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[BOX REPLACEMENT PROCESSING - HBOX]

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REP(HBOX)01-10

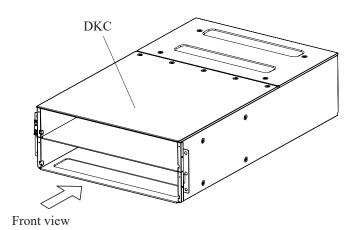
The procedure differs according to Controller Chassis/Drive Boxes.

If the chassis needs to be replaced while in ONLINE, contact the technical support division and follow the instructions.

- When replacing the DKC
 - "1. Replacing a DKC"
- When replacing the SBX/UBX/NBX Drive Box
 - "2. Replacing a SBX/UBX/NBX Drive Box"
- When replacing the FBX Drive Box
 - "3. Replacing a FBX Drive Box"

1. Replacing a DKC

Location	Function Name of Component		Part Name
Rack	1	Controller Chassis	Controller Chassis



- **NOTICE:** To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the Storage System before starting and do not take it off until you finish. Refer to "Note on Installing and Removing Parts" (REP(GE)01-30).
 - The PDU may connect to other devices. When replacing it, check the precautions for the connected devices before the replacement.

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REP(HBOX)01-20

1. Power off the Storage System.

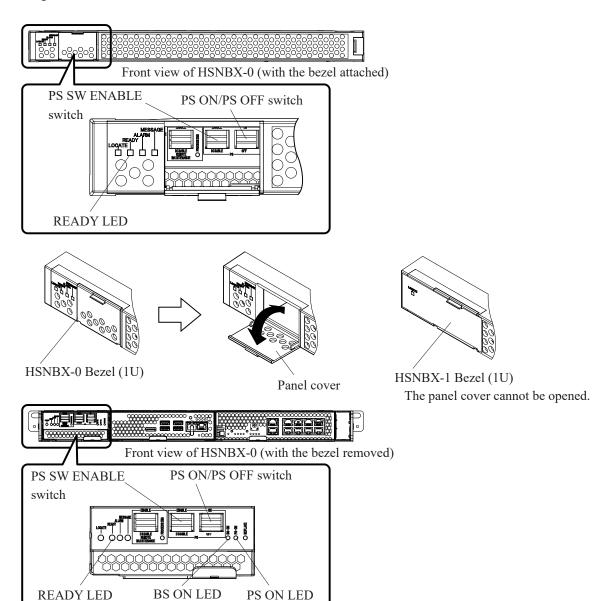


Prevention of electric shock:

Touching electrically live parts might cause an electric shock or a fire. Before starting the replacement work, turn off all related breakers and wait until the residual voltage in the circuits is removed.

- (1) Set the PS ON/PS OFF switch on the HSNPANEL on the front side of HSNBX-0 to OFF while holding up the PS SW ENABLE switch in the ENABLE position.
- (2) Check that the BS ON LED is on and the PS ON LED is off on the HSNPANEL.

Figure 1-1 Switches and LEDs on the Front Side of HSNPANEL



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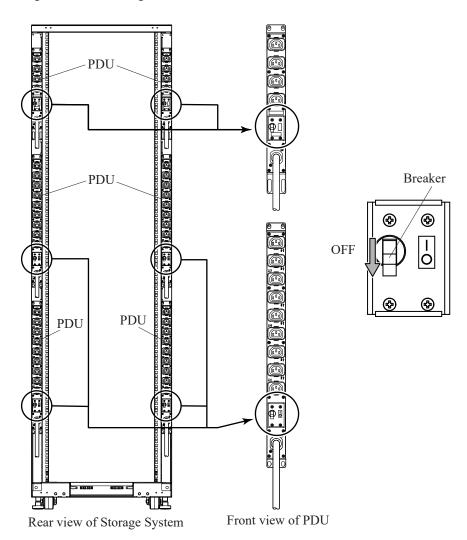
DKC910I

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REP(HBOX)01-30

(3) Turn off the breaker at the PDU on the Storage System.

Figure 1-2 Turning-off Breakers



(4) Turn off the breaker on the power distribution panel in the plant that is connected to the PDU.

NOTE: The circuit has residual voltage after turning off the breakers, so wait for one minute.

2. Remove the Front Bezel.

Remove the Front Bezel from the DKC. (Refer to "How to Attach/Remove Front Bezel" (REP(GE)08-10).)

3. Attach a label.

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.

REP(HBOX)01-40

- 4. Remove the BKMF.
 - (1) Loosen the screw (blue) fixing the BKMF.
 - (2) Open the lever and pull out the BKMF to remove.
 - (3) Remove the other BKMFs in the same manner.

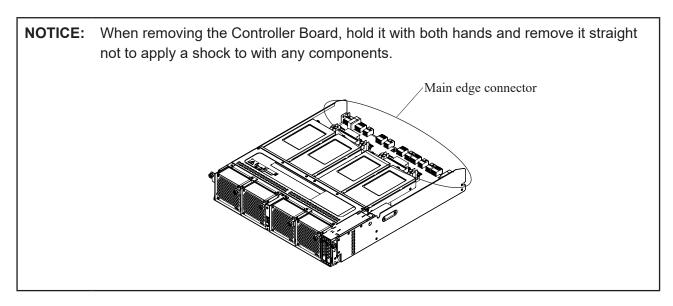
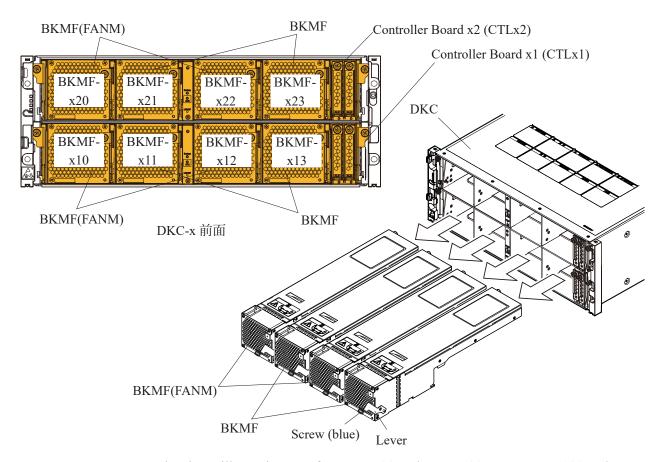


Figure 1-3 Removal of BKMF



NOTE: The above illustrations are for VSP 5500 and VSP 5500H. For VSP 5100 and VSP 5100H, only CTL01 and CTL12 are installed.

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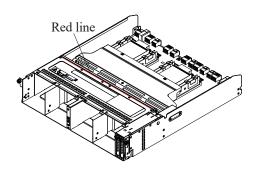
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REP(HBOX)01-50

5. Remove the Controller Board/Safety cover.



Dropping the Controller Board may cause injury. Keep hands securely on array. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the rail terminal past this mark, keep a firm hold on the Controller Board.



For the Controller Board

- (1) Loosen the right and left screws (blue) on the lever of the Controller Board in the front of the DKC and open the lever.
- (2) With the lever opened completely, pull out and remove the Controller Board.
- (3) Remove the other Controller Board in the same manner.

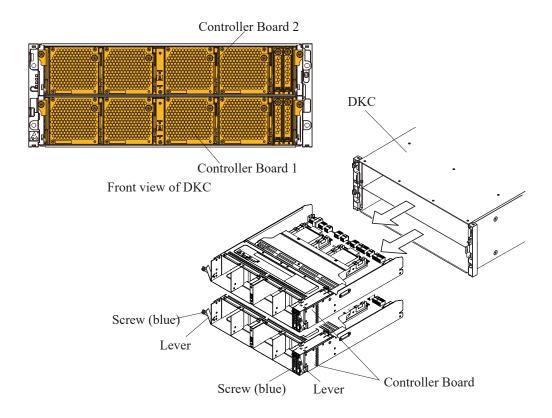
For the Safety cover

(1) Loosen the two screws, and then remove the Safety cover.

NOTICE: When removing the Controller Board, hold it with both hands and remove it straight not to apply a shock to with any components.

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Figure 1-4 Removal of Controller Board



DKC910I

REP(HBOX)01-70

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6. Remove the Channel Board/Dummy.

Remove all the Channel Boards and dummies installed in the DKC.

- (1) Remove all the cables connected to the Channel Board.
- (2) Loosen the two screws (blue) which fix the Channel Board.
- Pull out and remove the Channel Board/dummy while holding the screws (blue).
- (4) Remove the other Channel Boards/dummies in the same manner.

