[DRIVE REPLACEMENT PROCESSING - RDK1]

— OUTLINE —

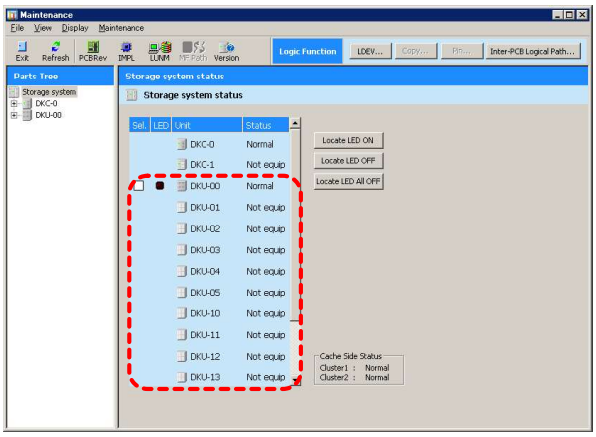
1. PRE-PROCESSING of SVP
    - ① Select drive (status check)
    - ② Check progress of copy processing
    - ③ Specify Replacement
    - ④ Place HDD into unpluggable state
2. HARDWARE REPLACEMENT PROCESSING
3. POST-PROCESSING of SVP
    - ① Execute CUDG on P-DEV
    - ② Specify recovery
    - ③ Copy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

NOTICE:	If No Charging of FMD (SIM = 50EXYY) occurs in installation 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.

1. PRE-PROCESSING of SVP

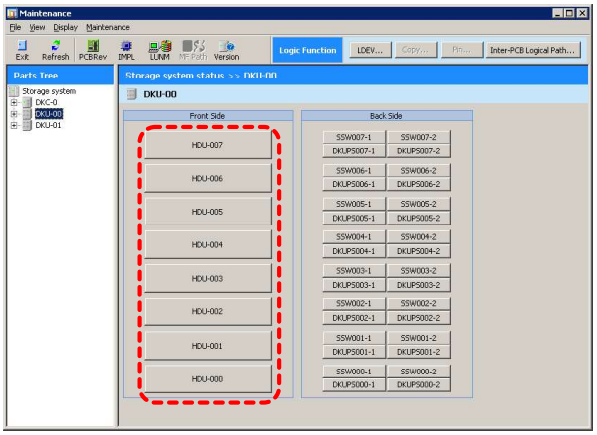
1-1. <Maintenance window>

Open the ‘Maintenance’ window according to PRE PROCEDURE A (REP02-01-10).
Select (CL) the DKU information [DKU-nn] of the DKU which installs the HDD to be replaced in the ‘Maintenance’ window.



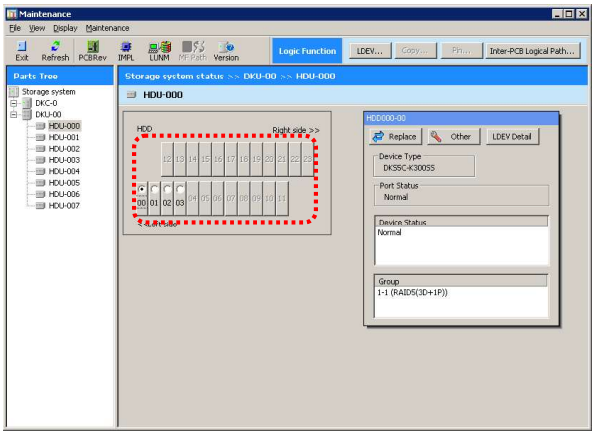
1-2. <Select HDU>

Select (CL) the HDU information [HDU-nnn] of the HDU which installs the HDD to be replaced.



1-3. <Select HDD>

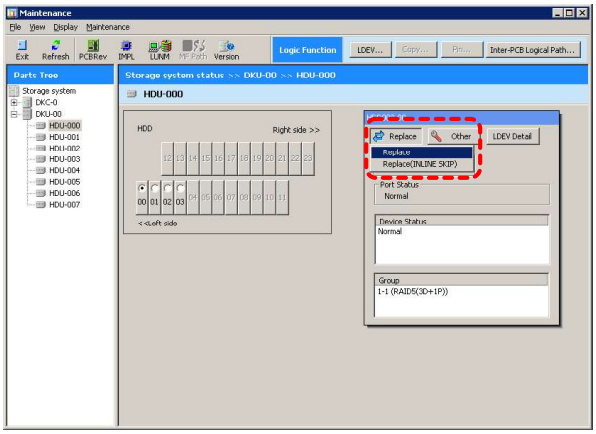
Check and select (CL) [nn] to be replaced.



1-4. <Specify replacement of HDD>

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

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



1-5. <Checking the P-DEV status>

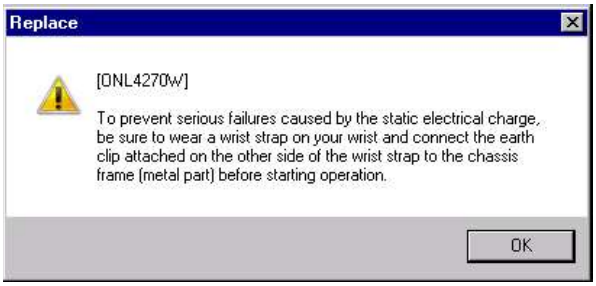
NOTICE: When the screen appears prompting the operator to input a password to prevent multiple maintenance or for executing a pin check, contact the technical support division to ask for instructions

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

"Checking..." is displayed.

1-6. <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.".

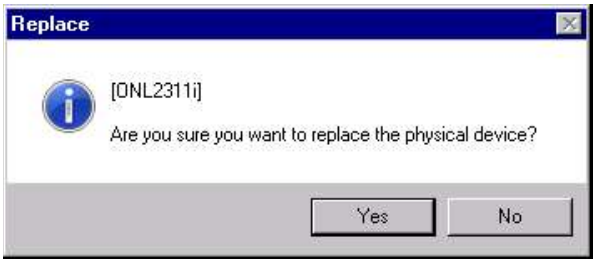


(1) <Confirm wearing wrist strap>
In response to a message, "Did you put on a wrist strap on your wrist?".
Select (CL) [Yes] when wrist strap is on your wrist.
Select (CL) [No] when there is no wrist strap on your wrist.
When [No] is selected (CL), go to Step (2).

