[Battery REPLACEMENT PROCESSING - RBTR]

For the Battery for DKC, the replacement procedure differs depending on SIM reference codes.
See the following.
- When the SIM reference code is "FFFAxx": "1. Failure Replacement of a Battery for BKMF"
- When the SIM reference code is "AF41xx": "2. Preventive Replacement of a Battery for BKMF"
- When any SIM is not reported (preventive maintenance, periodic replacement, and so on): "2. Preventive Replacement of a Battery for BKMF"

1. Failure Replacement of a Battery for BKMF

1. Connecting the Maintenance PC
   Connect the Maintenance PC to the SSVP, and then log in to the SVP.
   - "Attachment/Removal Procedure of Maintenance PC" (INST(IN)13-02-10)
   - "Connection to the SVP" (SVP01-30)

2. Starting the SVP window
   From the menu of Web Console, click [Maintenance Components] - [Maintenance Other Components].

3. Changing the operation mode
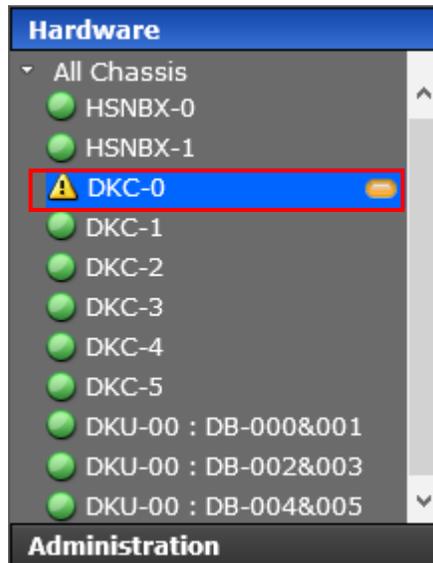   Change the mode to [View Mode].

4. Starting Maintenance Utility
   In the SVP window, click [Maintenance Utility]. (See "Starting Maintenance Utility" (MU01-10).)

5. Selecting replacement parts by Maintenance Utility.
    (1) <Main window>
         Select [DKC-X] in the main window.

   (2) <Controller Chassis window>
         Click the [BKMFs] tab in the Controller Chassis window to display a Battery status.
         See "Alert Display Related to FRU (Field Replacement Unit)" (MU02-10) for [Status].

         NOTE: In case of a battery failure, do not click [Block].
                When a battery failure occurs, the BKMF in which the battery is installed is blocked.
                So, you do not need to block the BKMF. If you click [Block] by mistake, a window
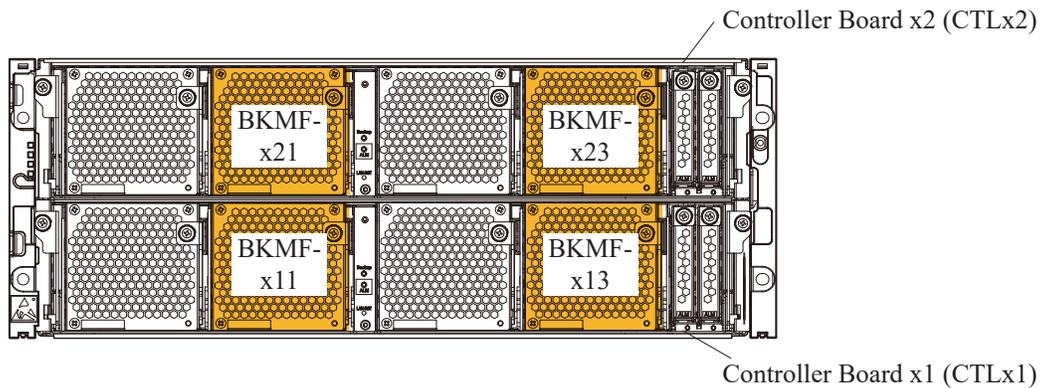   asking for a password is displayed. In such a case, click [Cancel].
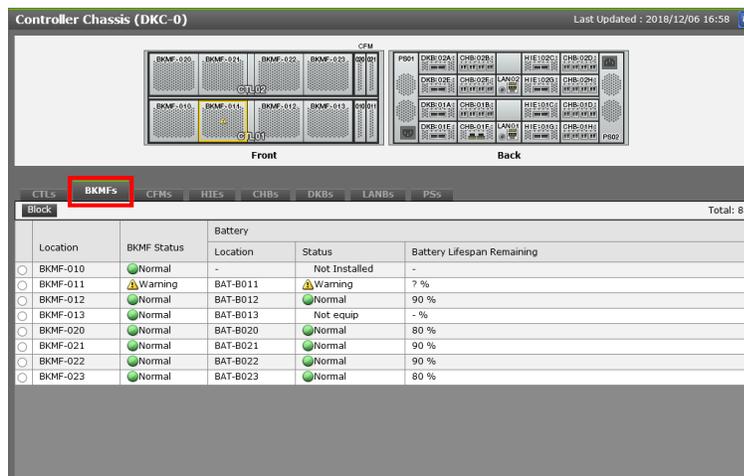
         NOTE: When "Warning" is displayed in the "BKMF Status", "?" is displayed for the "Battery
                Lifespan Remaining" of "Battery".
                In this case, resolve "Warning" in "BKMF Status" to return "?" to a numeral value
                display.

