

# Firmware

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This “Firmware” volume describes the update installation of the firmware.

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# Chapter 1. Installation of Firmware

This work is for update installation of the firmware in the array.

Firmware version format is shown.

09xx/y

09: HUS100 series

xx: number or alphabet

y: alphabet

NOTE : • If new installation is performed, user data is lost. When user data already exists, be sure to perform update installation.

- Do not perform the update installation of the firmware while the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
- Do not perform the new or update installation of the firmware while the array is being started.
- When the TrueCopy remote replication or TrueCopy Extended Distance is used, verify that the firmware update is not operated in the connected array.

## 1.1 Materials Necessary for Installation

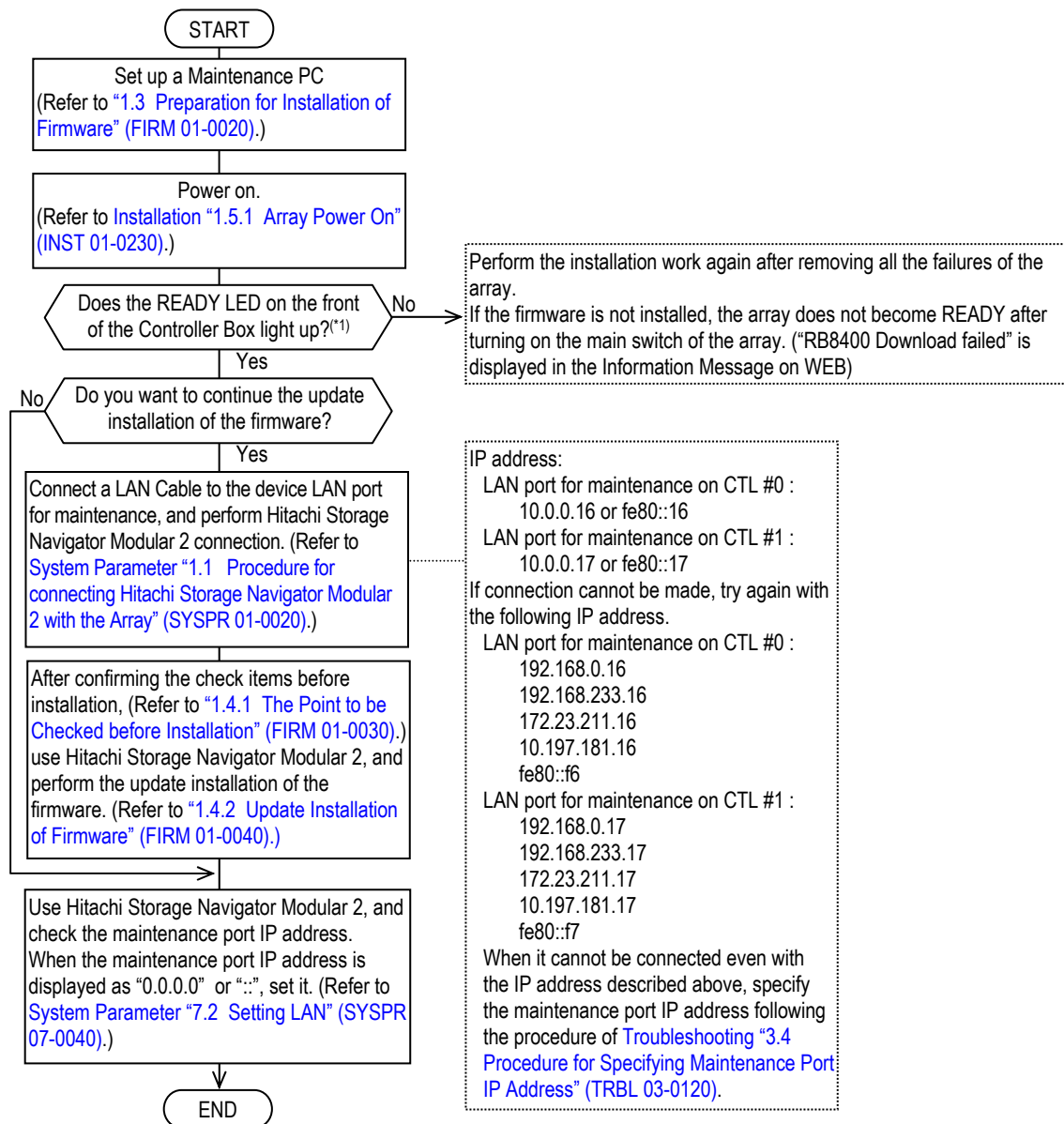
- firmware PC<sup>(†1)</sup>
- LAN cross cable
- DVD for firmware installation

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†1 : The service PC must have a DVD drive for the firmware installation. If the Maintenance PC has no DVD drive, it must be set up beforehand via a network. (See [WEB “3.3.1 \(1\) \(d\) Procedure for setting up the Maintenance PC” \(WEB 03-0310\)](#)).