(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 1-3.
When [No] is selected (CL), returned to Step 1-6.

1-7. <P-DEV blocking>
Select (CL) [Yes] in response to “Are you sure you want to replace the physical device?”.



1-8. <Blocking the Physical device>
“Blocking...” is displayed.

1-9. <Spin down the Physical device>
“Spinning down...” is displayed.

1-10. <Check shut down LED>

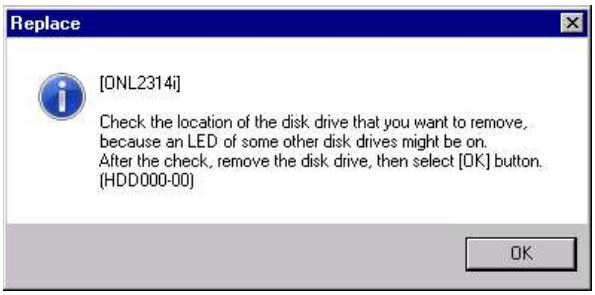
⚠ CAUTION

If a wrong HDD is removed, a data loss or a system down may occur.

Check the shut down 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.

1-11. <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. (HDDnnn-nn)" after the unit is removed. (Step 2-1-2)

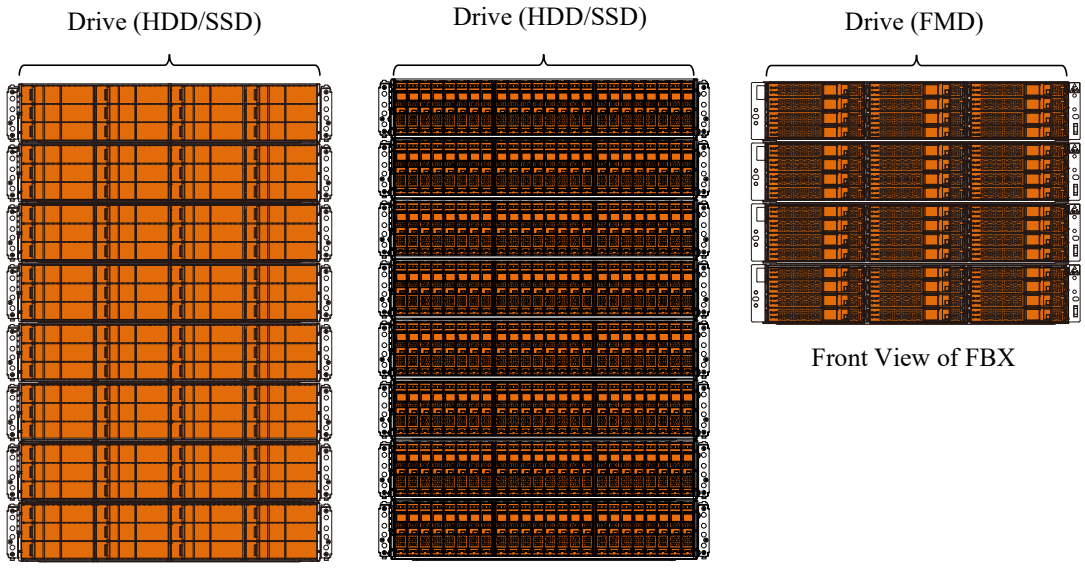


1-12. <Replace HDD>

Replace HDD.
Go to "2. HARDWARE REPLACEMENT PROCESSING".

2. HARDWARE REPLACEMENT PROCESSING

Location		Function Name of Component	Part Name	HDA Label
Front View of UBX	1	Disk Drive (HDD)	HDU800-600J5MSS	R5D-J600SS
			HDU800-3R0H3MSS	S2E-H3R0SS
			HDU800-4R0H3MSS	R2E-H4R0SS
				S2E-H4R0SS
	2	Flash Drive (SSD)	HDU800-400M5MSS	B5A-M400SS
Front View of SBX	3	Disk Drive (HDD)	HDU800-300KCMSS	S5C-K300SS
			HDU800-600JCMSS	R5D-J600SS
				S5E-J600SS
			HDU800-900JCMSS	R5D-J900SS
				S5E-J900SS
			HDU800-1R2JCMSS	R5E-J1R2SS
				S5F-J1R2SS
	4	Flash Drive (SSD)	HDU800-400MCMSS	B5A-M400SS
				R5C-M400SS
			HDU800-800MCMSS	B5A-M800SS
				R5C-M800SS
Front View of FBX	5	Flash Module Drive (FMD)	HDU800-1R6FMSS	HAA-P1R6SS
			HDU800-3R2FMSS	HAB-P3R2SS



Front View of UBX

Front View of SBX

Front View of FBX

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. Check the Shut Down LED.

a. Check that the Shut Down LED on drive is turned on. Refer to Fig. 3.1.2-1, Fig. 3.1.2-2 or Fig. 3.1.2-3.

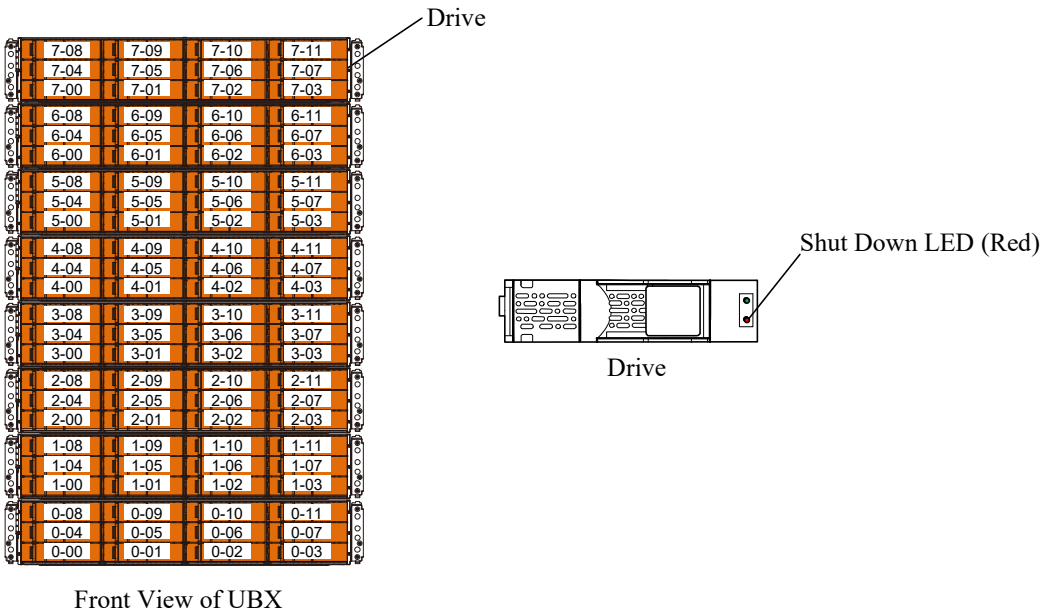


Fig. 3.1.2-1 Checking of Shut Down LED (In case of UBX)

