

2.6 Replacing a FAN

The window and the procedure differ between the CBXSS/CBXSL and the CBSS/CBSL.

- When replacing the FAN of the CBXSS/CBXSL
[“2.6.2 Replacing a FAN for CBXSS/CBXSL”](#)
- When replacing the FAN of the CBSS/CBSL
[“2.6.1 Replacing a FAN for CBSS/CBSL”](#)

2.6.1 Replacing a FAN for CBSS/CBSL

NOTE: The Controller Board is blocked by this maintenance work. Check that the alternate path of the path that uses the Channel Board in the Controller Board is set for the Channel Board in the other Controller Board. If the alternate path is not set, it is necessary to set the alternate path or stop host I/O. Consult with the customer and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the FAN on the Controller Board 1, connect the maintenance PC and the Controller Board 2.

When replacing the FAN on the Controller Board 2, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

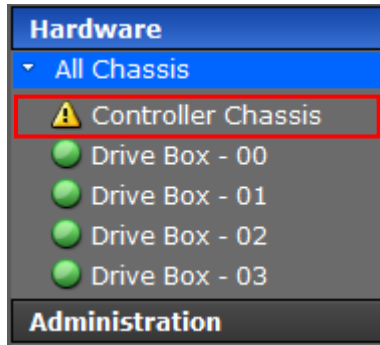
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

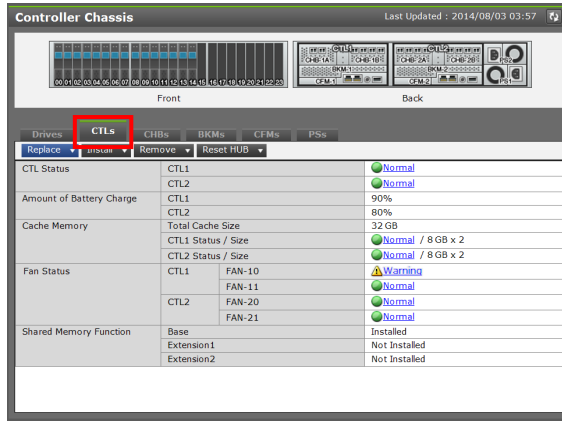


(2) <Controller Chassis window>

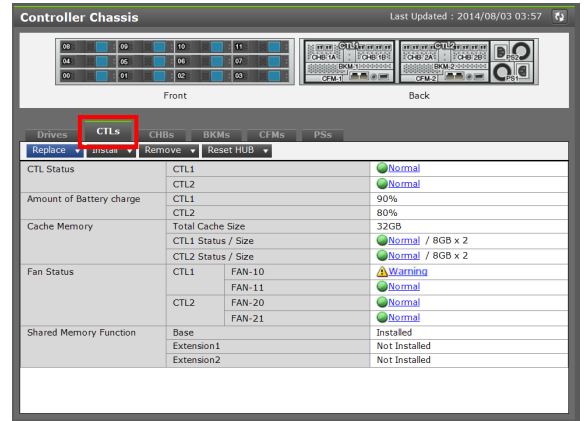
Click the [CTLs] tab in the “Controller Chassis” window and display the Fan status.

See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

• In case of CBSS



• In case of CBSL

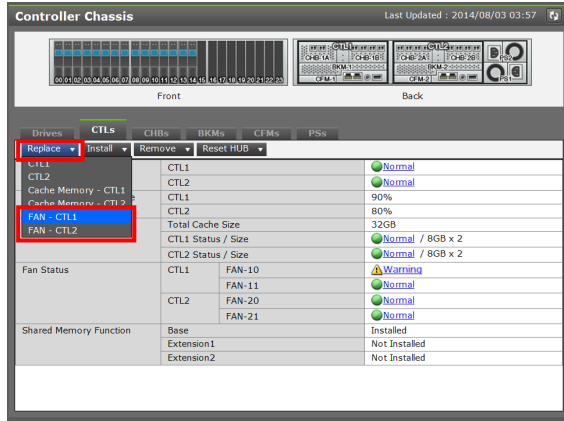


(3) <Select FAN-CTL>

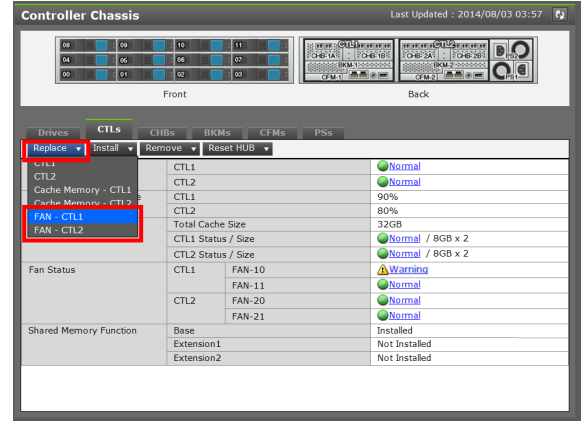
Click the [Replace] button and select a controller board in which a fan to be replaced is installed.

NOTE: Only a controller board to which the Maintenance PC is not connected is displayed.

• In case of CBSS



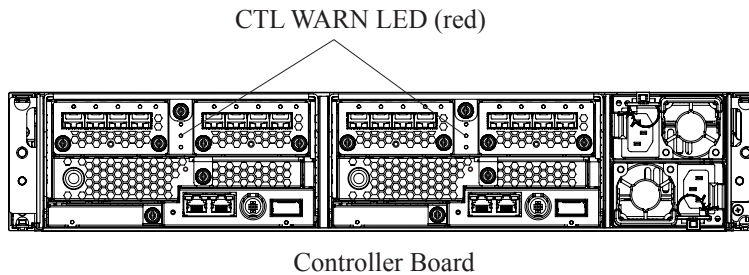
• In case of CBSL



(4) Check that the CTL WARN LED (amber) on the CBSS/CBSL Controller Board blinks up.

- Blinking once: Replace the FAN-x0.
- Blinking twice : Replace the FAN-x1.

Figure 2-81 CTL WARN LED Position



(5) <Block Controller Board>

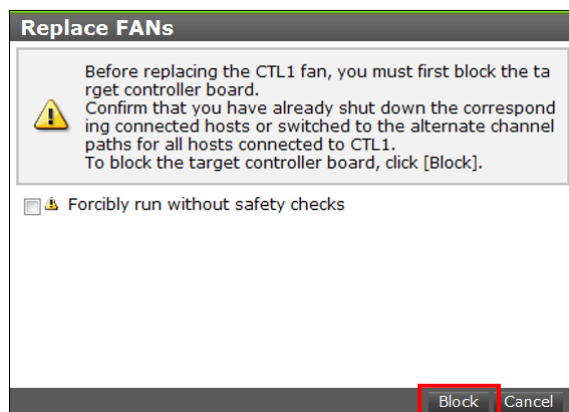
⚠ CAUTION

About “Forcibly run without safety checks”:

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see [“1.1.11 Note on Deleting Remote Paths”](#).

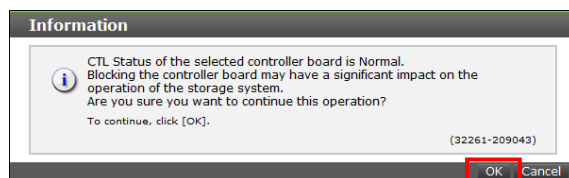
This checkbox is displayed only when Maintenance Utility is started from the “Web Console” window or the “MPC” window.

Check that the Controller Board has the FAN to be replaced, and then click the [Block] button. If a message other than the described is displayed, refer to “Device Manager-Storage Navigator Messages”.



(6) <Check Controller Board>

Check that the Controller Board to replace the FAN is correct again and click the [OK] button.

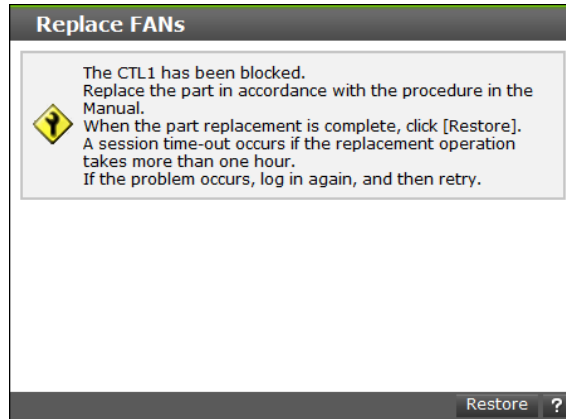


(7) <Check the beginning of FAN replacement>

Block the Controller Board and check that the replacement is ready to start.

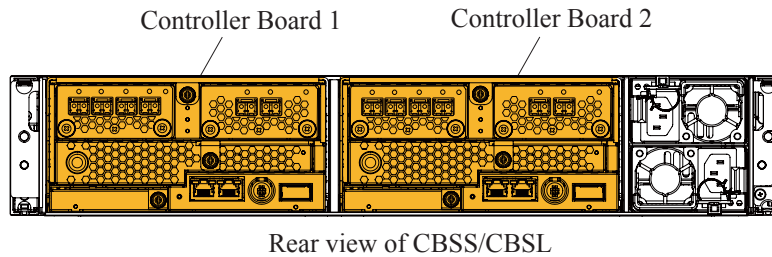
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. FAN Replacement Processing for CBSS/CBSL

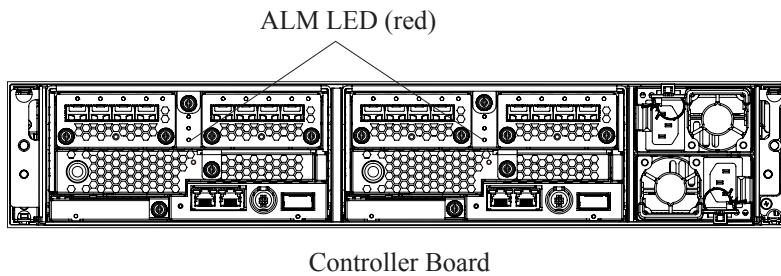
Location	Function Name of Component		Part Name
Rear View of CBSS/CBSL	1	FAN	FAN



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 "1.1.3 Note on Installing and Removing Parts".

- (1) Check that the ALM LED (red) on the CBSS/CBSL Controller Board to be removed lights up.

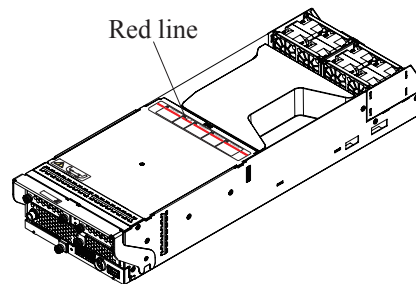
Figure 2-82 ALM LED Position



- (2) Remove all the cables connected to the Controller Board.
- (3) Remove the Controller Board from the CBSS/CBSL.

⚠ CAUTION

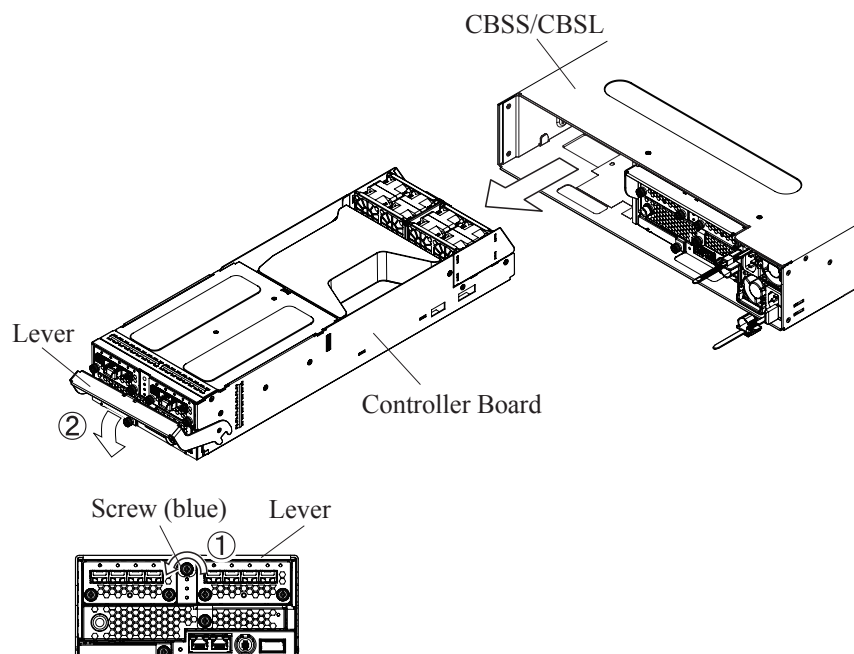
Dropping the Controller Board may cause injury. Keep hands securely on array. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the rail terminal past this mark, keep a firm hold on the Controller Board.



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

- (a) Loosen the screws (blue) fixing the Controller Board (①) and open the lever (②) completely.
- (b) Remove the Controller Board while holding its body with both hands.

Figure 2-83 Removing the Controller Board



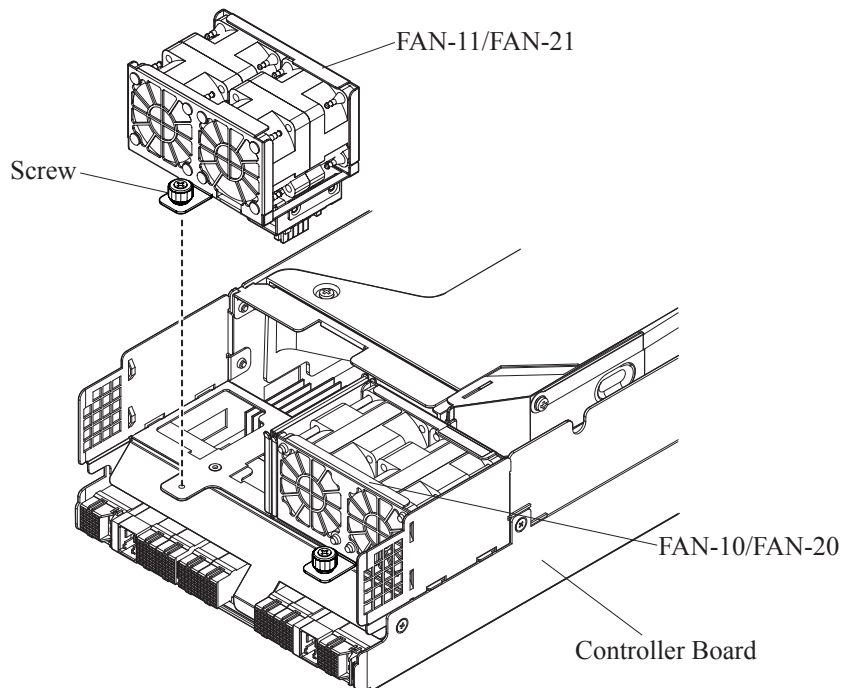
NOTICE: After removing the Controller Board, the LEDs (POWER/READY/WARNING/ALARM) might go out.

If the LED on the front goes out, check that anything other than the Controller Board is normal in the "Maintenance Utility" window and continue the replacement.

The READY LED (green) on the front of CBSS/CBSL lights up after performing "5. Restoring replacement parts by Maintenance Utility" of the "2.6.1".

- (4) Replace the FAN.
 - (a) Loosen the screw (blue) fixing the FAN to be replaced.
 - (b) Lift the FAN to pull out the cable from the connector.
 - (c) Connect the new FAN to the connector of the Controller Board.
 - (d) Tighten the screw (blue) and fix the FAN.

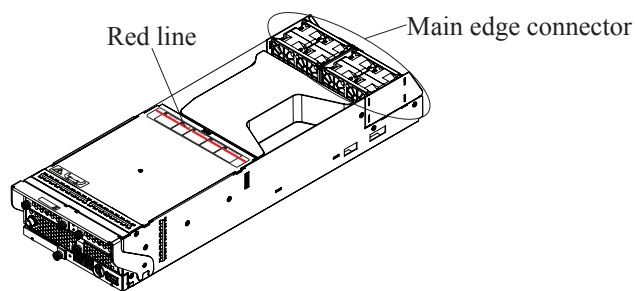
Figure 2-84 Replacing the FAN



(5) Install the Controller Board.

 **CAUTION**

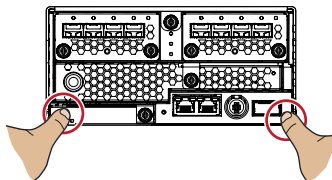
Dropping the Controller Board may cause injury. Keep hands securely on array. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the rail terminal past this mark, keep a firm hold on the Controller Board.



- NOTICE:**
- Before installing a Controller Board, check that the main edge connector of the Controller Board has no deformation, damages or dust.
 - When installing the Controller Board, hold it with both hands and install it straight not to apply a shock to with any components.

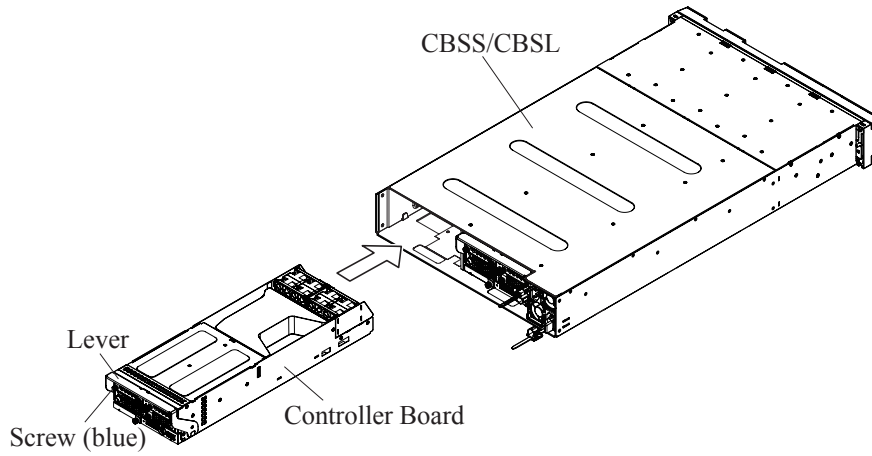
- (a) With the levers on the Controller Board opened completely, insert the Controller Board into the slot of the CBSS/CBSL.
- (b) Push the Controller Board all the way in and close the levers completely.

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



- (c) Tighten the screws (blue) and fix the Controller Board.

Figure 2-85 Installing the Controller Board

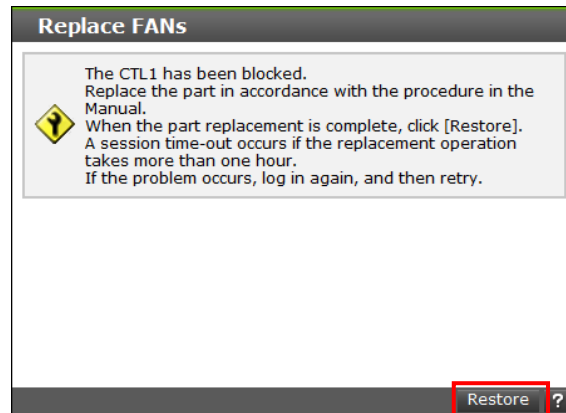


- (6) Connect all the removed cables to the Controller Board.
When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to INSTALLATION SECTION [“2.10.2.1 Precautions when Connecting SAS Cables”](#)).

5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

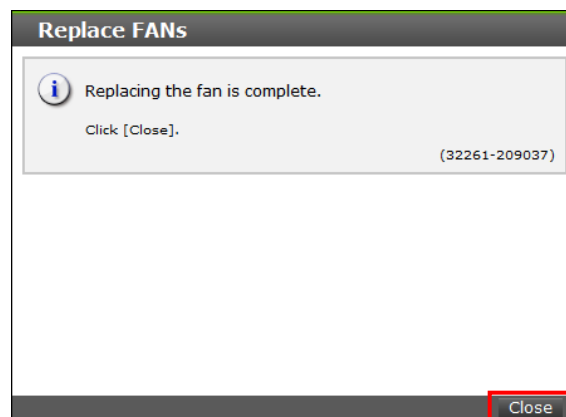
Click the [Restore] button.



(2) <Check replacement parts Restoration>

Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



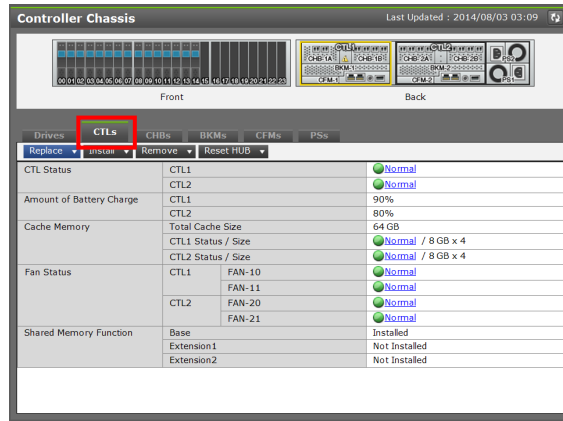
NOTE: It may take a few minutes to be able to connect to GUM of the replaced Controller Board.

When executing Auto Dump, check that the connection to GUM of the replaced Controller Board is possible, and then execute it.

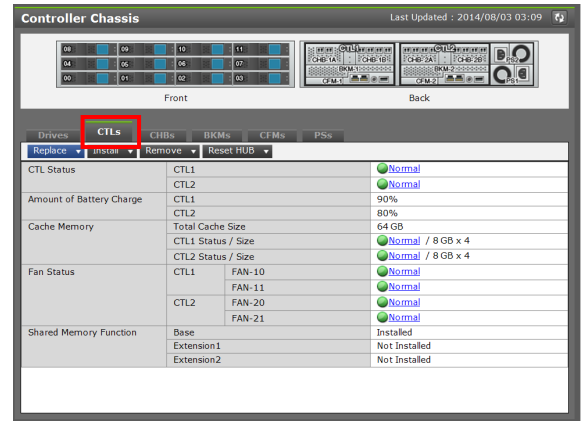
(3) <Controller Chassis window>

Click the [CTLs] tab in the “Controller Chassis” window and check that a Status of the replaced FAN is “Normal”.

• In case of CBSS



• In case of CBSL



(4) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “2.8.3 Disconnecting the Maintenance PC from the Storage System”.

2.6.2 Replacing a FAN for CBXSS/CBXSL

NOTE: The Controller Board is blocked by this maintenance work. Check that the alternate path of the path that uses the Channel in the Controller Board is set for the Channel in the other Controller Board. If the alternate path is not set, it is necessary to set the alternate path or stop host I/O. Consult with the customer and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the FAN on the Controller Board 1, connect the maintenance PC and the Controller Board 2.

When replacing the FAN on the Controller Board 2, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

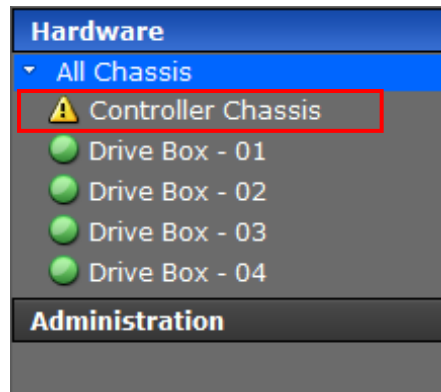
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

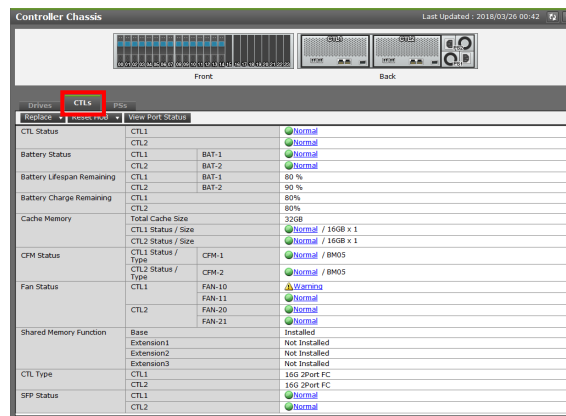


(2) <Controller Chassis window>

Click the [CTLs] tab in the “Controller Chassis” window and display the Fan status.

See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

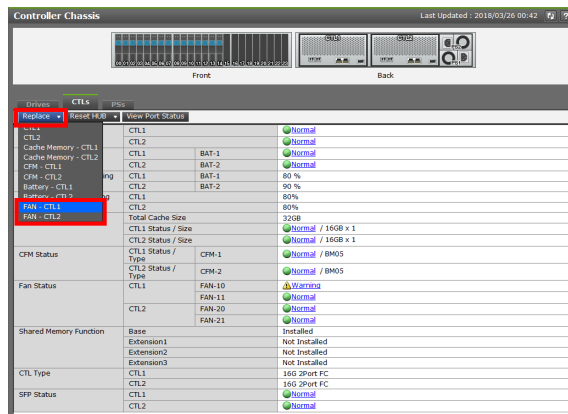
Example: In case of CBXSS



(3) <Select FAN-CTL>

Click the [Replace] button and select a controller board in which a fan to be replaced is installed.

Example: In case of CBXSS



(4) <Block Controller Board>

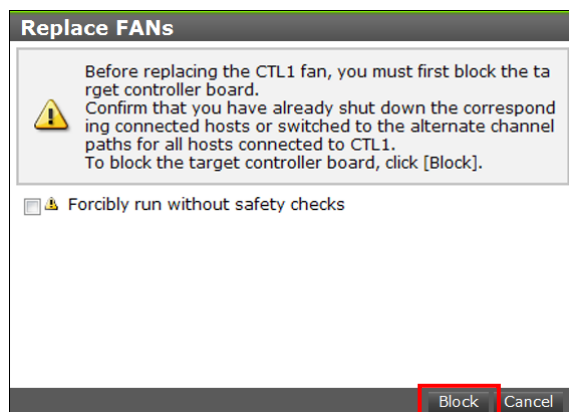
⚠ CAUTION

About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see "[1.1.11 Note on Deleting Remote Paths](#)".

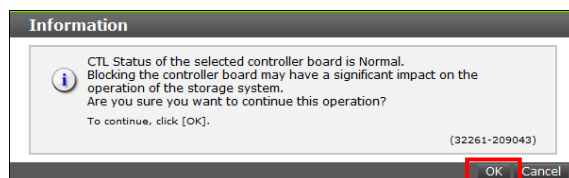
This checkbox is displayed only when Maintenance Utility is started from the "Web Console" window or the "MPC" window.

Check that the Controller Board has the FAN to be replaced, and then click the [Block] button. If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



(5) <Check Controller Board>

Check that the Controller Board to replace the FAN is correct again and click the [OK] button.

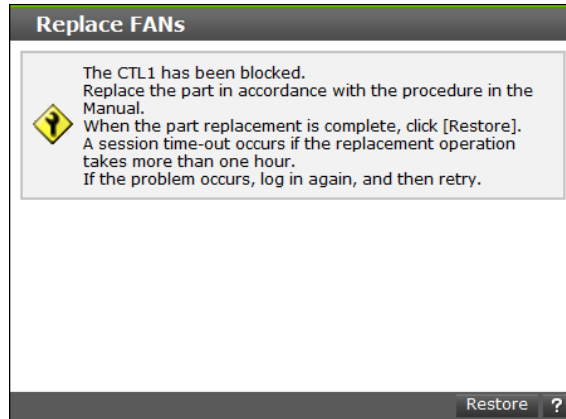


(6) <Check the beginning of FAN replacement>

Block the Controller Board and check that the replacement is ready to start.

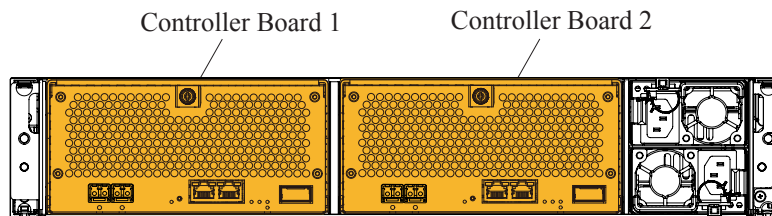
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. FAN Replacement Processing for CBXSS/CBXSL

Location	Function Name of Component		Part Name
Rear View of CBXSS/CBXSL	1	FAN	FAN

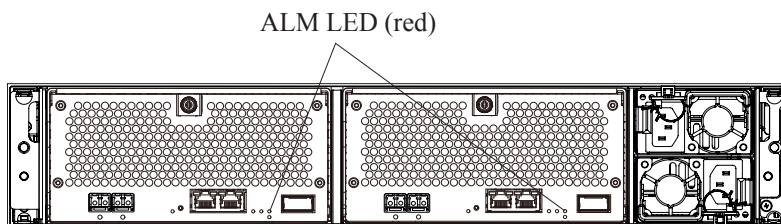


Rear view of CBXSS/CBXSL

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 ["1.1.3 Note on Installing and Removing Parts"](#).

- (1) Check that the ALM LED (red) on the CBXSS/CBXSL Controller Board to be removed lights up.

Figure 2-86 ALM LED Position

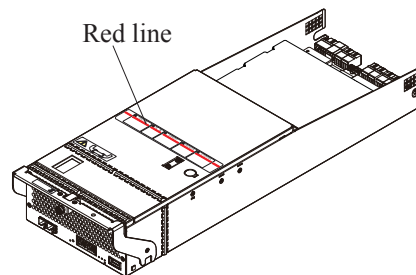


Controller Board

- (2) Remove all the cables connected to the Controller Board.
Remove the cables from the channel ports with care so as not to damage the cables (see “1.1.12 Notes on Removing Optical Cables”).
- (3) Remove the Controller Board from the CBXSS/CBXSL.
 - (a) Loosen the screw (blue) which fixes the Controller Board (①) and open the lever to pull out (②).
 - (b) Pull out and remove the Controller Board while holding its body with both hands.

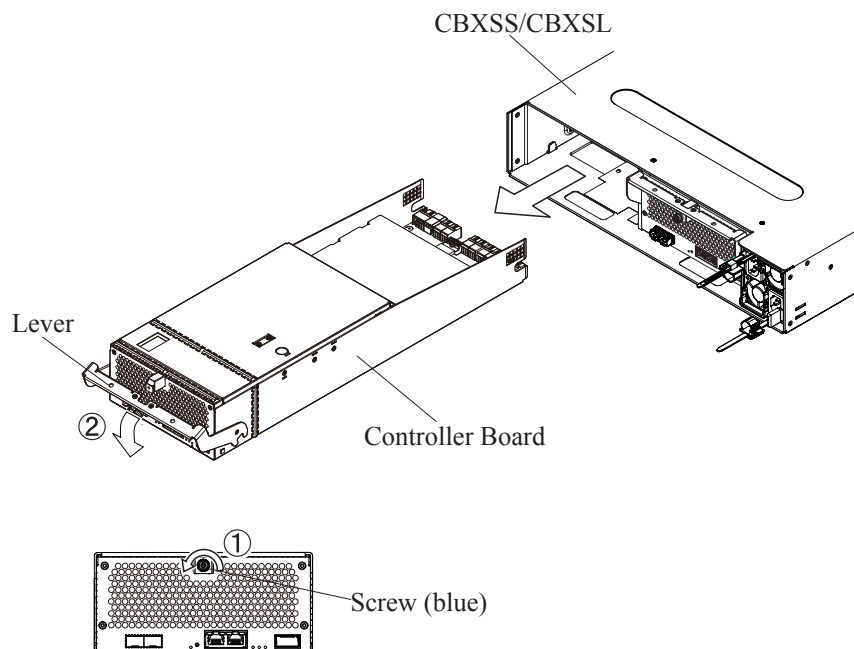
 **CAUTION**

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.



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

Figure 2-87 Removal of Controller Board (CBXSS/CBXSL)



NOTICE: After removing the Controller Board, the LEDs (POWER/READY/WARNING/ALARM) might go out.

If the LED on the front goes out, check that anything other than the Controller Board is normal in the "Maintenance Utility" window and continue the replacement.

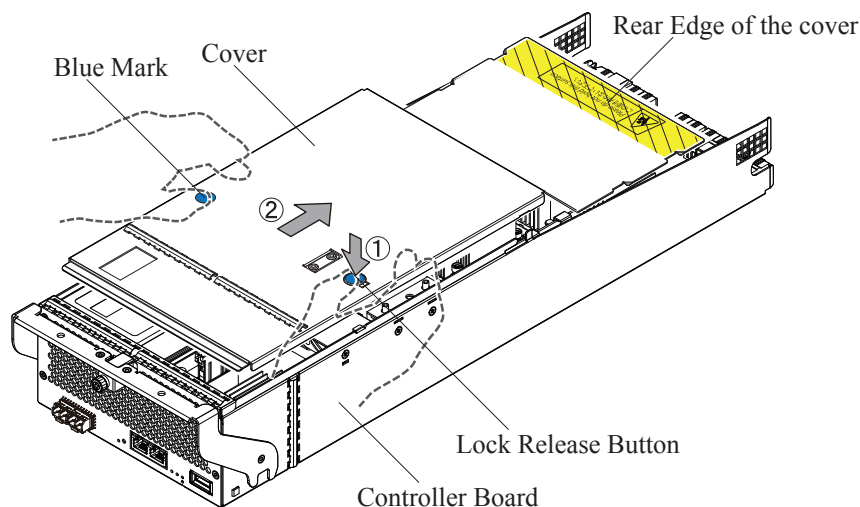
The READY LED (green) on the front of CBXSS/CBXSL lights up after performing "5. Restoring replacement parts by Maintenance Utility" of the "2.6.2".

- (4) While pressing the lock release button on the cover (①), slide the cover in the direction of the arrow (②) with your hands on the blue marks.

CAUTION

When attaching or removing the cover, be careful not to hold the rear edge of the cover (hatched area in the figure below). Otherwise, you might get your fingers pinched.

Figure 2-88 Removal of Cover

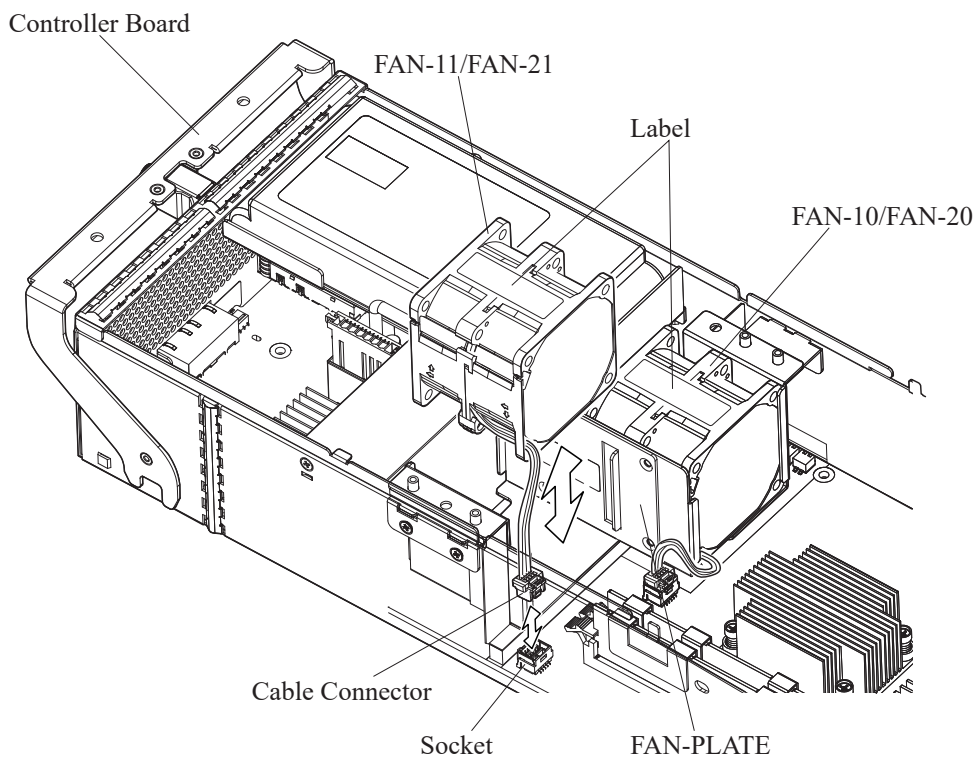


- (5) Replace the FAN.
 - (a) While holding the latch of the cable connector of the failed FAN mounted in the Controller Board, pull out the cable from the socket.
 - (b) Remove the FAN by lifting it.
 - (c) Install the new FAN in the Controller Board so that the surface to which the label is attached is oriented upward.
 - (d) Insert the cable connector of the FAN into the socket.

NOTE: Make sure to firmly insert the cable connector until the latch clicks.

If you removed the FAN-PLATE together with the FAN, install the FAN-PLATE again.

Figure 2-89 Replacing the FAN



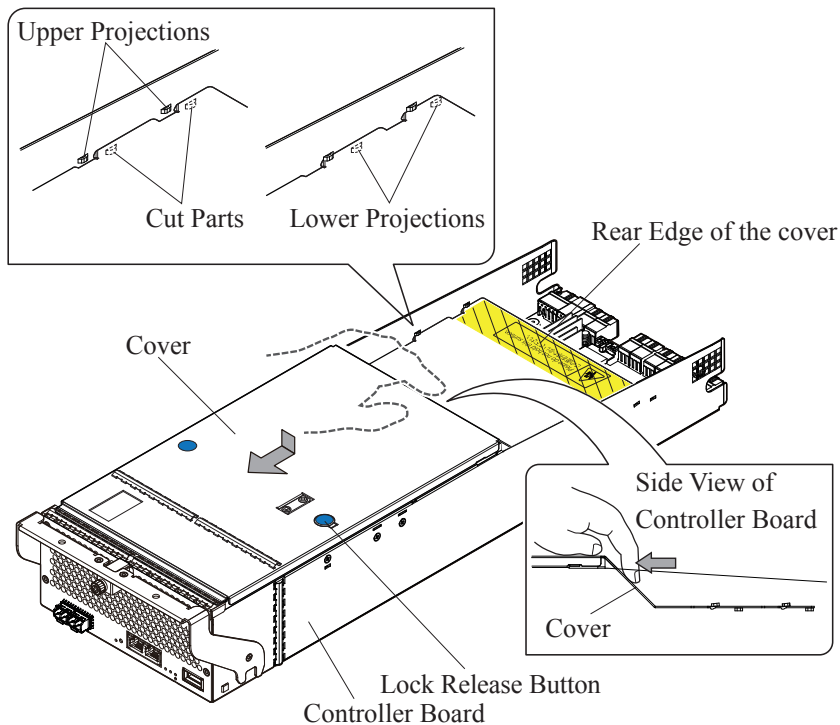
- (6) Attach the cover to the Controller Board with the upper projections of the Controller Board placed on the cut parts of the cover. Push the cover in the arrow direction, and slide it until locked.

