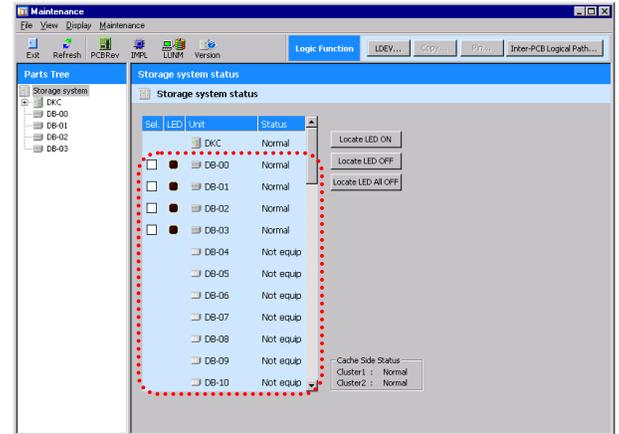
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select 2.5 inch DBPS (status check)
 - ② Specify Replacement
 - ③ Detach 2.5 inch DBPS
 - ④ Place part into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of 2.5 inch DBPS replacement
 - ② Reinstall related parts
 - ③ Start environment monitor

1. PRE-PROCESSING of SVP

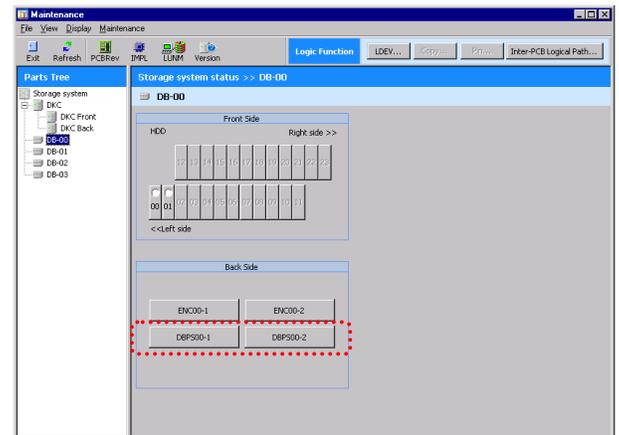
1-1. <Maintenance window>

Select (CL) [DB-nn] in the 'Maintenance' window.



1-2. <Specify DBPS>

Select (CL) [DBPSnn-n].



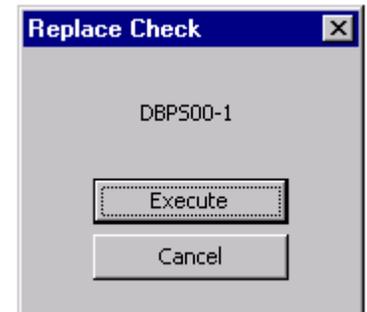
1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

A window shown on the right is displayed.
Select (CL) [Execute].



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



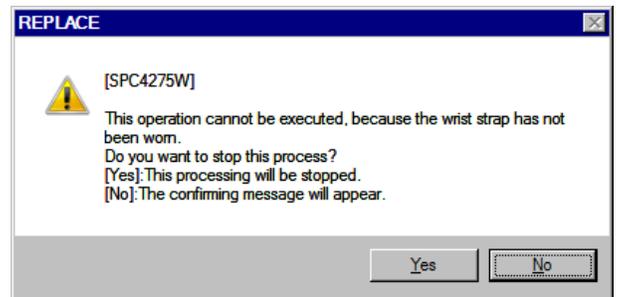
“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes] : This processing will be stopped.

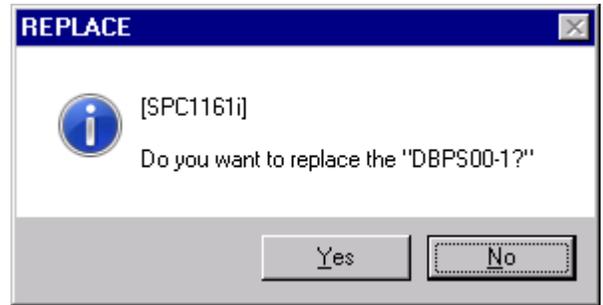
[No] : The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of DBPS Replacement>

Select (CL) [Yes] in response to “Do you want to replace the “DBPSnn-n?””.



(Eg. DBPS00-1)

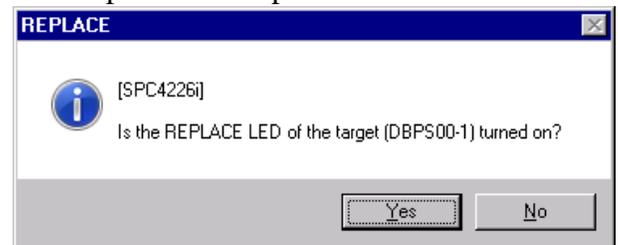
1-6. <Checking the environment monitor stopped and turning on the REPLACE LED>

The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-7. <Checking lighting of the REPLACE LED on the component to be pulled out>

The message “Is the REPLACE LED of the target (DBPSnn-n) turned on?” is displayed.

When the Locate LED and the REPLACE LED (*1) on the component to be pulled out are on, select (CL) [Yes] and go to Step 1-9. When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-8.



(Eg. DBPS00-1)

Refer to LOCATION SECTION ([LOC03-160](#)) to confirm the location of REPLACE LED.

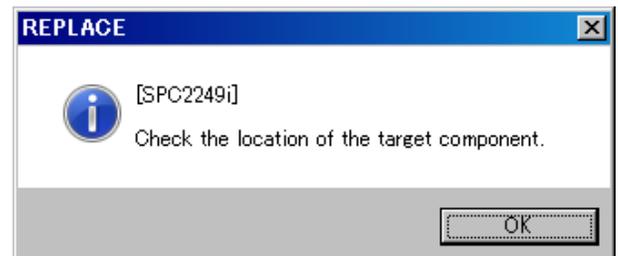
*1: REPLACE LED is described as “ALM” in the LOCATION SECTION. Mention on the label of DBPS is similar, too.

1-8. <Making sure of the DBPS location>

The message “Check the location of the target component.” is displayed.

See “2. HARDWARE REPLACEMENT PROCESSING”.

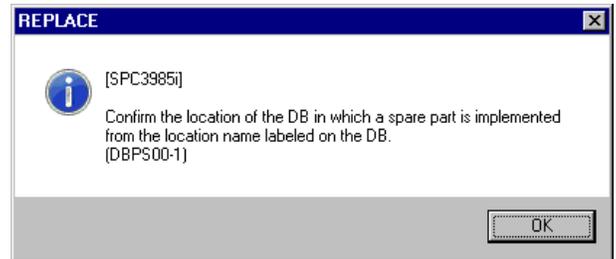
After making sure of the DBPS location, select (CL) [OK] and go to Step 1-9.



1-9. <Check beginning of DBPS Replacement>

The message “Confirm the location of the DB in which a spare part is implemented from the location name labeled on the DB. (DBPSnn-n)” is displayed.

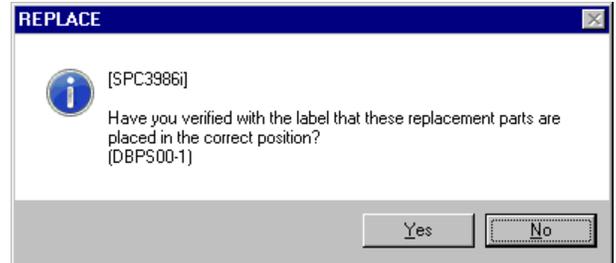
Select (CL) [OK] after you confirmed the content.



(Eg. DBPS00-1)

The message “Have you verified with the label that these replacement parts are placed in the correct position? (DBPSnn-n)” is displayed.

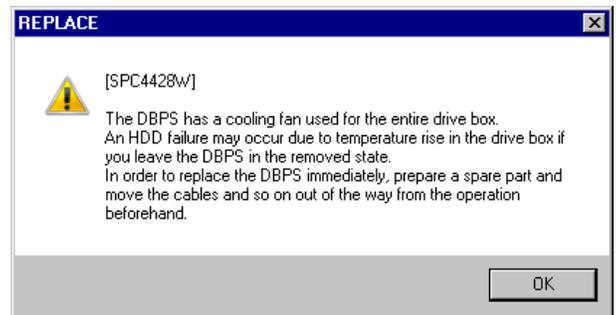
Select (CL) [Yes] after you confirmed the content.



(Eg. DBPS00-1)

The message to warn of the influence of the DBPS removal is displayed.

According to the message, select (CL) [OK] after getting ready in advance.



The message “Please replace the “DBPSnn-n.” After replacement, press OK.” is displayed.

Reply with [OK] after replacing the special part.

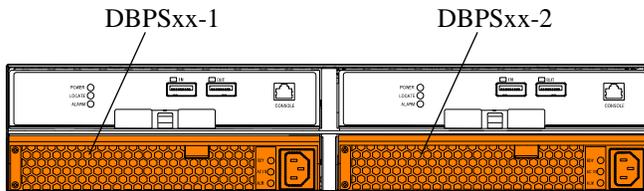


(Eg. DBPS00-1)

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DBS	1	DBPS	



Rear View of DBS

NOTE: DBPSxx-1

→ DB No. (0, 1, 2,, 47)

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

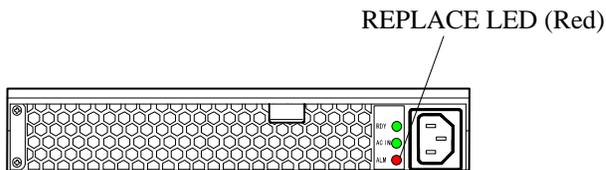
2-1	Replacement of DBPS
-----	---------------------

2-1-1. Replace the DBPS.

- a. Check that the REPLACE LED is on.

⚠ CAUTION

A system down may be caused by a replacement of the DBPS other than that to be replaced. Make sure that it is a DBPS to be replaced.



Front View of DBPS

Fig. 3.22.2-1 Check of REPLACE LED

- b. When replacing the DBPSxx-1, remove the repeat binder from the rail of the rear left side of the DBS.
When replacing the DBPSxx-2, remove the repeat binder from the rail of the rear right side of the DBS.

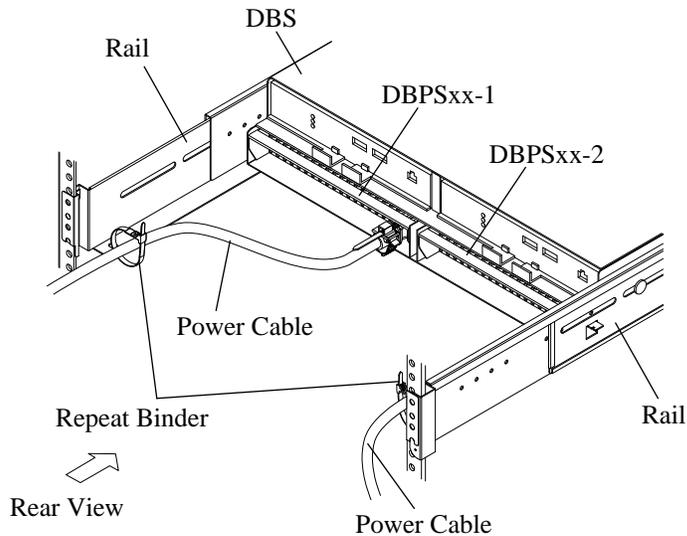


Fig. 3.22.2-2 Removal of Repeat Binder

- c. Pull and open the cable holder.
d. Disconnect the power cable from the DBPS.

CAUTION

Watching for short-circuits:

A Short-circuit may cause a fire.

Never insert metal or the like into the cable connector or a short-circuit may occur.

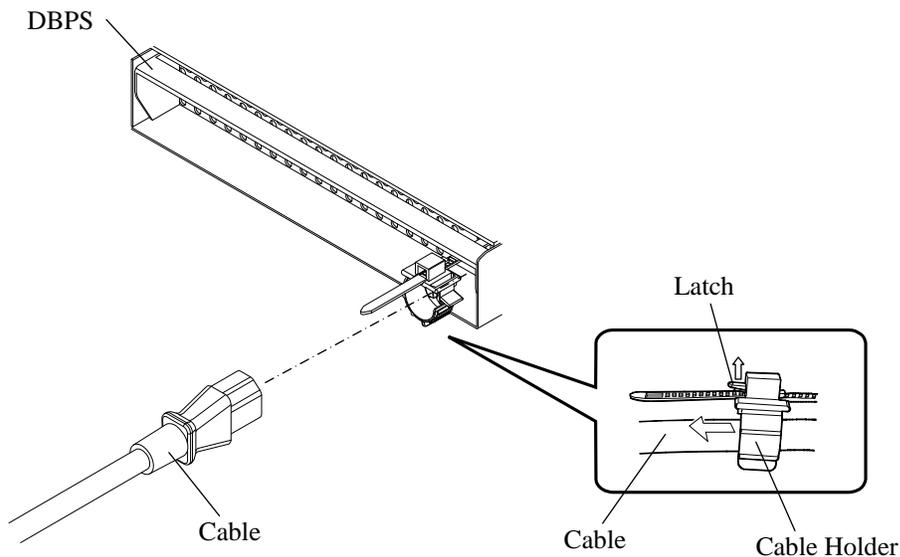


Fig. 3.22.2-3 Disconnection of Cable

- e. Bring the handle down and forward (②) while pushing the latch of the DBPS inward (①).
- f. Pull the DBPS and remove it from the Drive Box.
- g. Make the handle completely fall down and forward.
- h. Insert the spare DBPS into the slot and push it to the full.
- i. Completely raise the handle and fix the DBPS.
- j. Connect the power cable to the DBPS and fasten it with the cable holder. (See Fig. 3.22.2-3.)
- k. Push the cable holder toward the DBPS until it stops.
- m. Attach the repeat binder to the rail of the rear side of the DBS to fix the power cable. (See Fig. 3.22.2-2.)

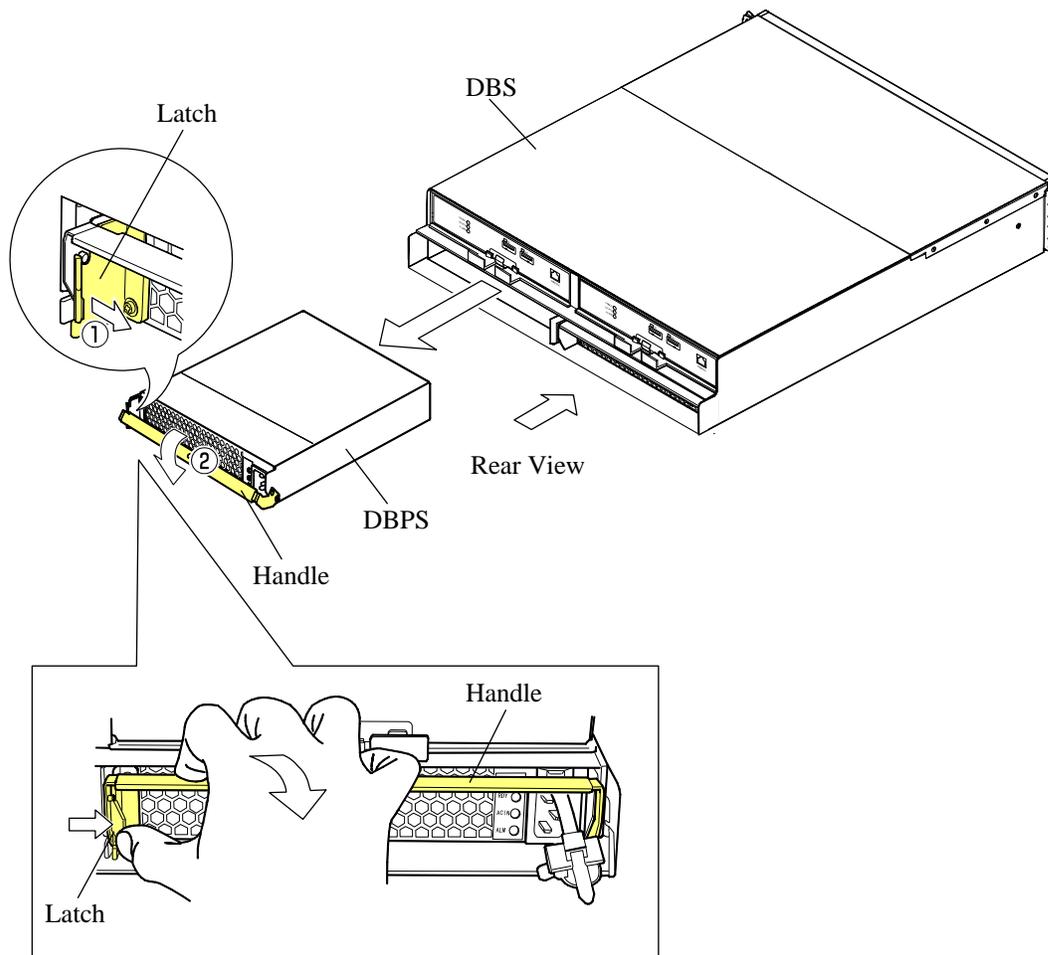


Fig. 3.22.2-4 Replacement of DBPS

2-1-2. Go to "3. POST-PROCESSING of SVP".

3. POST-PROCESSING of SVP

3-1. <Check beginning of DBPS Replacement>

Select (CL) [OK] in response to “Please replace the “DBPSnn-n.” After replacement, press OK.”



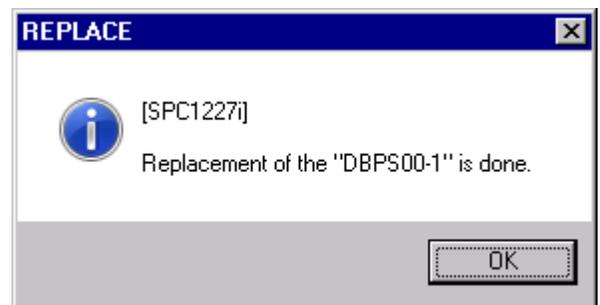
(Eg. DBPS00-1)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If RPELACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DBPSnn-n” is done.”



(Eg. DBPS00-1)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to Step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[3.5 inch DBPS REPLACEMENT PROCESSING – RUL2]

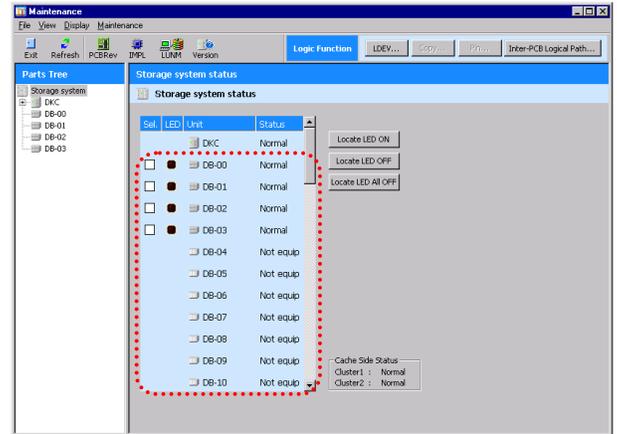
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select 3.5 inch DBPS (status check)
 - ② Specify Replacement
 - ③ Detach 3.5 inch DBPS
 - ④ Place part into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of 3.5 inch DBPS replacement
 - ② Reinstall related parts
 - ③ Start environment monitor

1. PRE-PROCESSING of SVP

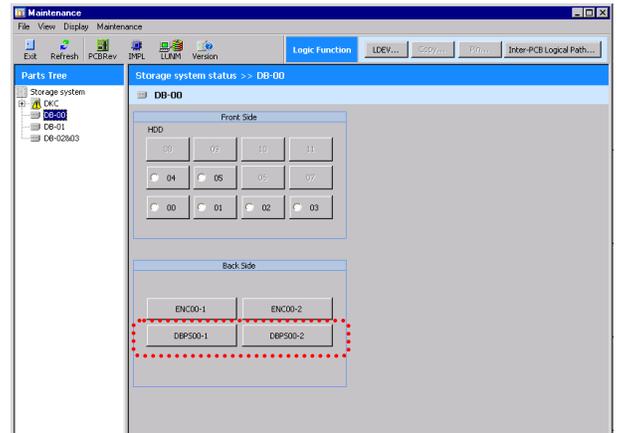
1-1. <Maintenance window>

Select (CL) [DB-nn] in the 'Maintenance' window.



1-2. <Specify DBPS>

Select (CL) [DBPSnn-n].



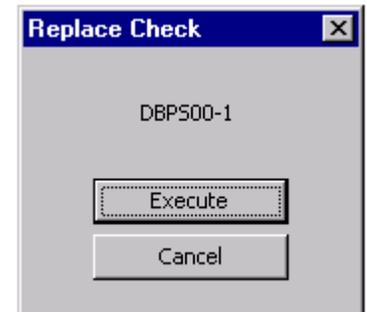
1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

A window shown on the right is displayed.
Select (CL) [Execute].



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



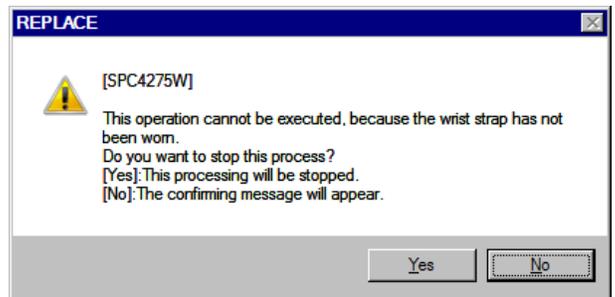
“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes] : This processing will be stopped.

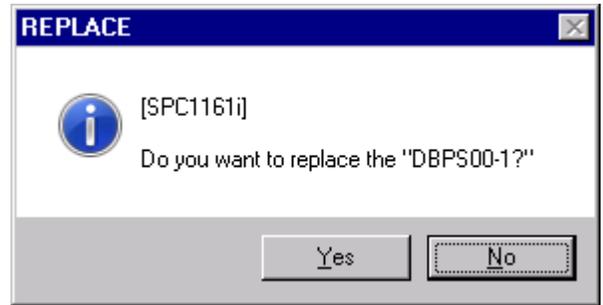
[No] : The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of DBPS Replacement>

Select (CL) [Yes] in response to “Do you want to replace the “DBPSnn-n?””.



(Eg. DBPS00-1)

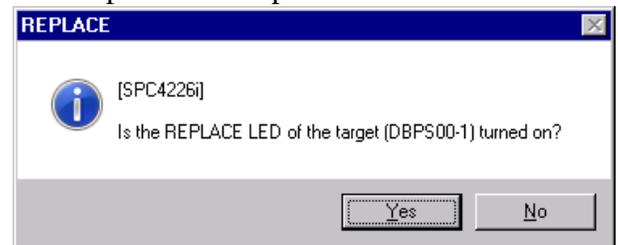
1-6. <Checking the environment monitor stopped and turning on the REPLACE LED>

The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-7. <Checking lighting of the REPLACE LED on the component to be pulled out>

The message “Is the REPLACE LED of the target (DBPSnn-n) turned on?” is displayed.

When the Locate LED and the REPLACE LED (*1) on the component to be pulled out are on, select (CL) [Yes] and go to Step 1-9. When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-8.



(Eg. DBPS00-1)

Refer to LOCATION SECTION ([LOC03-160](#)) to confirm the location of REPLACE LED.

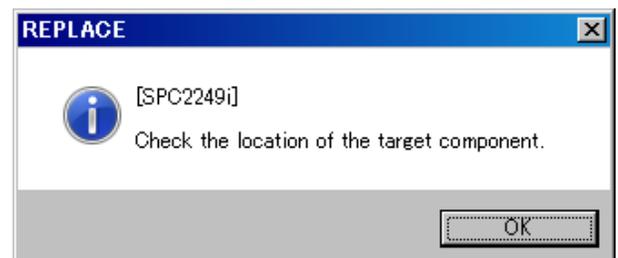
*1: REPLACE LED is described as “ALM” in the LOCATION SECTION. Mention on the label of DBPS is similar, too.

1-8. <Making sure of the DBPS location>

The message “Check the location of the target component.” is displayed.

See “2. HARDWARE REPLACEMENT PROCESSING”.

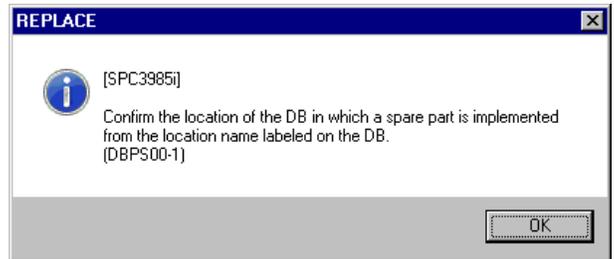
After making sure of the DBPS location, select (CL) [OK] and go to Step 1-9.



1-9. <Check beginning of DBPS Replacement>

The message “Confirm the location of the DB in which a spare part is implemented from the location name labeled on the DB. (DBPSnn-n)” is displayed.

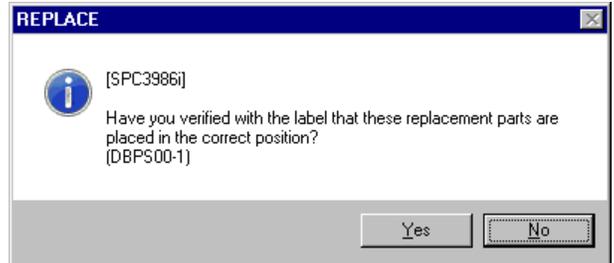
Select (CL) [OK] after you confirmed the content.



(Eg. DBPS00-1)

The message “Have you verified with the label that these replacement parts are placed in the correct position? (DBPSnn-n)” is displayed.

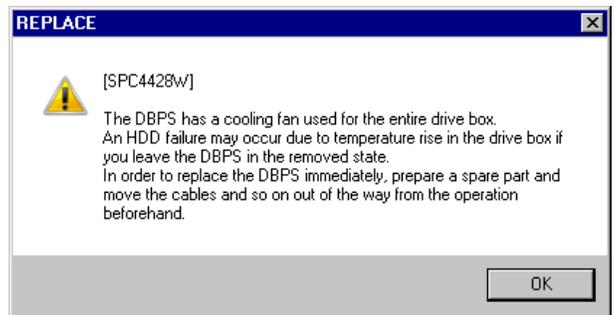
Select (CL) [Yes] after you confirmed the content.



(Eg. DBPS00-1)

The message to warn of the influence of the DBPS removal is displayed.

According to the message, select (CL) [OK] after getting ready in advance.



The message “Please replace the “DBPSnn-n.” After replacement, press OK.” is displayed.

Reply with [OK] after replacing the special part.

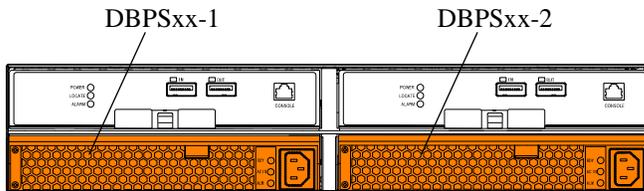


(Eg. DBPS00-1)

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DBL	1	DBPS	



Rear View of DBL

NOTE: DBPSxx-1

→ DB No. (0, 1, 2,, 47)

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

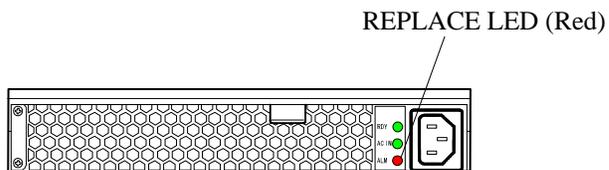
2-1	Replacement of DBPS
-----	---------------------

2-1-1. Replacement of DBPS.

- a. Check that the REPLACE LED is on.

⚠ CAUTION

A system down may be caused by a replacement of the DBPS other than that to be replaced. Make sure that it is a DBPS to be replaced.



Front View of DBPS

Fig. 3.23.2-1 Check of REPLACE LED

- b. When replacing the DBPSxx-1, remove the repeat binder from the rail of the rear left side of the DBL.
When replacing the DBPSxx-2, remove the repeat binder from the rail of the rear right side of the DBL.

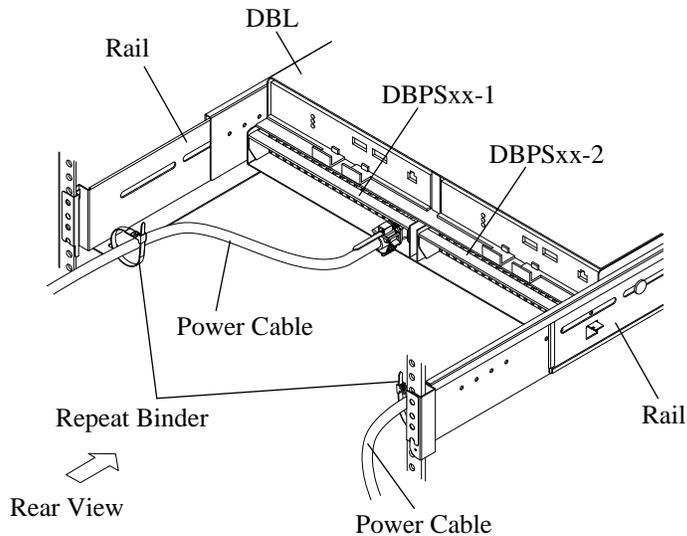


Fig. 3.23.2-2 Removal of Repeat Binder

- c. Pull and open the cable holder.
d. Disconnect the power cable from the DBPS.

CAUTION

Watching for short-circuits:

A Short-circuit may cause a fire.

Never insert metal or the like into the cable connector or a short-circuit may occur.

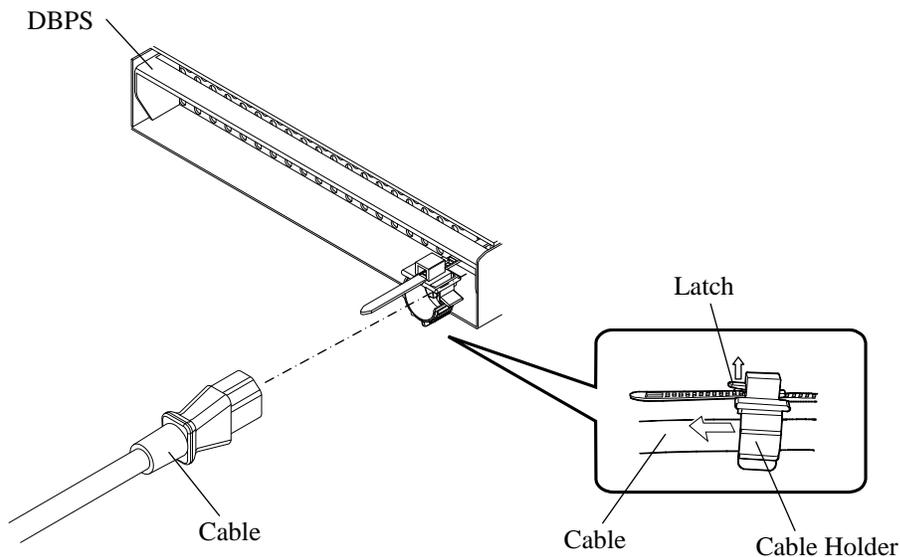


Fig. 3.23.2-3 Disconnection of Cable

- e. Bring the handle down and forward (②) while pushing the latch of the DBPS inward (①).
- f. Pull the DBPS and remove it from the Drive Box.
- g. Make the handle completely fall down and forward.
- h. Insert the spare DBPS into the slot and push it to the full.
- i. Completely raise the handle and fix the DBPS.
- j. Connect the power cable to the DBPS and fasten it with the cable holder. (See Fig. 3.23.2-3.)
- k. Push the cable holder toward the DBPS until it stops.
- m. Attach the repeat binder to the rail of the rear side of the DBL to fix the power cable. (See Fig. 3.23.2-2.)

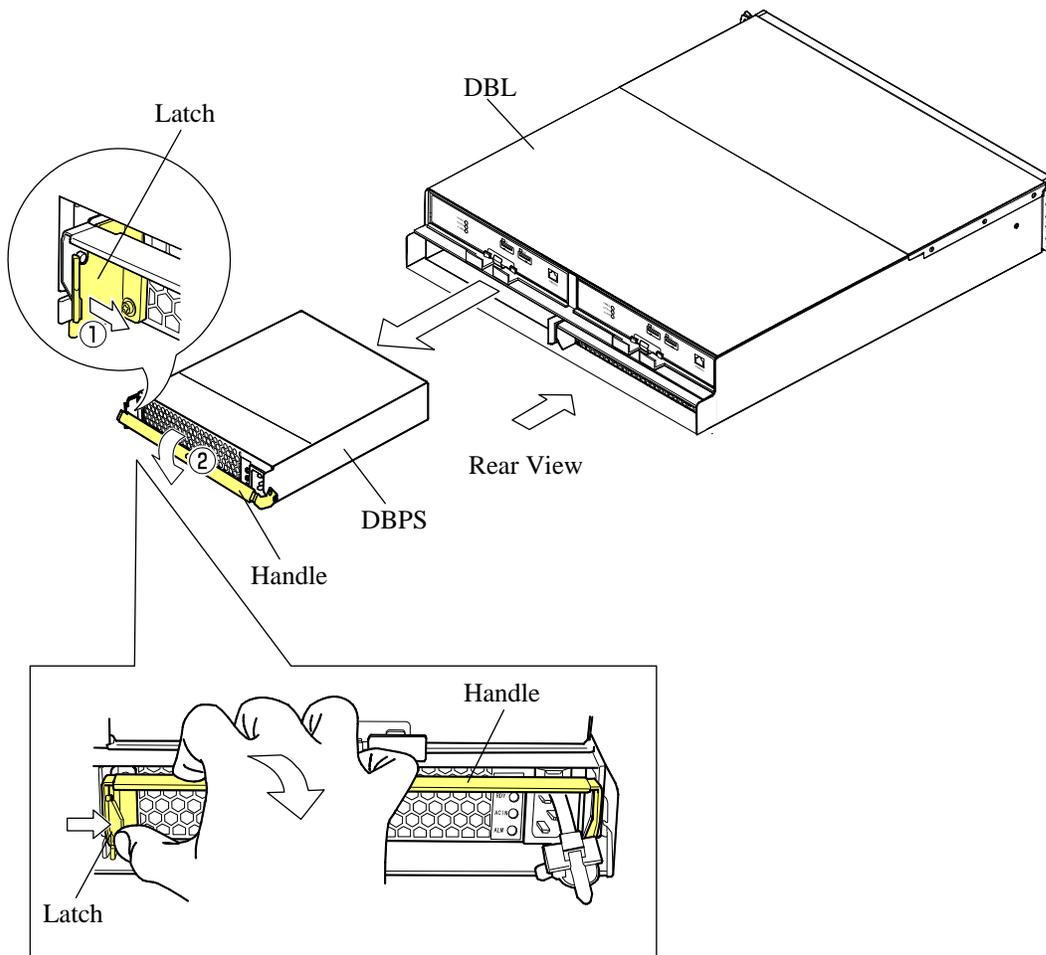


Fig. 3.23.2-4 Replacement of DBPS

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check beginning of DBPS Replacement>

Select (CL) [OK] in response to “Please replace the “DBPSnn-n.” After replacement, press OK.”



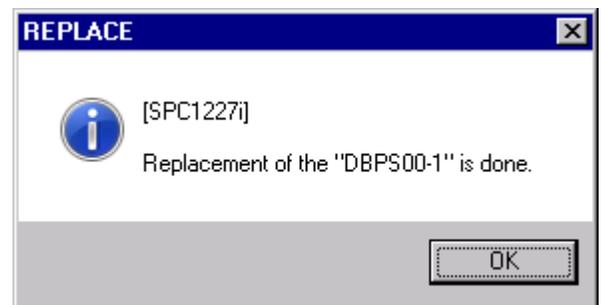
(Eg. DBPS00-1)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If RPELACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DBPSnn-n” is done.”



(Eg. DBPS00-1)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to Step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[CFM REPLACEMENT PROCESSING - RSS1]

— OUTLINE —

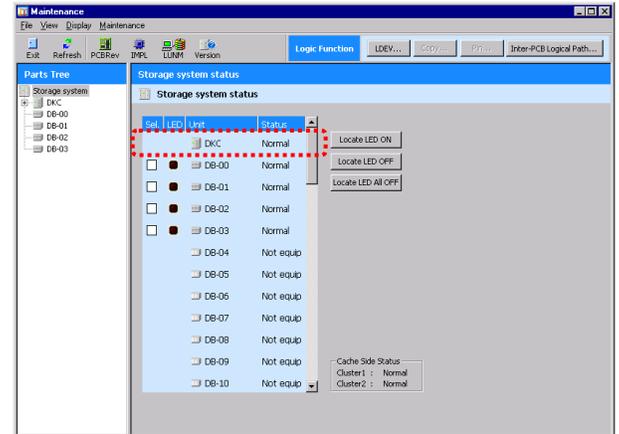
1. PRE-PROCESSING of SVP
 - ① Select CFM (status check)
 - ② Specify Replacement
 - ③ Place PCB into blocked state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Execute CUDG on CFM
 - ② Specify recovery

NOTICE: Extracting and inserting the CFM without SVP operation may cause the PS FAILURE LED on the MAIN Blade to light in amber and the MAIN Blade to fail. In such a case, recover the MAIN Blade by dummy replace.

1. PRE-PROCESSING of SVP

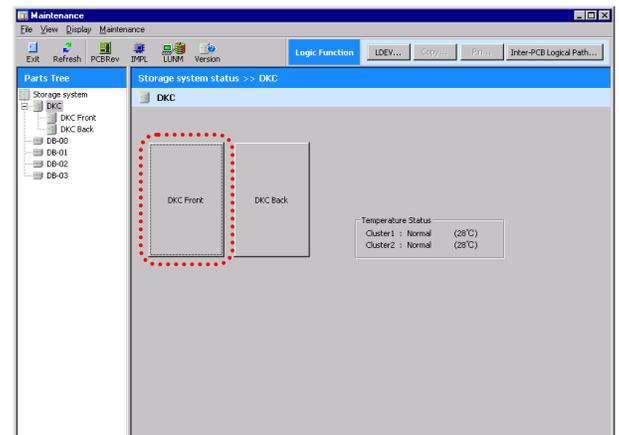
1-1. <Maintenance window>

Select (CL) [DKC] in the 'Maintenance' window.



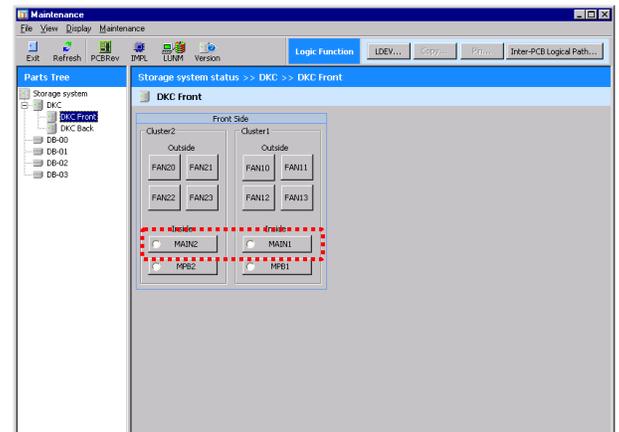
1-2. <DKC window>

Select (CL) [DKC Front] in the 'DKC' window.

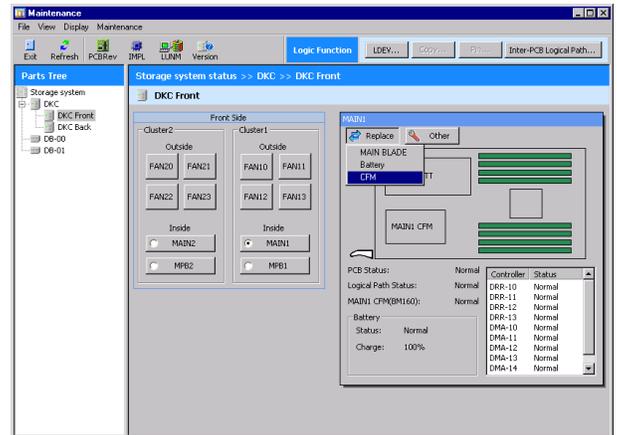


1-3. <Select MAIN Blade>

Select (CL) [MAINn].



- 1-4. <Specify replacement of CFM>
 Select (CL) [Replace], and select (CL) [CFM].



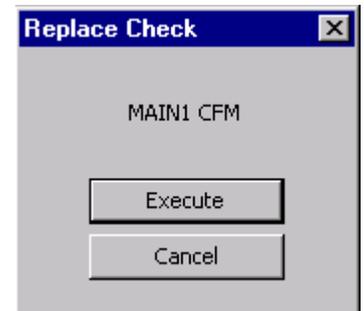
- 1-5. <Execute>

CAUTION

When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

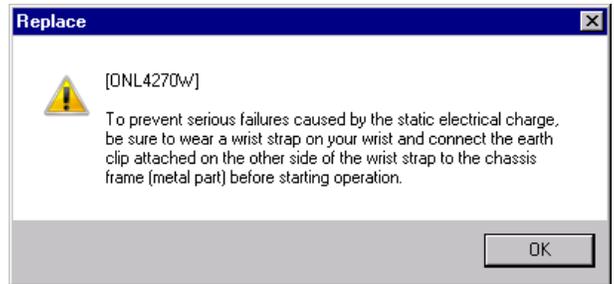
A window shown on the right is displayed.
 Select (CL) [Execute].



(Eg. MAIN1 CFM)

1-6. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.

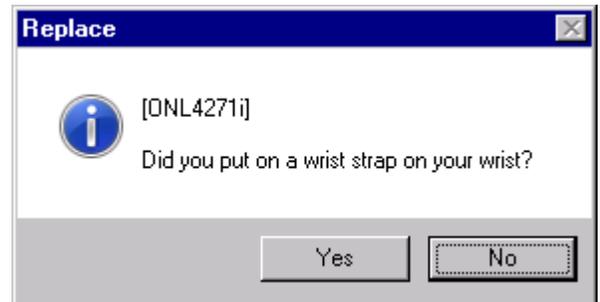


(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.



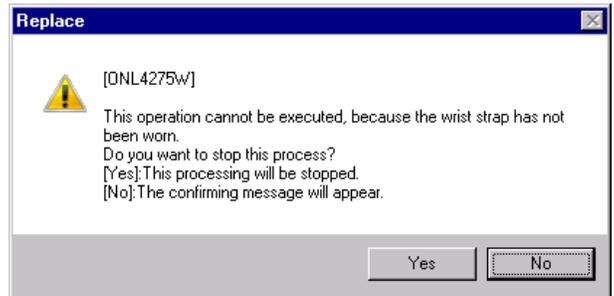
When [No] is selected (CL), go to Step (2).

(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

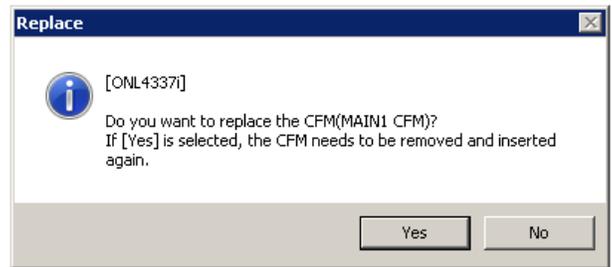


When [Yes] is selected (CL), returned to Step 1-4.

When [No] is selected (CL), returned to Step 1-6.

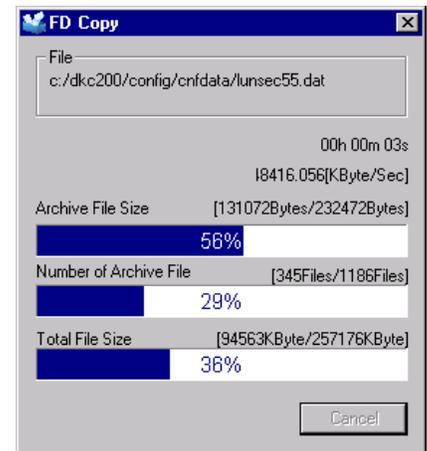
1-7. <Check the beginning of CFM replace>

Select (CL) [Yes] after making sure that the package to be replaced is correct in response to “Do you want to replace the CFM(MAINn CFM)? If [Yes] is selected, the CFM needs to be removed and inserted again.”.



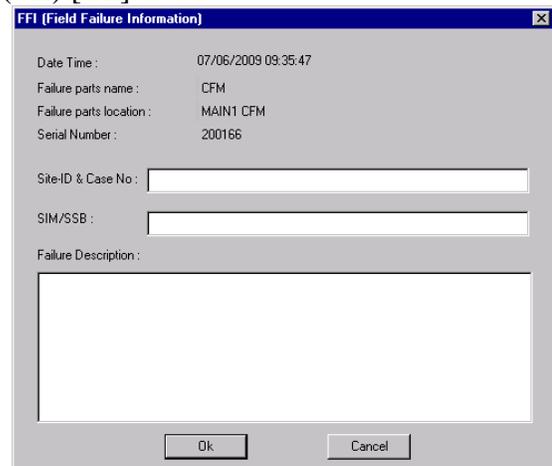
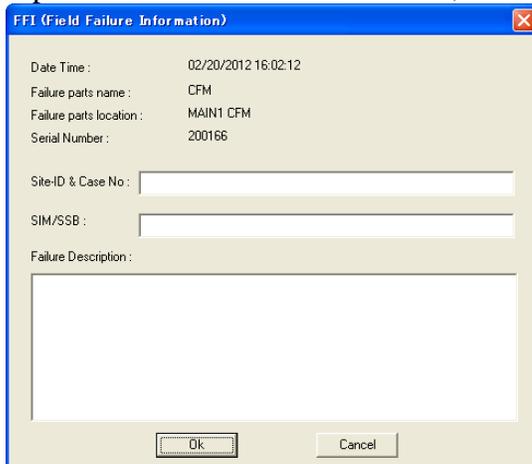
1-8. <Compression of the error information>

The error information is compressed.
The dialog of FD Copy is displayed.



1-9. <Get the error information>

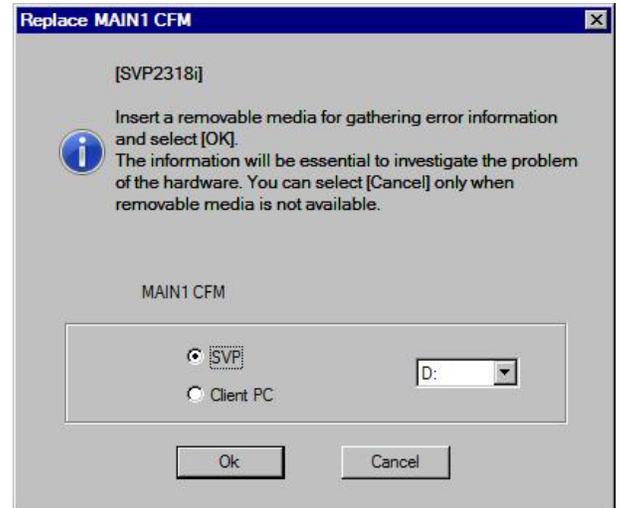
Input the Field Failure Information, and select (CL) [Ok].