## 1.2 Outline of Procedure for Installation (Update Installation)

- (1) Install the firmware using the WEB or Hitachi Storage Navigator Modular 2 connection from the Maintenance PC.
- (2) In the Maintenance PC, JRE <sup>(†1)</sup> 1.6 must be installed. (Refer to [WEB “3.3.1 \(1\) \(d\) Procedure for setting up the Maintenance PC” \(WEB 03-0310\).](#))



\*1 : Wait if the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).

\*2 : When connecting to WEB with IPv6 address, put the address in square brackets ([ ]) and connect it (e.g. [http://\[fe80::16\]/](http://[fe80::16]/)).

†1 : Java runtime environment.

## 1.3 Preparation for Installation of Firmware

### 1.3.1 Hierarchy of Firmware Storage Directories

The firmware is stored as the compression format (zip file) in the DVD for firmware installation.

Since the firmware (zip file) is stored under “Firmware\program\microprogram” in the DVD for firmware installation, store the ZIP file from the DVD under the directory “C:\diskarray-microprogram\microprogram”.

**Table 1.3.1 DVD Directory Hierarchy**

First stratum	Second stratum	Third stratum
manual	HostInst	Manual file
	UG	
program	Microprogram	Firmware zip file
	DFJavaSetup.exe (Java setup file)	-

The hierarchical structure of firmware storage ZIP file (09xxx.zip) directories is shown in [Table 1.3.2](#).

**Table 1.3.2 ZIP File Directory Hierarchy**

First stratum	Second stratum	Third stratum	Fourth stratum
Unified version (Example: 0915B)	DF850MH	disk 01 - disk X fmins	Firmware file
	DF850MHD	disk 01 - disk X fmins	
	DF850S	disk 01 - disk X fmins	
	DF850XS	disk 01 - disk X fmins	
	drvfirm	DKR2F-VIPERAP :	
	ENC850	ENC Firmware file	—

## 1.4 Procedure for Installation

### 1.4.1 The Point to be Checked before Installation

Make sure of the following before starting installation

- When updating the firmware continuing the I/O, request the customer to perform the firmware update work in the time with low I/O load.
- Make sure that the main switch of the array is turned on. If it is turned off, turn it on to start the array.
- In the single configuration, to update a new firmware, turn off the main switch on the disk array system, and then turn it on again. If the main switch is turned off, the access from the host cannot be gained. Therefore, before turning off the main switch, stop the access from the host.
- When the firmware is already installed in the disk array system, check that the READY LED (green) on the front of the Controller Box lights up. When the READY LED (green) on the front of the Controller Box is blinking at high speed, do not perform the update work for the maximum of 30 to 50 minutes (or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)) until the READY LED (green) lights up because either the deletion process of the data stored inside the backup controller or the automatic download of the ENC firmware and the backup controller firmware are being executed.
- When the firmware is already installed in the disk array system, check that the WARNING LED (orange) on the front of the Controller Box goes out, and the READY LED (green) lights up. When the WARNING LED (orange) on the front of the Controller Box is blinking at high speed, do not perform the update operation for the maximum of 30 to 85 minutes until the WARNING LED (orange) on the front of the Controller Box goes out and the READY LED (green) lights up because the update of the flash program or the automatic download of the ENC firmware and the backup controller firmware at the time of turning the power on in the single controller configuration is being executed.
- You cannot install it while rewriting the drive firmware (“IZ0000 HDU firmware download start” is displayed in the Information Message on WEB). Execute the installation after checking that “IZ0100 HDU firmware download end” is displayed in the Information Message on WEB.
- You cannot install it during the RAID group expansion. Execute the installation after checking that the RAID group expansion is completed.
- Check with Information Message on WEB (“I14100 System copy completed” is displayed for the Drive indicated by “I14000 System copy start”) that the system copy is not being operated. If the system copy is being executed, install it after completing the system copy.
- During the update of the Master Authentication Key, installation cannot be performed. Select the [Security] - [Data At Rest Encryption] in the unit window to display the Data At Rest Encryption window, verify that Normal is displayed in the All Key Information. If the Refreshing Authentication Keys is displayed, wait until Normal is displayed.

## 1.4.2 Update Installation of Firmware

There are following three ways for the update installation:

- When updating firmware continuing the I/O of both Controllers in the dual controller configuration, perform “(1) Update continuing the I/O of both Controllers (Dual controller configuration)” (FIRM 01-0050). (Normally, perform this way.)

NOTE : When using the wizard for the update of the firmware, click [Update Firmware] from [Common Array Tasks] on the unit window.  
Refer to [Procedure \(1-1\)-\(e\)](#) and the following.