NOTE: Make sure to firmly attach the cover until the lock release button clicks.

⚠ CAUTION

When attaching or removing the cover, be careful not to hold the rear edge of the cover (hatched area in the figure below). Otherwise, you might get your fingers pinched.

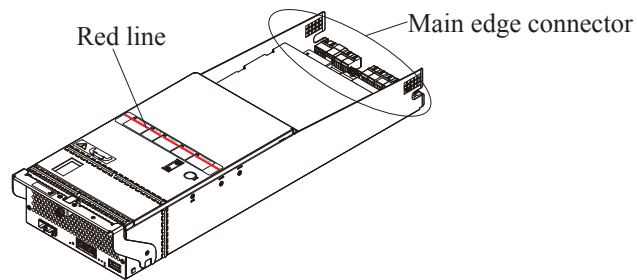
Figure 2-90 Installation of Cover



(7) Install a Controller Board.

 **CAUTION**

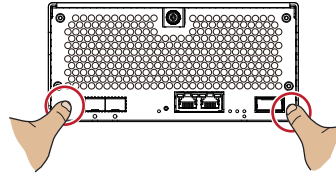
Dropping the Controller Board might cause injury. Hold the Controller Board firmly with your hands.



- NOTICE:**
- Check that the main edge connector of the Controller Board has no deformation, damage or sticking of dust before installing the Controller Board.
 - When installing the Controller Board, hold it with both hands and install it straight not to apply a shock to with any components.

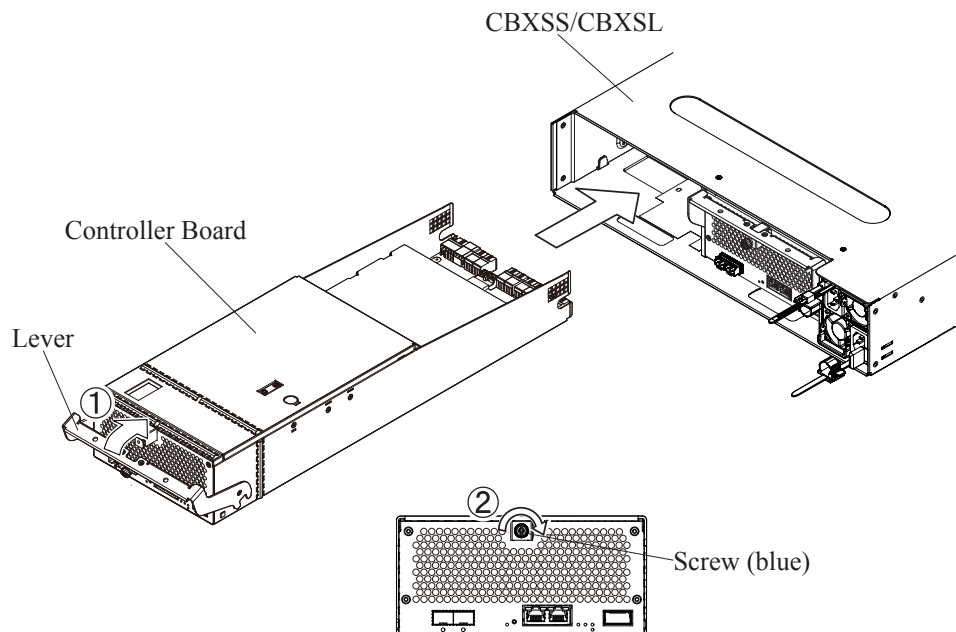
- (a) With the lever on the Controller Board opened completely, insert it into the slot of the CBXSS/CBXSL.
- (b) Push the Controller Board all the way in and close the lever completely.

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



- (c) Tighten the screw (blue) and fix the Controller Board.

Figure 2-91 Installation of Controller Board (CBXSS/CBXSL)

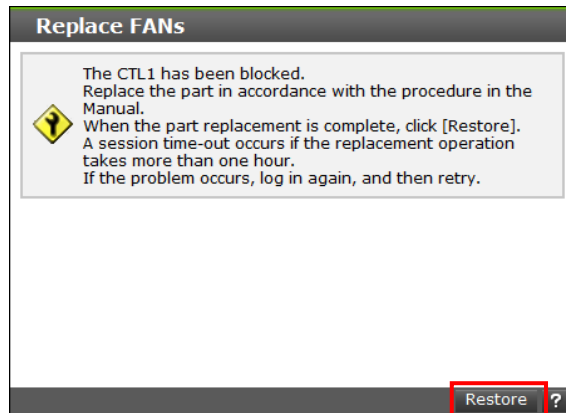


- (8) Connect all the removed cables to the Controller Board.
When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to INSTALLATION SECTION [“2.10.2.1 Precautions when Connecting SAS Cables”](#)).

5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

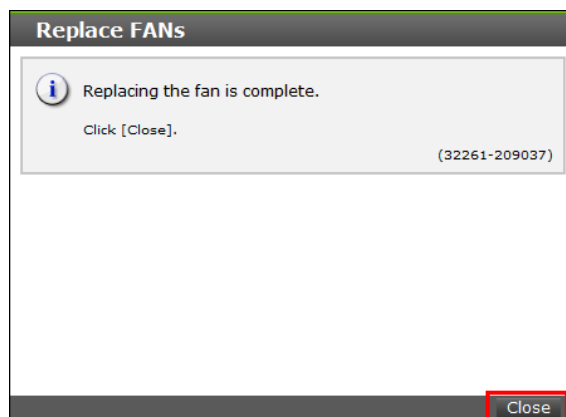
Click the [Restore] button.



(2) <Check replacement parts Restoration>

Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



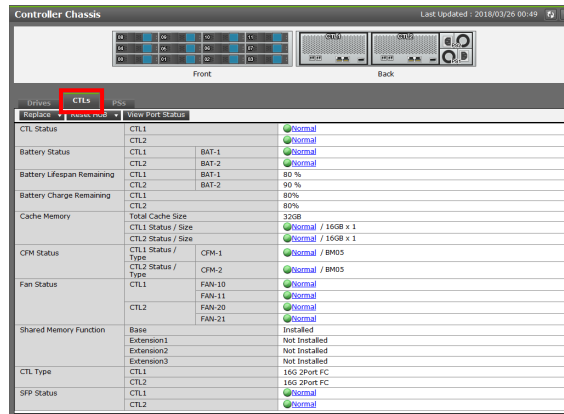
NOTE: It may take a few minutes to be able to connect to GUM of the replaced Controller Board.

When executing Auto Dump, check that the connection to GUM of the replaced Controller Board is possible, and then execute it.

(3) <Controller Chassis window>

Click the [CTLs] tab in the “Controller Chassis” window and check that a Status of the replaced FAN is “Normal”.

Example: In case of CBXSS



(4) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.
Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “2.8.3 Disconnecting the Maintenance PC from the Storage System”.

2.7 Replacing a BKMF

This work is only required for the CBLH.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the BKMF, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

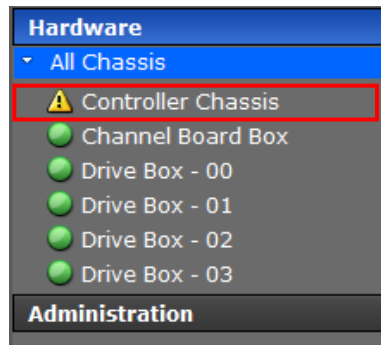
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

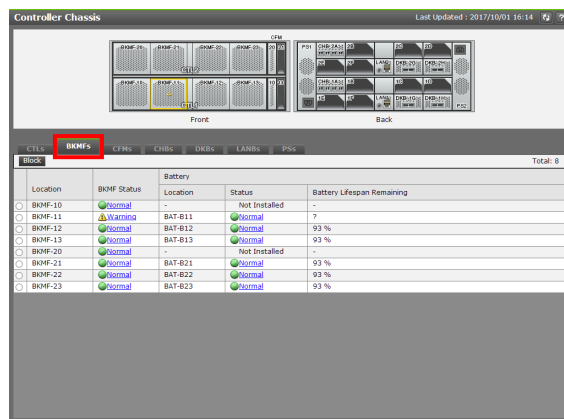
Select [Controller Chassis] in the main window.



(2) <Check BKMF>

Click the [BKMF] tab in the “Controller Chassis” window to check that the status of the BKMF to be replaced is “Warning”. See MAINTENANCE PC SECTION “[3.22 Alert Display Related to FRU \(Field Replacement Unit\)](#)” for the [Status].

NOTE: Do not click the [Block] button.



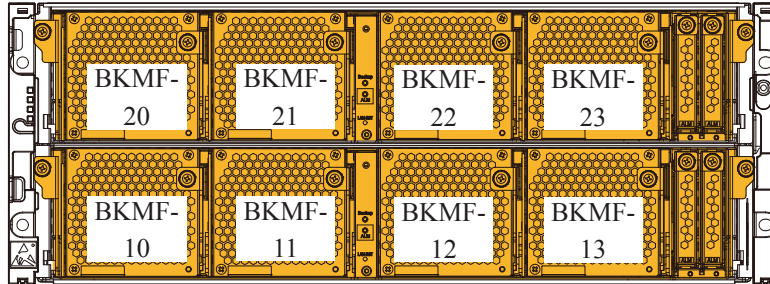
NOTE: When “Warning” is displayed in the “BKMF Status”, “?” is displayed for the “Battery Lifespan Remaining” of “Battery”.

In this case, resolve “Warning” in “BKMF Status” to return “?” to a numeral value display.

NOTE: When performing the preventive replacement of a BKMF in which no error occurs, block the BKMF to be replaced and then replace the BKMF according to “[2.8.2.1 Preventive Replacement of a Battery for BKMF](#)”.

4. BKMF Replacement Processing

Location	Function Name of Component	Part Name
Front View of CBLH	1 BKMF	BKMF



Front view of CBLH

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 "1.1.3 Note on Installing and Removing Parts".

 **CAUTION**

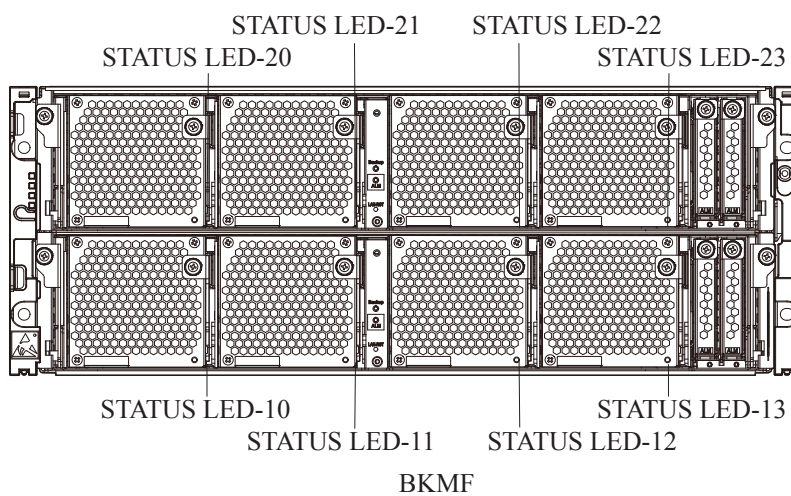
Hazardous rotating mechanism:

Can cause injury if touched. Stay clear of it when machine is running.

Be careful of your hairs, ties, scarves and shirts not to be caught in the rotating part.

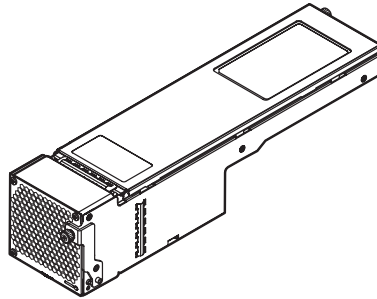
- (1) Check that the STATUS LED (red) on the CBLH BKMF to be replaced lights up. When the LED does not light up, check the location of the BKMF to be replaced in the “Maintenance Utility” window.

Figure 2-92 STATUS LED Location



- (2) Replace the BKMF.
 - (a) Loosen the screw (blue) fixing the BKMF whose STATUS LED (red) lights up.

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



- (b) Open the lever to pull out and remove the BKMF.
- (c) Loosen the screw (blue) on the rear side of the BKMF.
- (d) Slide the top panel of the BKMF and remove it.

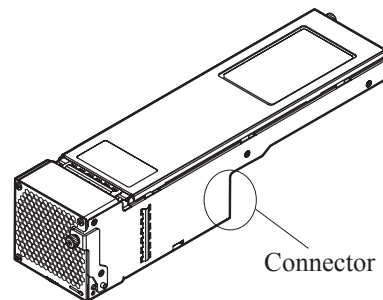
NOTE: When it is difficult to slide the top panel, slide it while pressing the battery downward.
- (e) Hold the latch of the cable connector of the battery to be installed in the BKMF and remove the connector.
- (f) Remove the Battery.
- (g) Loosen the screw (blue) on the rear side of the new BKMF.
- (h) Slide the top panel of the new BKMF and remove it.
- (i) Install the removed the battery in the new BKMF and route cables along the groove of the BKMF.

NOTE : When replacing the battery of the BKMF, route cables with careful attention to the bending condition.

- (j) Connect cable connectors to the socket.

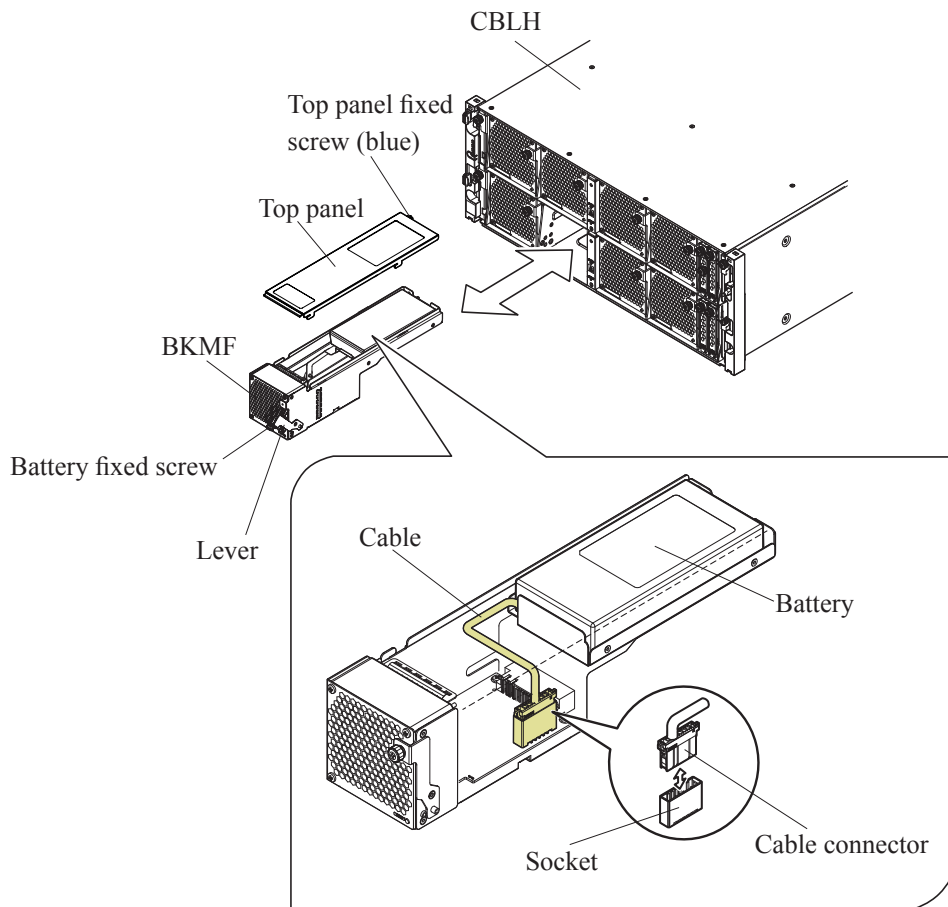
NOTE : Check that the connector latch is surely connected with a click.
- (k) Slide the top panel of the BKMF and attach it.
- (l) Tighten the screw (blue) on the rear side of the BKMF.

- NOTICE:**
- Check that the connector of the BKMF has no deformation, damage or sticking of dust before installing the BKMF.
 - When installing the BKMF, hold it with both hands and install it straight not to apply a shock to the connector.



- (m) With the lever of the BKMF opened, insert the slot.
- (n) Close the lever of the BKMF and tighten the screw (blue).

Figure 2-93 Replacement of BKMF



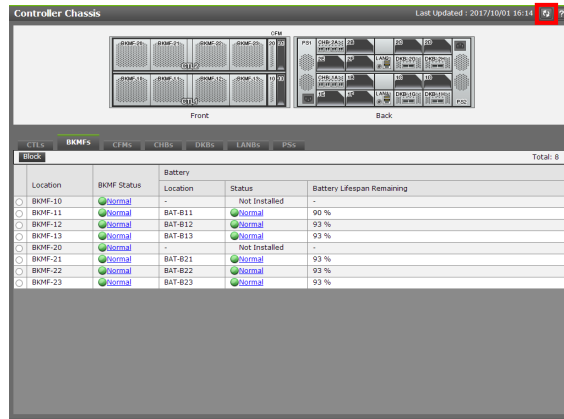
- (3) Check that the STATUS LED (green) on the replaced BKMF is blinking.

5. Restoring replacement parts by Maintenance Utility

(1) <Check BKMF restoration>

Check that no alert icon is displayed for the replaced BKMF in the “Controller Chassis” window.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.



(2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “[2.8.3 Disconnecting the Maintenance PC from the Storage System](#)”.

2.8 Replacing a Battery

Replacement of a Battery is only for CBXSS/CBXSL/CBLH.

Replacing a Battery for the CBSS/CBSL is performed in [“2.9 Replacing/Preventive Replacement of a BKM”](#).

For the Battery for CBLH, the replacement procedure differs depending on SIM reference codes.

See the following.

- When the SIM reference code is “FFFAxx”: [“2.8.1 Failure Replacement of a Battery \(CBLH\)”](#)
- When the SIM reference code is “AF41xx”: [“2.8.2 Preventive Replacement of a Battery \(CBLH\)”](#)

For the Battery for CBXSS/CBXSL, see [“2.8.4 Replacing a Battery for CBXSS/CBXSL”](#).

2.8.1 Failure Replacement of a Battery (CBLH)

2.8.1.1 Failure Replacement of a Battery for BKMF

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Batteries, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

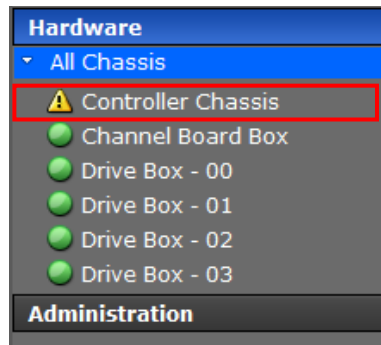
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

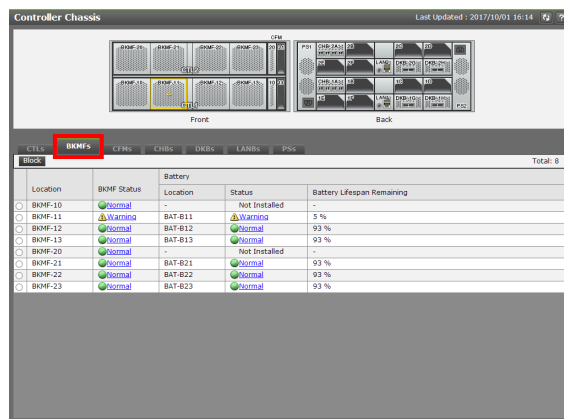


(2) <Controller Chassis window>

Click the [BKMFs] tab in the “Controller Chassis” window to display a Battery status.

See MAINTENANCE PC SECTION “[3.22 Alert Display Related to FRU \(Field Replacement Unit\)](#)” for the [Status].

NOTE : In case of a battery failure, do not click the [Block] button.

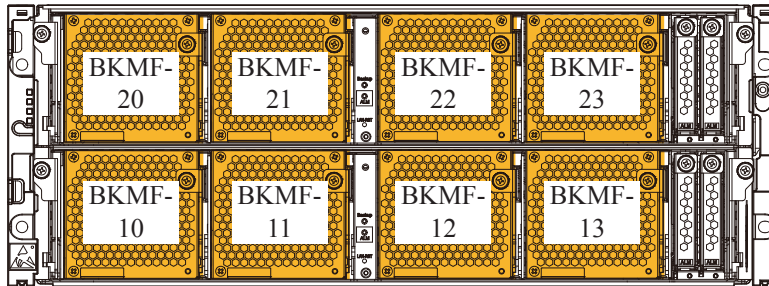


NOTE: When “Warning” is displayed in the “BKMF Status”, “?” is displayed for the “Battery Lifespan Remaining” of “Battery”.

In this case, resolve “Warning” in “BKMF Status” to return “?” to a numeral value display.

4. Battery Replacement Processing

Location	Function Name of Component	Part Name
Front View of CBLH	1 Battery	BKMF



Front view of CBLH

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 [“1.1.3 Note on Installing and Removing Parts”](#).

 **CAUTION**

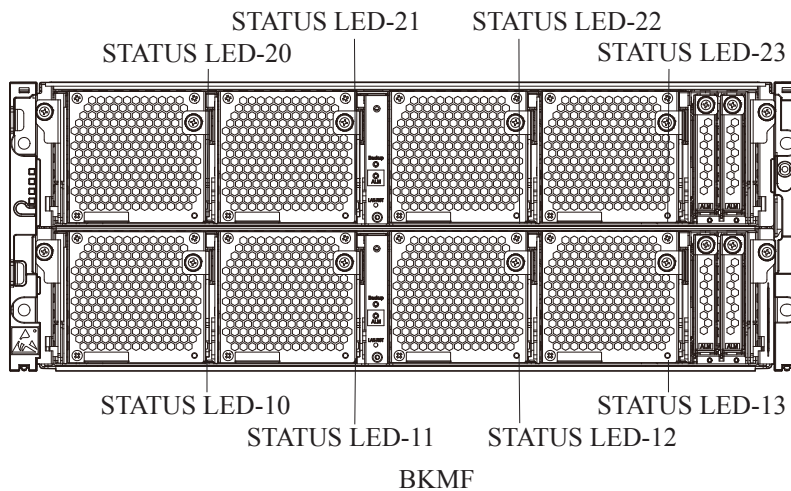
Hazardous rotating mechanism:

Can cause injury if touched. Stay clear of it when machine is running.

Be careful of your hairs, ties, scarves and shirts not to be caught in the rotating part.

- (1) Remove the Front Bezel. (Refer to [“2.2.1 How to Attach/Remove Front Bezel”](#).)
- (2) Check that the STATUS LED (red) on the CBLH BKMF to be replaced is blinking. When the LED does not blink, check the location of the Battery to be replaced in the “Maintenance Utility” window.

Figure 2-94 STATUS LED Location (BKMF)

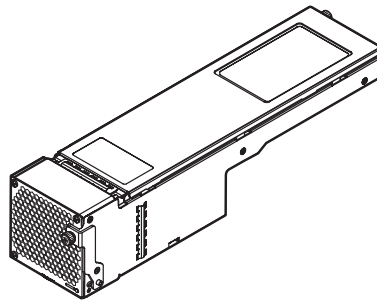


(3) Replace the Battery.

 **CAUTION**

Use only with designated Battery.
May cause overheating, fire or bursting.

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

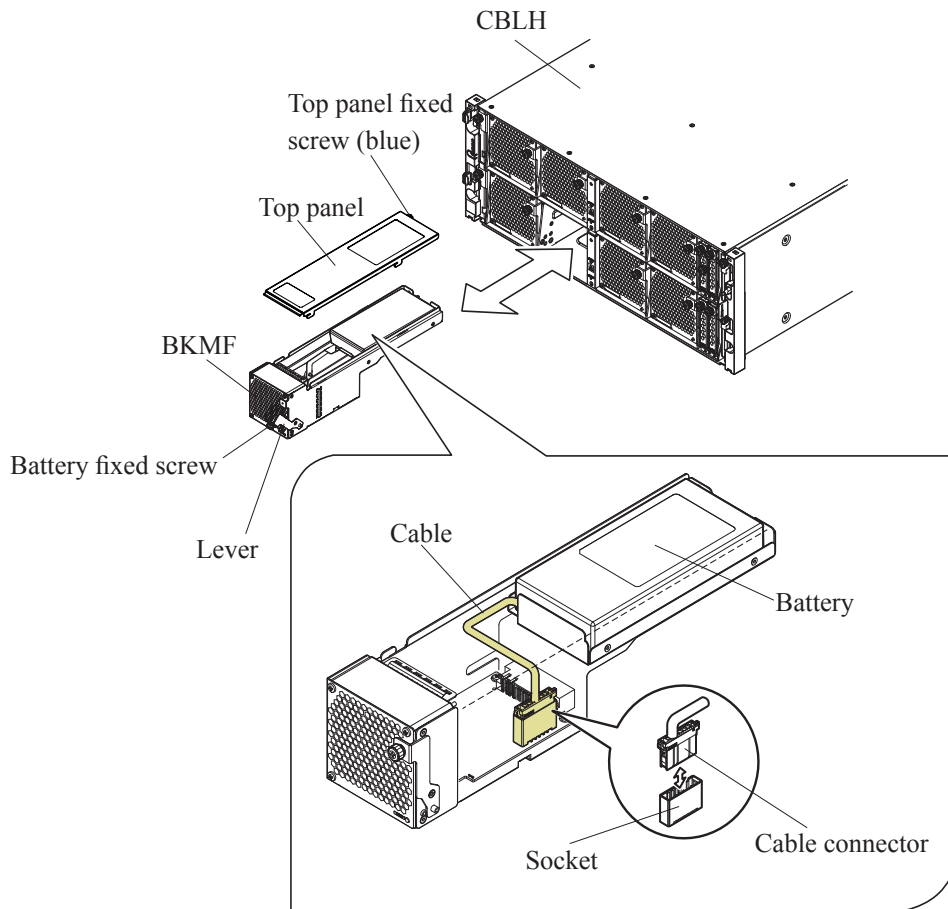


- (a) Loosen the screw (blue) fixing the BKMF whose STATUS LED (red) is blinking.
- (b) Open the lever to pull out and remove the BKMF.
- (c) Loosen the screw (blue) on the rear side of the BKMF.
- (d) Slide the top panel of the BKMF and remove it.

NOTE: When it is difficult to slide the top panel, slide it while pressing the battery downward.

- (e) Hold the latch of the cable connector of the Battery to be replaced and remove the connector from the socket.
- (f) Remove the Battery to be replaced.

Figure 2-95 Replacement of Battery



- (g) Install a new Battery in the BKMF and route cables along the groove of the BKMF.

NOTE : When replacing the battery of the BKMF, route cables with careful attention to the bending condition.

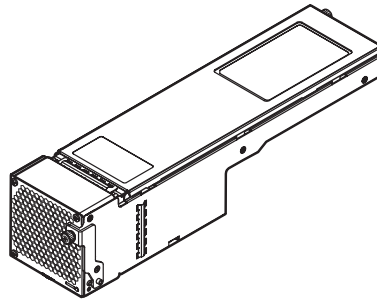
- (h) Connect the cable connector to the socket.

NOTE : Check that the connector latch is surely connected with a click.

- (i) Slide the top panel of the BKMF and attach it.

- (j) Tighten the screw (blue) on the rear side of the new BKMF.

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



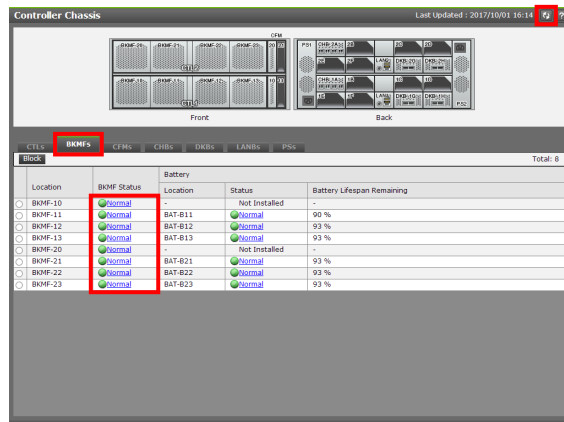
- (k) With the lever of the new BKMF opened, insert the BKMF into the slot.
 - (l) Close the lever of the BKMF and tighten the screw (blue).
- (4) Check that the STATUS LED (green) on the replaced BKMF is blinking.
- (5) Attach the Front Bezel. (Refer to [“2.2.1 How to Attach/Remove Front Bezel”](#).)
- (6) Discard the replaced batteries.
Discard the batteries appropriately according to the law of the Storage System use place (refer to [“3. Processing Method of Batteries”](#)).

5. Restoring replacement parts by Maintenance Utility

(1) <Check Battery restoration>

Click the [BKMFs] tab in the “Controller Chassis” window and check that a Status of the replaced Battery is Normal.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.



(2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “[2.8.3 Disconnecting the Maintenance PC from the Storage System](#)”.

2.8.2 Preventive Replacement of a Battery (CBLH)

2.8.2.1 Preventive Replacement of a Battery for BKMF

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Batteries, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

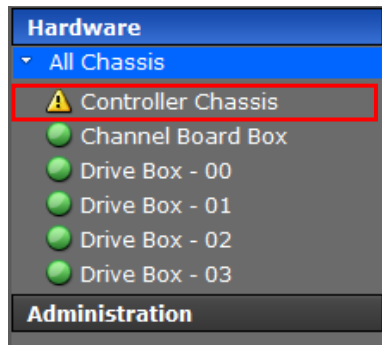
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

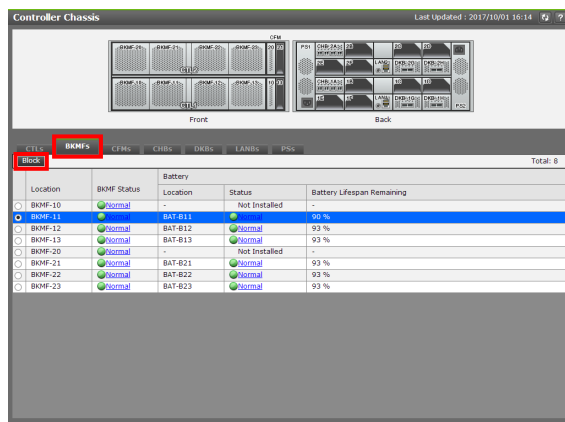
(1) <Main window>

Select [Controller Chassis] in the main window.



(2) <Controller Chassis window>

Click the [BKMF] tab in the “Controller Chassis” window and select a BKMF in which the battery for preventive replacement is installed. Click the [Block] button.



(3) <Block Controller Board>

⚠ CAUTION

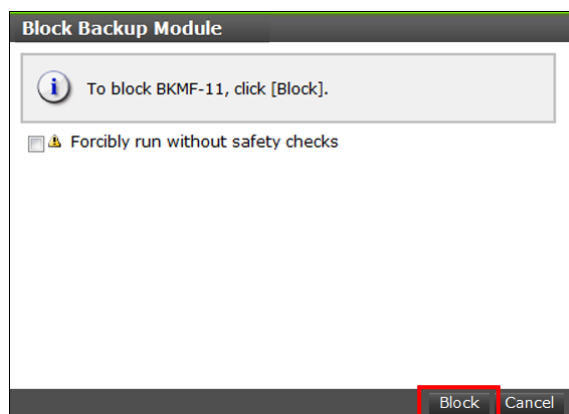
About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. This checkbox is displayed only when Maintenance Utility is started from the "Web Console" window or the "MPC" window.

Check that the BKMF has the Battery to be replaced, and then click the [Block] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".

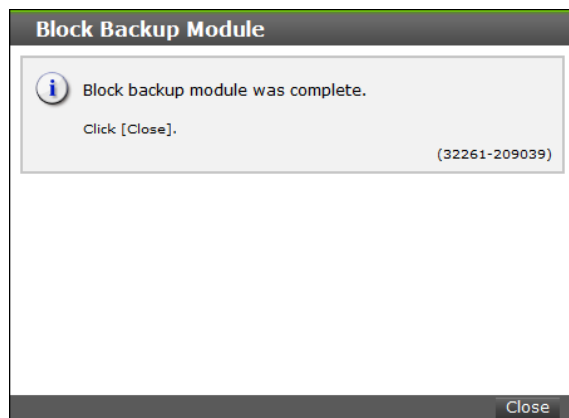
NOTE : The error list window is displayed if multiple errors are detected by the prior check. If it is displayed, click the test of "Error Code" and recover the failures or the blockade in accordance with the details of the displayed errors.



(4) <Check the beginning of Battery replacement>

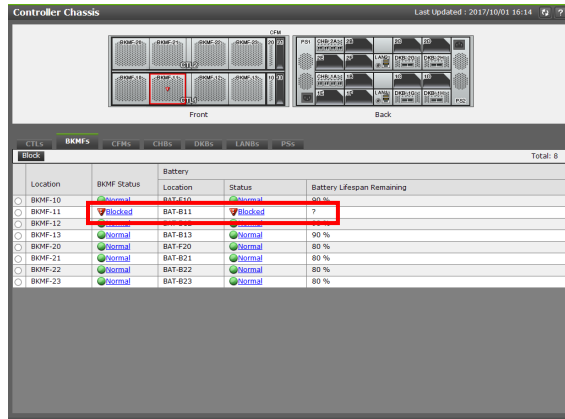
Check that the BKMF is blocked and the following message is displayed.

When a message other than the following is displayed, refer to "Device Manager-Storage Navigator Messages".



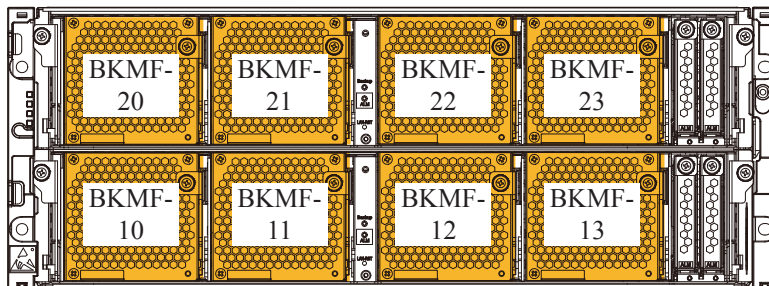
(5) <Check the Blocked status>

Click the [Close] button and check that the status of the blocked BKMF is “Blocked”.



4. Battery Replacement Processing

Location	Function Name of Component	Part Name
Front View of CBLH	1 Battery	BKMF



Front view of CBLH

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 [“1.1.3 Note on Installing and Removing Parts”](#).

 **CAUTION**

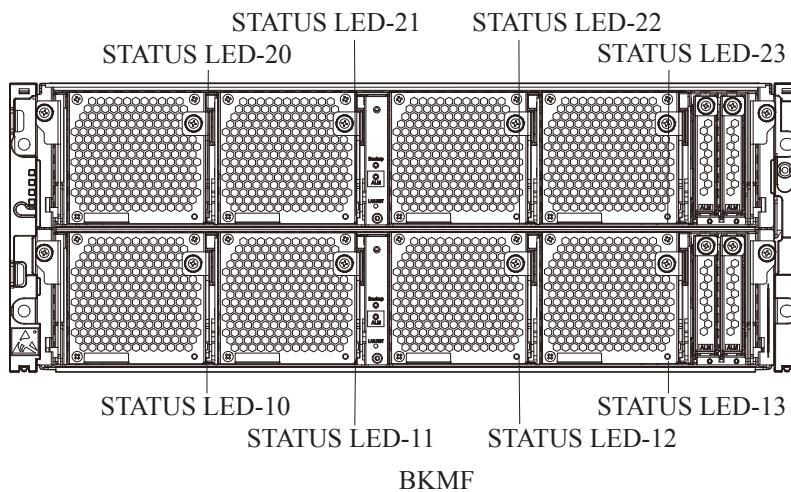
Hazardous rotating mechanism:

Can cause injury if touched. Stay clear of it when machine is running.

Be careful of your hairs, ties, scarves and shirts not to be caught in the rotating part.

- (1) Remove the Front Bezel. (Refer to [“2.2.1 How to Attach/Remove Front Bezel”](#).)
- (2) Check that the STATUS LED (red) on the CBLH BKMF to be replaced lights up.

Figure 2-96 STATUS LED Location (BKMF)

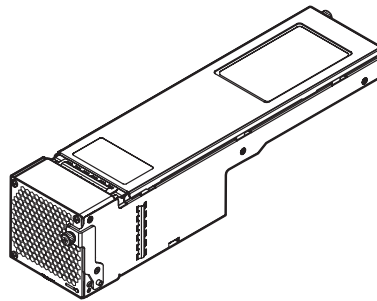


(3) Replace the Battery.

 **CAUTION**

Use only with designated Battery.
May cause overheating, fire or bursting.