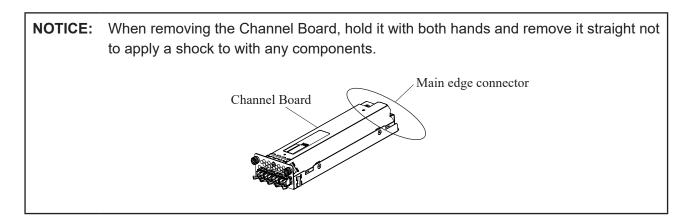
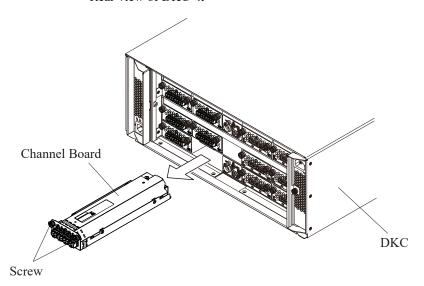


Figure 1-5 Removal of Channel Board/Dummy



Rear view of DKC -x



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REP(HBOX)01-80

7. Remove the Disk Board/Dummy.

Remove all the Disk Boards and dummies installed in the DKC.

- (1) Remove all the SAS cables/NVMe cables connected to the Disk Board.
- (2) Loosen the two screws (blue) which fix the Disk Board.
- (3) Pull out and remove the Disk Board/dummy while holding the screws (blue).
- (4) Remove the other Disk Boards/dummies in the same manner.

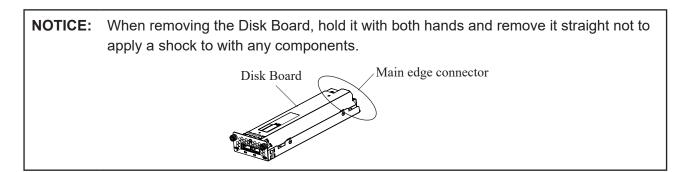
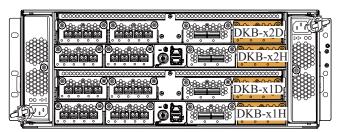
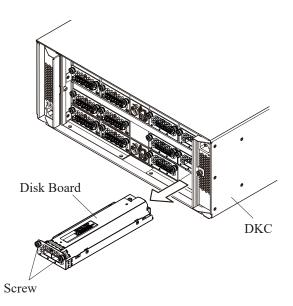


Figure 1-6 Removal of Disk Board/Dummy



Rear view of DKC -x



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REP(HBOX)01-90

8. Remove the HIE/Dummy.

Remove all the HIEs and dummies installed in the DKC.

- (1) Remove all the X Pash cables connected to the HIE.
- (2) Loosen the two screws (blue) which fix the HIE.
- (3) Pull out and remove the HIE/dummy while holding the screws (blue).
- (4) Remove the other HIEs/dummies in the same manner.

NOTICE: When removing the HIE, hold it with both hands and remove it straight not to apply a shock to with any components.

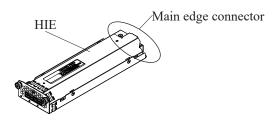
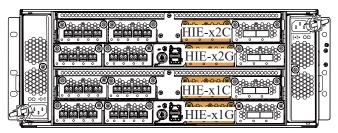
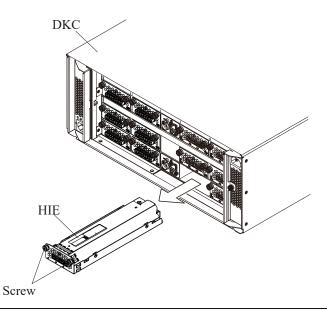


Figure 1-7 Removal of HIE



Rear view of DKC -x

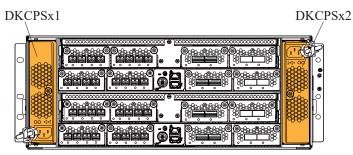


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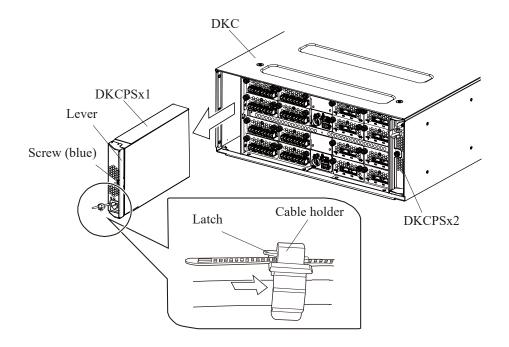
REP(HBOX)01-100

- 9. Remove the DKCPS.
 - (1) Remove all the power cables connected to the DKCPS.
 - (2) Loosen the screw (blue) which fixed the DKCPS.
 - (3) Open the lever and pull out and remove the DKCPS while holding its body with both hands.
 - (4) Remove the other DKCPS in the same manner.

Figure 1-8 Removal of DKCPS



Rear view of DKC -x



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REP(HBOX)01-110

10. Replace the Controller Chassis

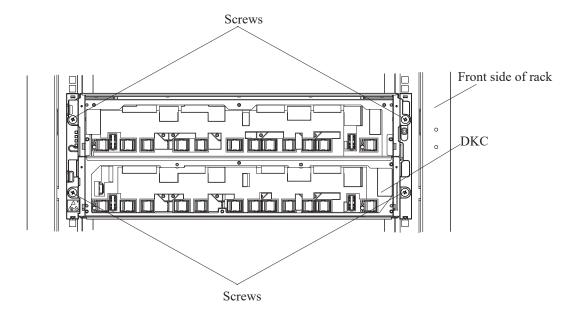


Be careful of the mass:

Work carefully because the mass of the Controller Chassis is about 29 kg.

(1) Remove the right and left screws (two each) fixing the DKC.

Figure 1-9 Removal of Controller Chassis



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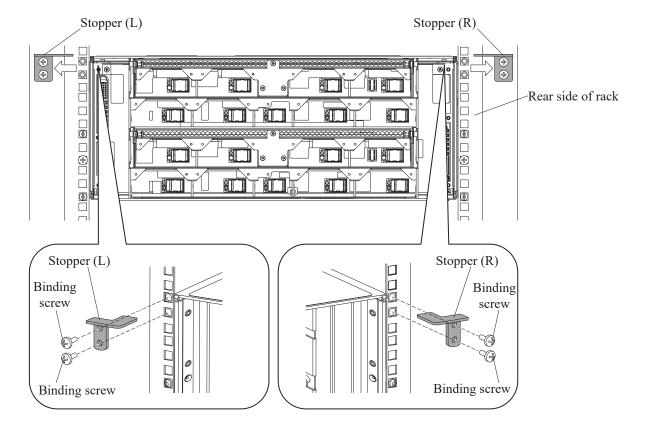
REP(HBOX)01-111

(2) For the rail type with a stopper, go to Step (3).

For the rail type without a stopper, remove the stopper (R), the stopper (L), and the binding screws (two for each stopper) fixing them from the rear side of the rack.

Go to Step (3).

Figure 1-10 Removing Stoppers



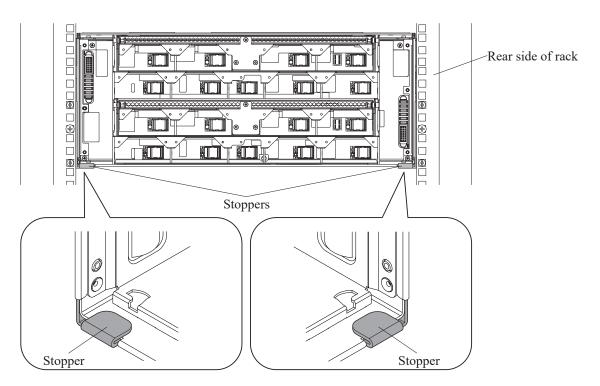
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REP(HBOX)01-112

(3) Remove the Controller Chassis from the rack frame referring to mounting procedure using the special lifter. (Refer to "Putting the Chassis on the Lifter" (REP(GE)08-90).)

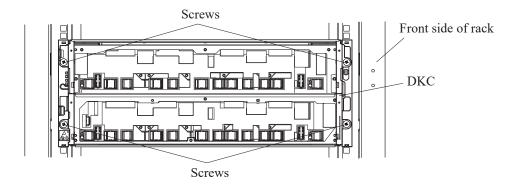
- (4) Install a new Controller Chassis from the front of the rack.
- (5) Checking Stoppers
 - For the rail type without a stopper, go to Step (6).
 - For the rail type with a stopper, check that the rear right and left of the bottom of the Controller Chassis are fit in the stoppers (see Figure 1-11). When the Controller Chassis is disengaged from the stoppers, install the Controller Chassis properly. go to Step (6).

Figure 1-11 Checking Stoppers on the Rear Side (for Rail Type with a Stopper)



(6) Fix the right and left of the DKC with screws (two each)
For the rail type without a stopper, go to Step (7) to install the stoppers.