“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.



A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format “SHSSD_YYMMDDhhmmss.tgz”.

(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second

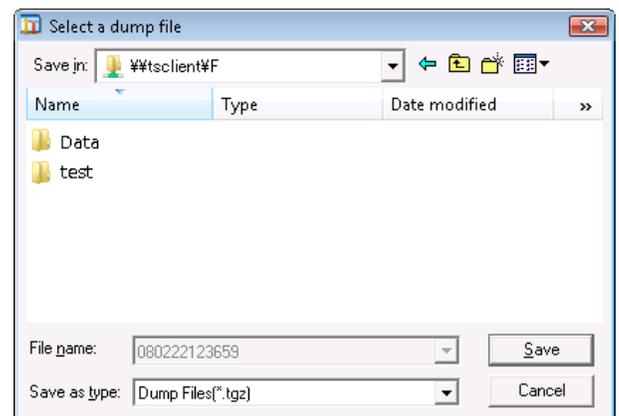
When Client PC is selected, the directory selection dialog is displayed.

Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



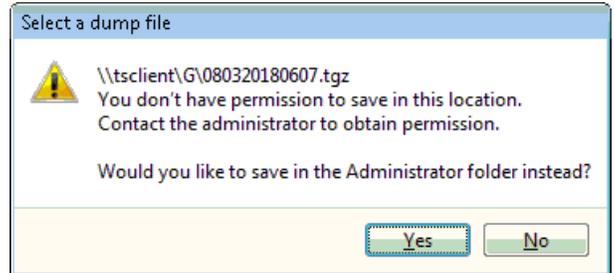
- When the destination media is write-protected.

<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the “C:\users\Administrator” folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.



Please appoint another destination whether you remove write protect when you save it and carry it out.

- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

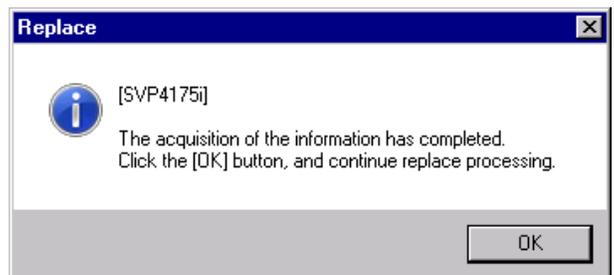
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].



At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.

Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.

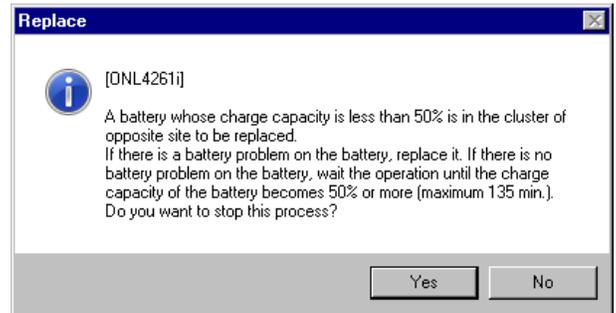


1-10. <Confirmation of amount of opposite cluster battery charge>

(1)

- When there is PCB whose amount of battery charge is less than 50% in the opposite cluster:

“A battery whose charge capacity is less than 50% is in the cluster of opposite site to be replaced. If there is a battery problem on the battery, replace it. If there is no battery problem on the battery, wait the operation until the charge capacity of the battery becomes 50% or more (maximum 135 min.). Do you want to stop this process?”



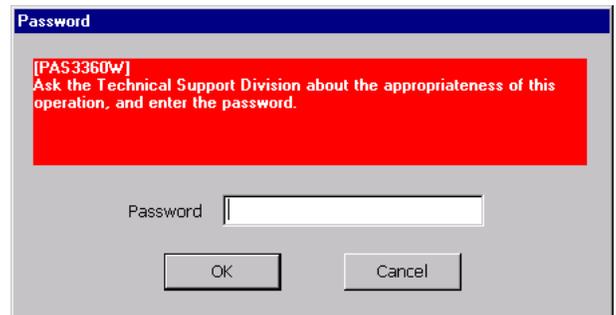
When [Yes] is selected (CL), returned to Step 1-4.

When [No] is selected (CL), go to Step (2)

- When there is no PCB whose amount of charge of the battery is less than 50%: go to Step 1-11.

(2) <Input password>

Enter the password and select (CL) [OK].



CAUTION

This is a special (exceptional) operation that can cause a serious failure such as a system down or a data loss if a wrong part to be removed is selected, and requires an input of a password. Ask the technical support division about the appropriateness of the operation, and input the password after getting an approval of executing the operation.

1-11. <CFM blocking>

“The CFM (MAINn CFM) is being blocked.” is displayed.

1-12. <Check shut down LED>

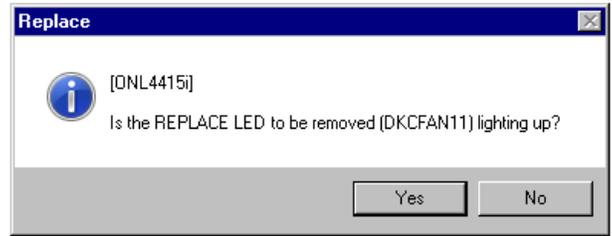
(1)

Select (CL)

* [Yes] if LED is lighting up

* [No] if LED is off

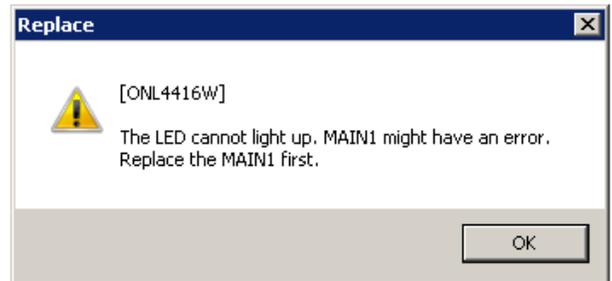
in response to “Is the REPLACE LED to be removed (DKCFANnn) lighting up?”.



(2)

“The LED cannot light up. MAINn might have an error. Replace the MAINn first.” is displayed.

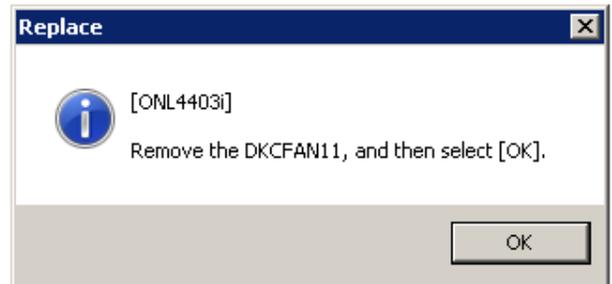
Returned to Step 1-4.



1-13. <Remove FAN>

“Remove the DKCFANnn, and then select [OK].” is displayed.

Do not select (CL) [OK] here.



1-14. <Pulling out FAN(MAIN) processing>

- a. Check that the DKCFAN REPLACE LED on the right FAN(MAIN) of the MAIN Blade is on.
- b. Loosen the screw on the FAN(MAIN) and make the handle fall down.
- c. Pull the handle and detach the FAN(MAIN) from the MAIN Blade.

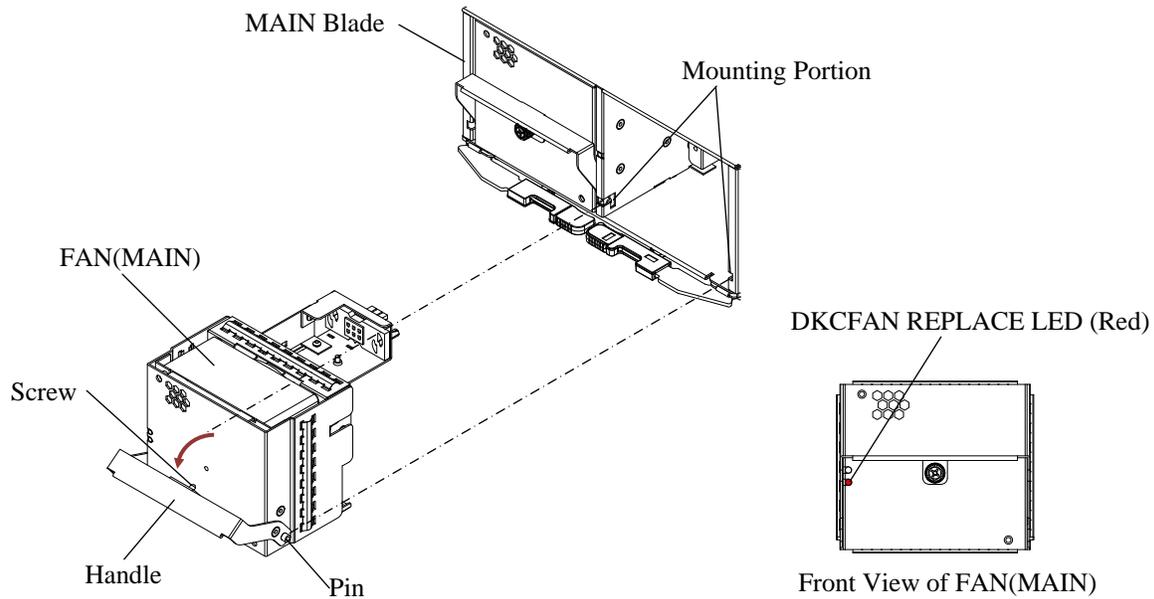
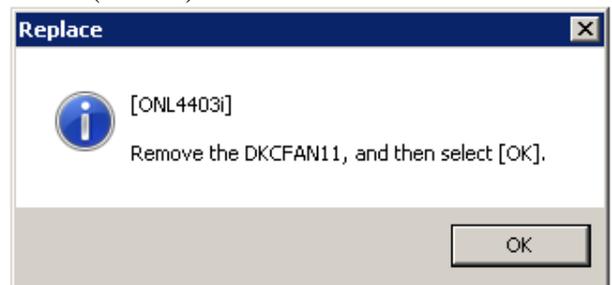


Fig. 3.25.1-1 Removal of FAN(MAIN)

1-15. <Making sure of completion of removal of the FAN(MAIN)>

After removing the FAN(MAIN), select (CL) [OK] in response to “Remove the DKCFANnn, and then select [OK].”.



1-16. <Check shut down LED>

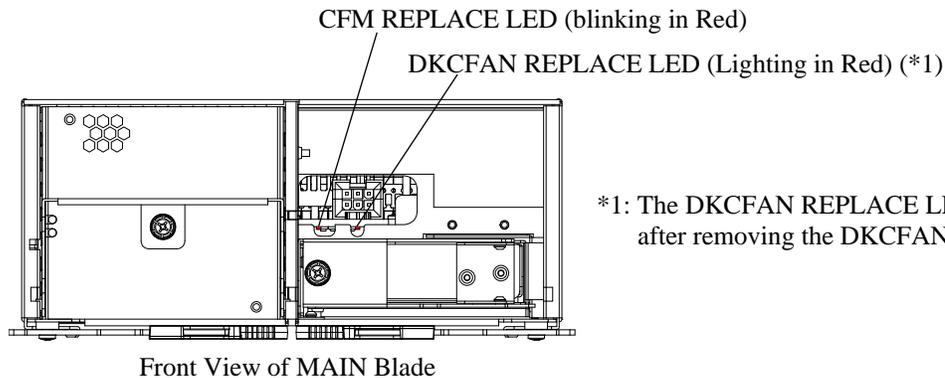
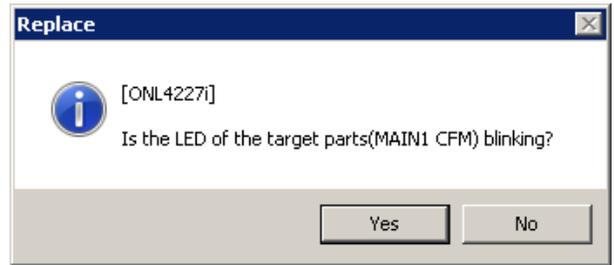
(1)

Select (CL)

* [Yes] if LED is blinking

* [No] if LED is off

in response to “Is the LED of the target parts(MAINn CFM) blinking?”



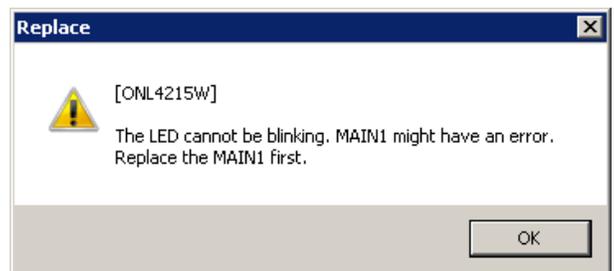
*1: The DKCFAN REPLACE LED still lights after removing the DKCFAN.

Fig. 3.25.1-2 Location of LED

(2)

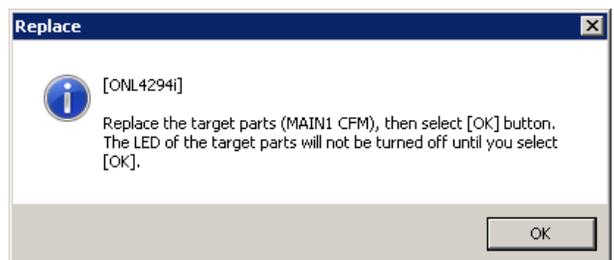
“The LED cannot be blinking. MAINn might have an error. Replace the MAINn first.” is displayed.

Select (CL) [OK] after replacing the PCB.
Returned to Step 1-4.



1-17. <CFM Replacement>

“Replace the target parts (MAINn CFM), then select [OK] button. The LED of the target parts will not be turned off until you select [OK].” is displayed.



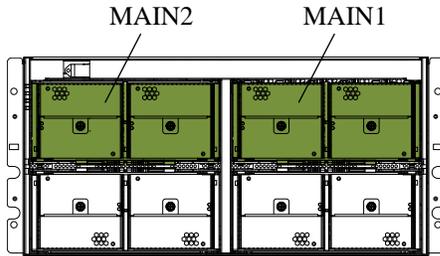
1-18. <Replace CFM>

Replace CFM.

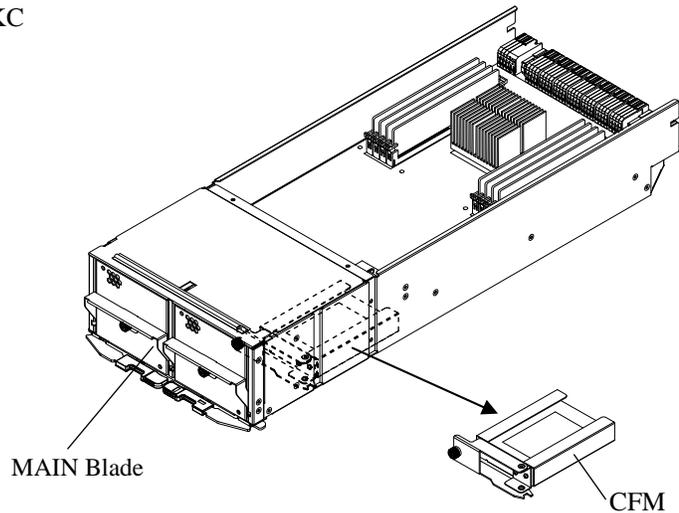
Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Front View of DKC	1	CFM	<ul style="list-style-type: none"> • 80GB SSD (BM160) • 128GB SSD (BM256)



Front View of DKC



NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

NOTICE: The claw of the handle of the CFM has a sharp edge. Be careful not to touch it.

2-1	Replacement of CFM
-----	--------------------

2-1-1. Replace the CFM.

- a. Loosen the screw on the CFM and open the handle.
- b. Pull the handle and remove the CFM.
- c. Loosen the screw on the spare CFM and open the handle fully.
- d. Insert the spare CFM until the claw of the handle of the CFM comes into contact with the mounting portion of the MAIN Blade.
- e. Push the handle and fully insert the CFM.
- f. Tighten the screw and fix the CFM.

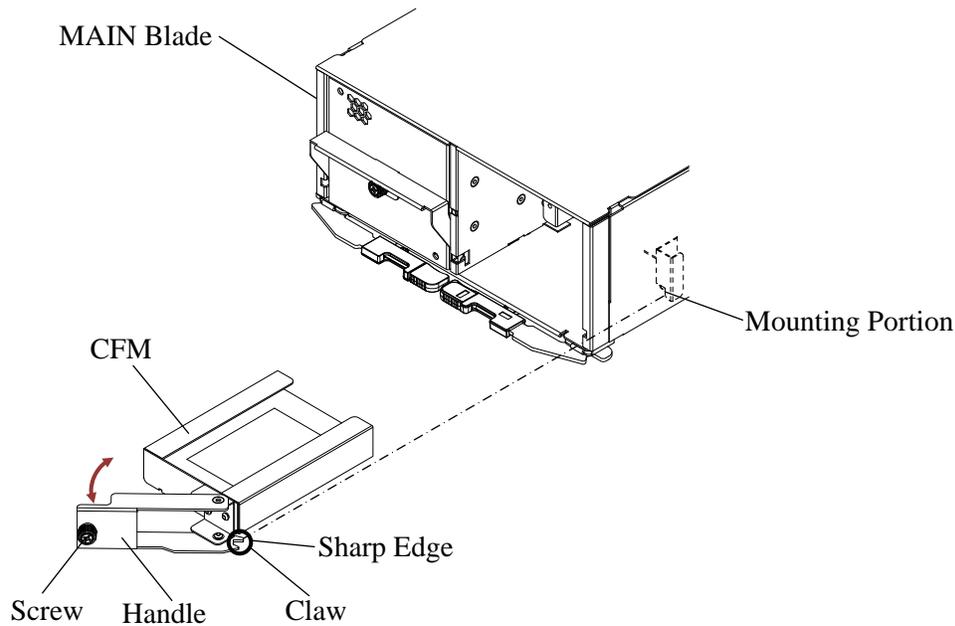


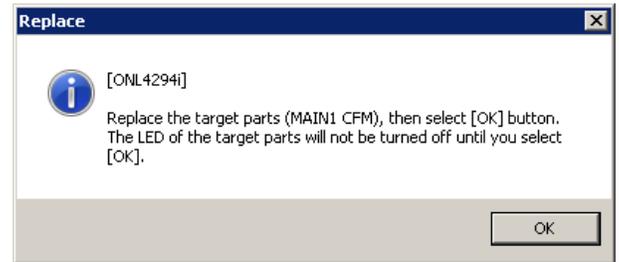
Fig. 3.25.2-1 Replacement of CFM

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <CFM Replacement>

“Replace the target parts (MAINn CFM), then select [OK] button. The LED of the target parts will not be turned off until you select [OK].” is displayed.
Select (CL) [OK] after replacing the PCB.



3-2. <INLINE CUDG>

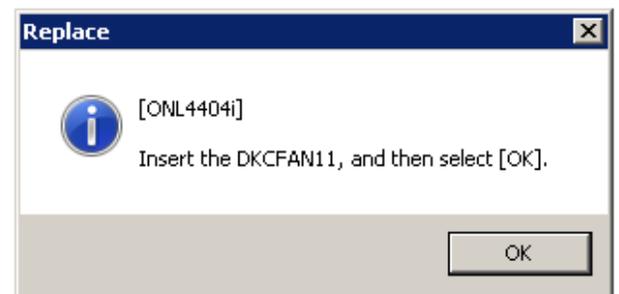
“INLINE CUDG is now running...” is displayed.

3-3. <Restore the CFM>

“Restoring the CFM...” is displayed.

3-4. <Insert FAN>

“Insert the DKCFANnn, and then select [OK].” is displayed.
Do not select (CL) [OK] here.



3-5. <Insert FAN(MAIN) processing>

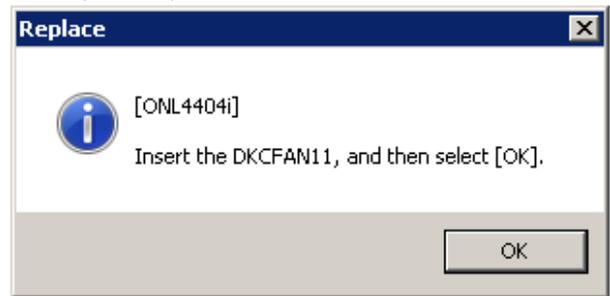
- Insert the FAN(MAIN) until its pin reaches the part to attach of the MAIN Blade. (Refer to Fig. 3.25.1-1.)

NOTE: The screw is attached to the partition at the center of the MAIN Blade. When installing the FAN(MAIN), insert it straight not to make it touch the screws.

- Push up the handle and fully insert the FAN(MAIN).
- Tighten the screw and fix the FAN(MAIN).

3-6. <Making sure of completion of insertion of the FAN(MAIN)>

After inserting the FAN(MAIN), select (CL) [OK] in response to “Insert the DKCFANnn, and then select [OK].”.



3-7. <Check the end of CFM recovery>

Select (CL) [OK] in response to “Replace finished.”.



3-8.

Go to POST-PROCEDURE [\[REP04-01-10\]](#).

[DENSE ENC REPLACEMENT PROCESSING - RUX1]

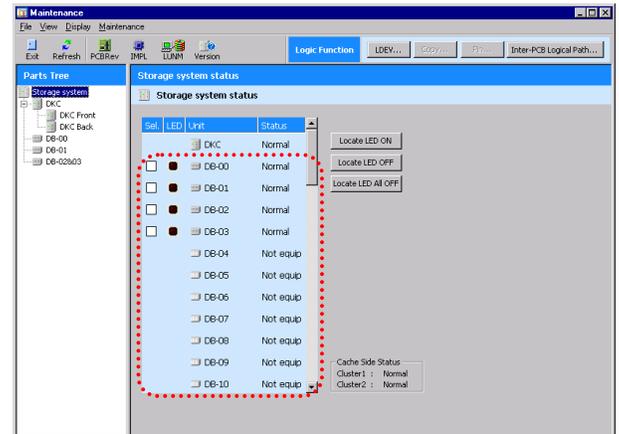
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select ENC
 - ② Specify Replacement
 - ③ Place ENC into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery of DKB Port connected to ENC

1. PRE-PROCESSING of SVP

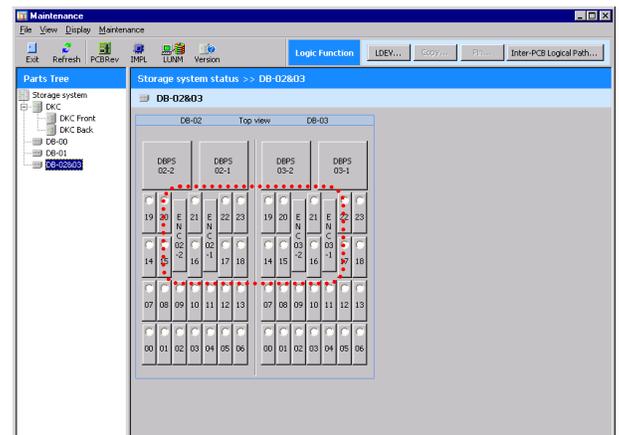
1-1. <Maintenance window>

Select (CL) the DB information [DB-*nn*] of the DB which installs the ENC to be replaced in the 'Maintenance' window.



1-2. <Select ENC>

Check and select (CL) [ENC*nn-n*] to be replaced.



1-3. <Specify replacement>

CAUTION

When the screen requests an operator to input a password in order to prevent multiple maintenance, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

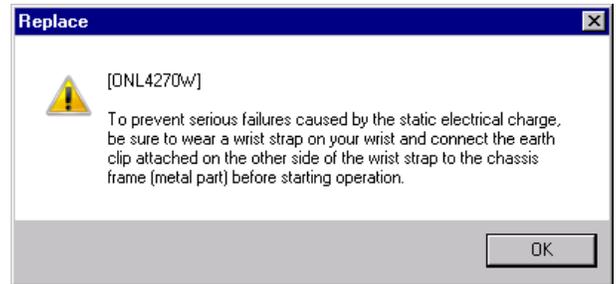
Select (CL) [Execute].

Selecting (CL) [Cancel] returns you to Step 1-2.



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.

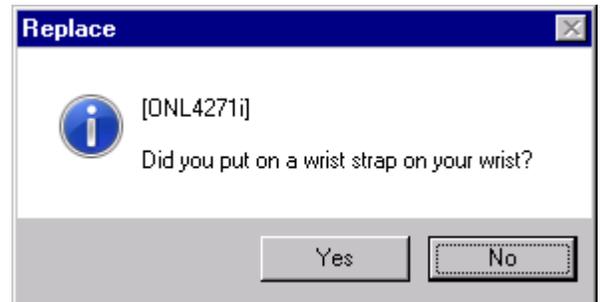


(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.



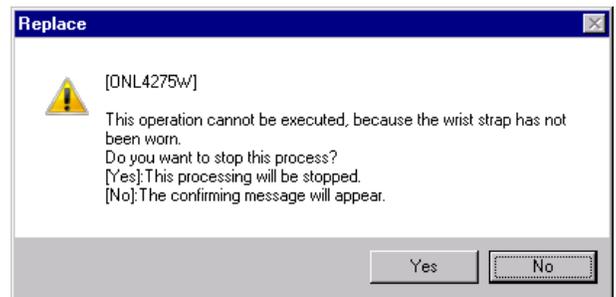
When [No] is selected (CL), go to Step (2).

(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

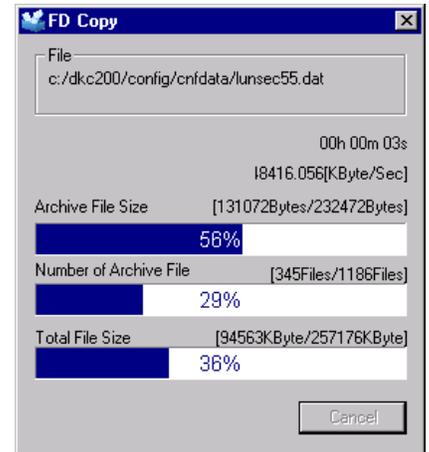


When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-4.

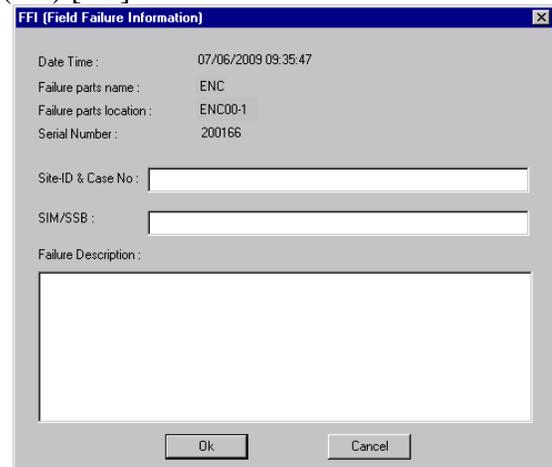
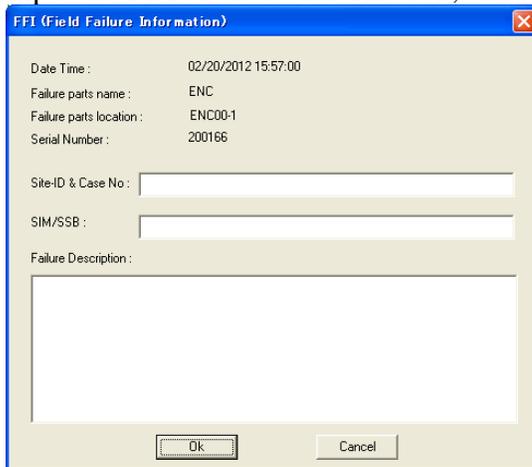
1-5. <Compression of the error information>

The error information is compressed.
The dialog of FD Copy is displayed.



1-6. <Get the error information>

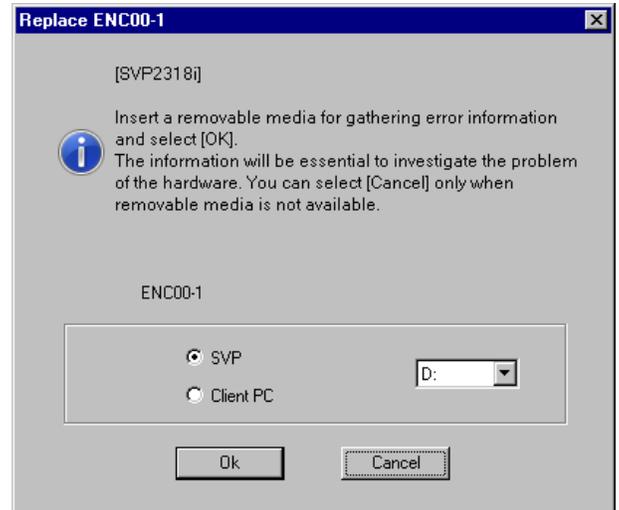
Input the Field Failure Information, and select (CL) [Ok].



“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.



A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format “SH528_YYMMDDhhmmss.tgz”.

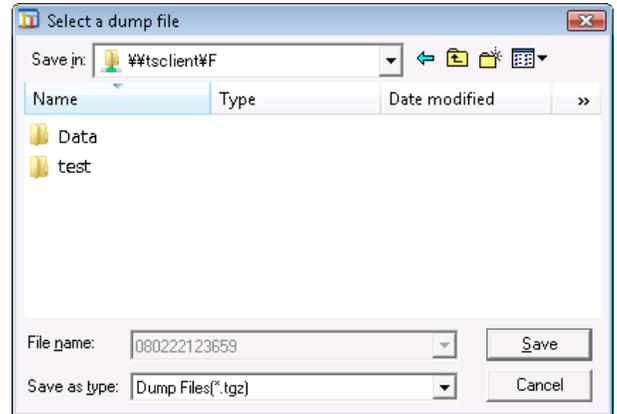
(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed.
Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



NOTE: The message is displayed two or more times. Please only operate the ENC selected by 1-3. <Specify replacement>.

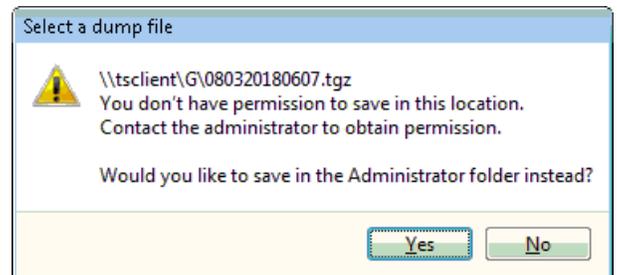
- When the destination media is write-protected.
<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the "C:\users\Administrator" folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination whether you remove write protect when you save it and carry it out.

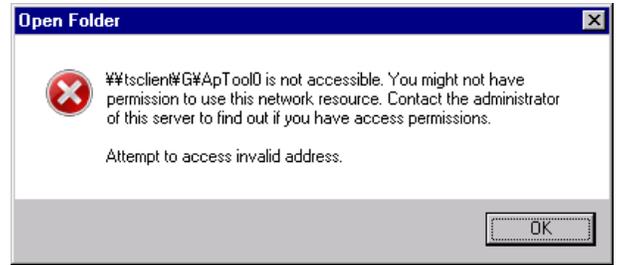


- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

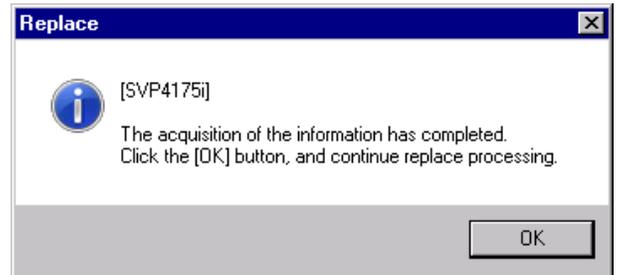
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.

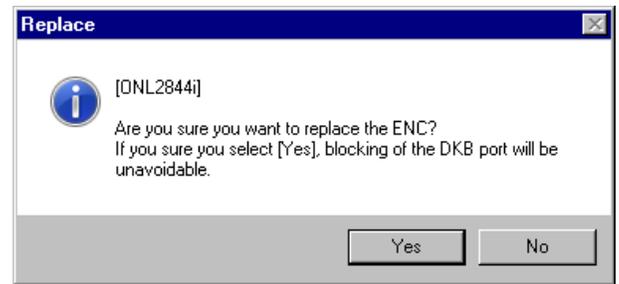


Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.



1-7. <Check beginning of DKB Port blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the ENC? If you select [Yes], blocking of the DKB port will be unavoidable.”.

**1-8. <Check DKB Port blocking>**

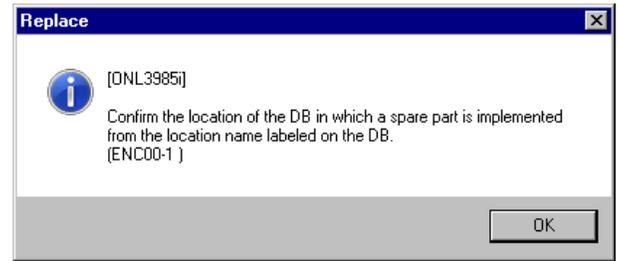
“The DKB Port is being blocked...” is displayed.

1-9. <Replace ENC>

(1)

Confirm the label on DB.

To confirm the label, the right messages are displayed.



(2)

The name in parentheses shows the position where ENC show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-9 (3).

When [No] is selected (CL), returned to Step 1-9 (2).



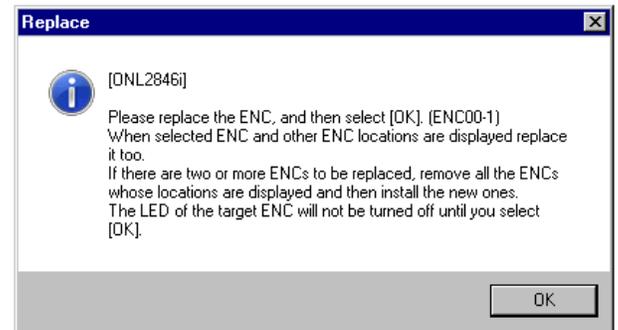
(3)

“Please replace the ENC, and then select [OK]. (ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” is displayed.



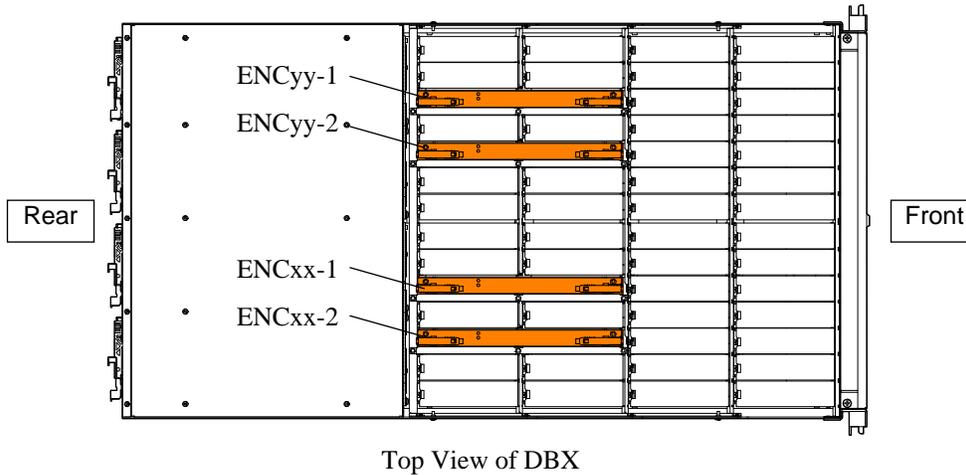
Make sure of the ENC location is displayed, select (CL) the [OK] button after replaced target ENC.

If the ENC Shut Down LED is not turned on, please replace ENC.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component	Part Name
Rear of DBX	1 ENC	



NOTE: ENC_{xx-1}

→ DB No. (0, 1, 2,, 47)
yy=xx+1

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1	Replacement of ENC
-----	--------------------

2-1-1. Pull the DBX out.

- a. Pull the DBX out of the rack, and remove the top cover. (Refer to [INST03-01-60.](#))
-

2-1-2. Check the LED on the ENC.

- a. Check Shut Down LED on the ENC.

⚠ CAUTION

A system down is caused by a replacement of the ENC other than that to be replaced.
Make sure that it is the ENC to be replaced.

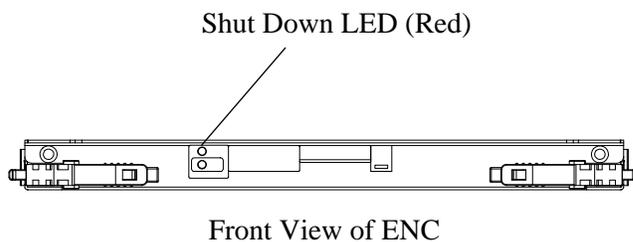


Fig. 3.26.2-1 Confirmation of Shut Down LED

2-1-3. Replace the ENC.

- a. Open the right and left levers toward you at the same time while pressing the right and left buttons (blue) which fix the levers of the ENC, and remove the ENC by pulling it out.
- b. Make the levers of the spare ENC up and forward.
- c. Insert the ENC and close the levers.

NOTE: Check that there is no foreign substance near the connector and in the DBX before inserting the spare ENC.

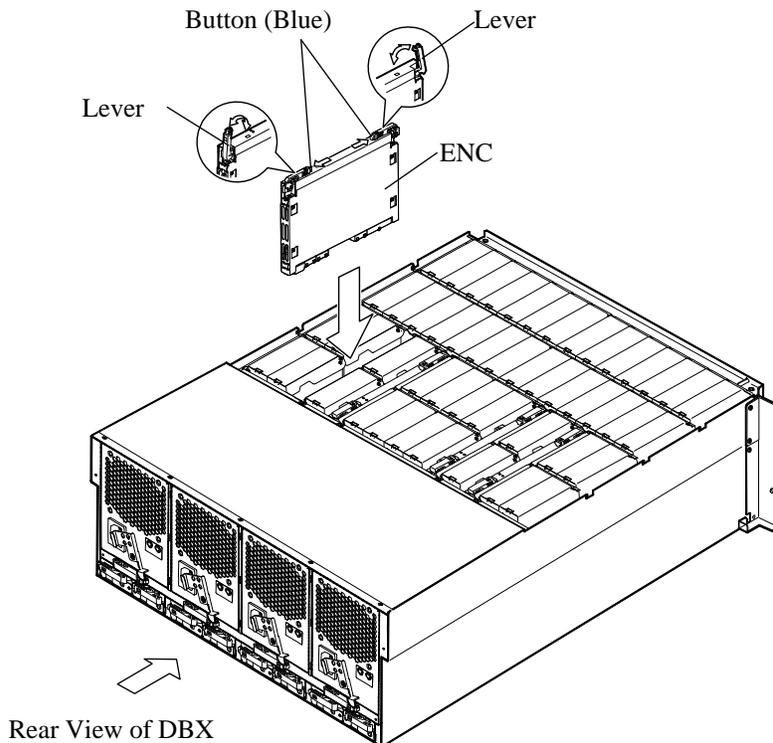
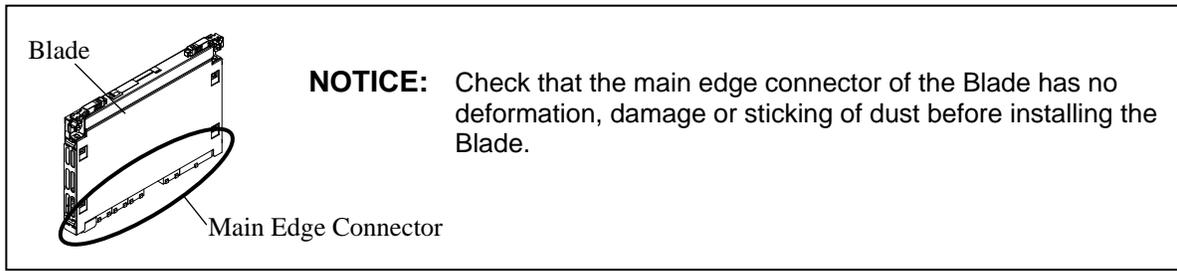


Fig. 3.26.2-2 Replacement of ENC

2-1-4. Return the DBX.

- a. Return the DBX into the rack after attaching its cover. (Refer to [INST03-01-80](#).)

2-1-5. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of ENC>

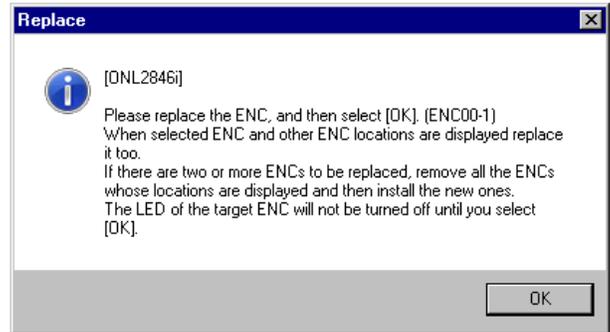
Select (CL) [OK] in response to “Please replace the ENC, and then select [OK].

(ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” After replacement, press OK.



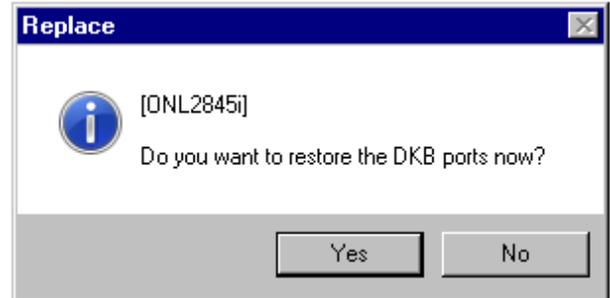
Make sure that the ENC location is displayed, select (CL) the [OK] button after replacing target ENCs.

Even if the ENC Shut Down LED is not turned on, please replace the ENCs.

NOTE: Even though the [OK] button is selected, the Locate LED does not turn off.

3-2. <Check the beginning of DKB Port recovery>

Select (CL) [Yes] in response to “Do you want to restore the DKB ports now?”.



3-3.<PATH INLINE>

“PATH INLINE is now running...” is displayed.

CAUTION

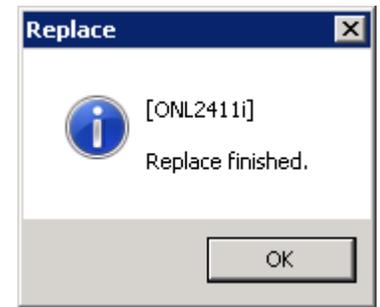
When a failure is found during PATH INLINE, the DKB Port connected to the loop are blocked.

Confirm the Diagnosis Log and solve the problem.

- 3-4. <Check DKB Port recovery processing>
“Restoring the DKB Port...” is displayed.

3-5. <Check the end of ENC replace>

Select (CL) [OK] in response to “Replace finished.”.



3-6.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[DENSE DBPS REPLACEMENT PROCESSING – RUX2]

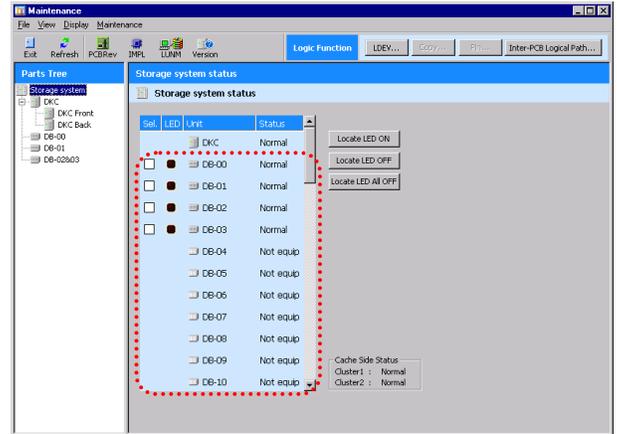
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select DENSE DBPS (status check)
 - ② Specify Replacement
 - ③ Detach DENSE DBPS
 - ④ Place part into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of DENSE DBPS replacement
 - ② Reinstall related parts
 - ③ Start environment monitor

1. PRE-PROCESSING of SVP

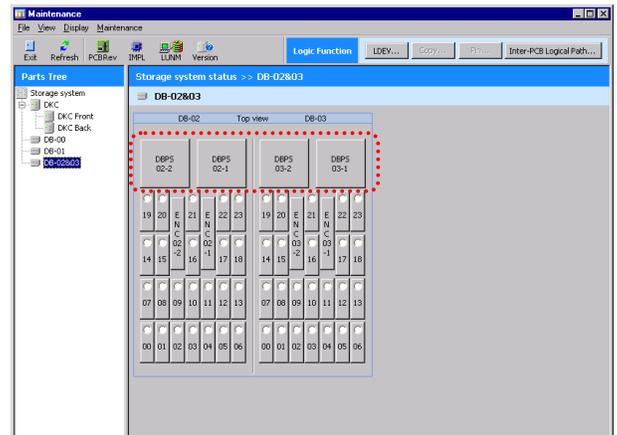
1-1. <Maintenance window>

Select (CL) [DB-*nn*] in the 'Maintenance' window.



1-2. <Specify DBPS>

Select (CL) [DBPS*nn-n*].



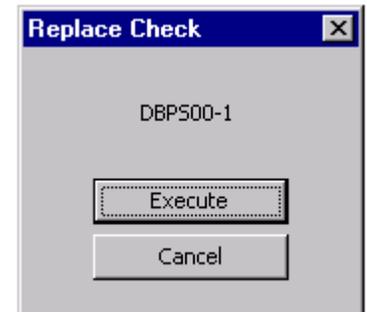
1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

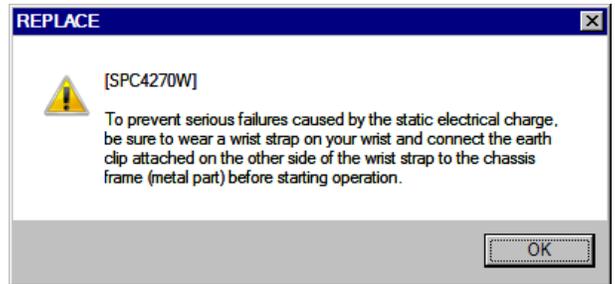
If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

A window shown on the right is displayed.
Select (CL) [Execute].