6. Battery Replacement Processing

Location	Function Name of Component		Part Name
Front of DKC	1	Battery	BAT

Controller Board x2 (CTLx2)

```
┌──────────────────────────────────────────┐
│  BKMF-          BKMF-                      │
│  x21            x23                        │
│                                            │
│  BKMF-          BKMF-                      │
│  x11            x13                        │
└──────────────────────────────────────────┘
```

Controller Board x1 (CTLx1)

Front view of DKC-x

*1: DKC-x
          └→DKC No. (0, 1, 2, ..., 5)

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

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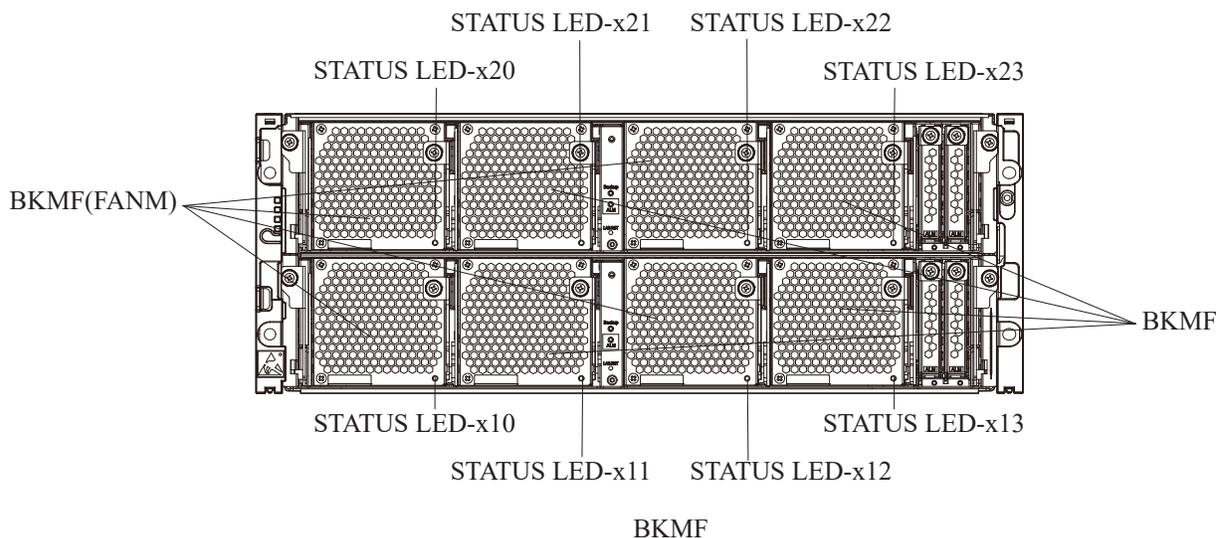

⚠ **CAUTION**

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 ″How to Attach/Remove Front Bezel″ (REP(GE)08-10).)

(2)   Check that the STATUS LED (red) on the DKC BKMF to be replaced is blinking. When the LED does not blinking, check the location of the Battery to be replaced in the Maintenance Utility window.

Figure 1-1 STATUS LED Location (BKMF)

(3) Replace the Battery.

⚠ DANGER

- If the battery leaks and gets into your eyes, immediately flush your eyes with clean water (tap water) and do not rub your eye. Then visit the doctor immediately. If you do not seek any treatment for your eyes, problems may occur later. Because the battery uses highly concentrated alkaline as electrolyte, it may burn or you may lose your sight if it contacts your skin or eyes. If the battery's liquid contacts your skin or eyes, you must flush them with plenty of clean water and visit the doctor at once.
- If you find battery fluid leakage, adhesion of white powdery substance, or heavy corrosion/rust on the removed BKMF, or battery itself, battery electrolyte might have leaked. Do not touch leaked fluid or white powdery substance. If the battery's liquid contacts your skin or eyes, you must flush them with plenty of clean water and visit the doctor at once.

⚠ CAUTION

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

⚠ CAUTION

If you find battery fluid leakage on the removed BKMF, or battery itself, contact the Technical Support Division. You also need to replace the Controller Board where the removed part was installed and the other parts installed in the Controller Board. If you do not replace the parts corroded by battery electrolyte, the storage system may be down.