Figure 1-12 Fixing the Controller Chassis

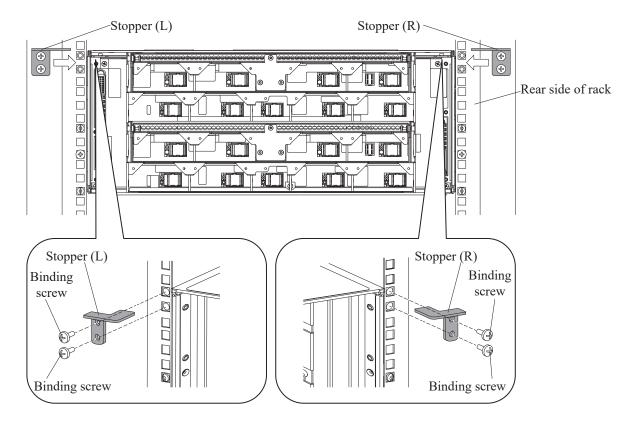


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REP(HBOX)01-113

- (7) Fix the stopper (L) with the two binding screws temporarily.
- (8) Fix the stopper (R) with the two binding screws temporarily.

Figure 1-13 Installing Stoppers

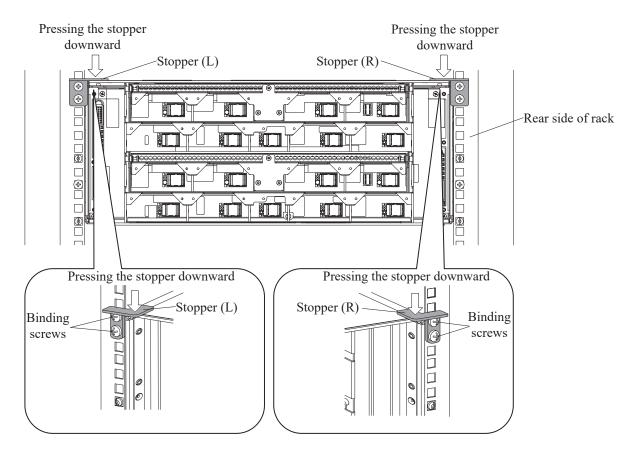


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REP(HBOX)01-114

- (9) Fix the stopper (L) with the two binding screws while pressing it downward.
- (10) Fix the stopper (R) with the two binding screws while pressing it downward.

Figure 1-14 Fixing Stoppers



(11) Check that the top surface of the Controller Chassis is fit on the stopper (L) and the stopper (R) without gaps.

(The stoppers might be rotated and raised by tightening the binding screws.)

NOTE: When the installation of the stoppers is difficult because the space between the Controller Chassis and the Chassis above it is too narrow, contact the Technical Support Division to resolve the problem.

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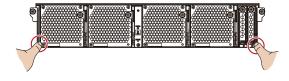
REP(HBOX)01-120

11. Install the Controller Board/Safety cover.

For the Controller Board

- (1) With the right and left levers on the Controller Board opened completely, insert it into the slot of the DKC. (Refer to Figure 1-4.)
- (2) Push the Controller Board in all the way and close the lever completely.

NOTICE: Push the bottom of the front side of the Controller Board all the way to insert it to the end.



- (3) Tighten the screw (blue) and fix the Controller Board.
- (4) Install the other Controller Board in the same manner.

For the Safety cover

(1) Install the Safety cover, and then tighten the two screws.

12. Install the BKMF.

- (1) Open the BKMF lever and insert the BKMF into the slot of the Controller Board (refer to Figure 1-3).
- (2) Push the BKMF in all the way, and close the lever completely.
- (3) Tighten the screw (blue) and fix the BKMF.
- (4) Install the other BKMF in the same manner.

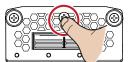
Rev.1

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REP(HBOX)01-130

- 13. Install the HIE/Dummy.
 - (1) Insert the HIE/dummy into the slot. (Refer to Figure 1-7.)
 - (2) Push the HIE/dummy in all the way.

NOTICE: Push the front side of the HIE all the way to insert it to the end.



- (3) Tighten the two screws (blue) to fix the HIE.
- (4) Check "Note on Cable Routing" (REP(GE)01-50), and then connect the X Path cables to the HIE. When connecting X Path cables, be careful not to damage the tips of the cables. (Refer to "Precautions when Connecting X-Path Cables" (INST(IN)09-02-10).)
- (5) Install the other HIE/dummy in the same manner.

Rev.1

REP(HBOX)01-140

14. Install the Disk Board/dummy.

- (1) Insert the Disk Board/dummy into the slot. (Refer to Figure 1-6.)
- (2) Push the Disk Board/dummy in all the way.

NOTICE: Push the front side of the Disk Board all the way to insert it to the end.



- (3) Tighten the two screws (blue) to fix the Disk Board.
- (4) Check "Note on Cable Routing" (REP(GE)01-50), and then connect the SAS cables/NVMe cables to the Disk Board.
 - When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to "Precautions when Connecting SAS Cables/NVMe Cables" (INST(IN)09-04-10).)
- (5) Install the other Disk Boards/dummies in the same manner.

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REP(HBOX)01-150

- 15. Install the Channel Board/dummy.
 - (1) Insert the Channel Board/dummy into the slot. (Refer to Figure 1-5.)
 - (2) Push the Channel Board/dummy in all the way.

NOTICE: Push the front side of the Channel Board all the way to insert it to the end.



- (3) Tighten the two screws (blue) to fix the Channel Board.
- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the cable connector part using an air spray (approx. five seconds).
 - (b) Wipe the connector part lightly with cut gauze soaked in ethyl alcohol.
 - (c) Spray compressed gas again and check the cleanliness. (Be sure that no dust, foreign substance or dirt is attached.)
- (5) Connect the cables to the Channel Board.

NOTE: Check that cable latch clicks and the cables are surely connected.

(6) Install the other Channel Boards in the same manner.

16. Install the DKCPS.

- (1) Hold up the latch on the cable holder of the DKCPS to release the lock, and then slide the cable holder forward. (Refer to Figure 1-8.)
- (2) With the lever completely opened, insert the DKCPS in to the slot.
- (3) Push the DKCPS in all the way.
- (4) Close the lever completely.
- (5) Tighten the screw (blue) to fix the DKCPS.
- (6) Connect the power cable to the DKCPS, and then fix the cable by the cable holder.
- (7) Install the other DKCPS in the same manner.

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REP(HBOX)01-160

17. Attach the nameplate.

Take out the nameplate in which the same model name as the removed Controller Chassis is described from the nameplates attached to the spare Controller Chassis. Write down the same serial number as the removed Controller Chassis in the nameplate, and then affix the nameplate to the spare Controller Chassis.

When the nameplate in which the same model name as the removed Controller Chassis is described is not attached, take out the nameplate in which the same rating and producer country as the removed Controller Chassis are described and which the model name is not described. Write down the same model name and serial number as the removed Controller Chassis in the nameplate, and then affix it to the spare Controller Chassis.

To fill in the nameplate, use the RoHS-compliant marker pen.

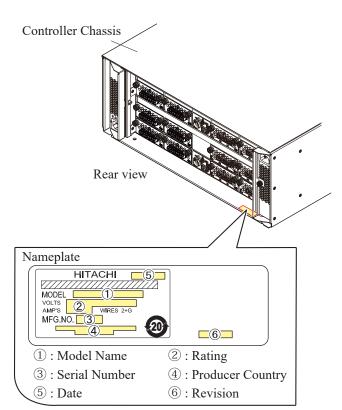


Figure 1-15 Attachment of Nameplate

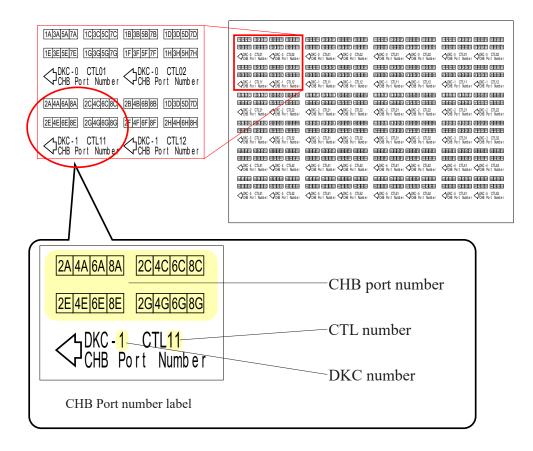
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REP(HBOX)01-161

18. Attach the CHB port number label

The sheets of CHB port number labels as shown in Figure 1-16 are included as the accessory of DKC. CHB port number labels are printed on the sheet for all combinations of DKC numbers and CTL numbers.