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

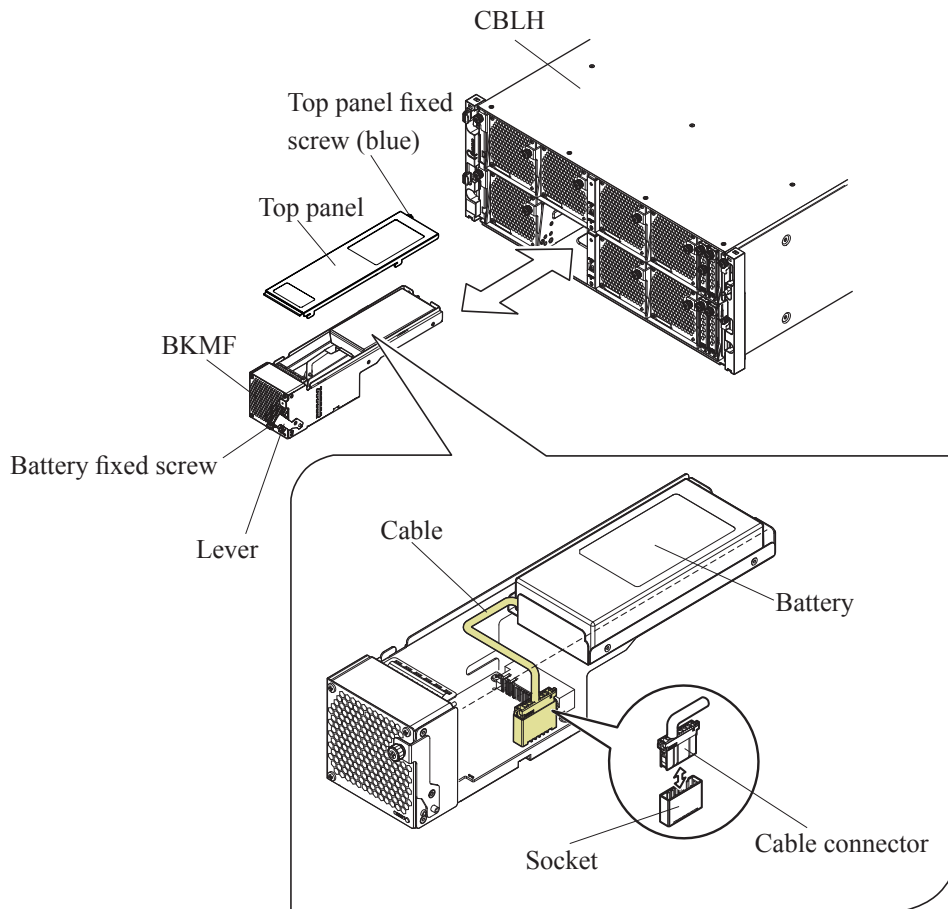


- (a) Loosen the screw (blue) fixing the BKMF whose STATUS LED (red) is blinking.
- (b) Open the lever to pull out and remove the BKMF.
- (c) Loosen the screw (blue) on the rear side of the BKMF.
- (d) Slide the top panel of the BKMF and remove it.

NOTE: When it is difficult to slide the top panel, slide it while pressing the battery downward.

- (e) Hold the latch of the cable connector of the Battery to be replaced and remove the connector from the socket.
- (f) Remove the Battery to be replaced.

Figure 2-97 Replacement of Battery



- (g) Install a new Battery in the BKMF and route cables along the groove of the BKMF.

NOTE : When replacing the battery of the BKMF, route cables with careful attention to the bending condition.

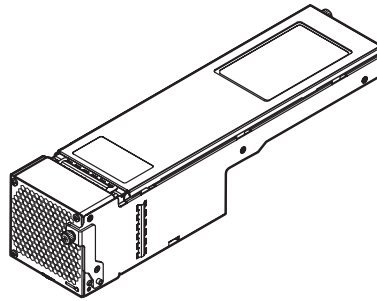
- (h) Connect the cable connector to the socket.

NOTE : Check that the connector latch is surely connected with a click.

- (i) Slide the top panel of the BKMF and attach it.

- (j) Tighten the screw (blue) on the rear side of the new BKMF.

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

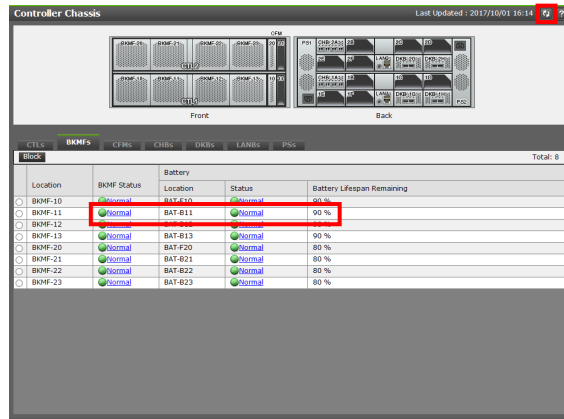


- (k) With the lever of the new BKMF opened, insert the BKMF into the slot.
- (l) Close the lever of the BKMF and tighten the screw (blue).
- (m) Discard the replaced batteries.
Discard the batteries appropriately according to the law of the Storage System use place (refer to [“3. Processing Method of Batteries”](#)).

5. Restoring replacement parts by Maintenance Utility

(1) <Check replacement parts restoration>

Click the refresh button on the upper right of the window to update the window, and then check that the status of the replaced BKMF is “Normal”.



(2) Click the [Logout] button to close the window.

6. Check that the STATUS LED (green) on the replaced BKMF is blinking or lights up.

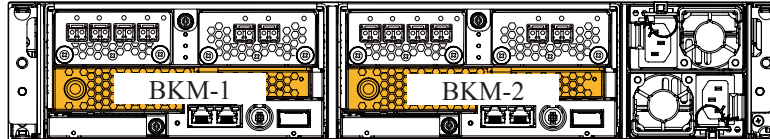
7. Attach the Front Bezel. (Refer to [“2.2.1 How to Attach/Remove Front Bezel”](#).)

8. Disconnecting the maintenance PC and the Storage System.
Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.8.3 Replacement of a Battery for BKM (Factory and distribution center only)

1. Battery Replacement Processing

Location	Function Name of Component		Part Name
Rear view of CBSS/CBSL	1	Battery	Battery



Rear view of CBSS/CBSL

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 ["1.1.3 Note on Installing and Removing Parts"](#).

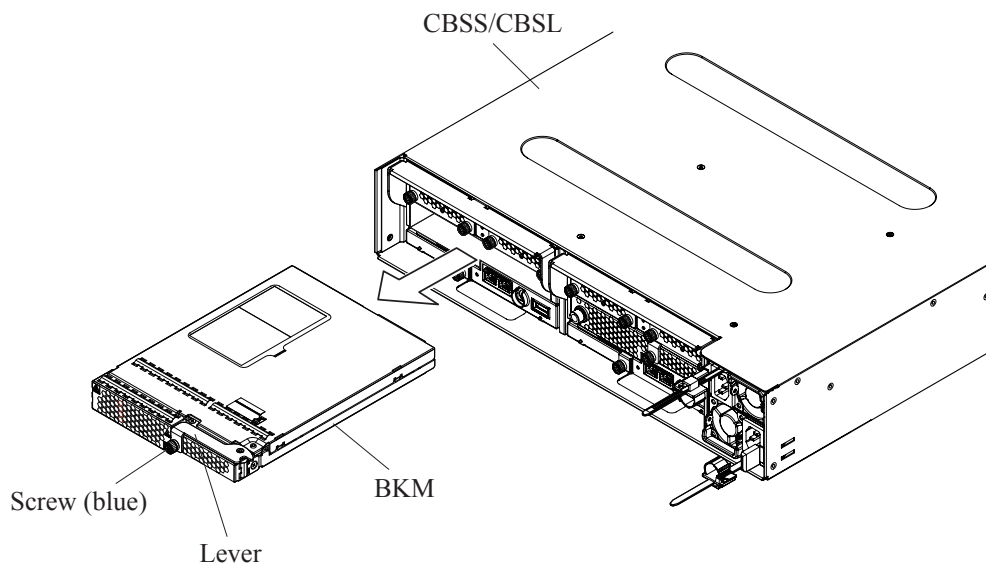
- (1) Replace the Battery.

 CAUTION

Use only with designated Battery.
May cause overheating, fire or bursting.

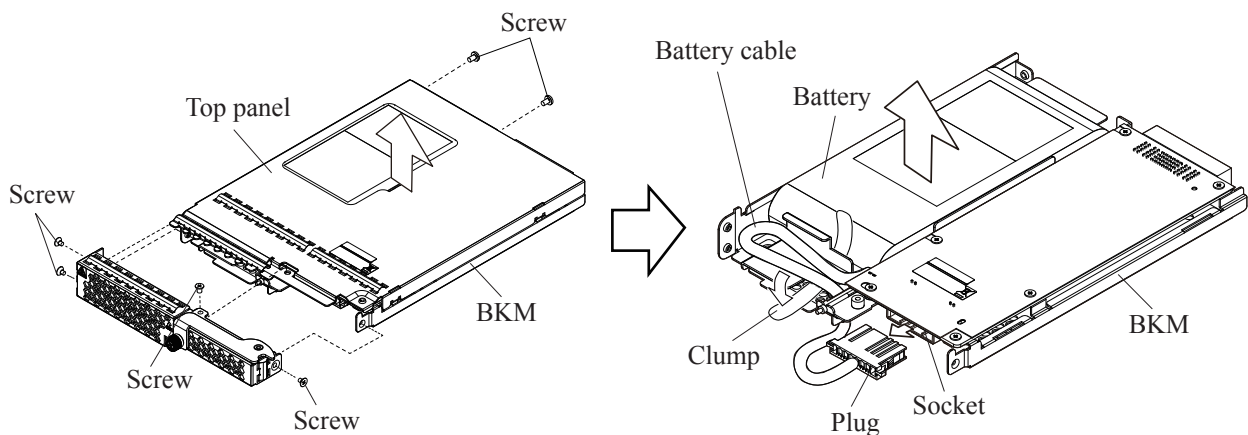
- (a) Loosen the screw (blue) fixing the BKM.
- (b) Open the lever.
- (c) Pull out and remove the BKM while holding its body with both hands.

Figure 2-98 Replacement of BKM



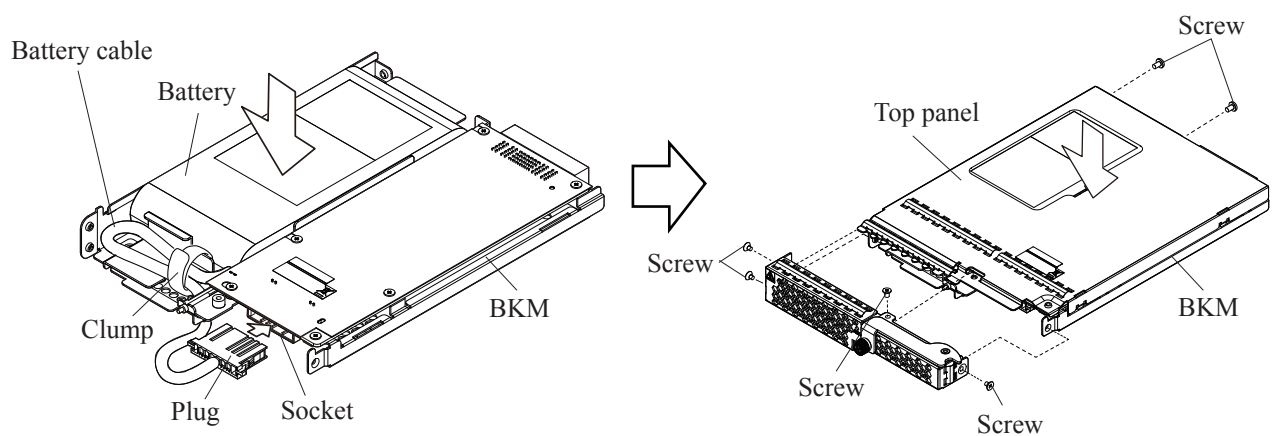
- (d) Remove the screws (four places) on the front of the BKM and remove the front panel.
- (e) Remove the screws (two places) on the rear of the BKM and remove the top panel.
- (f) Open the clamp bundling the battery cable.
- (g) Pull the plug of the battery cable out of the socket.
- (h) Remove the battery.

Figure 2-99 Removing Batteries



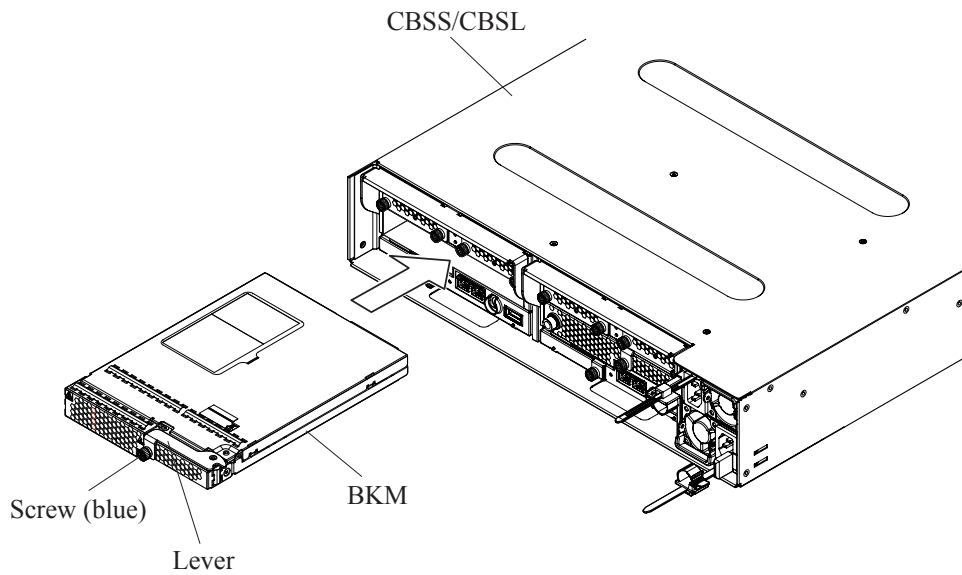
- (i) Install a new Battery in the BKM.
- (j) Insert the plug of the battery cable into a socket.
- (k) Route the battery cable as it was and bundle it with a clamp.
- (l) Attach the top panel and tighten the screws (two places) on the rear of the BKM to fix.
- (m) Attach the front panel on the front of the BKM and tighten the screws (four places) to fix.

Figure 2-100 Attachment of Battery



- (n) Open the BKM lever and insert the BKM into the slot.
- (o) Push the BKM all the way in.
- (p) Close the lever and tighten the screw (blue) to fix the BKM.

Figure 2-101 Attachment of BKM



- (2) Discard the replaced batteries.
Discard the batteries appropriately according to the law of the Storage System use place (refer to [“3. Processing Method of Batteries”](#)).

2.8.4 Replacing a Battery for CBXSS/CBXSL

NOTE: The Controller Board is blocked by this maintenance work. Check that the alternate path of the path that uses the Channel in the Controller Board is set for the Channel in the other Controller Board. If the alternate path is not set, it is necessary to set the alternate path or stop host I/O. Consult with the customer and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Battery on the Controller Board 1, connect the maintenance PC and the Controller Board 2.

When replacing the Battery on the Controller Board 2, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

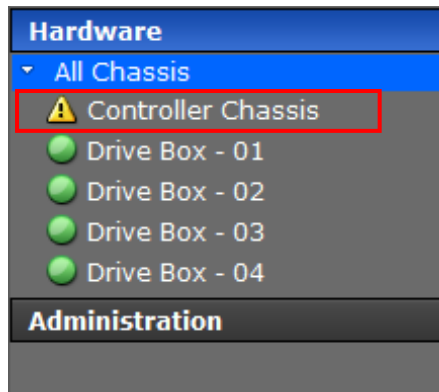
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

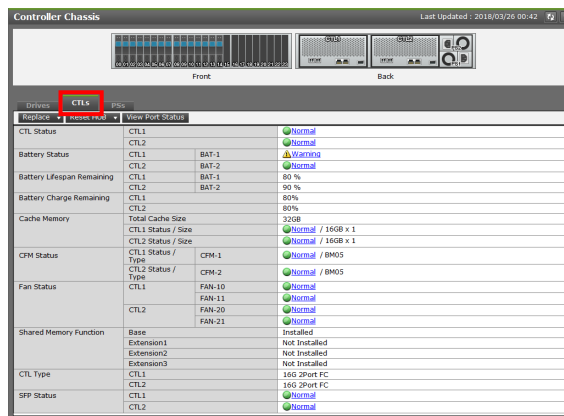


(2) <Controller Chassis window>

Click the [CTLs] tab in the “Controller Chassis” window and display the Battery status.

See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

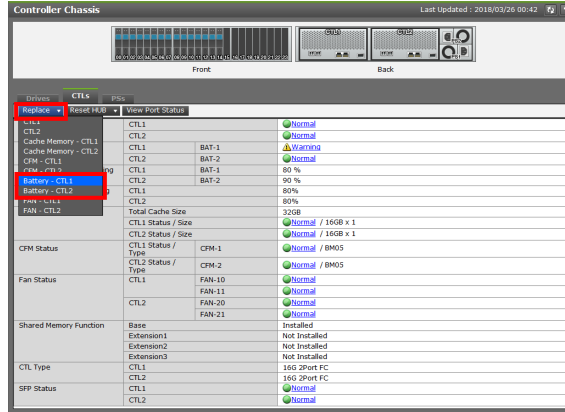
Example: In case of CBXSS



(3) <Select Battery-CTL>

Click the [Replace] button and select a controller board in which a battery to be replaced is installed.

Example: In case of CBXSS



(4) <Block Controller Board>

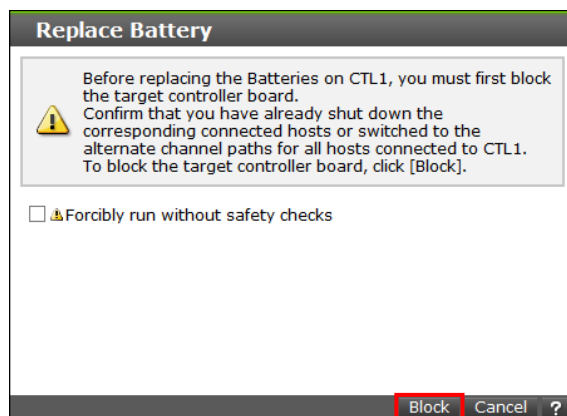
⚠ CAUTION

About “Forcibly run without safety checks”:

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see [“1.1.11 Note on Deleting Remote Paths”](#).

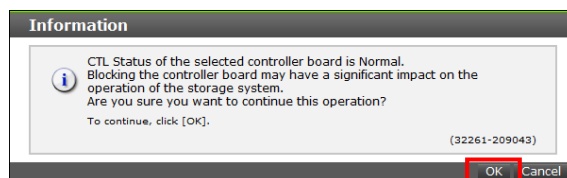
This checkbox is displayed only when Maintenance Utility is started from the “Web Console” window or the “MPC” window.

Check that the Controller Board has the Battery to be replaced, and then click the [Block] button. If a message other than the described is displayed, refer to “Device Manager-Storage Navigator Messages”.



(5) <Check Controller Board>

Check that the Controller Board to replace the Battery is correct again and click the [OK] button.

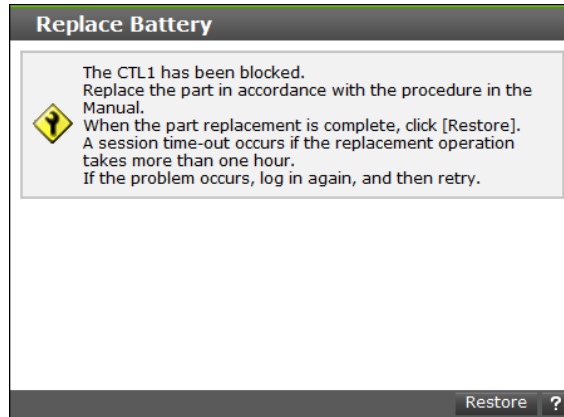


(6) <Check the beginning of Battery replacement>

Block the Controller Board and check that the replacement is ready to start.

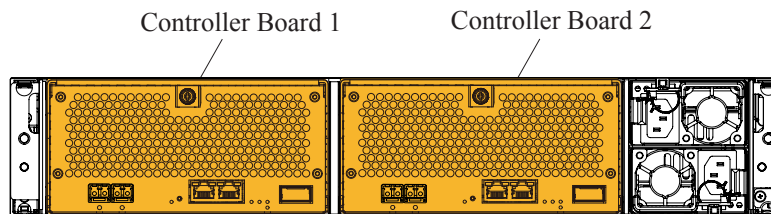
NOTE: Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. Battery Replacement Processing for CBXSS/CBXSL

Location	Function Name of Component	Part Name
Rear View of CBXSS/CBXSL	1 Battery	BAT

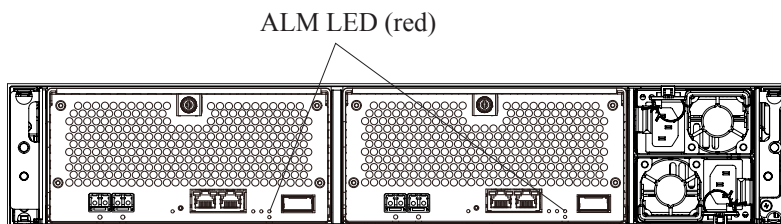


Rear view of CBXSS/CBXSL

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 [“1.1.3 Note on Installing and Removing Parts”](#).

- (1) Check that the ALM LED (red) on the CBXSS/CBXSL Controller Board to be removed lights up.

Figure 2-102 ALM LED Position



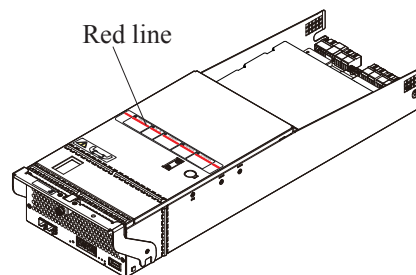
Controller Board

- (2) Remove all the cables connected to the Controller Board.
Remove the cables from the channel ports with care so as not to damage the cables (see [“1.1.12 Notes on Removing Optical Cables”](#)).

- (3) Remove the Controller Board from the CBXSS/CBXSL.
 - (a) Loosen the screw (blue) which fixes the Controller Board (①) and open the lever to pull out (②).
 - (b) Pull out and remove the Controller Board while holding its body with both hands.

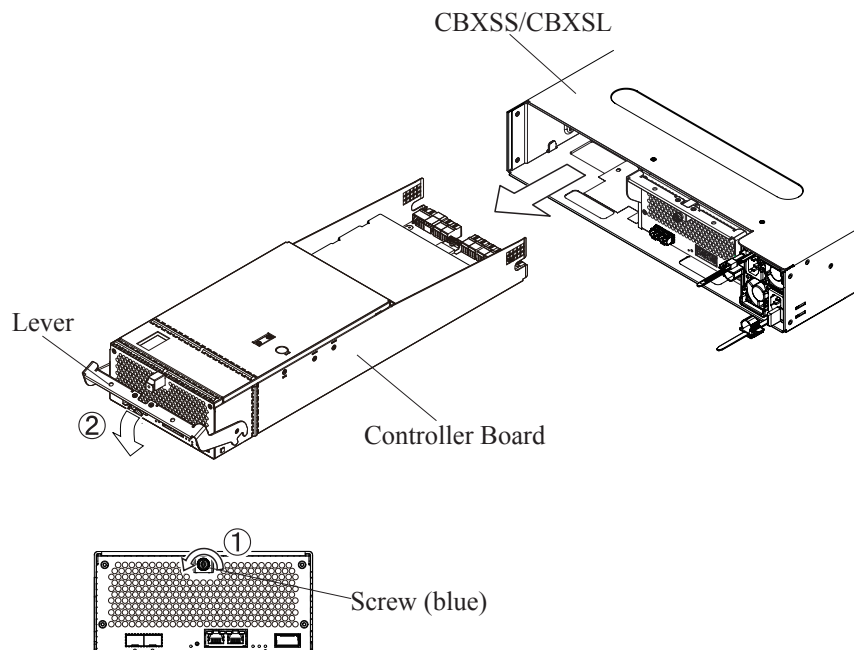
 **CAUTION**

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.



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

Figure 2-103 Removal of Controller Board (CBXSS/CBXSL)



NOTICE: After removing the Controller Board, the LEDs (POWER/READY/WARNING/ALARM) might go out.

If the LED on the front goes out, check that anything other than the Controller Board is normal in the "Maintenance Utility" window and continue the replacement.

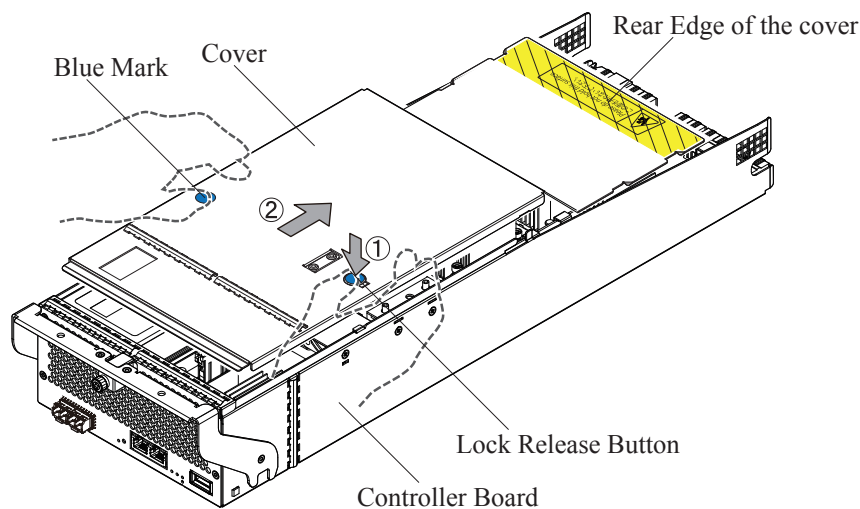
The READY LED (green) on the front of CBXSS/CBXSL lights up after performing "5. Restoring replacement parts by Maintenance Utility" of the "2.8.4".

- (4) While pressing the lock release button on the cover (①), slide the cover in the direction of the arrow (②) with your hands on the blue marks.

CAUTION

When attaching or removing the cover, be careful not to hold the rear edge of the cover (hatched area in the figure below). Otherwise, you might get your fingers pinched.

Figure 2-104 Removal of Cover



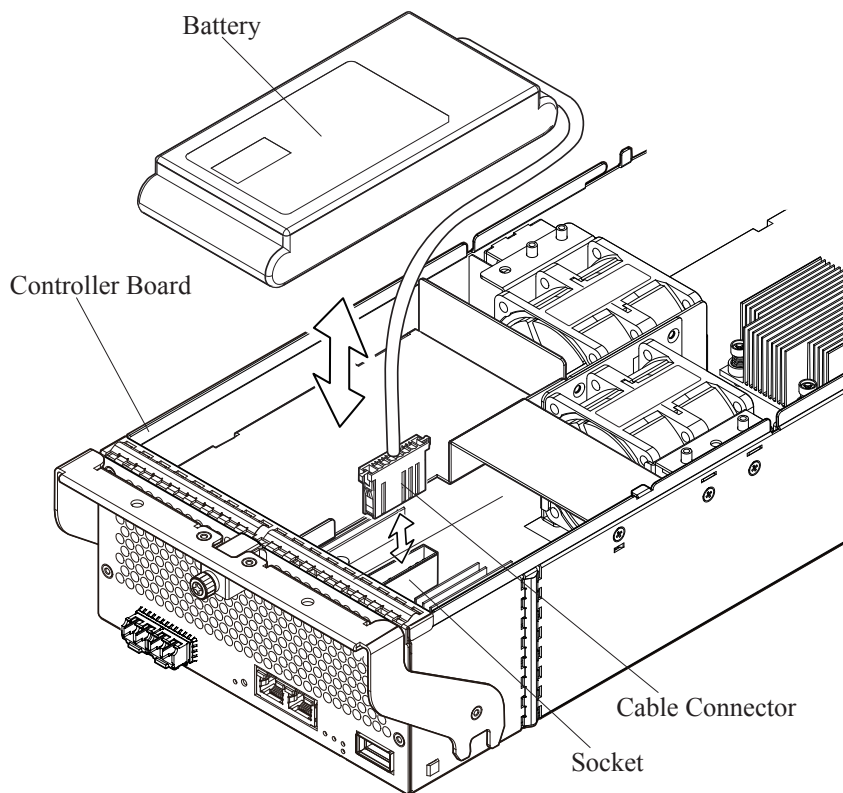
- (5) Replace the battery.
 - (a) While holding the latch of the cable connector of the failed battery mounted in the Controller Board, pull out the cable from the socket.
 - (b) Remove the battery.
 - (c) Install the new battery into the Controller Board and route the cable along the groove of the Controller Board.

NOTE: Route the cable with careful attention to the bending condition.

- (d) Insert the cable connector into the socket.

NOTE: Make sure to firmly insert the cable connector until the latch clicks.

Figure 2-105 Replacing the Battery



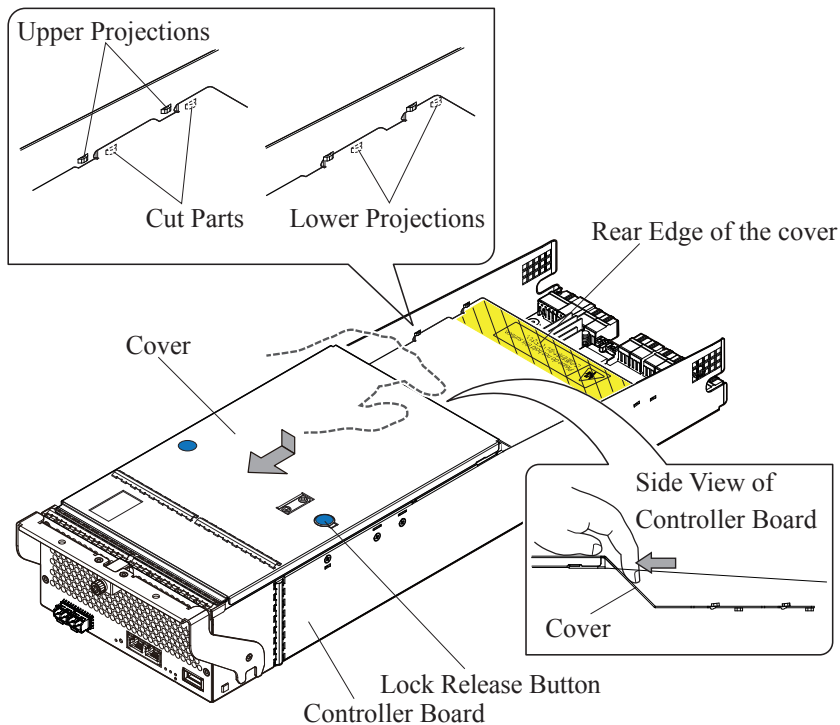
- (6) Attach the cover to the Controller Board with the upper projections of the Controller Board placed on the cut parts of the cover. Push the cover in the arrow direction, and slide it until locked.

NOTE: Make sure to firmly attach the cover until the lock release button clicks.

⚠ CAUTION

When attaching or removing the cover, be careful not to hold the rear edge of the cover (hatched area in the figure below). Otherwise, you might get your fingers pinched.

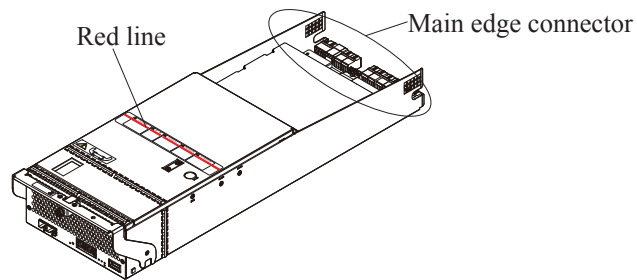
Figure 2-106 Installation of Cover



(7) Install a Controller Board.

 **CAUTION**

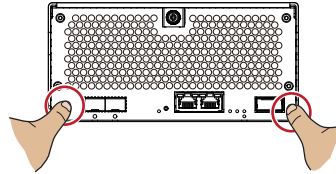
Dropping the Controller Board might cause injury. Hold the Controller Board firmly with your hands.



- NOTICE:**
- Check that the main edge connector of the Controller Board has no deformation, damage or sticking of dust before installing the Controller Board.
 - When installing the Controller Board, hold it with both hands and install it straight not to apply a shock to with any components.

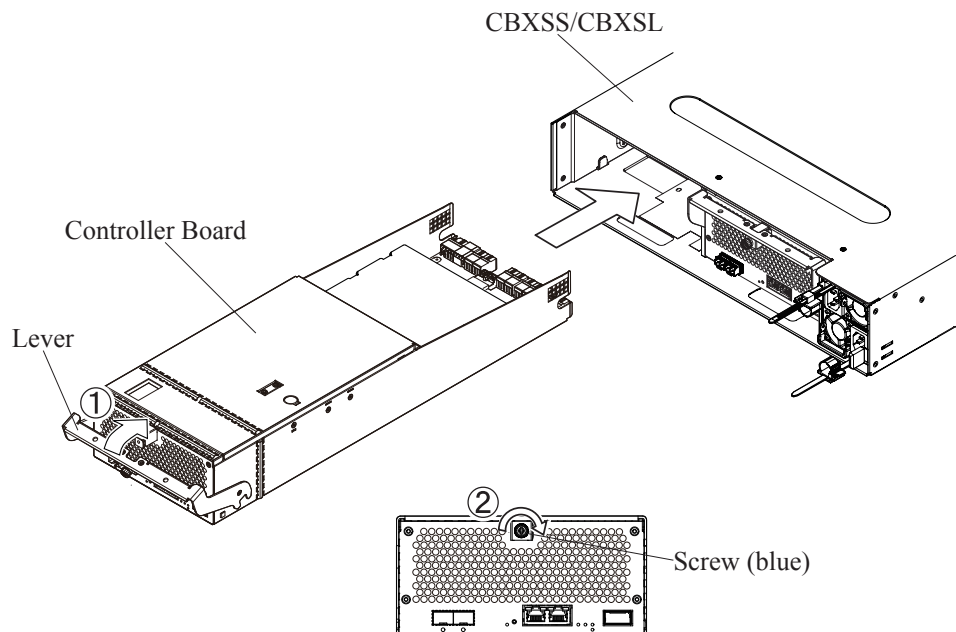
- (a) With the lever on the Controller Board opened completely, insert it into the slot of the CBXSS/CBXSL.
- (b) Push the Controller Board all the way in and close the lever completely.

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



- (c) Tighten the screw (blue) and fix the Controller Board.

Figure 2-107 Installation of Controller Board (CBXSS/CBXSL)

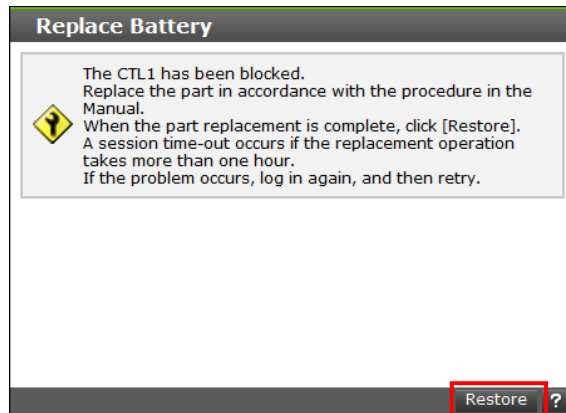


- (8) Connect all the removed cables to the Controller Board.
When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to INSTALLATION SECTION [“2.10.2.1 Precautions when Connecting SAS Cables”](#)).

5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

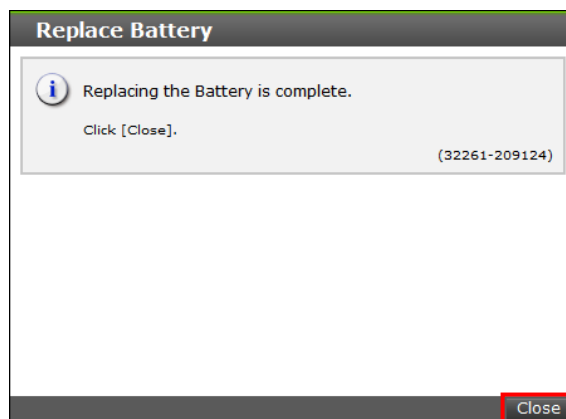
Click the [Restore] button.



(2) <Check replacement parts Restoration>

Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



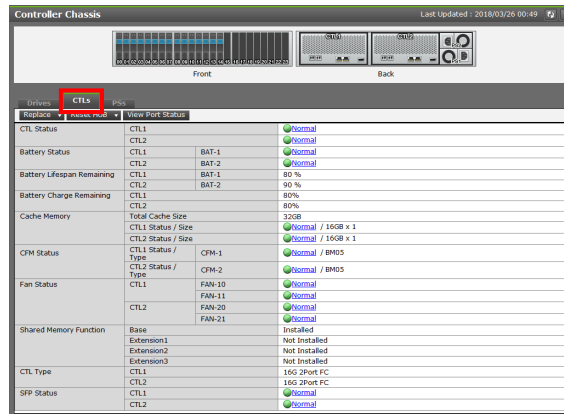
NOTE: It may take a few minutes to be able to connect to GUM of the replaced Controller Board.

When executing Auto Dump, check that the connection to GUM of the replaced Controller Board is possible, and then execute it.

(3) <Controller Chassis window>

Click the [CTLs] tab in the “Controller Chassis” window and check that a Status of the replaced Battery is “Normal”.

Example: In case of CBXSS



(4) Click the [Logout] button to close the window.

-
6. Disconnecting the maintenance PC and the Storage System.
Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “2.8.3 Disconnecting the Maintenance PC from the Storage System”.

2.9 Replacing/Preventive Replacement of a BKM

2.9.1 Replacing a BKM

This work is only required for the CBSS/CBSL.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the BKM, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

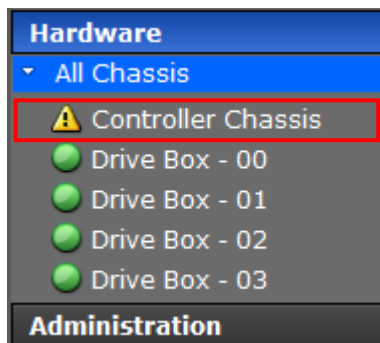
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

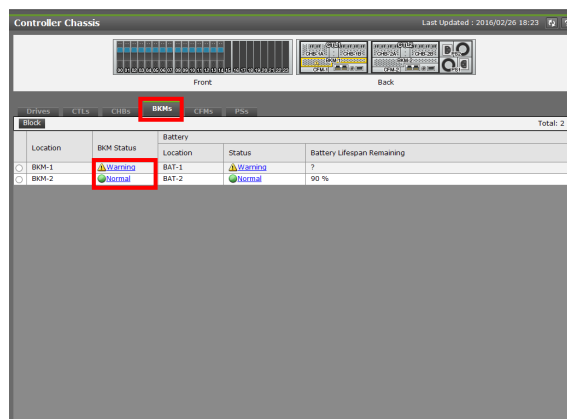


(2) <Controller Chassis window>

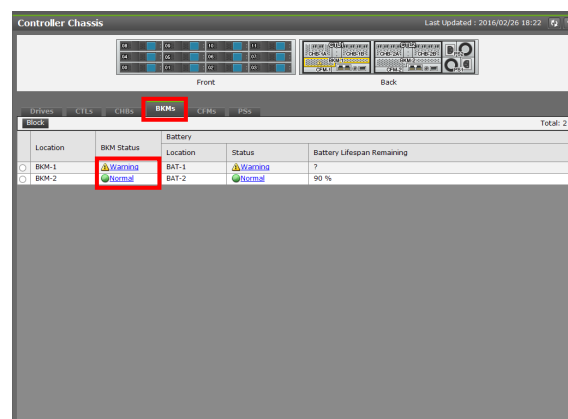
Click the [BKM] tab in the “Controller Chassis” window to check that the status of the BKMF to be replaced is “Warning”. See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

NOTE: Do not click the [Block] button.