- When updating firmware for each Controller one by one stopping the I/O in the dual controller configuration (Only when the instruction is given, perform this way.).  
To perform this procedure, it needs to confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.
  - In case Hitachi Storage Navigator Modular 2 is less than Ver.22.00.  
Perform “(2) Updating I/O stop for each Controller (Dual controller configuration) in less than Ver.22.00 of Hitachi Storage Navigator Modular 2” (FIRM 01-0100).
  - In case Hitachi Storage Navigator Modular 2 is Ver.22.00 or more.  
Perform “(3) Updating I/O stop for each Controller (Dual controller configuration) in Ver.22.00 or more of Hitachi Storage Navigator Modular 2” (FIRM 01-0790).
- In the single controller configuration, perform “(4) Update for single controller” (FIRM 01-1460).

- (1) Update continuing the I/O of both Controllers (Dual controller configuration)  
Replace the firmware of the array.

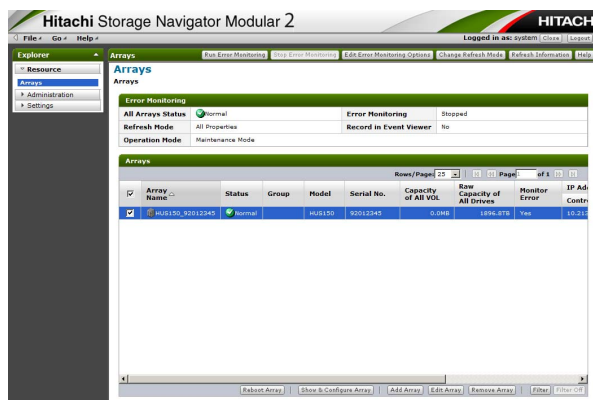
- NOTE :
- Request the customer to perform the firmware update work in the time with low I/O load.
  - Do not perform the update installation of the firmware while the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
  - When registering the array at the time of connecting the array, specify only the Controller #0 in [Connection Destination]. (Refer to [System Parameter "1.1 \(4\) \(b\) Array registration" \(SYSPR 01-0090\)](#).)
  - When the Volume, whose status of the forced parity correction is any of "Parity Correction", "Waiting Parity Correction", "Waiting Drive Reconstruction", "Uncorrected", "Uncorrected and Drive Detached" and "Correction Aborted", is in the array, change the status of the Volume to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).

(1-1) Transfer and update firmware

- (a) Connect the LAN cross cable to the array LAN connector for maintenance and connect the array to the Web. (Refer to [Troubleshooting "3.1 Procedure to WEB Connection" \(TRBL 03-0000\)](#).)

- (b) Start Hitachi Storage Navigator Modular 2, put a checkmark to the array to set, press the [Ctrl] key, [Shift] key and [E] key at the same time, and change the operation mode to "Maintenance Mode".<sup>(‡1)</sup>

Check that "Maintenance Mode" is displayed in [Operation Mode] on the top of the main window.

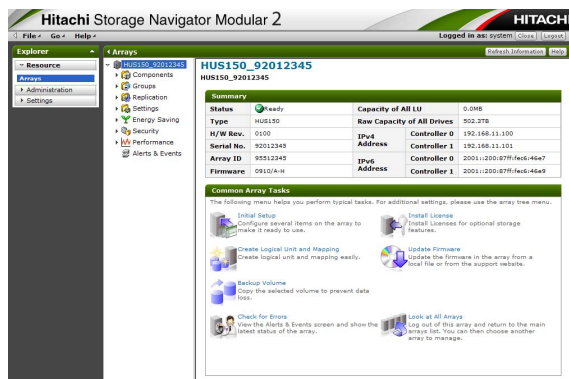


‡1 : When the array to operate is not registered, click the blank area (other than buttons and characters) in the "Arrays" window, and press the [Ctrl] key, [Shift] key and [E] key at the same time.

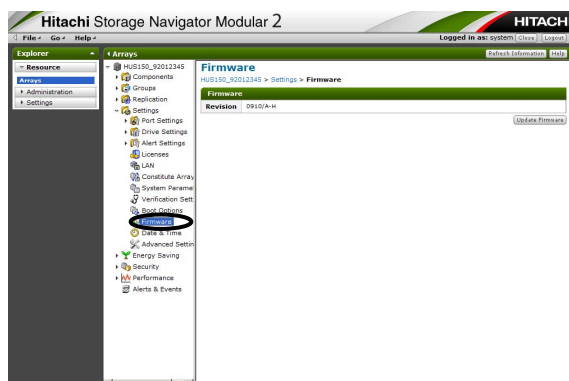


(c) Click the array name, and open the unit window.

NOTE : When the main window is not displayed even if you select the array, check that the LAN port number is not changed. (Refer to [System Parameter “1.2 LAN Port Number Change by Hitachi Storage Navigator Modular 2” \(SYSPR 01-0120\)](#).) Use the changed LAN Port Number, and execute it again.



(d) Select [Settings] - [Firmware] on the unit window. Click the [Update Firmware] button.