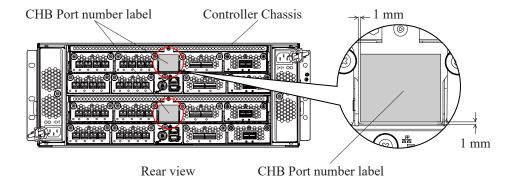
Figure 1-16 Details of CHB port number label



(1) Remove the same label as the label attached to the DKC before replacement from the sheet and attach it to the DKC after replacement (Figure 1-17).

Check whether the arrow of the label points to the channel board side after attaching the label.

Figure 1-17 Label attachment locations



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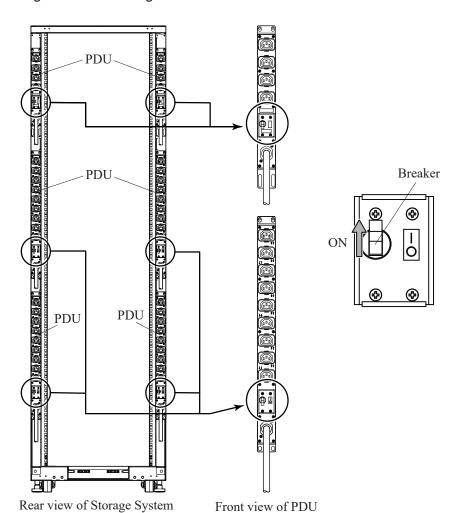
REP(HBOX)01-170

19. Attach the Front Bezel.

Attach the Front Bezel to the DKC. (Refer to "How to Attach/Remove Front Bezel" (REP(GE)08-10).)

- 20. Power On the Storage System.
 - (1) Turn on the breaker on the power distribution panel.
 - (2) Turn on the breaker at the PDU on the Storage System.

Figure 1-18 Turning on Breakers

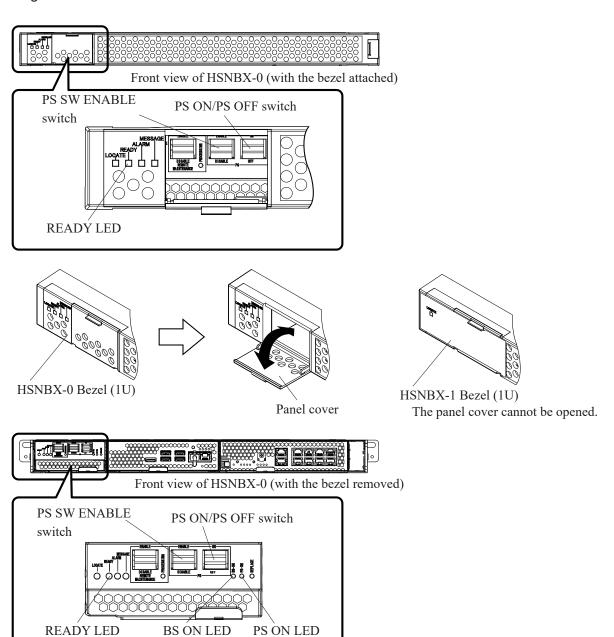


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REP(HBOX)01-180

(3) Set the PS ON/PS OFF switch on the HSNPANEL on the front side of HSNBX-0 to ON while holding up the PS SW ENABLE switch in the ENABLE position.

Figure 1-19 Switches and LEDs on the Front Side of HSNPANEL



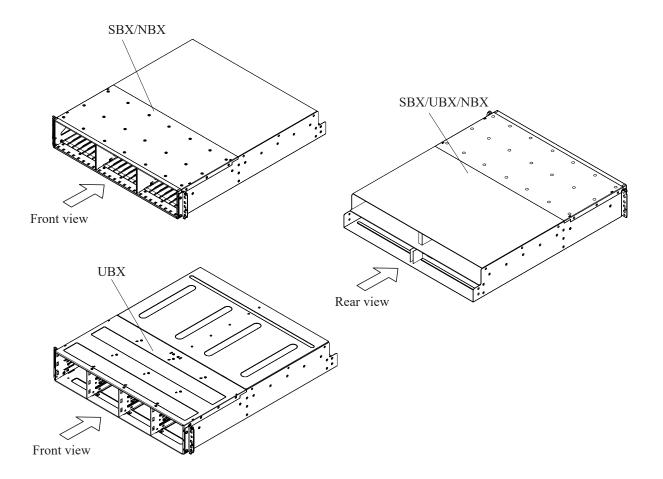
21. Checking Normality

Perform the normality check according to "Checking Normality (TRBL02-06-10)".

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2. Replacing a SBX/UBX/NBX Drive Box

Location	Function Name of Component		Part Name
Rack	1	Drive Box	• Drive Box (SBX)
			• Drive Box (UBX)
			• Drive Box (NBX)



NOTICE:

- To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the Storage System before starting and do not take it off until you finish. Refer to "Note on Installing and Removing Parts" (REP(GE)01-30).
- Replace the Drive Box while the Storage System is powered off. Do not replace the Drive Box while the Storage System is powered on.

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REP(HBOX)02-20

1. Power off the Storage System.

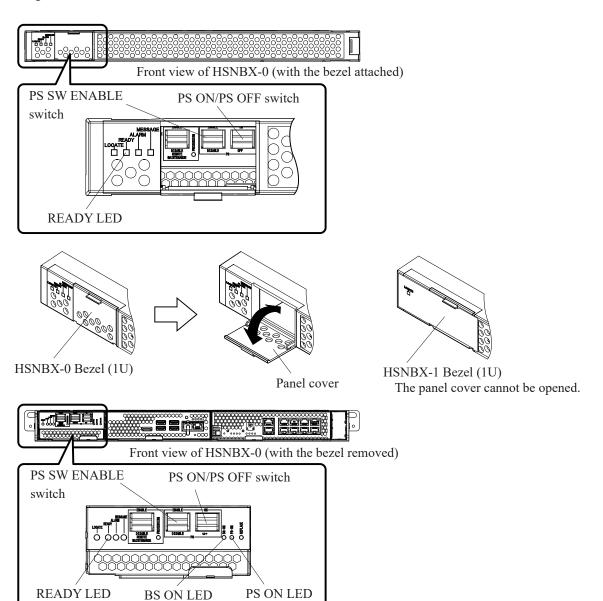


Prevention of electric shock:

Touching electrically live parts might cause an electric shock or a fire. Before starting the replacement work, turn off all related breakers and wait until the residual voltage in the circuits is removed.

- (1) Set the PS ON/PS OFF switch on the HSNPANEL on the front side of HSNBX-0 to OFF while holding up the PS SW ENABLE switch in the ENABLE position.
- (2) Check that the BS ON LED is on and the PS ON LED is off on the HSNPANEL.

Figure 2-1 Switches and LEDs on the Front Side of HSNPANEL



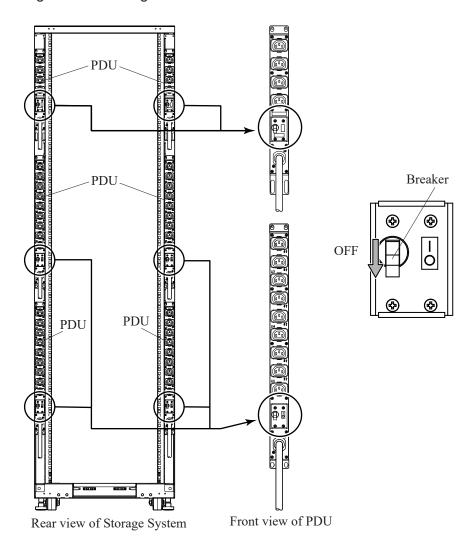
DKC910I

REP(HBOX)02-30

Rev.1

(3) Turn off the breaker at the PDU on the Storage System.

Figure 2-2 Turning-off Breakers



(4) Turn off the breaker on the power distribution panel in the plant that is connected to the PDU.

NOTE: The circuit has residual voltage after turning off the breakers, so wait for one minute.

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REP(HBOX)02-40

2. Remove the Front Bezel.

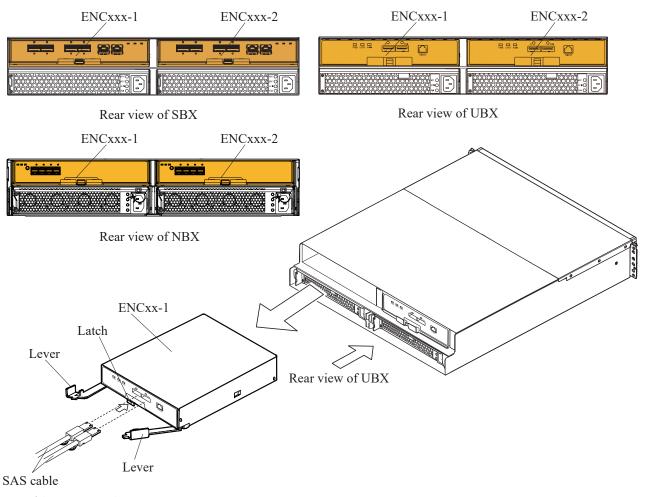
Remove the Front Bezel from the Drive Box. (Refer to "How to Attach/Remove Front Bezel" (REP(GE)08-10).)