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



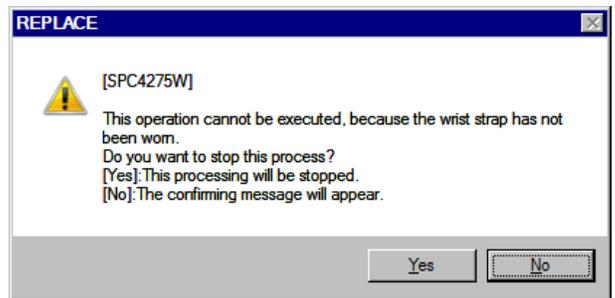
“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes] : This processing will be stopped.

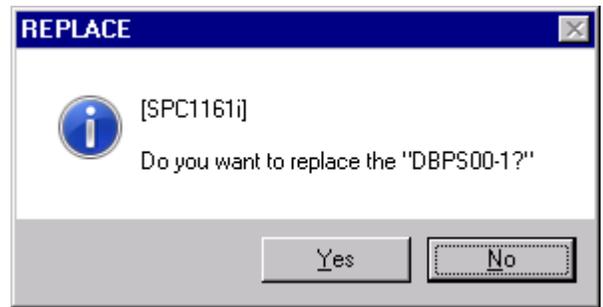
[No] : The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of DBPS Replacement>

Select (CL) [Yes] in response to “Do you want to replace the “DBPSnn-n?””.



(Eg. DBPS00-1)

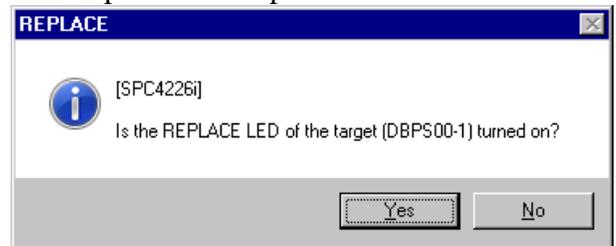
1-6. <Checking the environment monitor stopped and turning on the REPLACE LED>

The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-7. <Checking lighting of the REPLACE LED on the component to be pulled out>

The message “Is the REPLACE LED of the target (DBPSnn-n) turned on?” is displayed.

When the Locate LED and the REPLACE LED (*1) on the component to be pulled out are on, select (CL) [Yes] and go to Step 1-9. When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-8.



(Eg. DBPS00-1)

Refer to LOCATION SECTION ([LOC03-180](#)) to confirm the location of REPLACE LED.

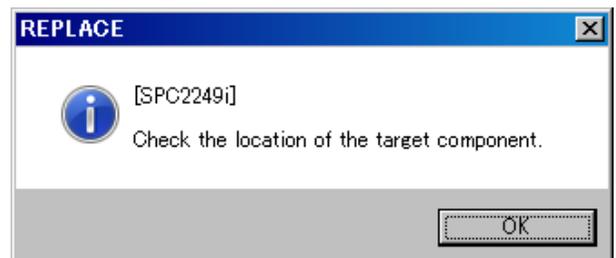
*1: REPLACE LED is described as “ALM” in the LOCATION SECTION. Mention on the label of DBPS is similar, too.

1-8. <Making sure of the DBPS location>

The message “Check the location of the target component.” is displayed.

See “2. HARDWARE REPLACEMENT PROCESSING”.

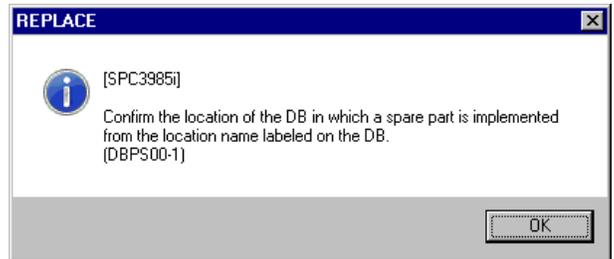
After making sure of the DBPS location, select (CL) [OK] and go to Step 1-9.



1-9. <Check beginning of DBPS Replacement>

The message “Confirm the location of the DB in which a spare part is implemented from the location name labeled on the DB. (DBPSnn-n)” is displayed.

Select (CL) [OK] after you confirmed the content.



(Eg. DBPS00-1)

The message “Have you verified with the label that these replacement parts are placed in the correct position? (DBPSnn-n)” is displayed.

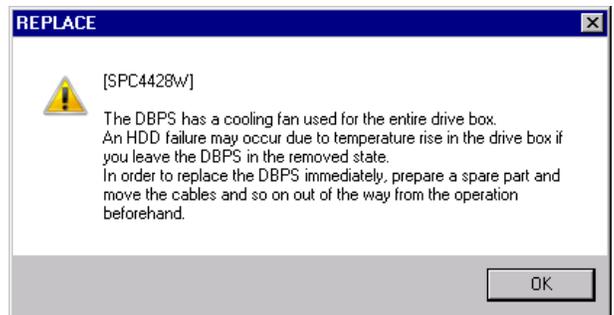
Select (CL) [Yes] after you confirmed the content.



(Eg. DBPS00-1)

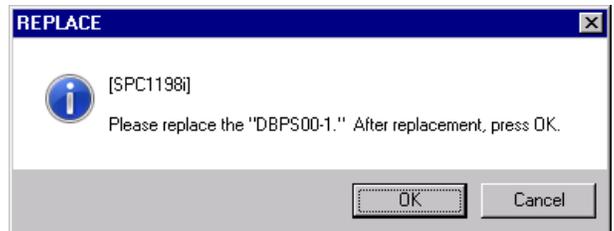
The message to warn of the influence of the DBPS removal is displayed.

According to the message, select (CL) [OK] after getting ready in advance.



The message “Please replace the “DBPSnn-n.” After replacement, press OK.” is displayed.

Reply with [OK] after replacing the special part.

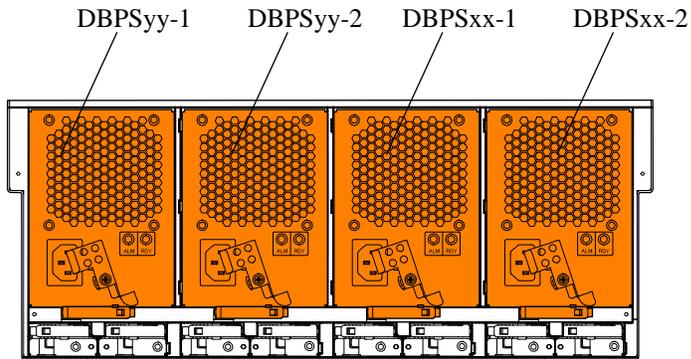


(Eg. DBPS00-1)

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DBX	1	DBPS	



Rear View of DBX

NOTE: DBPS_{xx-1}

→ DB No. (0, 1, 2,, 47)
yy=xx+1

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

2-1 Replacement of DBPS

2-1-1. Remove the Stopper.

- a. Pull the right and left screws of the Stopper in the direction ① and rotate them 90 degrees.
The screws become open and fixed.
- b. Pull the Cable Tray in the direction ② and remove it.

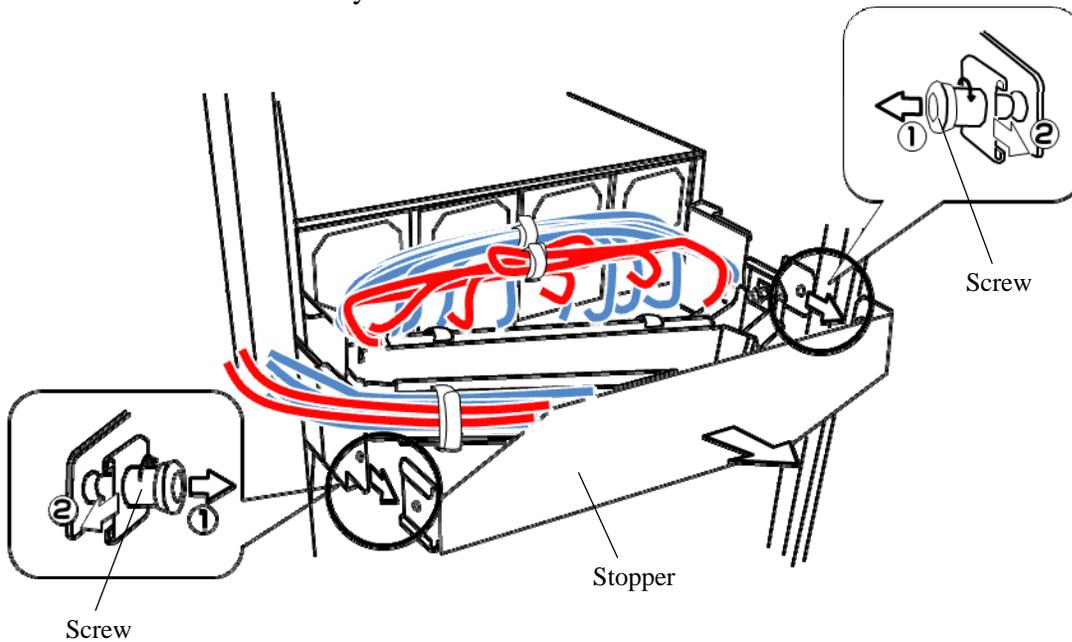


Fig. 3.27.2-1 Removal of Stopper

- c. Pull the right and left Cable Routing Bars.

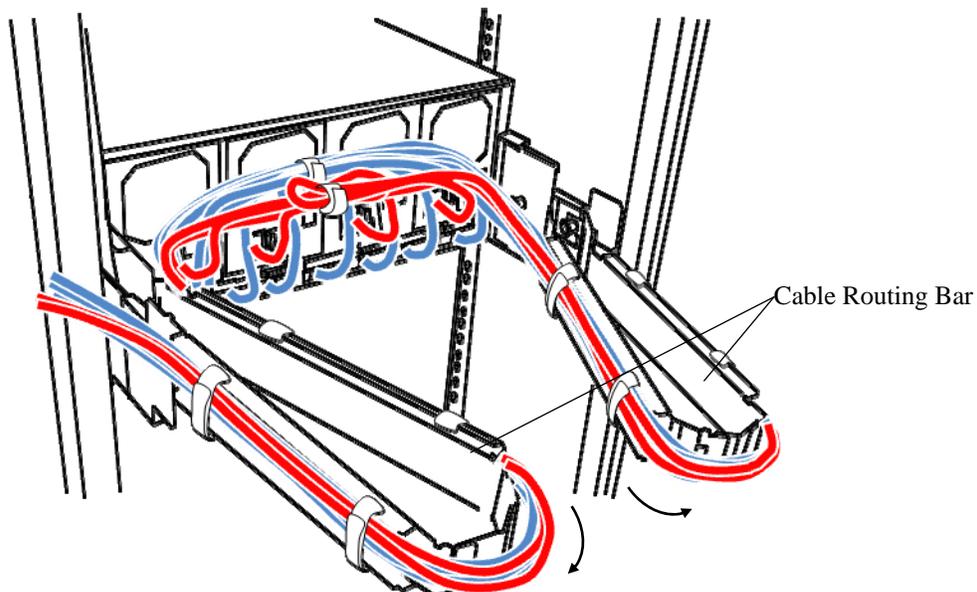


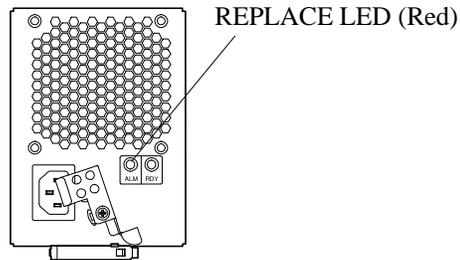
Fig. 3.27.2-2 Move of Cable Routing Bars

2-1-2. Replace the DBPS.

- a. Check that the REPLACE LED is on.

⚠ CAUTION

A system down may be caused by a replacement of the DBPS other than that to be replaced. Make sure that it is a DBPS to be replaced.



Front View of DBPS

Fig. 3.27.2-3 Check of REPLACE LED

2-1-3. Remove the Cable Routing Bars.

- a. Pull the right and left screws of the Cable Tray in the direction ① and rotate them 90 degrees.
The screws become open and fixed.
- b. Pull the Cable Tray in the direction ② and remove it.

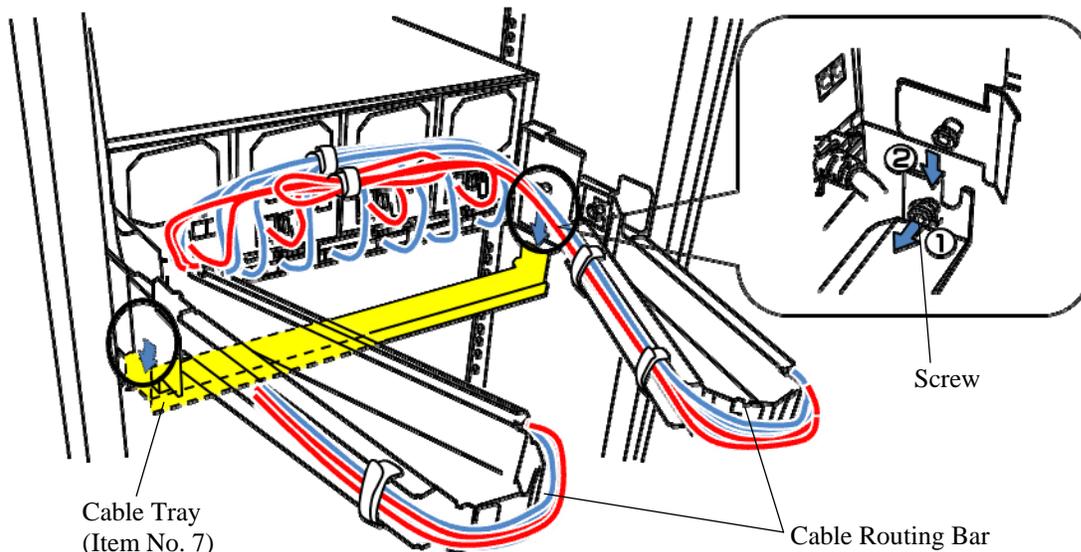
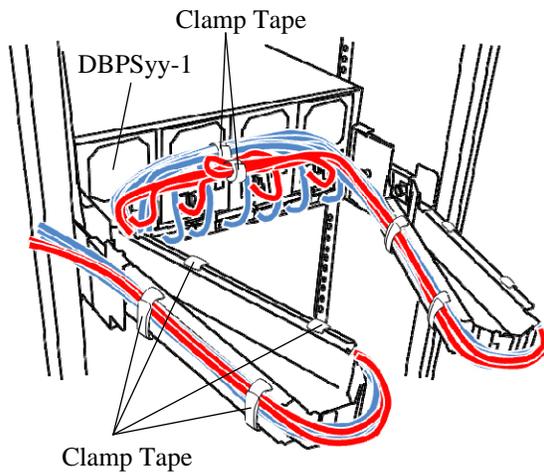


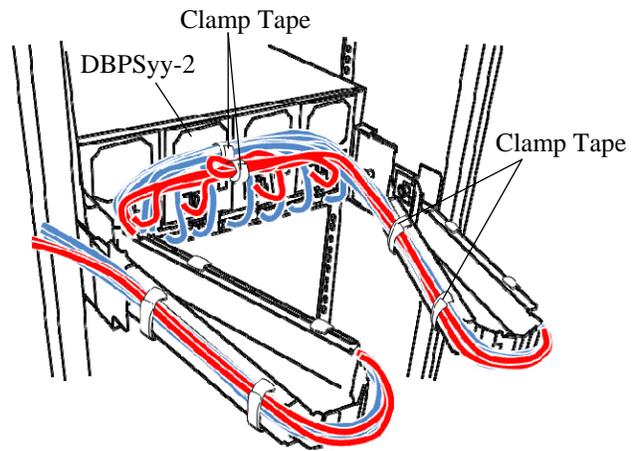
Fig. 3.27.2-4 Removal of Cable Tray

c. Remove the clamp tapes which binds cables.

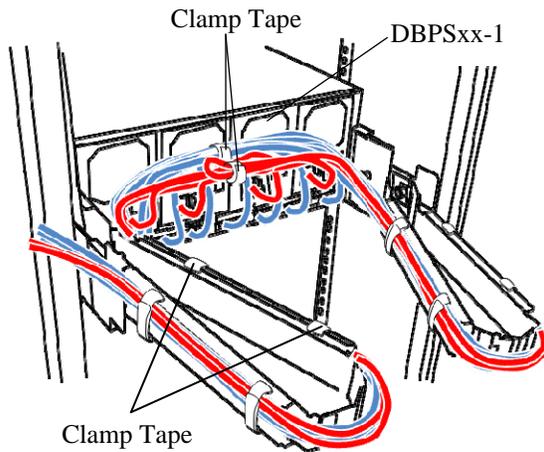
When replacing the DBPSyy-1



When replacing the DBPSyy-2



When replacing the DBPSxx-1



When replacing the DBPSxx-2

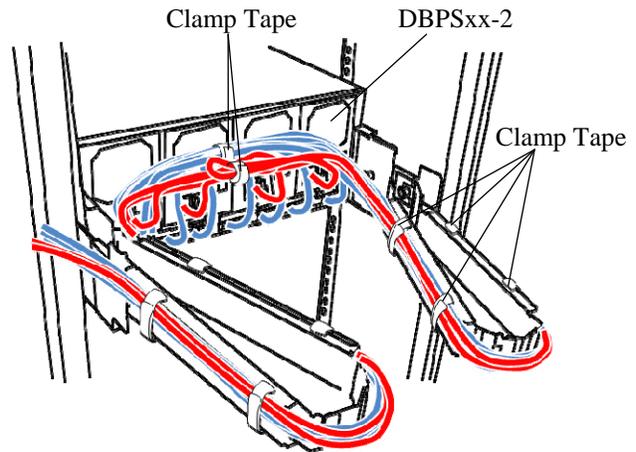


Fig. 3.27.2-5 Removal of Clamp Tapes

- d. When replacing the DBPSyy-1 or DBPSxx-2, remove the Cable Routing Bar.
- When replacing the DBPSyy-1: Left Cable Routing Bar.
 - When replacing the DBPSyy-2: Right Cable Routing Bar.

d-1 Pull the screw of the stopper in the direction ① and rotate it 90 degrees. The screw becomes open and fixed.

d-2 Remove the Cable Routing Bar from the rear left rail and push it in the direction ② while rotating the screw 90 degrees.

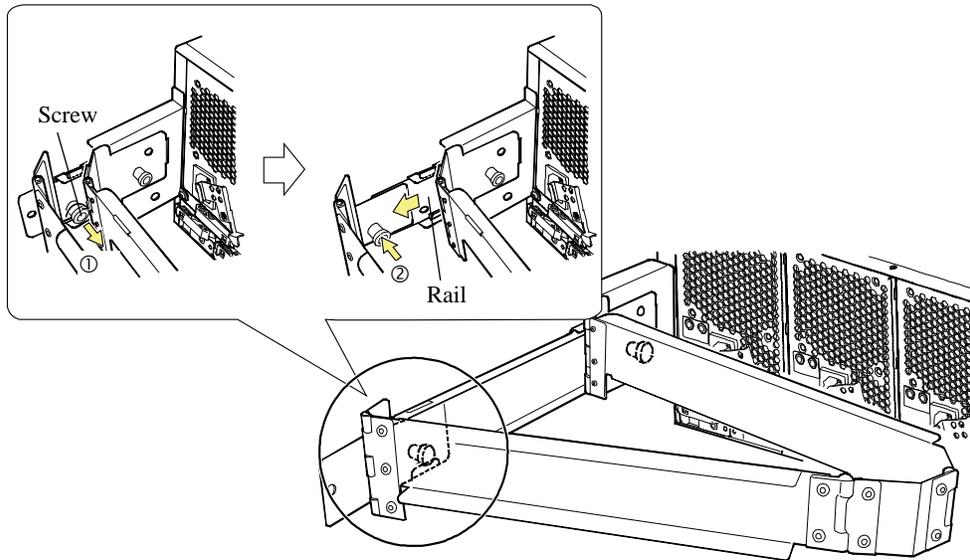


Fig. 3.27.2-6 Removal from Rail

d-3 Pull the screw of the stopper in the direction ① and rotate it 90 degrees. The screw becomes open and fixed.

d-4 Extract the Cable Routing Bar from the Cable Routing Bar Installation Part and push it in the direction ② while rotating the screw 90 degrees.

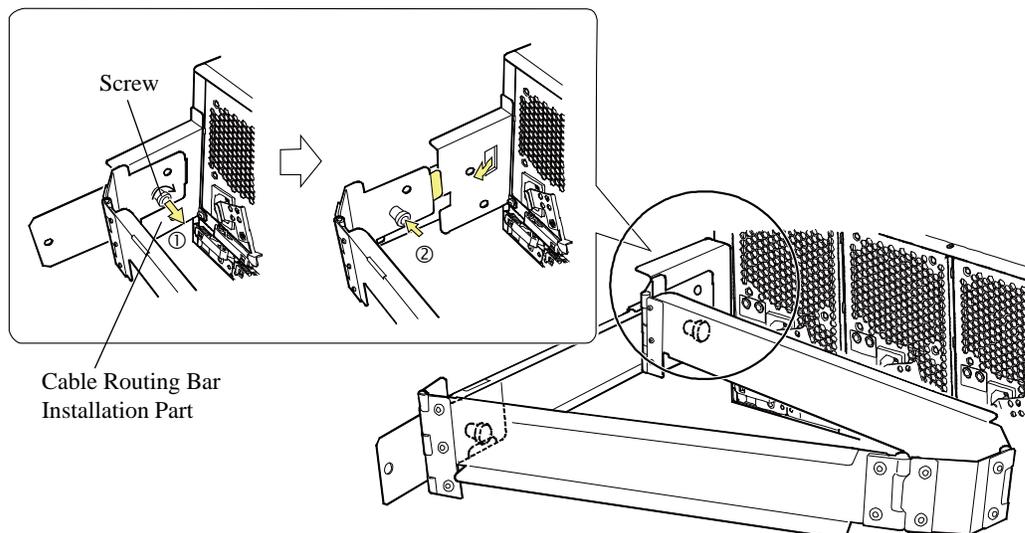


Fig. 3.27.2-7 Removal from Drive Box

2-1-4. Replace the DBPS.

- a. Disconnect the cable connected to the DBPS to be replaced.

CAUTION

Watching for short-circuits:

A Short-circuit may cause a fire.

Never insert metal or the like into the cable connector or a short-circuit may occur.

- b. Open the lever toward you while pressing the button (blue) which fixes the lever of the DBPS.
When the lever is completely opened, the DBPS comes out forward.
- c. Pull and remove the DBPS.
- d. Open the lever of the spare DBPS.
- e. Insert the spare DBPS until the lever leans a little and bring down the lever completely until the button (blue) which fixes the lever clicks.
- f. Connect the removed cable.

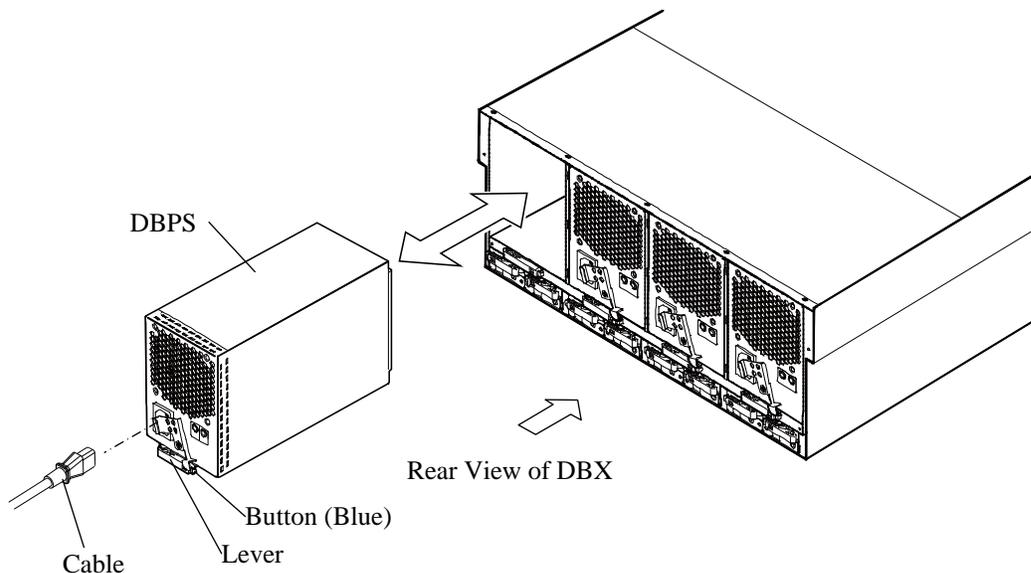


Fig. 3.27.2-8 Replacement of DBPS

2-1-5. Install the parts.

- a. Install the Cable Routing Bar if it was removed. (Refer to Fig. 3.27.2-6.)
- b. Return the power cables and SAS cables to their original state and fix them with the Clamp Tape in the middle. (Refer to Fig. 3.27.2-5.)

NOTE: Bind and fix the cables so that they do not hang down below the DBX.

- c. Install the Cable Tray. (Refer to Fig. 3.27.2-4.)
- d. Close the right and left Cable Routing Bars. (Refer to Fig. 3.27.2-2.)
- e. Install the Stopper in the rear side of the DBX. (Refer to Fig. 3.27.2-1.)

NOTE: Confirm that any other cables are not caught in the Stopper.

- f. Pull the DBX and check that cable routing is done properly. (Refer to [INST03-01-10: 3.1.1 Bezel Opening-Closing Procedure](#))

2-1-6. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check beginning of DBPS Replacement>

Select (CL) [OK] in response to “Please replace the “DBPSnn-n.” After replacement, press OK.”



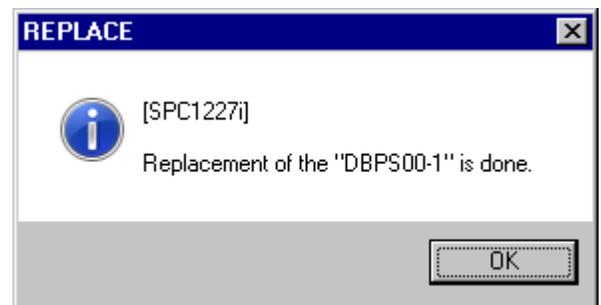
(Eg. DBPS00-1)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If RPELACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DBPSnn-n” is done.”



(Eg. DBPS00-1)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to Step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[DBF ENC REPLACEMENT PROCESSING - RUF1]

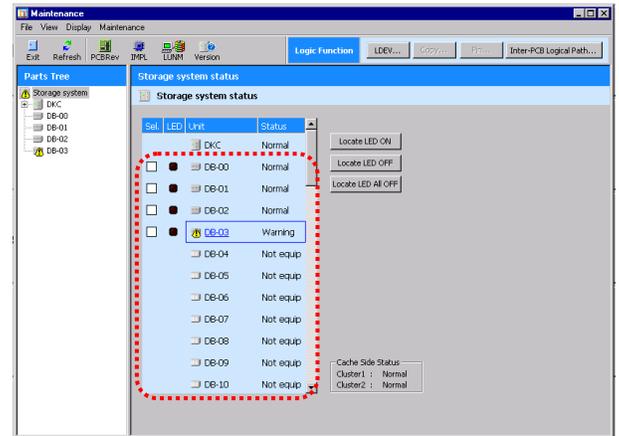
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select ENC
 - ② Specify Replacement
 - ③ Place ENC into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify recovery of DKB Port connected to ENC

1. PRE-PROCESSING of SVP

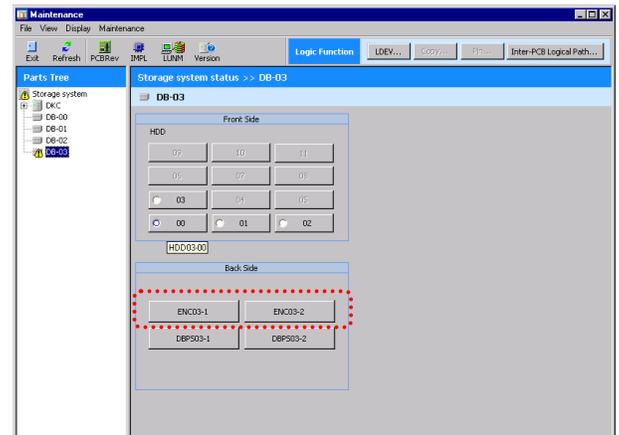
1-1. <Maintenance window>

Select (CL) the DB information [DB-nn] of the DB which installs the ENC to be replaced in the 'Maintenance' window.



1-2. <Select ENC>

Check and select (CL) [ENCnn-n] to be replaced.



1-3. <Specify replacement>

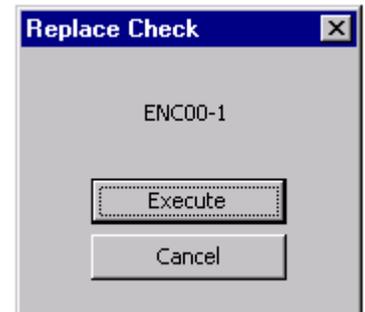
CAUTION

When the screen requests an operator to input a password in order to prevent multiple maintenance, contact the technical support division to ask for instructions.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

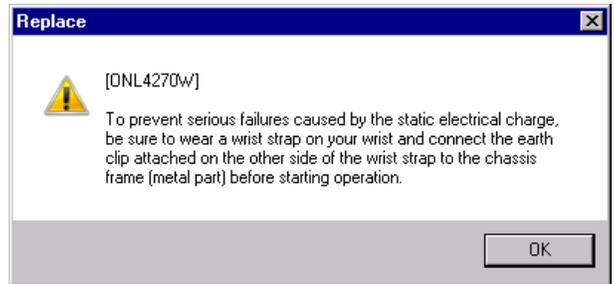
Select (CL) [Execute].

Selecting (CL) [Cancel] returns you to Step 1-2.



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



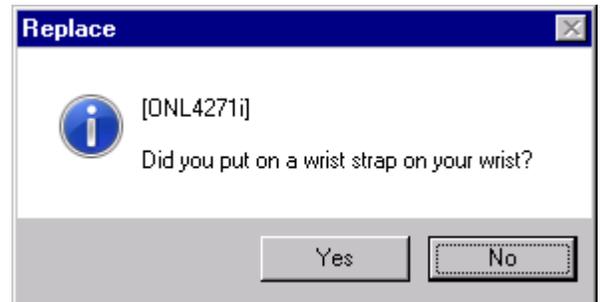
(1) <Confirm wearing wrist strap>

In response to a message, “Did you put on a wrist strap on your wrist?”.

Select (CL) [Yes] when wrist strap is on your wrist.

Select (CL) [No] when there is no wrist strap on your wrist.

When [No] is selected (CL), go to Step (2).

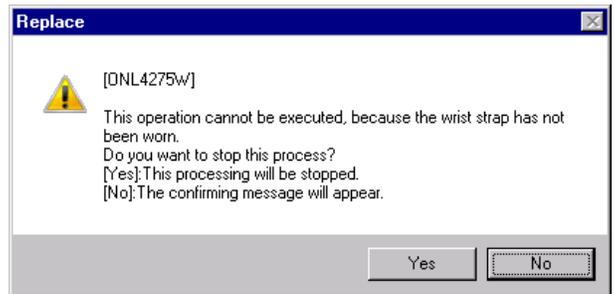


(2)

In response to a message, “This operation cannot be executed, because the wrist strap has not been worn. Do you want to stop this process?”

[Yes]: This processing will be stopped.

[No]: The confirming message will appear.”.

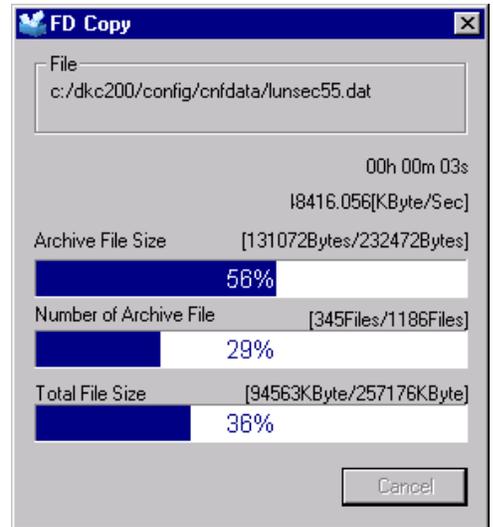


When [Yes] is selected (CL), returned to Step 1-2.

When [No] is selected (CL), returned to Step 1-4.

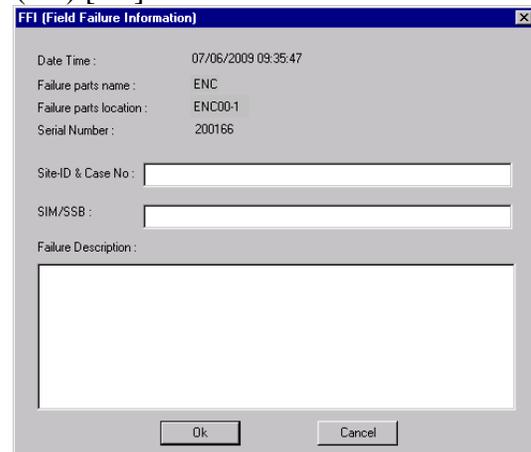
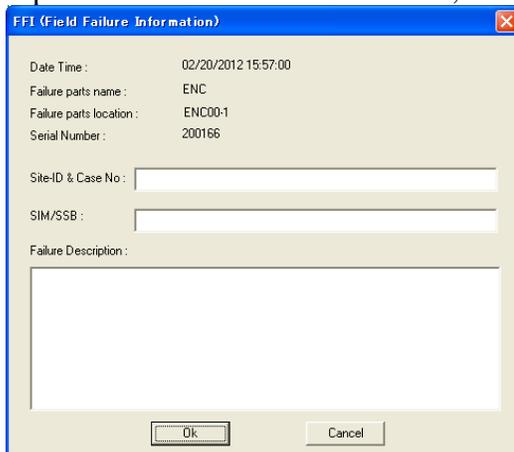
1-5. <Compression of the error information>

The error information is compressed.
The dialog of FD Copy is displayed.



1-6. <Get the error information>

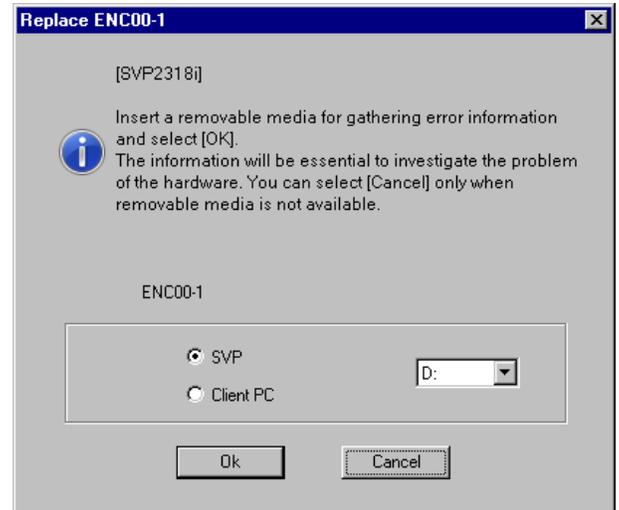
Input the Field Failure Information, and select (CL) [Ok].



“Insert a removable media for gathering error information and select [OK]. The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available.” is displayed.

Trouble information is preserved in console PC connected with SVP.

Please select the Client PC radio button of the screen, and select an arbitrary drive letter from the pull-down menu. The drive letter becomes the drive letter of console PC connected with SVP.



A Primary copy is always placed on the SVP HD in the “c:\dkc200\others\pcbinfo\” directory with the following file name format “SH528_YYMMDDhhmmss.tgz”.

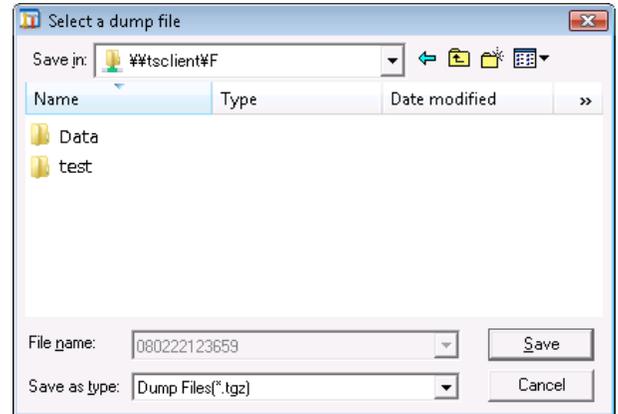
(YY denotes Year, MM denotes Month, DD denotes Day, hh denotes Hour, mm denotes Minute, and ss denotes Second)

When Client PC is selected, the directory selection dialog is displayed.
Please select an arbitrary directory if necessary.

Console PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of console PC.

Select (CL) [Save] when saving a file in a specified directory.

It returns to the drive selection screen when [Cancel] is selected (CL).



NOTE: The message is displayed two or more times. Please only operate the SSW selected by 1-3. <Specify replacement>.

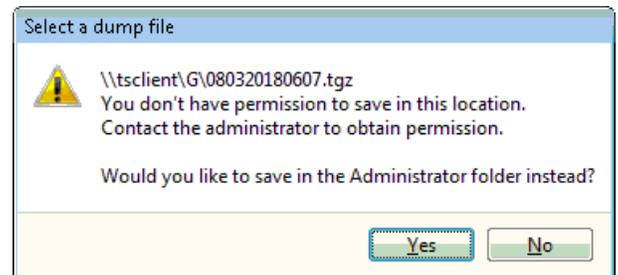
- When the destination media is write-protected.
<For Windows XP>



<For Windows Vista>

Selecting (CL) [Yes] displays the "C:\users\Administrator" folder of SVP.
Selecting (CL) [No] displays the folder selected with the Client PC.

Please appoint another destination whether you remove write protect when you save it and carry it out.

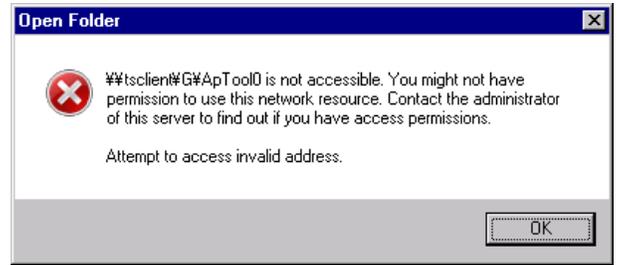


- When dialog of the destination drive specified with the Client PC is open, the media is removed, and then select (CL) [Save].

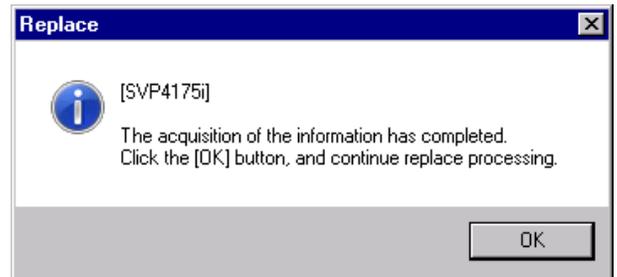
- When the memory in the destination drive specified with the Client PC is corrupted. The dialog remains displayed after selecting (CL) [OK].

At the time of the above operation completion, the information collection is not carried out.

Please choose another directory again after having closed a system message whether you reconnect the drive that you removed when you save it and carry it out.

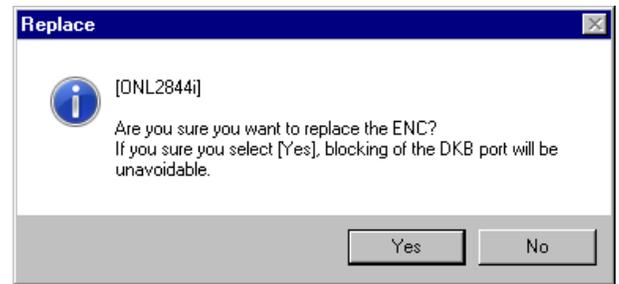


Select (CL) [OK] in response to “The acquisition of the information has completed. Click the [OK] button, and continue replace processing.”.



1-7. <Check beginning of DKB Port blocking>

Select (CL) [Yes] in response to “Are you sure you want to replace the ENC? If you select [Yes], blocking of the DKB port will be unavoidable.”.

**1-8. <Check DKB Port blocking>**

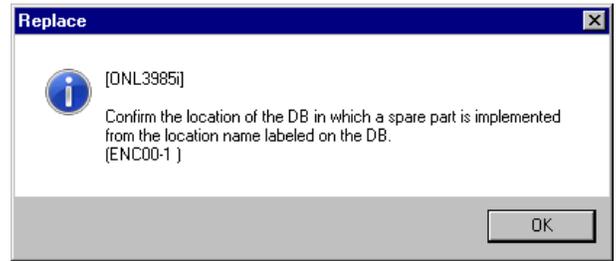
“The DKB Port is being blocked...” is displayed.

1-9. <Replace ENC>

(1)

Confirm the label on DB.

To confirm the label, the right messages are displayed.



(2)

The name in parentheses shows the position where ENC show in [LOC02-10](#). When [Yes] is selected (CL), go to Step 1-9 (3).

When [No] is selected (CL), returned to Step 1-9 (2).



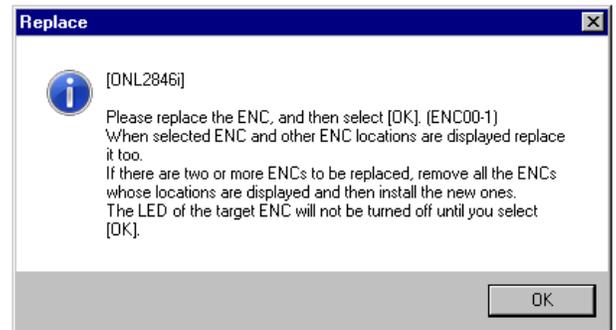
(3)

“Please replace the ENC, and then select [OK]. (ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” is displayed.



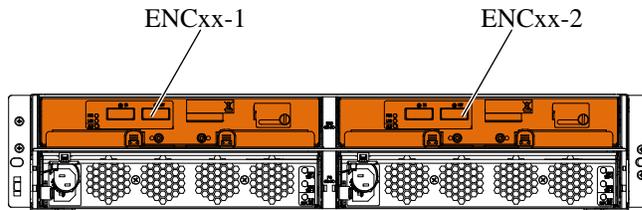
Make sure of the ENC location is displayed, select (CL) the [OK] button after replaced target ENC.

If the ENC Shut Down LED is not turned on, please replace ENC.

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DBF	1	ENC	



Rear View of DBF

NOTE: ENCxx-1

→ DB No. (0, 1, 2,, 47)

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

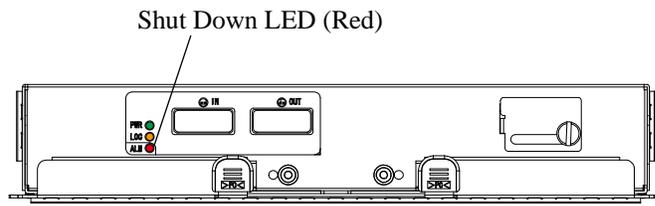
2-1 Replacement of ENC

2-1-1. Check the LED on the ENC.

- a. Check Shut Down LED on the ENC.

⚠ CAUTION

A system down is caused by a replacement of the ENC other than that to be replaced. Make sure that it is the ENC to be replaced.



Front View of ENC

Fig. 3.28.2-1 Confirmation of Shut Down LED

2-1-2. Set the switches on the spare ENC.

- a. Loosen the screw on the spare ENC and open the cover.
- b. Set the switches behind the cover.

NOTE: Use a thin edge tool (ex. a precision screwdriver etc.) when setting the ENC switches.

NOTE: If the switch settings are wrong, the ENC does not operate. Make sure that the switch settings are correct.

- c. Close the cover on the ENC and tighten the screw.

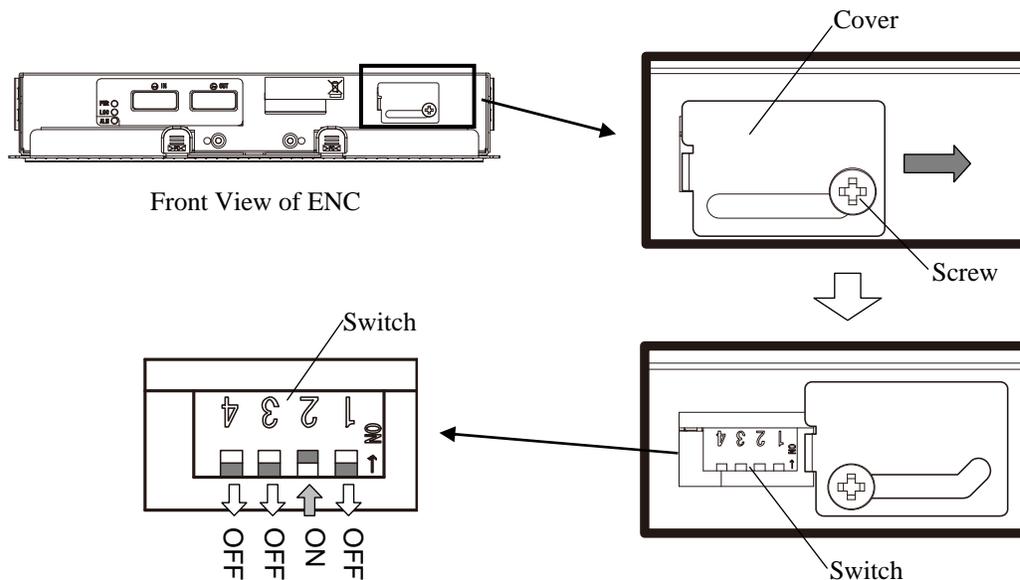


Fig. 3.28.2-2 Settings of ENC Switches

2-1-3. Replace the ENC.

- a. Disconnect the SAS cable which connects to the ENC to be replaced.
- b. Press the latches of the ENC inward to unlock the levers.
- c. Pull the right and left levers and remove the ENC.
- d. Take time for 10 seconds or more from removing the ENC to the installation.
- e. Make the right and left levers of the spare ENC open.
- f. Insert the spare ENC until the edge of the lever comes in contact with the DBF.
- g. Close the right and left levers to insert the ENC completely. Then confirm that the latches hold the levers.
- h. Connect the cables to the ENC after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).