- (e) Put a checkmark to the [Transfer and update Firmware] on the [Basic] tab, enter [Update file] (Specify the ZIP form file), set the necessary items of the [Advanced] tab, and click the [OK] button.

When using Windows®:

c:/diskarray-microprogram/microprogram/micro/09xxx.zip

When using Solaris™ or Red Hat Linux®:

diskarray-microprogram/microprogram/micro/09xxx.zip

Specified firmware file  
(ZIP form file)

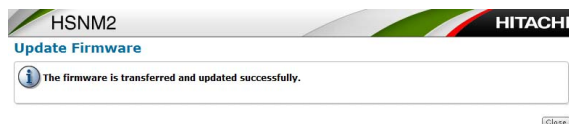
The file name “xxx” differs depending on the firmware version.

**Basic tab**

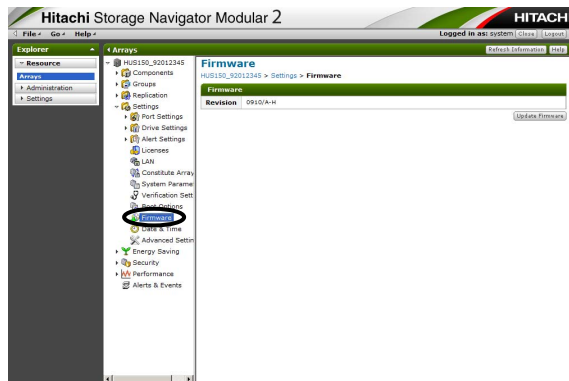
**Advanced tab**

- (f) The confirmation window of the firmware to update is displayed. Check it, and then click the [Confirm] button. Start transfer and update of the firmware.

- (g) When the Hitachi Storage Navigator Modular 2 is abnormally terminated, perform maintenance on each message.
- (g-1) Message code “DMEA000006”
- (i) Check if a failure occurs in the array.  
If a failure occurs, perform maintenance or parts replacement, and then restore the array condition to normal.
  - (ii) Check if a LAN failure occurs.  
If a failure occurs, review the network condition, and then restore it to normal.
  - (iii) Perform the transfer and update of firmware again from the beginning.
- (g-2) Message code “DMEA00200E”
- (i) Check if a failure occurs in the array.  
If a failure occurs, perform maintenance or parts replacement, and then restore the array condition to normal.
  - (ii) Check if a LAN failure occurs.  
If a failure occurs, review the network condition, and then restore it to normal.
  - (iii) Check the [Update Firmware] radio button on [Basic] tab. Execute it again at least 3 times until it is normally completed.
  - (iv) When it is not completed normally after the retries, turn off the array once and then turn it on again after obtaining the consent of turning on/off the array from your customer.  
The replacement of firmware is completed by this operation.
- (g-3) Message code “DMES05EA49”
- (i) When the CPU usage rate is high because of the I/O load from the host during the firmware replacement, the start of the firmware replacement is suppressed.  
After a while, retry the transfer and update of the firmware from the beginning.
- (h) Since a message is displayed when the updates of the firmware is completed, click the [Close] button.



- (i) Select [Settings] - [Firmware] on the unit window, and click the [Refresh Information] button.



The ALM LED (orange) on the Controller lights up for about five seconds, however there is no problem.

- (j) Check that the revision of the replaced firmware is displayed.  
 (k) When the revision check is completed, the firmware replacement of the array ends.

NOTE : When the firmware was replaced online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