3. Attach a label.

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.

- 4. Remove the ENC.
 - (1) Disconnect the SAS cable/NVMe cable which connects to the ENC.
 - (2) Push the latch on the ENC toward the arrow direction to unlock the lever.
 - (3) Pull the right and left levers and remove the ENC.
 - (4) Remove the other ENC in the same manner.

Figure 2-3 Removal of ENC (SBX/UBX/NBX)



*1: ENC<u>xx</u>-1

→ DB No. (00, 01, 02,, 191)

*2: The above figure illustrates UBX. The procedure for SBX/NBX is the same as that for UBX.

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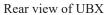
REP(HBOX)02-50

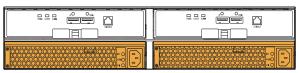
- 5. Remove a DBPS.
 - (1) Remove the power cables.
 - (a) Pull and open the cable holder.
 - (b) Disconnect the power cable from the DBPS.

Figure 2-4 Removing Power Cables

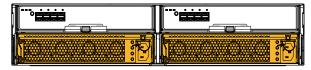
Rear view of SBX

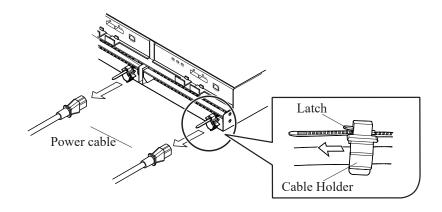






Rear view of NBX



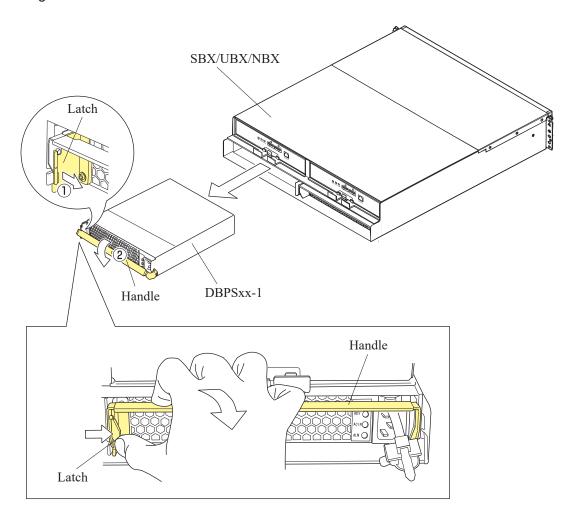


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REP(HBOX)02-60

- (2) Disconnect the power cable from the other DBPS in the same manner.
- (3) Bring the handle down and forward (2) while pushing the latch of the DBPS inward (1).
- (4) Pull the DBPS and remove it from the SBX/UBX/NBX.
- (5) Remove the other DBPS in the same manner.

Figure 2-5 Removal of DBPS



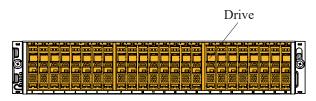
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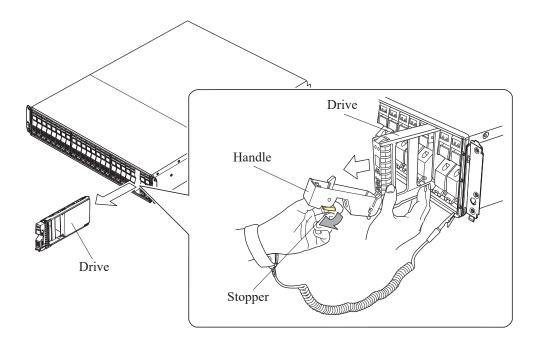
REP(HBOX)02-70

- 6. Remove the Drive.
 - (1) In case of SBX/NBX Drives
 - (a) Pull up the stopper of the Drive handle toward you to release the lock.
 - (b) Open the handle toward you, and pull out and remove the Drive to be replaced not to give a shock.
 - (c) Remove the other Drives in the same manner.

Figure 2-6 Removal of Drive (SBX/NBX)



Front view of SBX/NBX



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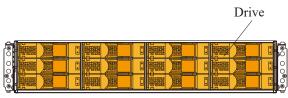
REP(HBOX)02-80

- (2) In case of UBX Drives
 - (a) Pull up the stopper of the Drive handle toward you to release the lock.
 - (b) Open the handle toward you, and pull out and remove the Drive to be replaced not to give a shock.

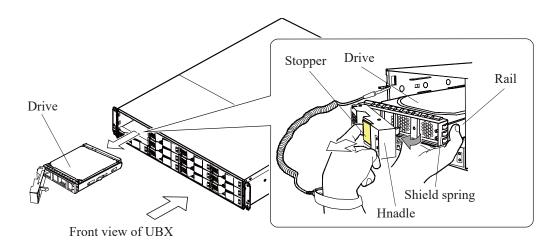
NOTE: When handling the Drive, hold the rail side because the shield spring is subject to breakage.

(c) Remove the other Drives in the same manner.

Figure 2-7 Removal of Drive (UBX)



Front view of UBX

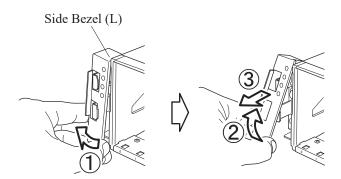


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REP(HBOX)02-90

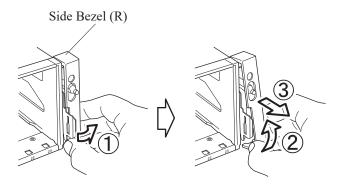
- 7. Replace the Drive Box
 - (1) Hold the bottom of the left side bezel (L) on the front side of the Drive Box while opening outward (①) and then tilt and remove (②, ③) the bottom of the left side bezel (L) by pulling it toward you.

Figure 2-8 Removal of Side Bezel (L)



(2) 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.

Figure 2-9 Removal of Side Bezel (R)

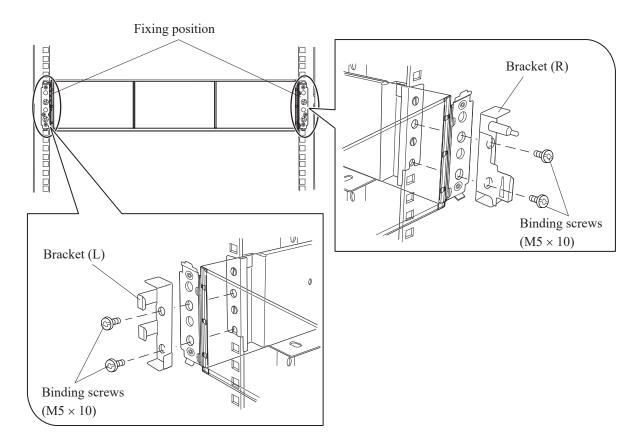


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REP(HBOX)02-100

(3) Remove the four Binding screws (M5 \times 10) and two brackets from the Drive Box.

Figure 2-10 Removal of Brackets



REP(HBOX)02-110



Be careful of the mass:

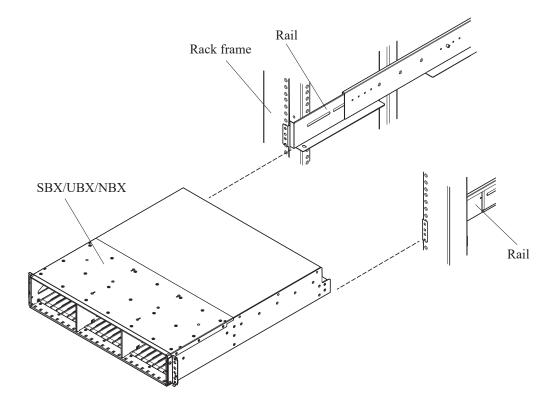
Work carefully because the mass of the Drive Box is about 13 kg.

Be careful of falling over and dropping:

To prevent Drive Box from falling over and dropping, the installation work must be done by two or more personnel.

- (4) Remove the Drive Box from the rack frame referring to mounting procedure using the special lifter. (Refer to "Putting the Chassis on the Lifter" (REP(GE)08-90).)
- (5) Install the Drive Box on the front side of the Rack frame.

Figure 2-11 Replacement of SBX/UBX/NBX



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REP(HBOX)02-111

(6) For SBX/UBX

From the rear of the rack, check whether the nuts (stoppers) fit the parts of the Drive Box as shown in the figure below.