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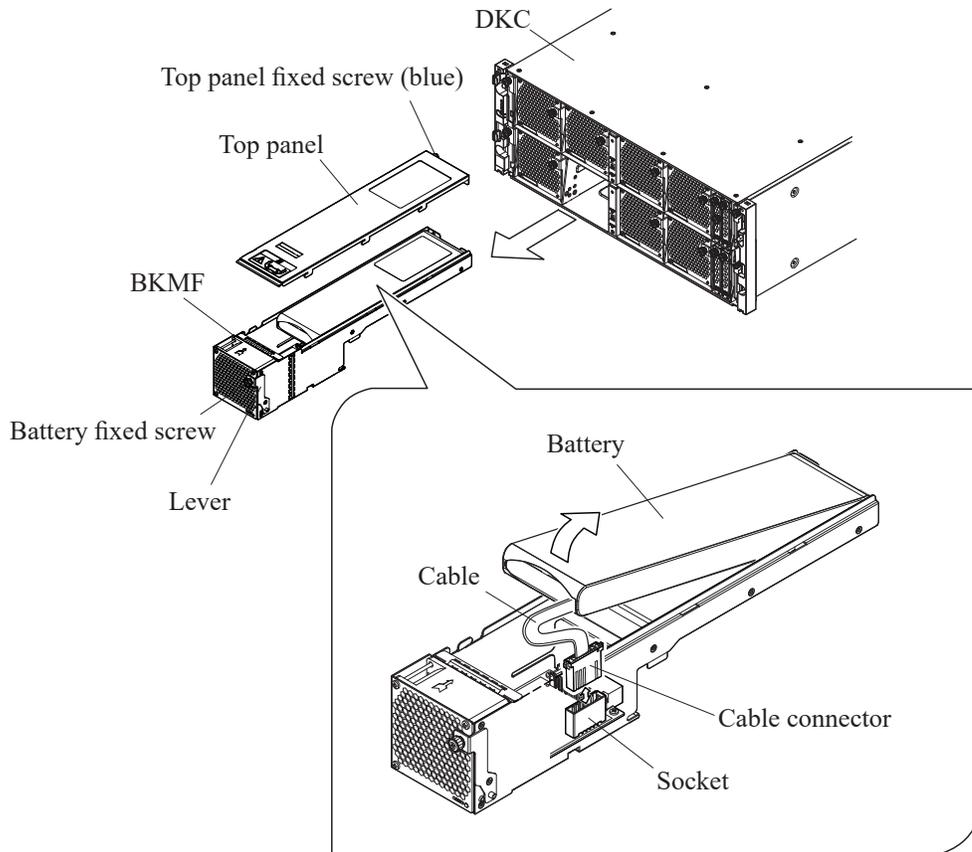

Connector

Front view of BKMF

(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 1-2 Replacement of Battery

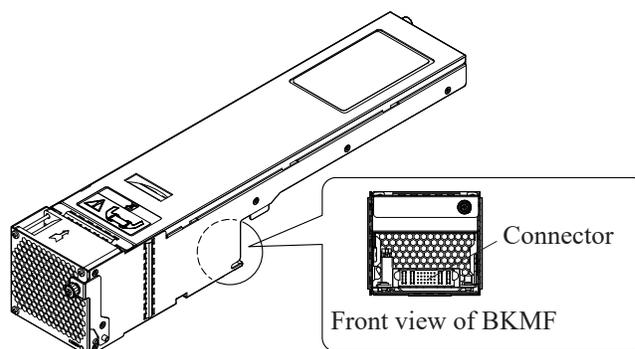(g) Install a new Battery in the BKMF and route cables along the groove of the BKMF.

    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.

Connector

Front view of BKMF

(k) With the lever of the new BKMF opened, insert the BKMF into the slot.

(l) Insert the BKMF up to the front of the shield finger.

(m) Insert the BKMF while pushing the side of its lever to the left until the pin of the lever goes through the cutout of the chassis and stops.

(n) Close the lever of the BKMF and tighten the screw (blue).

Figure 1-3 Removing BKMF

Side of lever

Cutout

DKC

Pin

BKMF

Screw (blue)

Lever
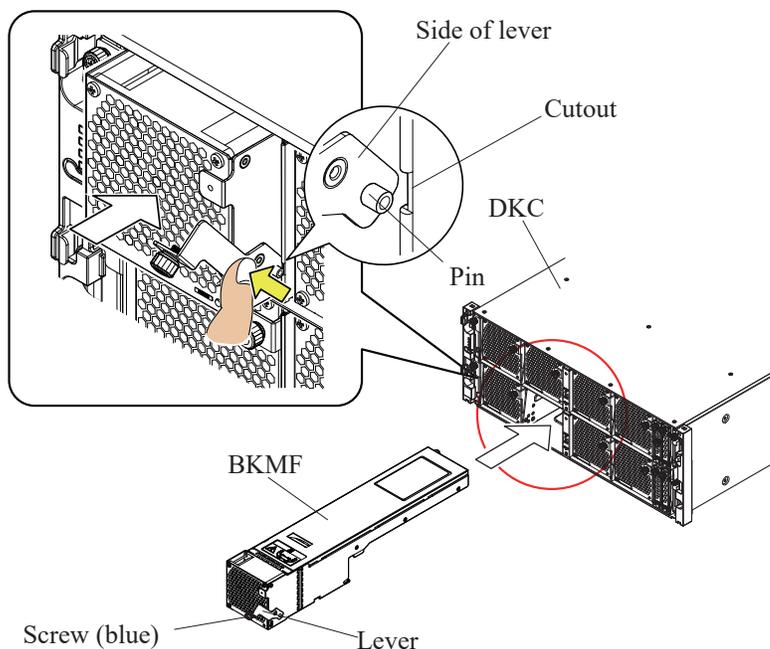
(4) Check that the STATUS LED (green) on the replaced BKMF is blinking.

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

(6) Discard the replaced batteries.
Discard the batteries appropriately according to the law of the Storage System use place (refer to "Processing Method of Batteries" (REP(GE)11-10).).