#### (1-2) Checking the READY LED (green) on the front of the Controller Box

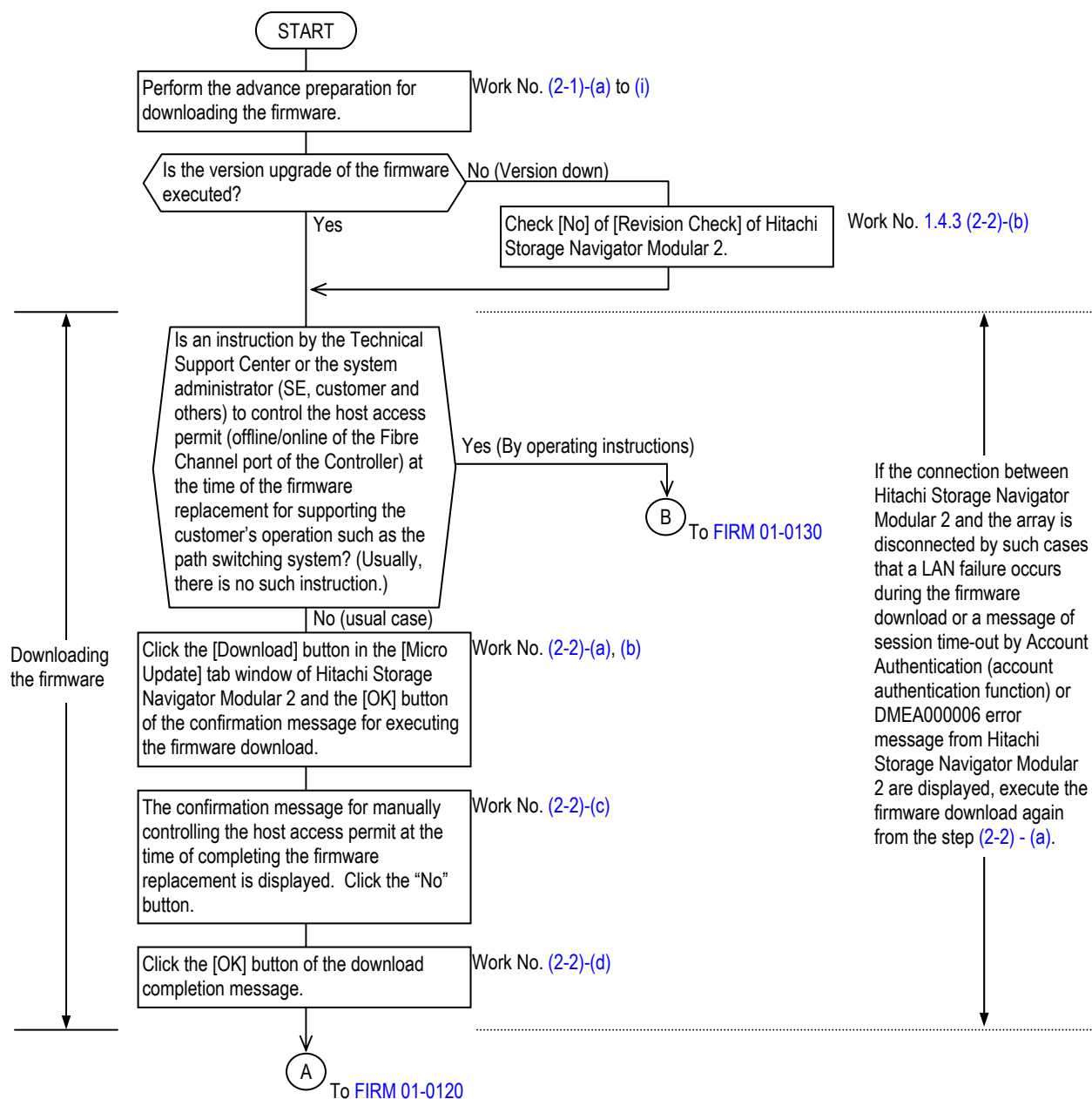
Check that the READY LED (green) on the front of the Controller Box lights up. When the READY LED (green) on the front of the Controller Box is blinking at high speed, the READY LED (green) on the front of the Controller Box lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)) because the automatic download of the ENC firmware and the backup controller firmware is being operated.

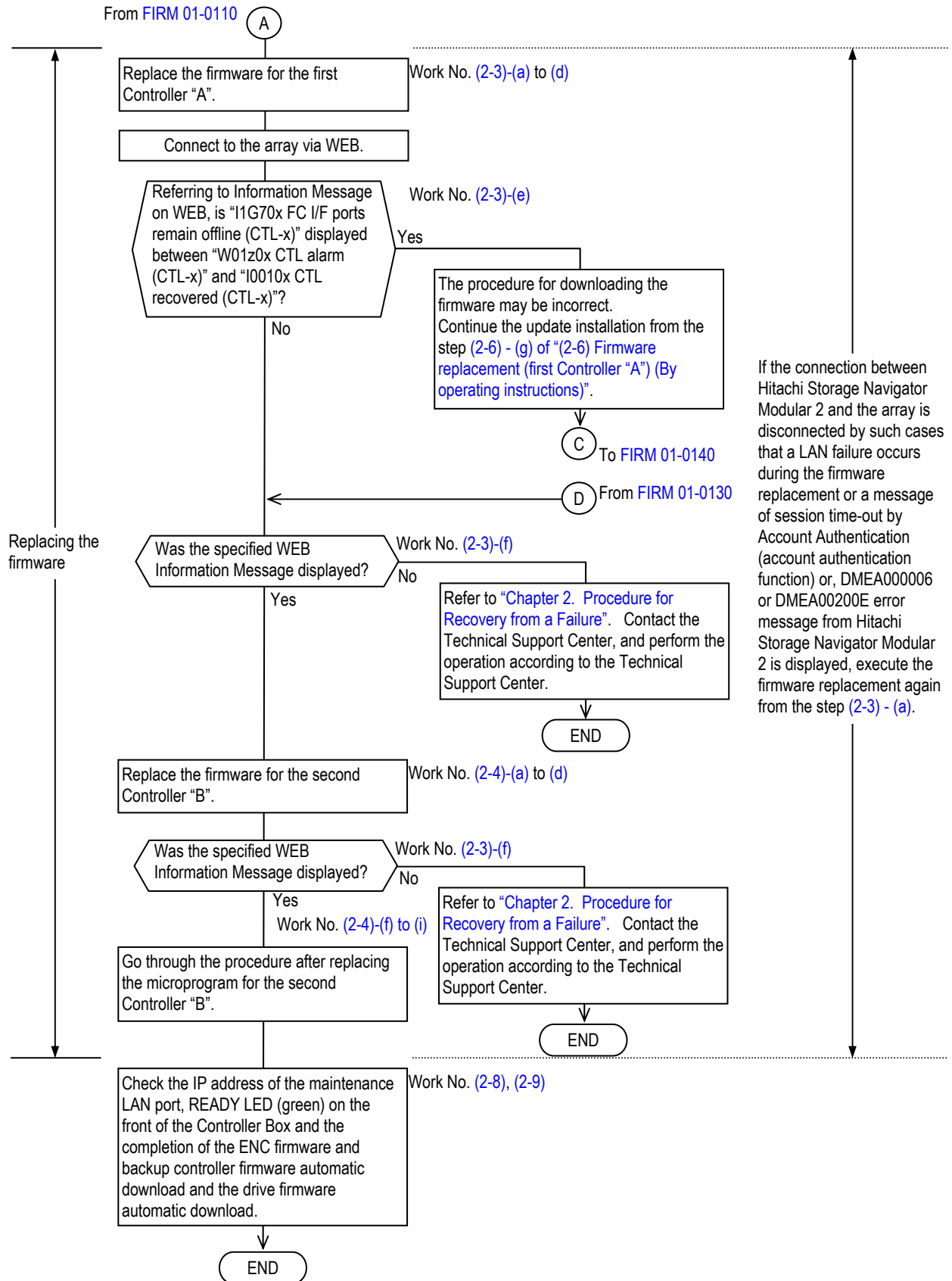
- (1-3) Check that the start message and the end message of the drive firmware automatic download are displayed. When the drive firmware version of the Drive is new, the start message and completion message of the drive firmware automatic download are not displayed.  
 When the message indicating the abnormal termination is displayed, perform the maintenance according the recovery method in the message code. (Refer to [“1.6 \(4\) Checking the start message and end message of the automatic download” \(FIRM 01-1620\).](#))