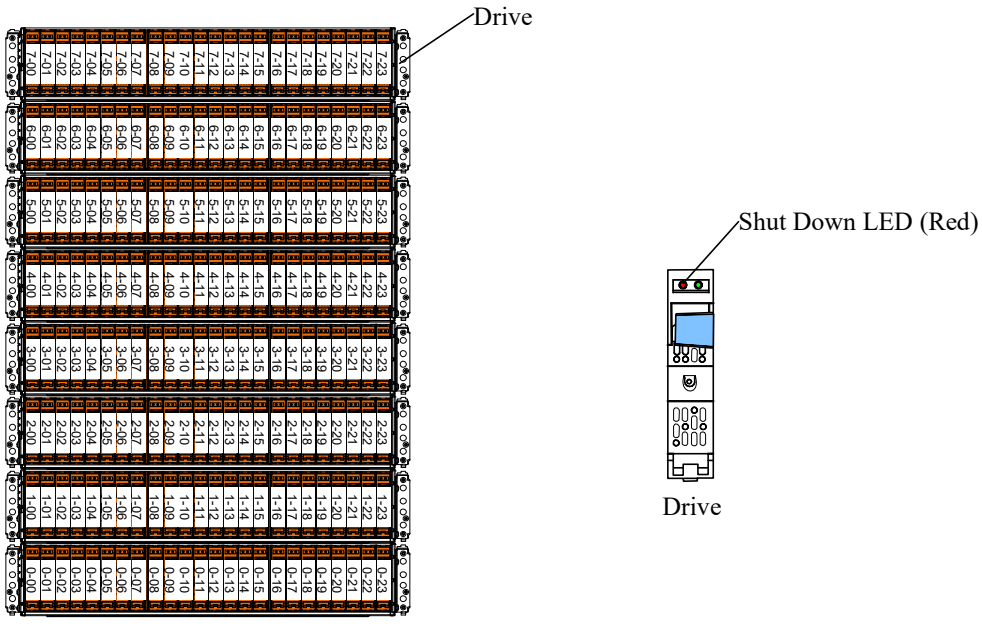
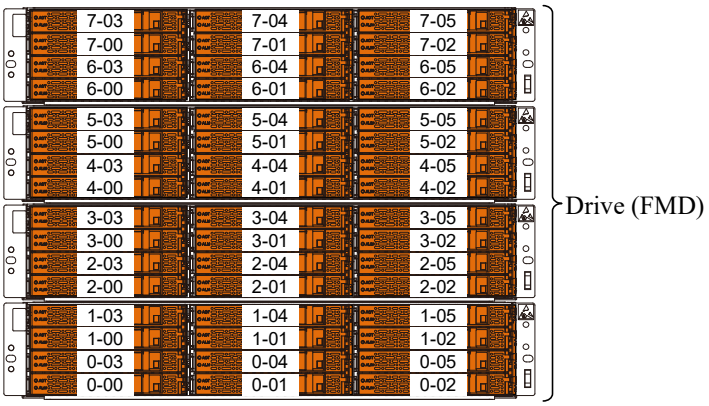
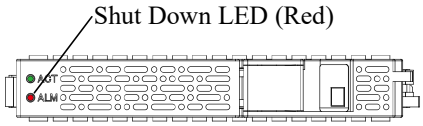


Fig. 3.1.2-2 Checking of Shut Down LED (In case of SBX)



Front View of FBX



Front View of Drive (FMD)

Fig. 3.1.2-3 Checking of Shut Down LED (In case of FBX)

2-1-2. Remove the drive.

2-1-2.1. In case of Drive for UBX

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.

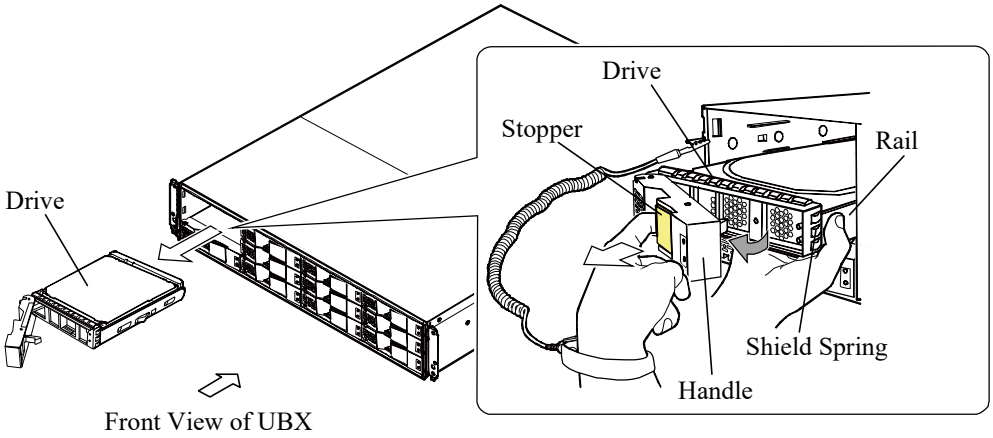


Fig. 3.1.2-4 Removal of Drive (for UBX)

2-1-2.2. In case of Drive for SBX

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 to be replaced not to give a shock.