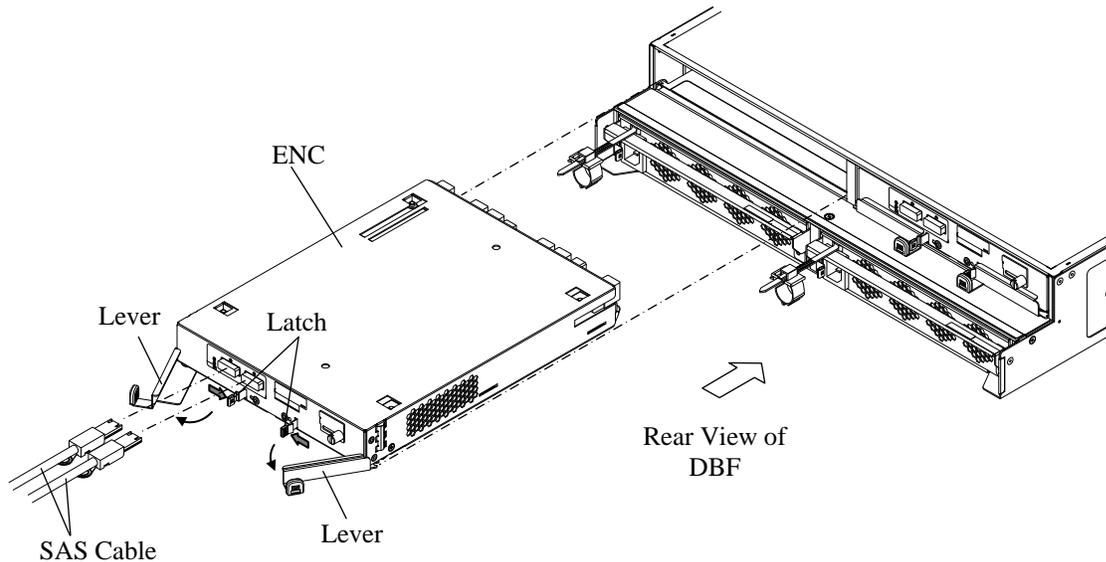
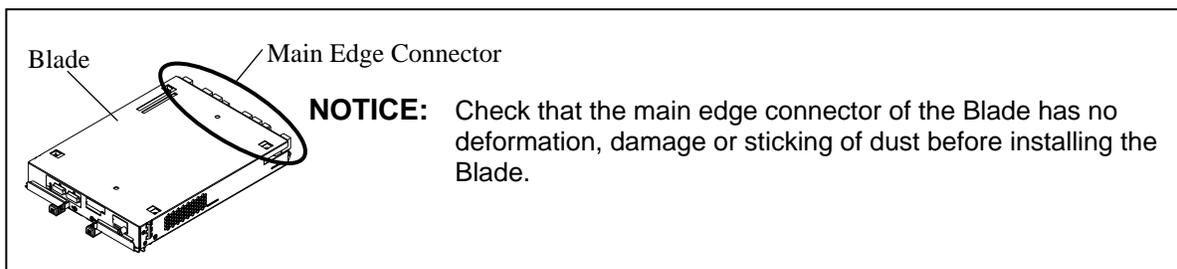


Fig. 3.28.2-3 Replacement of ENC

2-1-4. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check replacement of ENC>

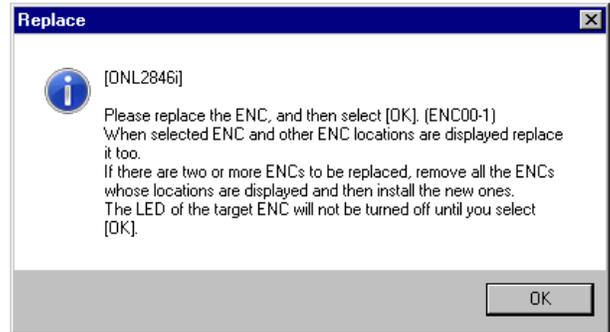
Select (CL) [OK] in response to “Please replace the ENC, and then select [OK].

(ENCnn-n)

When selected ENC and other ENC locations are displayed replace it too.

If there are two or more ENCs to be replaced, remove all the ENCs whose locations are displayed and then install the new ones.

The LED of the target ENC will not be turned off until you select [OK].” After replacement, press [OK].



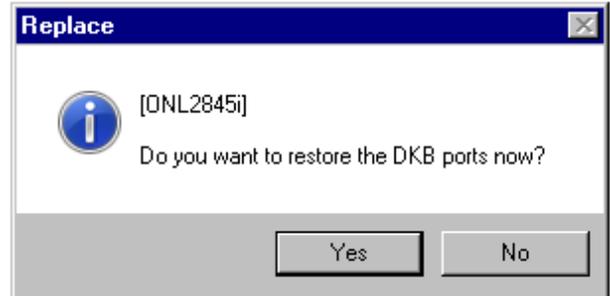
Make sure that the ENC location is displayed, select (CL) the [OK] button after replacing target ENCs.

Even if the ENC Shut Down LED is not turned on, please replace the ENCs.

NOTE: Even though the [OK] button is selected, the Locate LED does not turn off.

3-2. <Check the beginning of DKB Port recovery>

Select (CL) [Yes] in response to “Do you want to restore the DKB ports now?”.



3-3. <PATH INLINE>

“PATH INLINE is now running...” is displayed.

CAUTION

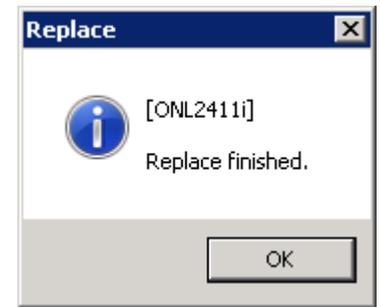
When a failure is found during PATH INLINE, the DKB Port connected to the loop are blocked.

Confirm the Diagnosis Log and solve the problem.

- 3-4. <Check DKB Port recovery processing>
“Restoring the DKB Port...” is displayed.

3-5. <Check the end of ENC replace>

Select (CL) [OK] in response to “Replace finished.”.



3-6.

Go to POST-PROCEDURE [[REP04-01-10](#)].

[DBF DBPS REPLACEMENT PROCESSING - RUF2]

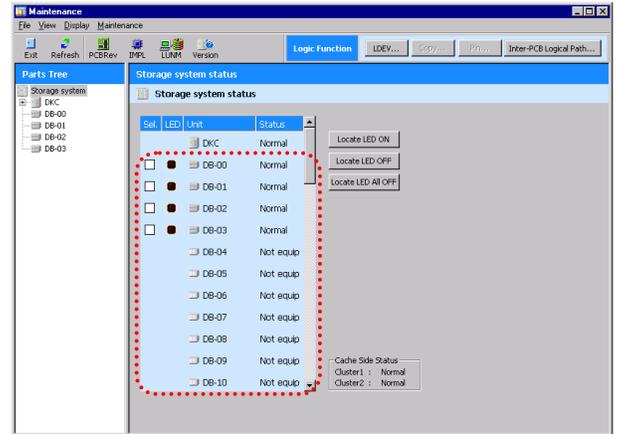
— OUTLINE —

1. PRE-PROCESSING of SVP
 - ① Select DBF DBPS (status check)
 - ② Specify Replacement
 - ③ Detach DBF DBPS
 - ④ Place part into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
 - ① Specify end of DBF DBPS replacement
 - ② Reinstall related parts
 - ③ Start environment monitor

1. PRE-PROCESSING of SVP

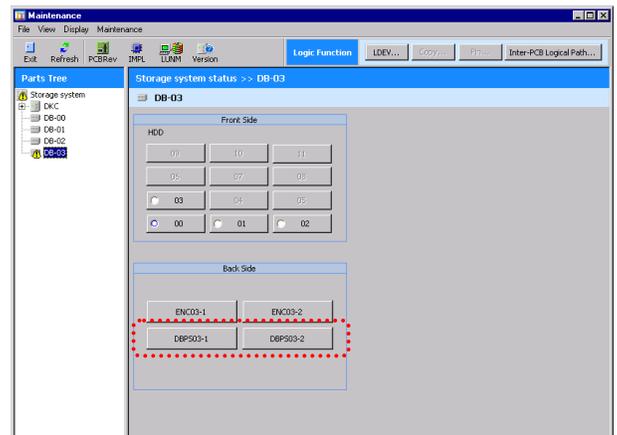
1-1. <Maintenance window>

Select (CL) [DB-nn] in the 'Maintenance' window.



1-2. <Specify DBPS>

Select (CL) [DBPSnn-n].



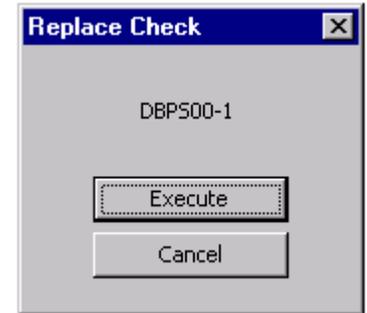
1-3. <Execute>

⚠ CAUTION

When the screen prompting an operator to input a password in order to prevent a multiple maintenance, contact the technical support division to ask for an instruction.

If any other message that is not explained below is displayed, see the SVP MESSAGE SECTION ([SVPMSG00-00](#)).

A window shown on the right is displayed.
Select (CL) [Execute].



1-4. <Wear a wrist strap>

Select (CL) [OK] in response to “To prevent serious failures caused by the static electrical charge, be sure to wear a wrist strap on your wrist and connect the earth clip attached on the other side of the wrist strap to the chassis frame (metal part) before starting operation.”.



“Did you put on a wrist strap on your wrist?” is displayed.

Select (CL) [Yes] and go to Step 1-5.



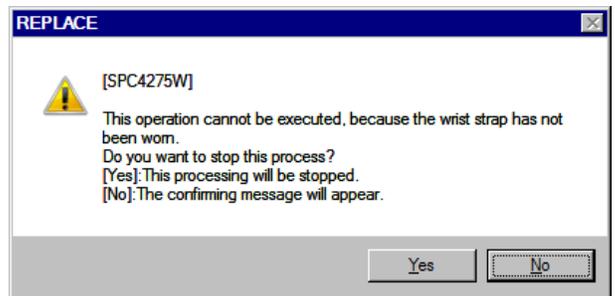
“This operation cannot be executed, because the wrist strap has not been worn.

Do you want to stop this process?

[Yes]: This processing will be stopped.

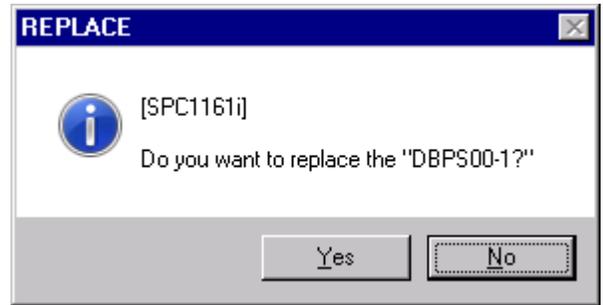
[No]: The confirming message will appear.” is displayed.

When the processing will be stopped, select (CL) [Yes].



1-5. <Check beginning of DBPS Replacement>

Select (CL) [Yes] in response to “Do you want to replace the “DBPSnn-n?””.



(Eg. DBPS00-1)

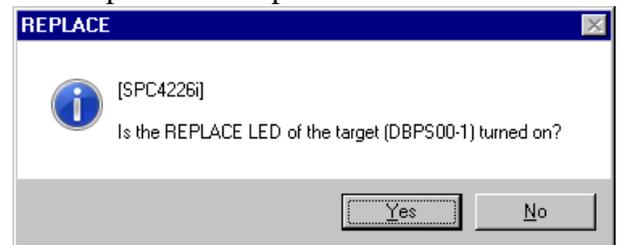
1-6. <Checking the environment monitor stopped and turning on the REPLACE LED>

The SVP automatically checks the environment monitor stopped, and turns on the REPLACE LED (The SVP displays some message to indicate these processes are running.).

1-7. <Checking lighting of the REPLACE LED on the component to be pulled out>

The message “Is the REPLACE LED of the target (DBPSnn-n) turned on?” is displayed.

When the Locate LED and the REPLACE LED (*1) on the component to be pulled out are on, select (CL) [Yes] and go to Step 1-9. When the REPLACE LED on the component to be pulled out is kept off, select (CL) [No] and go to Step 1-8.



(Eg. DBPS00-1)

Refer to LOCATION SECTION ([LOC03-160](#)) to confirm the location of REPLACE LED.

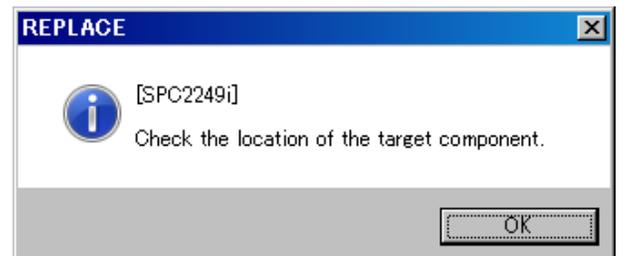
*1: REPLACE LED is described as “ALM” in the LOCATION SECTION. Mention on the label of DBPS is similar, too.

1-8. <Making sure of the DBPS location>

The message “Check the location of the target component.” is displayed.

See “2. HARDWARE REPLACEMENT PROCESSING”.

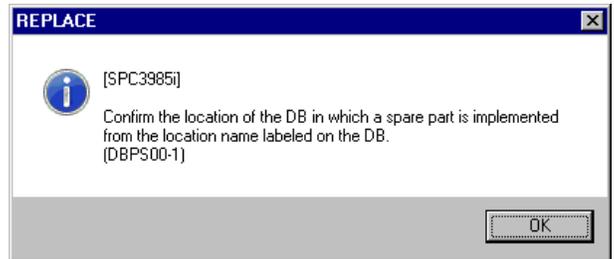
After making sure of the DBPS location, select (CL) [OK] and go to Step 1-9.



1-9. <Check beginning of DBPS Replacement>

The message “Confirm the location of the DB in which a spare part is implemented from the location name labeled on the DB. (DBPSnn-n)” is displayed.

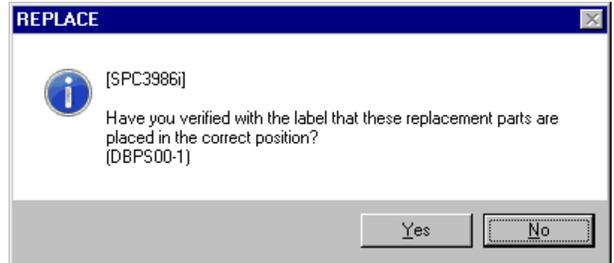
Select (CL) [OK] after you confirmed the content.



(Eg. DBPS00-1)

The message “Have you verified with the label that these replacement parts are placed in the correct position? (DBPSnn-n)” is displayed.

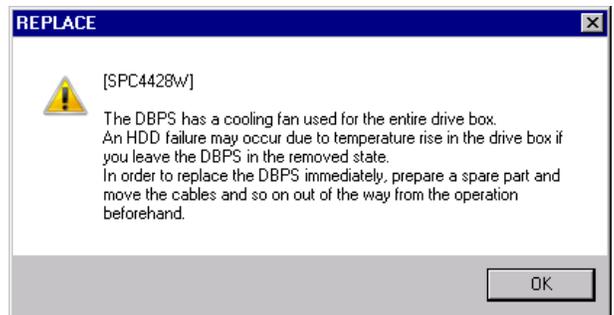
Select (CL) [Yes] after you confirmed the content.



(Eg. DBPS00-1)

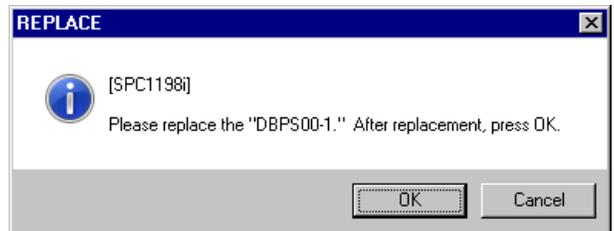
The message to warn of the influence of the DBPS removal is displayed.

According to the message, select (CL) [OK] after getting ready in advance.



The message “Please replace the “DBPSnn-n.” After replacement, press OK.” is displayed.

Reply with [OK] after replacing the special part.

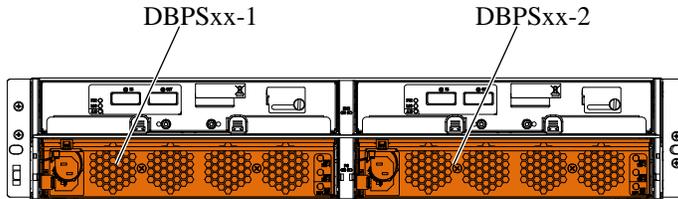


(Eg. DBPS00-1)

Go to “2. HARDWARE REPLACEMENT PROCESSING”.

2. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
Rear of DBF	1	DBPS	



Rear View of DBF

NOTE: DBPS_{xx}-1

→ DB No. (0, 1, 2,, 47)

NOTICE: Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.

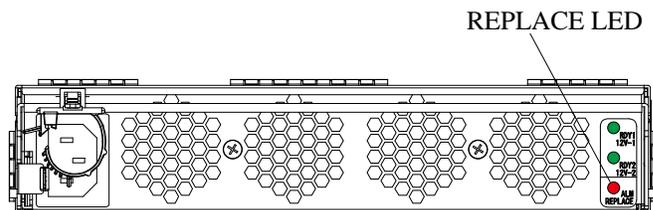
2-1	Replacement of DBPS
-----	---------------------

2-1-1. Replacement of DBPS

- a. Check that the REPLACE LED is on.

⚠ CAUTION

A system down may be caused by a replacement of the DBPS other than that to be replaced. Make sure that it is a DBPS to be replaced.



Front View of DBPS

Fig. 3.29.2-1 Check of REPLACE LED

- b. Pull and open the cable holder.
- c. Disconnect the PS cable from the DBPS.

 **CAUTION**

Watching for short-circuits:

A Short-circuit may cause a fire.

Never insert metal or the like into the cable connector or a short-circuit may occur.

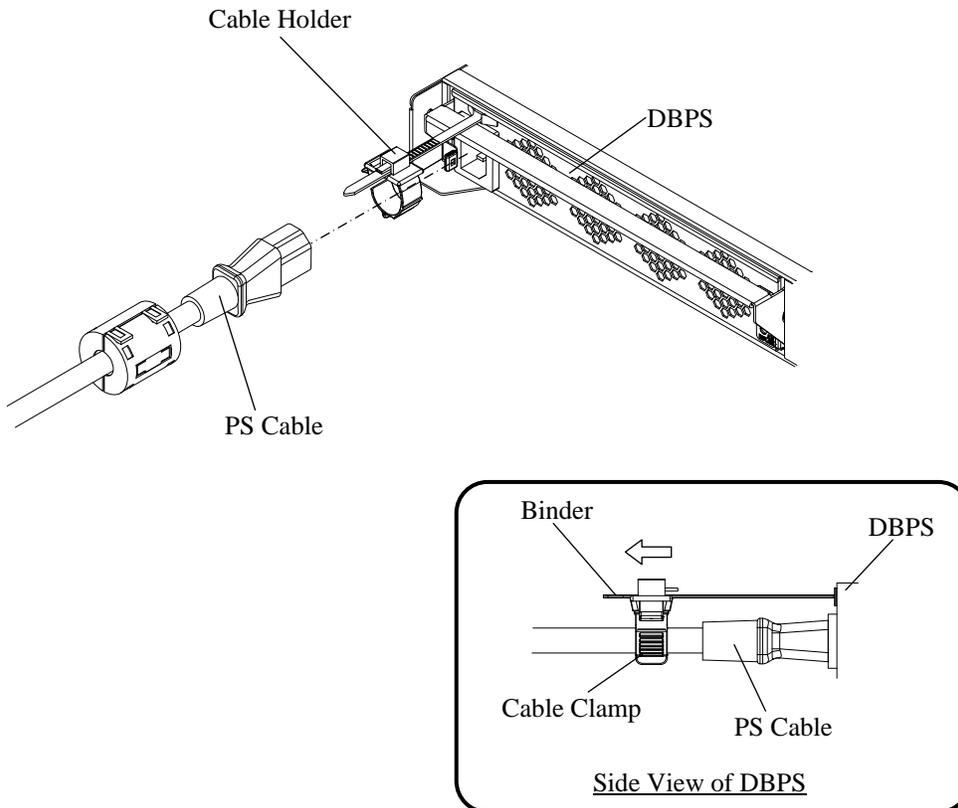


Fig. 3.29.2-2 Disconnection of PS Cable

- d. Have the handle down (②) while pressing the latches of the DBPS to the right (①).
- e. Pull the handle and detach the DBPS from the DBF.
- f. Open the handle on the spare DBPS.
- g. Insert the spare DBPS until the pin on it comes into contact with the mounting portion of the DBF.
- h. Push up the handle and fully insert the spare DBPS. Then confirm that the latches hold the handle.
- i. Connect the PS cable to the DBPS and fix the PS cable with the cable holder. (See Fig. 3.29.2-2.)
- j. Push the cable holder toward the DBPS.

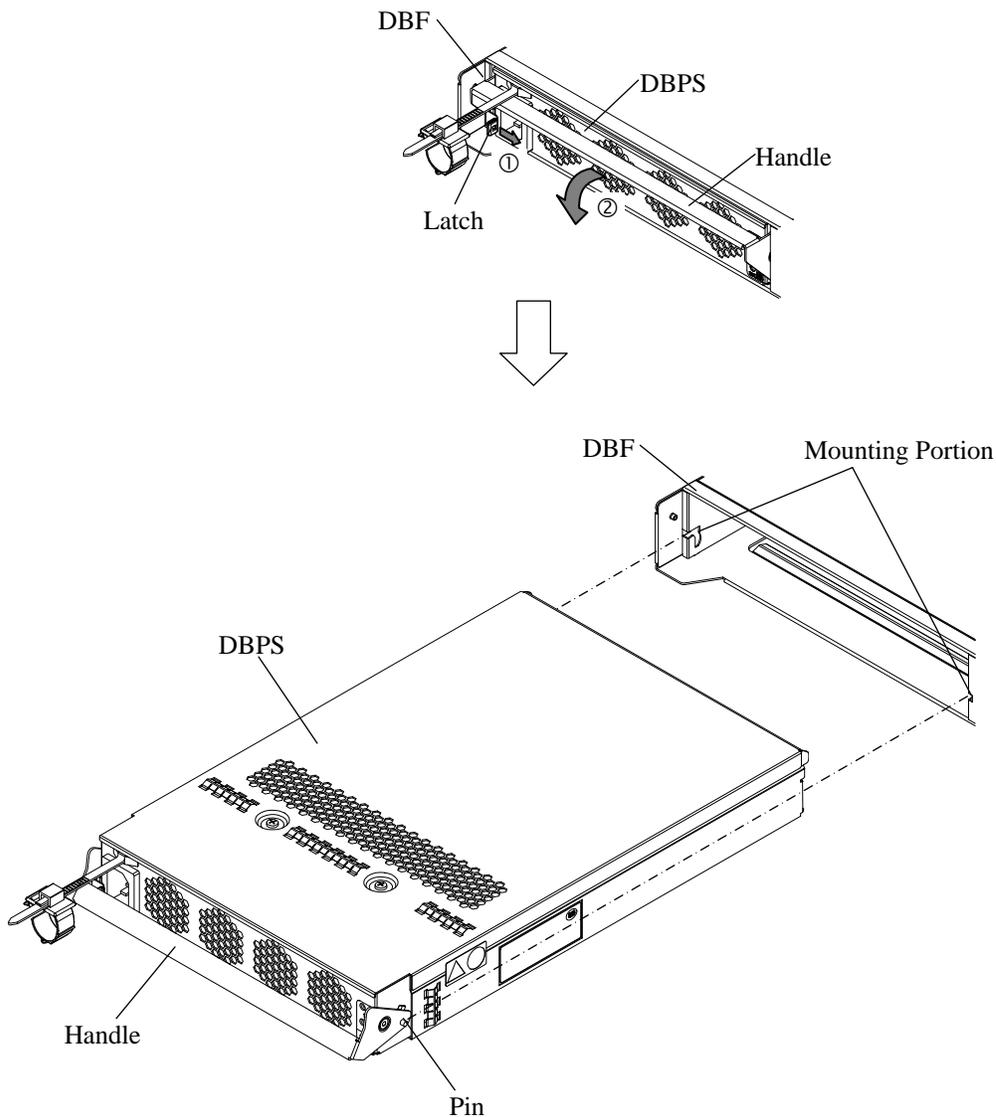


Fig. 3.29.2-3 Replacement of DBPS

2-1-2. Go to “3. POST-PROCESSING of SVP”.

3. POST-PROCESSING of SVP

3-1. <Check beginning of DBPS Replacement>

Select (CL) [OK] in response to “Please replace the “DBPSnn-n.” After replacement, press OK.”.



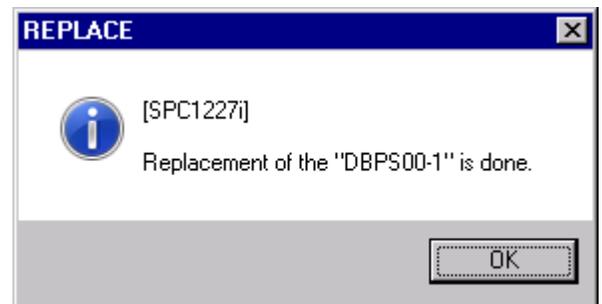
(Eg. DBPS00-1)

3-2. <Turning off the REPLACE LED and Checking the environment monitor started>

The SVP automatically turns off the REPLACE LED (If REPLACE LED lit), and checks the environment monitor started (The SVP displays some message to indicate these processes are running.).

3-3. <Check end of replacement>

Select (CL) [OK] in response to “Replacement of the “DBPSnn-n” is done.”.



(Eg. DBPS00-1)

3-4. <Confirm status>

Confirm the status display.

If button is normal (The string is normally display), go to Step 3-5.

If button is abnormal (The string is blinking), replace the target part again, or see TROUBLE SHOOTING SECTION.

3-5.

Go to POST-PROCEDURE [[REP04-01-10](#)].

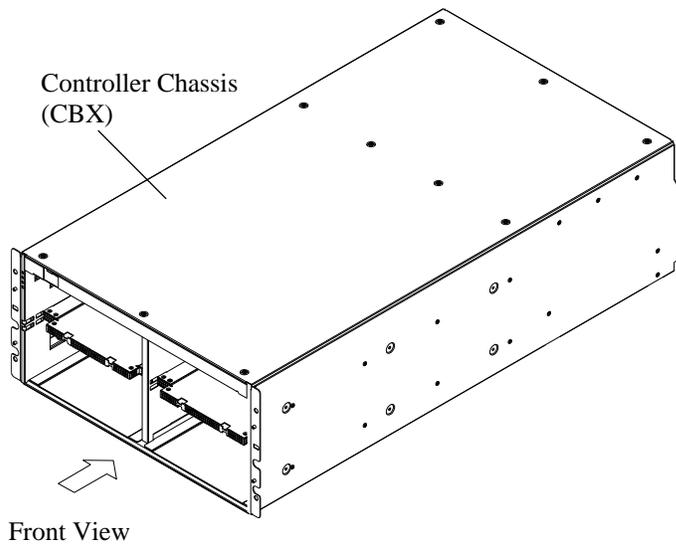
[Controller Chassis (CBX) REPLACEMENT PROCESSING]

— OUTLINE —

1. HARDWARE REPLACEMENT PROCESSING

1. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
RACK	1	Controller Chassis (DKC)	• CBX



NOTICE:

- Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
- Replace the Controller Chassis while the storage system is powered off. Do not replace the Controller Chassis while the storage system is powered on.

1-1 Replacement of Controller Chassis

1-1-1. Power off the RACK.

 **WARNING**

Hazardous voltage:

Contact could cause electric shock or burn. Turn off all related breakers and discharge residual voltage, as shown below. (Follow next procedures.)

- a. Turn off the MAIN Switch on the front side of the DKC.
- b. Confirm that the POWER LED on the upper left part of the front side of the DKC lights in amber.

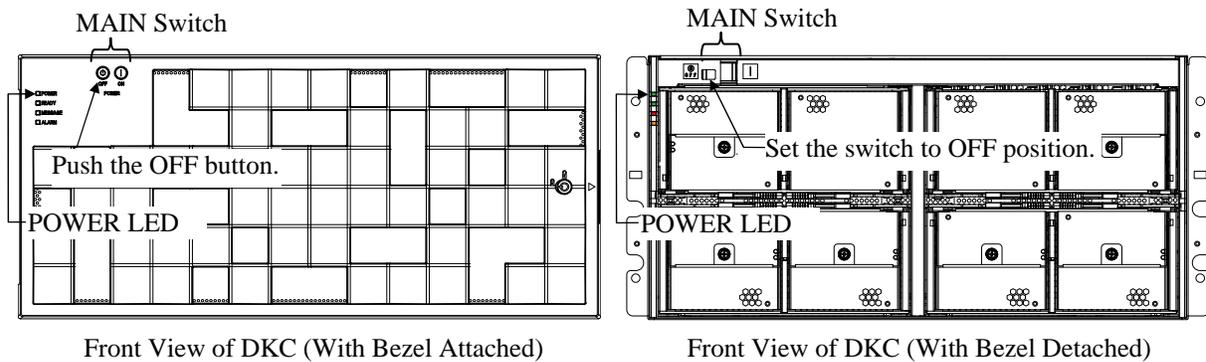


Fig. 3.40.1-1 Switch on DKC

- c. Turn off the breaker at the PDU.
- d. Turn off the circuit breaker on the power distribution panel in the plant that is connected to the PDU.
- e. The circuit has residual voltage after turning off the breakers, so wait for one minute.

1-1-2. Remove the bezel.

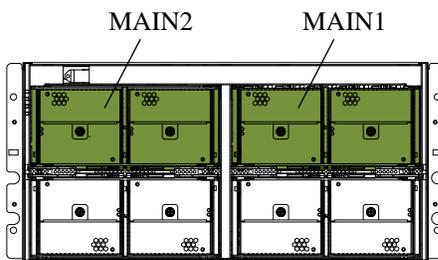
- a. Remove the bezel from the Controller Chassis. (See [INST03-01-20](#).)

1-1-3. Attach a label.

- a. Attach a label or the like for identification of installation location to a removed part so that it can be installed in the same place in the spare Controller Chassis.

1-1-4. Remove the MAIN Blade.

- a. Slide the lock on the levers of the MAIN Blade outward and open the levers.
- b. Open the levers completely and remove the MAIN Blade.
- c. Remove the other MAIN Blade in the same manner.



Front View of DKC

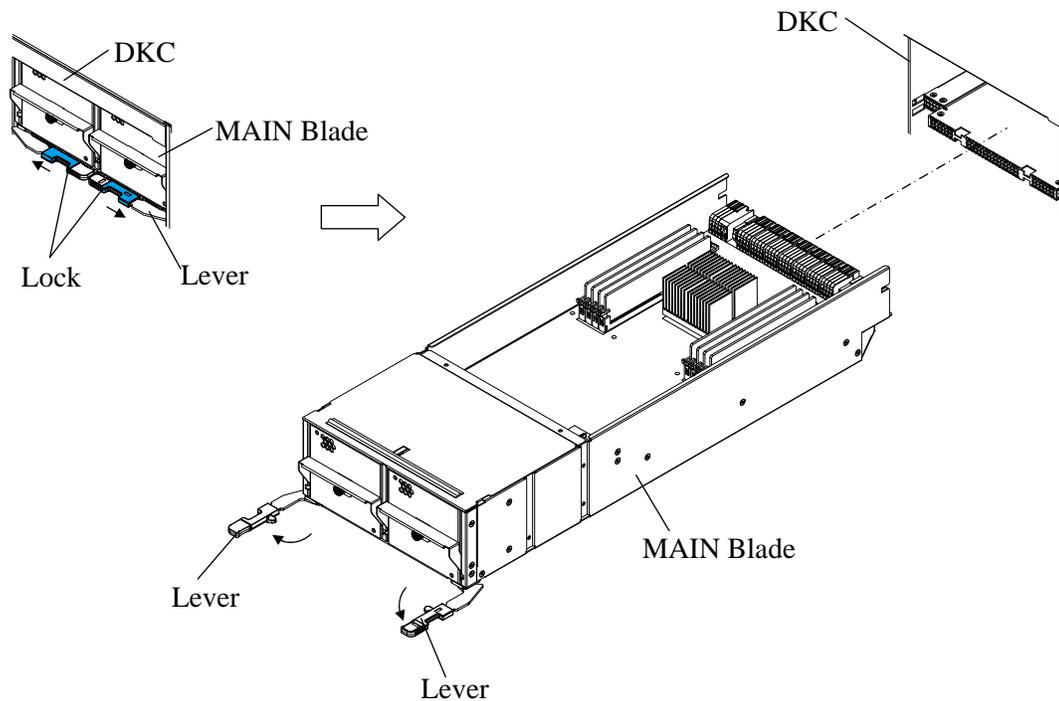


Fig. 3.40.1-2 Removal of MAIN Blade

1-1-5. Remove the MPB.

- a. Slide the lock on the levers of the MPB outward and open the levers.
- b. Open the levers completely and remove the MPB.
- c. Remove the other MPB in the same manner.

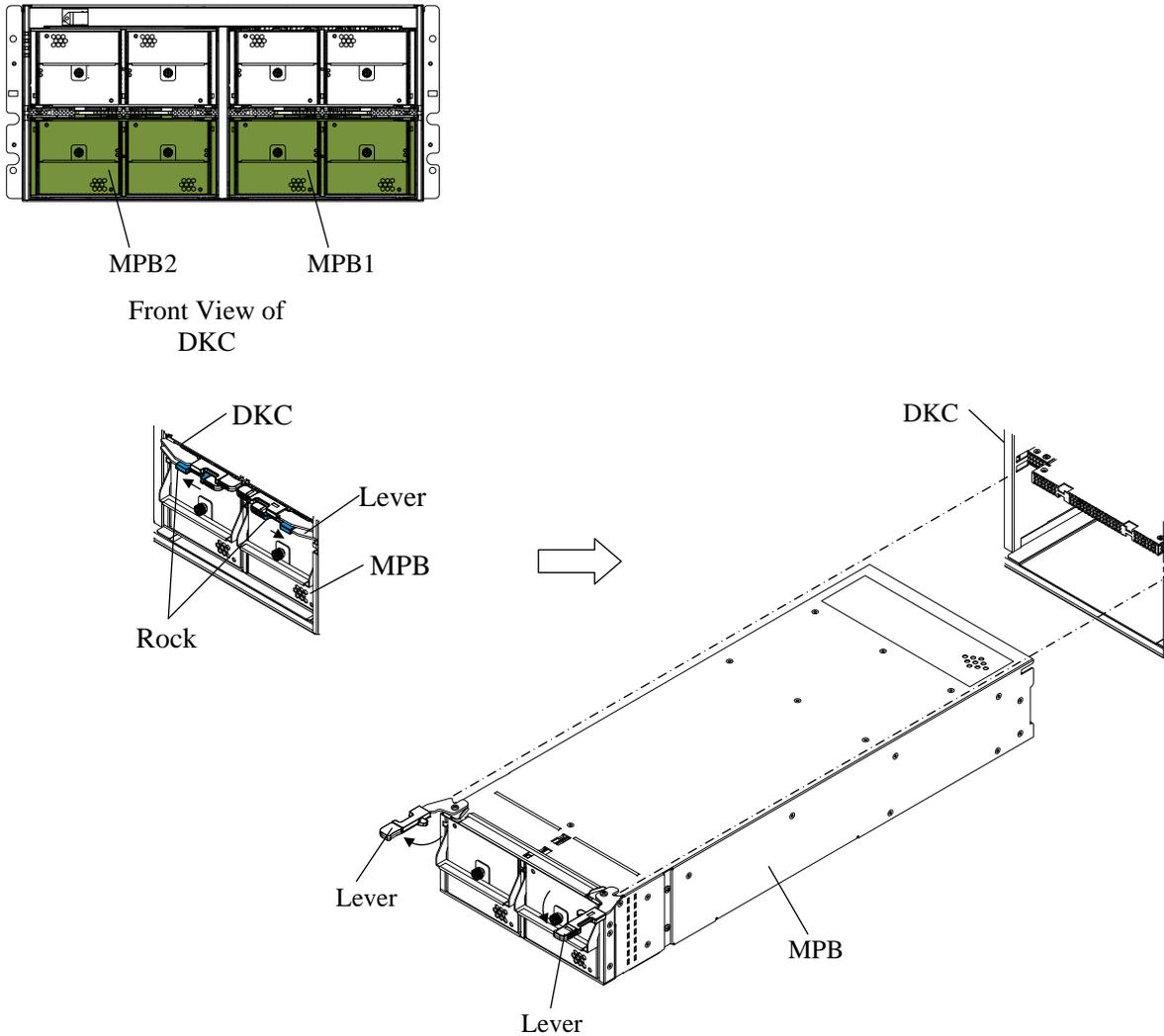


Fig. 3.40.1-3 Removal of MPB

1-1-6. Remove the CHB or Dummy Cover.

In case of CHB

- a. Disconnect the optical fibre cables from the CHB.
- b. Loosen the screw that fastens the CHB and let the handle fall down.
- c. Push down the handle and remove the CHB.
- d. Remove the other CHBs in the same manner.

In case of Dummy Cover

- a. Loosen the screw that fastens the dummy cover and let the handle fall down.
- b. Push down the handle and remove the dummy cover.
- c. Remove the other dummy covers in the same manner.

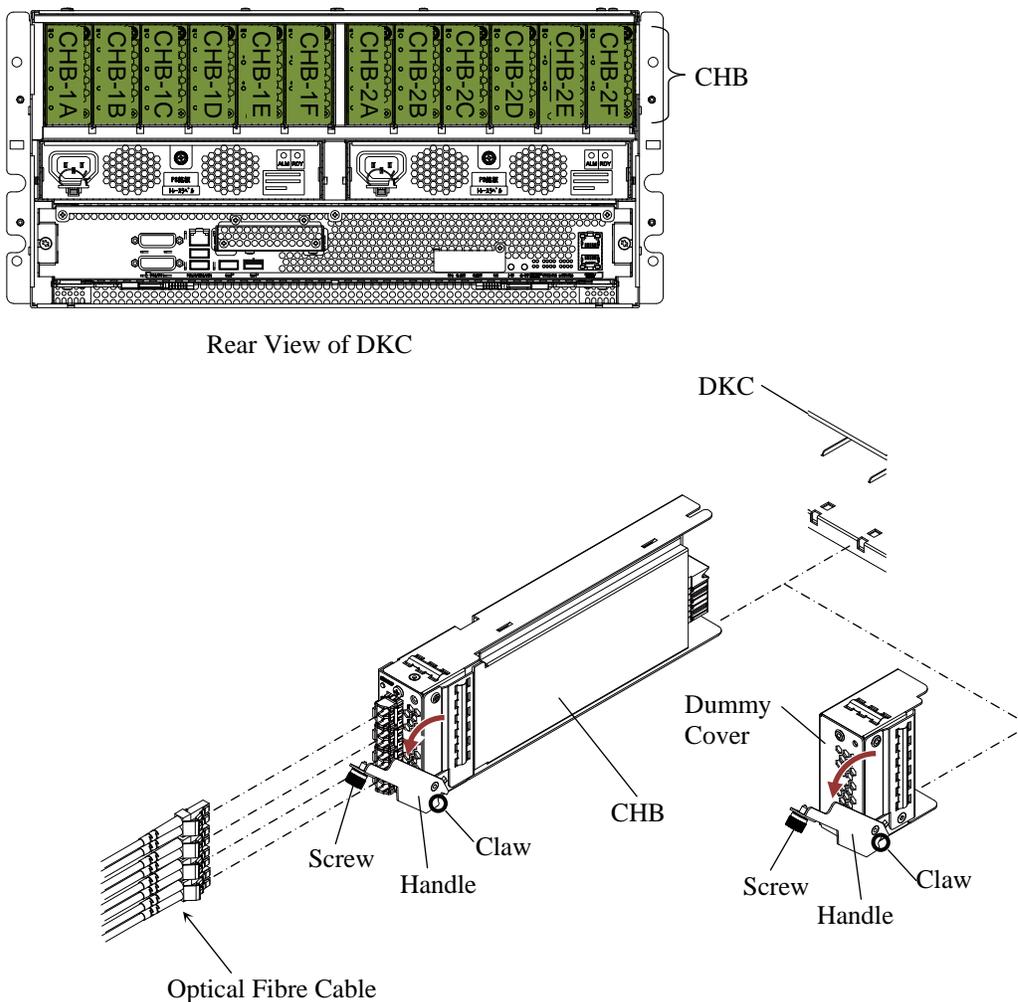


Fig. 3.40.1-4 Removal of CHB or Dummy Cover

1-1-7. Remove the DKB.

In case of DKB

- a. Disconnect the cables from the DKB.
- b. Loosen the screw that fastens the DKB and let the handle fall down.
- c. Push down the handle and remove the DKB.
- d. Remove the other DKBs in the same manner.

In case of Dummy Cover

- a. Loosen the screw that fastens the dummy cover and let the handle fall down.
- b. Push down the handle and remove the dummy cover.
- c. Remove the other dummy covers in the same manner.

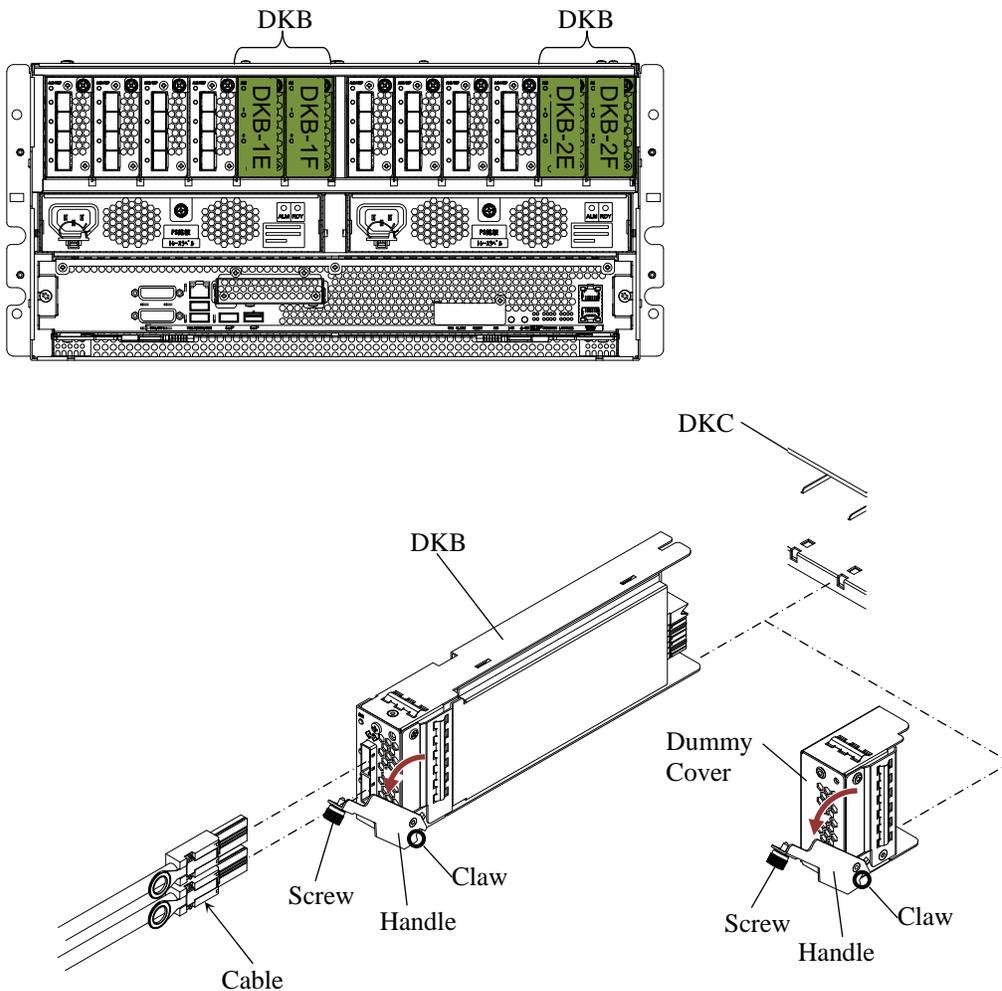


Fig. 3.40.1-5 Removal of DKB or Dummy Cover

1-1-8. Remove the DKCPS.

- a. Pull and open the locking clamp and disconnect the cable from the DKCPS.
- b. Loosen the screw on the front of the DKCPS and make the handle fall down.
- c. Pull the handle and detach the DKCPS from the DKC.
- d. Remove the other DKCPS in the same manner.

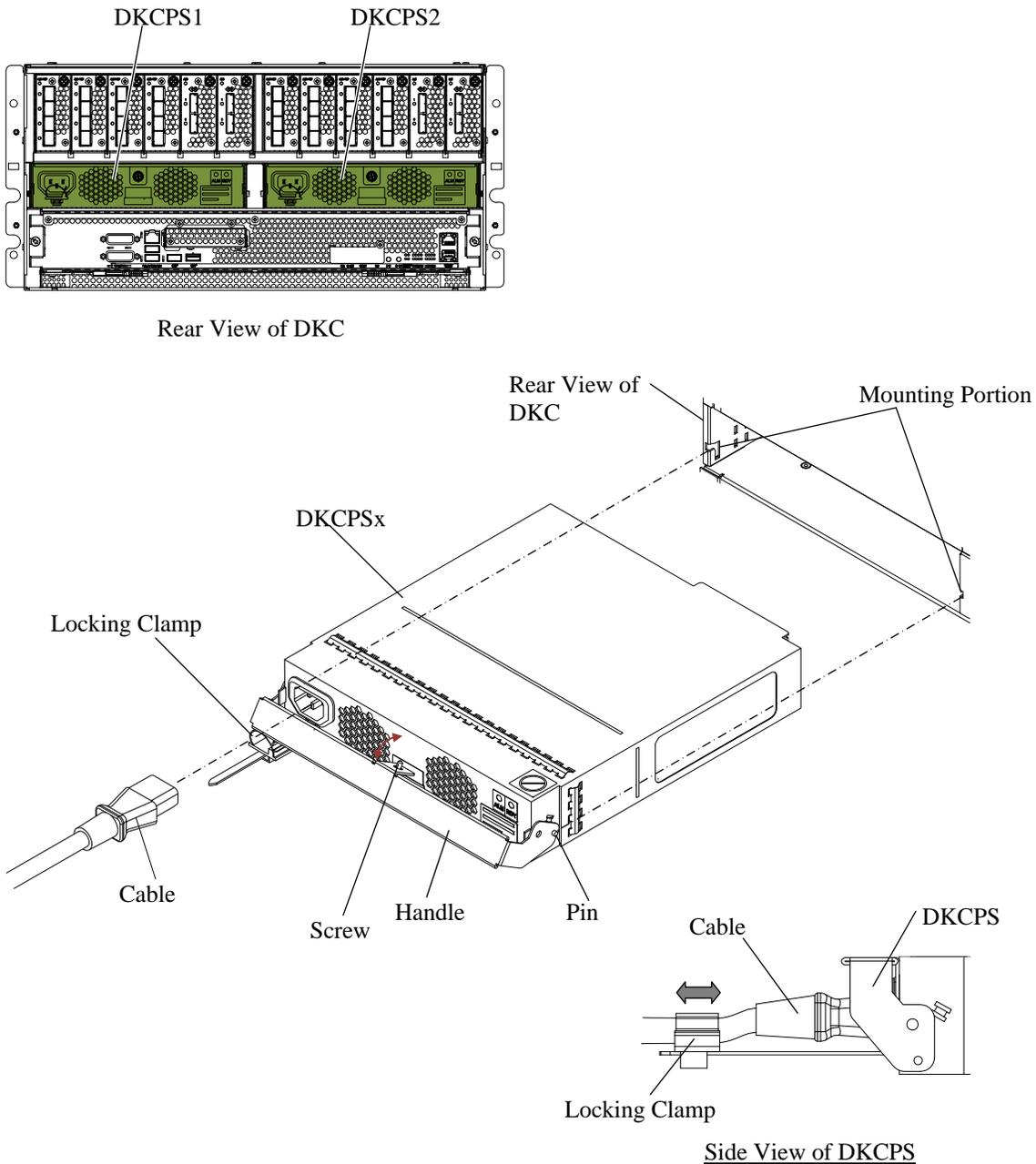
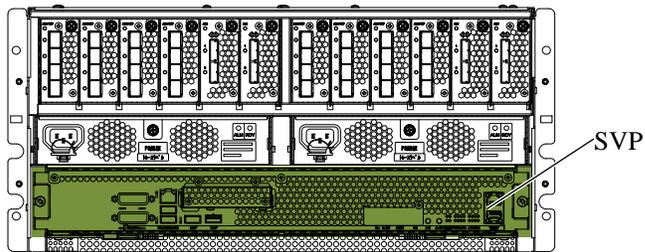


Fig. 3.40.1-6 Removal of DKCPS

1-1-9. Remove the SVP.