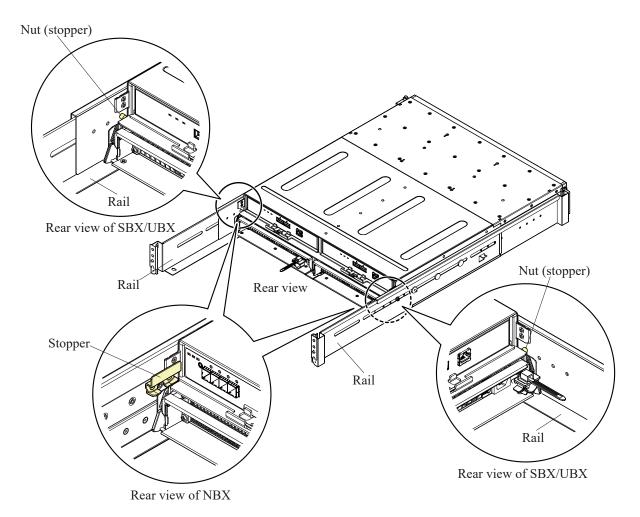
If the positions of the nuts (stoppers) are not correct, remove the Drive Box, and correct the positions of them.

For NBX

From the rear of the rack, check whether the stoppers fit the parts of the Drive Box as shown in the figure below.

If the positions of the stoppers are not correct, remove the Drive Box, and reinstall it in the correct position. (The stopper of the rail for NBX is fixed to the rail and is not adjustable.)

Figure 2-12 Checking the Rear Side of the Drive Box



- (7) Install the Drive Box with the brackets. Fasten the SBX/UBX/NBX to the rack frame with the Binding screws (M5 \times 10). (Refer to Figure 2-10.)
- (8) Attach the two side bezels to the front side of the SBX/UBX/NBX. (Refer to Figure 2-8 and Figure 2-9.)

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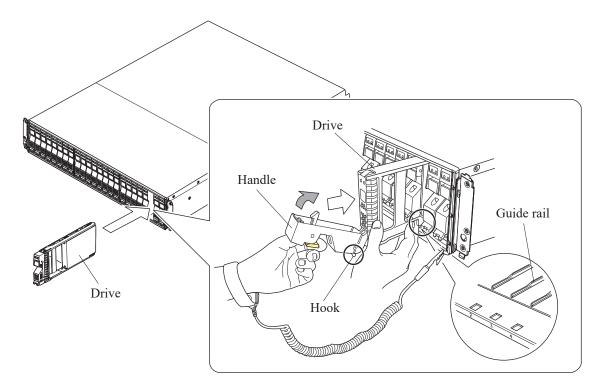
REP(HBOX)02-120

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) In case of SBX/NBX Drives
 - (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 on 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 Storage System.
 - (d) Install the other Drives in the same manner.

Figure 2-13 Installation of Drives (SBX/NBX)



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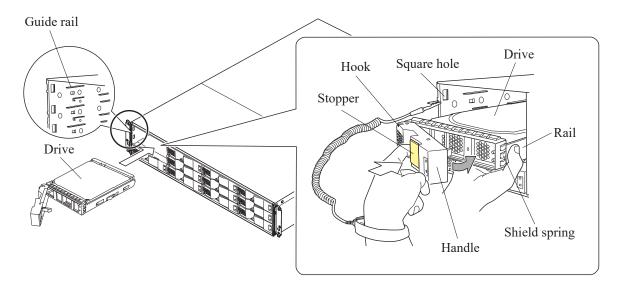
REP(HBOX)02-130

(2) 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 Storage System.
- (d) Install the other Drives in the same manner.

Figure 2-14 Installation of Drive (UBX)



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- 9. Install the DBPS.
 - (1) Make the handle of the DBPS completely fall down and forward. (Refer to Figure 2-5.)
 - (2) Insert the DBPS into the slot and push it to the full.
 - (3) Completely raise the handle and fix the DBPS.
 - (4) Connect the power cable to the DBPS and fasten it with the cable holder.
 - (5) Install the other DBPS in the same manner.

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REP(HBOX)02-150

- 10. Insert the ENC.
 - (1) Make the right and left levers of the ENC open. (Refer to Figure 2-3.)
 - (2) Insert the ENC until the edge of the lever comes in contact with the Drive Box.
 - (3) Close the right and left levers to insert the ENC completely.
 - (4) Connect the cables to the ENC after checking "Note on Cable Routing" (REP(GE)01-50). When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to "Precautions when Connecting SAS Cables/NVMe Cables" (INST(IN)09-04-10).)
 - (5) Install the other ENC in the same manner.

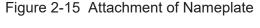
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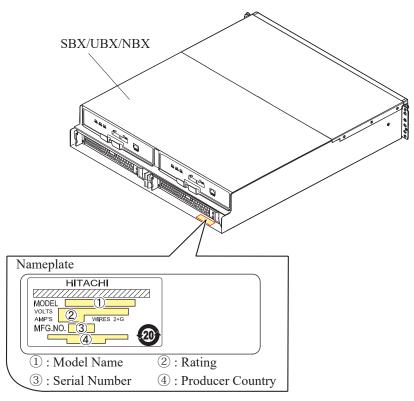
REP(HBOX)02-160

11. Attach the nameplate.

Take out the nameplate in which the same model name as the removed SBX/UBX/NBX is described from the nameplates attached to the spare SBX/UBX/NBX. Write down the same serial number as the removed SBX/UBX/NBX in the nameplate, and then affix the nameplate to the spare SBX/UBX/NBX. When the nameplate in which the same model name as the removed SBX/UBX/NBX is described is not attached, take out the nameplate in which the same rating and producer country as the removed SBX/UBX/NBX are described and which the model name is not described. Write down the same model name and serial number as the removed SBX/UBX/NBX in the nameplate, and then affix it to the spare SBX/UBX/NBX.

To fill in the nameplate, use the RoHS-compliant marker pen.





12. Attach the Front Bezel.

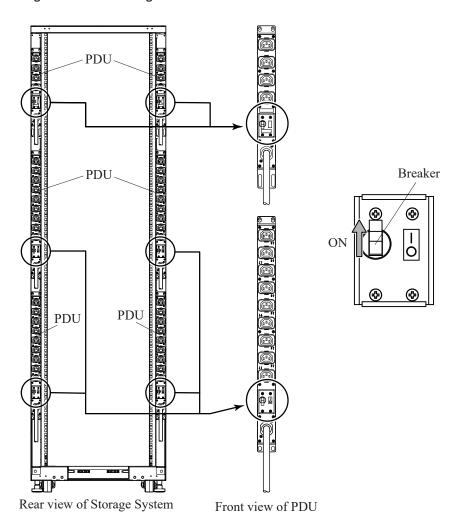
Attach the Front Bezel to the SBX/UBX/NBX. (Refer to "How to Attach/Remove Front Bezel" (REP(GE)08-10).)

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REP(HBOX)02-170

- 13. Power On the Storage System.
 - (1) Turn on the breaker on the power distribution panel.
 - (2) Turn on the breaker at the PDU on the Storage System.

Figure 2-16 Turning on Breakers

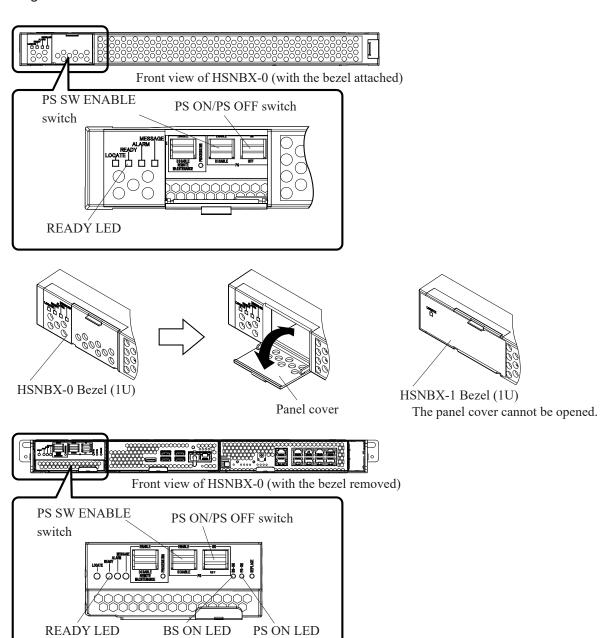


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REP(HBOX)02-180

(3) Set the PS ON/PS OFF switch on the HSNPANEL on the front side of HSNBX-0 to ON while holding up the PS SW ENABLE switch in the ENABLE position.

Figure 2-17 Switches and LEDs on the Front Side of HSNPANEL



14. Checking Normality

Perform the normality check according to "Checking Normality (TRBL02-06-10)".