• In case of CBSS



• In case of CBSL

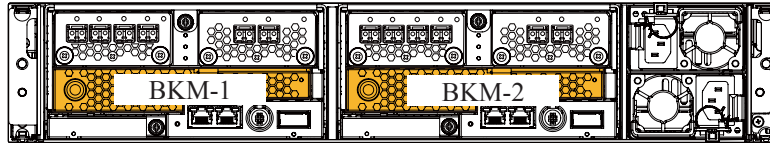


NOTE: When “Warning” is displayed in the “BKM Status”, “?” is displayed for the “Battery Lifespan Remaining” of the batteries.

In this case, resolve “Warning” in “BKM Status” to return “?” to a numeral value display.

4. BKM Replacement Processing

Location	Function Name of Component		Part Name
Rear view of CBSS/CBSL	1	BKM	BKM

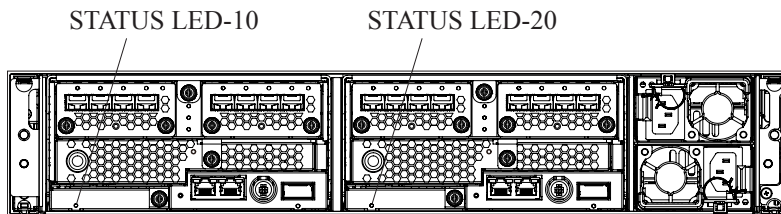


Rear view of CBSS/CBSL

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 ["1.1.3 Note on Installing and Removing Parts"](#).

- (1) Check that the STATUS LED (red) on the CBSS/CBSL BKM to be replaced lights up.

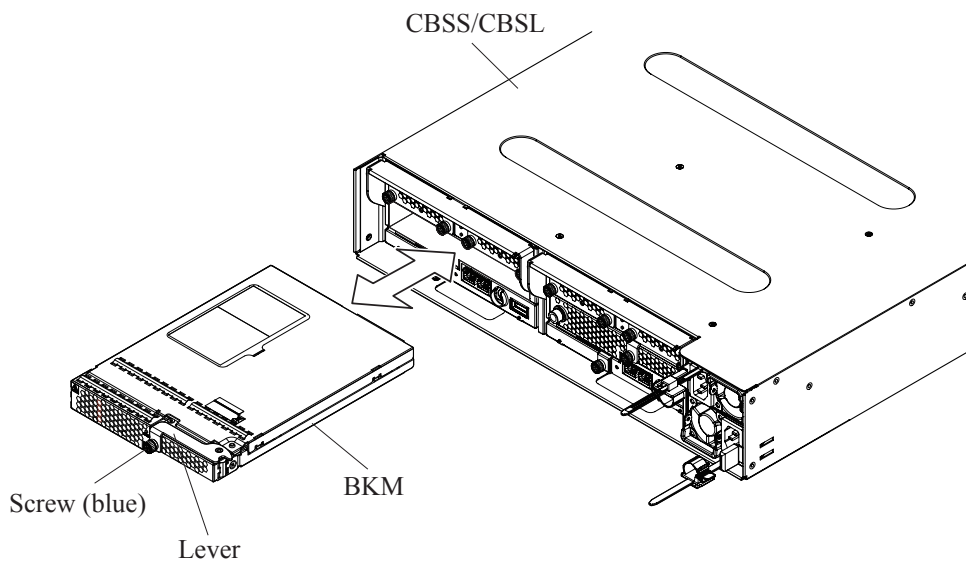
Figure 2-108 STATUS LED Location (BKM)



BKM

- (2) Replace the BKM.
 - (a) Loosen the screw (blue) fixing the BKM whose STATUS LED (red) lights up.
 - (b) Open the lever.
 - (c) Pull out and remove the BKM while holding its body with both hands.
 - (d) With the lever opened completely, insert the BKM into the slot.
 - (e) Push the BKM all the way in.
 - (f) Close the lever completely and tighten the screw (blue) to fix the BKM.

Figure 2-109 Replacement of BKM



- (3) Check that the STATUS LED (green) on the replaced BKM is blinking.

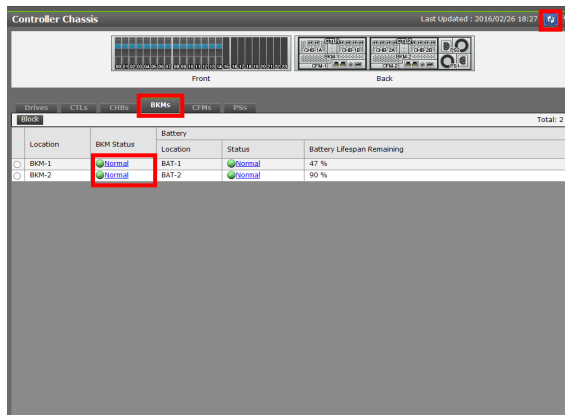
5. Restoring replacement parts by Maintenance Utility

(1) <Check BKM restoration>

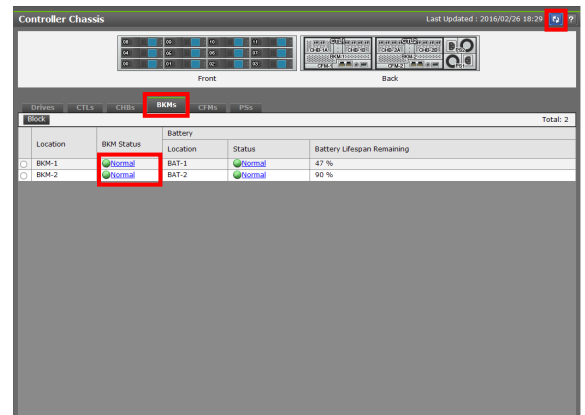
Click the [BKMs] tab in the “Controller Chassis” window and check that a Status of the replaced BKM is “Normal”.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.

• In case of CBSS



• In case of CBSL



(2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “[2.8.3 Disconnecting the Maintenance PC from the Storage System](#)”.

2.9.2 Preventive Replacement of a BKM

This work is only required for the CBSS/CBSL.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the BKM, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

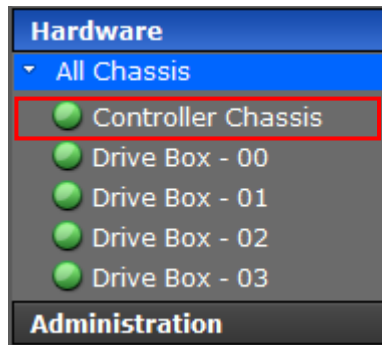
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

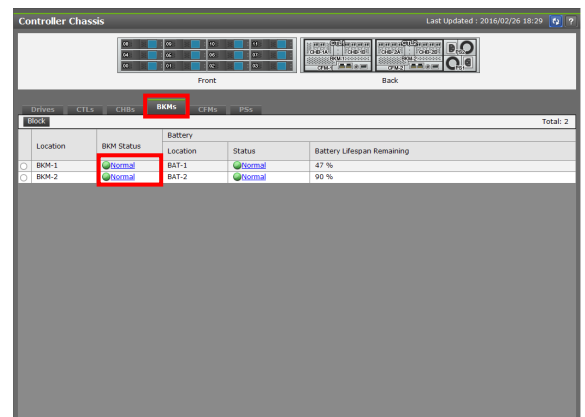
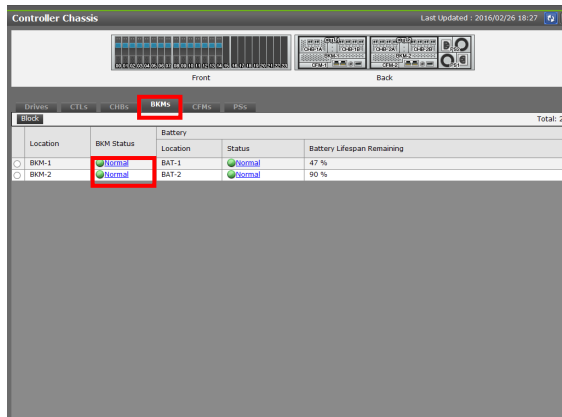


(2) <Controller Chassis window>

Click the [BKM] tab in the "Controller Chassis" window select BKM in to perform the preventive replacement and click the [Block] button.

• In case of CBSS

• In case of CBSL



(3) <Block Controller Board>

⚠ CAUTION

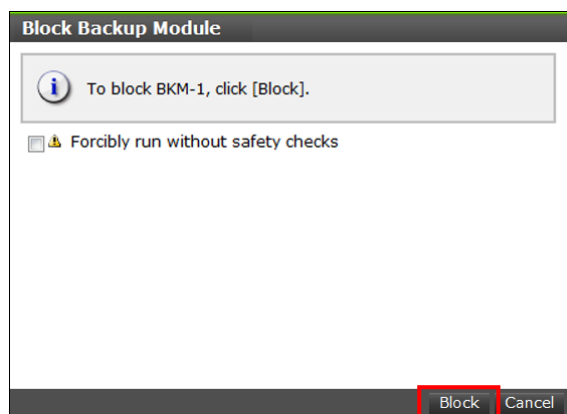
About “Forcibly run without safety checks”:

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. This checkbox is displayed only when Maintenance Utility is started from the “Web Console” window or the “MPC” window.

Check that the BKM to be replaced, and then click the [Block] button.

If a message other than the described is displayed, refer to “Device Manager-Storage Navigator Messages”.

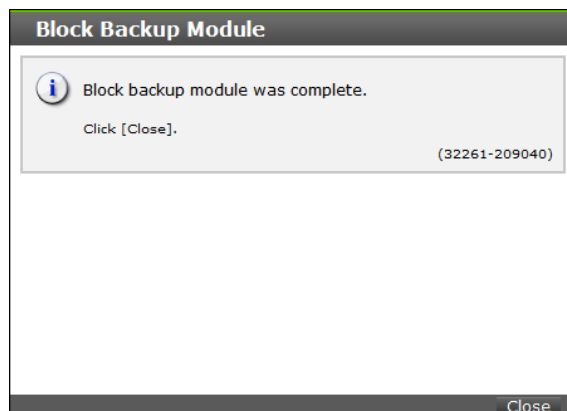
NOTE : The error list window is displayed if multiple errors are detected by the prior check. If it is displayed, click the test of “Error Code” and recover the failures or the blockade in accordance with the details of the displayed errors.



(4) <Check the beginning of Battery replacement>

Check that the BKM is blocked and the following message is displayed.

When a message other than the following is displayed, refer to “Device Manager-Storage Navigator Messages”.

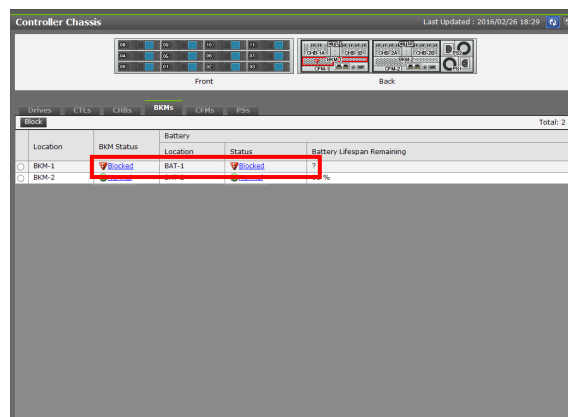
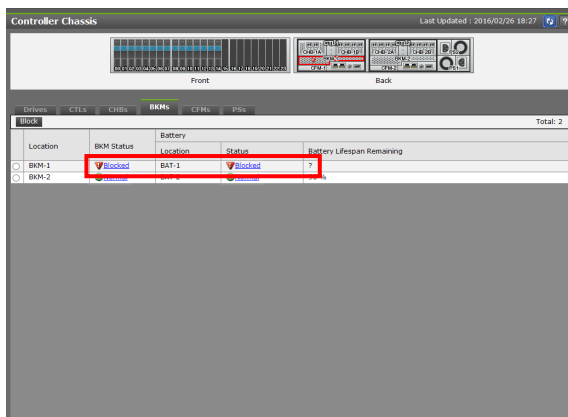


(5) <Check the Blocked status>

Click the [Close] button and check that the status of the blocked BKM is “Blocked”.

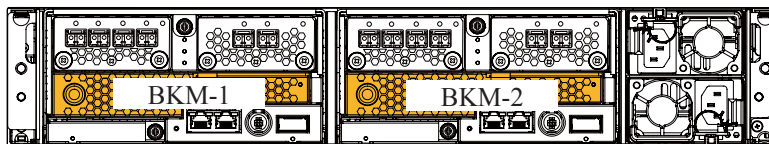
• In case of CBSS

• In case of CBSL



4. BKM Replacement Processing

Location	Function Name of Component		Part Name
Rear view of CBSS/CBSL	1	BKM	BKM

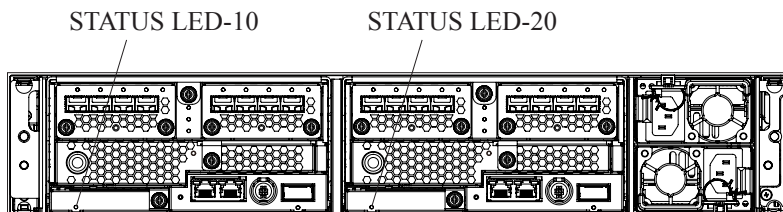


Rear view of CBSS/CBSL

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 “1.1.3 Note on Installing and Removing Parts”.

(1) Check that the STATUS LED (red) on the CBSS/CBSL BKM to be replaced lights up.

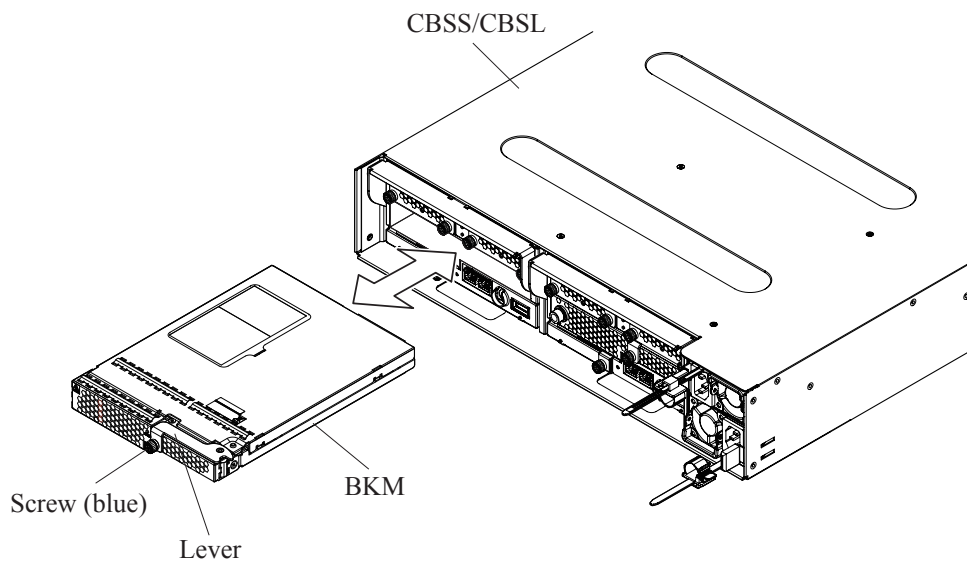
Figure 2-110 STATUS LED Location (BKM)



BKM

- (2) Replace the BKM.
 - (a) Loosen the screw (blue) fixing the BKM whose STATUS LED (red) lights up.
 - (b) Open the lever.
 - (c) Pull out and remove the BKM while holding its body with both hands.
 - (d) With the lever of the new BKM opened completely, insert the BKM into the slot.
 - (e) Push the BKM all the way in.
 - (f) Close the lever completely and tighten the screw (blue) to fix the BKM.

Figure 2-111 Replacement of BKM



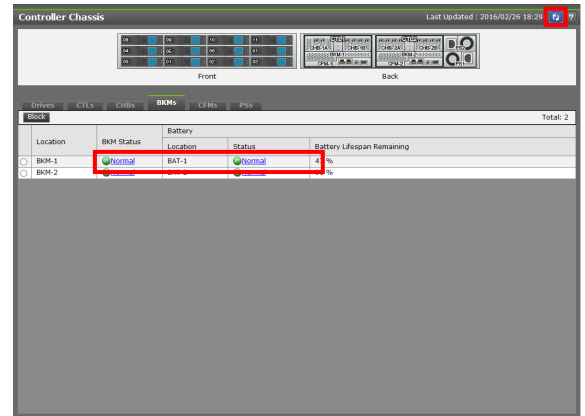
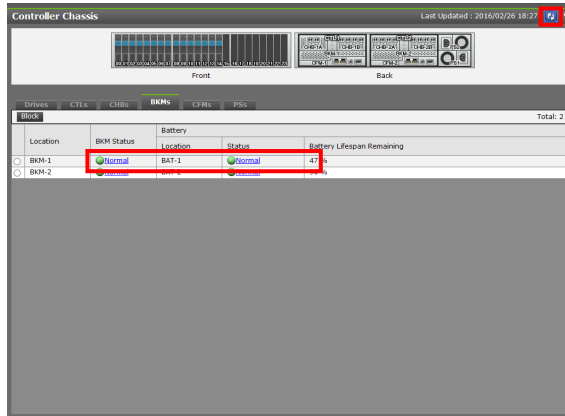
5. Restoring replacement parts by Maintenance Utility

(1) <Check replacement parts restoration>

Click the refresh button on the upper right of the window to update the window, and then check that the status of the replaced BKM is “Normal”.

• In case of CBSS

• In case of CBSL



(2) Click the [Logout] button to close the window.

6. Check that the STATUS LED (green) on the replaced BKMF is blinking or lights up.

7. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “[2.8.3 Disconnecting the Maintenance PC from the Storage System](#)”.

2.10 Replacing a Cache Flash Memory (CFM)

The window and the procedure differ between the CBXSS/CBXSL, the CBSS/CBSL and the CBLH.

- When replacing the Cache Flash Memory of the CBXSS/CBXSL
[“2.10.3 Replacing a Cache Flash Memory for CBXSS/CBXSL”](#)
- When replacing the Cache Flash Memory of the CBSS/CBSL
[“2.10.1 Replacing a Cache Flash Memory for CBSS/CBSL”](#)
- When replacing the Cache Flash Memory of the CBLH
[“2.10.2 Replacing a Cache Flash Memory for CBLH”](#)

NOTE: After a CFM is replaced in either of CTL1 or CTL2, the firmware file is automatically copied from a CFM in the other CTL.

If both a CFM in CTL1 and a CFM in CTL2 are replaced, the firmware file is not copied. Refer to TROUBLESHOOTING SECTION [“3.60 Recovery Procedure When CFM Failure Occurs \(SIM = 30750x\)”](#) and perform the firmware update after replacing CFMs.

2.10.1 Replacing a Cache Flash Memory for CBSS/CBSL

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Cache Flash Memory, connect the Maintenance PC and Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

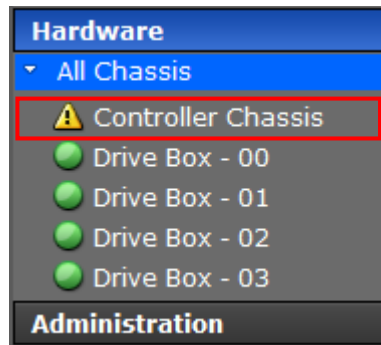
-
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility

(1) <Main window>

Select [Controller Chassis] in the main window.

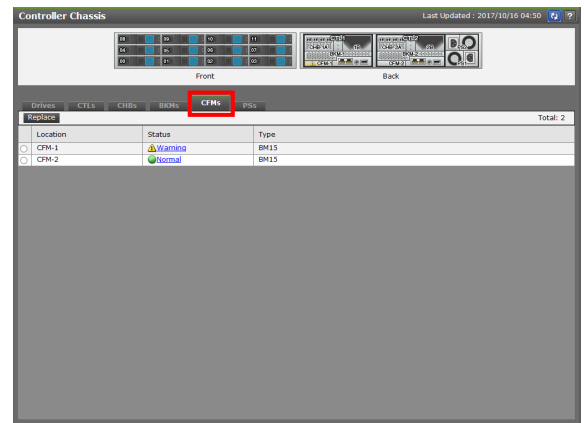
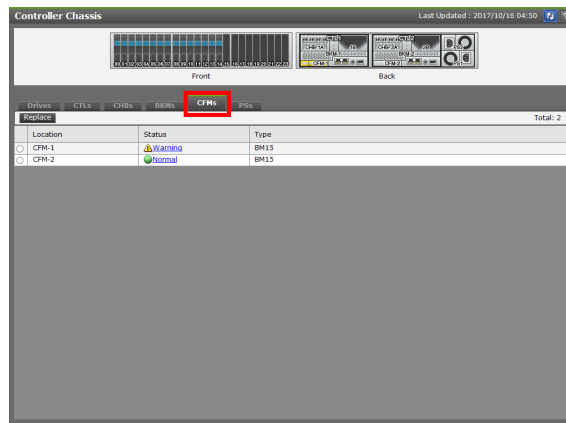


(2) Check the status of Cache Flash Memory

Select the [CFMs] tab and check the status of the Cache Flash Memory on the “Controller Chassis” window. See MAINTENANCE PC SECTION “[3.22 Alert Display Related to FRU \(Field Replacement Unit\)](#)” for the [Status].

• In case of CBSS

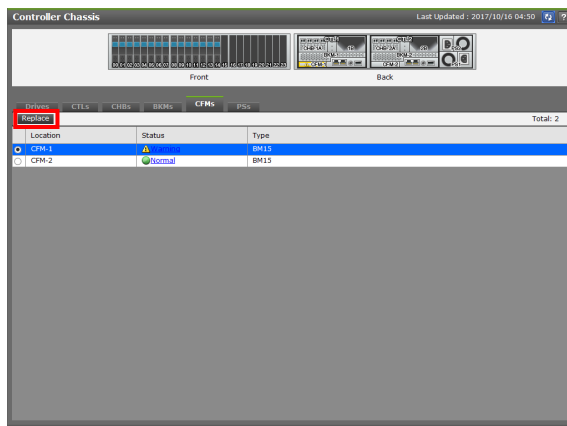
• In case of CBSL



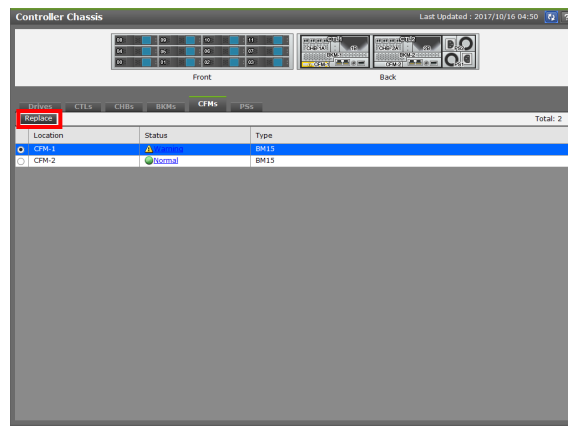
(3) <Select Cache Flash Memory>

Select a Cache Flash Memory to be replaced and click the [Replace] button.

• In case of CBSS



• In case of CBSL



(4) <Block Cache Flash Memory>

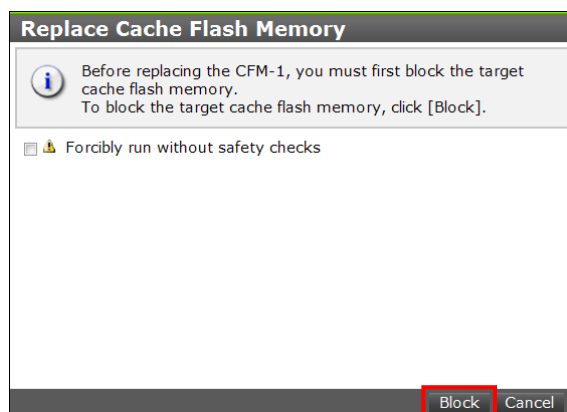
⚠ CAUTION

About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. This checkbox is displayed only when Maintenance Utility is started from the "Web Console" window or the "MPC" window.

Click the [Block] button after checking that the Cache Flash Memory to be replaced is correct. If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".

NOTE : The error list window is displayed if multiple errors are detected by the prior check. If it is displayed, click the test of "Error Code" and recover the failures or the blockade in accordance with the details of the displayed errors.

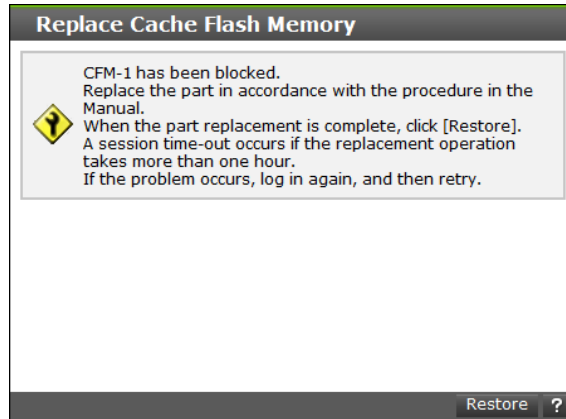


(5) <Check the beginning of Cache Flash Memory replacement>

Check that the Cache Flash Memory is blocked and becomes ready for replacing.

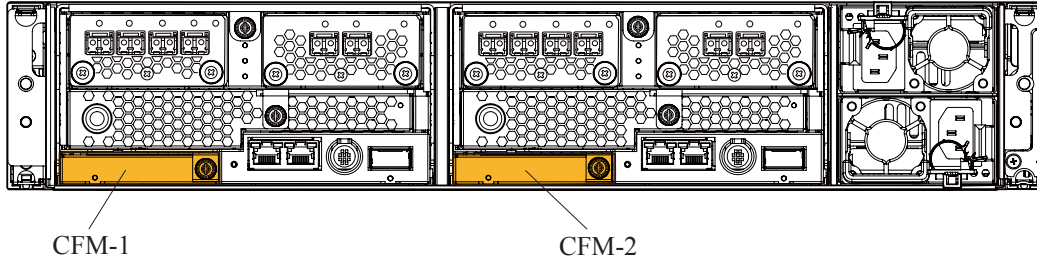
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. CBSS/CBSL Cache Flash Memory Replacement Processing

Location	Function Name of Component	Part Name
Rear View of CBSS/CBSL	1 Cache Flash Memory	• DW-F850-BM15

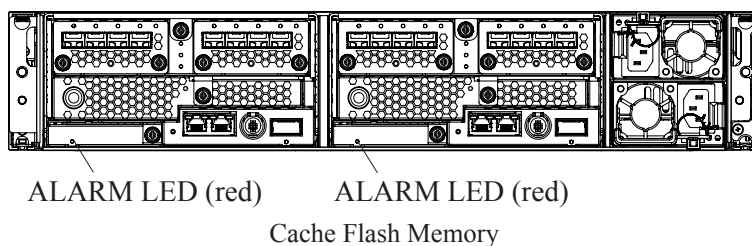


Rear view of CBSS/CBSL

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 [“1.1.3 Note on Installing and Removing Parts”](#).

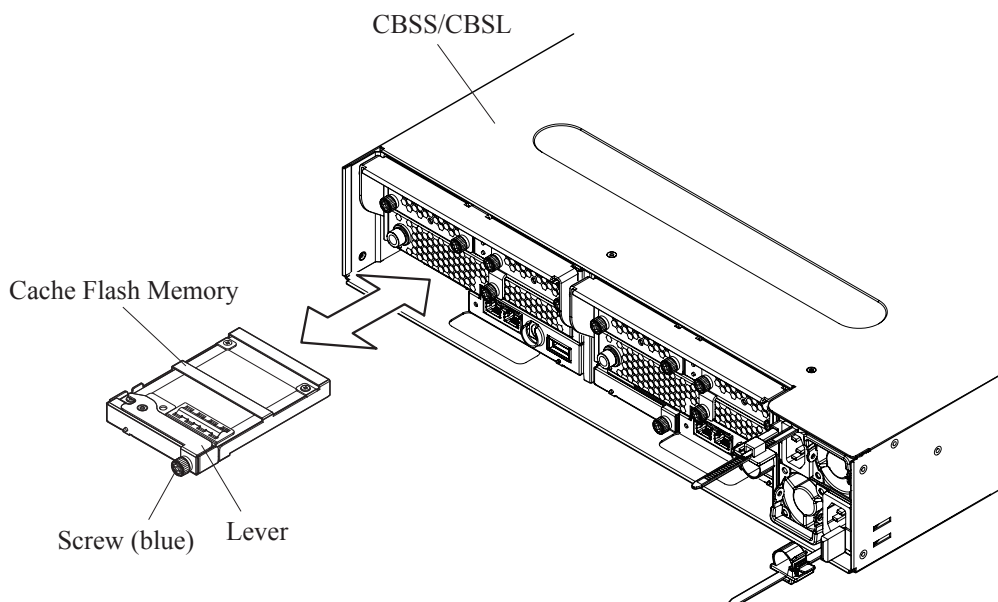
- (1) Check that the ALARM LED (red) on the CBSS/CBSL Cache Flash Memory to be replaced lights up. When the LED does not light up, check the location of the Cache Flash Memory to be replaced in the “Maintenance Utility” window.

Figure 2-112 ALARM LED Position



- (2) Replace the Cache Flash Memory.
 - (a) Loosen the screw (blue) fixing the failed Cache Flash Memory.
 - (b) Open the lever.
 - (c) Pull out and remove the Cache Flash Memory while holding its body with both hands.
 - (d) With the lever opened completely, insert the new Cache Flash Memory into the slot.
 - (e) Push the Cache Flash Memory all the way in.
 - (f) Close the lever completely and tighten the screw (blue) to fix the Cache Flash Memory.

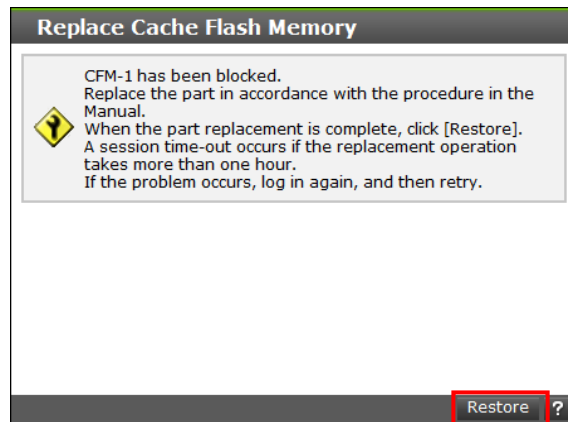
Figure 2-113 Replacement of Cache Flash Memory



5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

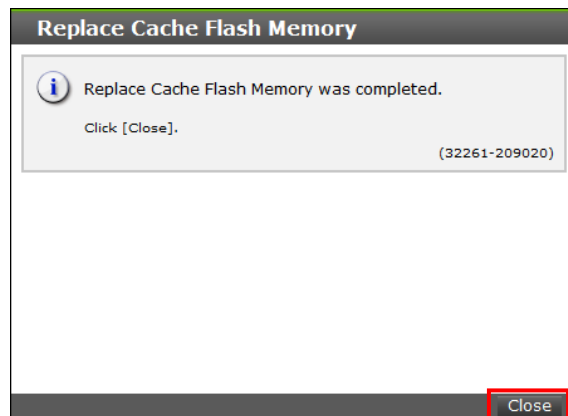
Click the [Restore] button.



(2) <Check replacement parts restoration>

Check that the following message is displayed and click the [Close] button.

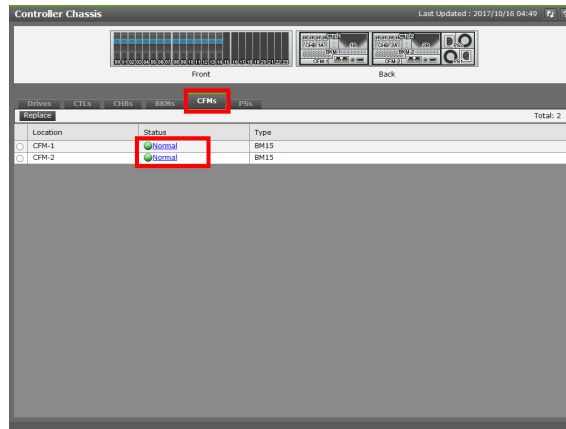
If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



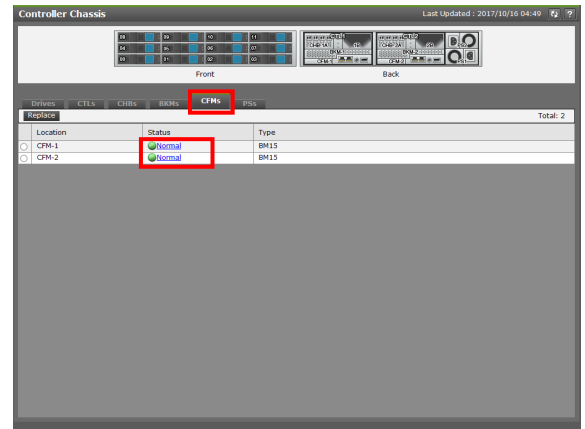
(3) <Check Cache Flash Memory restoration>

Click the [CFMs] tab in the “Controller Chassis” window and check that a Status of the replaced Cache Flash Memory is “Normal”.

• In case of CBSS



• In case of CBSL



(4) Click the [Logout] button to close the window.

(5) <Get the error information>

Collect small system dumps by referring to [“3.27 Acquiring Dumps using Maintenance Utility”](#) in MAINTENANCE PC SECTION.

(6) Refer to the MAINTENANCE PC SECTION [“7.1 Use of OnlineDumpTool”](#), please upload the error information.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.10.2 Replacing a Cache Flash Memory for CBLH

NOTE : • It is necessary to match the type (model name) of CFM-10/20 and CFM-11/21 (addition side).

When adding Cache Memories, check the model name of CFM-10/20 and add the same model.

- When replacing Cache Memories, it is necessary to match the type (model name) defined in the configuration information.

Example: When the configuration information is defined as BM35, replacing to BM45 is impossible.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Cache Flash Memory, connect the Maintenance PC and Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

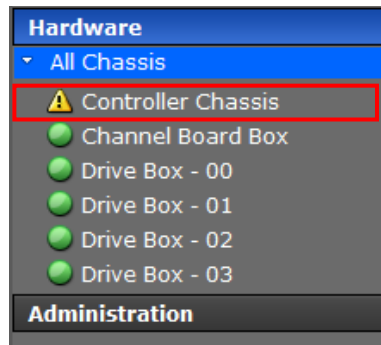
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

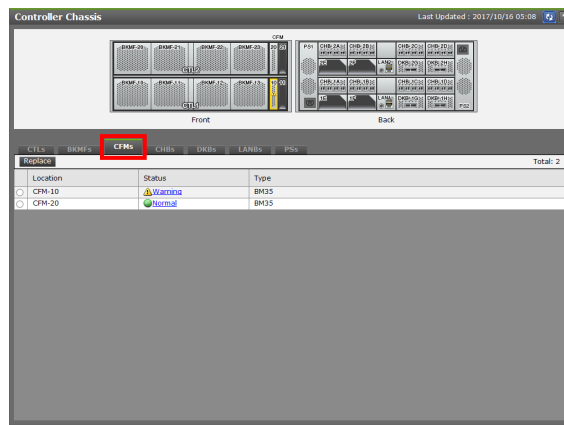
(1) <Main window>

Select [Controller Chassis] in the main window.



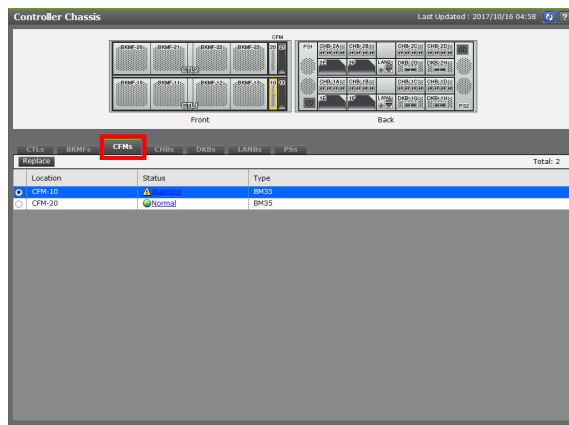
(2) <Controller Chassis window>

Click the [CFMs] tab in the “Controller Chassis” window to display a Cache Flash Memory status. See MAINTENANCE PC SECTION “[3.22 Alert Display Related to FRU \(Field Replacement Unit\)](#)” for the [Status].



(3) <Select CFM>

Select a CFM to be replaced. Click the [Replace] button.



(4) <Block Cache Flash Memory>

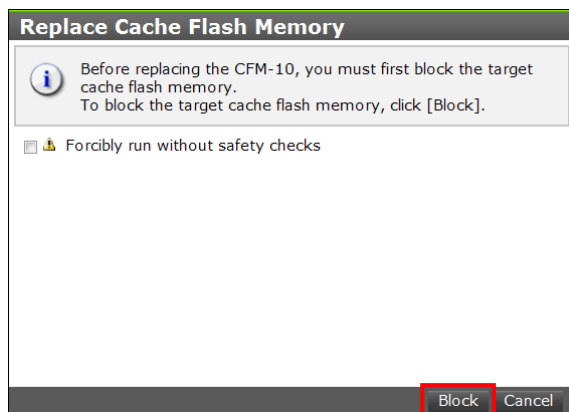
CAUTION

About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. This checkbox is displayed only when Maintenance Utility is started from the "Web Console" window or the "MPC" window.

Click the [Block] button after checking that the Cache Flash Memory to be replaced is correct. If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".