- a. Disconnect all the cables from the SVP.
- b. Loosen the two screws on the front of the SVP.
- c. Slide the lock on the levers of the SVP outward and open the levers.
- d. Open the levers completely and remove the SVP.



Rear View of DKC

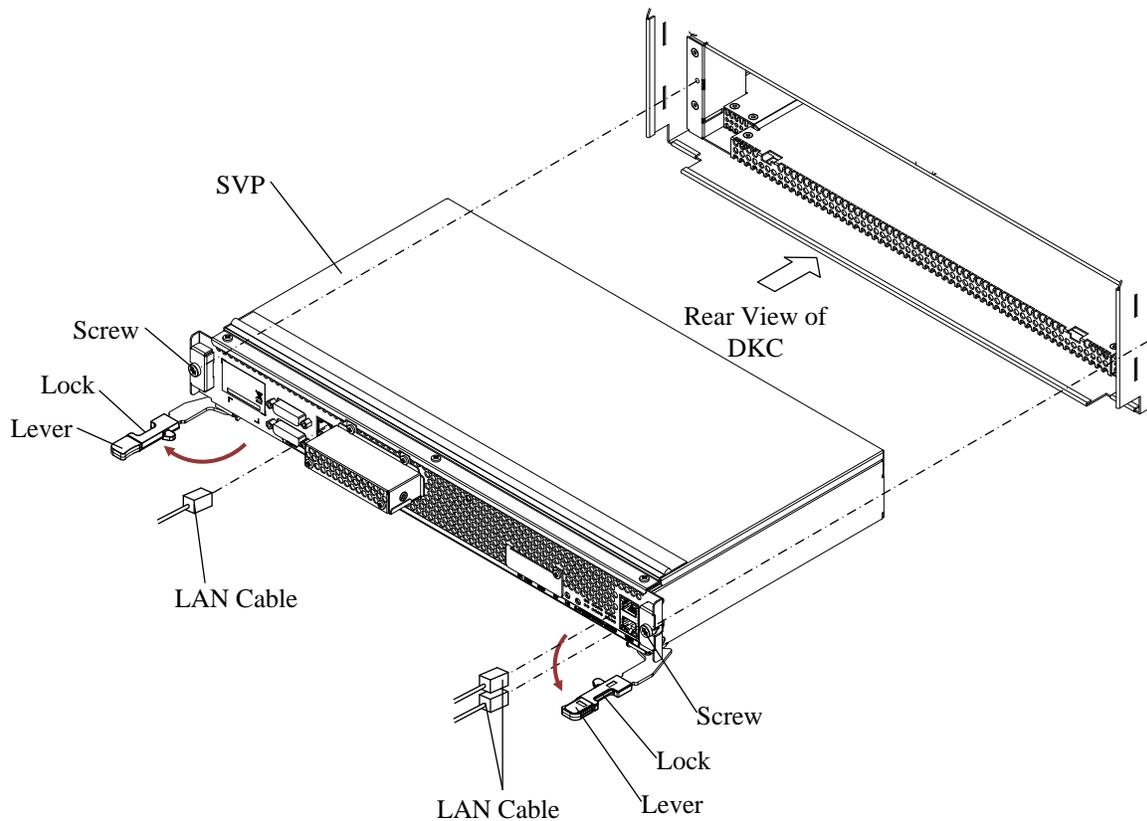


Fig. 3.40.1-7 Removal of SVP

1-1-10. Replace the Controller Chassis.

- a. Remove the two screws and remove the bracket from the front side of the DKC.
- b. Remove the two screws and remove the side panel from the front side of the DKC.

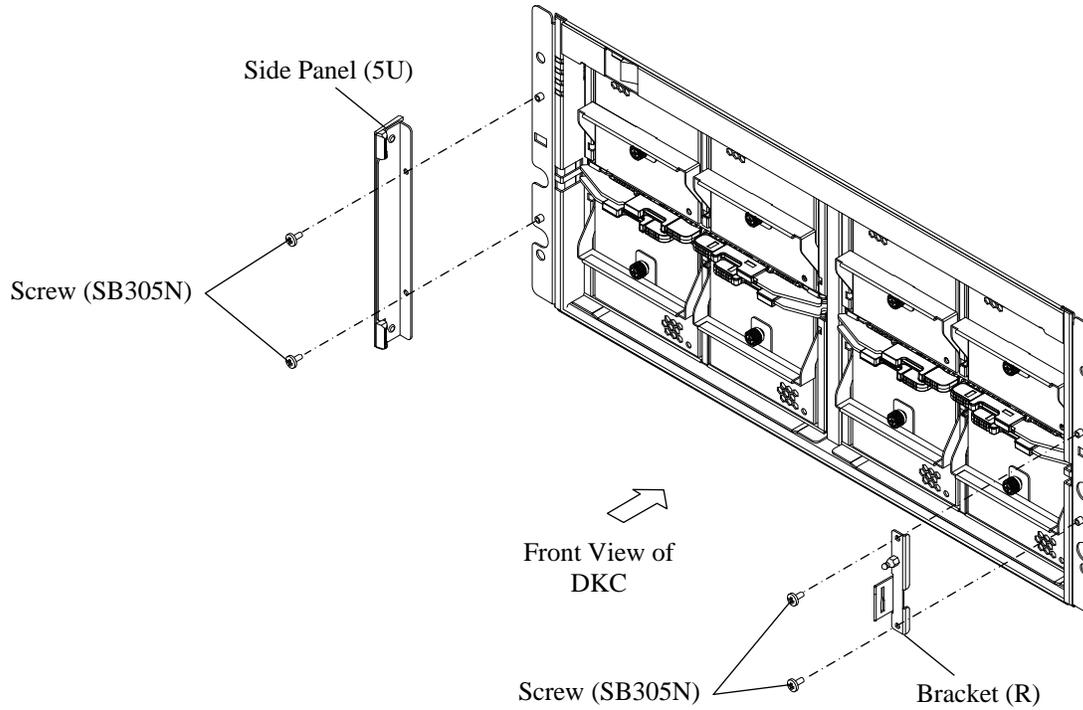


Fig. 3.40.1-8 Removal of Parts

⚠ CAUTION

Paying attention to falls:

Work carefully because the mass of the single Controller Chassis is about 29 kg.

- c. Remove the four screws.
- d. Remove the Controller Chassis from the Rack frame referring to mounting procedure using the special lifter. (See [INST03-10-10 through 40.](#))
- e. Install the Controller Chassis on the Rack frame.
- f. Fix the Controller Chassis with the four screws.
- g. Attach the bracket on the front side and fasten the two screws. (Refer to Fig. 3.40.1-8.)
- h. Attach the side panel on the front side and fasten the two screws.

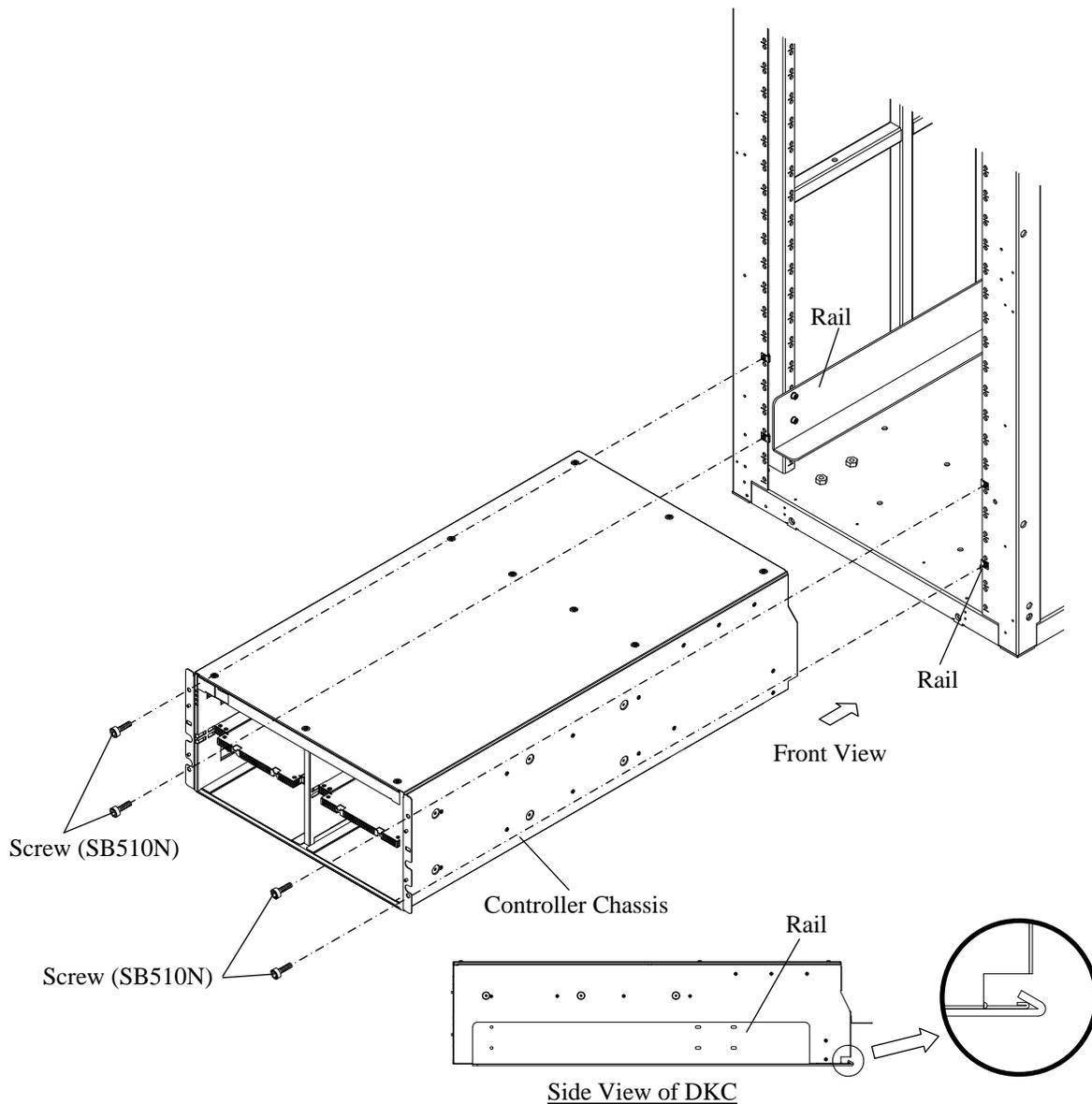


Fig. 3.40.1-9 Replacement of Controller Chassis

1-1-11. Insert the MPB.

- a. Insert the MPB until its lever edges reach the DKC. (See Fig. 3.40.1-3.)
- b. Close the levers inward and fully insert the MPB. Then confirm that the lever locks are fastened to the DKC.
- c. Install the other MPB in the same manner.

1-1-12. Insert the MAIN Blade.

- a. Insert the MAIN Blade until its lever edges reach the DKC. (See Fig. 3.40.1-2.)
- b. Close the levers inward and fully insert the MAIN Blade. Then confirm that the lever locks are fastened to the DKC.
- c. Install the other MAIN Blade in the same manner.

1-1-13. Insert the SVP.

- a. Insert the SVP until its lever edges reach the DKC. (See Fig. 3.40.1-7.)
- b. Close the levers inward and fully insert the SVP. Then confirm that the lever locks are fastened to the DKC.
- c. Tighten the two screws.
- d. Connect the cables to the SVP.

1-1-14. Insert the DKCPS.

- a. Loosen the screw on the DKCPS and open the handle. (See Fig. 3.40.1-6.)
- b. Insert the DKCPS until the pin on it comes into contact with the mounting portion of the DKC.
- c. Push up the handle and fully insert the DKCPS.
- d. Tighten the screw and fix the DKCPS.
- e. Connect the cable to the DKCPS and fix the cable with the locking clamp.
- f. Push the locking clamp toward the DKCPS.
- g. Install the other DKCPS in the same manner.

1-1-15. Insert the DKB or Dummy Cover.

In case of DKB

- a. Insert the DKB until the claw on the lower part of the handle of the DKB reaches the front of the DKC. (See Fig. 3.40.1-5.)
- b. Push up the handle and fully insert the DKB.
- c. Tighten the screw and fasten the DKB.
- d. Connect the cables to the DKB after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).
- e. Install the other DKBs in the same manner.

In case of Dummy Cover

- a. Insert the dummy cover until the claw on the lower part of the handle of the dummy cover reaches the front of the DKC. (See Fig. 3.40.1-5.)
- b. Push up the handle and fully insert the dummy cover.
- c. Tighten the screw and fasten the dummy cover.
- d. Install the other dummy covers in the same manner.

1-1-16. Insert the CHB or Dummy Cover.

In case of CHB

- a. Insert the CHB until the claw on the lower part of the handle of the CHB reaches the front of the DKC. (See Fig. 3.40.1-4.)
- b. Push up the handle and fully insert the CHB.
- c. Tighten the screw and fasten the CHB.
- d. Blow compressed gas against the connector of the optical fibre cable using an air sprayer (for about five seconds). (Refer to the tool list on page [PARTS05-10](#).)
- e. Wipe the connector lightly with a piece of cut gauze wet with ethyl alcohol.
- f. Blow compressed air again and check the result of the cleaning. (None of dust, sticking of foreign matter, and dirt must be observed.)
- g. Connect the optical fibre cables to the CHB.
- h. Install the other CHBs in the same manner.

In case of Dummy Cover

- a. Insert the dummy cover until the claw on the lower part of the handle of the dummy cover reaches the front of the DKC. (See Fig. 3.40.1-4.)
- b. Push up the handle and fully insert the dummy cover.
- c. Tighten the screw and fasten the dummy cover.
- d. Install the other dummy covers in the same manner.

1-1-17. Attach the nameplate.

- a. Take out the nameplate in which the same model name as the removed chassis is described from the nameplates attached to the spare chassis. Write down the same serial number as the removed chassis in the nameplate, and then affix the nameplate to the spare chassis. When the nameplate in which the same model name as the removed chassis is described is not attached, take out the nameplate in which the same rating and producer country as the removed chassis are described and which the model name is not described. Write down the same model name and serial number as the removed chassis in the nameplate, and then affix it to the spare chassis.

To fill in the nameplate, use the RoHS-compliant marker pen.

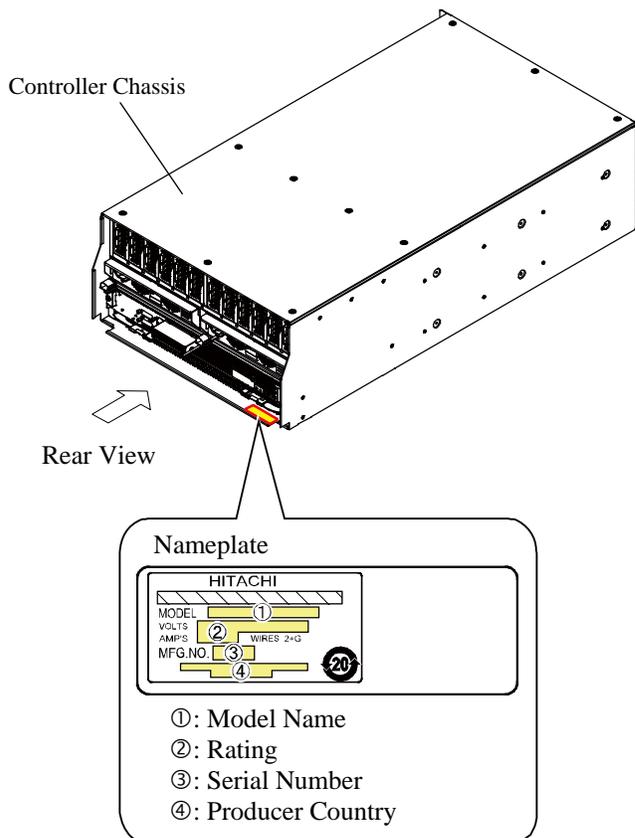


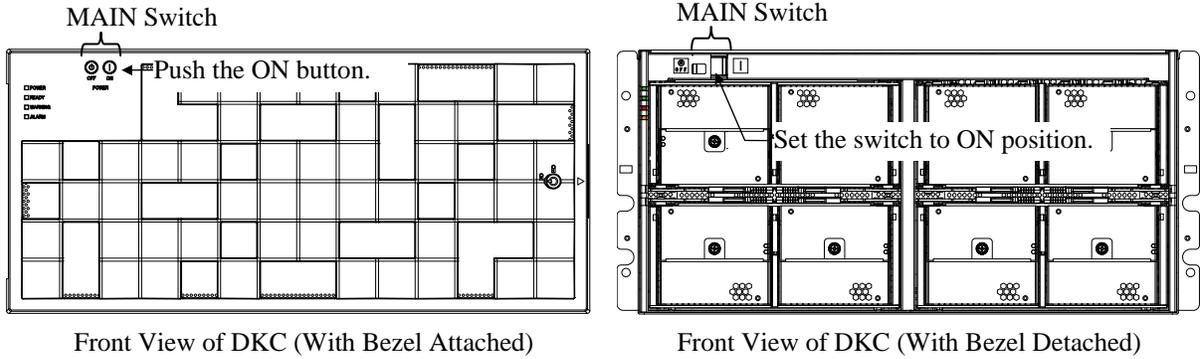
Fig. 3.40.1-10 Attachment of Nameplate

1-1-18. Attach the bezel.

- a. Attach the bezel to the controller chassis. (See [INST03-01-30](#).)

1-1-19. Power On the component

- a. Turn on the breaker on the power distribution panel that is connected to PDU.
- b. Turn on the breaker on the PDU.
- c. Turn on the MAIN Switch.

**Fig. 3.40.1-11 Switch on DKC****1-1-20. End**

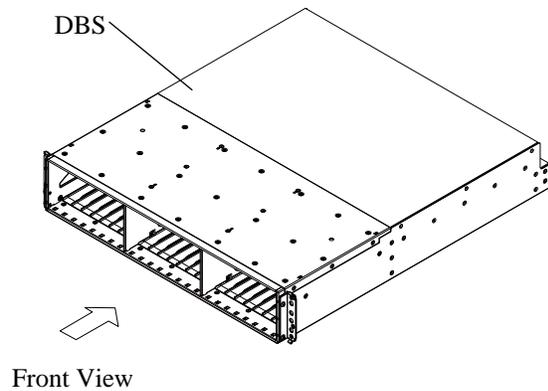
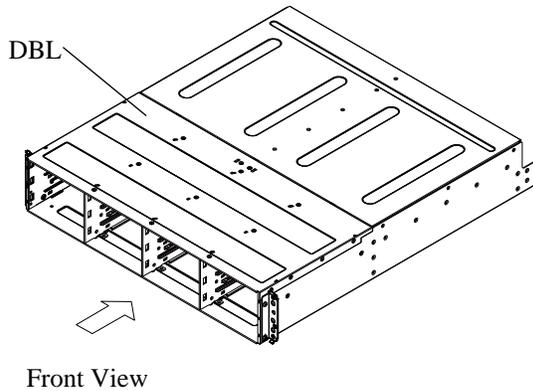
[Drive Box (DBL/DBS) REPLACEMENT PROCESSING]

— OUTLINE —

1. HARDWARE REPLACEMENT PROCESSING

1. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
RACK	1	Drive Box	<ul style="list-style-type: none"> • DBL • DBS



- NOTICE:**
- Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - Replace the Drive Box while the storage system is powered off. Do not replace the Drive Box while the storage system is powered on.

1-1 Replacement of Drive Box

1-1-1. Power off the RACK.

 **WARNING**

Hazardous voltage:

Contact could cause electric shock or burn. Turn off all related breakers and discharge residual voltage, as shown below. (Follow next procedures.)

- a. Turn off the MAIN Switch on the front side of the DKC.
- b. Confirm that the POWER LED on the upper left part of the front side of the DKC lights in amber.

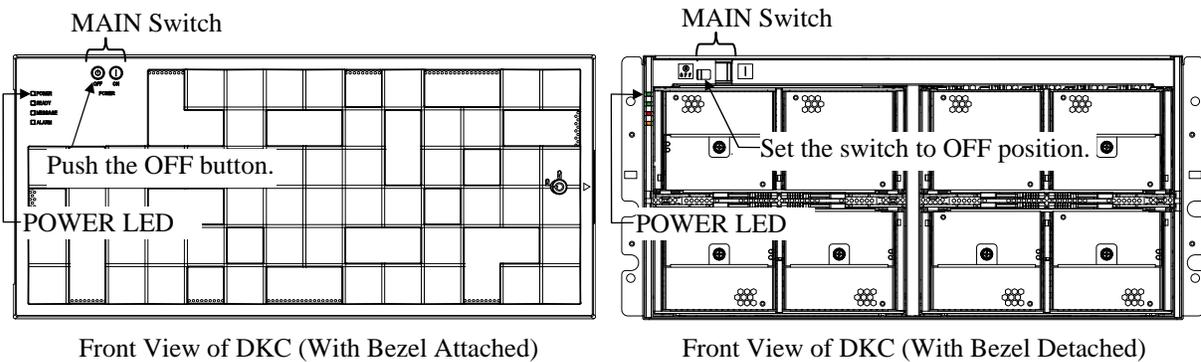


Fig. 3.41.1-1 Switch on DKC

- c. Turn off the breaker at the PDU.
- d. Turn off the circuit breaker on the power distribution panel in the plant that is connected to the PDU.
- e. The circuit has residual voltage after turning off the breakers, so wait for one minute.

1-1-2. Remove the bezel.

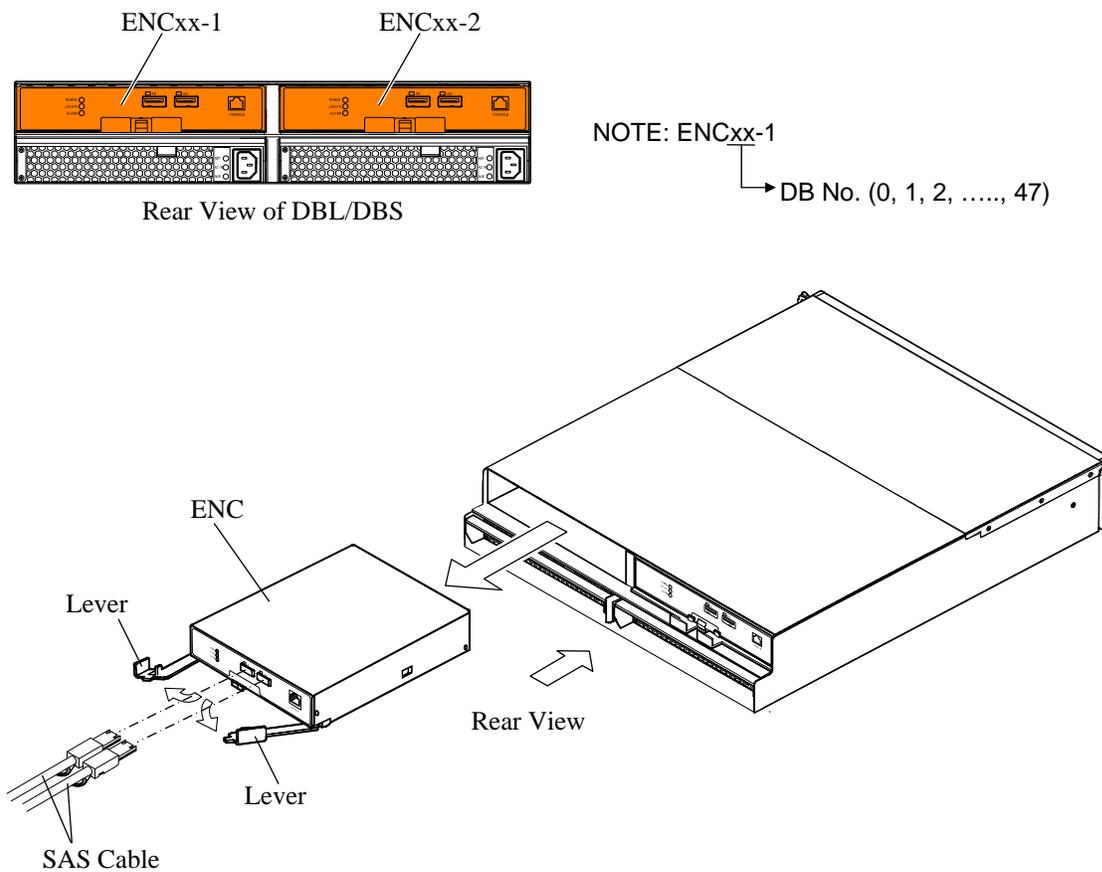
- a. Remove the bezel from the Drive Box. (See [INST03-01-40](#).)

1-1-3. Attach a label.

- a. Attach a label or the like for identification of installation location to a removed part so that it can be installed in the same place in the spare Drive Box.

1-1-4. Remove the ENC.

- a. Disconnect the SAS cable which connects to the ENC.
- b. Pull the right and left levers and remove the ENC.
- c. Remove the other ENC in the same manner.

**Fig. 3.41.1-2 Removal of ENC**

1-1-5. Remove the DBPS.

- a. Remove the two repeat binders from the rail of the rear side of the Drive Box.

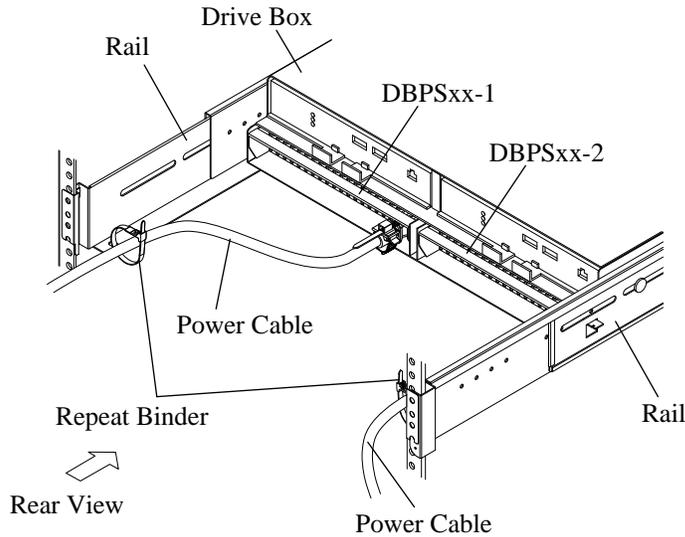


Fig. 3.41.1-3 Removal of Repeat Binders

- b. Pull and open the cable holder.
- c. Disconnect the power cable from the DBPS.
- d. Disconnect the power cable from the other DBPS in the same manner.

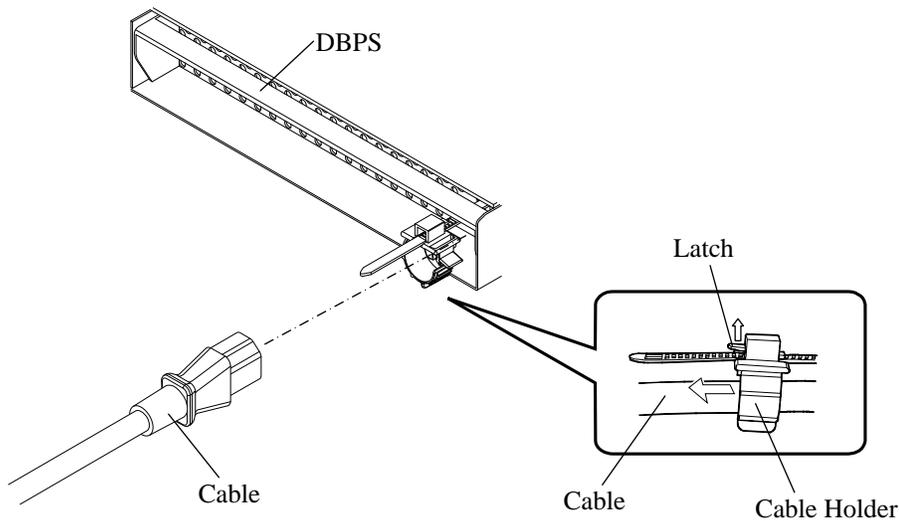
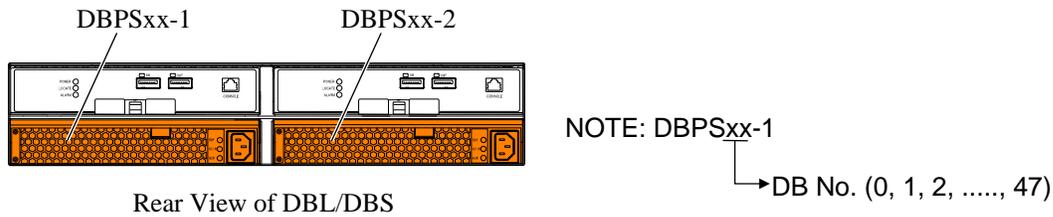


Fig. 3.41.1-4 Disconnection of Cable

- e. Bring the handle down and forward (②) while pushing the latch of the DBPS inward (①).
- f. Pull the DBPS and remove it from the Drive Box.
- g. Remove the other DBPS in the same manner.

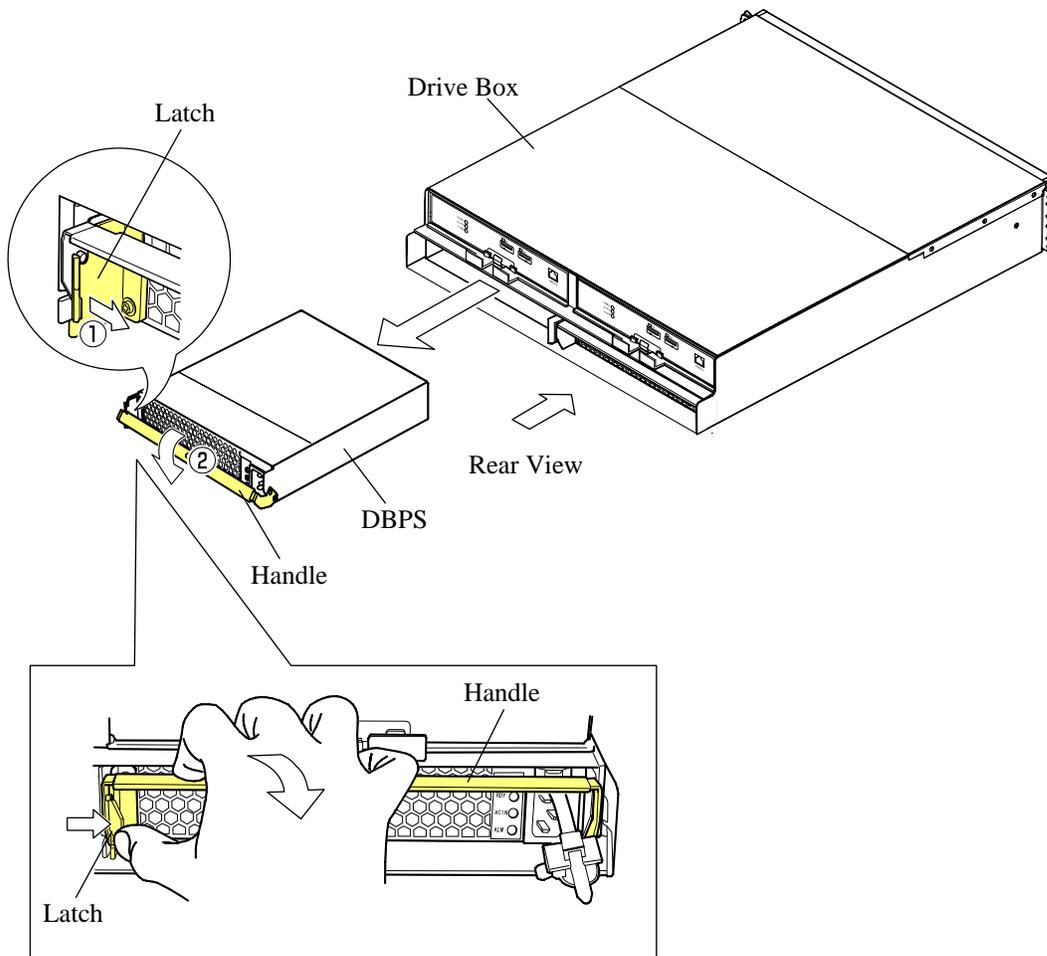


Fig. 3.41.1-5 Removal of DBPS

1-1-6. Remove the drive.

1-1-6.1. Drive for DBL.

- a. Pull the stopper of the drive handle toward you to have the lock off.
- b. Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- c. Remove the other drives in the same manner.

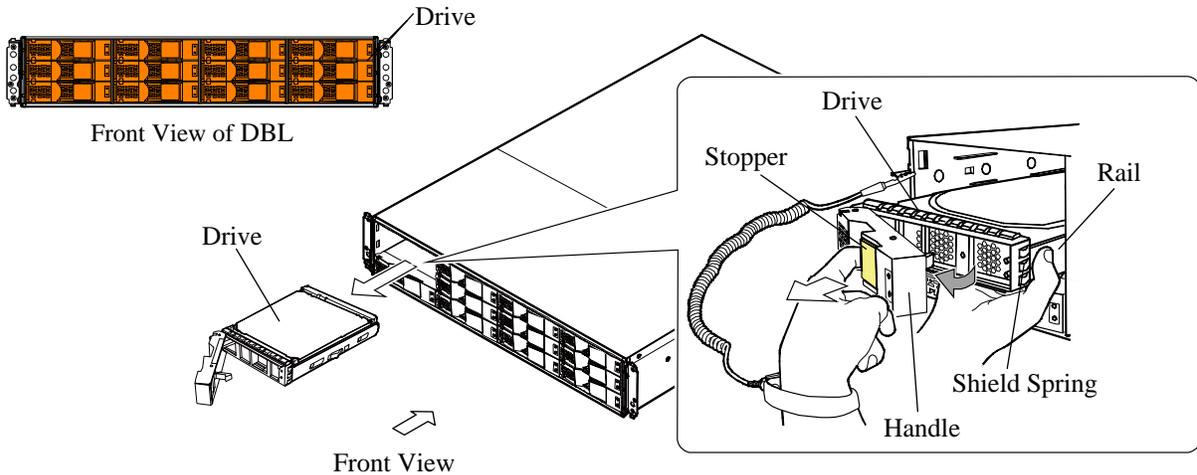


Fig. 3.41.1-6 Removal of Drive (for DBL)

1-1-6.2. Drive for DBS.

- a. Pull up the stopper of the drive handle toward you to release the lock.
- b. Open the handle toward you, and then pull out and remove the drive not to give a shock.
- c. Remove the other drives in the same manner.

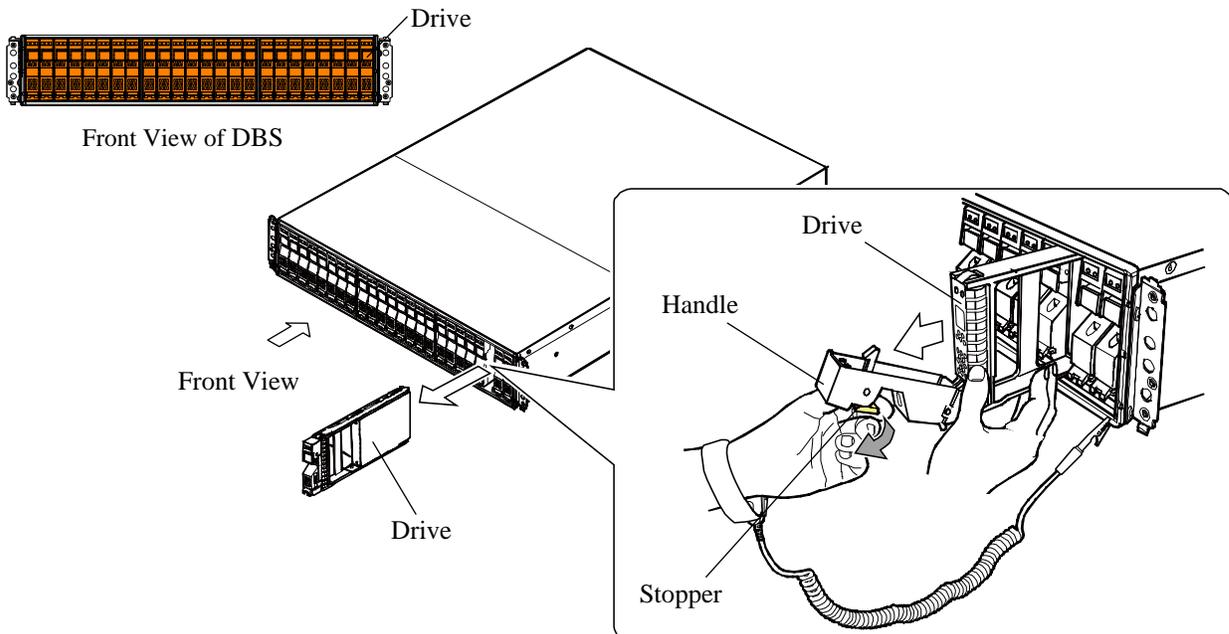


Fig. 3.41.1-6A Removal of Drive (for DBS)

1-1-7. Replace the Drive Box.

- a. Hold the bottom of the left side bezel (L) on the front side of the drive box while opening outward (①) and then tilt and remove (②, ③) the bottom of the left side bezel (L) by pulling it toward you.

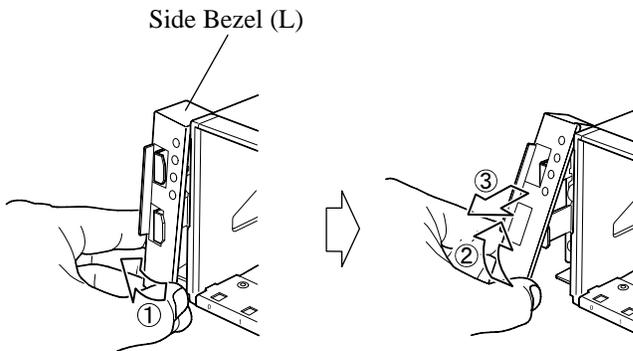


Fig. 3.41.1-7 Removal of Side Bezel (L)

- b. Hold the bottom of the right side bezel (R) on the front side of the drive box while opening outward (①) and then tilt and remove (②, ③) the bottom of the right side bezel (R) by pulling it toward you.

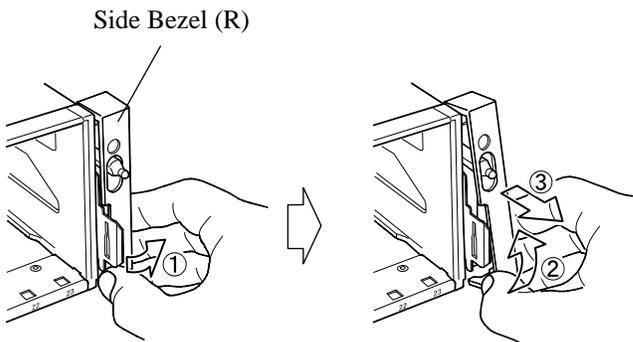


Fig. 3.41.1-8 Removal of Side Bezel (R)

c. Remove the two screws and two brackets from the Drive Box.

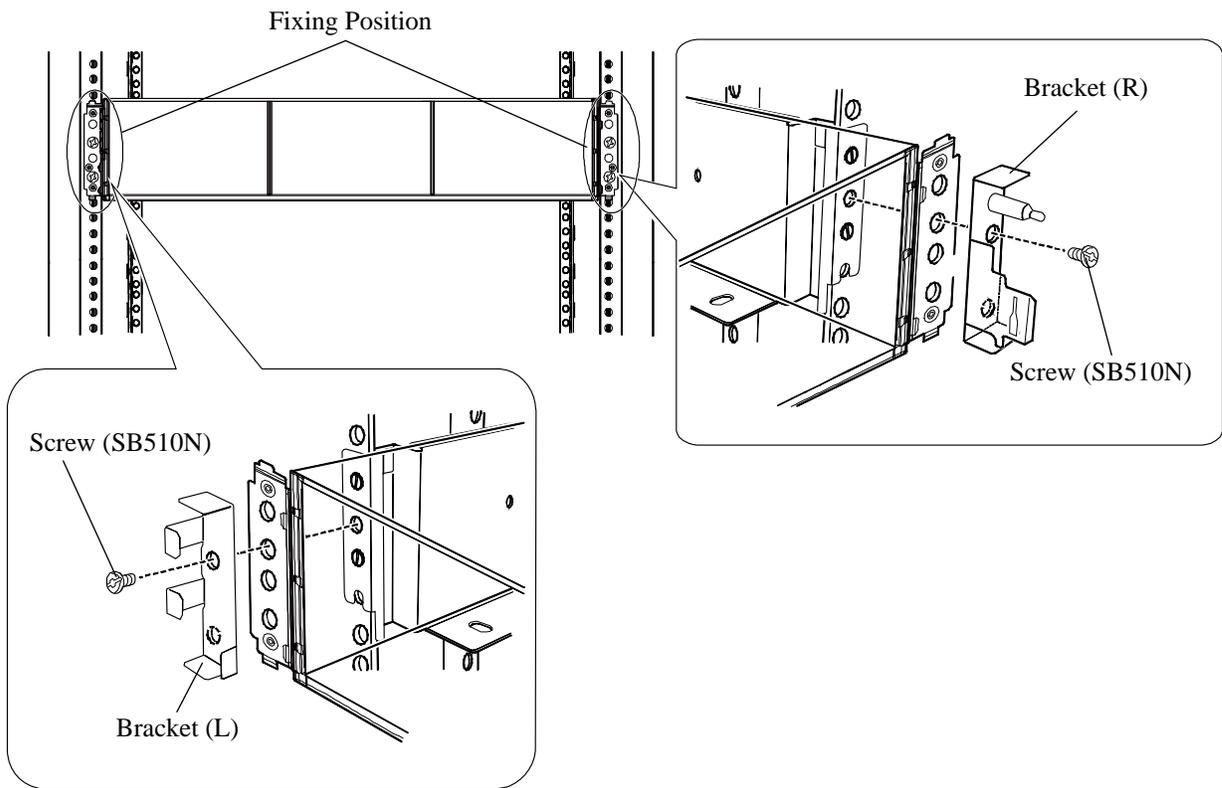


Fig. 3.41.1-9 Removal of Brackets

⚠ CAUTION

Paying attention to falls:

Work carefully because the mass of the single Drive Box is about 13 kg.

Beware over turning and dropping:

To prevent Drive Box from over turning and dropping, the installation work must be done by two or more personnel.

- d. Remove the Drive Box from the Rack frame referring to mounting procedure using the special lifter. (See [INST03-10-10 through 40.](#))
- e. Install the Drive Box on the front side of the Rack frame.

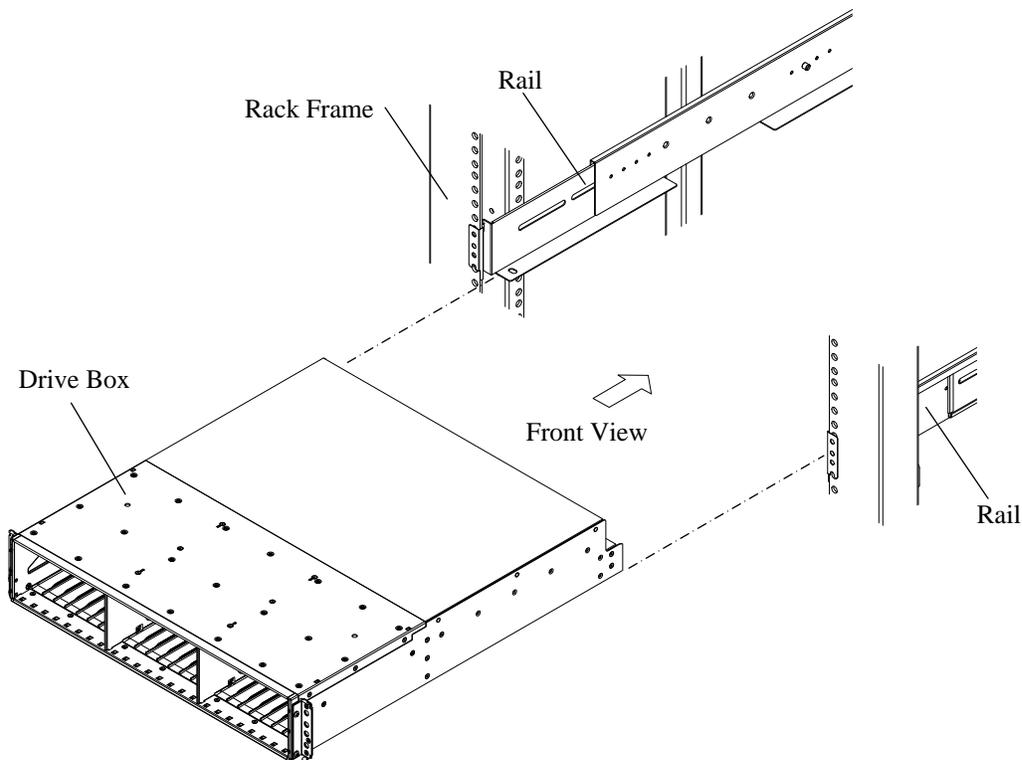


Fig. 3.41.1-10 Removal of Drive Box

- f. Install the Drive Box with the brackets. Fasten the Drive Box to the rack frame with the screws. (See Fig. 3.41.1-9.)
- g. Attach the two side bezels to the front side of the Drive Box. (See Fig. 3.41.1-7 and Fig. 3.41.1-8.)