7. Restoring replacement parts by Maintenance Utility
   Click the [BKMFs] tab in the Controller Chassis window and check that a Status of the replaced Battery is Normal.

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

8. Closing Maintenance Utility
   (1) Click [Logout] to close the window.

   (2) <Get the error information>
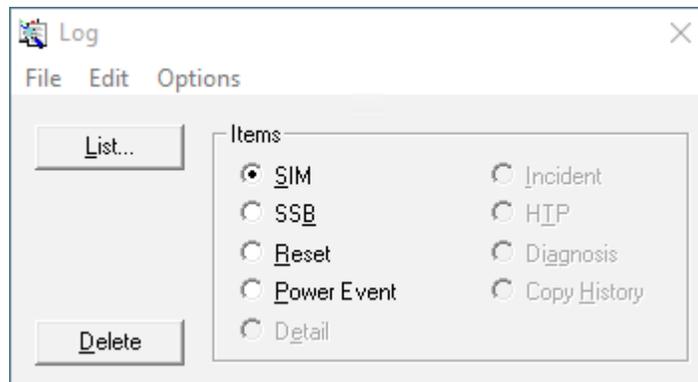   Get dumps with "Dump Type: Rapid" by referring to "Dump/Auto Dump" (SVP02-09-10).

   (3) Refer to the "Use of OnlineDumpTool" (SVP02-21-10), please upload the error information.

9. Completing the SIM log
   (1)   Change the mode to [Modify Mode], and then select [Information].

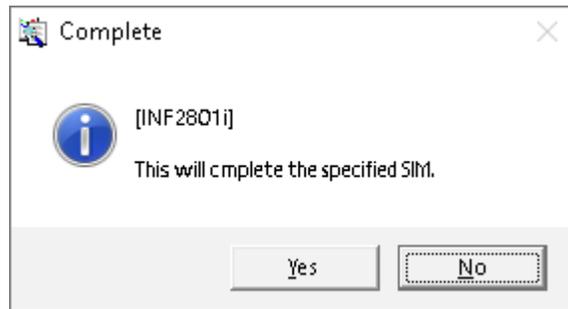   (2)   In the Information window, click [Log...].

   (3)   In the Log window, select [SIM] and then [List...].

   (4)   In the List-SIM window, select the data for which you end the process, and then click [Complete].

(5) In the Complete window, click [Yes].

(6) In the List-SIM window, confirm that the "Status" of the data has become "Completed".

(7) In the List-SIM window, click [Close].

Close the Log window, then the Information window.

Change the mode from [Modify Mode] to [View Mode].

> NOTE: If the MESSAGE LED is lit on the HSNPANEL after you complete all SIMs, display SIMs to check that SIM statuses are "Completed". If SIM statuses are not "Completed", wait for five minutes, and then perform the procedure for completing the SIM log again.

10. Checking Normality

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

2. Preventive Replacement of a Battery for BKMF

1. Connecting the Maintenance PC
   Connect the Maintenance PC to the SSVP, and then log in to the SVP.
   - "Attachment/Removal Procedure of Maintenance PC" (INST(IN)13-02-10)
   - "Connection to the SVP" (SVP01-30)

2. Starting the SVP window
   From the menu of Web Console, click [Maintenance Components] - [Maintenance Other Components].

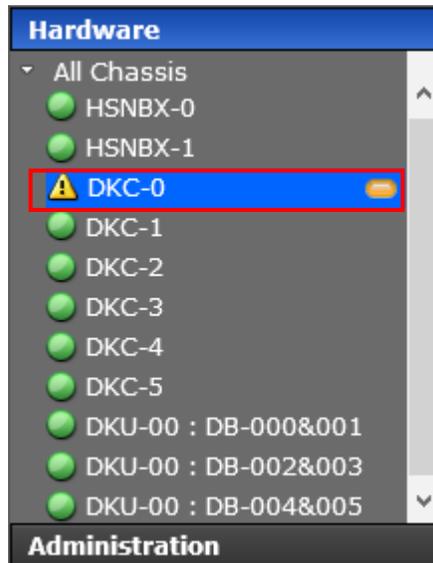3. Changing the operation mode
   Change the mode to [View Mode].

4. Starting Maintenance Utility
   In the SVP window, click [Maintenance Utility]. (See "Starting Maintenance Utility" (MU01-10).)

5. Selecting replacement parts by Maintenance Utility.
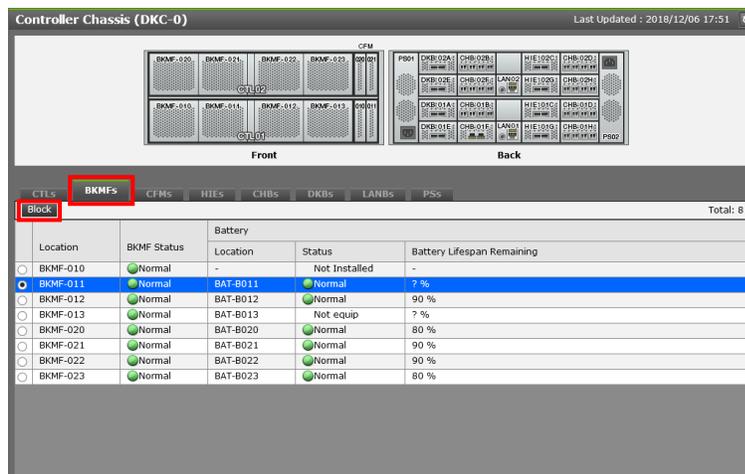   (1) <Main window>
         Select [DKC-X] in the main window.