NOTE : The error list window is displayed if multiple errors are detected by the prior check. If it is displayed, click the test of "Error Code" and recover the failures or the blockade in accordance with the details of the displayed errors.

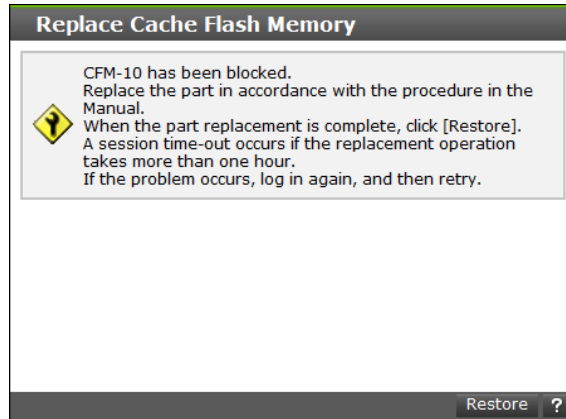


(5) <Check the beginning of Cache Flash Memory replacement>

Check that the Cache Flash Memory is blocked and becomes ready for replacing.

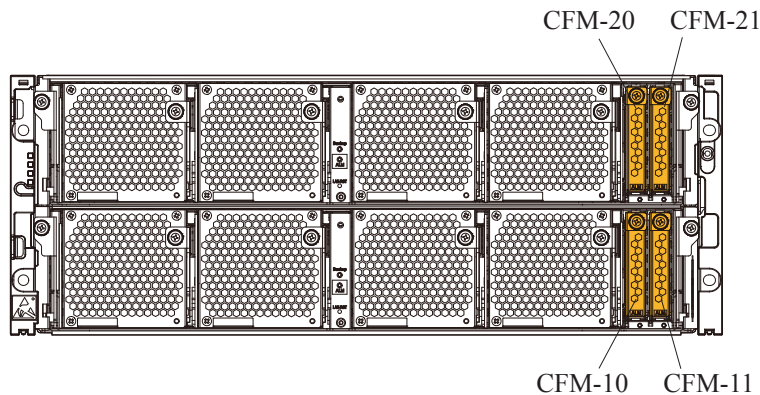
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. Cache Flash Memory for CBLH Replacement Processing

Location	Function Name of Component	Part Name
Front View of CBLH	1 Cache Flash Memory	<ul style="list-style-type: none"> • DW-F850-BM35 • DW-F850-BM45

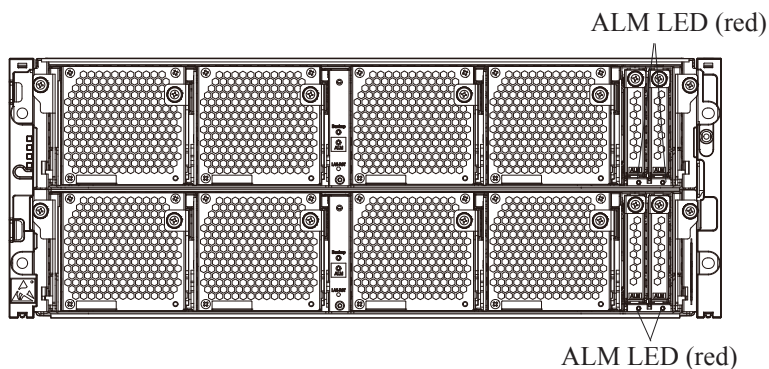


Front view of CBLH

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. See ["1.1.3 Note on Installing and Removing Parts"](#).

- (1) Check that the ALM LED (red) on the CBLH Cache Flash Memory to be replaced lights up. When the LED does not light up, check the location of the Cache Flash Memory to be replaced in the "Maintenance Utility" window.

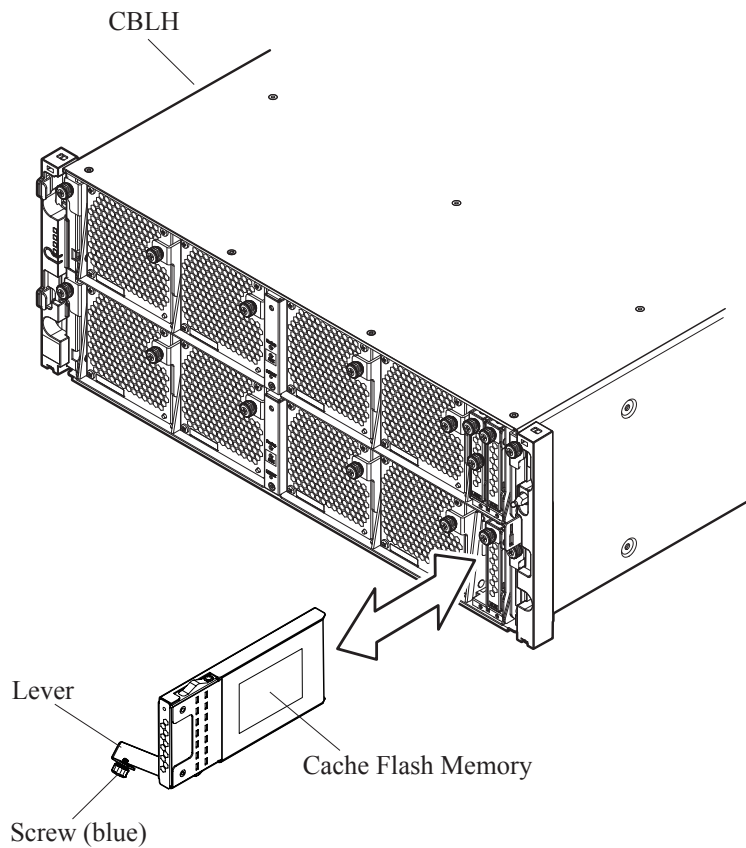
Figure 2-114 ALM LED Location



Cache Flash Memory

- (2) Replace the Cache Flash Memory.
 - (a) Loosen the screw (blue) fixing the failed Cache Flash Memory.
 - (b) Open the lever.
 - (c) Pull out and remove the Cache Flash Memory while holding its body with both hands.
 - (d) With the lever opened completely, insert the new Cache Flash Memory into the slot.
 - (e) Push the Cache Flash Memory all the way in.
 - (f) Close the lever completely.
 - (g) Tighten the screw (blue) to fix the Cache Flash Memory.

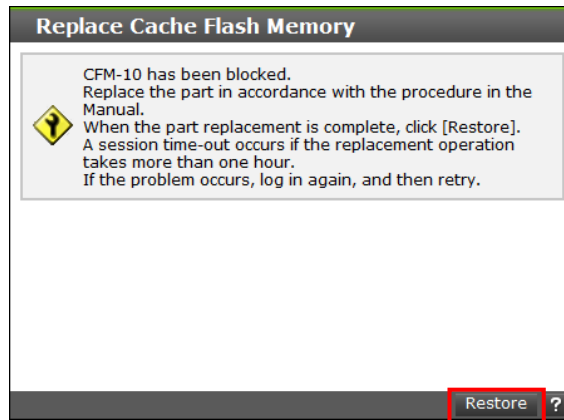
Figure 2-115 Replacement of Cache Flash Memory



5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

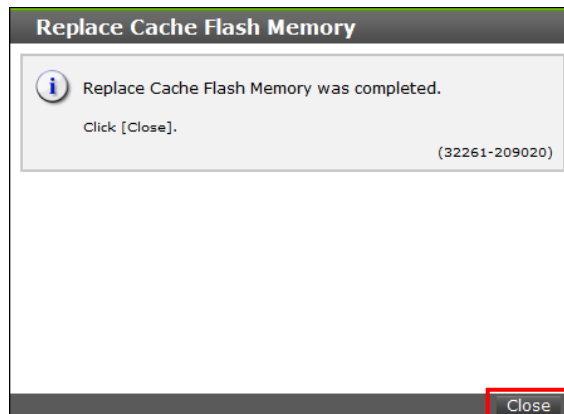
Click the [Restore] button.



(2) <Check replacement parts restoration>

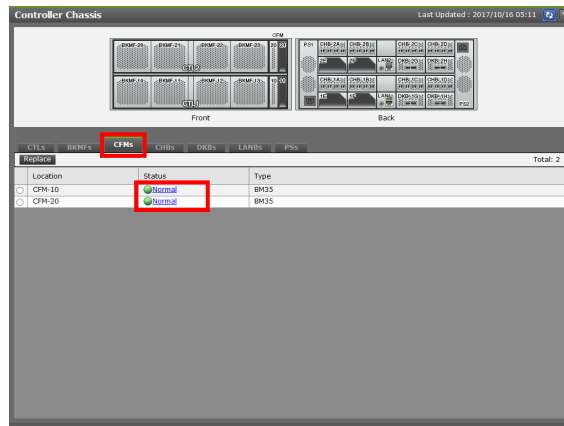
Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



(3) <Check Cache Flash Memory restoration>

Click the [CFMs] tab in the “Controller Chassis” window and check that a Status of the replaced Cache Flash Memory is “Normal”.



(4) Click the [Logout] button to close the window.

(5) <Get the error information>

Collect small system dumps by referring to [“3.27 Acquiring Dumps using Maintenance Utility”](#) in MAINTENANCE PC SECTION.

(6) Refer to the MAINTENANCE PC SECTION [“7.1 Use of OnlineDumpTool”](#), please upload the error information.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.10.3 Replacing a Cache Flash Memory for CBXSS/CBXSL

NOTE: The Controller Board is blocked by this maintenance work. Check that the alternate path of the path that uses the Channel in the Controller Board is set for the Channel in the other Controller Board. If the alternate path is not set, it is necessary to set the alternate path or stop host I/O. Consult with the customer and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Cache Flash Memory on the Controller Board 1, connect the maintenance PC and the Controller Board 2.

When replacing the Cache Flash Memory on the Controller Board 2, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

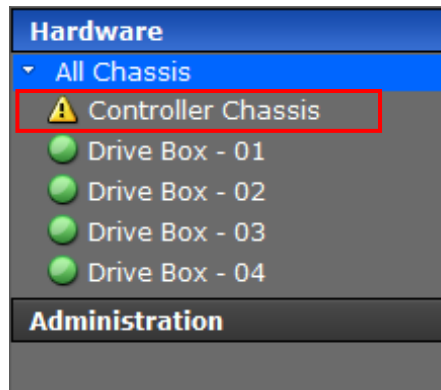
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

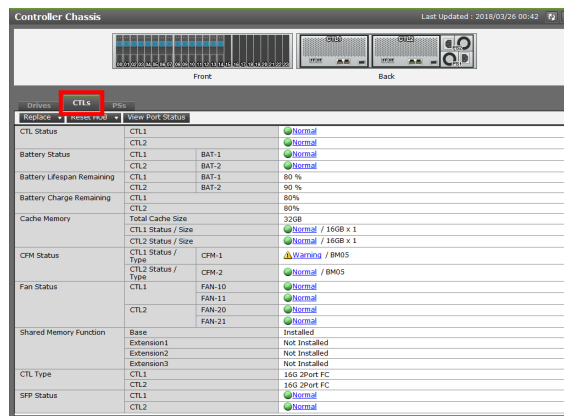


(2) <Controller Chassis window>

Click the [CTLs] tab in the Controller Chassis” window to display a Cache Flash Memory status.

See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

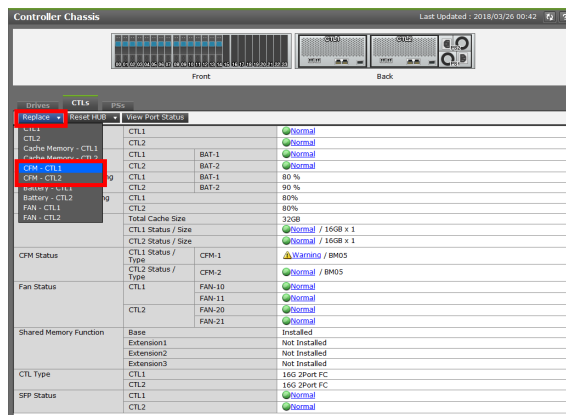
Example: In case of CBXSS



(3) <Select Controller Board>

Click [Replace] and select a Controller Board in which a Cache Flash Memory is installed.

Example: In case of CBXSS



(4) <Block Controller Board>

⚠ CAUTION

About "Forcibly run without safety checks":

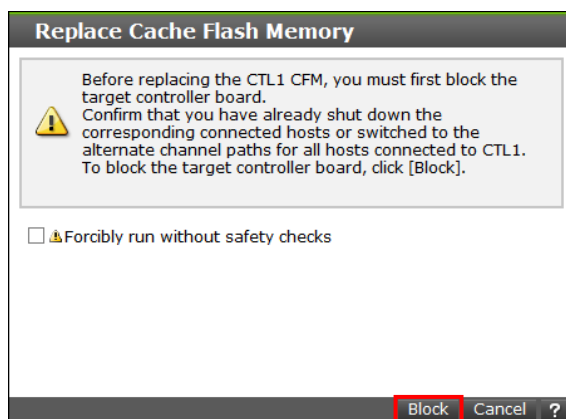
If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see ["1.1.11 Note on Deleting Remote Paths"](#).

This checkbox is displayed only when Maintenance Utility is started from the "Web Console" window or the "MPC" window.

Check that the Controller Board has the Cache Flash Memory to be replaced, and then click the [Block] button. If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".

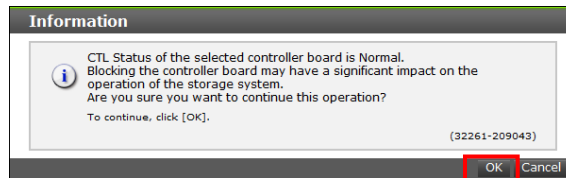
NOTE : The error list window is displayed if multiple errors are detected by the prior check.

If it is displayed, click the test of "Error Code" and recover the failures or the blockade in accordance with the details of the displayed errors.



(5) <Check Controller Board>

Check that the Controller Board to replace the Cache Flash Memory is correct again and click the [OK] button.

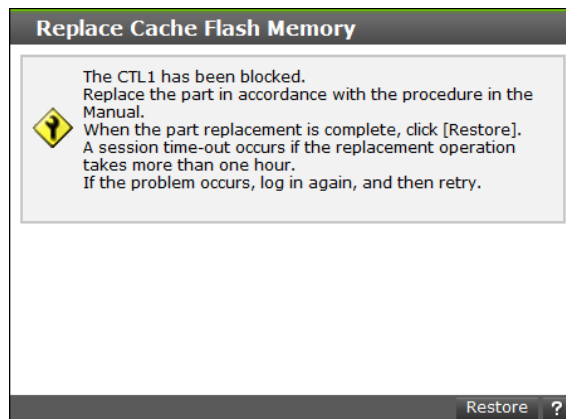


(6) <Check the beginning of Cache Flash Memories replacement>

Check that the Controller Board is blocked and becomes ready Cache Flash Memory replacing.

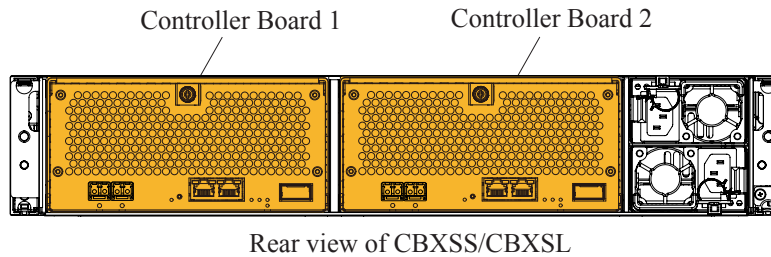
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. CBXSS/CBXSL Cache Flash Memory Replacement Processing

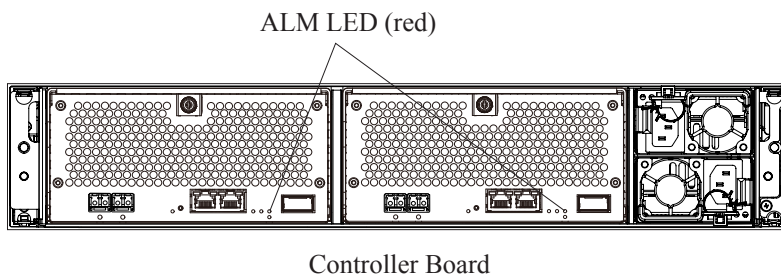
Location	Function Name of Component	Part Name
Rear View of CBXSS/CBXSL	1 Cache Flash Memory	CFM



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 [“1.1.3 Note on Installing and Removing Parts”](#).

- (1) Check that the ALM LED (red) on the CBXSS/CBXSL Controller Board to be removed lights up.

Figure 2-116 ALM LED Position

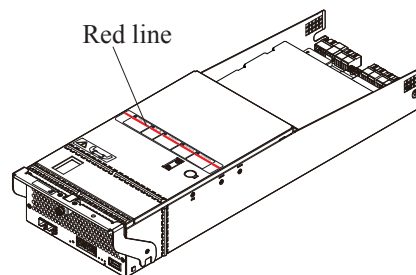


- (2) Remove all the cables connected to the Controller Board.
Remove the cables from the channel ports with care so as not to damage the cables (see [“1.1.12 Notes on Removing Optical Cables”](#)).

- (3) Remove the Controller Board from the CBXSS/CBXSL.
 - (a) Loosen the screw (blue) which fixes the Controller Board (①) and open the lever to pull out (②).
 - (b) Pull out and remove the Controller Board while holding its body with both hands.

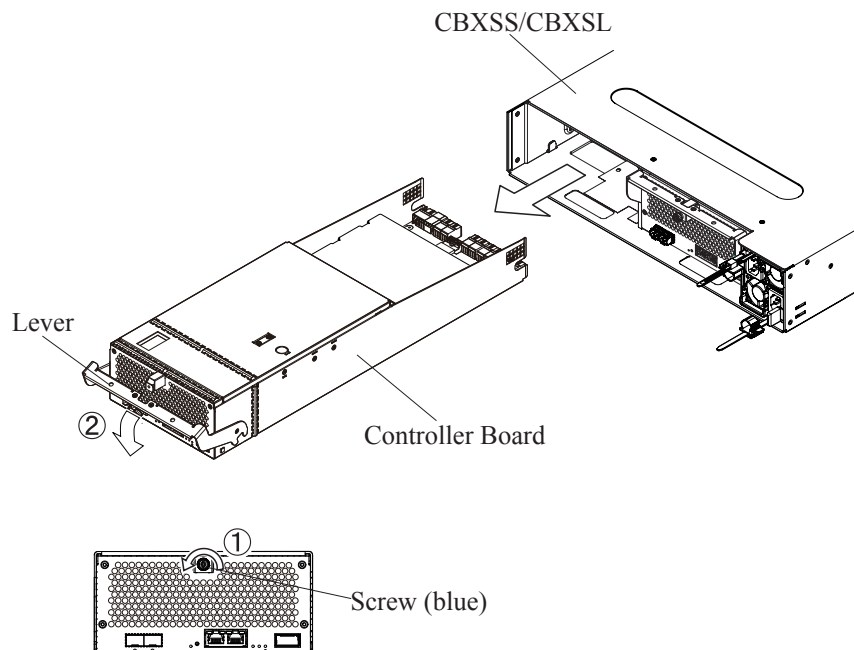
 **CAUTION**

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.



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

Figure 2-117 Removal of Controller Board (CBXSS/CBXSL)



NOTICE: After removing the Controller Board, the LEDs (POWER/READY/WARNING/ALARM) might go out.

If the LED on the front goes out, check that anything other than the Controller Board is normal in the "Maintenance Utility" window and continue the replacement.

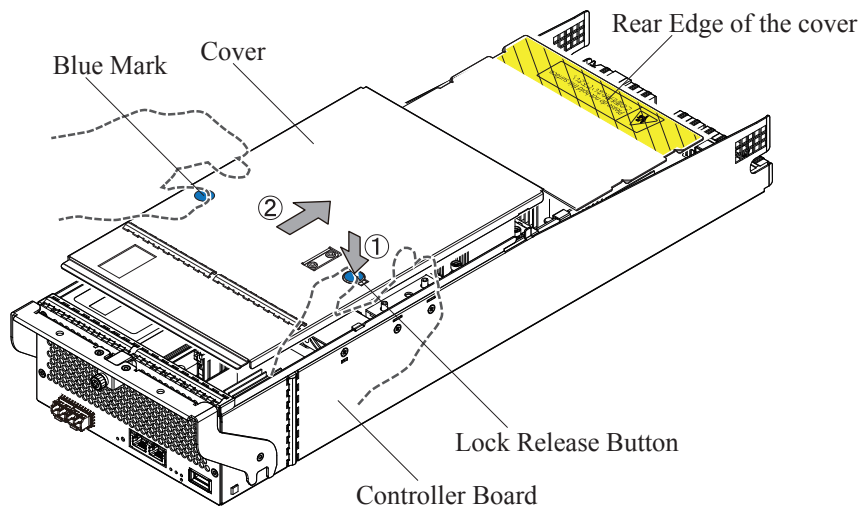
The READY LED (green) on the front of CBXSS/CBXSL lights up after performing "5. Restoring replacement parts by Maintenance Utility" of the "2.10.3".

- (4) While pressing the lock release button on the cover (①), slide the cover in the direction of the arrow (②) with your hands on the blue marks.

CAUTION

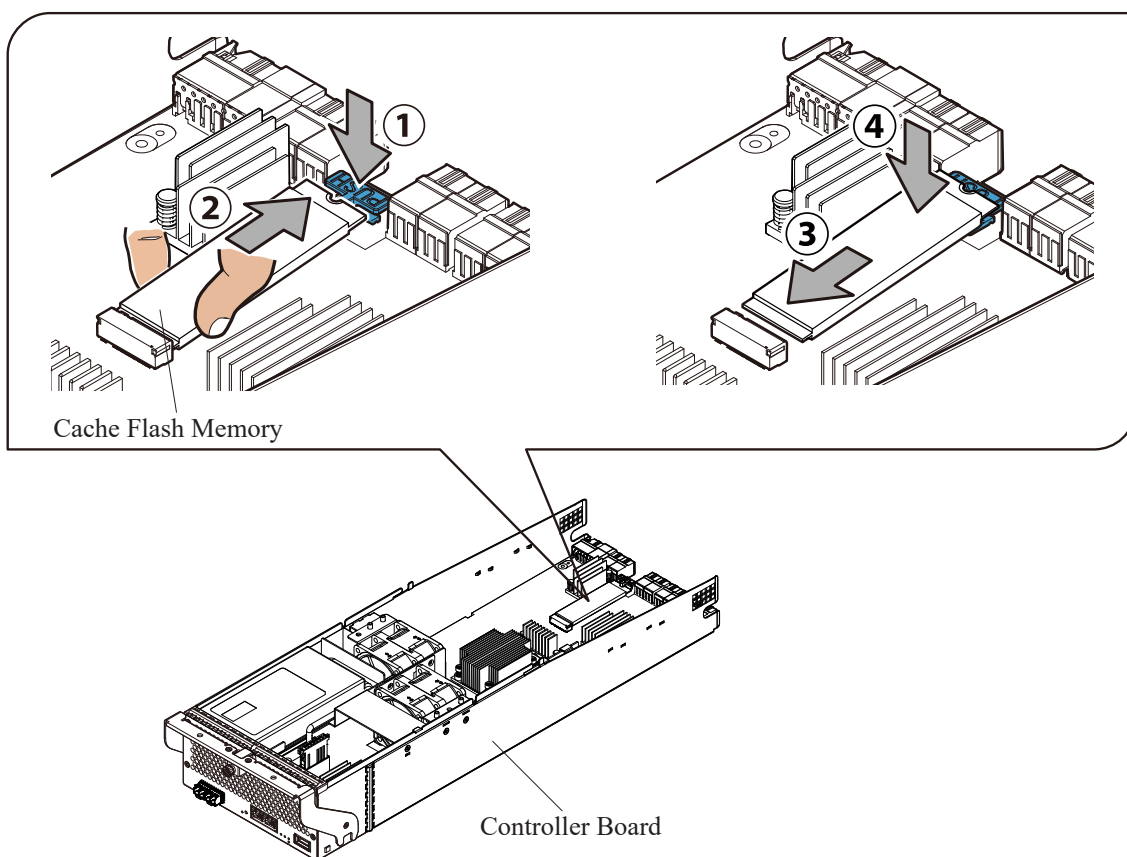
When attaching or removing the cover, be careful not to hold the rear edge of the cover (hatched area in the figure below). Otherwise, you might get your fingers pinched.

Figure 2-118 Removal of Cover



- (5) Replace the Cache Flash Memory.
- Press the clip (①) on the Controller Board to release the lock of the failed Cache Flash Memory. If the Cache Flash Memory cannot be fully lifted after being unlocked, lift it carefully not to hit it against the clip.
- NOTE: If you lift the Cache Flash Memory by force, the connector might be damaged.
- Pull out the Cache Flash Memory in the arrow direction (②).
 - Insert the new Cache Flash Memory into the connector of the Controller Board in the arrow direction (③).
 - Secure the Cache Flash Memory by pressing it in the arrow direction (④).

Figure 2-119 Replacing the Cache Flash Memory



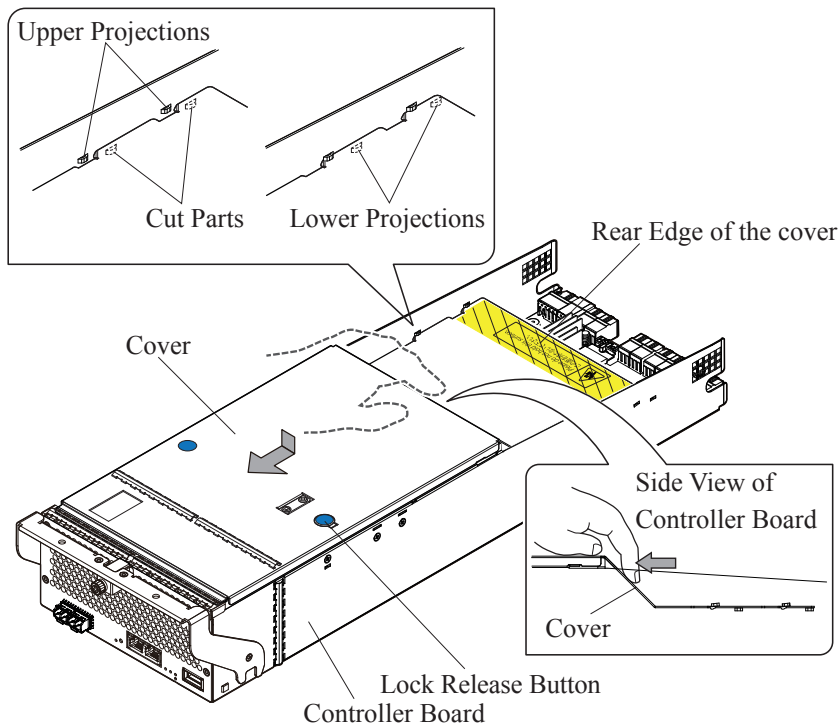
- (6) Attach the cover to the Controller Board with the upper projections of the Controller Board placed on the cut parts of the cover. Push the cover in the arrow direction, and slide it until locked.

NOTE: Make sure to firmly attach the cover until the lock release button clicks.

⚠ CAUTION

When attaching or removing the cover, be careful not to hold the rear edge of the cover (hatched area in the figure below). Otherwise, you might get your fingers pinched.

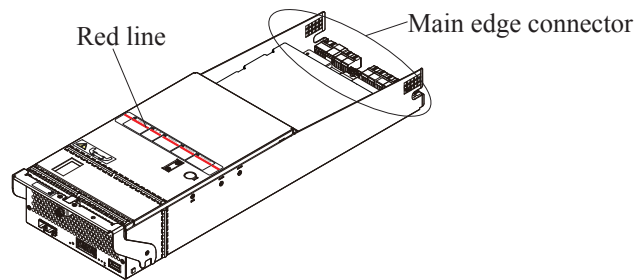
Figure 2-120 Installation of Cover



(7) Install a Controller Board.

 **CAUTION**

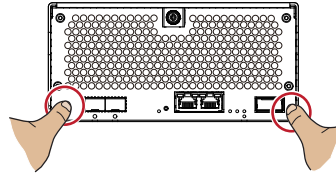
Dropping the Controller Board might cause injury. Hold the Controller Board firmly with your hands.



- NOTICE:**
- Check that the main edge connector of the Controller Board has no deformation, damage or sticking of dust before installing the Controller Board.
 - When installing the Controller Board, hold it with both hands and install it straight not to apply a shock to with any components.

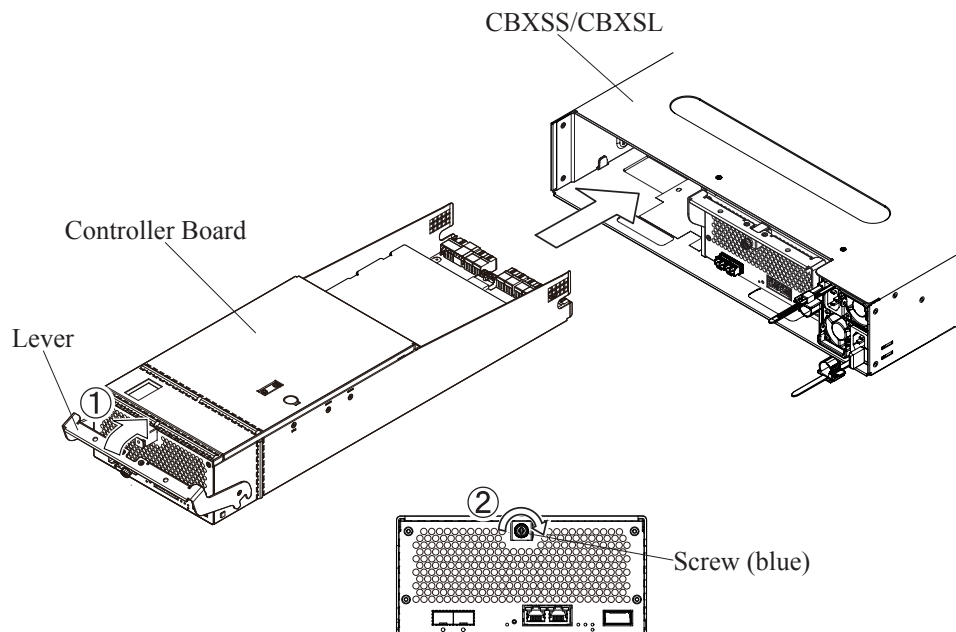
- (a) With the lever on the Controller Board opened completely, insert it into the slot of the CBXSS/CBXSL.
- (b) Push the Controller Board all the way in and close the lever completely.

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



- (c) Tighten the screw (blue) and fix the Controller Board.

Figure 2-121 Installation of Controller Board (CBXSS/CBXSL)

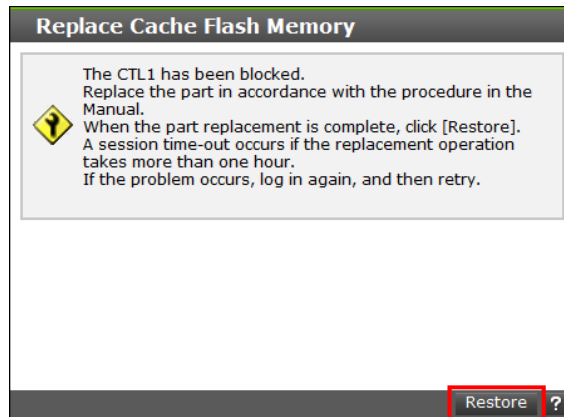


- (8) Connect all the removed cables to the Controller Board.
When connecting SAS cables, be careful not to damage the tips of the cables. (Refer to INSTALLATION SECTION [“2.10.2.1 Precautions when Connecting SAS Cables”](#)).

5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

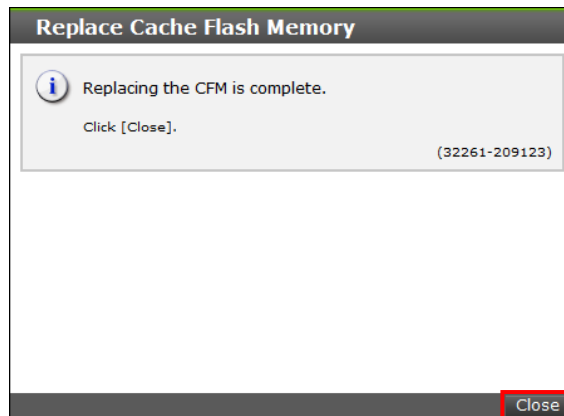
Click the [Restore] button.



(2) <Check replacement parts restoration>

Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



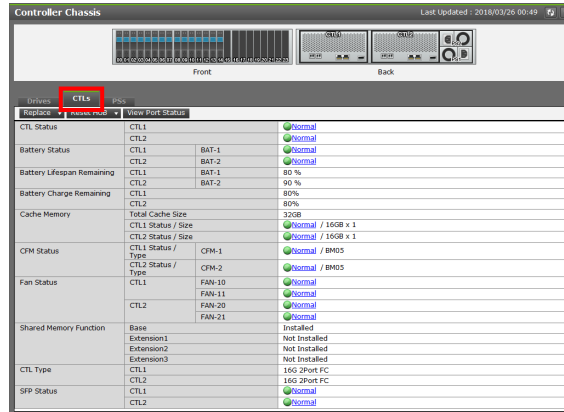
NOTE: It may take a few minutes to be able to connect to GUM of the replaced Controller Board.

When executing Auto Dump, check that the connection to GUM of the replaced Controller Board is possible, and then execute it.

(3) Controller Chassis window

Click the [CTLs] tab in the “Controller Chassis” window and check that a Status of the replaced Cache Flash Memory is “Normal”.

Example: In case of CBXSS



(4) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “2.8.3 Disconnecting the Maintenance PC from the Storage System”.

2.11 Replacing a LAN Board

2.11.1 Replacing a LAN Board for CBLH

NOTE: • The Controller Board is blocked by this maintenance work. Check that the alternate path of the path that uses the Channel Board in the Controller Board is set for the Channel Board in the other Controller Board. If the alternate path is not set, it is necessary to set the alternate path or stop host I/O. Consult with the customer and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the LAN board on Controller Board 1, connect the Maintenance PC and Controller Board 2.

When replacing the LAN board on Controller Board 2, connect the Maintenance PC and Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

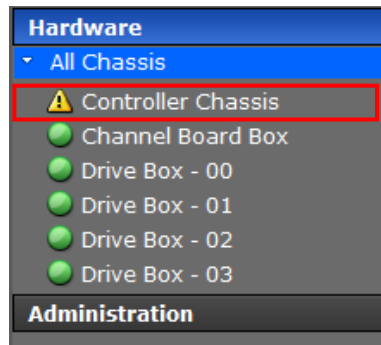
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

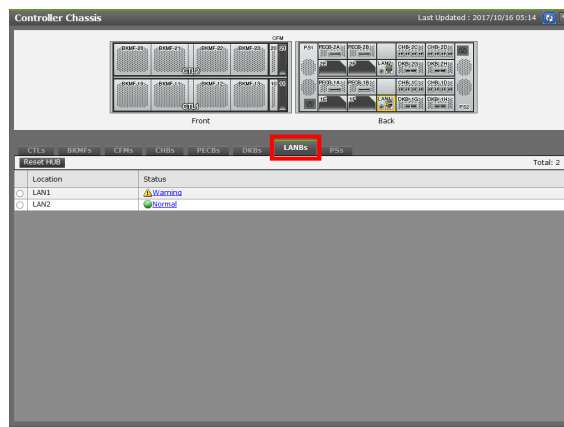
Select [Controller Chassis] in the main window.



(2) <Controller Chassis window>

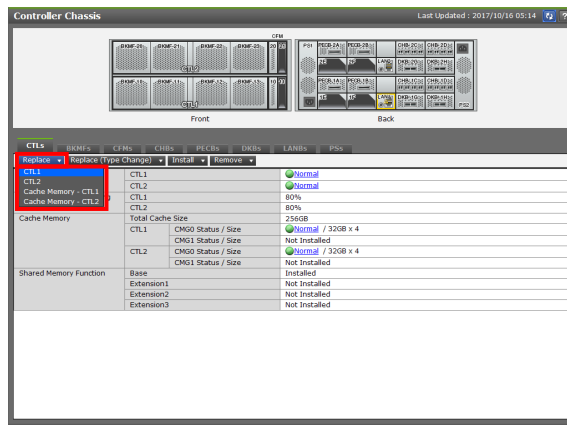
Click the [LANBs] tab in the “Controller Chassis” window to display a LAN Board status.

See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].



NOTE: Do not reset the HUB except when directed by the Technical Support Division.

- (3) <Select Controller Board>
- Click the [CTLs] tab.
 - Click [Replace] button, and select the Controller Board in which the LAN Board to be replaced is installed.



- (4) <Block Controller Board>

CAUTION

About "Forcibly run without safety checks":

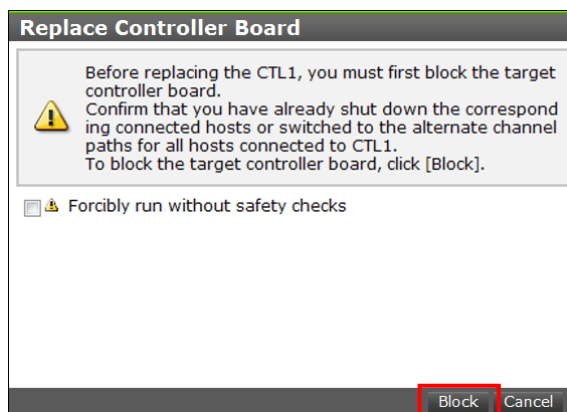
If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual. When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see ["1.1.11 Note on Deleting Remote Paths"](#).

This checkbox is displayed only when Maintenance Utility is started from the "Web Console" window or the "MPC" window.

Check that the Controller Board has the LAN Board to be replaced, and then click the [Block] button.

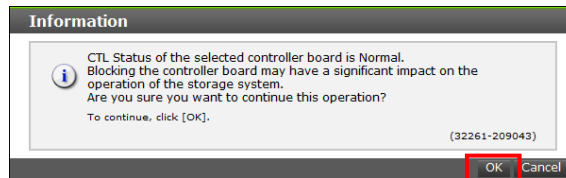
If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".

NOTE: The error list window is displayed if multiple errors are detected by the prior check. If it is displayed, click the test of "Error Code" and recover the failures or the blockade in accordance with the details of the displayed errors.