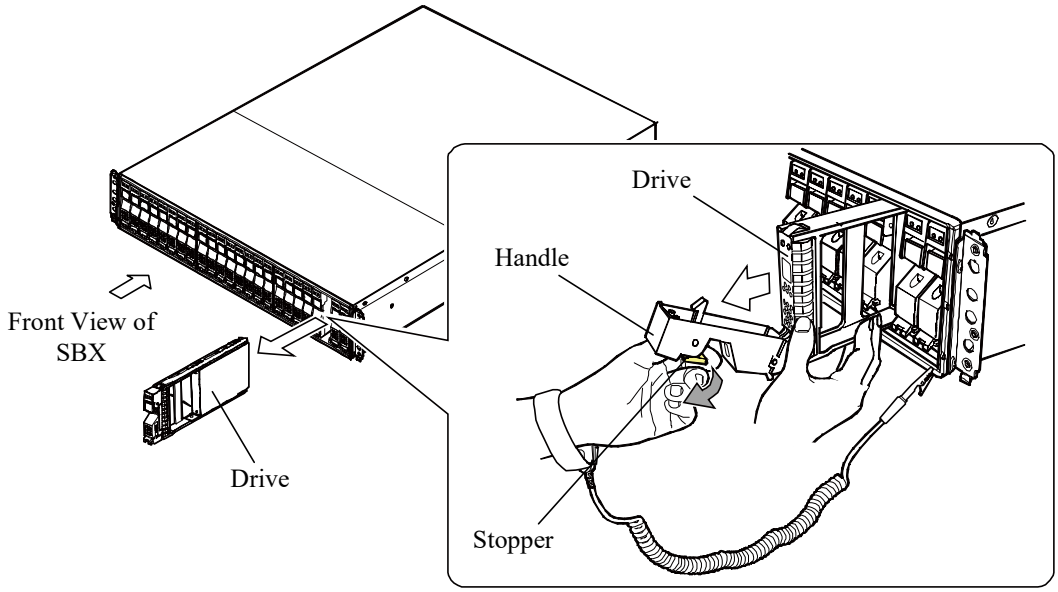
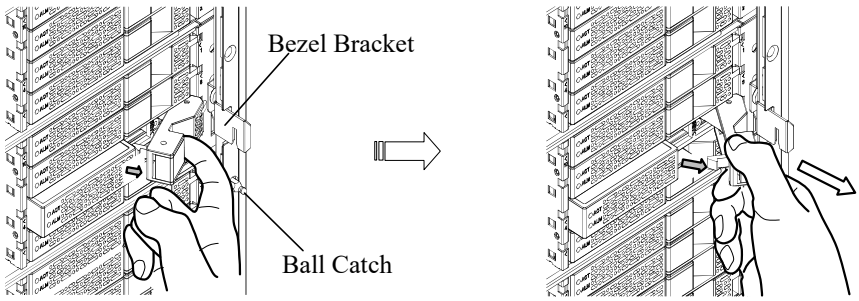


Fig. 3.1.2-5 Removal of Drive (for SBX)

2-1-2.3. In case of FBX

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

NOTICE: When extracting drives (FMD) centered on the right side of the FBX, be careful not to get your finger caught in the Bezel Bracket and/or the Ball Catch. Slightly pull the Stopper with your fingertip and then extract a drive with holding upper and bottom sides of the Handle as shown in the figure below.



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.

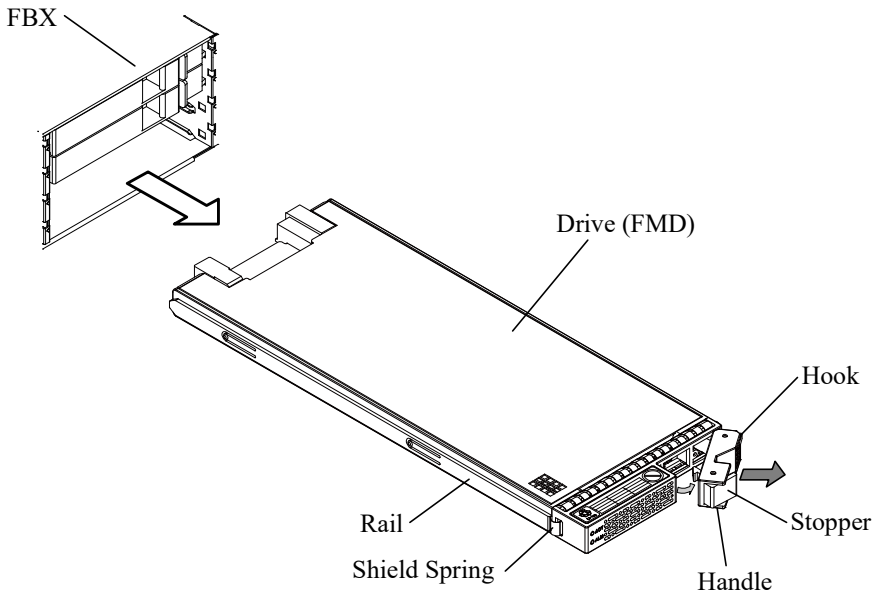
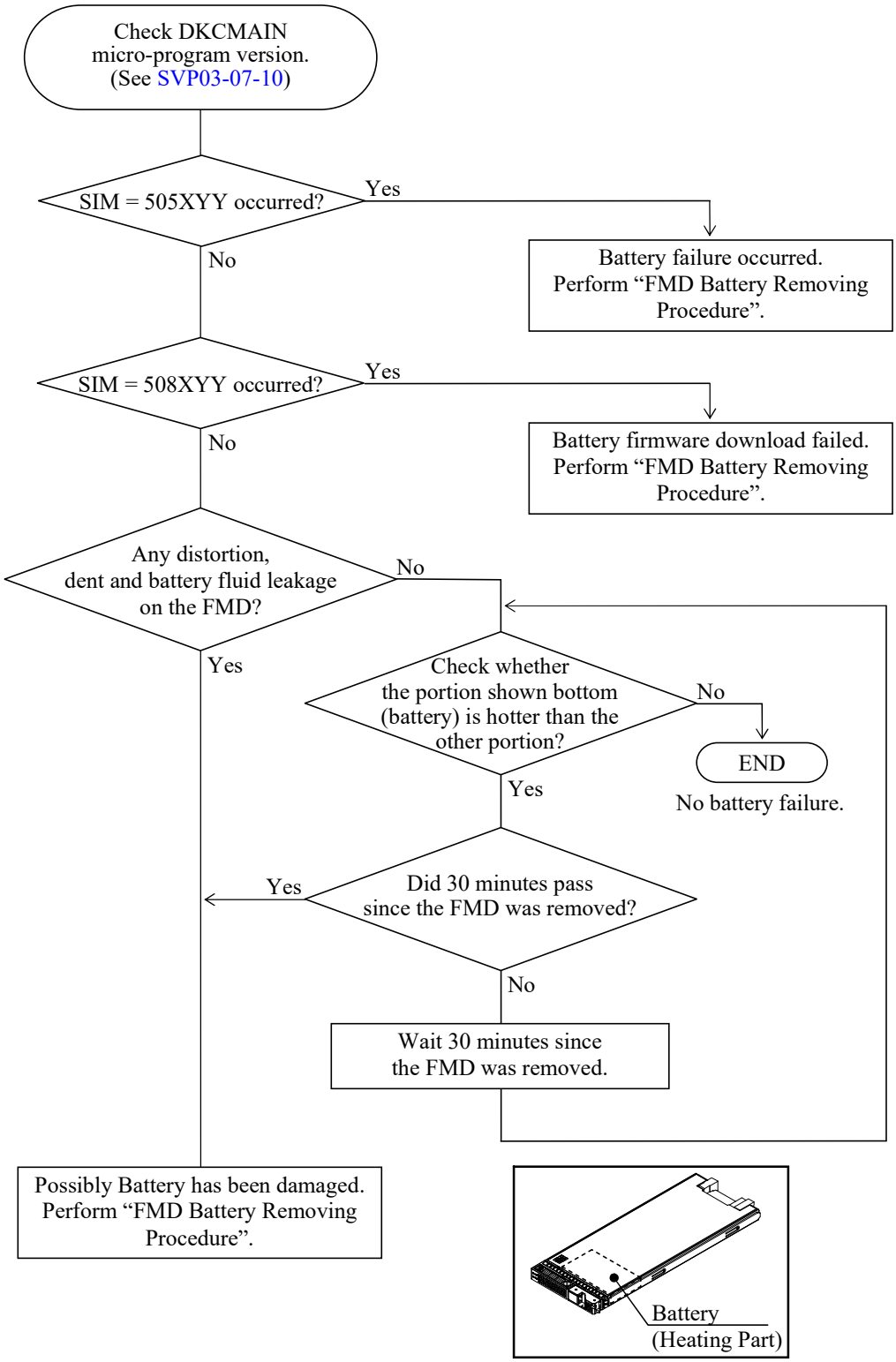