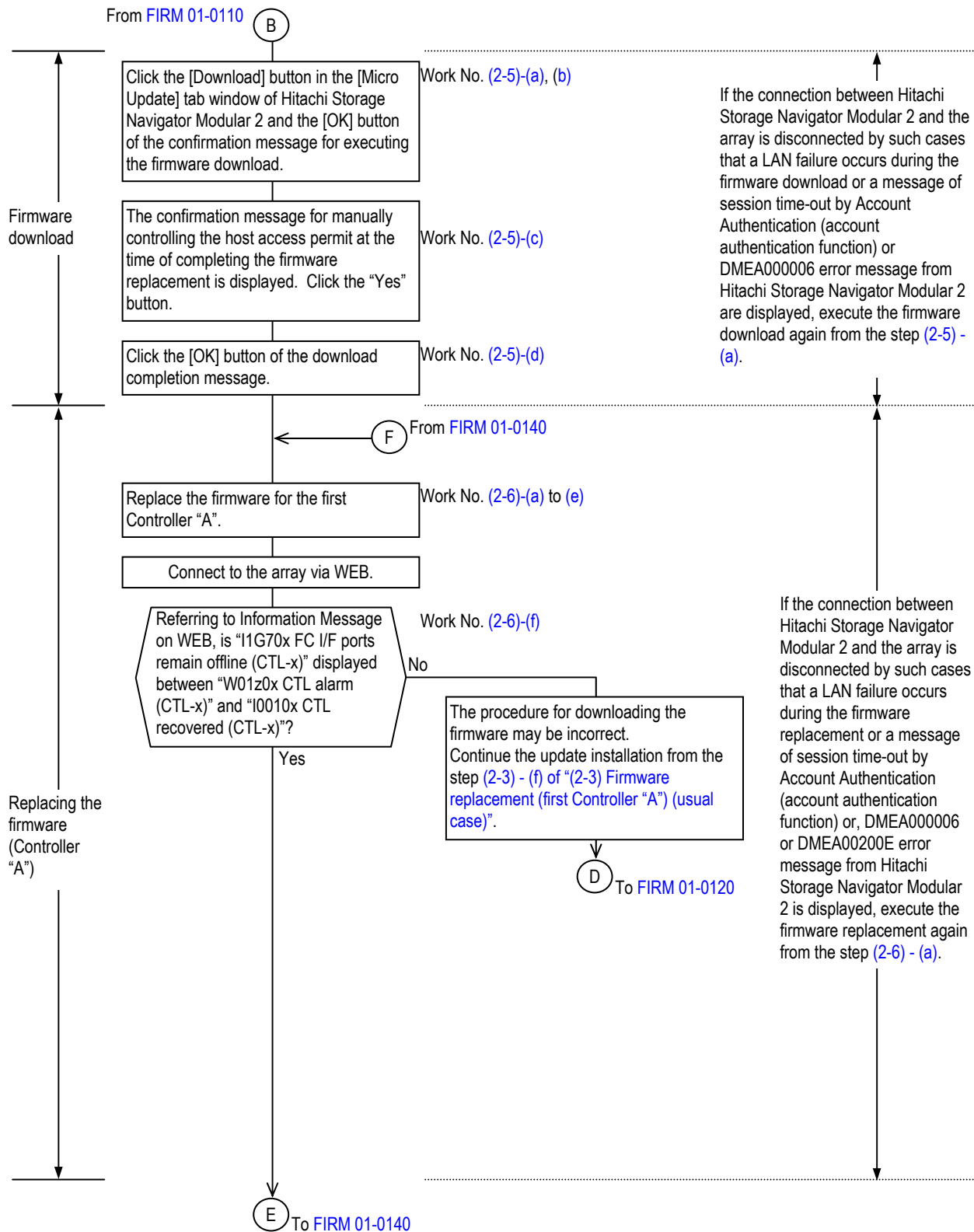
(2) Updating I/O stop for each Controller (Dual controller configuration) in less than Ver.22.00 of Hitachi Storage Navigator Modular 2