(5) <Check Controller Board>

Check that the Controller Board to replace the LAN Board is correct again and click the [OK] button.

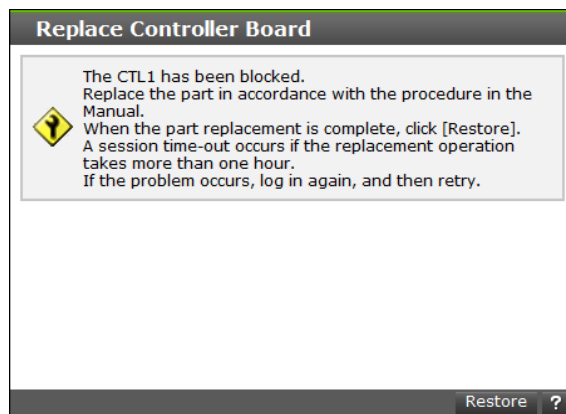


(6) <Check the beginning of LAN Board replacement>

Check that the Controller Board is blocked and becomes ready for replacing.

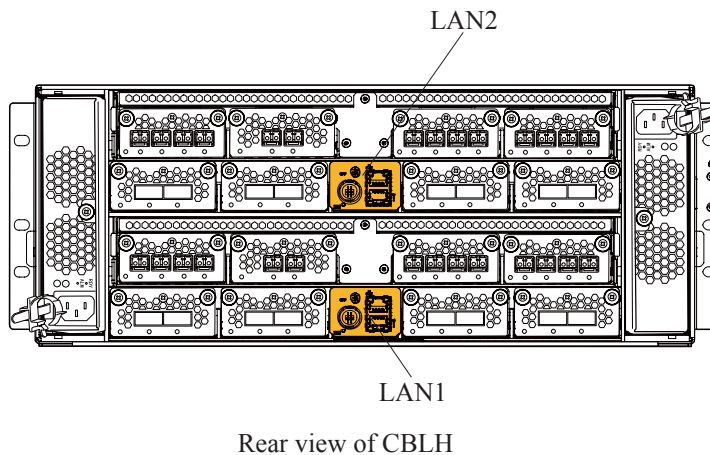
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. CBLH LAN Board Replacement Processing

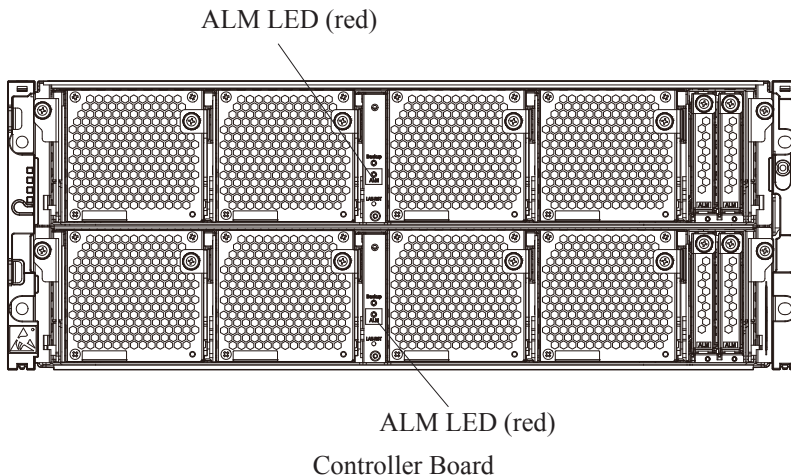
Location	Function Name of Component	Part Name
Rear View of CBLH	1 LAN Board	LAN Board



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 ["1.1.3 Note on Installing and Removing Parts"](#).

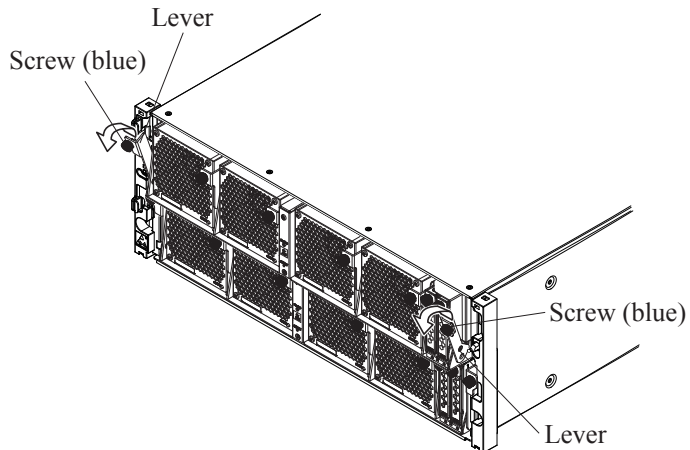
- (1) Check that the ALM LED (red) on the CBLH Controller Board to be replaced lights up. When the LED does not light up, check the location of the LAN Board to be replaced in the "Maintenance Utility" window.

Figure 2-122 ALM LED Position



- (2) Loosen the right and left screws (blue) on the lever of the Controller Board to be replaced in the front of the CBLH and open the lever.

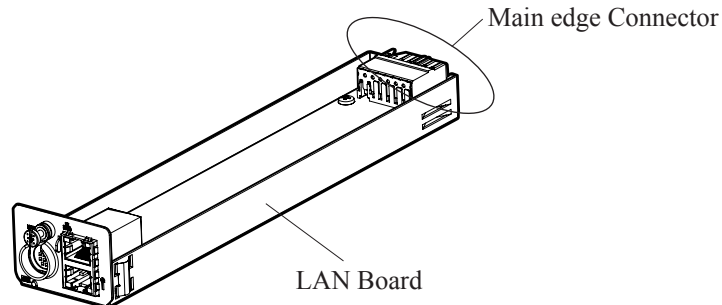
Figure 2-123 Removing Controller Board (CBLH)



NOTICE: After removing the Controller Board, the LEDs (POWER/READY/WARNING/ALARM) might go out.
If the LED on the front goes out, check that anything other than the Controller Board is normal in the "Maintenance Utility" window and continue the replacement.
The READY LED (green) on the front of CBLH lights up after performing ["5. Restoring replacement parts by Maintenance Utility"](#) of the ["2.11.1"](#).

(3) Replace the LAN Board.

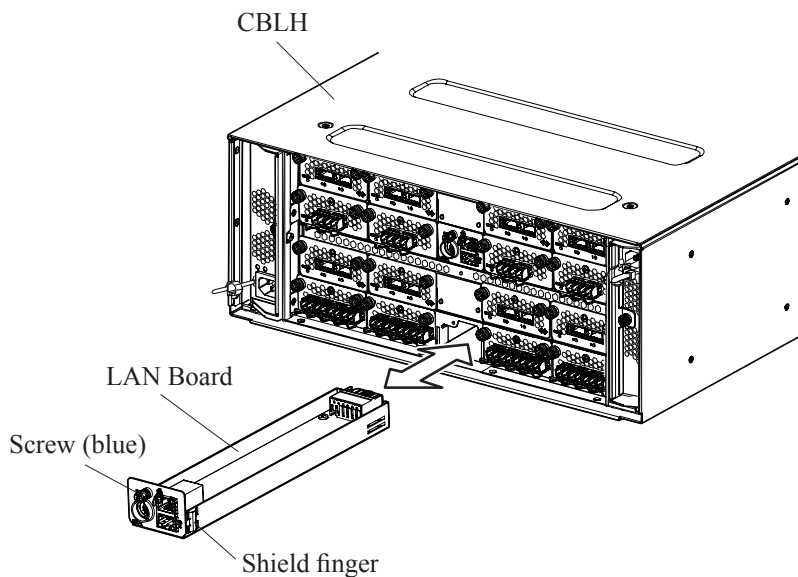
NOTICE: When removing the LAN Board, hold it with both hands and remove it straight not to apply a shock to with any components.



NOTICE: If LAN Boards are inserted randomly, malfunction may occur. Therefore, insert the LAN Boards in two steps, [Step \(c\)](#) and [Step \(d\)](#) shown below.

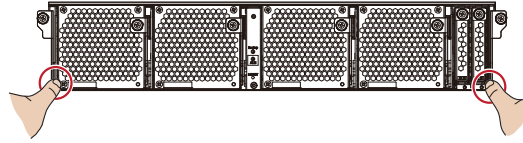
- (a) Loosen the one screw (blue) which fixed the LAN Board.
- (b) Pull out and remove the LAN Board while holding its screw.
- (c) Insert the LAN Boards to be added into the slots just before the shield finger.
- (d) Push the LAN Boards gently all the way in.
- (e) Tighten the one screw (blue) to fix the LAN Board.

Figure 2-124 Replacement of LAN Board



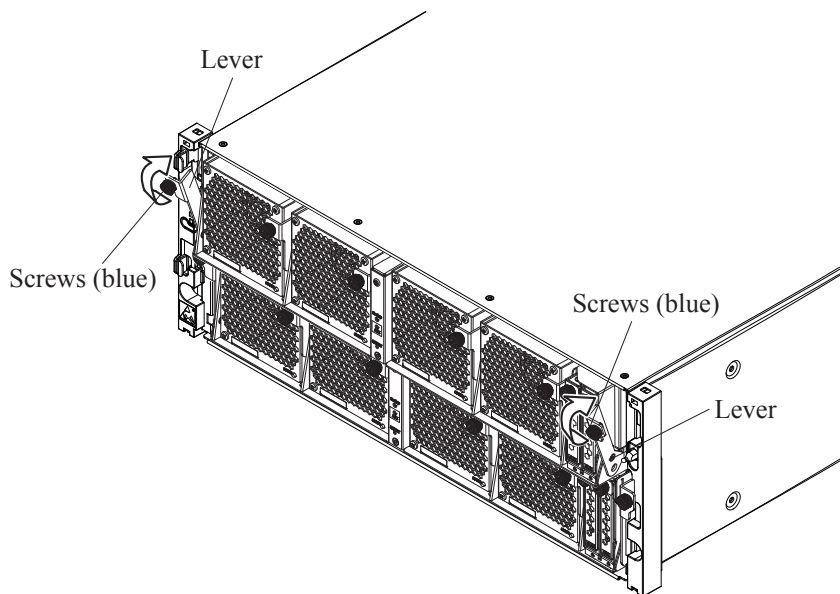
- (4) Push the Controller Board all the way in and close the right and left levers completely.

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



- (5) Tighten the screws (blue) and fix the Controller Board.

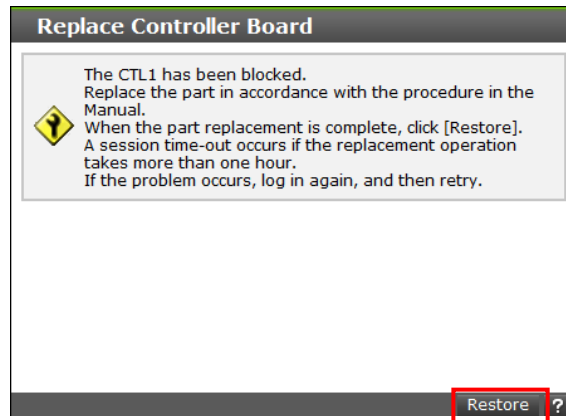
Figure 2-125 Fixing the Controller Board



5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

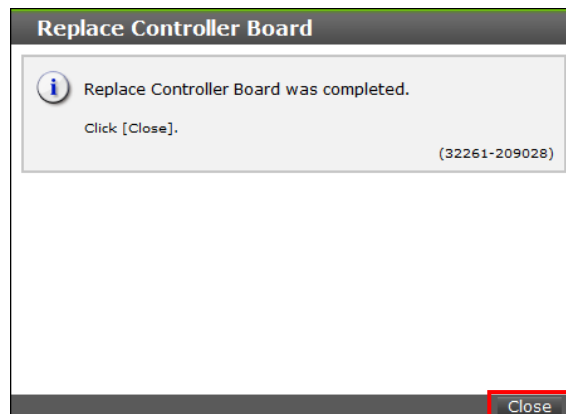
Click the [Restore] button.



(2) <Check replacement parts restoration>

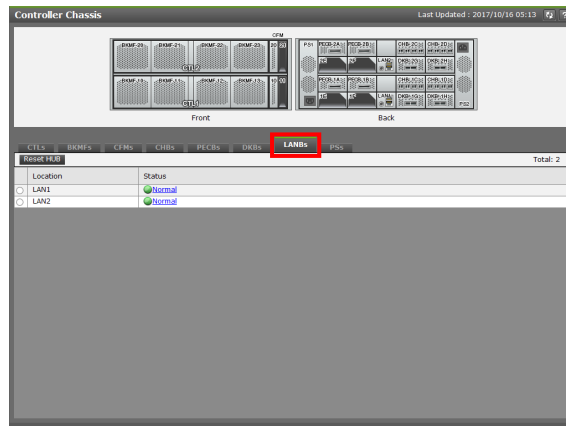
Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



(3) <Check LAN Board restoration>

Click the [LANBs] tab in the “Controller Chassis” window and check that a Status of the replaced LAN Board is “Normal”.



(4) Click the [Logout] button to close the window.

(5) <Get the error information>

Collect small system dumps by referring to [“3.27 Acquiring Dumps using Maintenance Utility”](#) in MAINTENANCE PC SECTION.

(6) See MAINTENANCE PC SECTION [“7.1 Use of OnlineDumpTool”](#), please upload the error information.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.12 Replacing a Channel Board (CHB)

The window and the procedure differ between the CBSS/CBSL and the CBLH.

- When replacing the Channel Board of the CBSS/CBSL
“[2.12.1 Replacing a Channel Board for CBSS/CBSL](#)”
- When replacing the Channel Board of the CBLH
“[2.12.2 Replacing a Channel Board for CBLH](#)”
- When replacing the Channel Board of the Channel Board Box
“[2.12.3 Replacing a Channel Board for Channel Board Box](#)”

2.12.1 Replacing a Channel Board for CBSS/CBSL

NOTE: This maintenance work stops I/O from the host connected to the Channel Board to be replaced. Since the alternate path setting might be required, consult with the customer, and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Channel Boards, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION “[2.2 Connecting Maintenance PC to Storage System](#)”.

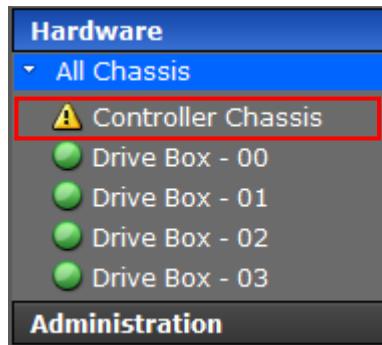
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION “[2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL](#)”).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.



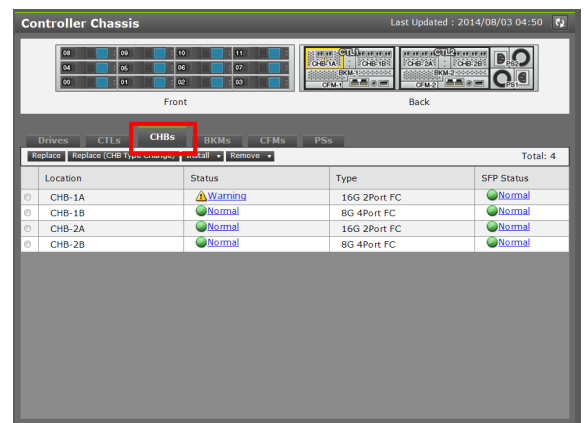
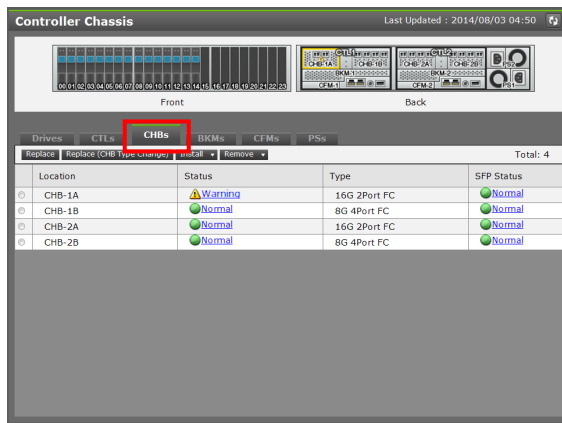
(2) <Controller Chassis window>

Click the [CHBs] tab in the “Controller Chassis” window to display a Channel Board status.

See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

• In case of CBSS

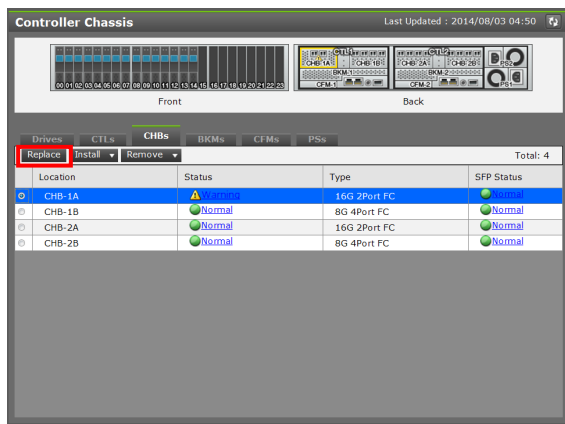
• In case of CBSL



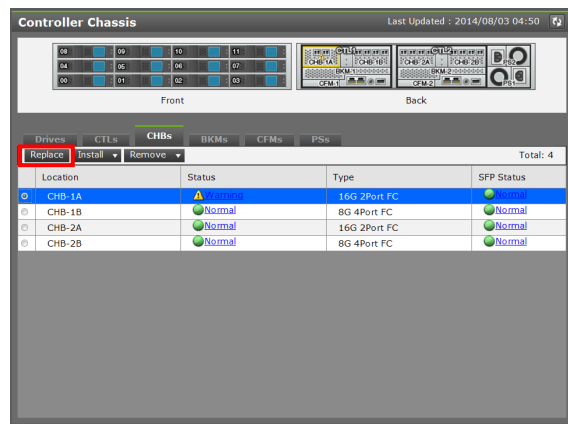
(3) <Select Channel Board>

Select a Channel Board to be replaced. Click the [Replace] button.

• In case of CBSS



• In case of CBSL



(4) <Block Channel Board>

⚠ CAUTION

About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual.

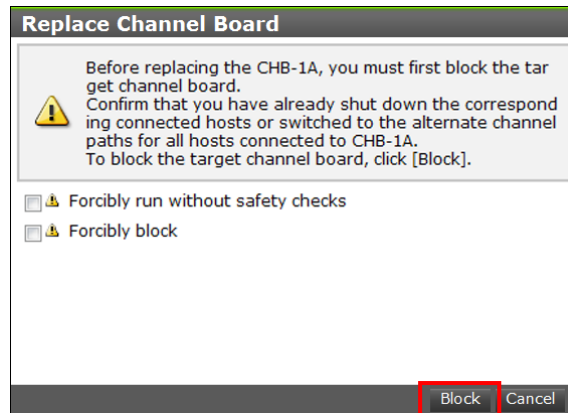
About "Forcibly block":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the contact described in the manual.

When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see "1.1.11 Note on Deleting Remote Paths".

Click the [Block] button after checking that the Channel Board to be replaced is correct.
If a message other than the described is displayed, refer to “Device Manager-Storage Navigator Messages”.

NOTE : The error list window is displayed if multiple errors are detected by the prior check.
If it is displayed, click the test of “Error Code” and recover the failures or the blockade in accordance with the details of the displayed errors.

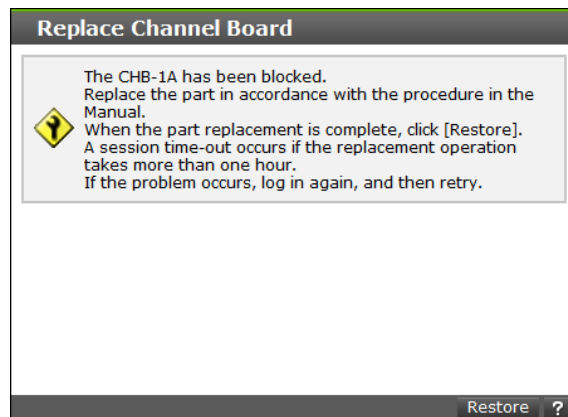


(5) <Check the beginning of Channel Board replacement>

Check that the Channel Board is blocked and becomes ready for replacing.

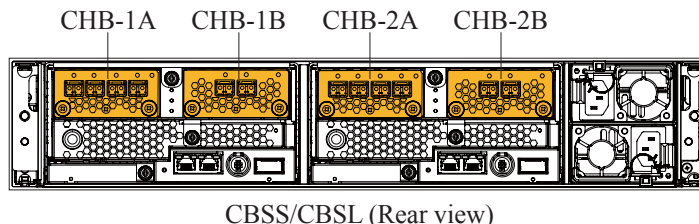
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. Channel Board for CBSS/CBSL replacement processing

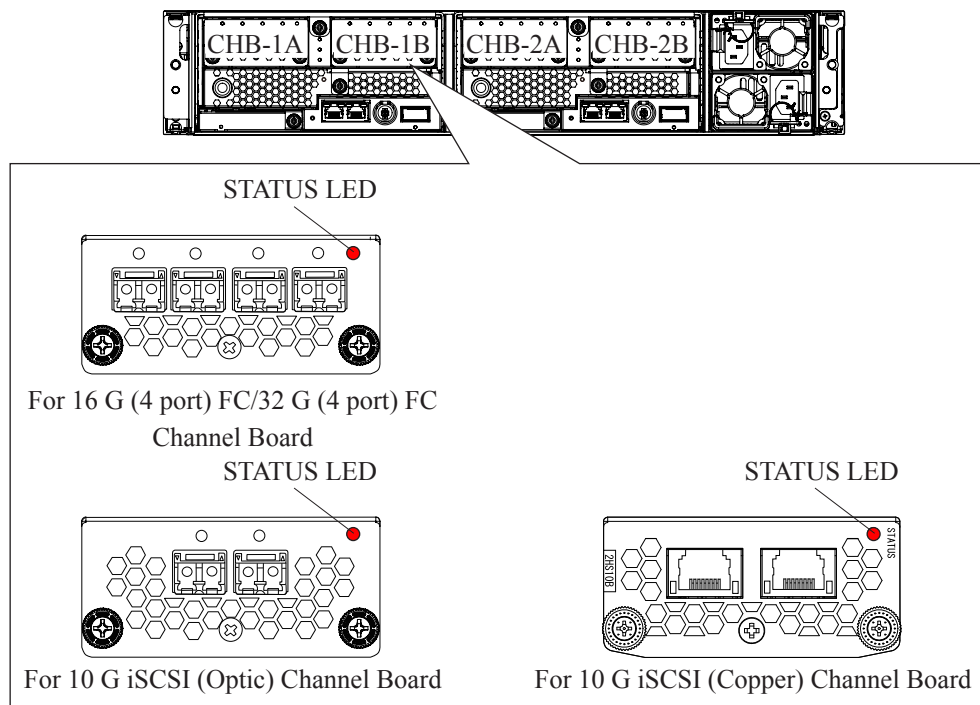
Location	Replacement parts name	Part Name
Rear View of CBSS/CBSL	1 Channel Board	<ul style="list-style-type: none"> DW-F800-4HF32R (32 G FC) DW-F800-2HS10S (10 G iSCSI (Optic)) DW-F800-2HS10B (10 G iSCSI (Copper))



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 "1.1.3 Note on Installing and Removing Parts".

- (1) Check that the STATUS LED (red) on the Channel Board to be replaced lights up. When the LED does not light up, check the location of the Channel Board to be replaced in the "Maintenance Utility" window.

Figure 2-126 STATUS LED Location

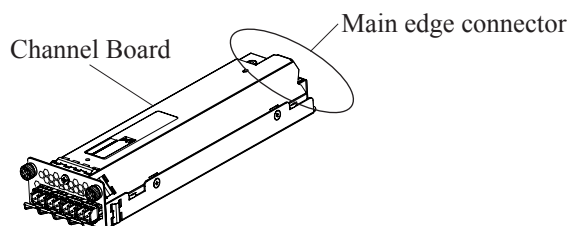


- (2) Remove the cables from the Channel Board to be replaced.
- (3) Replace the Channel Board.

⚠ CAUTION

Install the Channel Board (CHB) for CBSS/CBSL upside down.

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



NOTICE: If Channel Boards are inserted randomly, malfunction may occur. Therefore, insert the Channel Boards in two steps, [Step \(d\)](#) and [Step \(e\)](#) shown below.

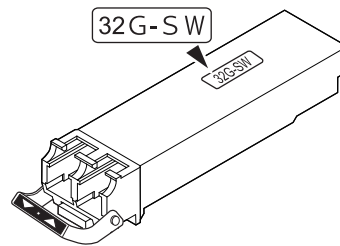
- (a) Loosen the two screws (blue) which fix the module.
- (b) Pull out and remove the Channel Board while holding the screws (blue).
- (c) Move the Small Form-Factor Pluggable (SFP).

If the following condition is met, mount the Small Form-Factor Pluggable (SFP) in the removed Channel Board (CHB) on a new Channel Board (CHB). If the following condition is not met, go to [Step \(d\)](#) without mounting the Small Form-Factor Pluggable (SFP).

[When replacing 32 Gbps/16 Gbps (4-port) CHB]

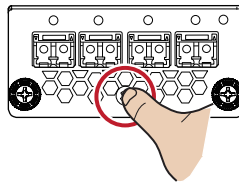
- (i) Pull the Small Form-Factor Pluggable (SFP) lever down toward you and pull out the Small Form-Factor Pluggable (SFP) from the removed CHB.
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing the lever open toward you.
- (ii) Check the insertion direction of the Small Form-Factor Pluggable (SFP) removed in [Step \(i\)](#), and insert it into the same location on the new CHB until it clicks.

The label "32G-SW" is attached to the 32 Gbps Small Form Factor Pluggable (SFP).



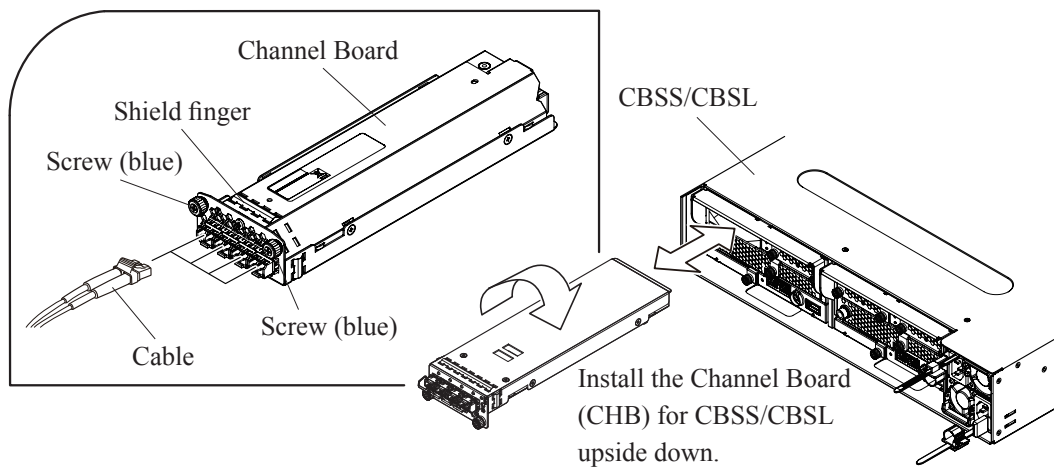
- (d) Insert the Channel Boards to be added into the slots just before the shield finger.
- (e) Push the Channel Boards gently all the way in.

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



- (f) Tighten the two screws (blue) to fix the Channel Board.

Figure 2-127 Replacement of Channel Board (CBSS/CBSL)



- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the 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.)

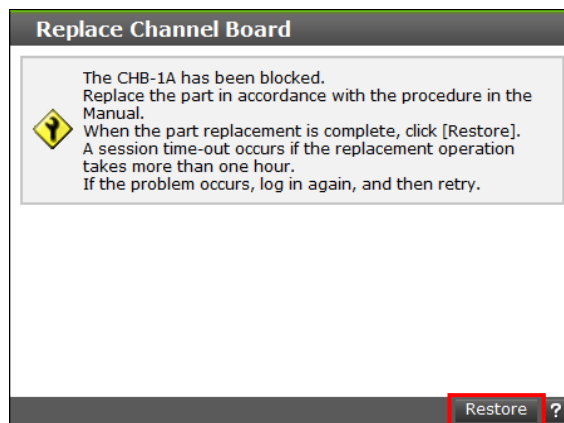
- (5) Connect the cables to the replaced Channel Board.

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

5. Restoring replacement parts by Maintenance Utility

- (1) <Restore replacement parts>

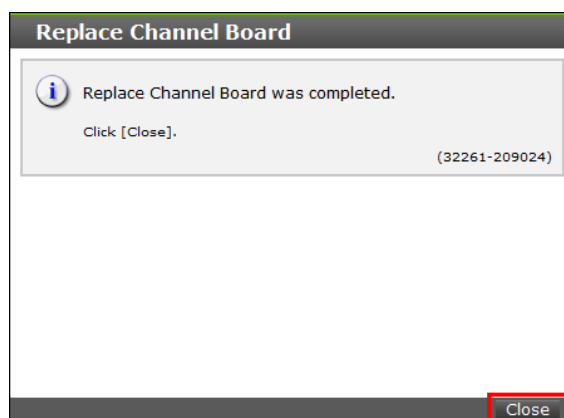
Click the [Restore] button.



- (2) <Check replacement parts restoration>

Check that the following message is displayed and click the [Close] button.

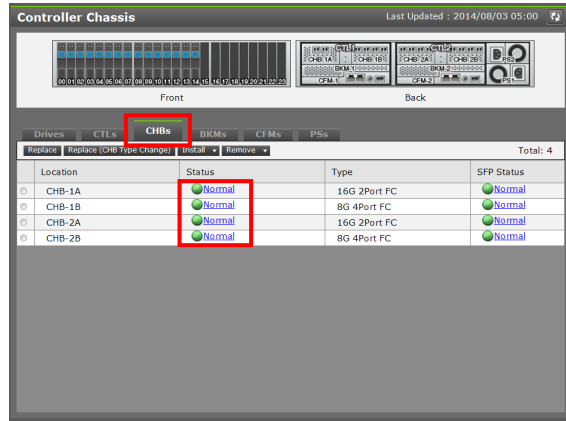
If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



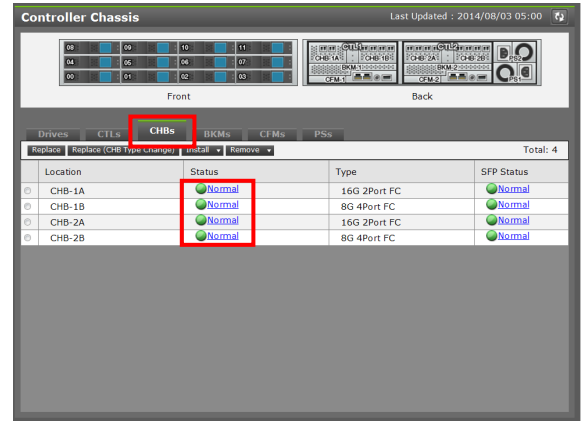
(3) <Check Channel Board restoration>

Click the [CHBs] tab in the “Controller Chassis” window and check that a Status of the replaced Channel Board is “Normal”.

• In case of CBSS



• In case of CBSL



(4) Click the [Logout] button to close the window.

(5) <Get the error information>

Collect small system dumps by referring to “[3.27 Acquiring Dumps using Maintenance Utility](#)” in MAINTENANCE PC SECTION.

(6) Refer to the MAINTENANCE PC SECTION “[7.1 Use of OnlineDumpTool](#)”, please upload the error information.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “[2.8.3 Disconnecting the Maintenance PC from the Storage System](#)”.

2.12.2 Replacing a Channel Board for CBLH

NOTE: This maintenance work stops I/O from the host connected to the Channel Board to be replaced. Since the alternate path setting might be required, consult with the customer, and then perform the work.

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Channel Boards, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

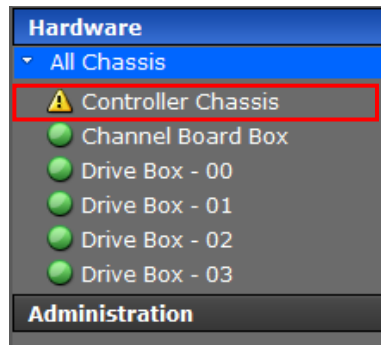
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

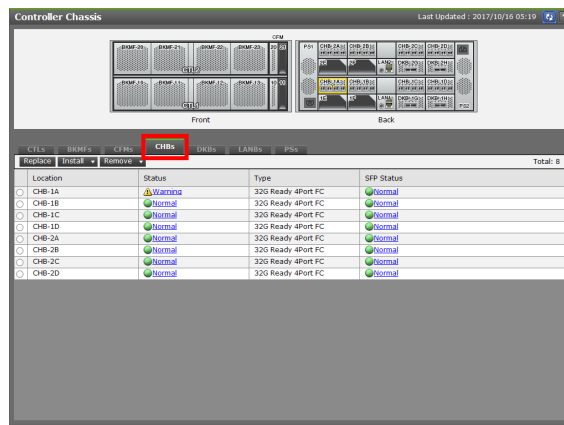
Select [Controller Chassis] in the main window.



(2) <Controller Chassis window>

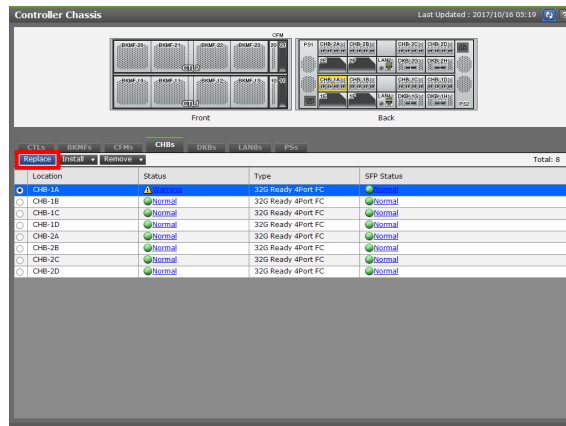
Click the [CHBs] tab in the "Controller Chassis" window to display a Channel Board status.

See MAINTENANCE PC SECTION "3.22 Alert Display Related to FRU (Field Replacement Unit)" for the [Status].



(3) <Select Channel Board>

Select a Channel Board to be replaced. Click the [Replace] button.



(4) <Block Channel Board>

⚠ CAUTION

About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual.

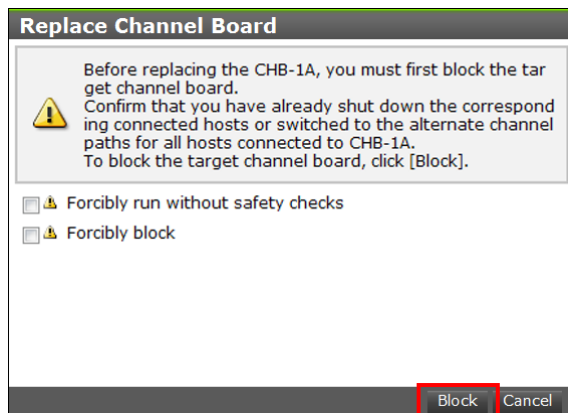
About "Forcibly block":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the contact described in the manual.

When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see ["1.1.11 Note on Deleting Remote Paths"](#).

Click the [Block] button after checking that the Channel Board to be replaced is correct.
If a message other than the described is displayed, refer to “Device Manager-Storage Navigator Messages”.

NOTE : The error list window is displayed if multiple errors are detected by the prior check.
If it is displayed, click the test of “Error Code” and recover the failures or the blockade in accordance with the details of the displayed errors.

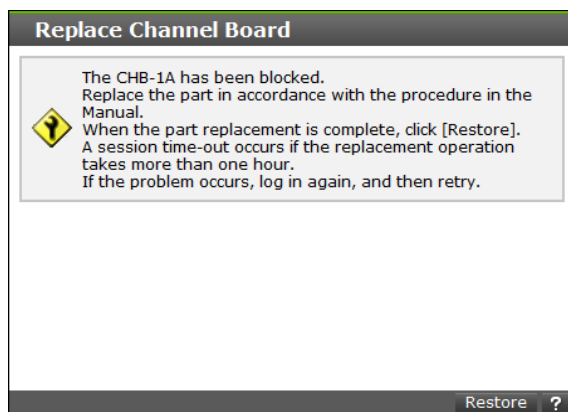


(5) <Check the beginning of Channel Board replacement>

Check that the Channel Board is blocked and becomes ready for replacing.