1-1-8. Install the drive.

Install all the removed drives to the same place in the spare Drive Box according to the label attached to them.

1-1-8.1. Drive for DBL.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the drive array unit.
- Install the other drives in the same manner.

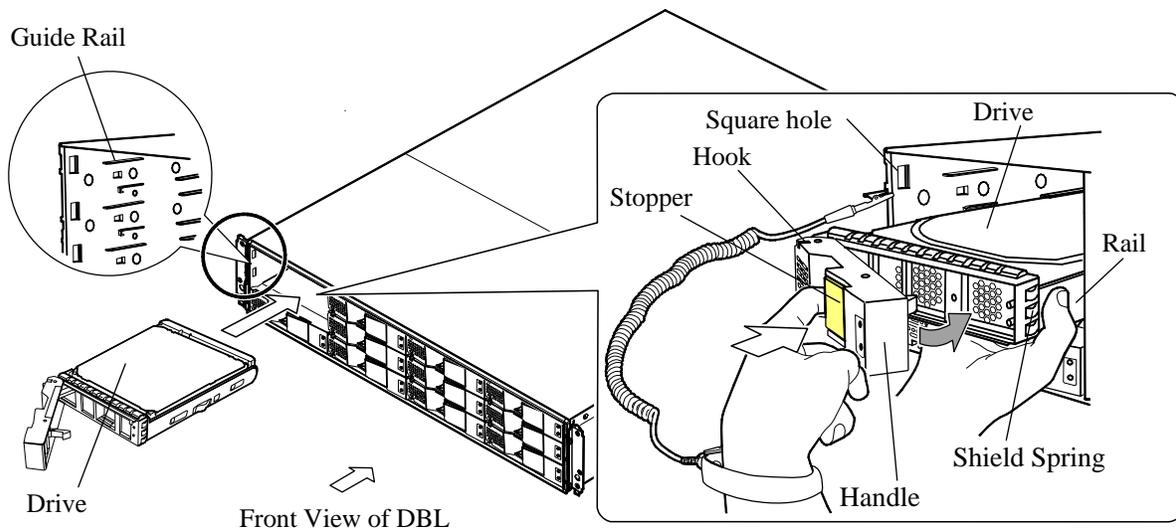


Fig. 3.41.1-11 Installation of Drive (for DBL)

1-1-8.2. Drive for DBS.

- a. Fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the Drive Box.
- c. Raise the stopper, which has been tilted toward you, and then press the stopper to have the lock on.

If the handle is raised in the state where the hook of the handle cannot enter into each hole, the drive cannot be installed correctly because it runs into the frame of the Drive Box.

- d. Install the other drives in the same manner.

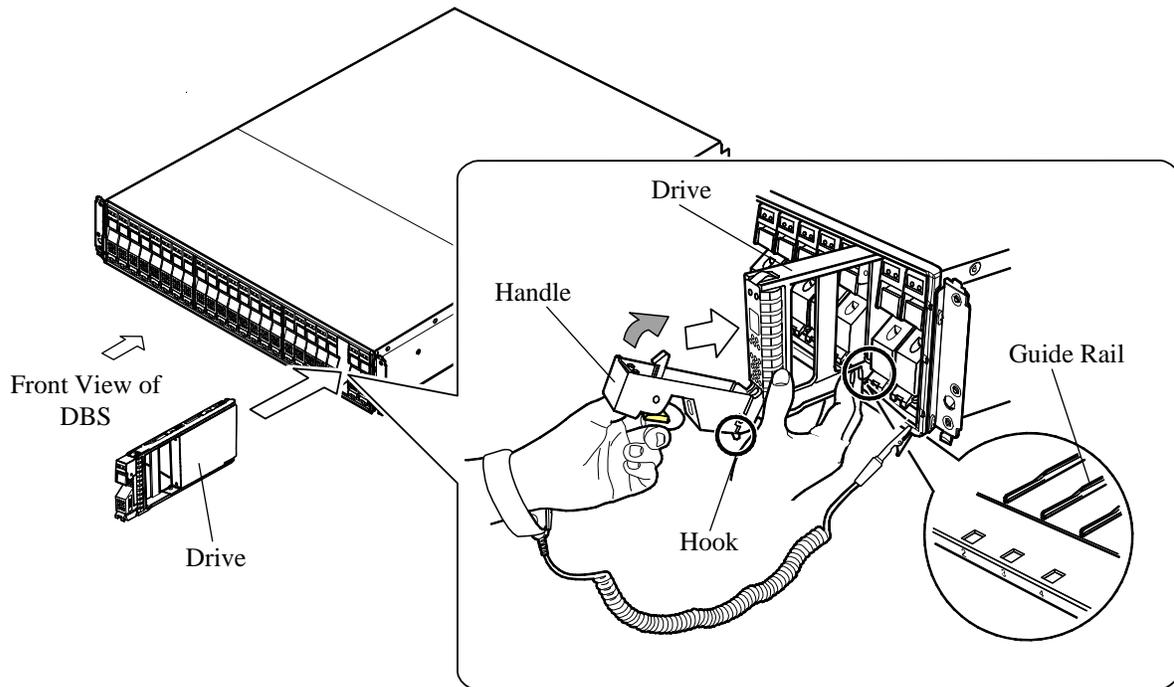


Fig. 3.41.1-11A Installation of Drive (for DBS)

1-1-9. Insert the DBPS.

- a. Make the handle of the DBPS completely fall down and forward. (See Fig. 3.41.1-5.)
- b. Insert the DBPS into the slot and push it to the full.
- c. Completely raise the handle and fix the DBPS.
- d. Connect the power cable to the DBPS and fasten it with the cable holder. (See Fig. 3.41.1-4.)
- e. Push the cable holder toward the DBPS until it stops.
- f. Install the other DBPS in the same manner.
- g. Attach the two repeat binders to the rail of the rear side of the Drive Box to fix the power cable. (See Fig. 3.41.1-3.)

1-1-10. Insert the ENC.

- a. Make the right and left levers of the ENC open. (See Fig. 3.41.1-2.)
- b. Insert the ENC until the edge of the lever comes in contact with the Drive Box.
- c. Close the right and left levers to insert the ENC completely.
- d. Connect the cables to the ENC after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).
- e. Install the other ENC in the same manner.

1-1-11. Attach the nameplate.

- a. Take out the nameplate in which the same model name as the removed Drive Box is described from the nameplates attached to the spare Drive Box. Write down the same serial number as the removed Drive Box in the nameplate, and then affix the nameplate to the spare Drive Box.

When the nameplate in which the same model name as the removed Drive Box is described is not attached, take out the nameplate in which the same rating and producer country as the removed Drive Box are described and which the model name is not described. Write down the same model name and serial number as the removed Drive Box in the nameplate, and then affix it to the spare Drive Box.

To fill in the nameplate, use the RoHS-compliant marker pen.

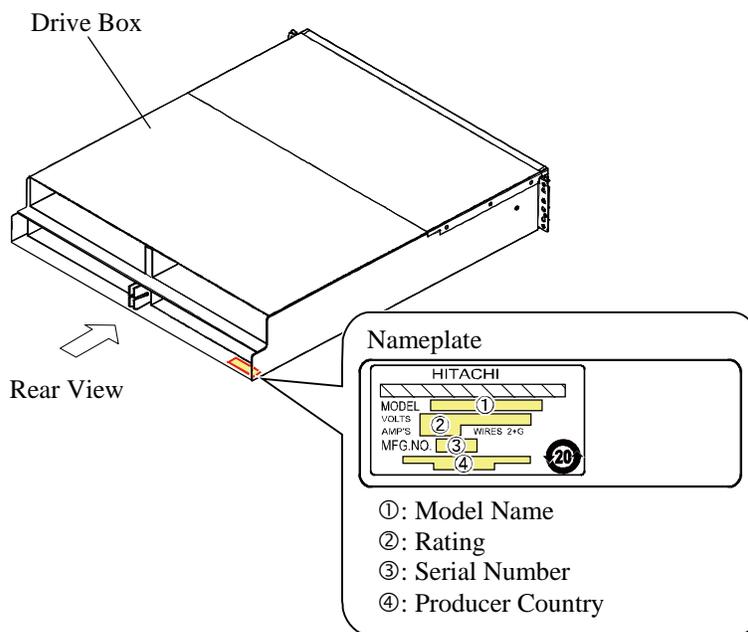


Fig. 3.41.1-12 Attachment of Nameplate

1-1-12. Attach the bezel.

- a. Attach the bezel to the Drive Box. (See [INST03-01-50.](#))

1-1-13. Power On the component

- a. Turn on the breaker on the power distribution panel that is connected to PDU.
- b. Turn on the breaker on the PDU.
- c. Turn on the MAIN Switch.

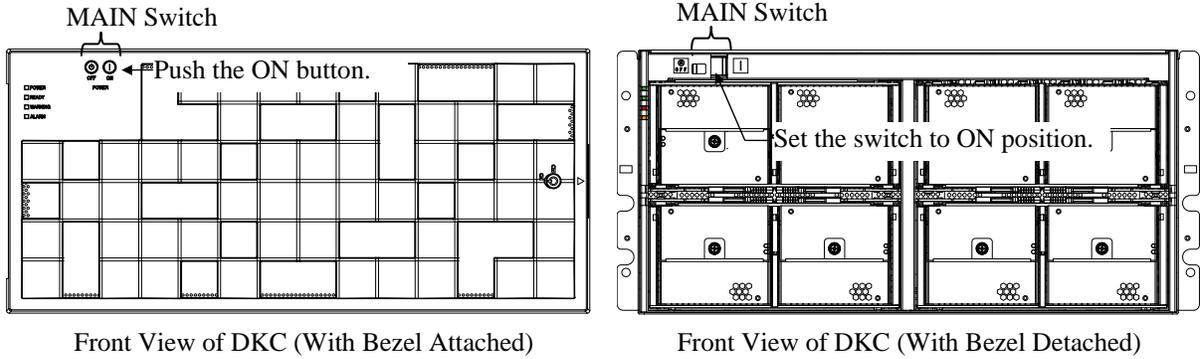


Fig. 3.41.1-13 Switch on DKC

1-1-14. End

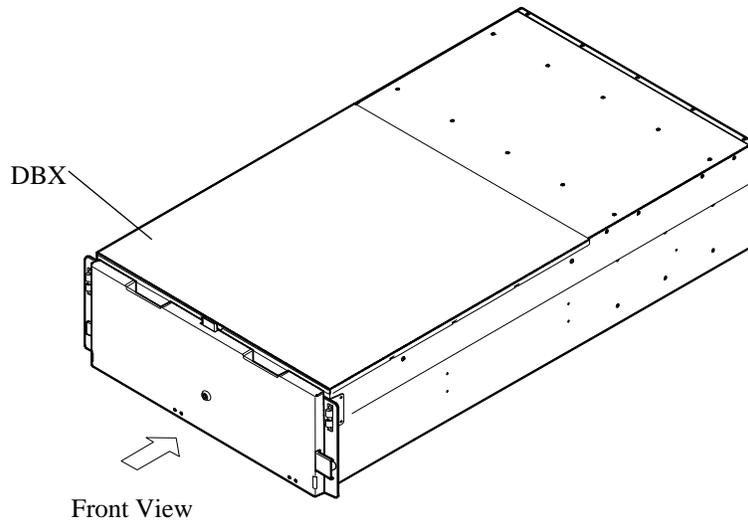
[Drive Box (DBX) REPLACEMENT PROCESSING]

— OUTLINE —

1. HARDWARE REPLACEMENT PROCESSING

1. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
RACK	1	Drive Box	• DBX



- NOTICE:**
- Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - Replace the Drive Box while the storage system is powered off. Do not replace the Drive Box while the storage system is powered on.

1-1 Replacement of Drive Box

1-1-1. Power off the RACK.

 **WARNING**

Hazardous voltage:

Contact could cause electric shock or burn. Turn off all related breakers and discharge residual voltage, as shown below. (Follow next procedures.)

- a. Turn off the MAIN Switch on the front side of the DKC.
- b. Confirm that the POWER LED on the upper left part of the front side of the DKC lights in amber.

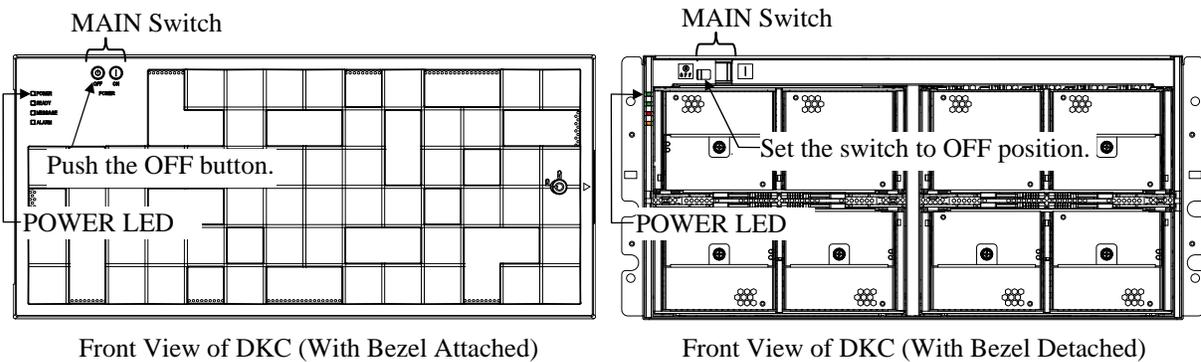


Fig. 3.42.1-1 Switch on DKC

- c. Turn off the breaker at the PDU.
- d. Turn off the circuit breaker on the power distribution panel in the plant that is connected to the PDU.
- e. The circuit has residual voltage after turning off the breakers, so wait for one minute.

1-1-2. Remove the Stopper.

- a. Pull the right and left screws of the Stopper in the direction ① and rotate them 90 degrees. The screws become open and fixed.
- b. Pull the Cable Tray in the direction ② and remove it.

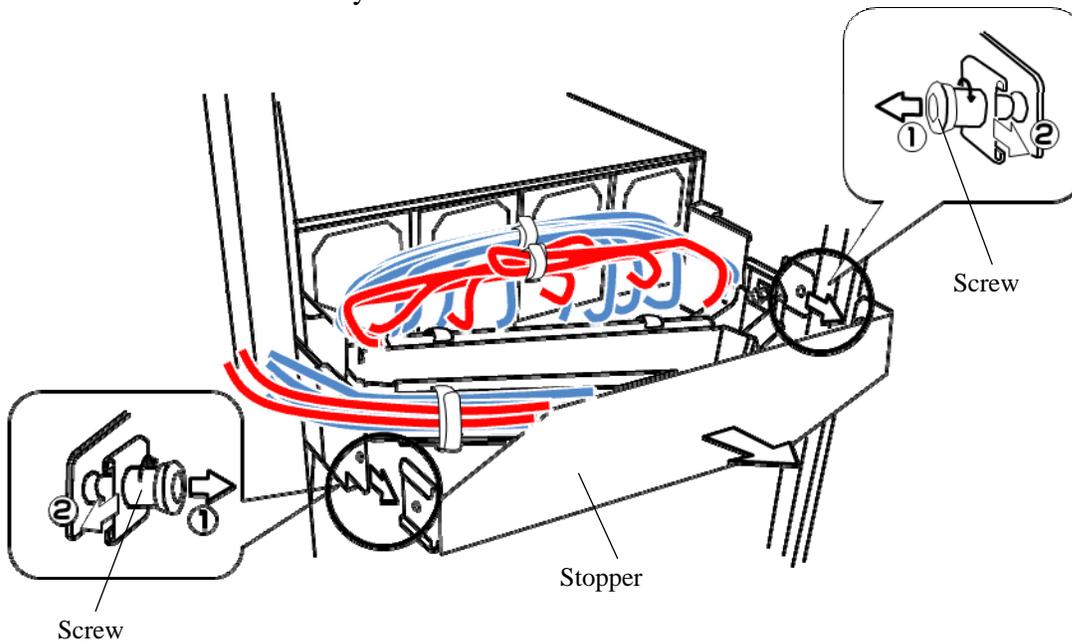


Fig. 3.42.1-2 Removal of Stopper

- c. Pull the right and left Cable Routing Bars.

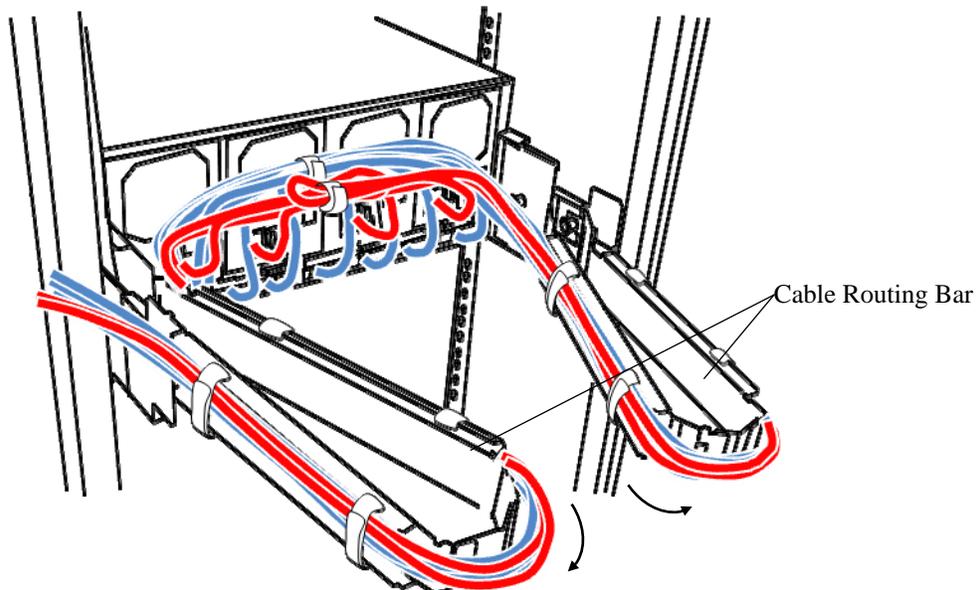


Fig. 3.42.1-3 Move of Cable Routing Bars

1-1-3. Remove the Cable Routing Bars.

- a. Pull the right and left screws of the Cable Tray in the direction ① and rotate them 90 degrees.
The screws become open and fixed.
- b. Pull the Cable Tray in the direction ② and remove it.

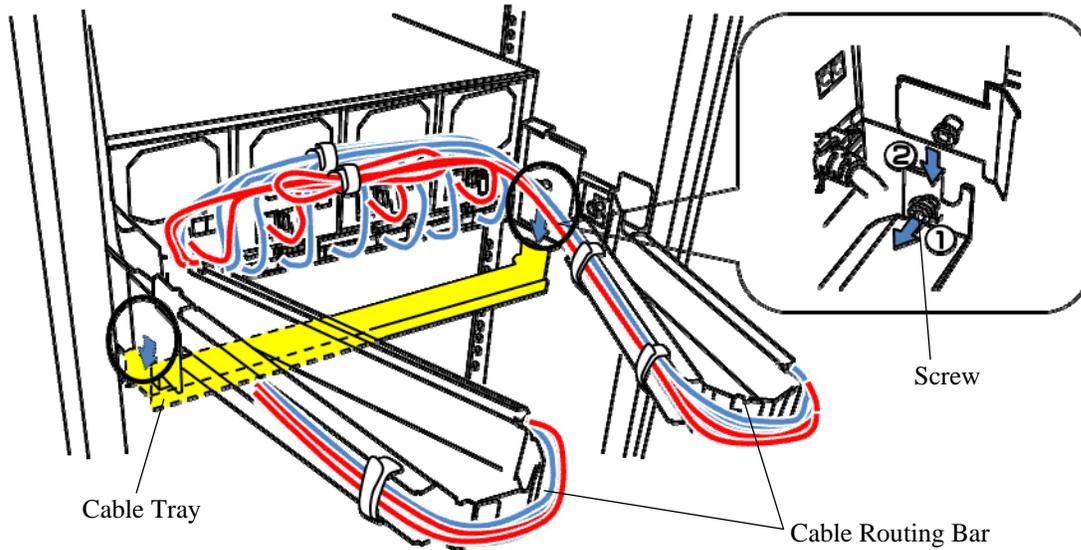


Fig. 3.42.1-4 Removal of Cable Tray

- c. Remove the ten clamp tapes which bind cables.

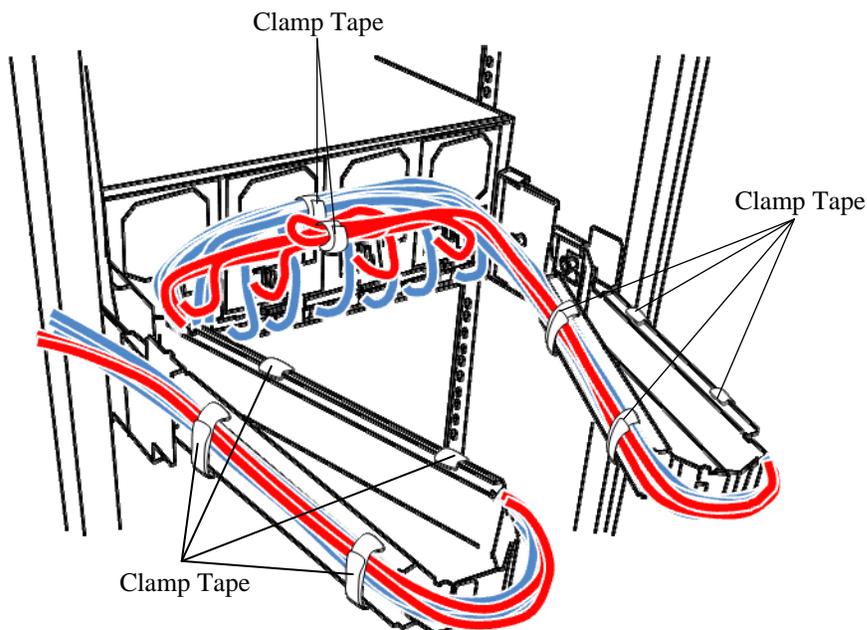


Fig. 3.42.1-5 Removal of Clamp Tapes

- d. Pull the screw of the stopper in the direction ① and rotate it 90 degrees. The screw becomes open and fixed.
- e. Remove the Cable Routing Bar from the rear left rail and push it in the direction ② while rotating the screw 90 degrees.

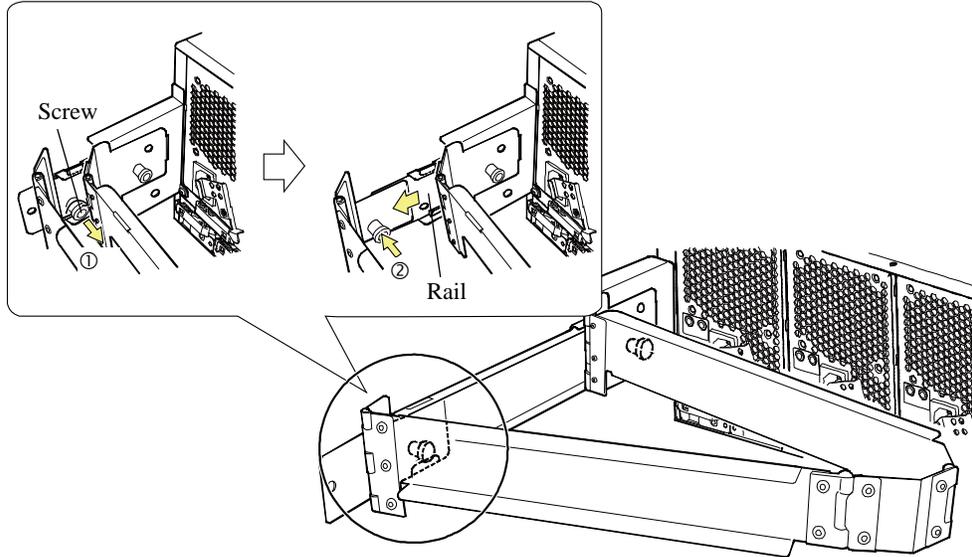


Fig. 3.42.1-6 Removal from Rail

- f. Pull the screw of the stopper in the direction ① and rotate it 90 degrees. The screw becomes open and fixed.
- g. Extract the Cable Routing Bar from the Cable Routing Bar Installation Part and push it in the direction ② while rotating the screw 90 degrees.

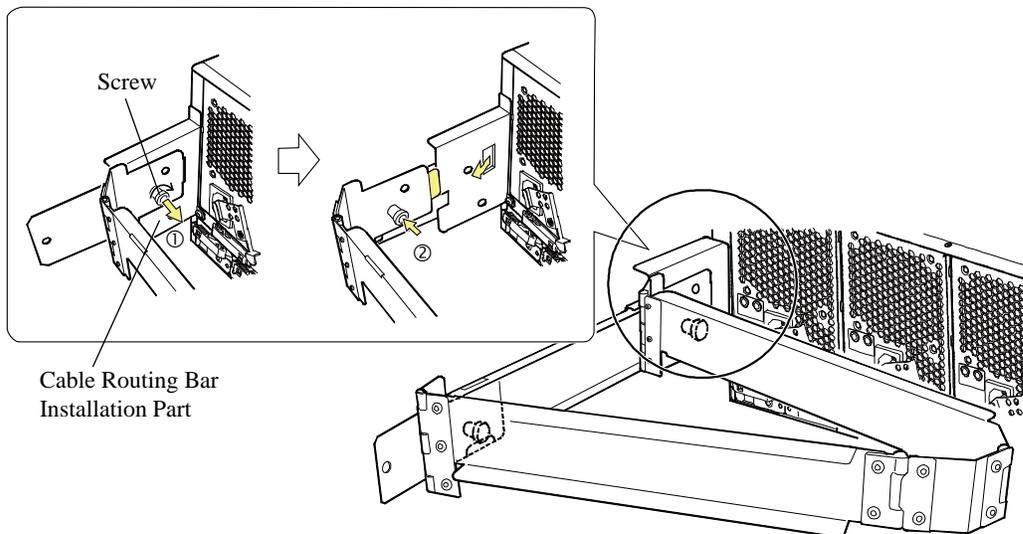


Fig. 3.42.1-7 Removal from Drive Box

- h. Remove the right cable routing bar in the same manner.
- i. Remove the four screws from the right and left of the rear side of the Drive Box, and remove the two cable routing bar installation parts.

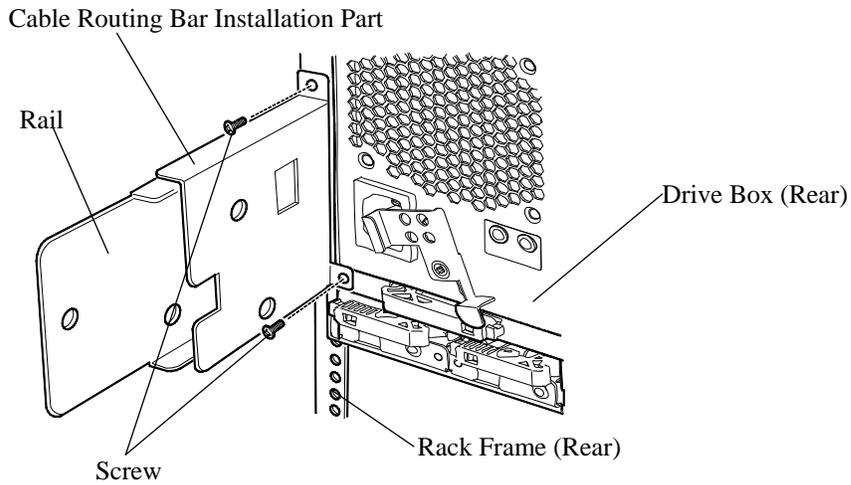


Fig. 3.42.1-8 Removal of Cable Routing Bar Installation Part

1-1-4. Attach a label.

- a. Attach a label or the like for identification of installation location to a removed part so that it can be installed in the same place in the spare Drive Box.

1-1-5. Remove the DBPS.

- a. Disconnect the cable connected to the DBPS.
- b. Open the lever toward you while pressing the button (blue) which fixes the lever of the DBPS.

When the lever is completely opened, the DBPS comes out forward.

- c. Pull and remove the DBPS.
- d. Remove the other DBPSs in the same manner.

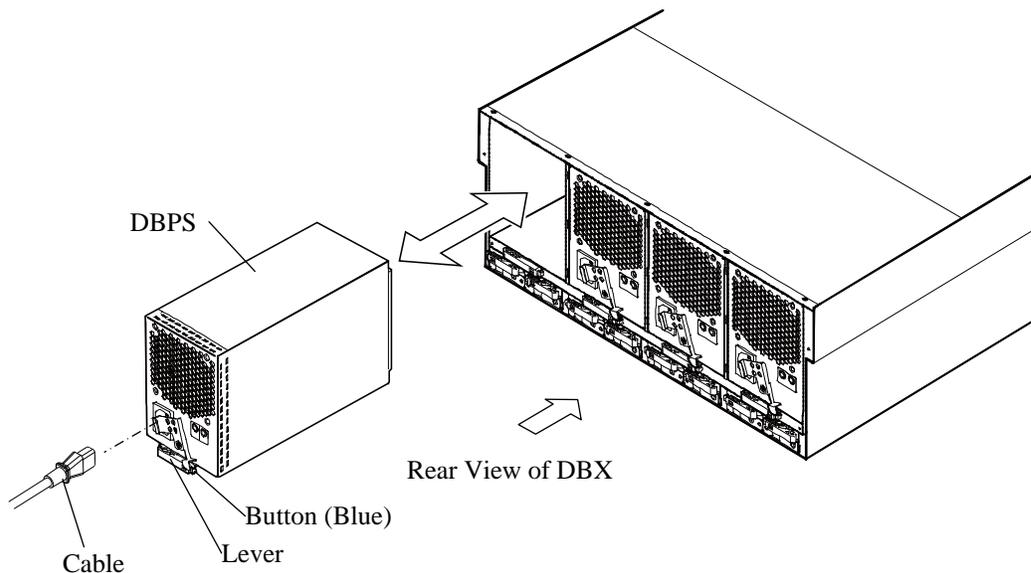
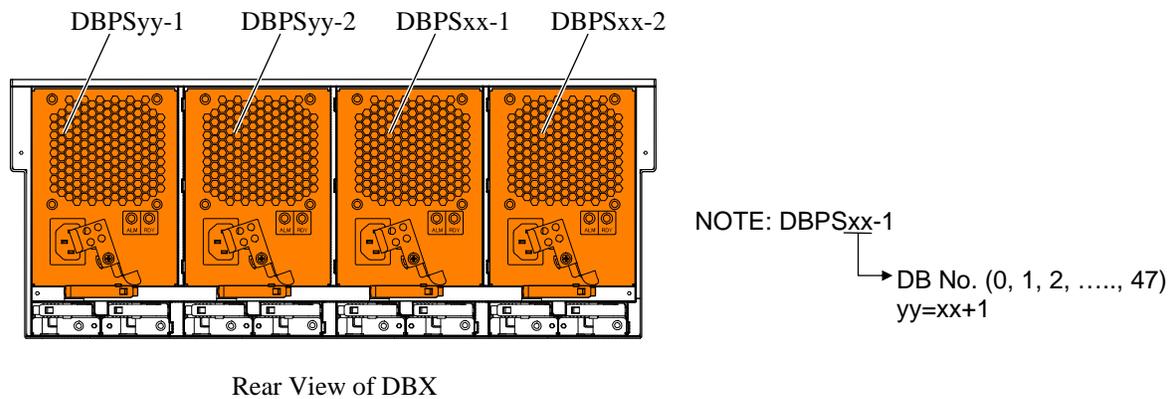


Fig. 3.42.1-9 Removal of DBPS

1-1-6. Remove the SAS Cables.

- a. Remove the cable holder of the ENC to which the SAS cable is connected.
Open the lever and remove the SAS cable pressing the button (blue) which fixes the lever of the cable holder.

NOTE: When using the lever, be sure not to push the button (blue) of other cable holders.

- b. Remove the other cable holders in the same manner.

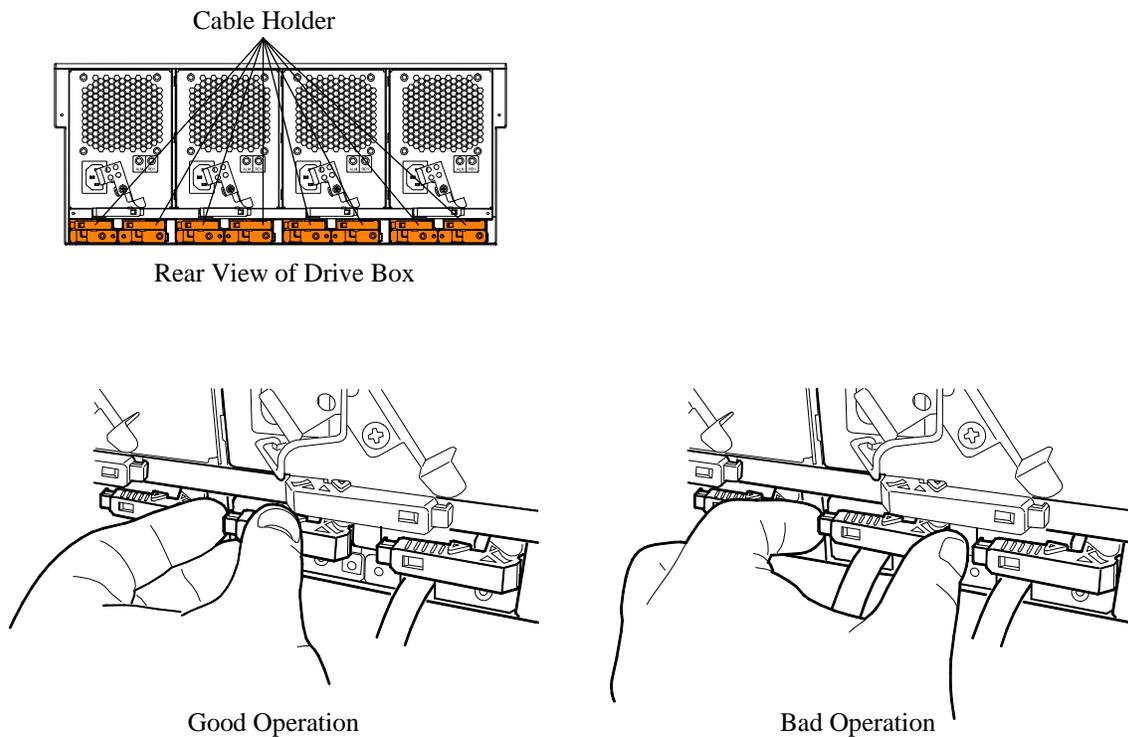


Fig. 3.42.1-10 Cable Holder Button (blue) Operation

1-1-7. Pull the DBX out.

- a. Pull the DBX out of the rack, and remove the top cover. (Refer to [INST03-01-60.](#))

1-1-8. Attach a label.

- a. Attach a label or the like for identification of installation location to a removed part so that it can be installed in the same place in the spare Drive Box.

1-1-9. Remove the drive.

- a. Slide the latch (blue) on the drive and open the handle.
- b. Pull out and remove the drive taking care not to apply a shock to it.
- c. Remove the other drives in the same manner.

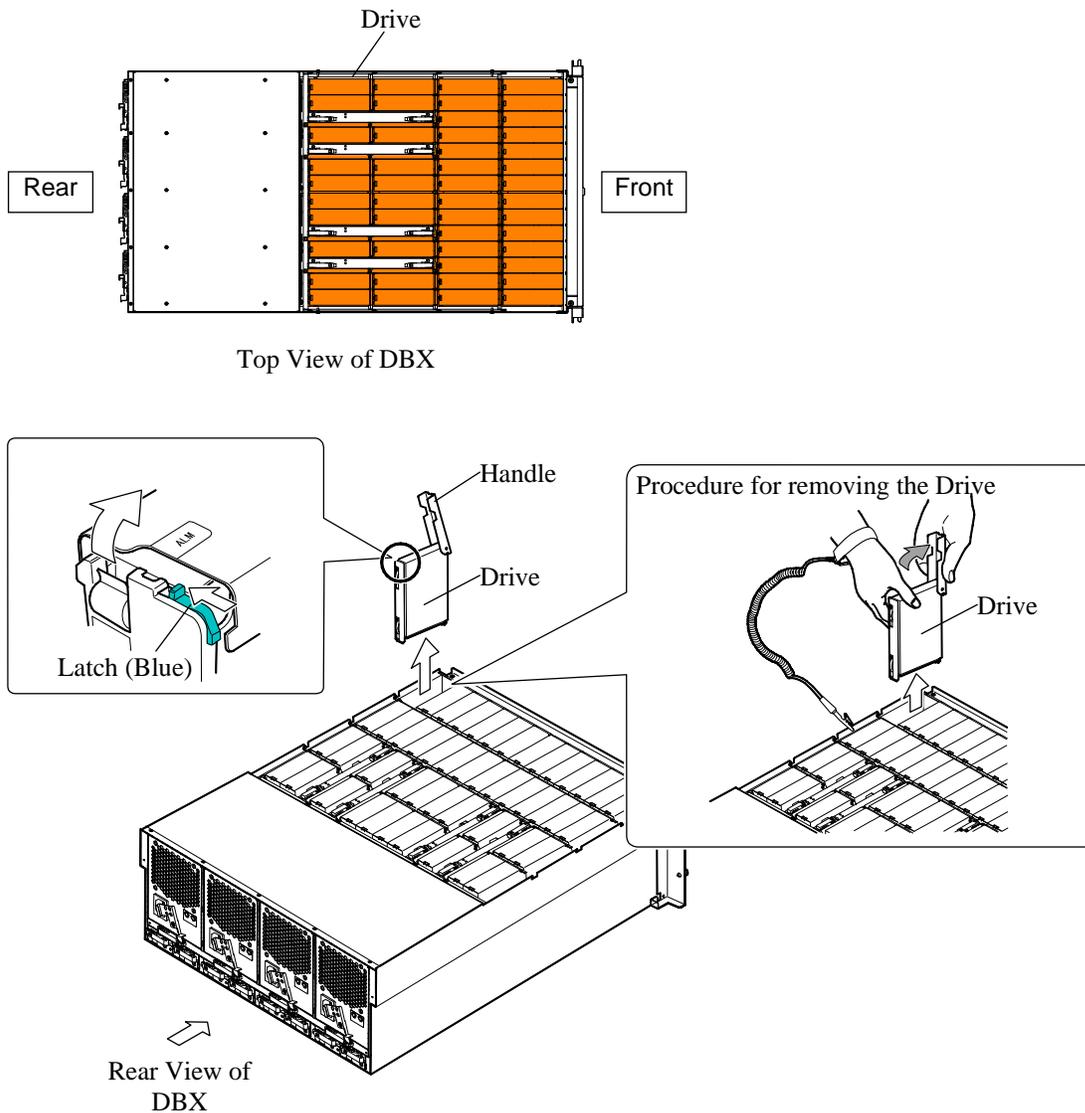


Fig. 3.42.1-11 Removal of Drive (for DBX)

1-1-10. Remove the ENC.

- a. Open the right and left levers toward you at the same time while pressing the right and left buttons (blue) which fix the levers of the ENC, and remove the ENC by pulling it out.
- b. Remove the other ENCs in the same manner.

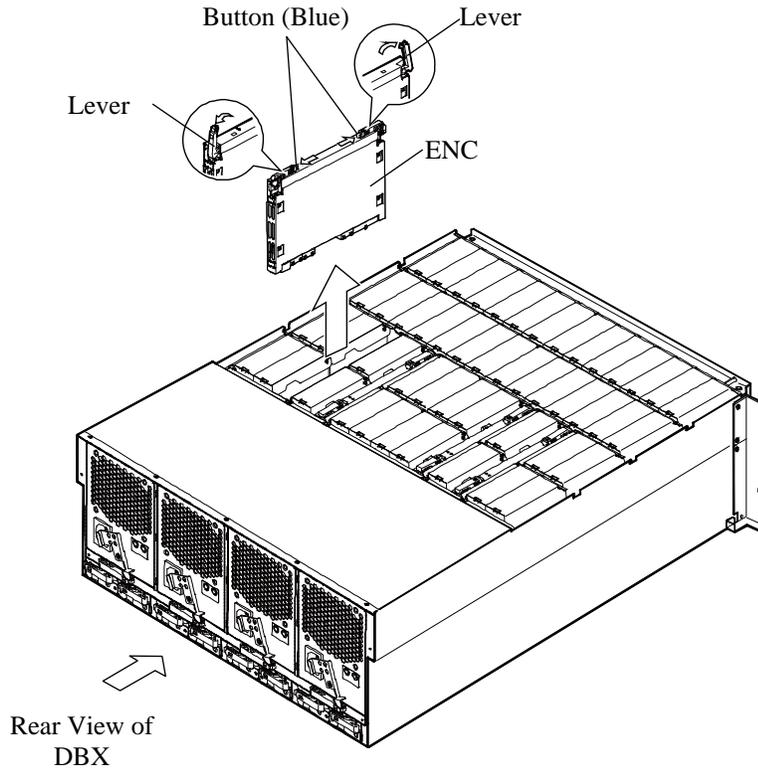
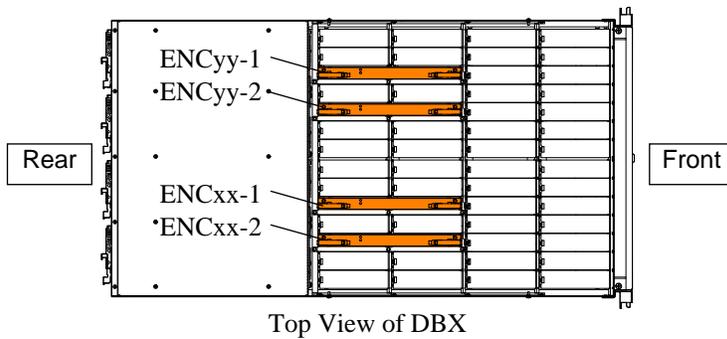


Fig. 3.42.1-12 Removal of ENC

1-1-11. Remove the Drive Box.

⚠ CAUTION

Paying attention to falls:

Work carefully because the mass of the single Drive Box is about 31 kg.

Beware over turning and dropping:

To prevent Drive Box from over turning and dropping, the installation work must be done by two or more personnel.

- a. Move the lifter at the removal position of the Drive Box referring to mounting procedure using the special lifter. (See [INST03-10-10 through 40.](#))
- b. Release the locks by sliding the latch releasing lever in the front end of the right and left rack rail, and then draw the Drive Box on the lifter.

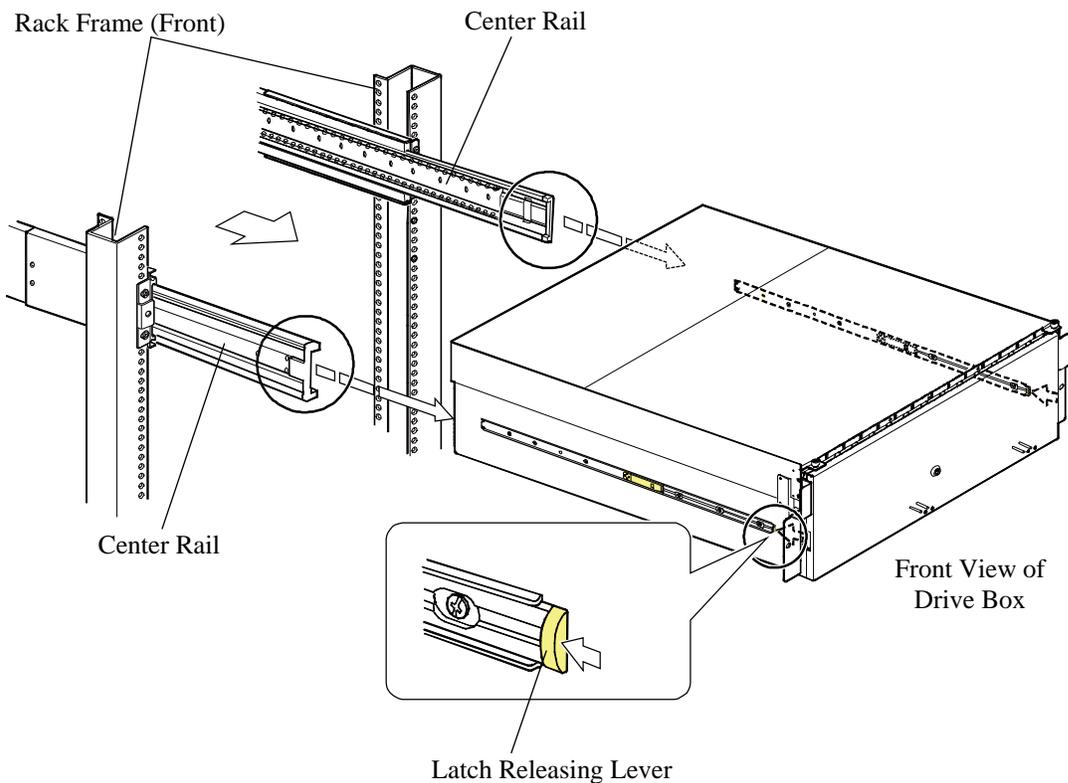


Fig. 3.42.1-13 Removal of Drive Box

1-1-12. Remove the Rails.

- a. Remove the four screws from the rail.
- b. Remove the rack nut for fixing the chassis from the front side of the rail.
- c. In the same way, remove the rail from to the left side of the rack frame.