Refer to the following flowchart to perform the update installation.

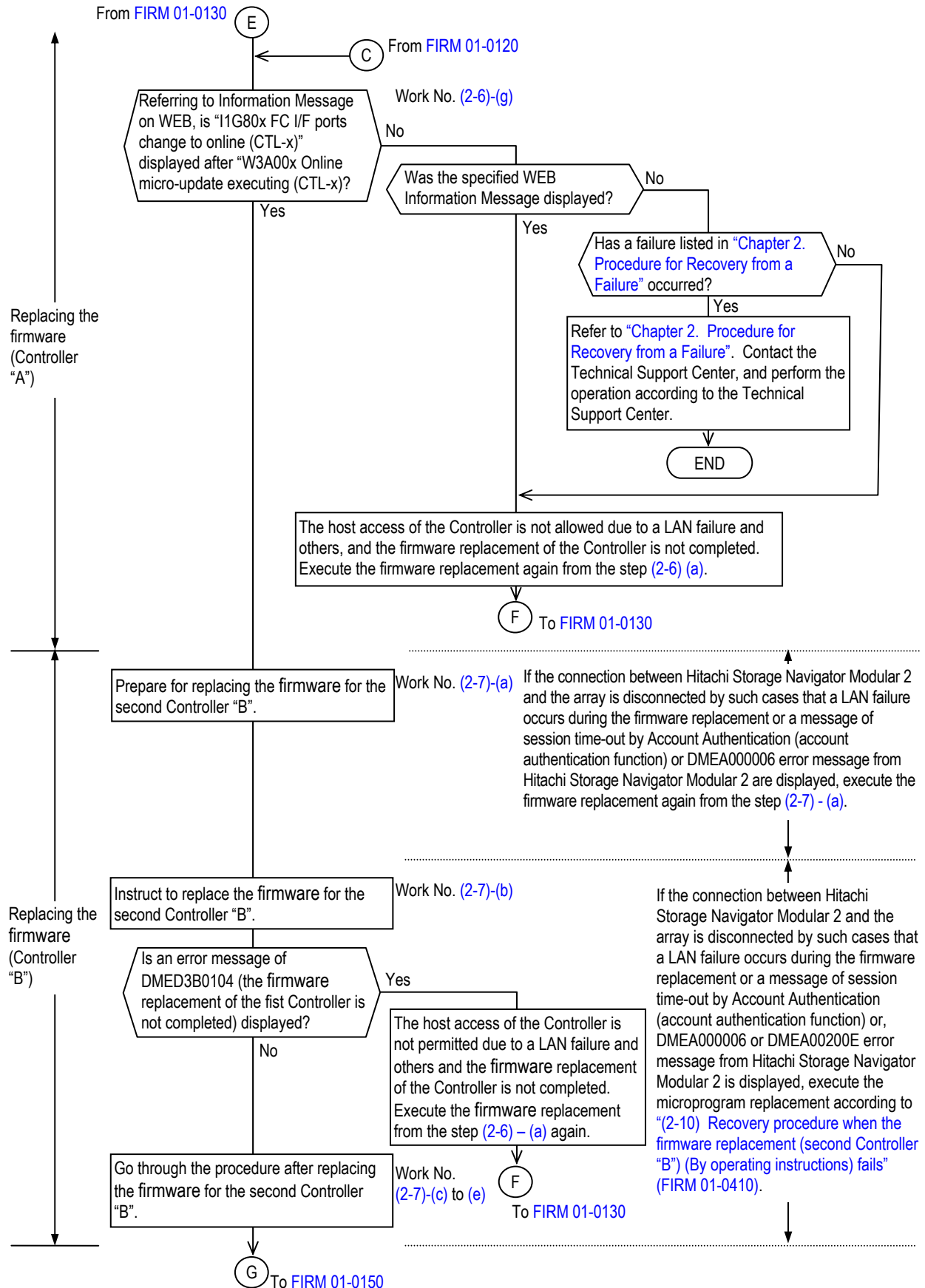
- NOTE :
- Request the customer to perform the firmware update work in the time with low I/O load.
  - Do not perform the update installation of the firmware while the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
  - When registering the array at the time of connecting the array, specify only the Controller #0 in [Connection Destination]. (refer to [System Parameter "1.1 \(4\) \(b\) Array registration" \(SYSPR 01-0090\)](#).)
  - When the Volume, whose status of the forced parity correction is any of "Parity Correction", "Waiting Parity Correction", "Waiting Drive Reconstruction", "Uncorrected", "Uncorrected and Drive Detached" and "Correction Aborted", is in the array, change the status of the Volume to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).