Fig. 3.1.2-6 Removal of Drive (In case of FBX)

c. Check whether a failure of the battery built in the FMD has occurred by using the flowchart below. If a battery failure has occurred, remove the battery from the FMD. If no battery failure has occurred, go to Procedure 2-1-3.



d. FMD Battery Removing Procedure

(d)-1 Remove 4 Screws (SB310N) on the bottom side of FMD by using cross-head screw driver.

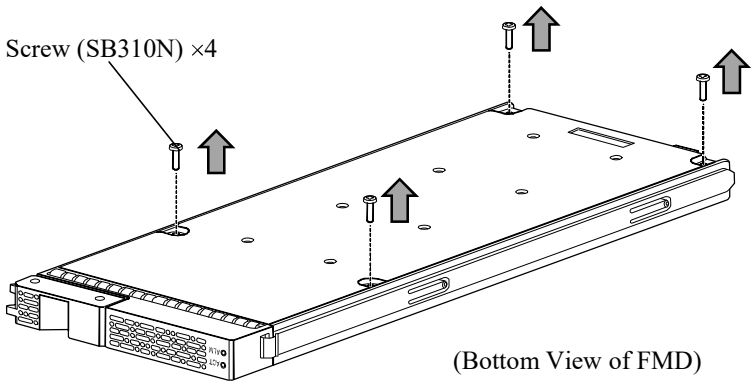


Fig. 3.1.2-7 Removing Screws

(d)-2 Remove Top Cover and Bottom Cover.

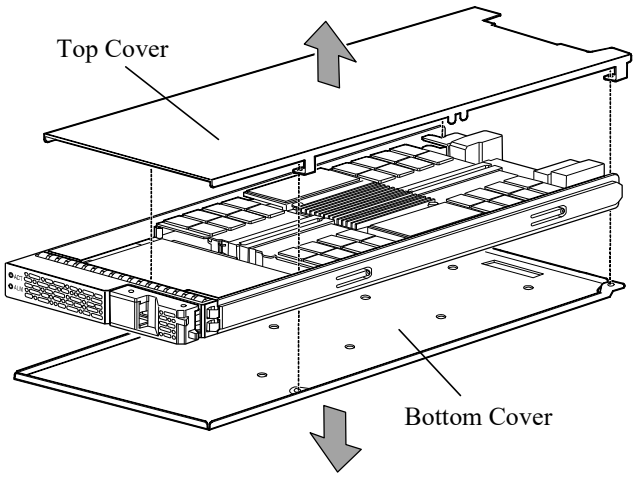


Fig. 3.1.2-8 Removing Covers

(d)-3 Remove 2 sets of Tapping-screw and Washer by using cross-head screw driver.

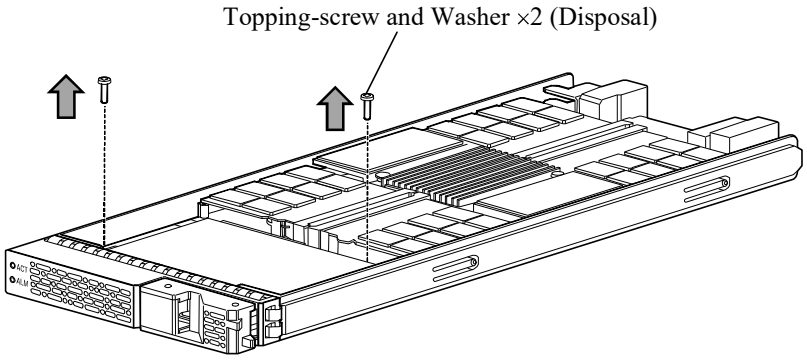


Fig. 3.1.2-9 Removing Tapping-screws and Washers

(d)-4 Move the Battery to the bezel side and disconnect the Battery from the circuit board.