    (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 [Block].

(3) <Block BKMF>

⚠ **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.

Check that the BKMF has the Battery to be replaced, and then click [Block].
If a message other than the described is displayed, refer to Message Section (MSG00-00).

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

Block Backup Module

⚠ To block BKMF-011, click [Block].

☐ ⚠Forcibly run without safety checks

[Block] [Cancel]
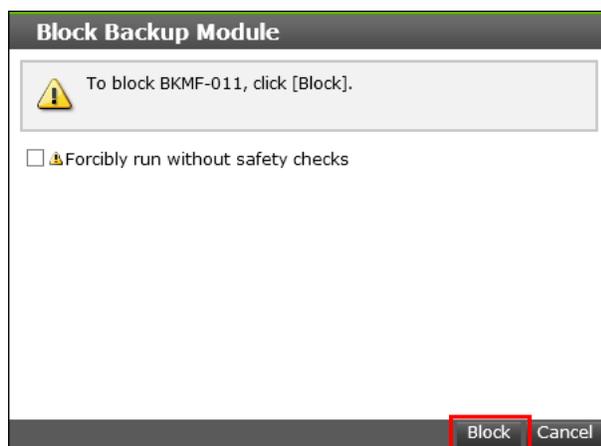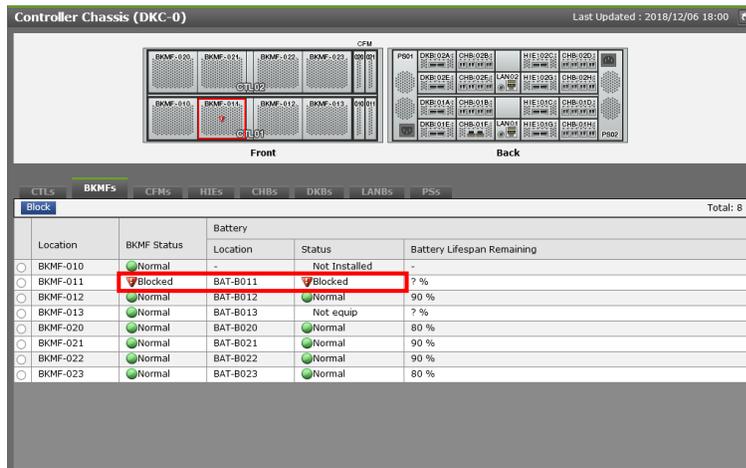
(4) <Check the beginning of Battery replacement>
Check that the BKMF is blocked and the following message is displayed.
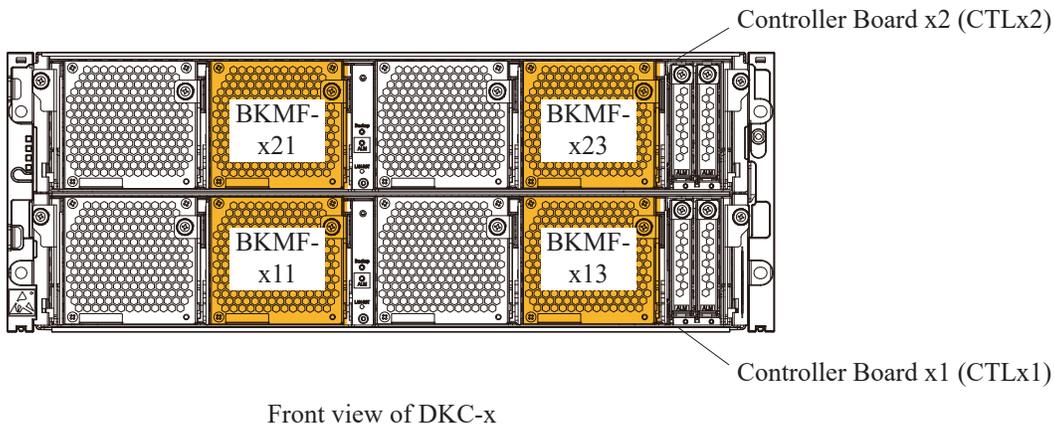When a message other than the following is displayed, refer to Message Section (MSG00-00).

Block Backup Module

ⓘ Blocking the backup module is complete.

Click [Close].

(32261-209039)
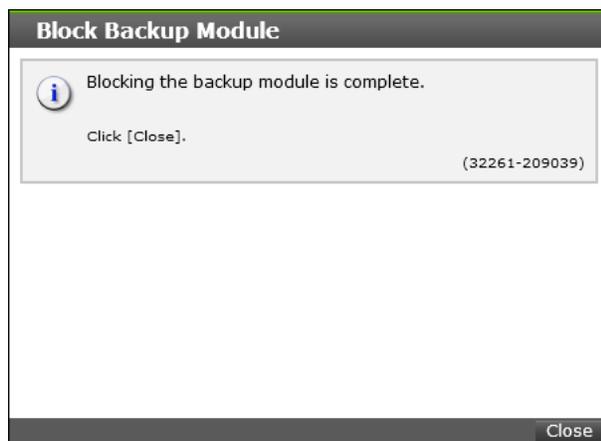
[Close]

(5) <Check the Blocked status>
Click [Close] and check that the status of the blocked BKMF is "Blocked".