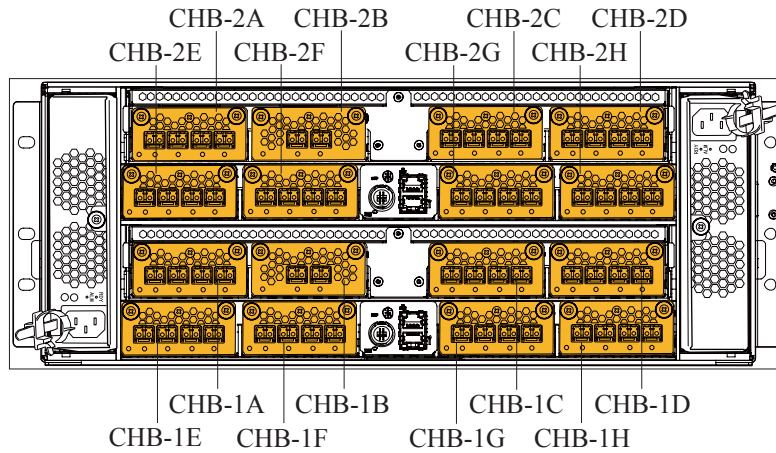
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. Channel Board for CBLH replacement processing

Location	Replacement parts name	Part Name
Rear View of CBLH	1 Channel Board	<ul style="list-style-type: none"> DW-F800-4HF32R (32 G FC) DW-F800-2HS10S (10 G iSCSI (Optic)) DW-F800-2HS10B (10 G iSCSI (Copper))

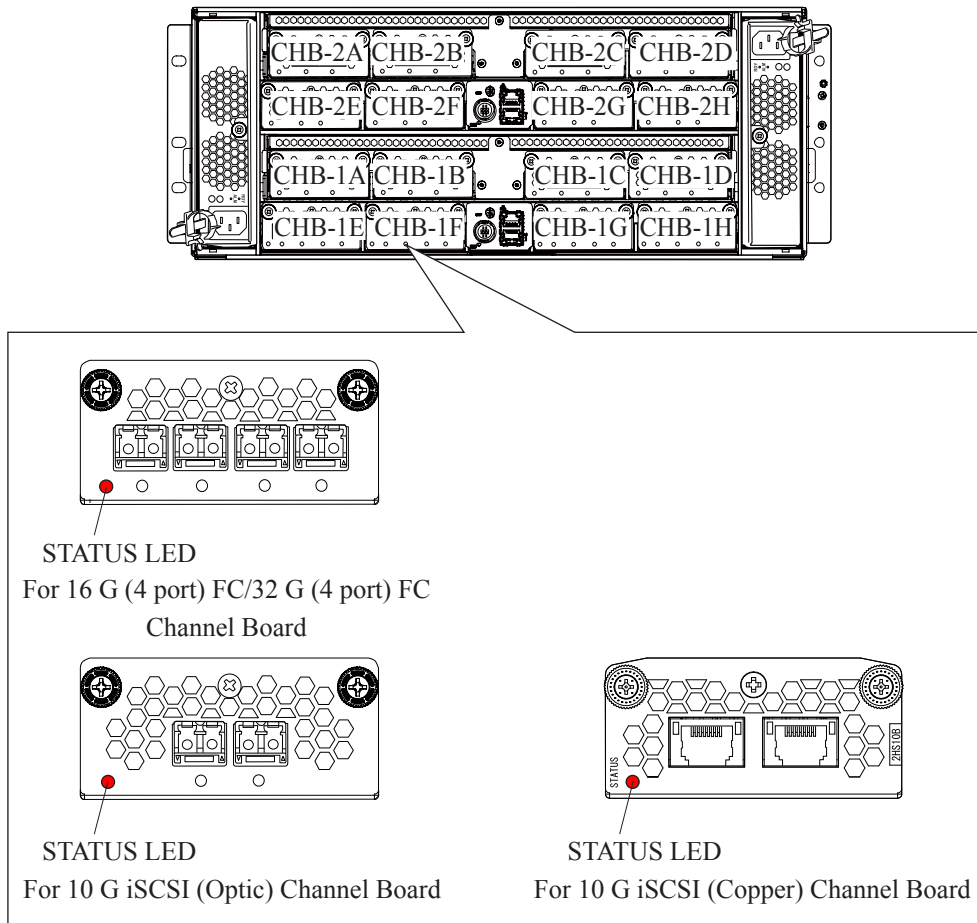


CBLH (Rear view)

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 "1.1.3 Note on Installing and Removing Parts".

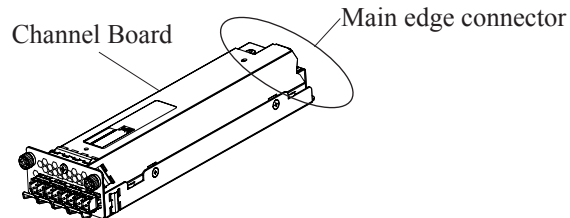
- (1) Check that the STATUS LED (red) on the Channel Board to be replaced lights up. When the LED does not light up, check the location of the Channel Board to be replaced in the "Maintenance Utility" window.

Figure 2-128 STATUS LED Location



- (2) Remove the cables from the Channel Board to be replaced.
- (3) Replace the Channel Board.

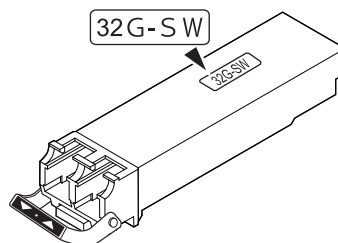
NOTICE: When removing the Channel Board, hold it with both hands and remove it straight not to apply a shock to with any components.



NOTICE: If Channel Boards are inserted randomly, malfunction may occur. Therefore, insert the Channel Boards in two steps, [Step \(d\)](#) and [Step \(e\)](#) shown below.

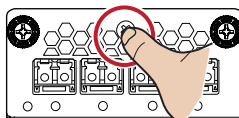
- (a) Loosen the two screws (blue) which fix the Channel Board.
- (b) Pull out and remove the Channel Board while holding the screws (blue).
- (c) Move the Small Form-Factor Pluggable (SFP).
If the following condition is met, mount the Small Form-Factor Pluggable (SFP) in the removed Channel Board (CHB) on a new Channel Board (CHB). If the following condition is not met, go to [Step \(d\)](#) without mounting the Small Form-Factor Pluggable (SFP).
[When replacing 32 Gbps/16 Gbps (4-port) CHB]
 - (i) Pull the Small Form-Factor Pluggable (SFP) lever down toward you and pull out the Small Form-Factor Pluggable (SFP) from the removed CHB.
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing the lever open toward you.
 - (ii) Check the insertion direction of the Small Form-Factor Pluggable (SFP) removed in [Step \(i\)](#), and insert it into the same location on the new CHB until it clicks.

The label "32G-SW" is attached to the 32 Gbps Small Form Factor Pluggable (SFP).



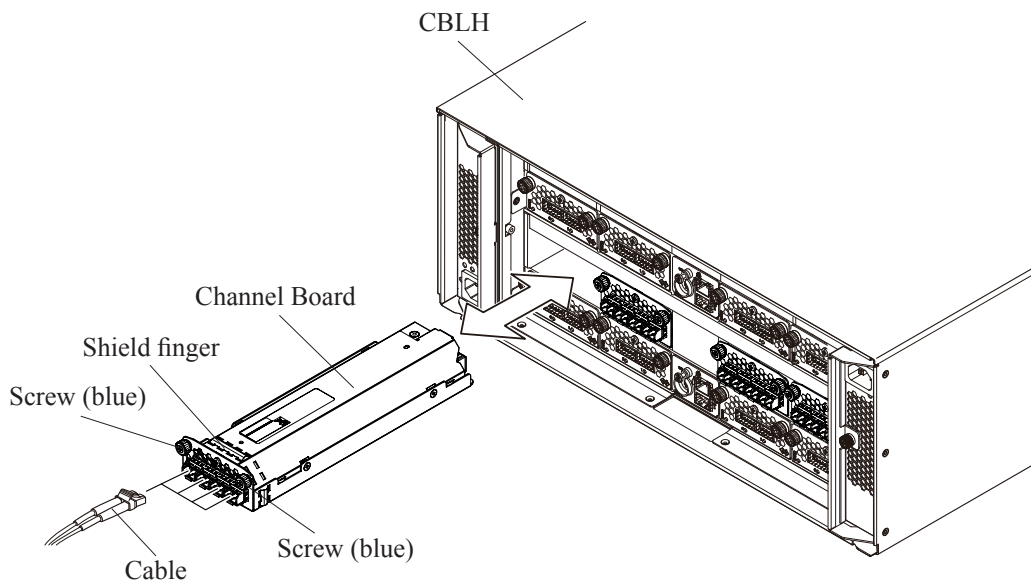
- (d) Insert the Channel Boards to be added into the slots just before the shield finger.
- (e) Push the Channel Boards gently all the way in.

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



- (f) Tighten the two screws (blue) to fix the Channel Board.

Figure 2-129 Replacement of Channel Board (CBLH)



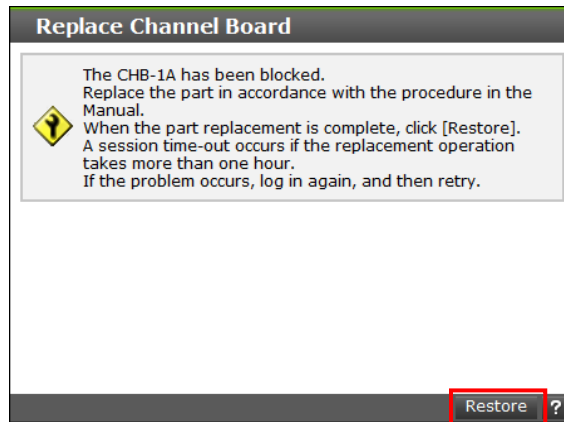
- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the connector part using an air spray (approx. five seconds)
 - (b) Wipe the connector part lightly with cut gauze soaked in ethyl alcohol.
 - (c) Spray compressed gas again and check the cleanliness. (Be sure that no dust, foreign substance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

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

5. Restoring replacement parts by Maintenance Utility

(1) <Restore replacement parts>

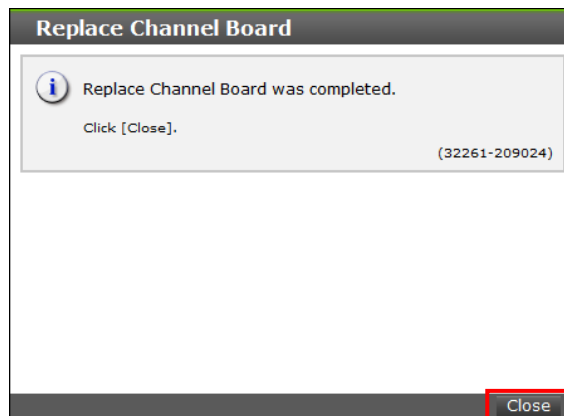
Click the [Restore] button.



(2) <Check replacement parts restoration>

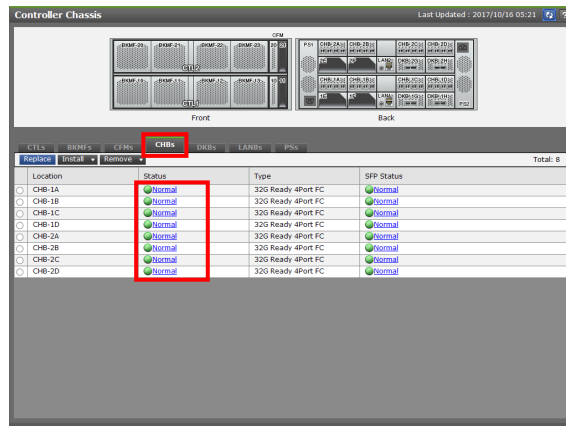
Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



(3) <Check Channel Board restoration>

Click the [CHBs] tab in the “Controller Chassis” window and check that a Status of the replaced Channel Board is “Normal”.



(4) Click the [Logout] button to close the window.

(5) <Get the error information>

Collect small system dumps by referring to [“3.27 Acquiring Dumps using Maintenance Utility”](#) in MAINTENANCE PC SECTION.

(6) Refer to the MAINTENANCE PC SECTION [“7.1 Use of OnlineDumpTool”](#), please upload the error information.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.12.3 Replacing a Channel Board for Channel Board Box

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Channel Boards, connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

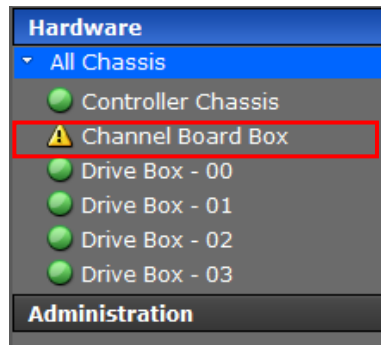
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

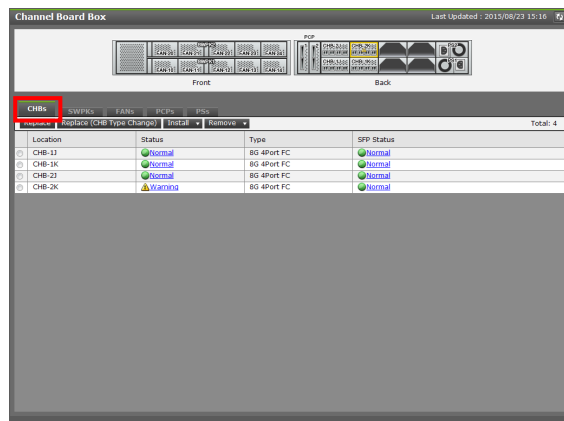
(1) <Main window>

Select [Channel Board Box] in the main window.



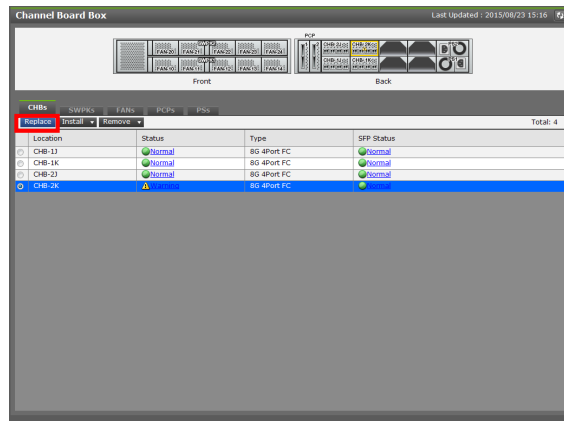
(2) <Channel Board Box window>

Click the [CHBs] tab in the “Channel Board Box” window to display a Channel Board status. See MAINTENANCE PC SECTION “[3.22 Alert Display Related to FRU \(Field Replacement Unit\)](#)” for the [Status].



(3) <Select Channel Board>

Select a Channel Board to be replaced. Click the [Replace] button.



(4) <Block Channel Board>

⚠ CAUTION

About "Forcibly run without safety checks":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the message, the manual or the contact described in the manual.

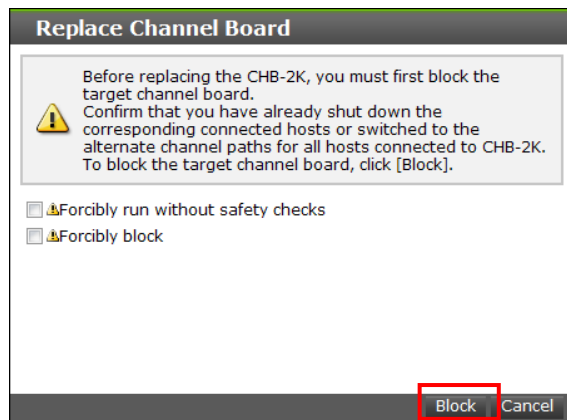
About "Forcibly block":

If you check this checkbox and execute the maintenance, the system may go down. Do not check it unless instructed by the contact described in the manual.

When the remote copy (True Copy, Universal Replicator, and global-active device) is used in the target storage system, see ["1.1.11 Note on Deleting Remote Paths"](#).

Click the [Block] button after checking that the Channel Board to be replaced is correct.
If a message other than the described is displayed, refer to “Device Manager-Storage Navigator Messages”.

NOTE : The error list window is displayed if multiple errors are detected by the prior check.
If it is displayed, click the test of “Error Code” and recover the failures or the blockade in accordance with the details of the displayed errors.

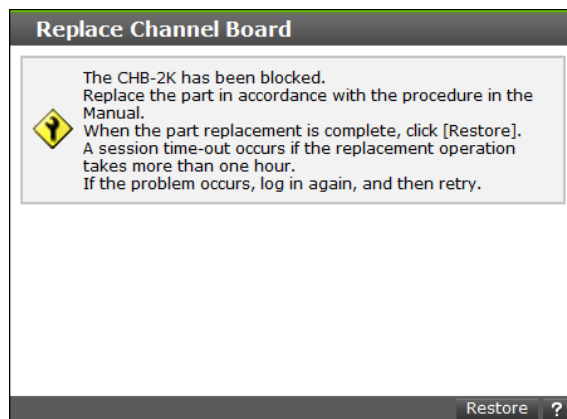


(5) <Check the beginning of Channel Board replacement>

Check that the Channel Board is blocked and becomes ready for replacing.

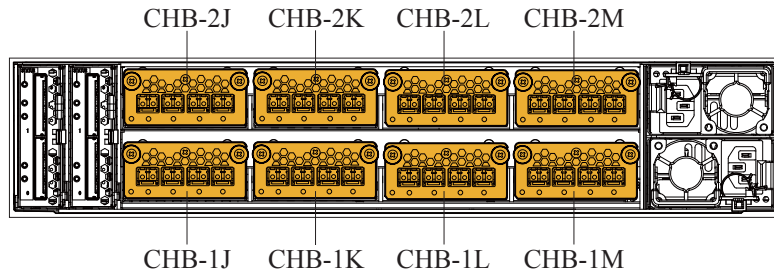
NOTE : Do not click the [Restore] button at this time.

Click the [Restore] button after completing the replacement work.



4. Channel Board for CHBB replacement processing

Location	Replacement parts name	Part Name
Rear View of CHBB	1 Channel Board	<ul style="list-style-type: none"> • DW-F800-4HF32R (32 G FC) • DW-F800-2HS10S (10 G iSCSI (Optic)) • DW-F800-2HS10B (10 G iSCSI (Copper))

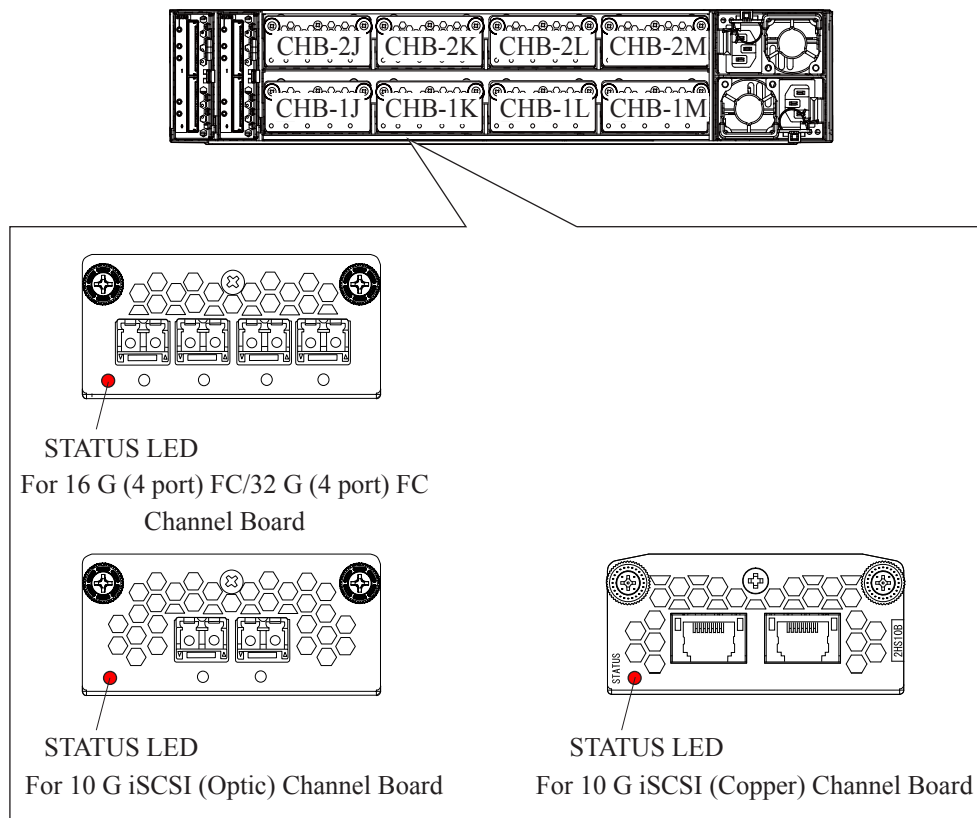


CHBB (Rear view)

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 [“1.1.3 Note on Installing and Removing Parts”](#).

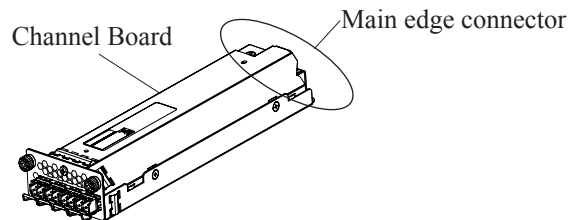
- (1) Check that the STATUS LED (red) on the Channel Board to be replaced lights up. When the LED does not light up, check the location of the Channel Board to be replaced in the “Maintenance Utility” window.

Figure 2-130 STATUS LED Location



- (2) Remove the cables from the Channel Board to be replaced.
- (3) Replace the Channel Board.

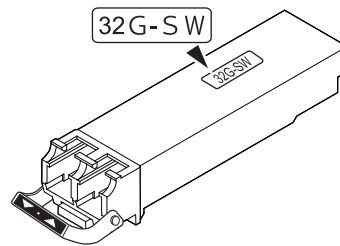
NOTICE: When removing the Channel Board, hold it with both hands and remove it straight not to apply a shock to with any components.



NOTICE: If Channel Boards are inserted randomly, malfunction may occur. Therefore, insert the Channel Boards in two steps, [Step \(d\)](#) and [Step \(e\)](#) shown below.

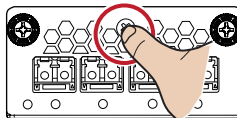
- (a) Loosen the two screws (blue) which fix the Channel Board.
- (b) Pull out and remove the Channel Board while holding the screws (blue).
- (c) Move the Small Form-Factor Pluggable (SFP).
If the following condition is met, mount the Small Form-Factor Pluggable (SFP) in the removed Channel Board (CHB) on a new Channel Board (CHB). If the following condition is not met, go to [Step \(d\)](#) without mounting the Small Form-Factor Pluggable (SFP).
[When replacing 32 Gbps/16 Gbps (4-port) CHB]
 - (i) Pull the Small Form-Factor Pluggable (SFP) lever down toward you and pull out the Small Form-Factor Pluggable (SFP) from the removed CHB.
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing the lever open toward you.
 - (ii) Check the insertion direction of the Small Form-Factor Pluggable (SFP) removed in [Step \(i\)](#), and insert it into the same location on the new CHB until it clicks.

The label "32G-SW" is attached to the 32 Gbps Small Form Factor Pluggable (SFP).



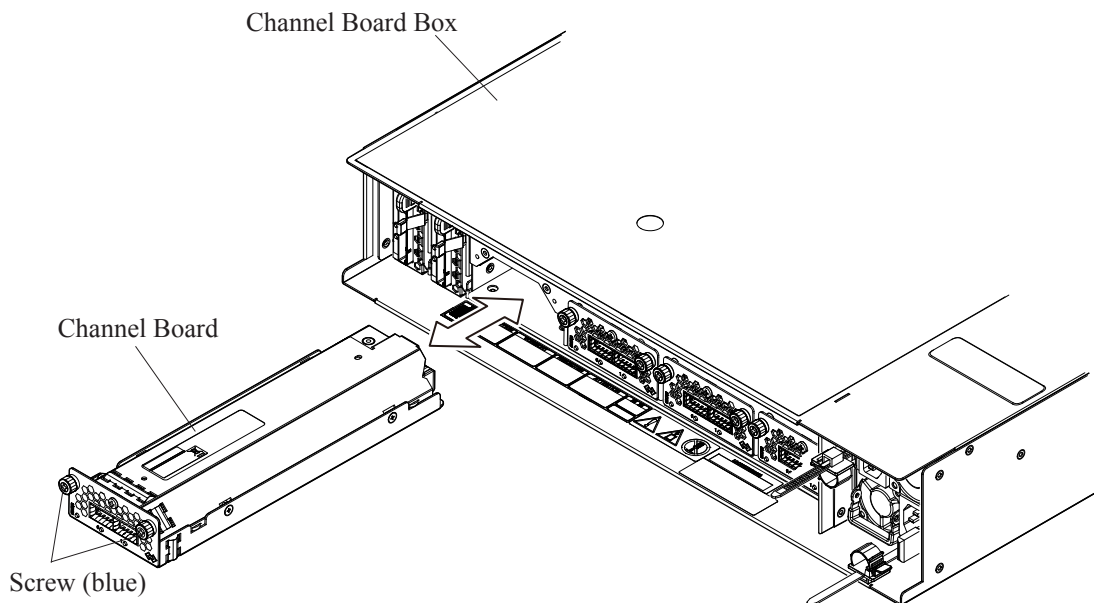
- (d) Insert the new Channel Board into the slot just before the shield finger.
- (e) Push the Channel Boards gently all the way in.

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



- (f) Tighten the two screws (blue) to fix the Channel Board.

Figure 2-131 Replacement of Channel Board



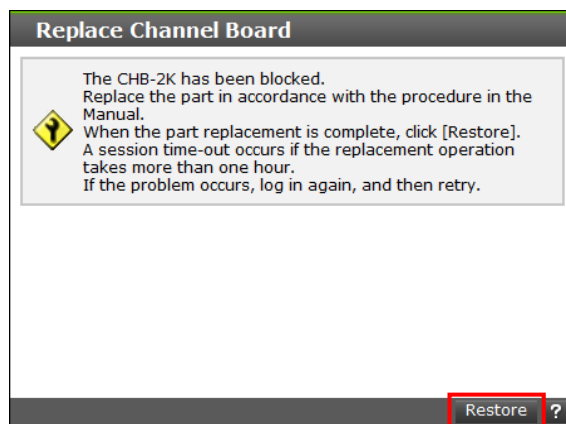
- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the connector part using an air spray (approx. five seconds).
 - (b) Wipe the connector part lightly with cut gauze soaked in ethyl alcohol.
 - (c) Spray compressed gas again and check the cleanliness. (Be sure that no dust, foreign substance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

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

5. Restoring replacement parts by Maintenance Utility

- (1) <Restore replacement parts>

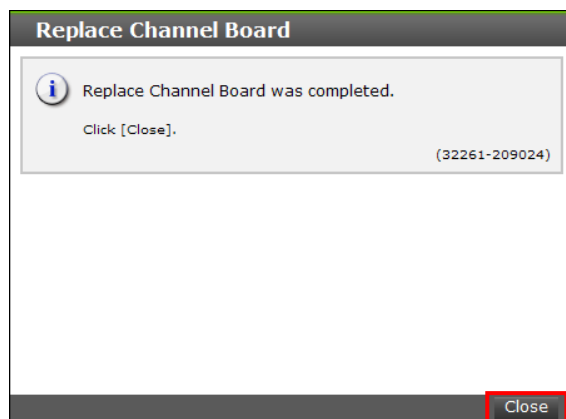
Click the [Restore] button.



- (2) <Check replacement parts restoration>

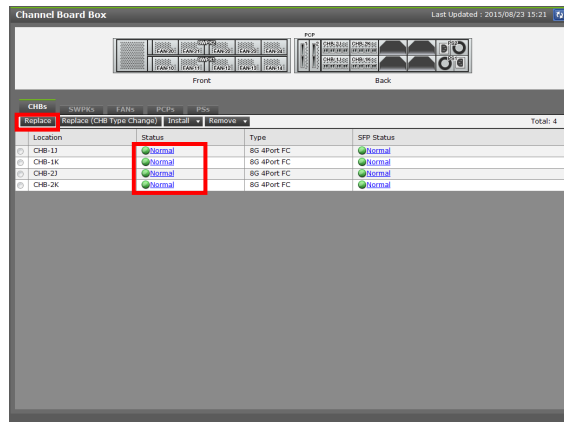
Check that the following message is displayed and click the [Close] button.

If a message other than the described is displayed, refer to "Device Manager-Storage Navigator Messages".



(3) <Check Channel Board restoration>

Click the [CHBs] tab in the “Channel Board Box” window and check that a Status of the replaced Channel Board is “Normal”.



(4) Click the [Logout] button to close the window.

(5) <Get the error information>

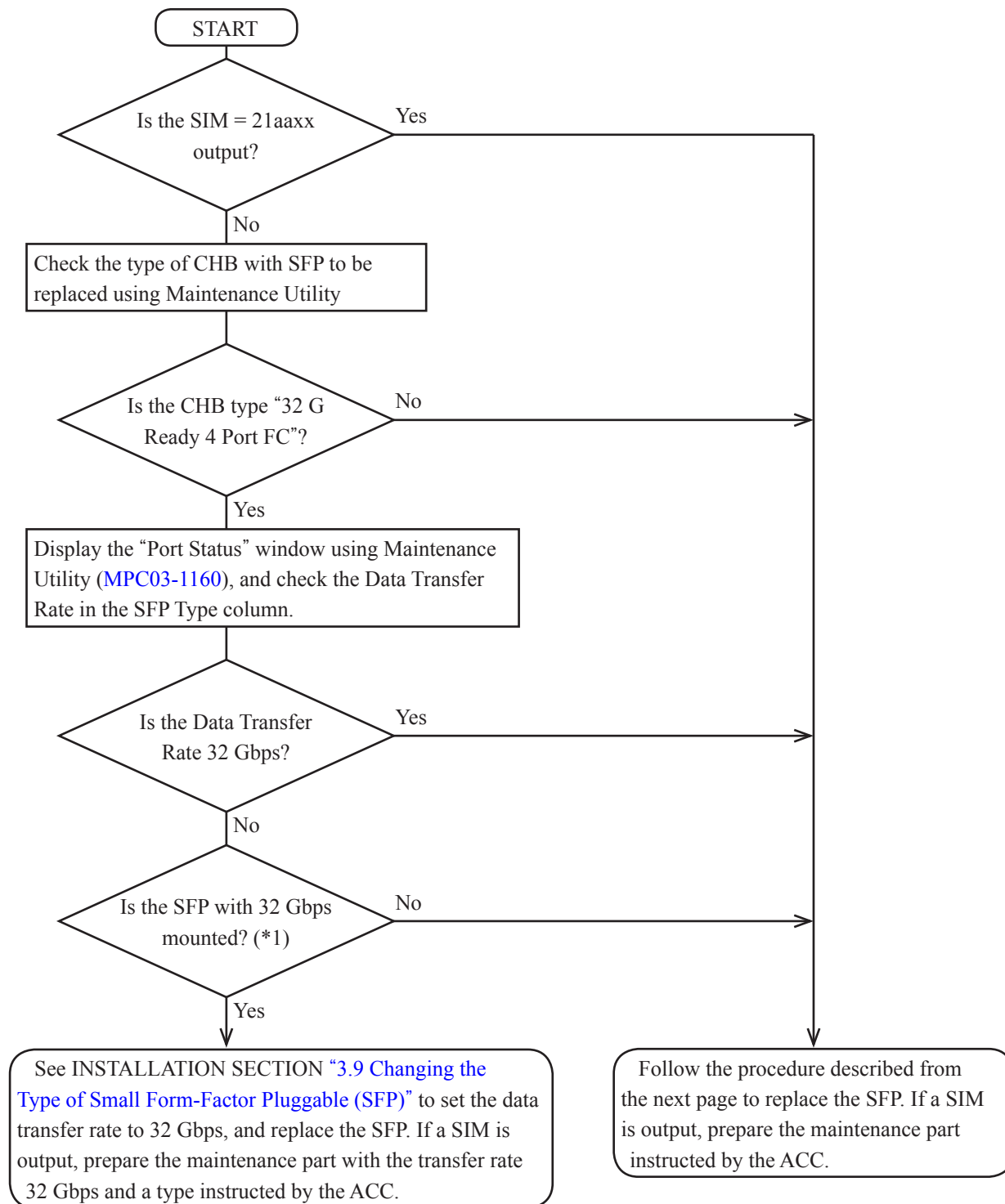
Collect small system dumps by referring to [“3.27 Acquiring Dumps using Maintenance Utility”](#) in MAINTENANCE PC SECTION.

(6) Refer to the MAINTENANCE PC SECTION [“7.1 Use of OnlineDumpTool”](#), please upload the error information.

-
6. Disconnecting the maintenance PC and the Storage System.
Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.13 Replacing a Small Form-Factor Pluggable (SFP)

If the SFP is replaced with the one for the 32G Ready 4Port FC CHB, the replacement might need to be performed using the procedure, see [“3.9 Changing the Type of Small Form-Factor Pluggable \(SFP\)”](#) in INSTALLATION SECTION. Follow the flowchart below to check which replacement procedure to perform.



*1: Check the record at the time of delivery, or remove the SFP and check the appearance. See [INST03-09-70](#), [INST03-09-180](#), [INST03-09-290](#).

The window and the procedure differ between the CBXSS/CBXSL, the CBSS/CBSL, the CBLH and Channel Board Box.

- When replacing a Small Form-Factor Pluggable (SFP) of the CBXSS/CBXSL
[“2.13.4 Replacing a Small Form-Factor Pluggable \(SFP\) for CBXSS/CBXSL”](#)
- When replacing a Small Form-Factor Pluggable (SFP) of the CBSS/CBSL
[“2.13.1 Replacing a Small Form-Factor Pluggable \(SFP\) for CBSS/CBSL”](#)
- When replacing a Small Form-Factor Pluggable (SFP) of the CBLH
[“2.13.2 Replacing a Small Form-Factor Pluggable \(SFP\) for CBLH”](#)
- When replacing a Small Form-Factor Pluggable (SFP) of the Channel Board Box
[“2.13.3 Replacing a Small Form-Factor Pluggable \(SFP\) for Channel Board Box”](#)

2.13.1 Replacing a Small Form-Factor Pluggable (SFP) for CBSS/CBSL

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Small Form-Factor Pluggable (SFP), connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

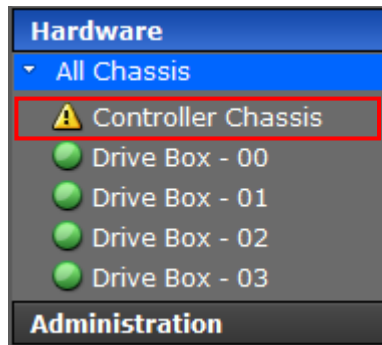
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

Select [Controller Chassis] in the main window.

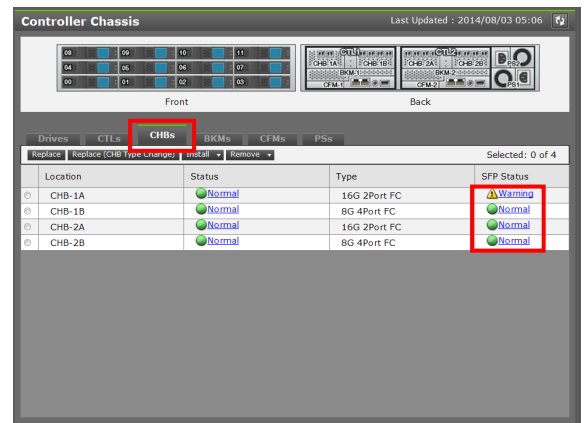
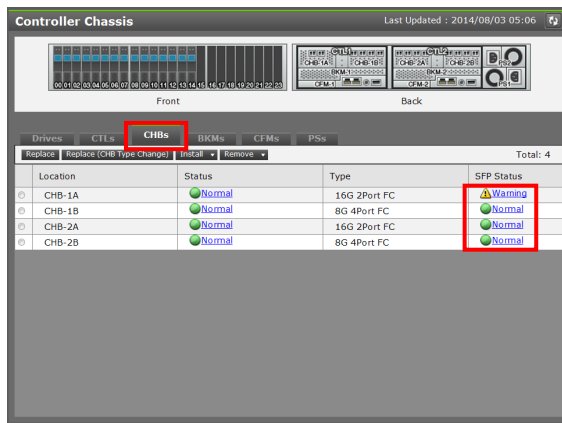


(2) <Controller Chassis window>

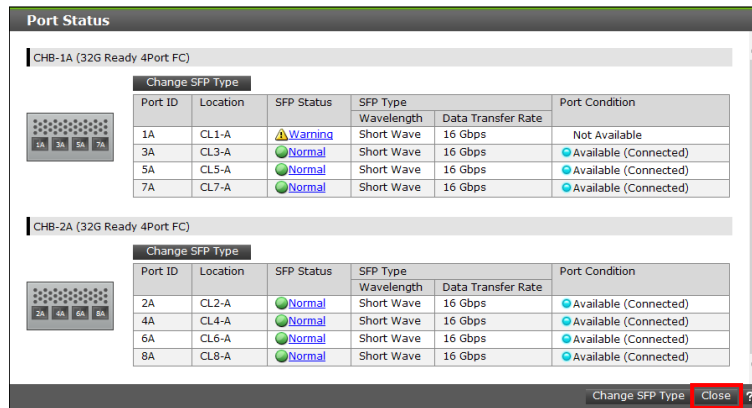
Click the [CHBs] tab in the “Controller Chassis” window and click “Warning” in the [SFP Status] column. See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

• In case of CBSS

• In case of CBSL

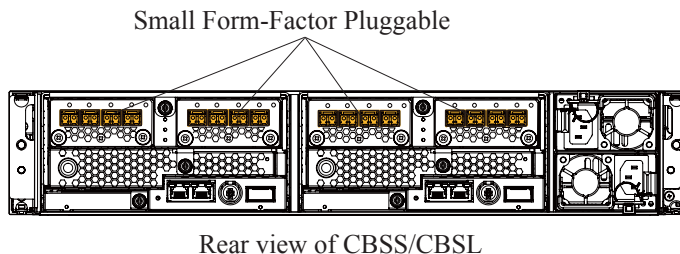


- (3) <Check Small Form-Factor Pluggable (SFP)>
Select a Small Form-Factor Pluggable (SFP) to be replaced. Click the [Close] button.



4. Small Form-Factor Pluggable (SFP) for CBSS/CBSL Replacement Processing

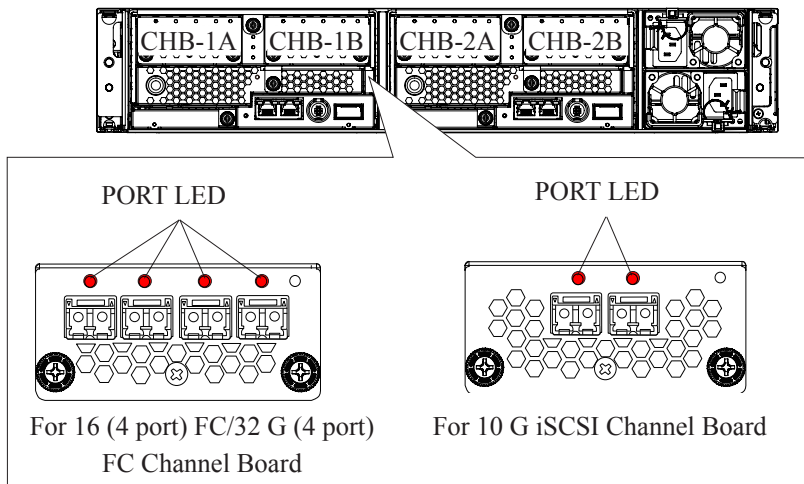
Location	Replacement parts name	Part Name
Rear View of CBSS/CBSL	1 Small Form-Factor Pluggable	<ul style="list-style-type: none"> • Shortwave, For 16 G FC • Longwave, For 16 G FC • Shortwave, For 32 G FC • Shortwave, For 10 G iSCSI



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 [“1.1.3 Note on Installing and Removing Parts”](#).