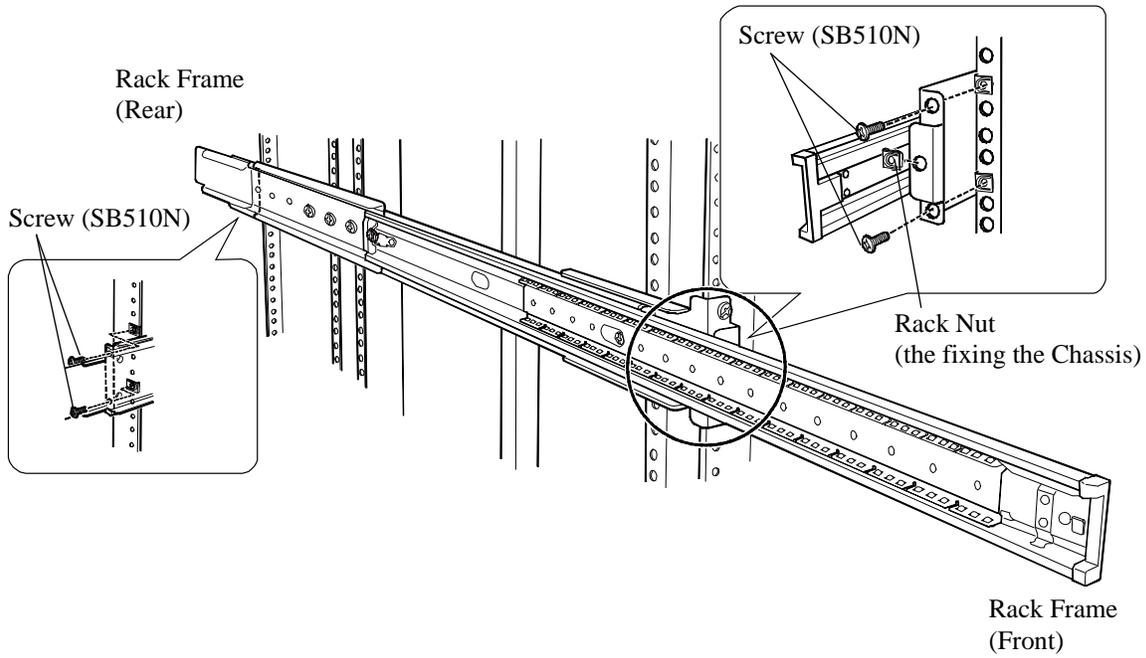


Fig. 3.42.1-14 Removal of Rail

- d. Remove the Inners from the Inters of the spare rails by sliding them.
Remove the Inner of two rails respectively.

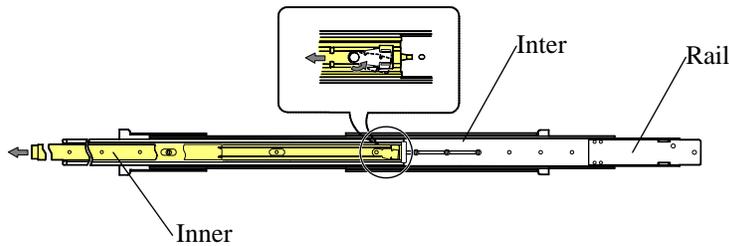


Fig. 3.42.1-15 Removal of Inner

- e. Install the Inners in the both sides of spare DBX.
Fix them with the bind screws (six places each at right and left).

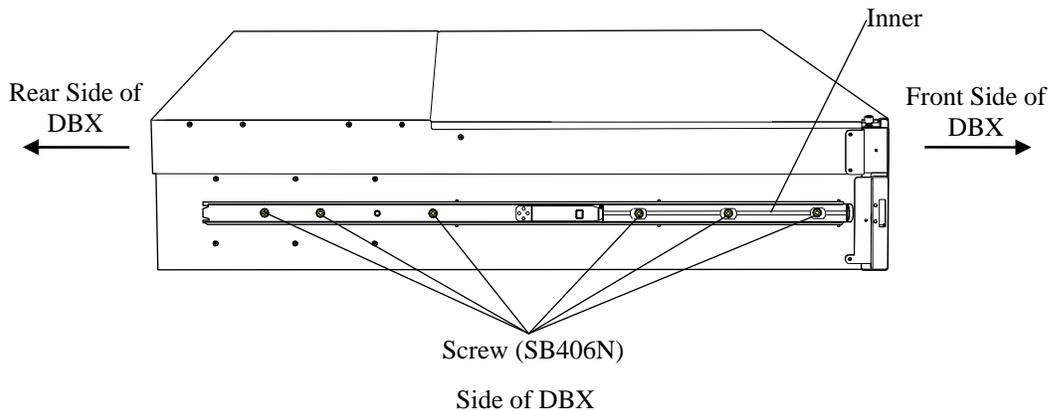


Fig. 3.42.1-16 Installation of Inner

- f. Loosen the adjustable screws for the rail (four places).
Loosen the adjustable screw on the front side of the rail from the adjustable hole by sliding the Inter in the direction of the back side to the adjustable position.
When the rack frame and the width of rack rail are not matched even if the adjustable screw is loosened, refer to “When the rack frame and the width of rack rail are mismatched” (INST03-04-230), and then adjust the length of the rack rail.
- g. Fix the rail with the screws (at four places in total in front and rear).
Adjust the length of the rail by sliding the arrow part (\leftrightarrow).
- NOTE: Fix the rail pressing it outward.
- h. Fix the rail with the adjustable screw.
Tighten the adjustable screw on the front side of the rail from the adjustable hole by sliding the Inter in the direction of the back side to the adjustable position.
- i. Attach the rack nut for fixing the chassis to the front side of the rail.
- j. In the same way, fix the rail to the left side of the rack frame.

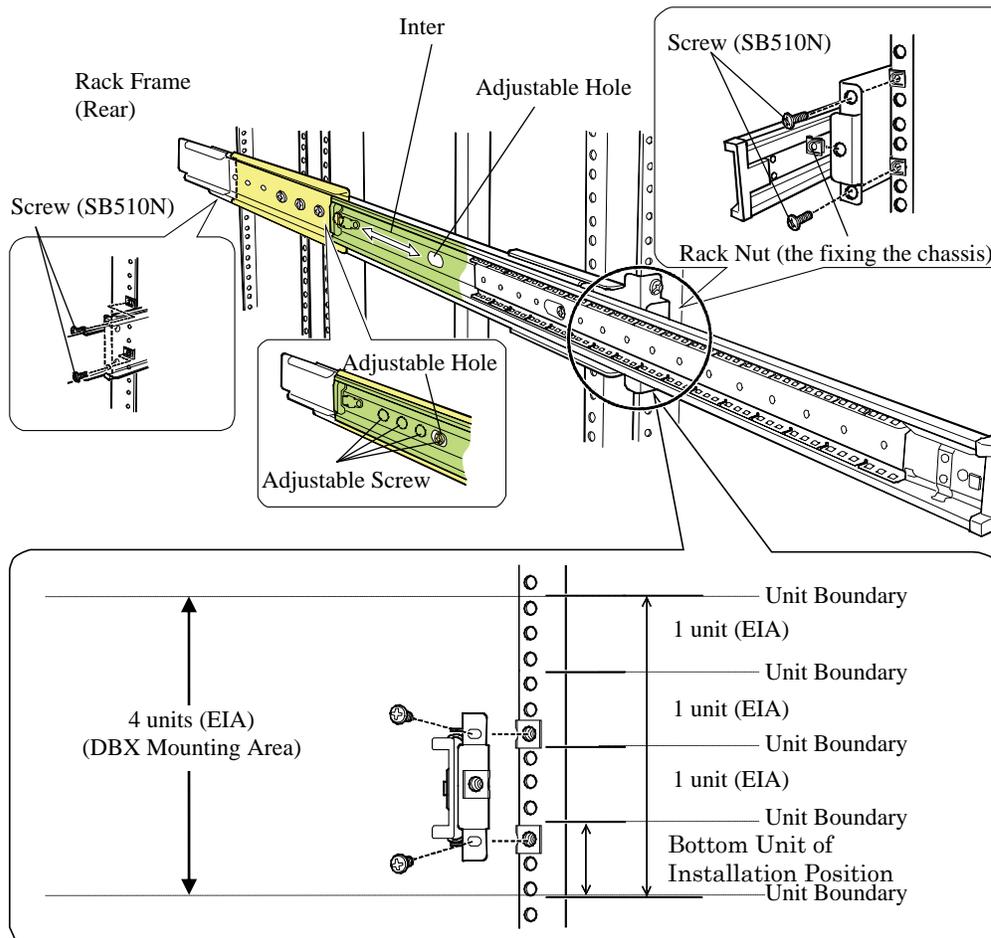


Fig. 3.42.1-17 Fixation of Rails

1-1-13. Install the Drive Box.

- a. Pull out the right and left center rails toward you until they are locked.

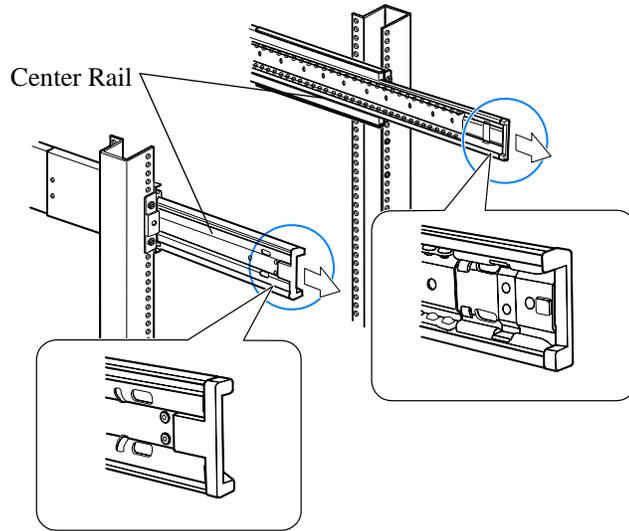


Fig. 3.42.1-18 Pulling out the Center Rails

⚠ CAUTION

Paying attention to falls:

Work carefully because the mass of the single Drive Box is about 31 kg.

Beware over turning and dropping:

To prevent Drive Box from over turning and dropping, the installation work must be done by two or more personnel.

- b. Move the Drive Box on the front side of the Rack frame referring to mounting procedure using the special lifter. (See [INST03-10-10 through 40.](#))
- c. Adjust the position of the inner rails by pushing the right and left center rails inward by hand, and then insert them.

NOTE: Check that the inner rails fit surely in the center rail from the hole for checking of the center rail.

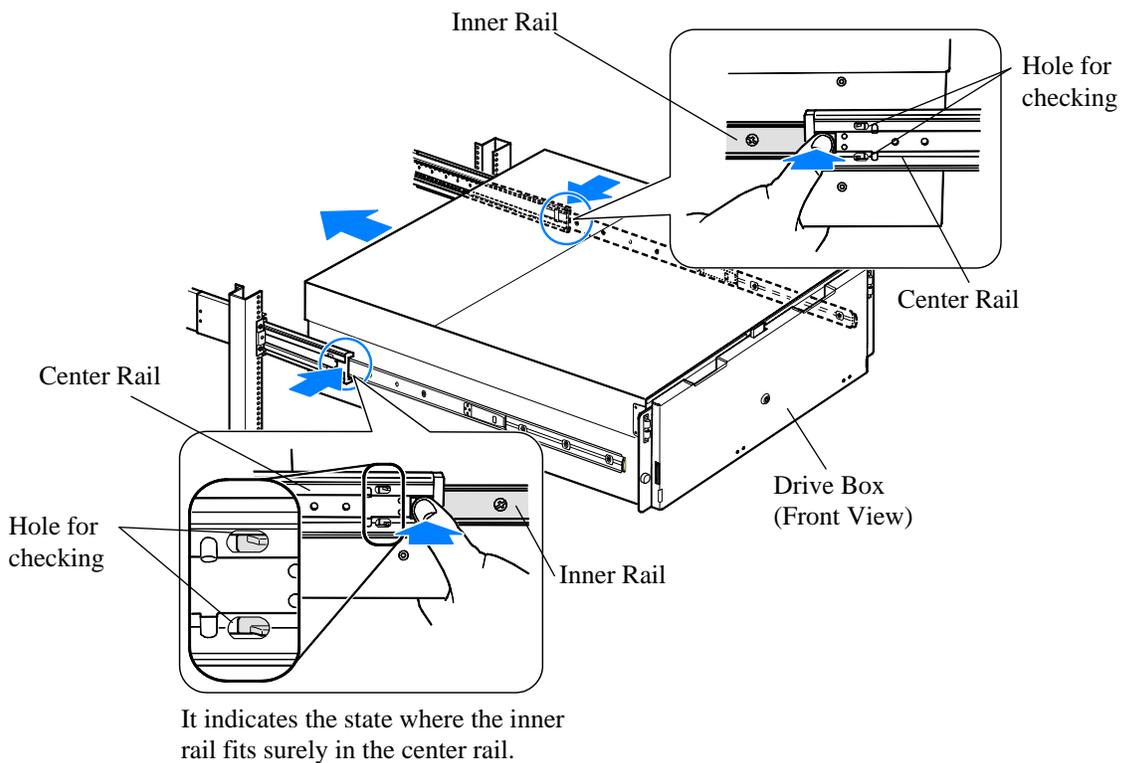


Fig. 3.42.1-19 Insertion of Inner Rails

- d. Push the Drive Box gently until the right and left rack rails are locked.
- e. Remove the top cover of DBX. (See [INST03-01-60](#).)

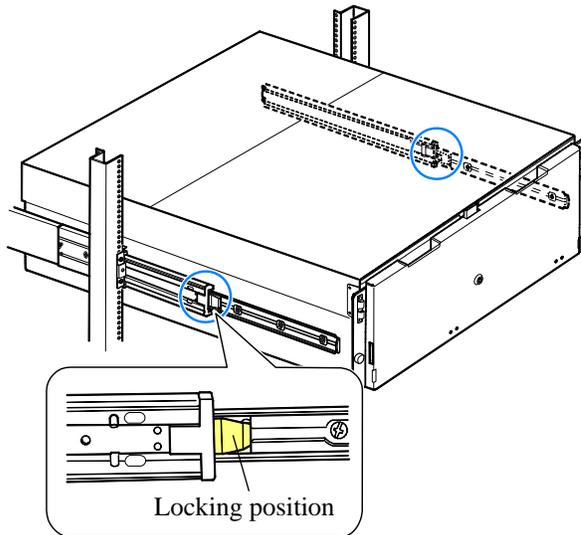


Fig. 3.42.1-20 Rack Rail Locking Position

1-1-14. Insert the ENC.

- a. Make the levers of the ENC up and forward. (See Fig. 3.42.1-12.)
- b. Insert the ENC and close the levers.

NOTE: Check that there is no foreign substance near the connector and in the DBX before inserting the ENC.

- c. Install the other ENCs in the same manner.

1-1-15. Install the drive.

Install all the removed drives to the same place in the spare Drive Box according to the label attached to them.

- a. Open the handle, and insert the drive holding it with both hands.

NOTE: Check that there is no foreign substance near the connector and in the array before inserting the drive.

- b. Close the handle.
- c. Install the other drives in the same manner.

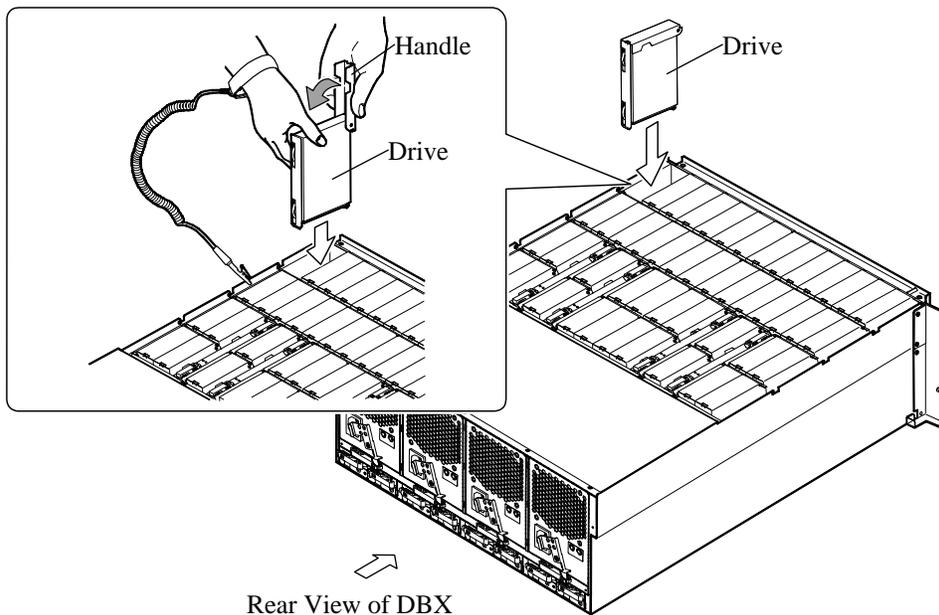


Fig. 3.42.1-21 Installation of Drive (for DBX)

1-1-16. Return the DBX.

- a. Return the DBX into the rack after attaching its cover. (Refer to [INST03-01-70](#).)

1-1-17. Insert the cable holder.

- a. Open the lever of the cable holder toward you. Insert the cable holder until its lever is slightly closed. (See Fig. 3.42.1-10.)
- b. Close the lever completely while pressing the button (blue), which fixes the lever.
- c. Install the other cable holders in the same manner.

1-1-18. Insert the DBPS.

- a. Open the lever of the DBPS. (See Fig. 3.42.1-9.)
- b. Insert the DBPS until the lever leans a little and bring down the lever completely until the button (blue) which fixes the lever clicks.
- c. Connect the removed cable to the DBPS.
- d. Install the other DBPSs in the same manner.

1-1-19. Install the Cables Routing Bars.

- a. Install the two cable routing bar installation parts in the rear side of the Drive Box. (See Fig. 3.42.1-8.)
- b. Install the two cable routing bars. (See Fig. 3.42.1-6 and Fig. 3.42.1-7.)

1-1-20. Route the Cables.

Route the SAS cables and power cables.

The cable numbers to be routed are shown in Fig. 3.42.1-22.

NOTE: When bending the cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.

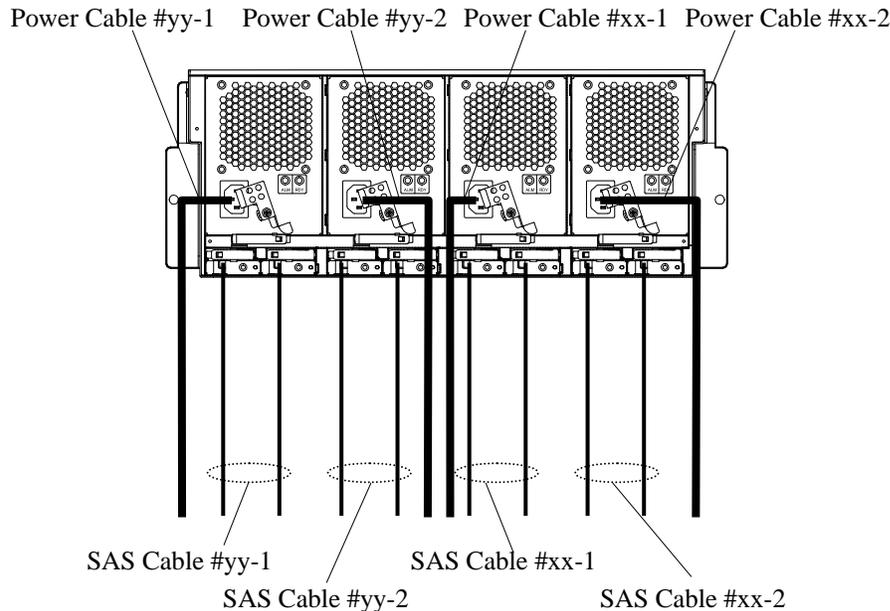


Fig. 3.42.1-22 Cable Number

- a. Open the cable routing bars toward you.
- b. Route the SAS cables (#xx-1, #xx-2) above the receptacles of the power supplies (#yy-1, #yy-2) and the SAS cables (#yy-1, #yy-2) above the receptacles of the power supplies (#xx-1, #xx-2) to be crossed and fasten them with a clamp tape. (The SAS cables around the cable holder slots are required to have extra length so as not to be stretched.)

NOTE: Keep the cables from hanging down below the Drive Box.

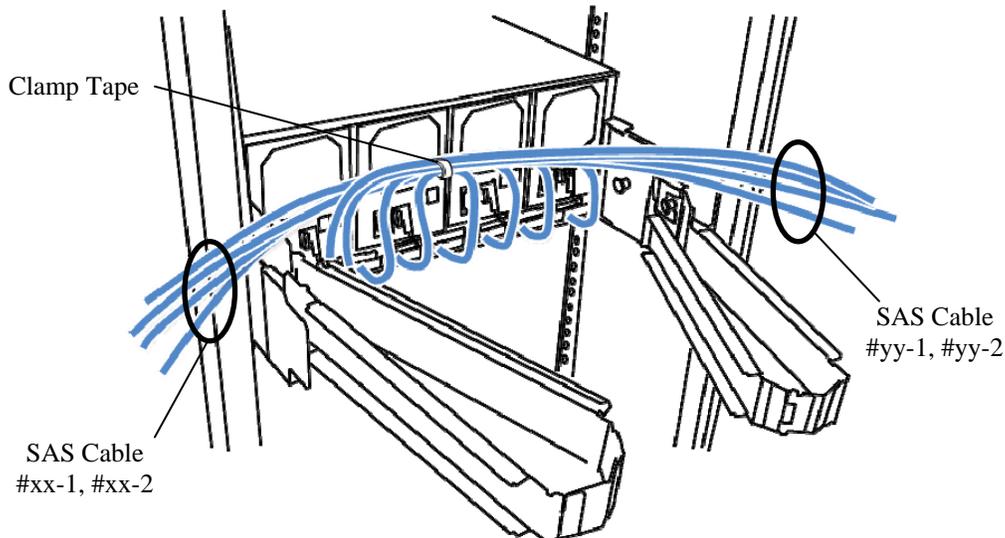


Fig. 3.42.1-23 Routing of SAS Cables

- c. Route the power cable #xx-2 and the power cable #yy-1 and fold them back to overlap each other at the center.

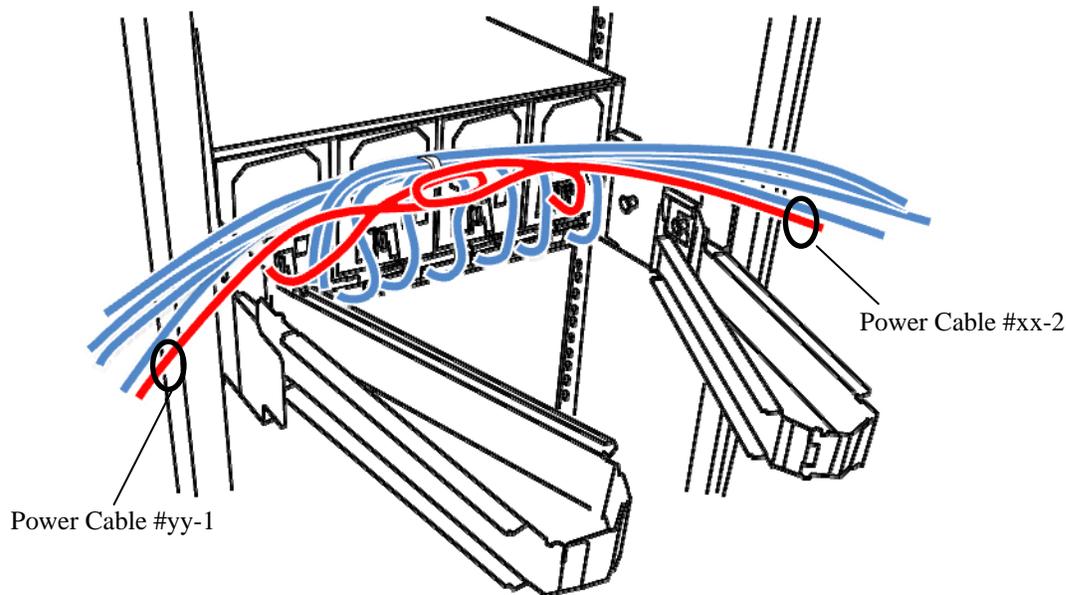


Fig. 3.42.1-24 Routing of Power Cables (#xx-2, #yy-1)

- d. Route the power cable #xx-1 and the power cable #yy-2 to be crossed so that they support the power cable #xx-2 and the power cable #yy-1 from below.
- e. Bundle the four power cables with the clamp tape at the center.

NOTE: Keep the cables from hanging down below the Drive Box.

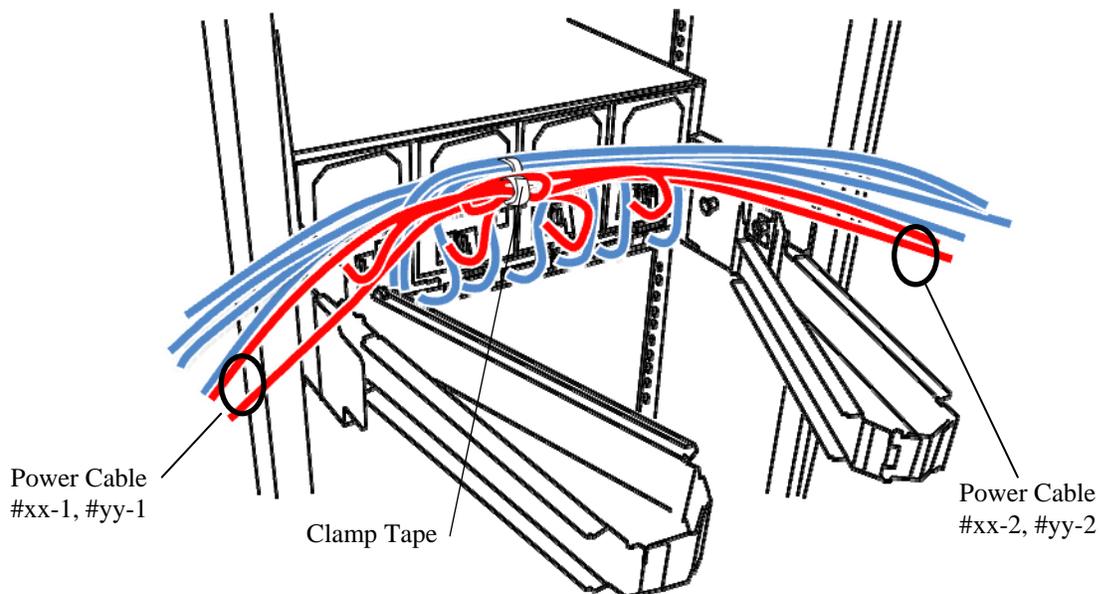


Fig. 3.42.1-25 Fixation of Power Cables

- f. Fix the SAS cables (#xx-1, #xx-2) and the power cables (#xx-1, #yy-1) to the cable routing bar #1 with four clamp tapes.

The cables are required to have adequate extra length so as not to be stretched and be applied stress when the Drive Box is moved.

NOTE 1: Keep the cables from hanging down below the Drive Box.

NOTE 2: Be careful not to twist the cables.

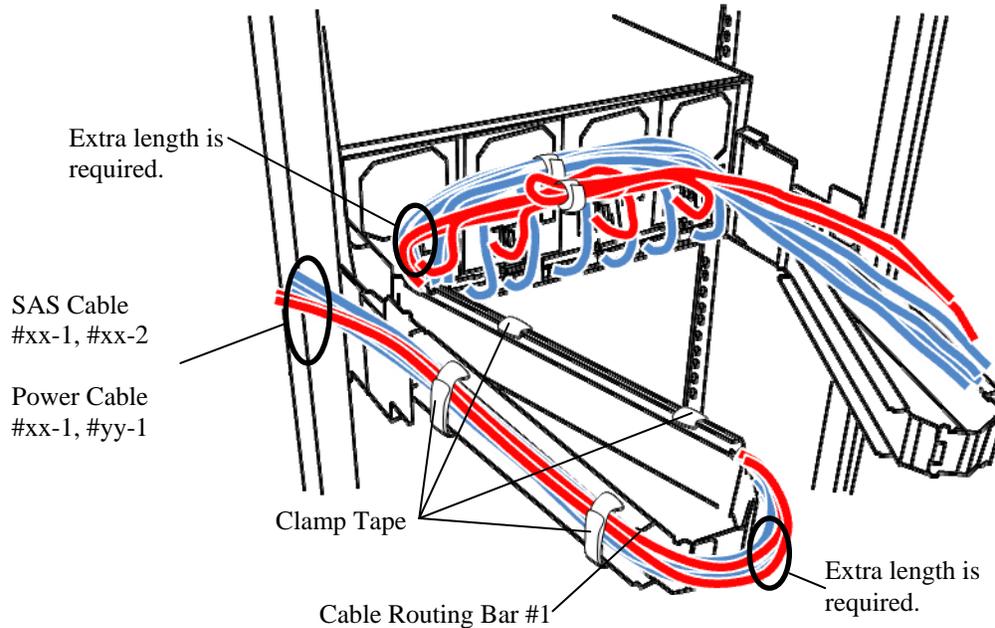


Fig. 3.42.1-26 Fixation of SAS Cables (#xx-1, #xx-2) and Power Cables (#xx-1, #yy-1)

- g. Fix the SAS cables (#yy-1, #yy-2) and the power cables (#xx-2, #yy-2) to the cable routing bar #2 with four clamp tapes.

The cables are required to have adequate extra length so as not to be stretched and be applied stress when the Drive Box is moved.

NOTE 1: Keep the cables from hanging down below the Drive Box.

NOTE 2: Be careful not to twist the cables.

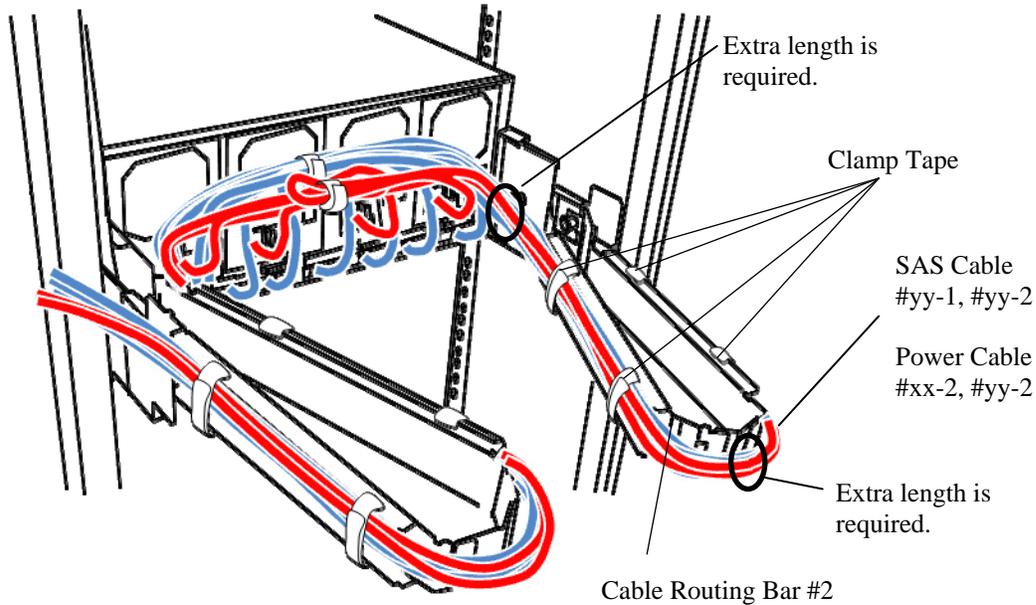


Fig. 3.42.1-27 Fixation of SAS Cables (#yy-1, #yy-2) and Power Cables (#xx-2, #yy-2)

- h. Check that the cables are not stretched and are not applied stress by closing cable routing bars (#1, #2). If there is any problem, adjust cable routing.

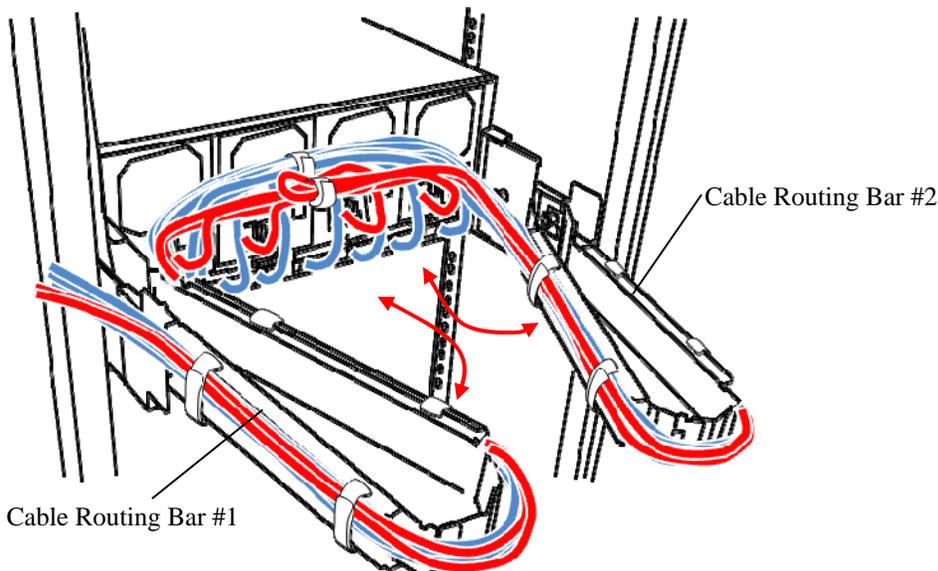


Fig. 3.42.1-28 Check of Routing of SAS Cables and Power Cables

1-1-21. Install the parts.

- a. Install the Cable Tray. (Refer to Fig. 3.41.1-4.)
- b. Close the right and left Cable Routing Bars. (Refer to Fig. 3.41.1-3.)
- c. Install the stopper in the rear side of the DBX. (Refer to Fig. 3.41.1-2.)

NOTE: Confirm that any other cables are not caught in the stopper.

- d. Pull the DBX and check that cable routing is done properly. (Refer to [INST03-01-60](#): 3.1.1 Bezel Opening-Closing Procedure)

1-1-22. Attach the nameplate.

- a. Take out the nameplate in which the same model name as the removed Drive Box is described from the nameplates attached to the spare Drive Box. Write down the same serial number as the removed Drive Box in the nameplate, and then affix the nameplate to the spare Drive Box.

When the nameplate in which the same model name as the removed Drive Box is described is not attached, take out the nameplate in which the same rating and producer country as the removed Drive Box are described and which the model name is not described. Write down the same model name and serial number as the removed Drive Box in the nameplate, and then affix it to the spare Drive Box.

To fill in the nameplate, use the RoHS-compliant marker pen.

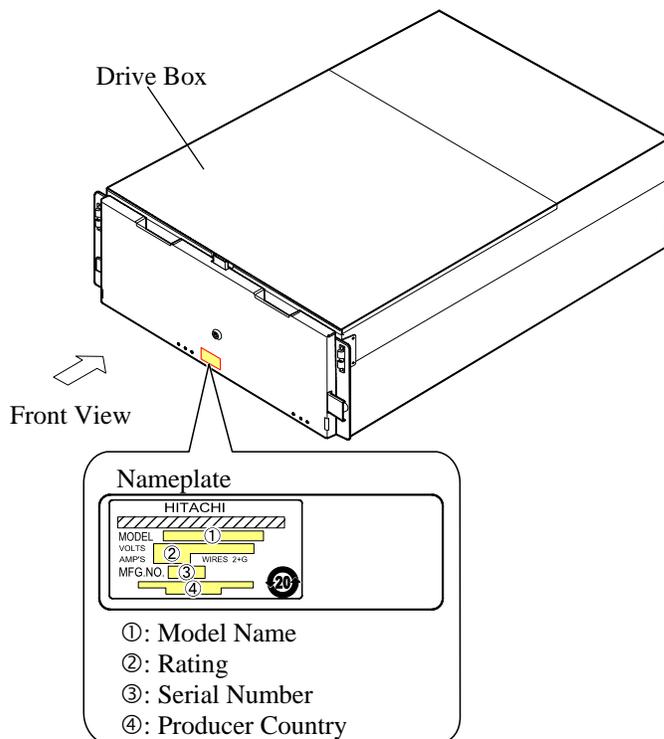


Fig. 3.42.1-29 Attachment of Nameplate

1-1-23. Attach the bezel.

- a. Attach the bezel to the Drive Box. (See [INST03-01-70](#).)

1-1-24. Power On the component.

- a. Turn on the breaker on the power distribution panel that is connected to PDU.
- b. Turn on the breaker on the PDU.
- c. Turn on the MAIN Switch.

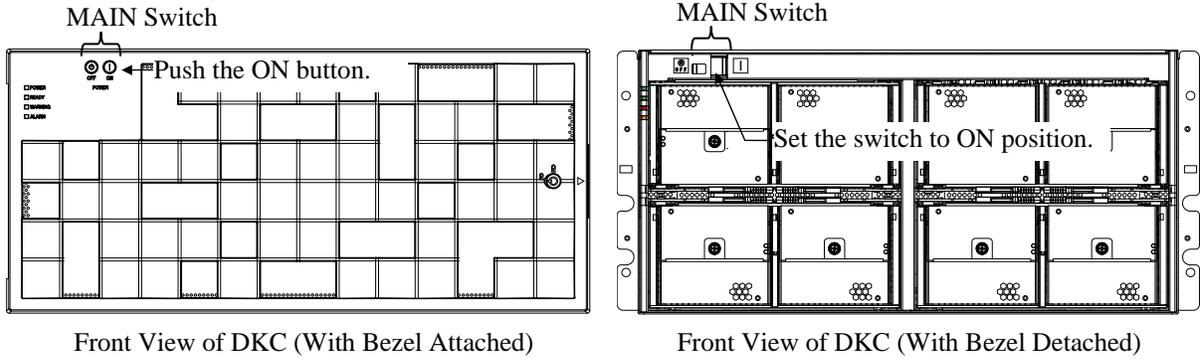


Fig. 3.42.1-30 Switch on DKC

1-1-25. End

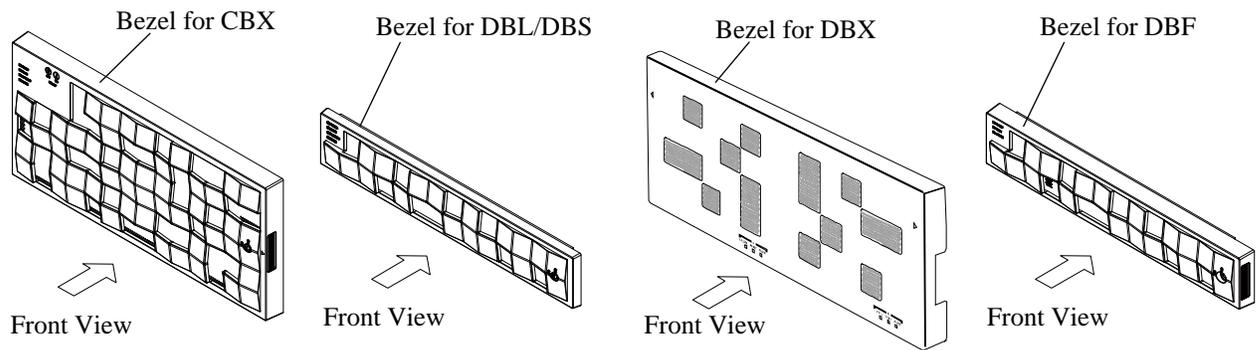
[Bezel REPLACEMENT PROCESSING]

— OUTLINE —

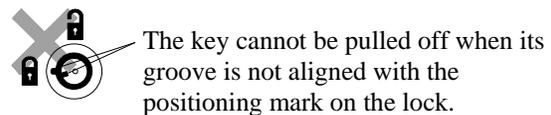
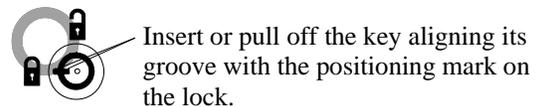
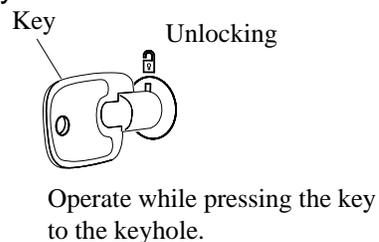
1. HARDWARE REPLACEMENT PROCESSING

1. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
CBX	1	Bezel	• Bezel for CBX
DBL/DBS	2	Bezel	• Bezel for DBL/DBS
DBX	3	Bezel	• Bezel for DBX
DBF	4	Bezel	• Bezel for DBF



- NOTICE:**
- Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - When inserting and turning the key, have it inserted completely. If it is turned when it is inserted half way, a damage of it may be caused.
 - When removing the key after locking up the bezel, pull it off aligning its groove with the positioning mark on the lock.
When the key is pulled off in the state where its groove is not aligned with the positioning mark on the lock, a damage of the lock may be caused.
 - The key of the bezel for the DBF is different from those of the bezels for the CBX, DBL/DBS and DBX. When replacing the bezel for the DBF, use the key that comes with the bezel for the DBF.



1-1 Replacement of Bezel for CBX

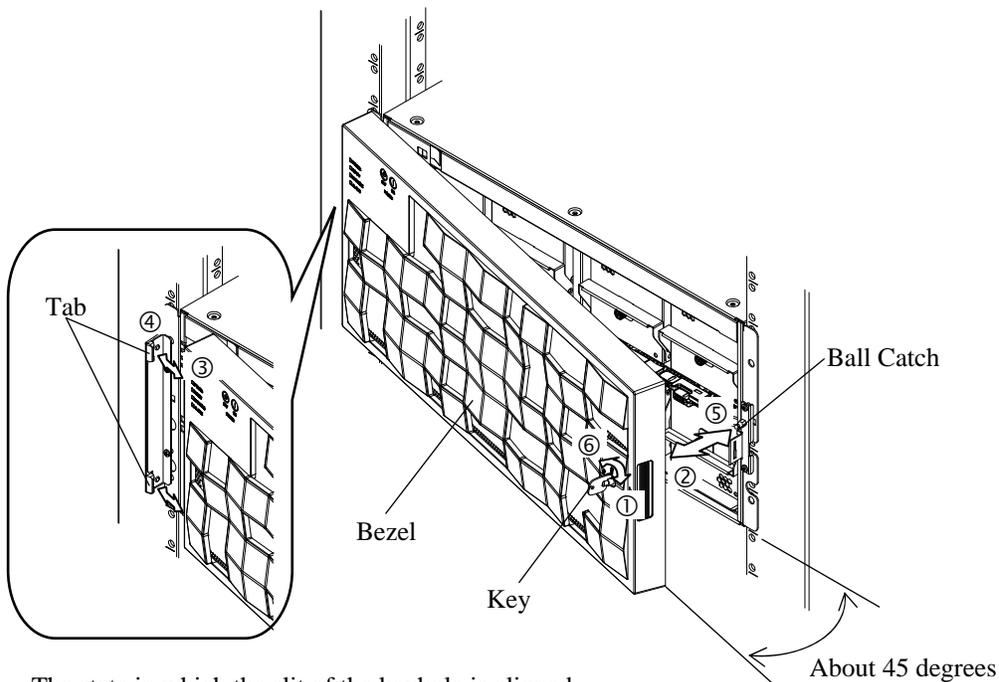
1-1-1. Replace the bezel.

- a. Insert the key into the keyhole on the bezel and release the lock of the bezel (①).
- b. Pull the key toward you while holding the lower right portion of the bezel, and then disengage the right side of the bezel from the ball catch (②).

NOTE: When disengaging the bezel, work with the opening angle between the bezel and the chassis of up to 45 degrees.

Do not force the bezel open too wide. Otherwise, a damage of bezel may be caused.

- c. Disengage the spare bezel from the left tabs and then remove it (③).
- d. Unlock the bezel with the key, and hold the key and bottom of bezel with your both hands.
- e. Insert the tabs on the left front side of the chassis into the tab holes on the bezel (④).
- f. Fix the bezel by pressing the right side of the bezel to engage it with the ball catch on the front side of the chassis (⑤).
- g. Lock the bezel with the key (⑥).



The state in which the slit of the keyhole is aligned with the mark.

(The key can be inserted or pulled out in this state.)

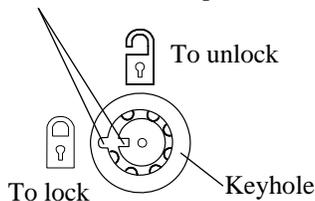


Fig. 3.43.1-1 Replacement of Bezel

1-1-2. End

1-2 Replacement of Bezel for DBL/DBS

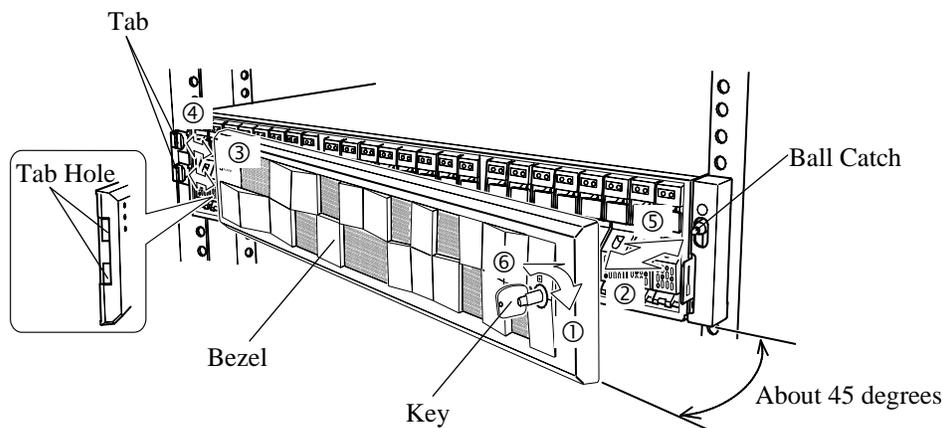
1-2-1. Replace the bezel.

- a. Insert the key into the keyhole on the bezel and release the lock of the bezel (①).
- b. Pull the key toward you while holding the lower right portion of the bezel, and then disengage the right side of the bezel from the ball catch (②).

NOTE: When disengaging the bezel, work with the opening angle between the bezel and the chassis of up to 45 degrees.

Do not force the bezel open too wide. Otherwise, a damage of bezel may be caused.

- c. Disengage the spare bezel from the left tabs and then remove it (③).
- d. Unlock the bezel with the key, and hold the key and bottom of bezel with your both hands.
- e. Insert the tabs on the left front side of the chassis into the tab holes on the bezel (④).
- f. Fix the bezel by pressing the right side of the bezel to engage it with the ball catch on the front side of the chassis (⑤).
- g. Lock the bezel with the key (⑥).



The state in which the slit of the keyhole is aligned with the mark.

(The key can be inserted or pulled out in this state.)

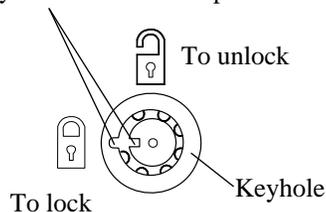


Fig. 3.43.2-1 Replacement of Bezel

1-2-2. End

1-3	Replacement of Bezel for DBX
-----	------------------------------

1-3-1. Replace the bezel.

- a. Pull the bezel toward you holding its sides and disengage it from the ball catches to remove the bezel.
- b. Hold the side of spare bezel with both hands.
- c. After making the hooks of the bezel engaged, press the bezel against the main body until it is stopped.