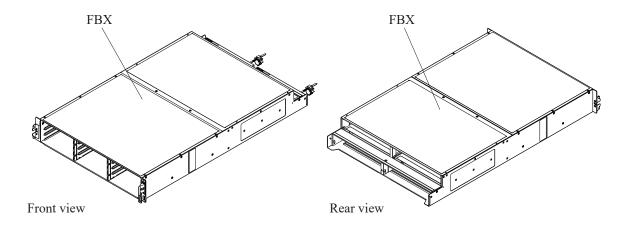
Rev.1.1

REP(HBOX)03-10

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3. Replacing a FBX Drive Box

Location	Function Name of Component		Part Name
Rack	1	Drive Box	Drive Box (FBX)



- **NOTICE:** To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the Storage System before starting and do not take it off until you finish. Refer to "Note on Installing and Removing Parts" (REP(GE)01-30).
 - Replace the Drive Box while the Storage System is powered off. Do not replace the Drive Box while the Storage System is powered on.

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REP(HBOX)03-20

1. Power off the Storage System.

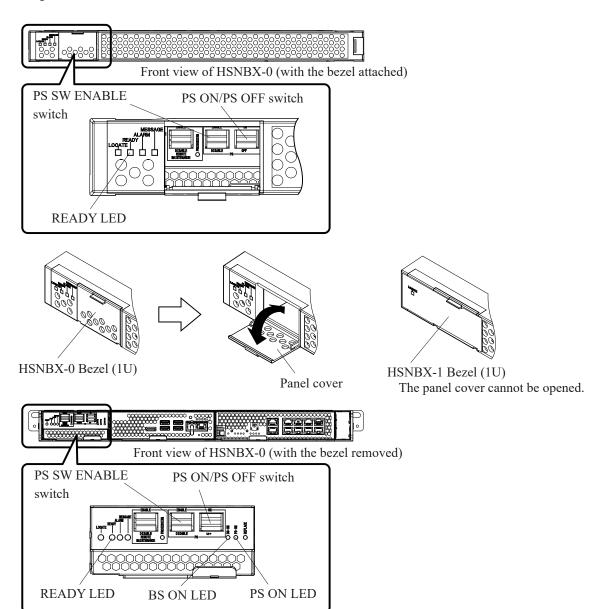


Prevention of electric shock:

Touching electrically live parts might cause an electric shock or a fire. Before starting the replacement work, turn off all related breakers and wait until the residual voltage in the circuits is removed.

- (1) Set the PS ON/PS OFF switch on the HSNPANEL on the front side of HSNBX-0 to OFF while holding up the PS SW ENABLE switch in the ENABLE position.
- (2) Check that the BS ON LED is on and the PS ON LED is off on the HSNPANEL.

Figure 3-1 Switches and LEDs on the Front Side of HSNPANEL

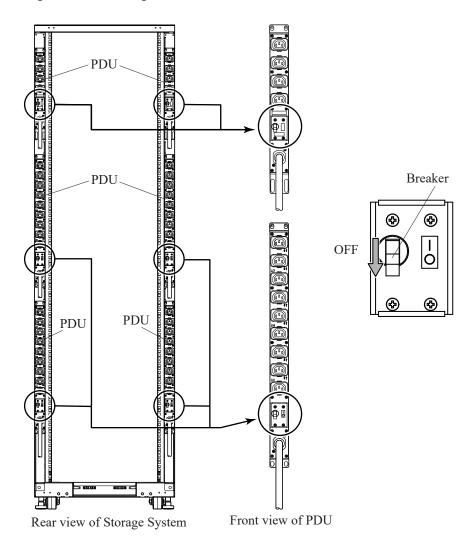


REP(HBOX)03-30

Rev.1

(3) Turn off the breaker at the PDU on the Storage System.

Figure 3-2 Turning-off Breakers



(4) Turn off the breaker on the power distribution panel in the plant that is connected to the PDU.

NOTE: The circuit has residual voltage after turning off the breakers, so wait for one minute.

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REP(HBOX)03-40

2. Remove the Front Bezel.

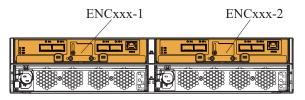
Remove the Front Bezel from the Drive Box. (Refer to "How to Attach/Remove Front Bezel" (REP(GE)08-10).)

3. Attach a label.

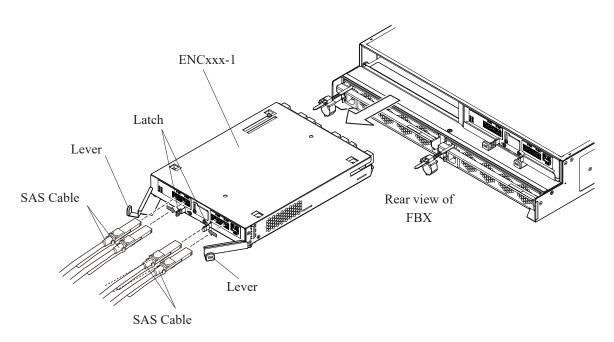
Attach a label or the like for identification of installation location to a removed part so that it can be installed in the same place in the spare Drive Box.

- 4. Remove the ENC.
 - (1) Disconnect the SAS cable which connects to the ENC.
 - (2) Push the latch on the ENC toward the arrow direction to unlock the lever.
 - (3) Pull the right and left levers and remove the ENC.
 - (4) Remove the other ENC in the same manner.

Figure 3-3 Removal of ENC



Rear view of FBX



*1 : ENC \underline{xxx} -1 \subseteq DB No. (000, 001, 002,, 191)

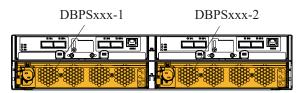
Rev.0

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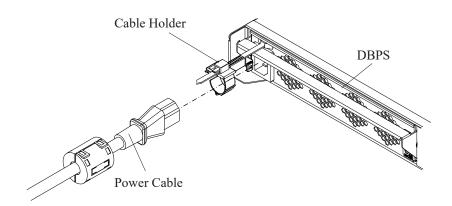
REP(HBOX)03-50

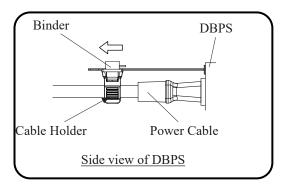
- 5. Remove a DBPS.
 - (1) Pull and open the cable holder.
 - Disconnect the power cable from the DBPS.
 - (3) Disconnect the power cable from the other DBPS in the same manner.

Figure 3-4 Removing Power Cables



Front view of FBX





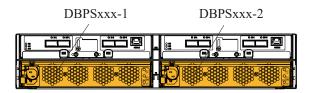
*1: DBPS<u>xxx</u>-1 ∟> DB No. (000, 001, 002,, 191)

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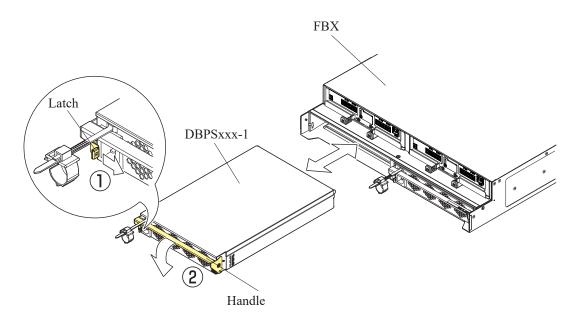
REP(HBOX)03-60

- (4) Bring the handle down and forward (2) while pushing the latch of the DBPS inward (1).
- (5) Pull the DBPS and remove it from the FBX.
- (6) Remove the other DBPS in the same manner.

Figure 3-5 Removal of DBPS



Rear view of FBX



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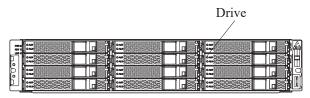
REP(HBOX)03-70

6. Remove the Drive.

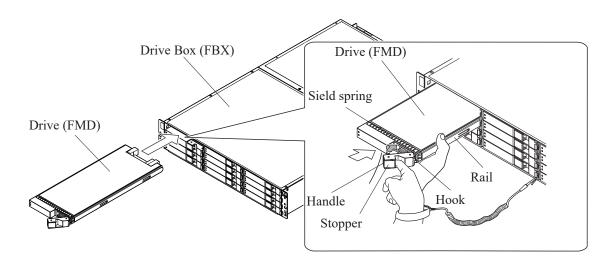
NOTICE: Be sure to read "Notes when Handling the Flash Module Drive (FMD)" (REP(GE)01-80) before handling the FMD and perform the procedure following the notes.

- (1) Pull up the stopper of the Drive handle toward you to release the lock.
- (2) Open the handle toward you, and pull out and remove the Drive to be replaced not to give a shock.
- (3) Remove the other Drives in the same manner.