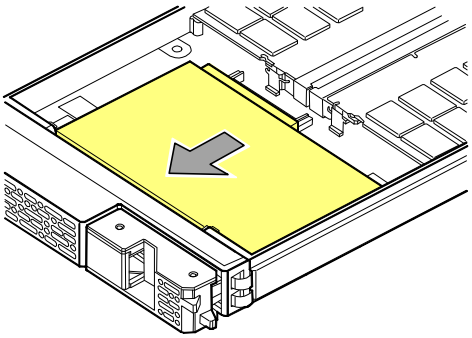


Fig. 3.1.2-10 Disconnecting from Connector

(d)-5 Remove the Battery to the bottom side of FMD. (After the connector comes off, battery is lowered below.)

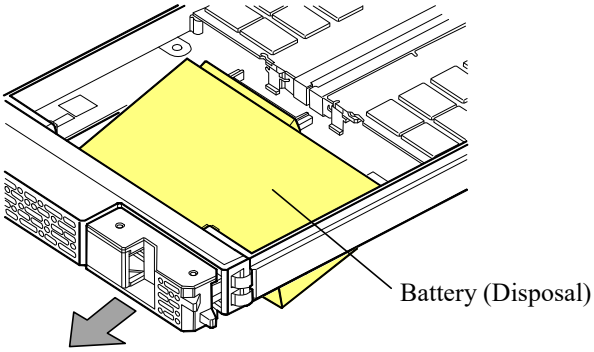


Fig. 3.1.2-11 Removing Battery

(d)-6 Attach Top Cover and Bottom Cover.
(d)-7 Attach 4 Screws (SB310N) on the bottom side of FMD.

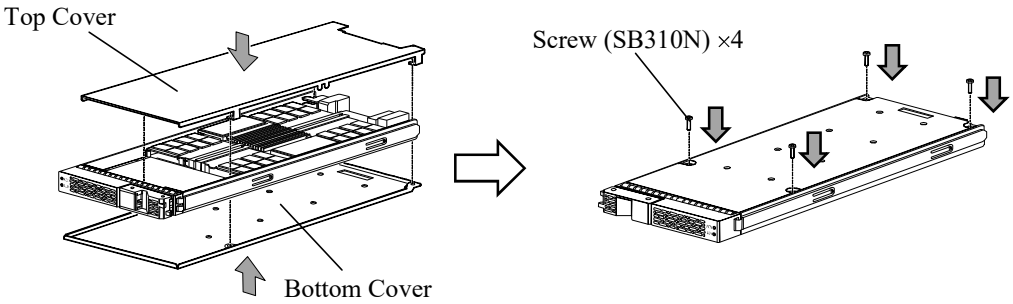


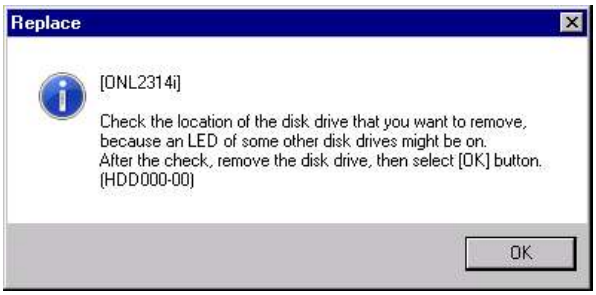
Fig. 3.1.2-12 Reassembling FMD

(d)-8 Dispose of the Tapping-screws, Washers and Battery removed in procedures (d)-3 and (d)-5.
When dispose of the Battery, follow the directions given by the local law where the product is used.

2-1-3. Check and handling of the drive.

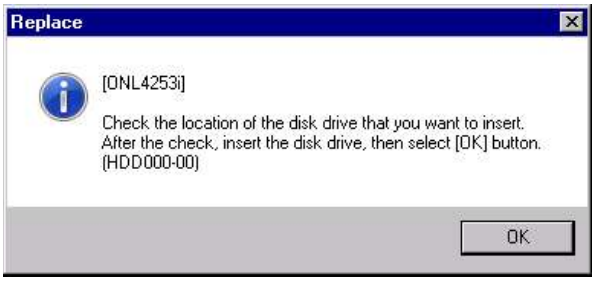
(1) <Confirm Removal>

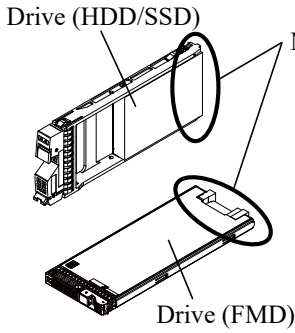
Select (CL) [OK] in response to "Check the location of the disk drive that you want to remove, because an LED of some other disk drives might be on. After the check, remove the disk drive, then select [OK] button. (HDDnnn-nn)" after the unit is removed. (Step 2-1-2)



(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. (HDDnnn-nn)" is displayed.





NOTICE: Check that the main edge connector of the drive (HDD/SSD/FMD) has no deformation, damage or sticking of dust before installing the drive.

2-1-4. Install the drive.

NOTICE: Back Board, or drive connector or drive handle may be damaged when the drive is forcibly inserted.
If the drive cannot be easily inserted until the claws on the handle reach the DKU, or if the handle binds or stops before it can be locked, then remove the drive and perform inspection:

a) Check the drive slot in DKU to be free and clear of obstructions.
b) Check connector on back board for visible defects.
c) Inspect connector on drive for visible defects.
d) During installation make sure the drive is inserted in alignment with slot guides.

Reinsert drive after inspections have passed.

2-1-4.1. In case of UBX

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 UBX.