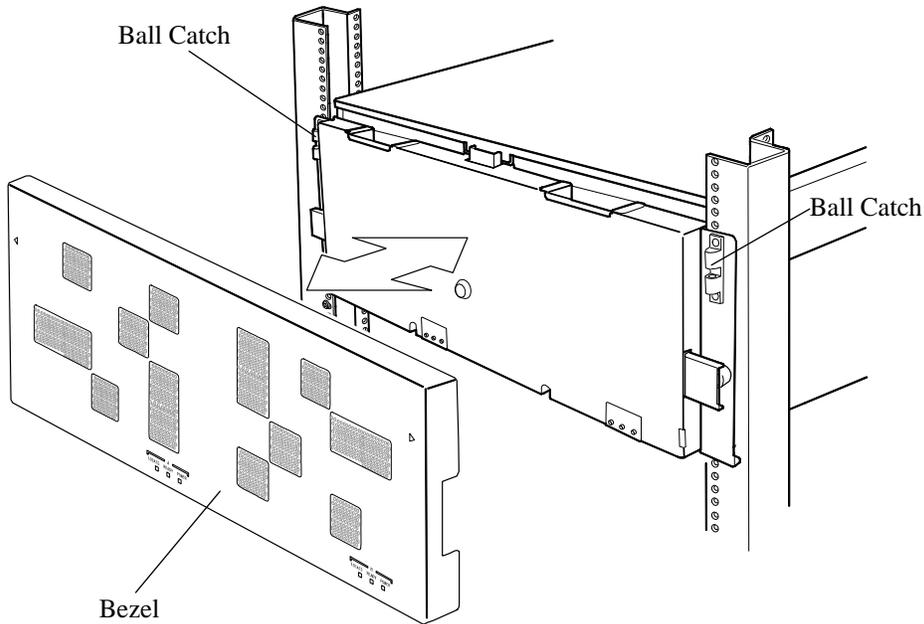


Fig. 3.43.3-1 Replacement of Bezel

1-3-2. End

1-4 Replacement of Bezel for DBF

1-4-1. Replace the bezel.

- a. Insert the key into the keyhole on the bezel and release the lock of the bezel (①).
- b. Pull the key toward you while holding the lower right portion of the bezel, and then disengage the right side of the bezel from the ball catch (②).

NOTE: When disengaging the bezel, work with the opening angle between the bezel and the chassis of up to 45 degrees.

Do not force the bezel open too wide. Otherwise, a damage of bezel may be caused.

- c. Disengage the spare bezel from the left tabs and then remove it (③).
- d. Unlock the bezel with the key, and hold the key and bottom of bezel with your both hands.
- e. Insert the tabs on the left front side of the chassis into the tab holes on the bezel (④) at an angle of about 45 degrees between the bezel and the chassis.

NOTE: Be careful not to catch the Plate between the chassis and the bezel when inserting the tabs on the chassis into the tab holes on the bezel.

The Plate may be damaged if caught.

- f. Fix the bezel by pressing the right side of the bezel to engage it with the ball catch on the front side of the chassis (⑤).
- g. Lock the bezel with the key (⑥).

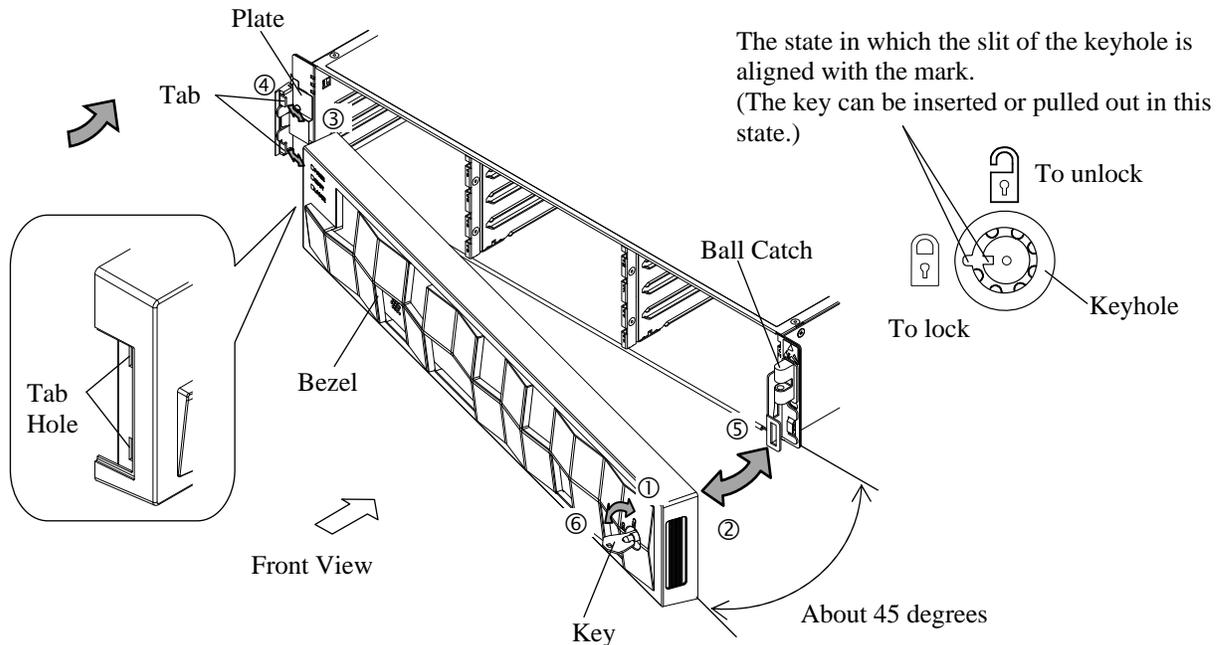


Fig. 3.43.4-1 Replacement of Bezel

1-4-2. End

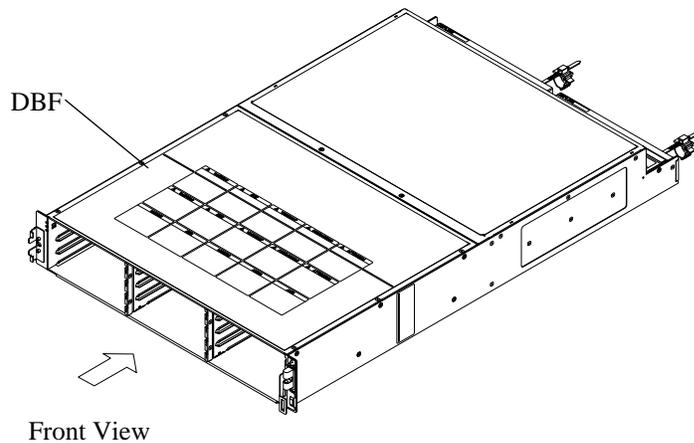
[Drive Box (DBF) REPLACEMENT PROCESSING]

— OUTLINE —

1. HARDWARE REPLACEMENT PROCESSING

1. HARDWARE REPLACEMENT PROCESSING

Location	Function Name of Component		Part Name
RACK	1	Drive Box	• DBF



- NOTICE:**
- Be sure to wear your wrist strap and attach to ground prior to performing the following work. This will ensure that the IC and LSI on the PCB are protected from static electricity.
 - Replace the Drive Box while the storage system is powered off. Do not replace the Drive Box while the storage system is powered on.

1-1 Replacement of Drive Box (DBF)

1-1-1. Power off the RACK.

 **WARNING**

Hazardous voltage:

Contact could cause electric shock or burn. Turn off all related breakers and discharge residual voltage, as shown below. (Follow next procedures.)

- a. Turn off the MAIN Switch on the front side of the DKC.
- b. Confirm that the POWER LED on the upper left part of the front side of the DKC lights in amber.

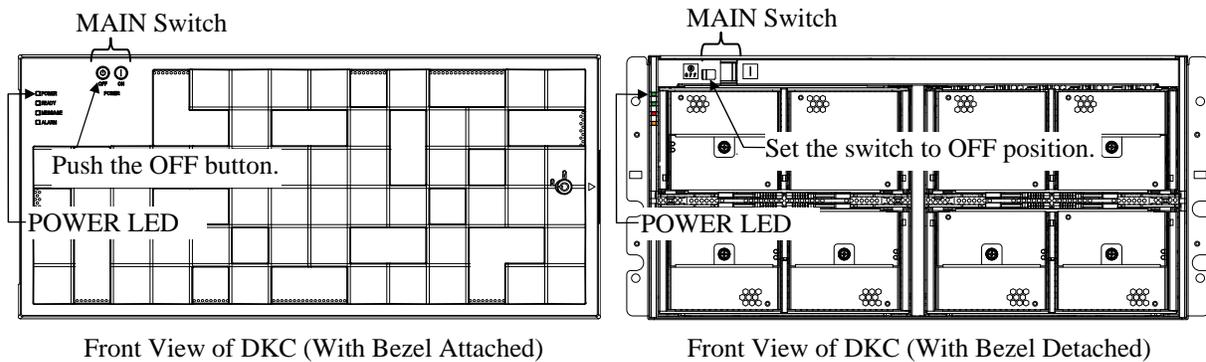


Fig. 3.44.1-1 Switch on DKC

- c. Turn off the breaker at the PDU.
- d. Turn off the circuit breaker on the power distribution panel in the plant that is connected to the PDU.
- e. The circuit has residual voltage after turning off the breakers, so wait for one minute.

1-1-2. Remove the bezel.

- a. Remove the bezel from the Drive Box. (See [INST03-01-81.](#))

1-1-3. Attach a label.

- a. Attach a label or the like for identification of installation location to a removed part so that it can be installed in the same place in the spare Drive Box.

1-1-4. Remove the ENC.

- a. Disconnect the SAS cable which connects to the ENC.
- b. Press the latches of the ENC inward to unlock the levers.
- c. Pull the right and left levers and remove the ENC.
- d. Remove the other ENC in the same manner.

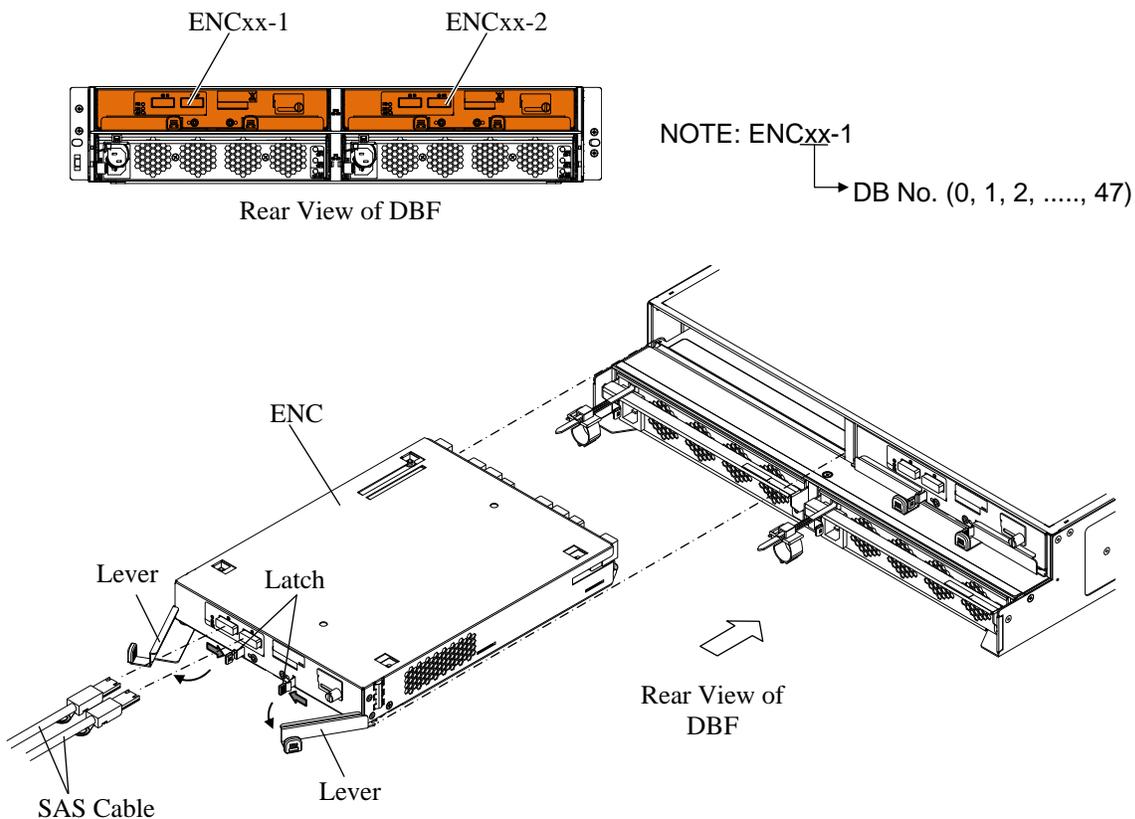


Fig. 3.44.1-2 Removal of ENC

1-1-5. Remove the DBPS.

- a. Pull and open the cable holder.
- b. Disconnect the power cable from the DBPS.
- c. Disconnect the power cable from the other DBPS in the same manner.

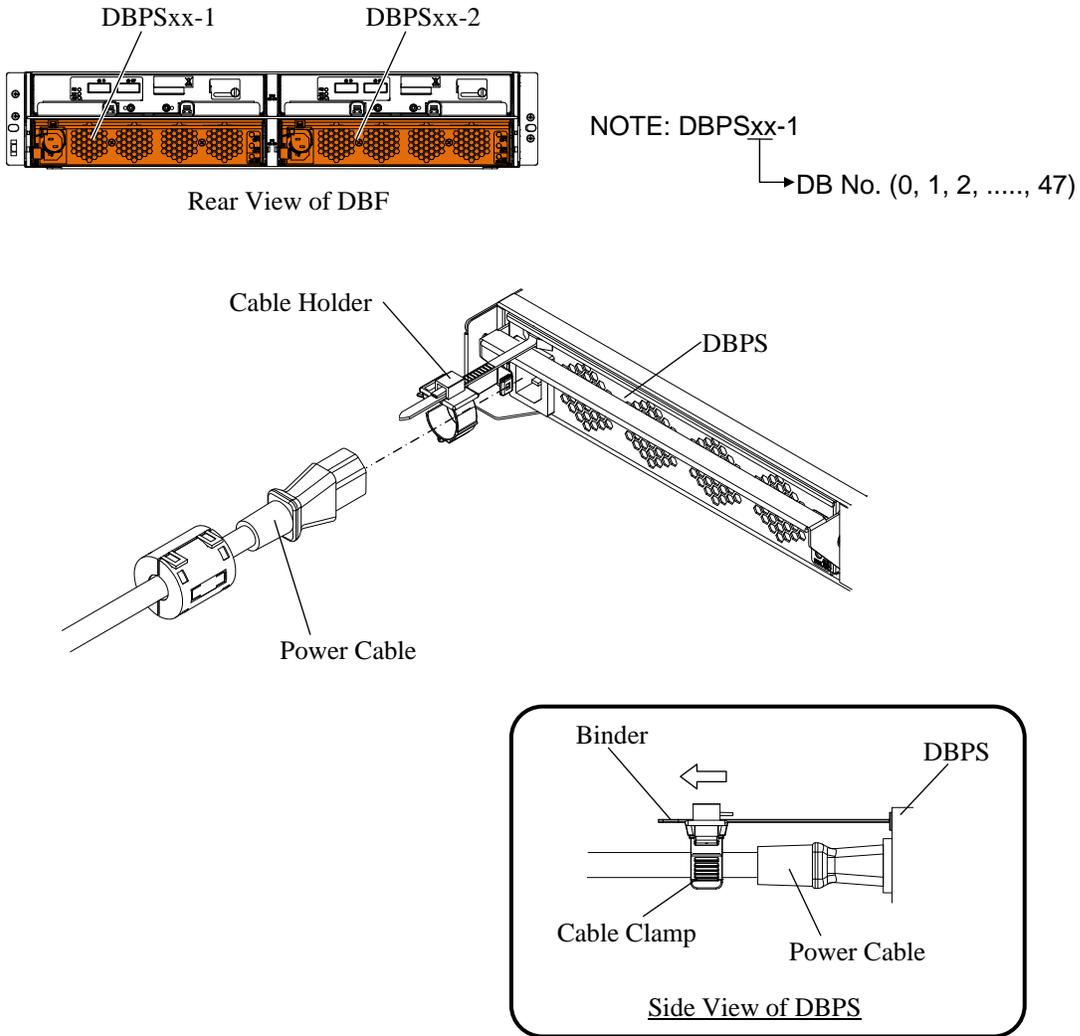


Fig. 3.44.1-3 Disconnection of Cable

- d. Bring the handle down and forward (②) while pushing the latch of the DBPS inward (①).
- e. Pull the DBPS and remove it from the Drive Box.
- f. Remove the other DBPS in the same manner.

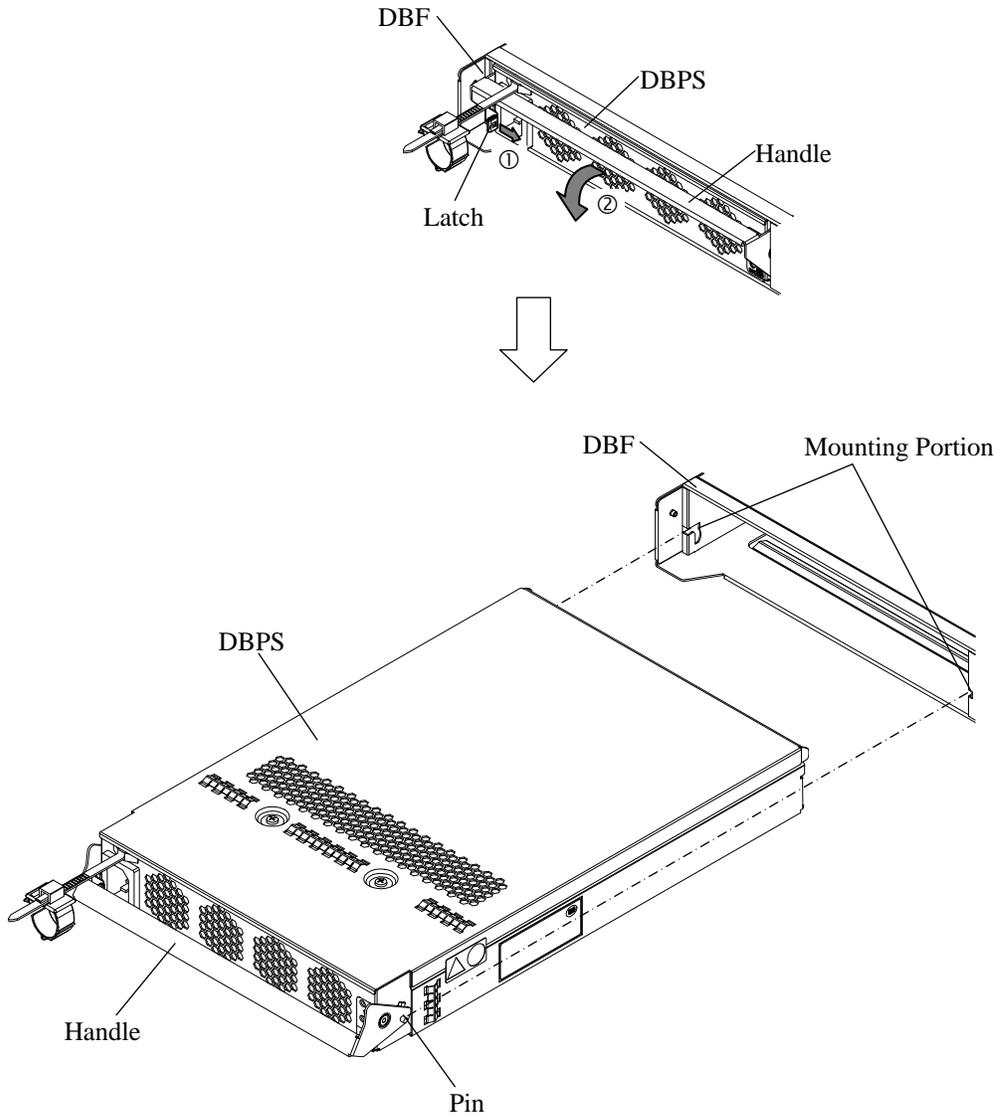


Fig. 3.44.1-4 Removal of DBPS

1-1-6. Remove the drive.

- a. Pull the stopper of the drive handle toward you to have the lock off.
- b. Tilt the handle toward you, and then remove the drive by pulling it out taking care not to apply a shock to it.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- c. Remove the other drives in the same manner.

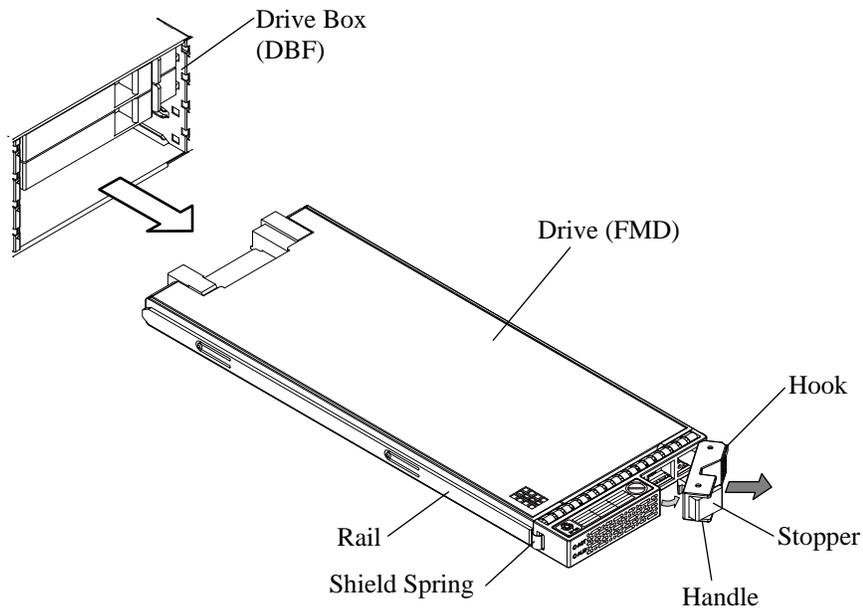
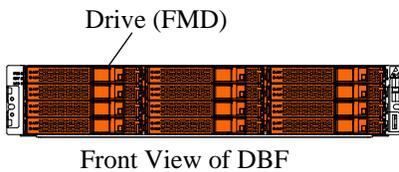


Fig. 3.44.1-5 Removal of Drive (for DBF)

1-1-7. Replace the Drive Box.

- a. Remove the side cover from the left side of the front of the Drive Box.

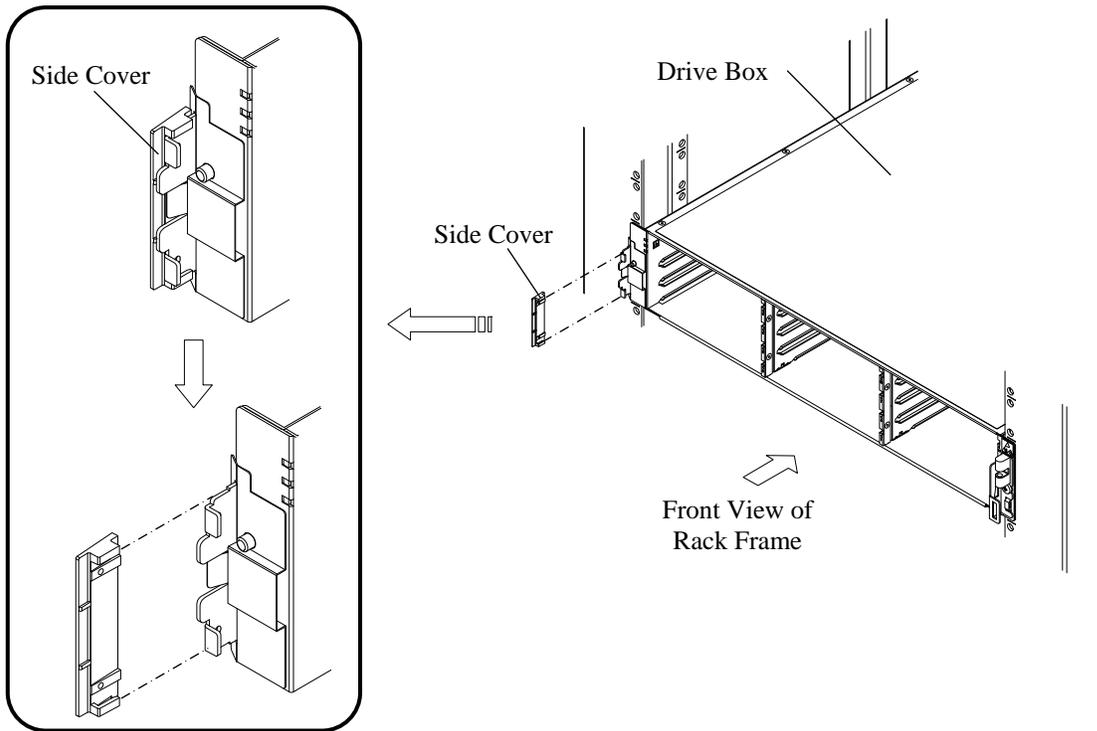


Fig. 3.44.1-6 Removal of Side Cover

- b. Remove the plate from the left side of the front of the Drive Box.

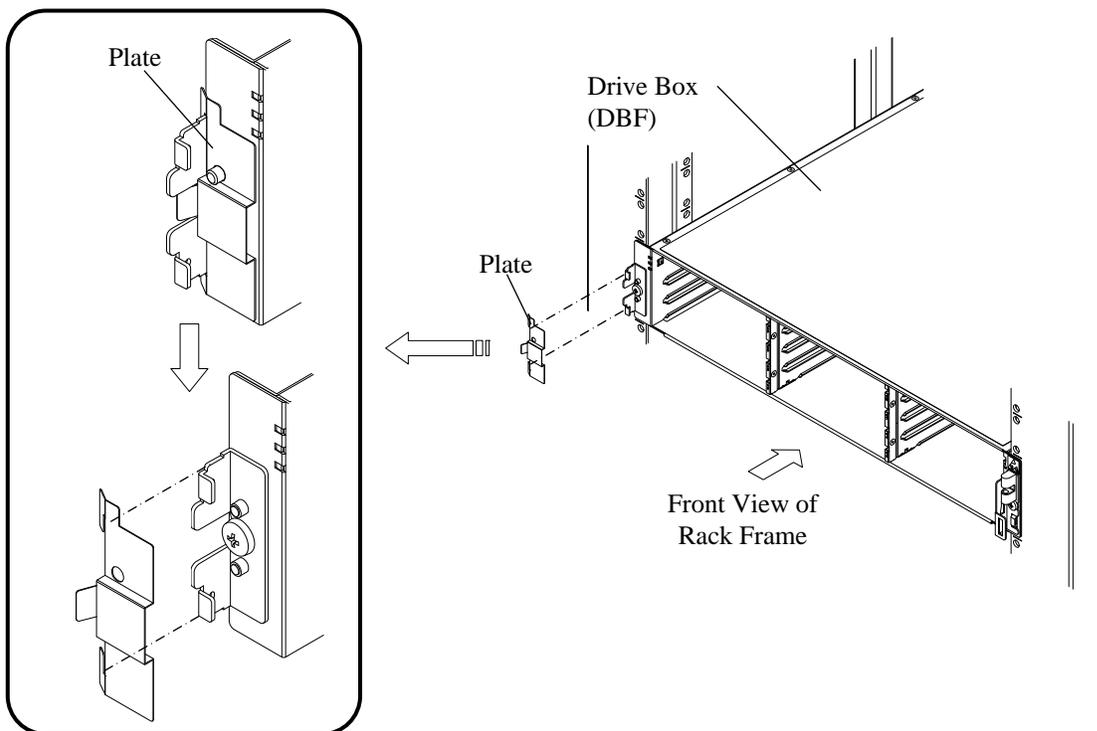


Fig. 3.44.1-7 Removal of Plate

⚠ CAUTION

Paying attention to falls:

Work carefully because the mass of the single Drive Box is about 10 kg.

Beware over turning and dropping:

To prevent Drive Box from over turning and dropping, the installation work must be done by two or more personnel.

- c. Remove the two screws from the Drive Box.
- d. Remove the Drive Box from the Rack frame referring to mounting procedure using the special lifter. (See [INST03-10-10](#) through 40.)
- e. Install the spare Drive Box on the front side of the Rack frame.
- f. Fix the Drive Box with the two screws.
- g. Attach the plate to the left side of the front of the Drive Box. (See Fig. 3.44.1-7.)
- h. Attach the side cover to the left side of the front of the Drive Box. (See Fig. 3.44.1-6.)

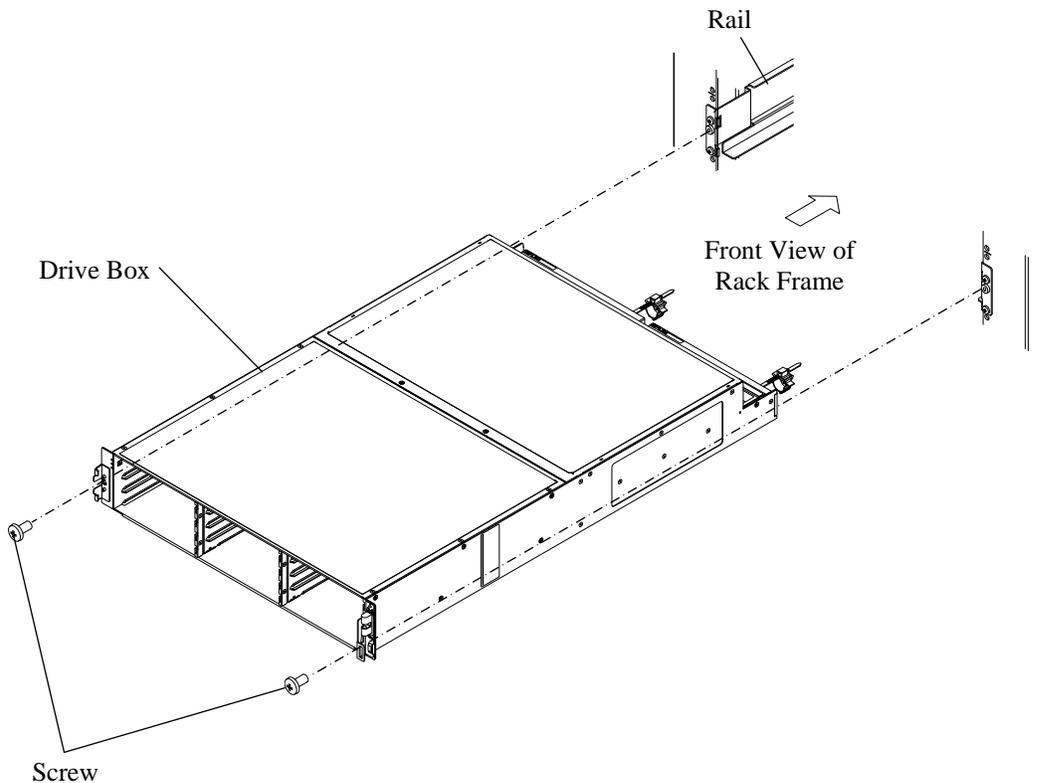


Fig. 3.44.1-8 Removal of Drive Box

1-1-8. Install the drive.

Install all the removed drives to the same place in the spare Drive Box according to the label attached to them.

NOTE: When handling the drive, hold the rail side because the shield spring is subject to breakage.

- a. Open the handle fully and fit the drive in the guide rail and slide it in the direction shown by the arrow not to give a shock.
- b. Push the drive in until it reaches the position where a hook of the handle can be entered into the square hole on a frame.
- c. Pull the stopper lightly and close the handle, and then press the stopper to have the lock on. If the handle is closed in the state where the hook of the handle cannot enter into the square hole, the drive cannot be installed correctly because it runs into the frame of the DBF.
- d. Install the other drives in the same manner.

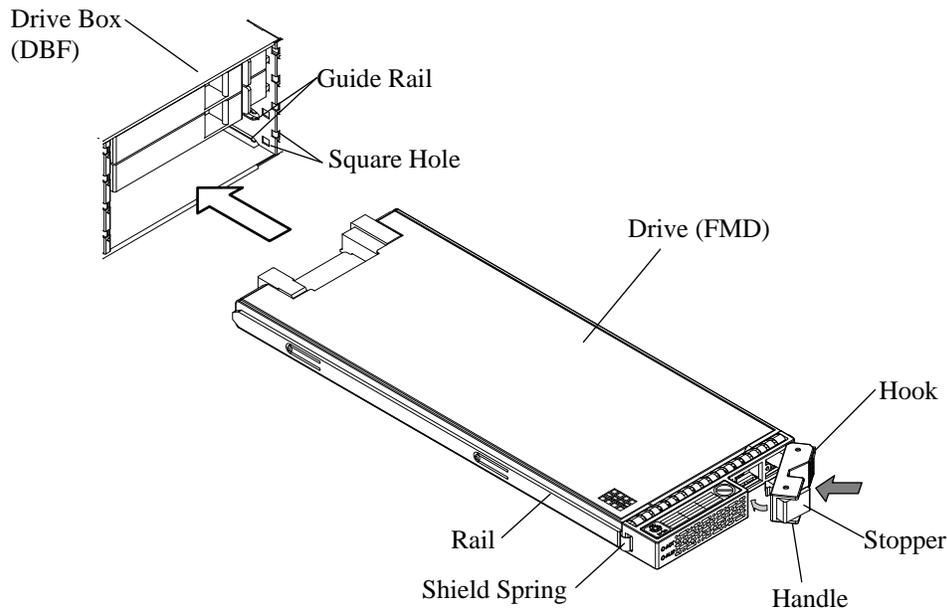


Fig. 3.44.1-9 Installation of Drive (for DBF)

1-1-9. Insert the DBPS.

- a. Make the handle of the DBPS completely fall down and forward. (See Fig. 3.44.1-4.)
- b. Insert the DBPS into the slot and push it to the full.
- c. Completely raise the handle and fix the DBPS.
- d. Connect the power cable to the DBPS and fasten it with the cable holder. (See Fig. 3.44.1-3.)
- e. Push the cable holder toward the DBPS until it stops.
- f. Install the other DBPS in the same manner.

1-1-10. Insert the ENC.

- a. Make the right and left levers of the ENC open. (See Fig. 3.44.1-2.)
- b. Insert the ENC until the edge of the lever comes in contact with the Drive Box.
- c. Close the right and left levers to insert the ENC completely.
- d. Connect the cables to the ENC after checking “3.1.6 Notes when connecting and routing the SAS cable” ([INST03-01-170](#)).
- e. Install the other ENC in the same manner.

1-1-11. Attach the location labels. (If the location labels are already attached, this procedure is not required.)

- a. Select the two location labels of ENC and PS among the labels in the small packet included in the spare Drive Box and attach the locations labels to the Drive Box.

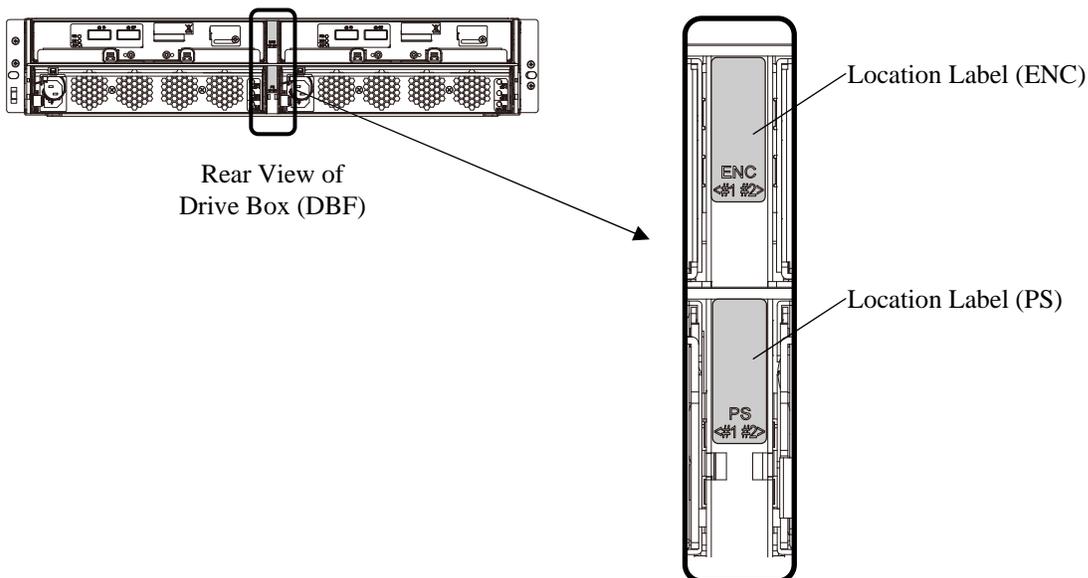


Fig. 3.44.1-10 Attachment of Location Labels

1-1-12. Attach the nameplate.

- a. Take out the nameplate in which the same model name as the removed Drive Box is described from the nameplates attached to the spare Drive Box. Write down the same serial number as the removed Drive Box in the nameplate, and then affix the nameplate to the spare Drive Box.

When the nameplate in which the same model name as the removed Drive Box is described is not attached, take out the nameplate in which the same rating and producer country as the removed Drive Box are described and which the model name is not described. Write down the same model name and serial number as the removed Drive Box in the nameplate, and then affix it to the spare Drive Box.

To fill in the nameplate, use the RoHS-compliant marker pen.

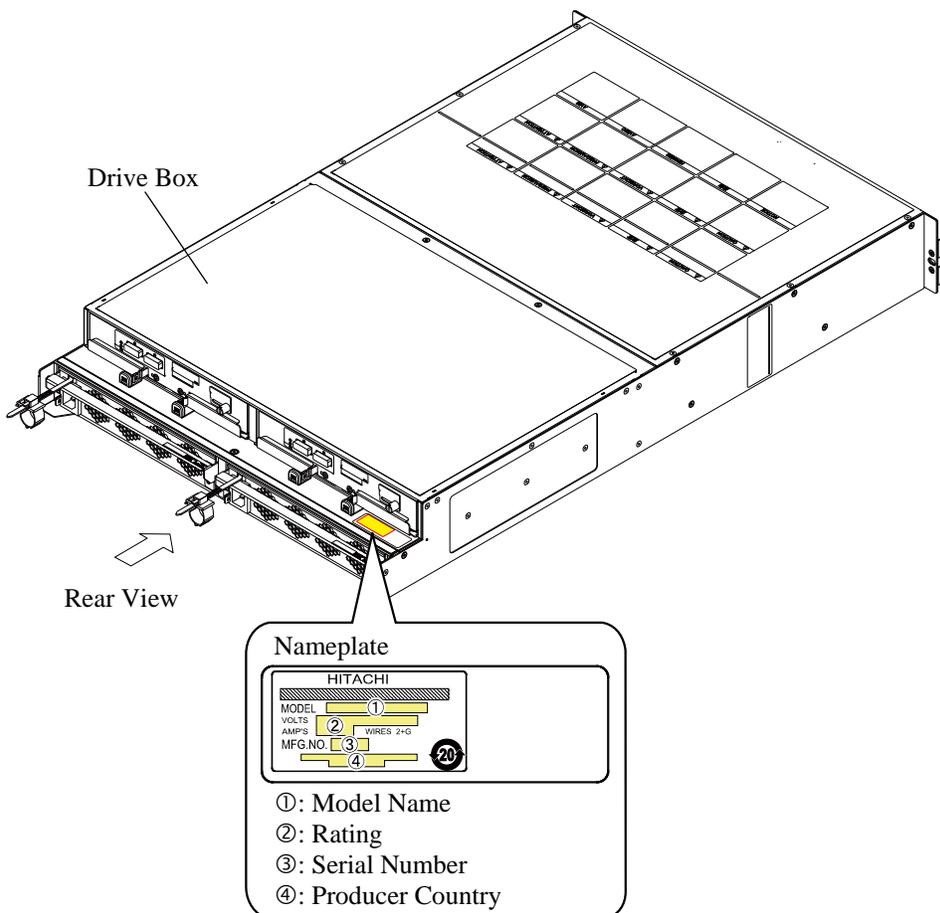


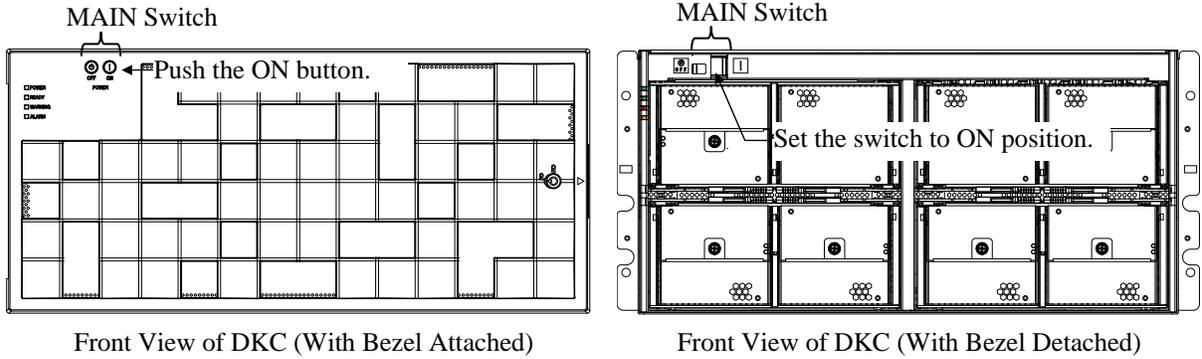
Fig. 3.44.1-11 Attachment of Nameplate

1-1-13. Attach the bezel.

- a. Attach the bezel to the Drive Box. (See [INST03-01-82.](#))

1-1-14. Power On the component

- a. Turn on the breaker on the power distribution panel that is connected to PDU.
- b. Turn on the breaker on the PDU.
- c. Turn on the MAIN Switch.

**Fig. 3.44.1-12 Switch on DKC**

1-1-15. End

[POST-PROCEDURE]

— OUTLINE —

- ① SIM Log Complete
- ② Change the SVP operation mode
- ③ Maintenance Window

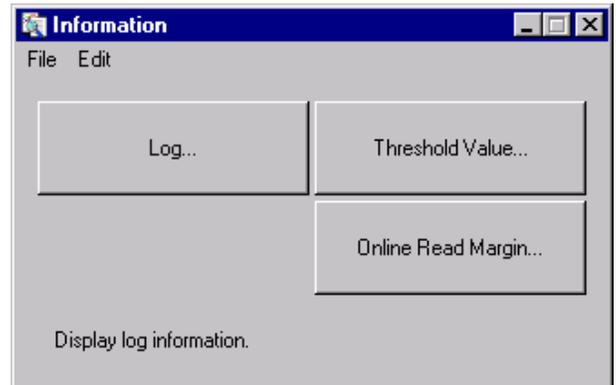
1. SIM Log Complete

(1)

Change the mode from [View Mode] to [Modify Mode].
Select (CL) [Information].

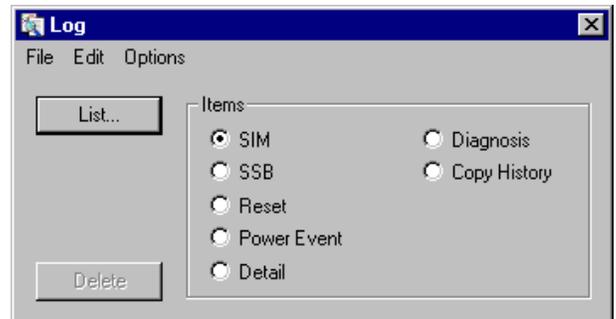
(2)

Select (CL) [Log...] in the 'Information' dialog box.



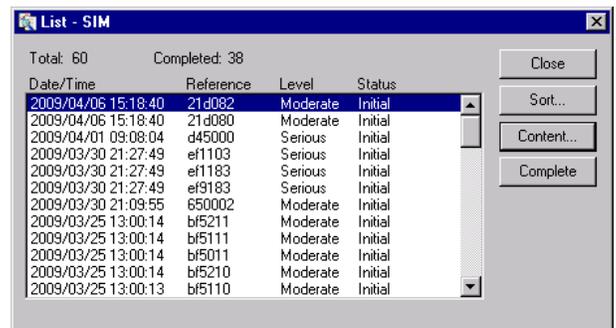
(3)

Select (CL) [SIM] and [List...] in the 'Log'.

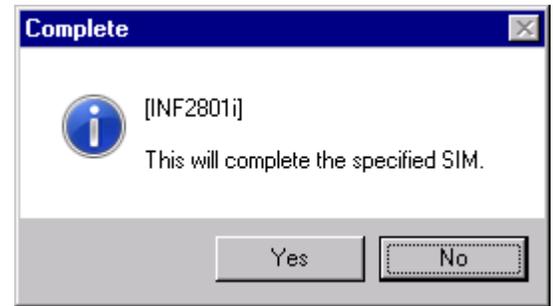


(4)

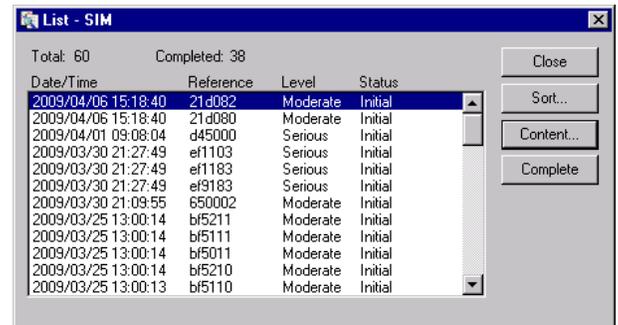
Select (CL) data to be completed in the 'List-SIM' dialog box and select (CL) [Complete].



- (5) Select (CL) [Yes] in the 'Complete' dialog box.



- (6) In the 'List-SIM' dialog box, make sure that "Completed" is displayed in the Status.



- (7) Select (CL) [Close] in the 'List-SIM' dialog box.
Close the 'Log' dialog box and close the 'Information' window.
Change the mode from [Modify Mode] to [View Mode].

NOTE: Even if SIM Complete was performed, the MESSAGE of the Operator Panel may be on. Display all the SIMs to make sure they are completed. If not, please wait for 5 minutes and operate SIM Log Complete again.

2. <Maintenance window>

In the 'Maintenance' window, check the status of storage system.
Recover the parts if the other parts are blocked.
Turn off the Locate LED (Refer to "3.4.1.1 Operation for Locate LED" ([SVP03-120](#))).
Close the 'Maintenance' window if there is no problem.

3. <Changing the SVP operation mode>

In the 'SVP' window, change the mode to [View Mode].

Please up-load trouble information gathered in console PC to the server by using OnlineDumpTool. ([SVP02-1670](#))