Figure 3-6 Removal of Drive (FBX)



Front view of FBX

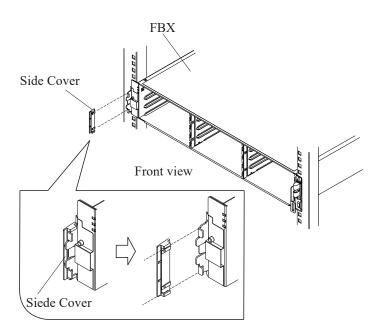


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REP(HBOX)03-80

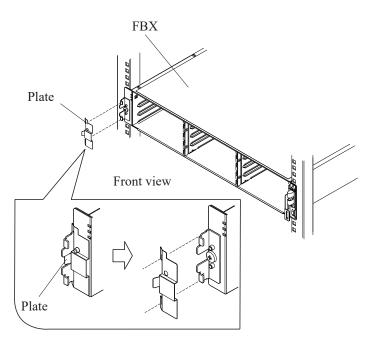
- 7. Replace the Drive Box
 - (1) Remove the side cover from the left side of the front of the FBX.

Figure 3-7 Removal of Side Cover



(2) Remove the plate from the left side of the front of the FBX.

Figure 3-8 Removal of Plate



REP(HBOX)03-90



Be careful of the mass:

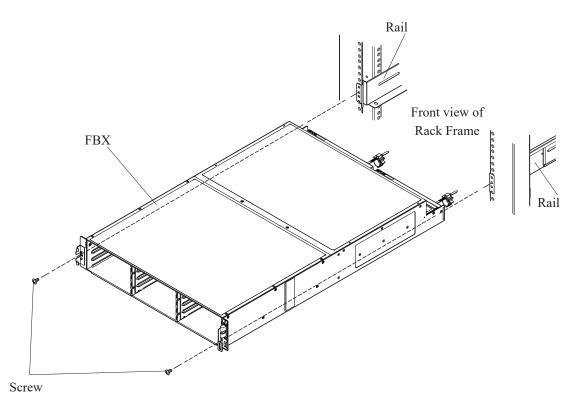
Work carefully because the mass of the Drive Box is about 10 kg.

Be careful of falling over and dropping:

To prevent Drive Box from falling over and dropping, the installation work must be done by two or more personnel.

- (3) Remove the two screws from the Drive Box.
- (4) Remove the Drive Box from the rack frame referring to mounting procedure using the special lifter. (Refer to "Putting the Chassis on the Lifter" (REP(GE)08-90).)
- (5) Install the Drive Box on the front side of the Rack frame.
- (6) Fix the Drive Box with the two screws.
- (7) Attach the plate to the left side of front of the Drive Box. (See Figure 3-8.)
- (8) Attach the side cover to the left side of the front of the Drive Box. (See Figure 3-7.)

Figure 3-9 Replacement of FBX



REP(HBOX)03-100

8. Install the Drive.

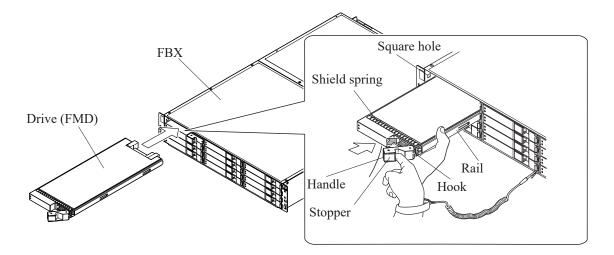
Install all the removed drives to the same place in the spare Drive Box according to the label attached to them.

- (1) 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.
- (2) 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.

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

- (3) Push it in until it reaches the position where a hook of the handle can be entered into the square hole on the frame
- (4) 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 Storage System.
- (5) Install the other Drives in the same manner.

Figure 3-10 Installation of Drives (FBX)



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REP(HBOX)03-110

- 9. Install the DBPS.
 - (1) Make the handle of the DBPS completely fall down and forward. (Refer to Figure 3-5.)
 - (2) Insert the DBPS into the slot and push it to the full.
 - (3) Completely raise the handle and fix the DBPS.
 - (4) Connect the power cable to the DBPS and fasten it with the cable holder. (Refer to Figure 3-4.)
 - (5) Install the other DBPS in the same manner.
 - (6) Attach the two repeat binders to the rail of the rear side of the Drive Box to fix the power cable.

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REP(HBOX)03-120

- 10. Insert the ENC.
 - (1) Make the right and left levers of the ENC open. (Refer to Figure 3-3.)
 - (2) Insert the ENC until the edge of the lever comes in contact with the Drive Box.
 - (3) Close the right and left levers to insert the ENC completely.
 - (4) Connect the cables to the ENC after checking "Note on Cable Routing" (REP(GE)01-50). When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to "Precautions when Connecting SAS Cables/NVMe Cables" (INST(IN)09-04-10).)
 - (5) Install the other ENC in the same manner.

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REP(HBOX)03-130

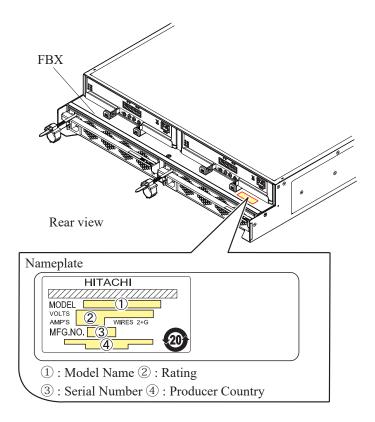
11. Attach the nameplate.

Take out the nameplate in which the same model name as the removed FBX is described from the nameplates attached to the spare FBX. Write down the same serial number as the removed FBX in the nameplate, and then affix the nameplate to the spare FBX.

When the nameplate in which the same model name as the removed FBX is described is not attached, take out the nameplate in which the same rating and producer country as the removed FBX are described and which the model name is not described. Write down the same model name and serial number as the removed FBX in the nameplate, and then affix it to the spare FBX.

To fill in the nameplate, use the RoHS-compliant marker pen.

Figure 3-11 Attachment of Nameplate



12. Attach the Front Bezel.

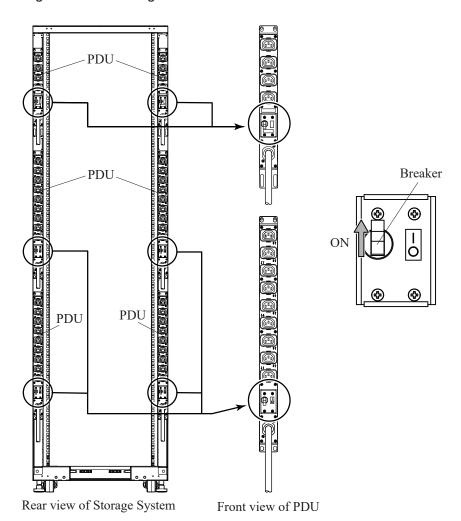
Attach the Front Bezel to the FBX. (Refer to "How to Attach/Remove Front Bezel" (REP(GE)08-10).)

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REP(HBOX)03-140

- 13. Power On the Storage System.
 - (1) Turn on the breaker on the power distribution panel.
 - (2) Turn on the breaker at the PDU on the Storage System.

Figure 3-12 Turning on Breakers



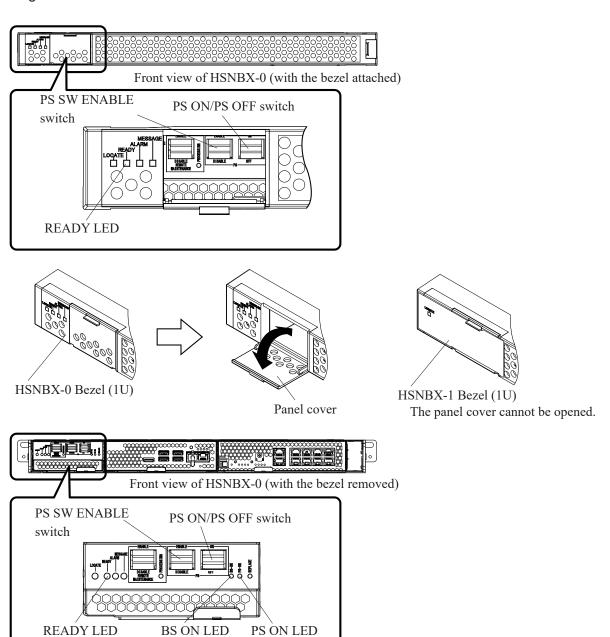
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REP(HBOX)03-150

(3) Set the PS ON/PS OFF switch on the HSNPANEL on the front side of HSNBX-0 to ON while holding up the PS SW ENABLE switch in the ENABLE position.

Figure 3-13 Switches and LEDs on the Front Side of HSNPANEL



14. Checking Normality

Perform the normality check according to "Checking Normality (TRBL02-06-10)".