- (1) Check that the PORT LED (red) on the CBSS/CBSL Small Form-Factor Pluggable (SFP) to be replaced lights up. When the LED does not light up, check the location of the Small Form-Factor Pluggable (SFP) to be replaced in the “Maintenance Utility” window.

Figure 2-132 PORT LED Location



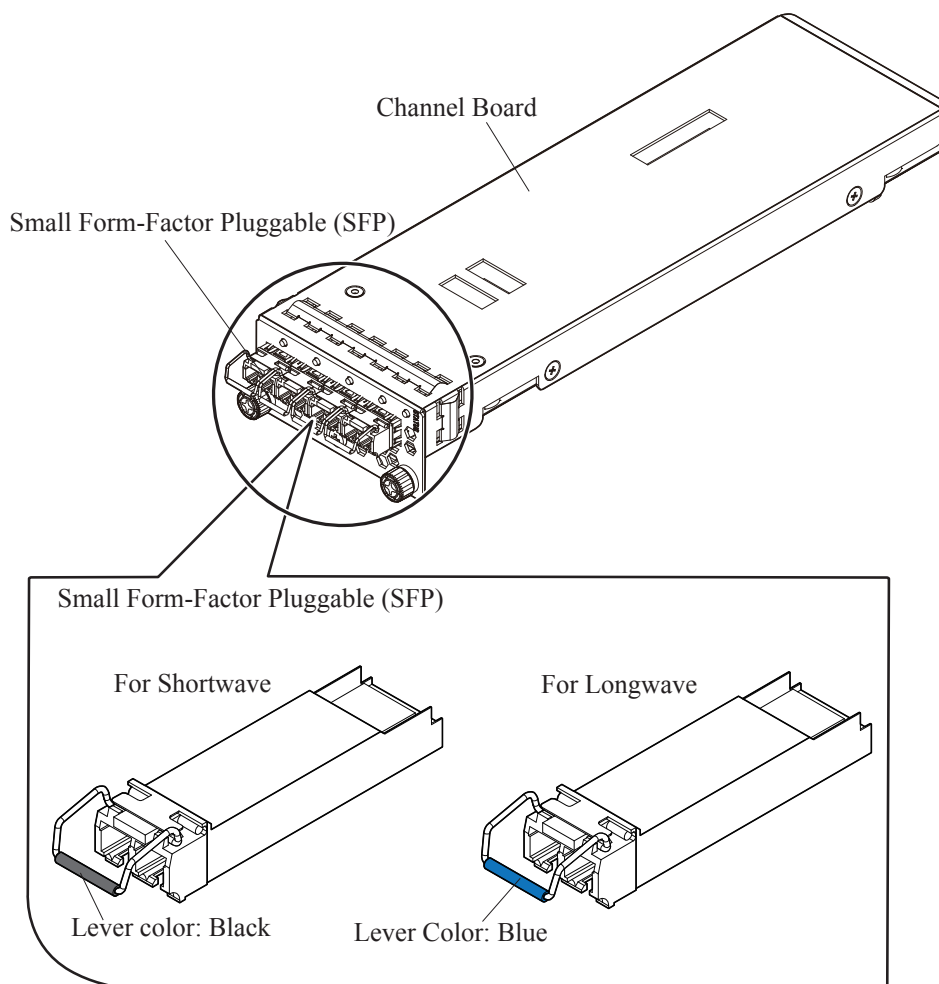
- (2) Remove the cables from the Small Form-Factor Pluggable (SFP) to be replaced.
- (3) Replace the Small Form-Factor Pluggable (SFP).
 - (a) Open the SFP lever and pull out the Small Form-Factor Pluggable (SFP).
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing open the lever toward you.

NOTE : After removing the Small Form-Factor Pluggable, wait for about 10 seconds before inserting a new one.

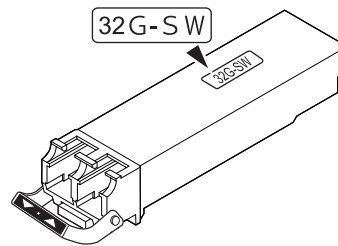
- (b) Check the Small Form-Factor Pluggable (SFP) insertion direction and inset the Small Form-Factor Pluggable (SFP) into the port until it clicks.

NOTE : Be sure to install the same type of Small Form-Factor Pluggable (SFP) as the removed one.

Figure 2-133 Replacement of Small Form-Factor Pluggable (SFP)



The label “32G-SW” is attached to the 32 Gbps Small Form Factor Pluggable (SFP).



- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the 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 replaced Small Form-Factor Pluggable (SFP).

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

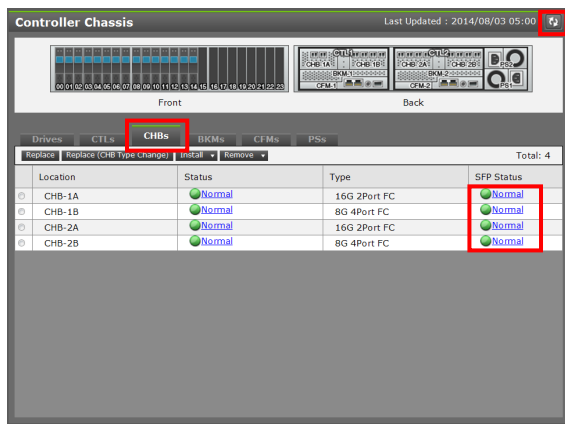
5. Restoring replacement parts by Maintenance Utility

(1) <Check Small Form-Factor Pluggable (SFP) restoration>

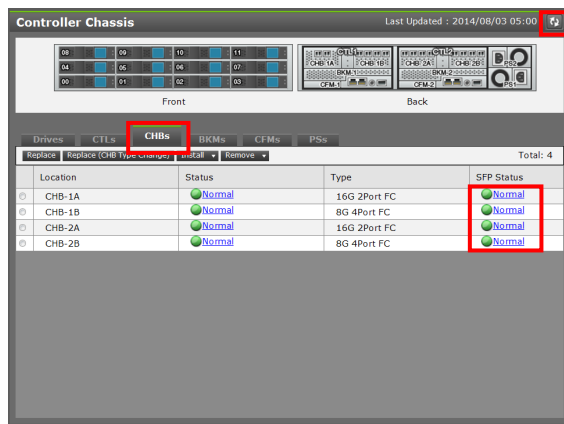
Click the [CHBs] tab in the “Controller Chassis” window and check that a Status of the replaced Small Form-Factor Pluggable (SFP) is “Normal”.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.

• In case of CBSS



• In case of CBSL



(2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “2.8.3 Disconnecting the Maintenance PC from the Storage System”.

2.13.2 Replacing a Small Form-Factor Pluggable (SFP) for CBLH

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Small Form-Factor Pluggable (SFP), connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

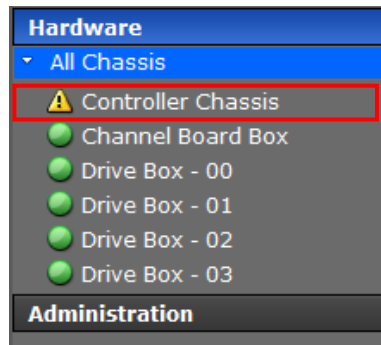
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

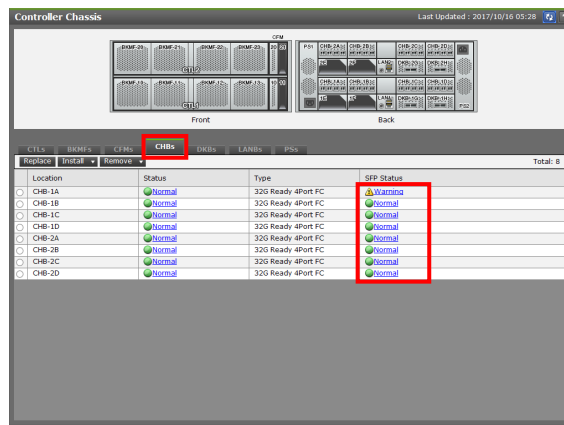
(1) <Main window>

Select [Controller Chassis] in the main window.

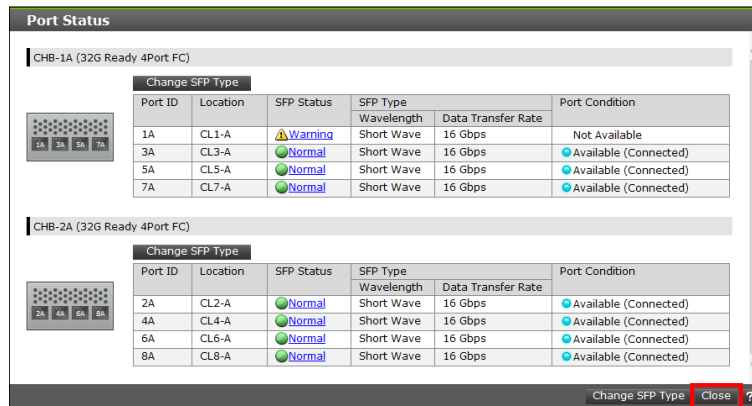


(2) <Controller Chassis window>

Click the [CHBs] tab in the “Controller Chassis” window and click “Warning” in the [SFP Status] column. See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

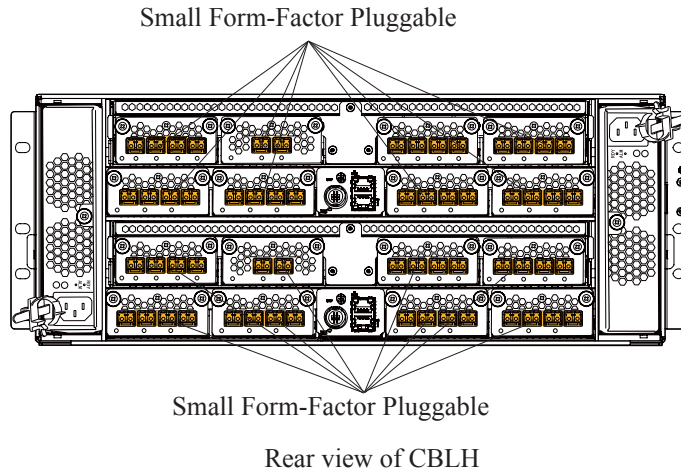


- (3) <Check Small Form-Factor Pluggable (SFP)>
Select a Small Form-Factor Pluggable (SFP) to be replaced. Click the [Close] button.



4. Small Form-Factor Pluggable (SFP) for CBLH Replacement Processing

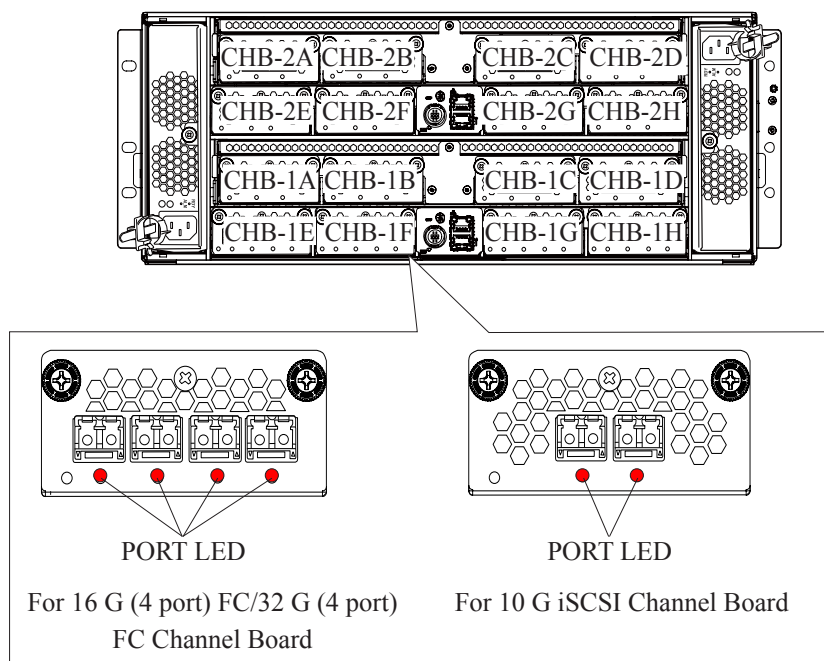
Location	Replacement parts name		Part Name
Rear View of CBLH	1	Small Form-Factor Pluggable	<ul style="list-style-type: none"> • Shortwave, For 16 G FC • Longwave, For 16 G FC • Shortwave, For 32 G FC • Shortwave, For 10 G iSCSI



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 [“1.1.3 Note on Installing and Removing Parts”](#).

- (1) Check that the PORT LED (red) on the CBLH Small Form-Factor Pluggable (SFP) to be replaced lights up. When the LED does not light up, check the location of the Small Form-Factor Pluggable (SFP) to be replaced in the “Maintenance Utility” window.

Figure 2-134 PORT LED Location



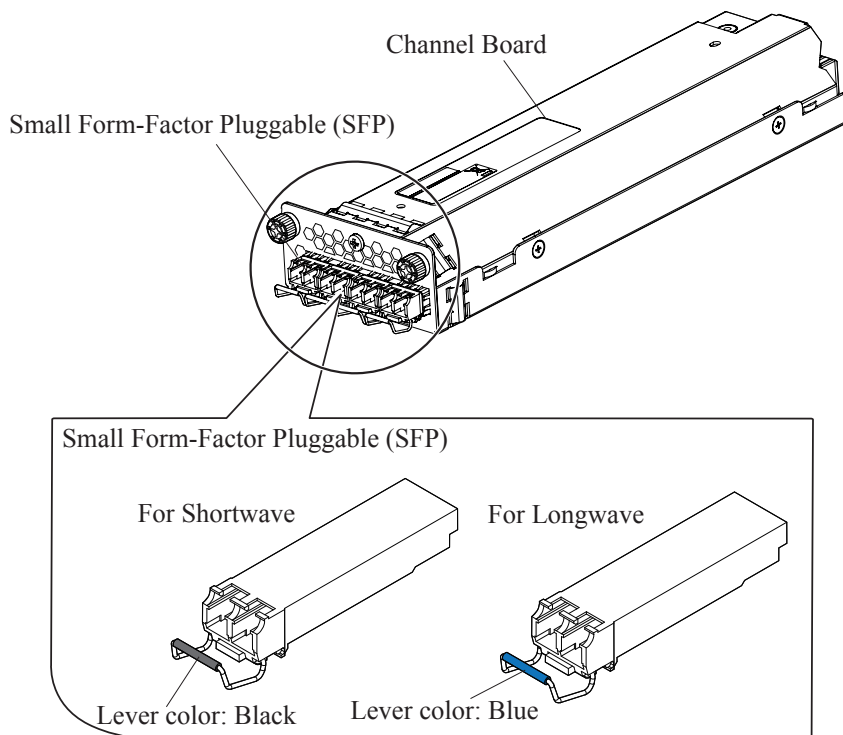
- (2) Remove the cables from the Small Form-Factor Pluggable (SFP) to be replaced.

- (3) Replace the Small Form-Factor Pluggable (SFP).
 - (a) Open the Small Form-Factor Pluggable (SFP) lever and pull out the Small Form-Factor Pluggable (SFP).

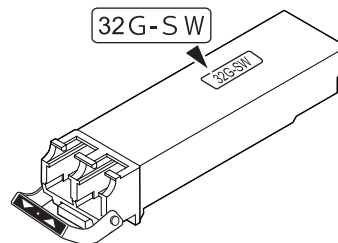
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing open the lever toward you.

NOTE : After removing the Small Form-Factor Pluggable, wait for about 10 seconds before inserting a new one.
 - (b) Check the Small Form-Factor Pluggable (SFP) insertion direction and inset the Small Form-Factor Pluggable (SFP) into the port until it clicks.
- NOTE : Be sure to install the same type of Small Form-Factor Pluggable (SFP) as the removed one.

Figure 2-135 Replacement of Small Form-Factor Pluggable (SFP)



The label "32G-SW" is attached to the 32 Gbps Small Form Factor Pluggable (SFP).



- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the 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 replaced Small Form-Factor Pluggable (SFP).

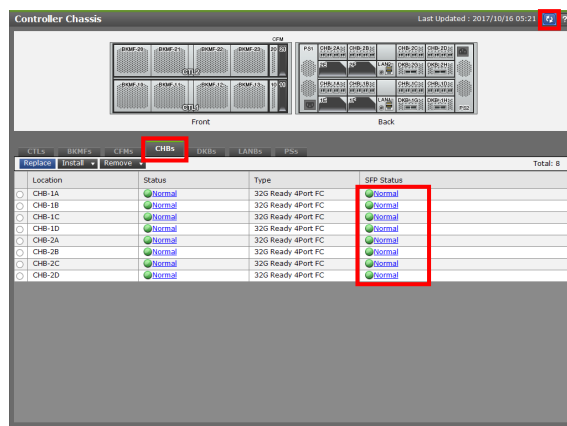
NOTE: Check that cable latch clicks and the cables are surely connected.

5. Restoring replacement parts by Maintenance Utility

- (1) <Check Small Form-Factor Pluggable (SFP) restoration>

Click the [CHBs] tab in the “Controller Chassis” window and check that a Status of the replaced Small Form-Factor Pluggable (SFP) is “Normal”.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.



- (2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION [“2.8.3 Disconnecting the Maintenance PC from the Storage System”](#).

2.13.3 Replacing a Small Form-Factor Pluggable (SFP) for Channel Board Box

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Small Form-Factor Pluggable (SFP), connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

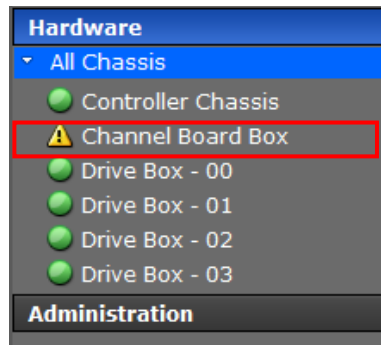
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

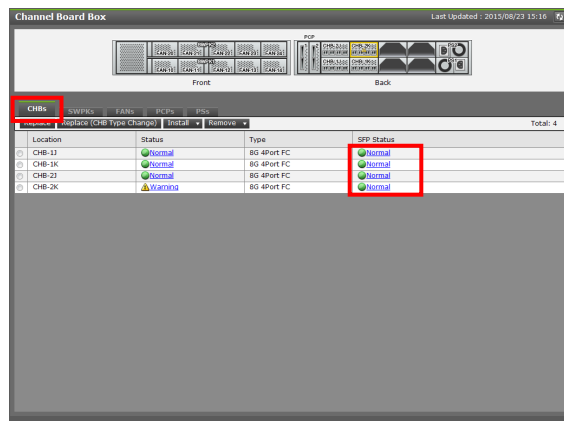
(1) <Main window>

Select [Channel Board Box] in the main window.



(2) <Channel Board Box window>

Click the [CHBs] tab in the “Channel Board Box” window and display the Channel Board status. See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].



(3) <Check Small Form-Factor Pluggable (SFP)>

Check a Small Form-Factor Pluggable (SFP) to be replaced. Click the [Close] button.

Port Status

CHB-1A (32G Ready 4Port FC)

Change SFP Type

Port ID	Location	SFP Status	SFP Type	Wavelength	Data Transfer Rate	Port Condition
1A	CL1-A	Warning	Short Wave	16 Gbps	Not Available	
3A	CL3-A	Normal	Short Wave	16 Gbps	Available (Connected)	
5A	CL5-A	Normal	Short Wave	16 Gbps	Available (Connected)	
7A	CL7-A	Normal	Short Wave	16 Gbps	Available (Connected)	

CHB-2A (32G Ready 4Port FC)

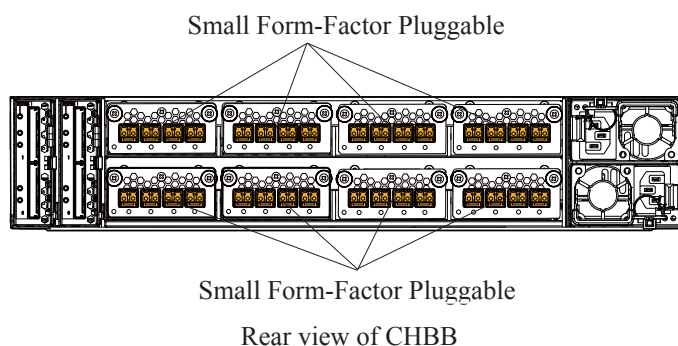
Change SFP Type

Port ID	Location	SFP Status	SFP Type	Wavelength	Data Transfer Rate	Port Condition
2A	CL2-A	Normal	Short Wave	16 Gbps	Available (Connected)	
4A	CL4-A	Normal	Short Wave	16 Gbps	Available (Connected)	
6A	CL6-A	Normal	Short Wave	16 Gbps	Available (Connected)	
8A	CL8-A	Normal	Short Wave	16 Gbps	Available (Connected)	

Change SFP Type Close ?

4. Small Form-Factor Pluggable (SFP) for Channel Board Box Replacement Processing

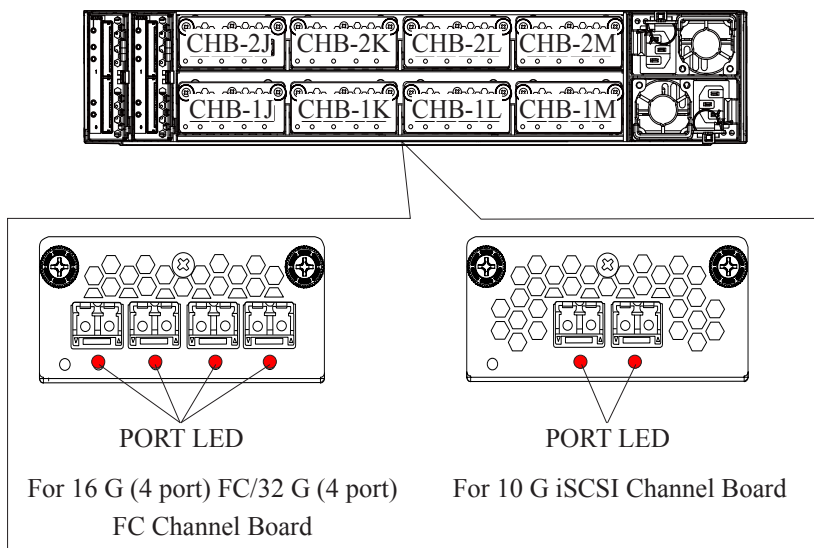
Location	Replacement parts name	Part Name
Rear View of CHBB	1 Small Form-Factor Pluggable	<ul style="list-style-type: none"> • Shortwave, For 16 G FC • Longwave, For 16 G FC • Shortwave, For 32 G FC • Shortwave, For 10 G iSCSI



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. See ["1.1.3 Note on Installing and Removing Parts"](#).

- (1) Check that the PORT LED (red) on the Channel Board Box Small Form-Factor Pluggable (SFP) to be replaced lights up. When the LED does not light up, check the location of the Small Form-Factor Pluggable (SFP) to be replaced in the "Maintenance Utility" window.

Figure 2-136 PORT LED Location



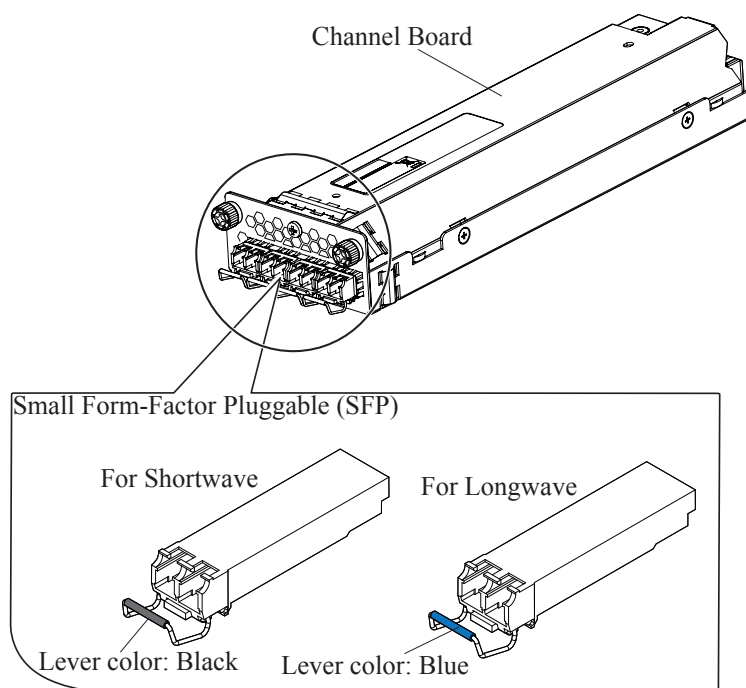
- (2) Remove the cables from the Small Form-Factor Pluggable (SFP) to be replaced.

- (3) Replace the Small Form-Factor Pluggable (SFP).
 - (a) Open the Small Form-Factor Pluggable (SFP) lever and pull out the Small Form-Factor Pluggable (SFP).

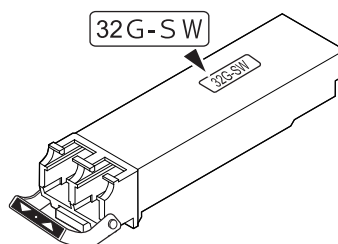
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing open the lever toward you.

NOTE : After removing the Small Form-Factor Pluggable, wait for about 10 seconds before inserting a new one.
 - (b) Check the Small Form-Factor Pluggable (SFP) insertion direction and inset the Small Form-Factor Pluggable (SFP) into the port until it clicks.
- NOTE : Be sure to install the same type of Small Form-Factor Pluggable (SFP) as the removed one.

Figure 2-137 Replacement of Small Form-Factor Pluggable (SFP)



The label "32G-SW" is attached to the 32 Gbps Small Form Factor Pluggable (SFP).



- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the 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 replaced Small Form Factor Pluggable (SFP).

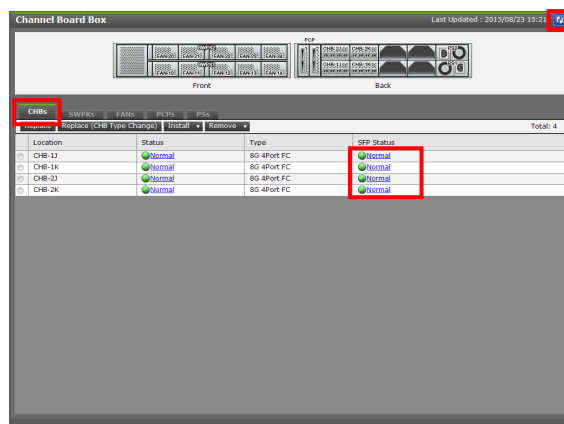
NOTE: Check that cable latch clicks and the cables are surely connected.

5. Restoring replacement parts by Maintenance Utility

- (1) <Check Small Form-Factor Pluggable (SFP) restoration>

Click the [CHBs] tab in the “Channel Board Box” window and check that a Status of the replaced Small Form-Factor Pluggable (SFP) is “Normal”.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.



- (2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “[2.8.3 Disconnecting the Maintenance PC from the Storage System](#)”.

2.13.4 Replacing a Small Form-Factor Pluggable (SFP) for CBXSS/CBXSL

1. Connecting a maintenance PC

Connect the maintenance PC and the Storage System.

When replacing the Small Form-Factor Pluggable (SFP), connect the maintenance PC and the Controller Board 1.

- Connect the maintenance PC and the Controller Board via LAN cable referring to MAINTENANCE PC SECTION [“2.2 Connecting Maintenance PC to Storage System”](#).

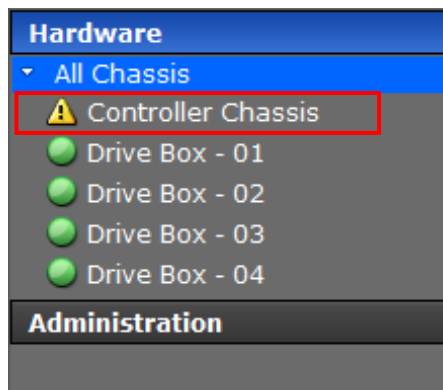
2. Starting Maintenance Utility

Start Maintenance Utility (refer to MAINTENANCE PC SECTION [“2.7.3 Starting the Maintenance Utility Window by Specifying IP Address of CTL”](#)).

3. Selecting replacement parts by Maintenance Utility.

(1) <Main window>

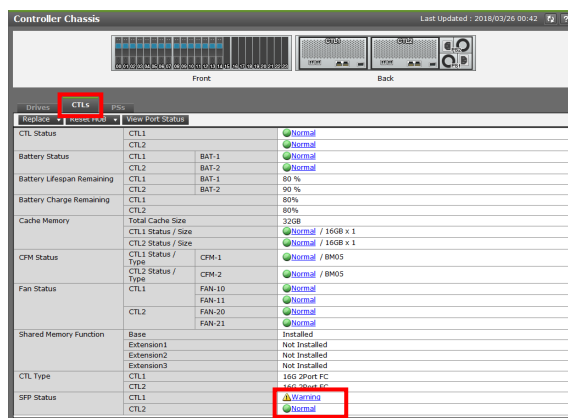
Select [Controller Chassis] in the main window.



(2) <Controller Chassis window>

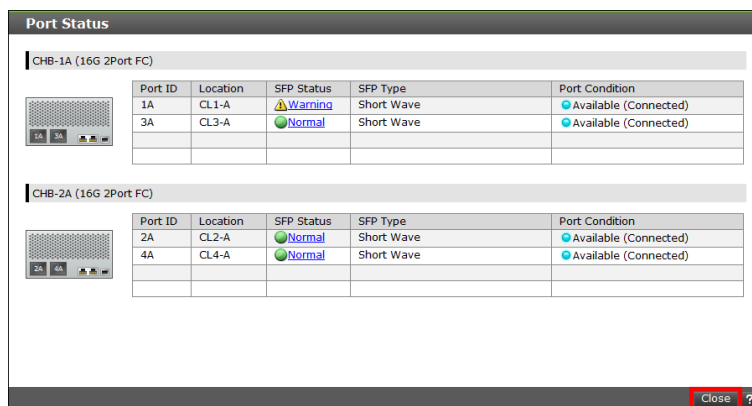
Click the [CTLs] tab in the “Controller Chassis” window and click “Warning” in the [SFP Status] column. See MAINTENANCE PC SECTION “3.22 Alert Display Related to FRU (Field Replacement Unit)” for the [Status].

Example: In case of CBXSS



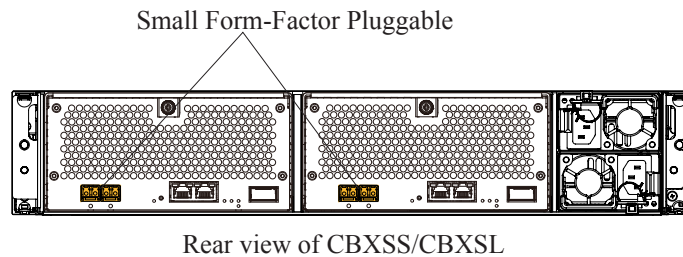
(3) <Check Small Form-Factor Pluggable (SFP)>

Select a Small Form-Factor Pluggable (SFP) to be replaced. Click the [Close] button.



4. Small Form-Factor Pluggable (SFP) for CBXSS/CBXSL Replacement Processing.

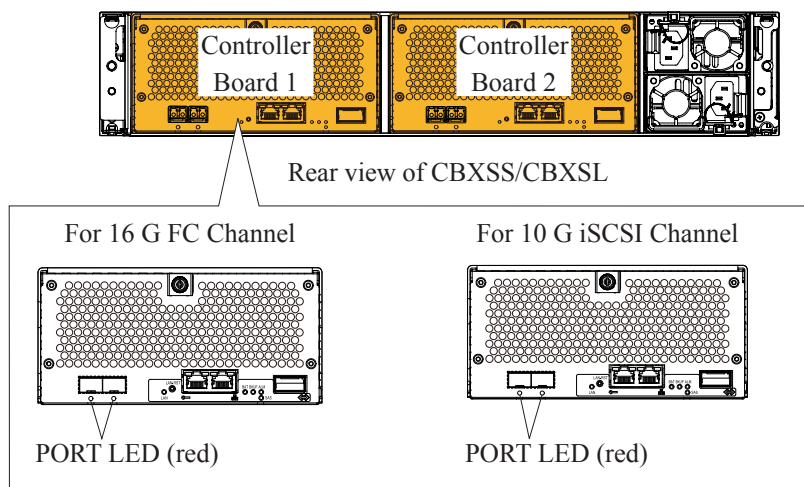
Location	Replacement parts name	Part Name
Rear View of CBXSS/CBXSL	1 Small Form-Factor Pluggable	<ul style="list-style-type: none"> • Shortwave, For 16 G FC • Shortwave, For 10 G iSCSI



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 ["1.1.3 Note on Installing and Removing Parts"](#).

- (1) Check that the PORT LED (red) on the CBXSS/CBXSL Small Form-Factor Pluggable (SFP) to be replaced lights up. When the LED does not light up, check the location of the Small Form-Factor Pluggable (SFP) to be replaced in the "Maintenance Utility" window.

Figure 2-138 PORT LED Location

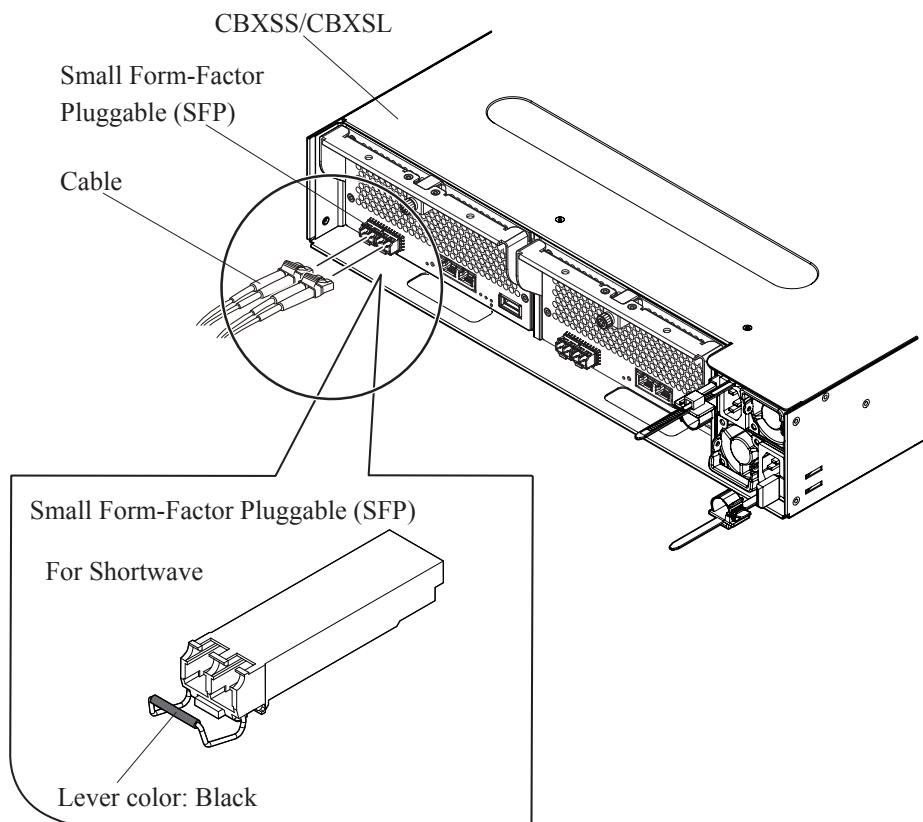


- (2) Remove the cables from the Small Form-Factor Pluggable (SFP) to be replaced.
Remove the cables from the channel ports with care so as not to damage the cables (see “[1.1.12 Notes on Removing Optical Cables](#)”).
- (3) Replace the Small Form-Factor Pluggable (SFP).
 - (a) Open the SFP lever and pull out the Small Form-Factor Pluggable (SFP).
If you cannot remove the Small Form-Factor Pluggable (SFP), pull it out while pushing open the lever toward you.

NOTE : After removing the Small Form-Factor Pluggable, wait for about 10 seconds before inserting a new one.
 - (b) Check the Small Form-Factor Pluggable (SFP) insertion direction and inset the Small Form-Factor Pluggable (SFP) into the port until it clicks.

NOTE : Be sure to install the same type of Small Form-Factor Pluggable (SFP) as the removed one.

Figure 2-139 Replacement of Small Form-Factor Pluggable (SFP)



- (4) Clean the cable connectors.
 - (a) Spray compressed gas to the 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 replaced Small Form-Factor Pluggable (SFP).

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

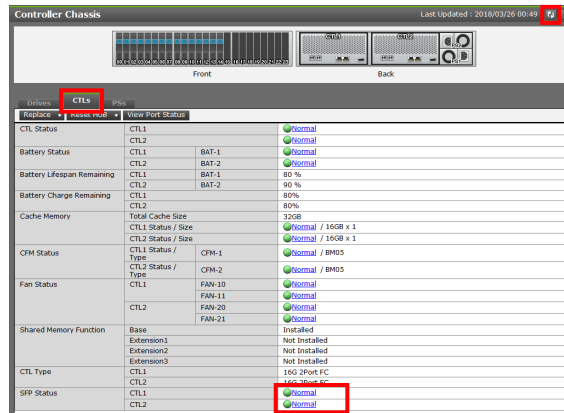
5. Restoring replacement parts by Maintenance Utility

(1) <Check Small Form-Factor Pluggable (SFP) restoration>

Click the [CTLs] tab in the “Controller Chassis” window and check that a Status of the replaced Small Form-Factor Pluggable (SFP) is “Normal”.

NOTE : Click the refresh button on the upper right of the window to update the window, and then check the status.

Example: In case of CBXSS



(2) Click the [Logout] button to close the window.

6. Disconnecting the maintenance PC and the Storage System.

Remove the LAN cable from the Controller Board referring to MAINTENANCE PC SECTION “2.8.3 Disconnecting the Maintenance PC from the Storage System”.