6. Battery Replacement Processing

Location	Function Name of Component		Part Name
Front View of DKC	1	Battery	BAT

Front view of DKC-x

*1: DKC-x
└→DKC No. (0, 1, 2, ... , 5)

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

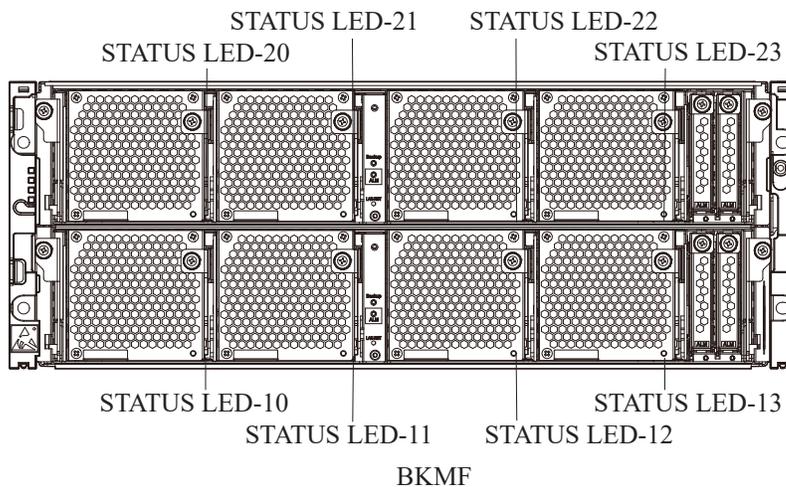| NOTICE: | To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the Storage System before starting and do not take it off until you finish. Refer to ″Note on Installing and Removing Parts″ (REP(GE)01-30). |

⚠ 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 ″How to Attach/Remove Front Bezel″ (REP(GE)08-10).)

(2)   Check that the STATUS LED (red) on the DKC BKMF to be replaced lights up.

Figure 2-1 STATUS LED Location (BKMF)

BKMF

(3)   Replace the Battery.

⚠ DANGER

- If the battery leaks and gets into your eyes, immediately flush your eyes with clean water (tap water) and do not rub your eye. Then visit the doctor immediately. If you do not seek any treatment for your eyes, problems may occur later. Because the battery uses highly concentrated alkaline as electrolyte, it may burn or you may lose your sight if it contacts your skin or eyes. If the battery′s liquid contacts your skin or eyes, you must flush them with plenty of clean water and visit the doctor at once.
- If you find battery fluid leakage, adhesion of white powdery substance, or heavy corrosion/rust on the removed BKMF, or battery itself, battery electrolyte might have leaked. Do not touch leaked fluid or white powdery substance. If the battery′s liquid contacts your skin or eyes, you must flush them with plenty of clean water and visit the doctor at once.
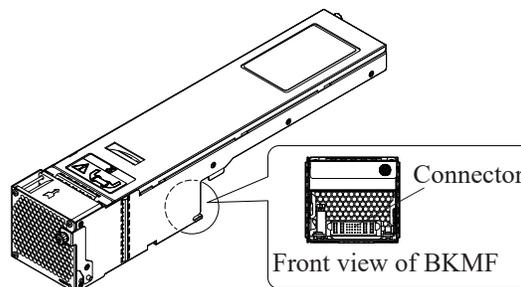

⚠ CAUTION

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

⚠ CAUTION

If you find battery fluid leakage on the removed BKMF, or battery itself, contact the Technical Support Division. You also need to replace the Controller Board where the removed part was installed and the other parts installed in the Controller Board. If you do not replace the parts corroded by battery electrolyte, the storage system may be down.