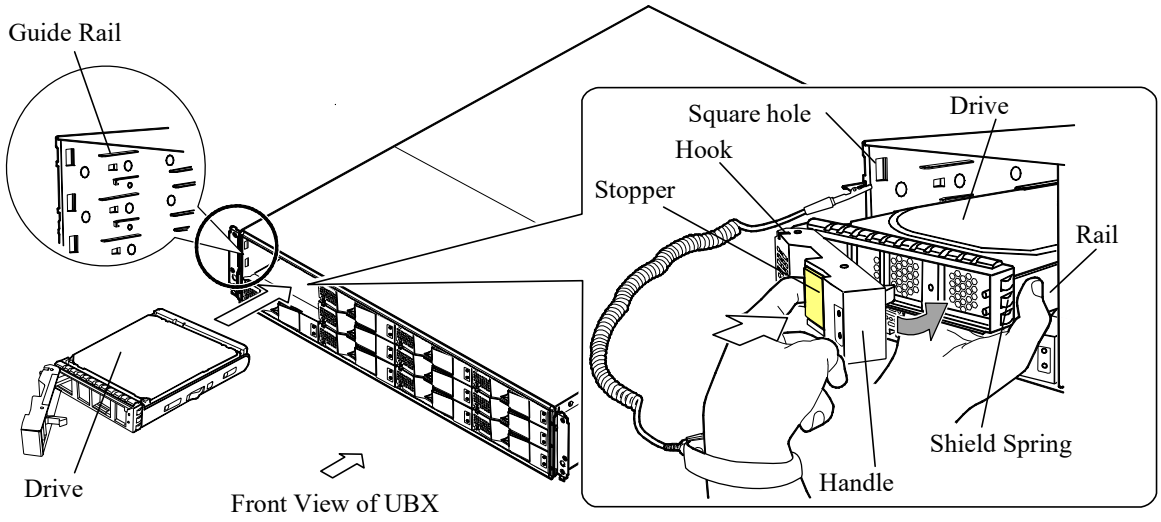


Fig. 3.1.2-13 Installation of Drive (In case of UBX)

2-1-4.2. In case of SBX

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.
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 SBX.

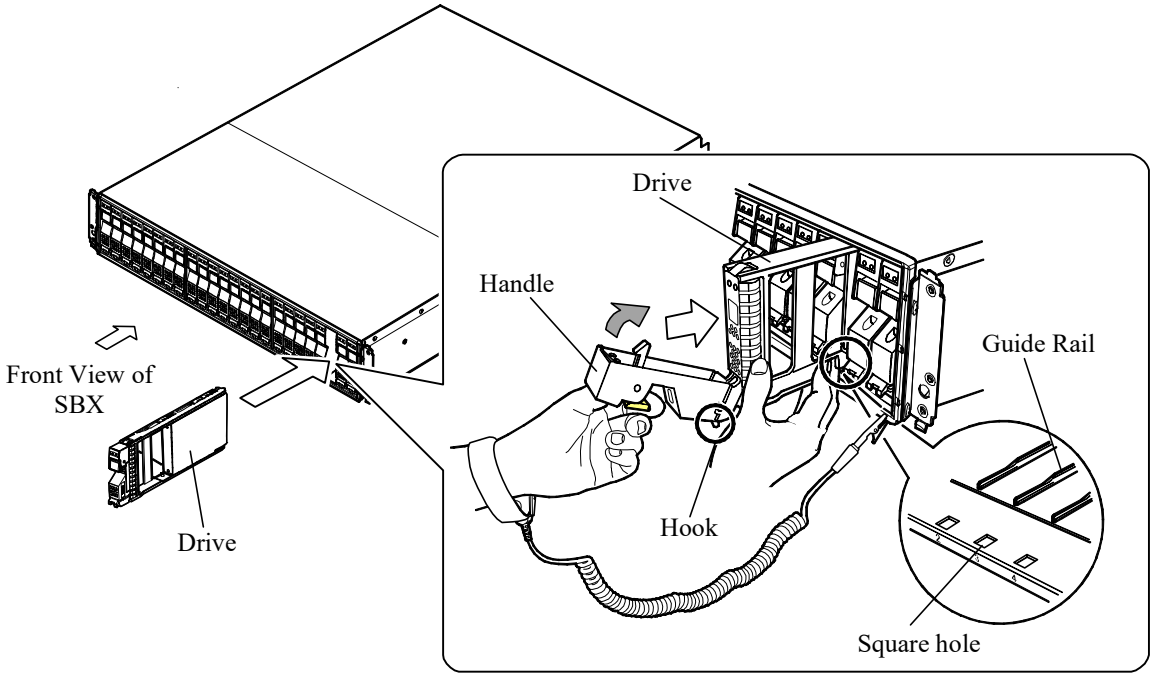


Fig. 3.1.2-14 Installation of Drive (In case of SBX)

2-1-4.3. In case of FBX

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 FBX.

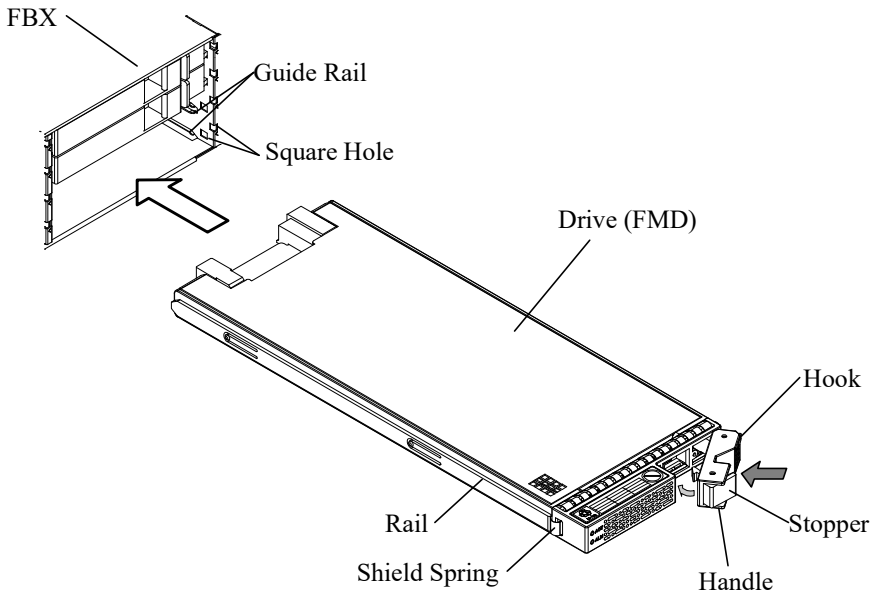


Fig. 3.1.2-15 Installation of Drive (In case of FBX)

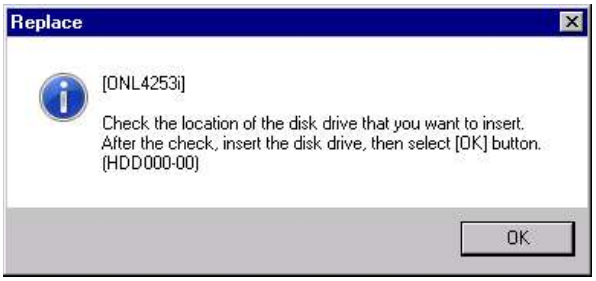
2-1-5. Go to "3. POST-PROCESSING of SVP".