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

Connector

Front view of BKMF

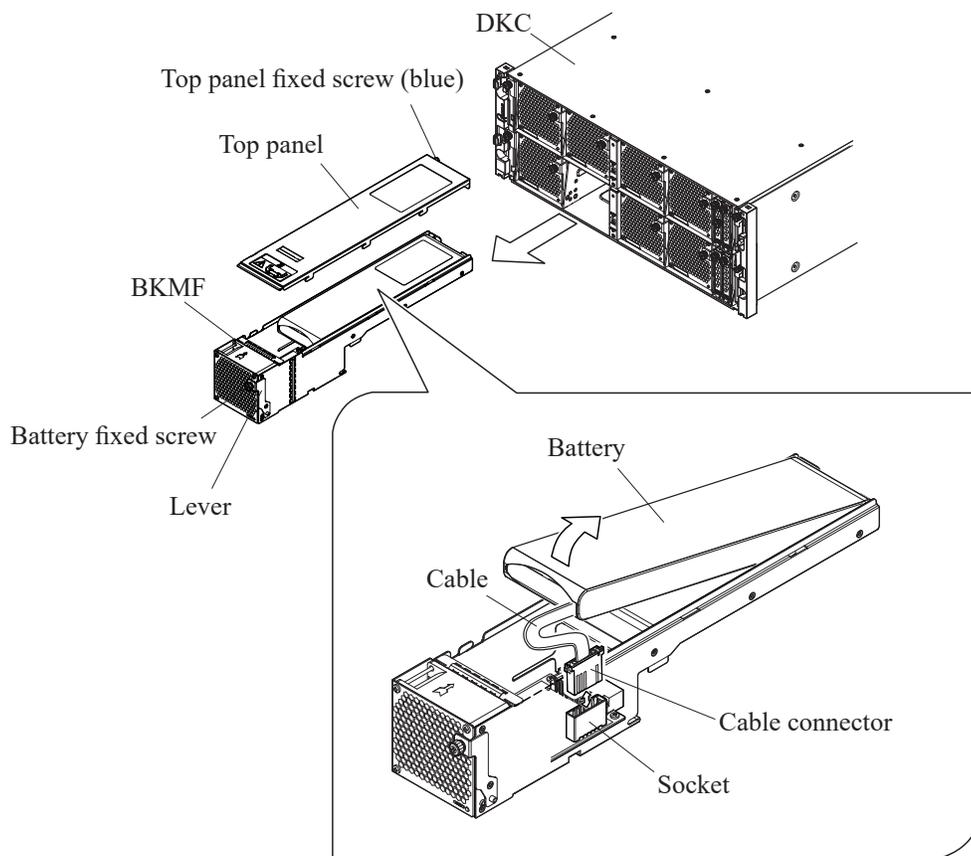
(a)   Loosen the screw (blue) fixing the BKMF whose STATUS LED (red) is blinking.
(b)   Open the lever to pull out and remove the BKMF.
(c)   Loosen the screw (blue) on the rear side of the BKMF.

(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 2-2　Replacement of Battery

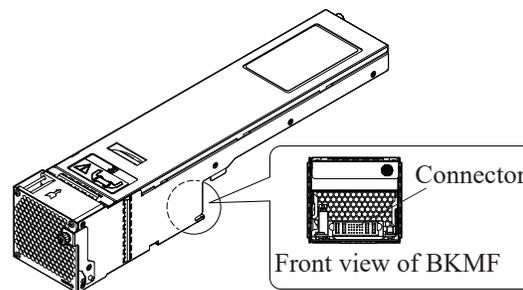(g) Install a new Battery in the BKMF and route cables along the groove of the BKMF.

　　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.

Connector

Front view of BKMF

(k) With the lever of the new BKMF opened, insert the BKMF into the slot.

(l) Insert the BKMF up to the front of the shield finger.

(m) Insert the BKMF while pushing the side of its lever to the left until the pin of the lever goes through the cutout of the chassis and stops.

(n) Close the lever of the BKMF and tighten the screw (blue).

Figure 2-3 Removing BKMF

Side of lever

Cutout

Pin

BKMF

Lever

Screw (blue)

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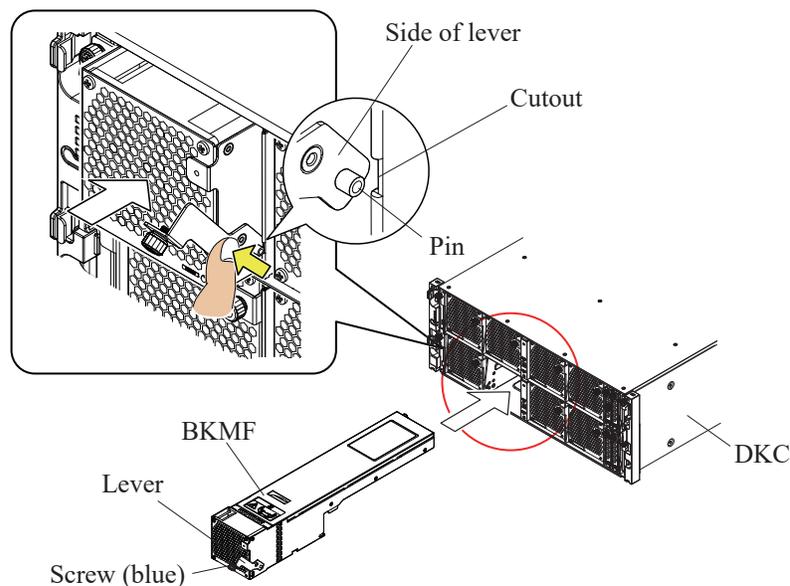
(4) Check that the STATUS LED (green) on the replaced BKMF is blinking or lights up.

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

(6) Discard the replaced batteries.
Discard the batteries appropriately according to the law of the Storage System use place (refer to "Processing Method of Batteries" (REP(GE)11-10).).

7. Restoring replacement parts by Maintenance Utility
    Click [refresh] on the upper right of the window to update the window, and then check that the status of
    the replaced BKMF is "Normal".

8. Closing Maintenance Utility
    (1) Click [Logout] to close the window.
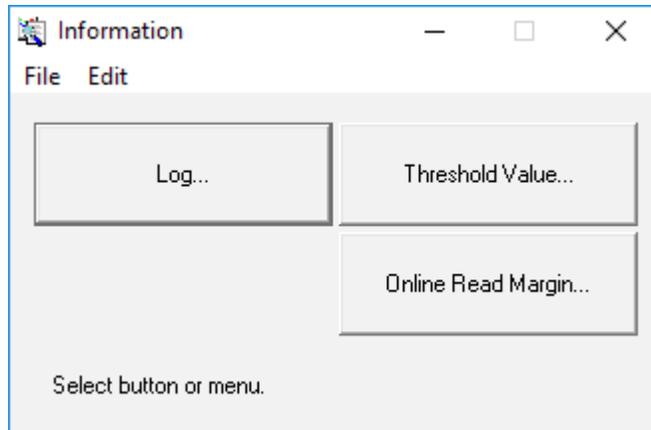
    (2) <Get the error information>
         Get dumps with "Dump Type: Rapid" by referring to "Dump/Auto Dump" (SVP02-09-10).

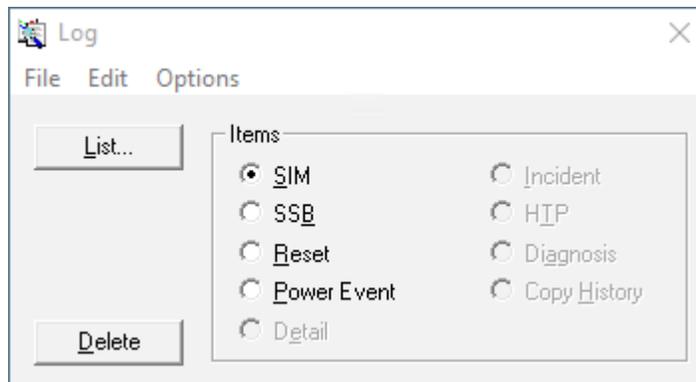   (3) Refer to the "Use of OnlineDumpTool" (SVP02-21-10), please upload the error information.

9. Completing the SIM log
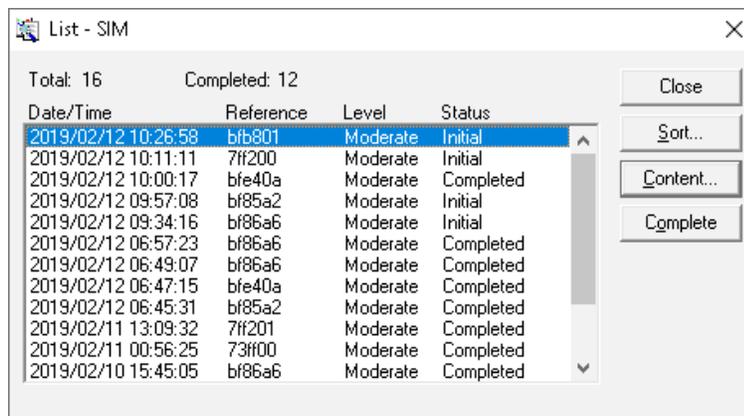   (1) Change the mode to [Modify Mode], and then select [Information].
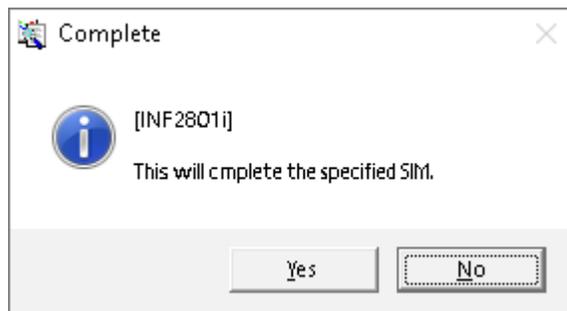
   (2) In the Information window, click [Log...].
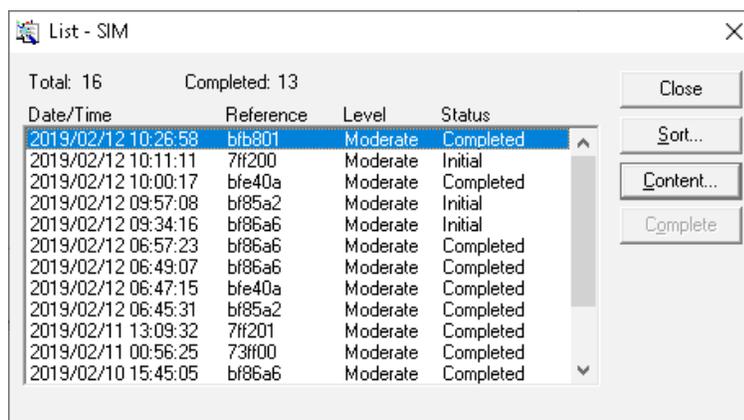
   (3) In the Log window, select [SIM] and then [List...].

   (4) In the List-SIM window, select the data for which you end the process, and then click [Complete].

(5) In the Complete window, click [Yes].

(6) In the List-SIM window, confirm that the "Status" of the data has become "Completed".

(7) In the List-SIM window, click [Close].
Close the Log window, then the Information window.
Change the mode from [Modify Mode] to [View Mode].

NOTE: If the MESSAGE LED is lit on the HSNPANEL after you complete all SIMs, display
SIMs to check that SIM statuses are "Completed". If SIM statuses are not "Completed",
wait for five minutes, and then perform the procedure for completing the SIM log
again.

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