NOTICE: 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

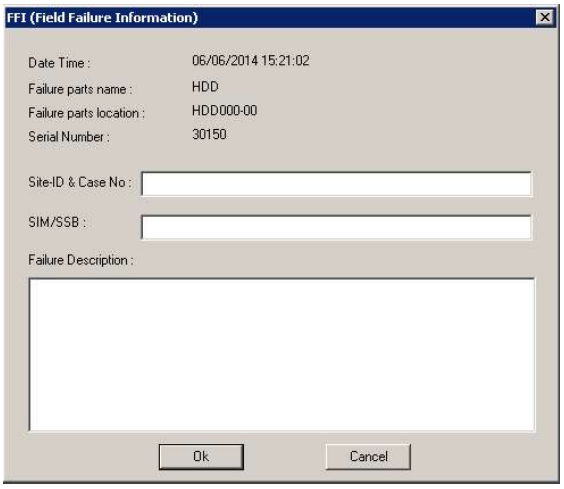
3-1. <Confirm Insertion>

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

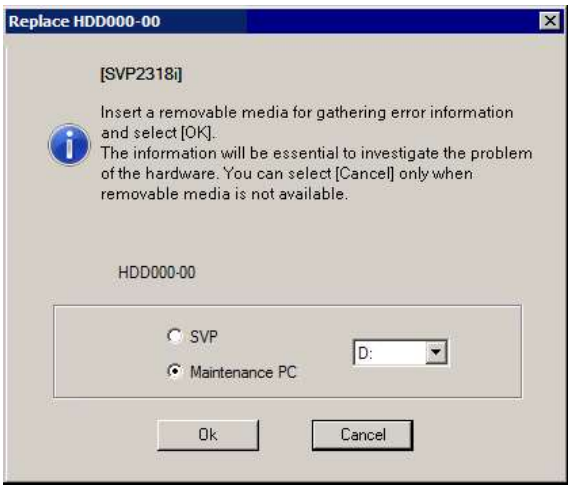


3-2. <Get the error information>

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

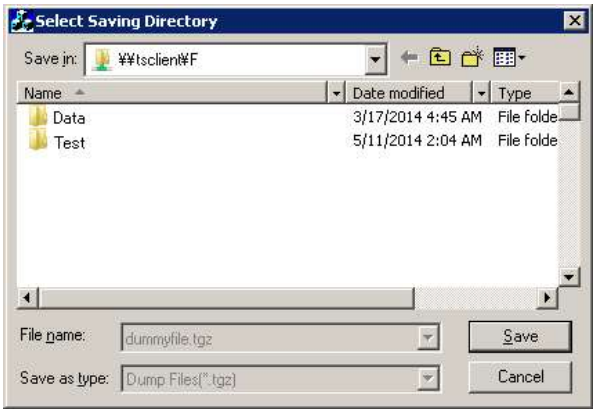


"Insert a removable media for gathering error information and select [OK].
The information will be essential to investigate the problem of the hardware. You can select [Cancel] only when removable media is not available." is displayed.
Select a Maintenance PC arbitrary drive, and select (CL) [Ok].
Trouble information is preserved in Maintenance PC connected with SVP.
Please select the Maintenance 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 Maintenance PC connected with SVP.

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

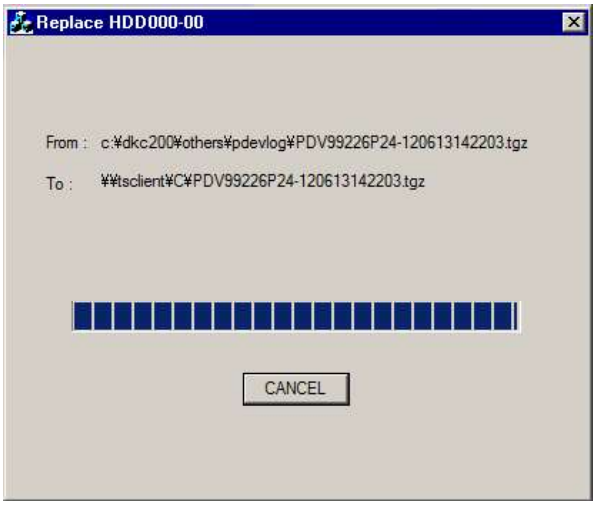


Maintenance PC that \\tsclient connects with SVP is shown when it is a directory display, and \\tsclient\F and \F shows F drive of Maintenance PC.

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. <DKU INLINE>

"DKU INLINE is now running..." is displayed.

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

When the revision of the DKU micro-program in the SVP hard disk is newer than that in the PDEV, the following message appears on the screen.
The message “Exchanging DKU 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>

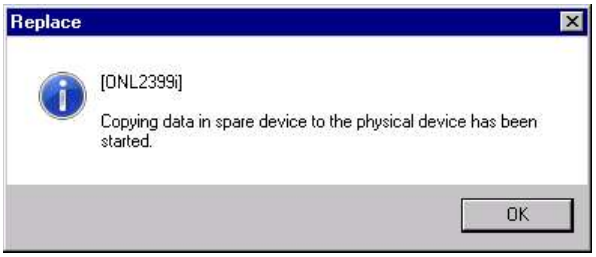
A message, which asks for confirmation of whether or not to start a copy-back or to make the automatic copy-back, is displayed.

[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.”.

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.".

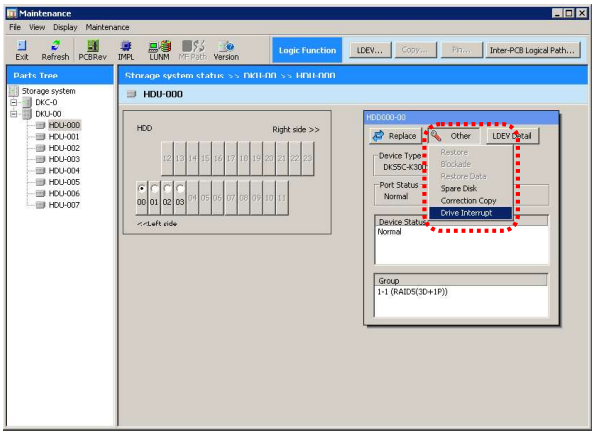


3-11. <Check the end of PDEV recovery>

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

3-12.

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



3-13.

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 installation 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.