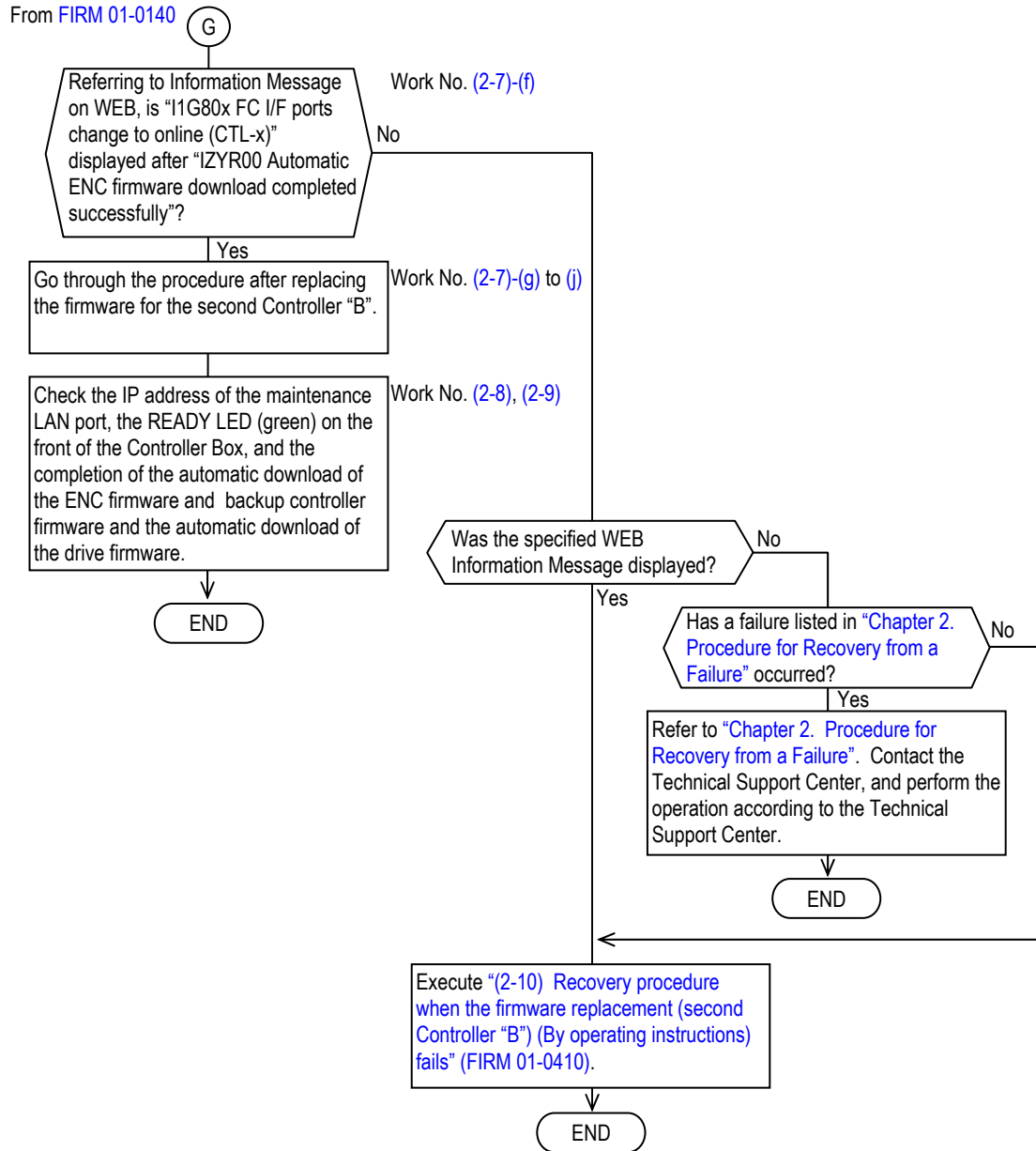








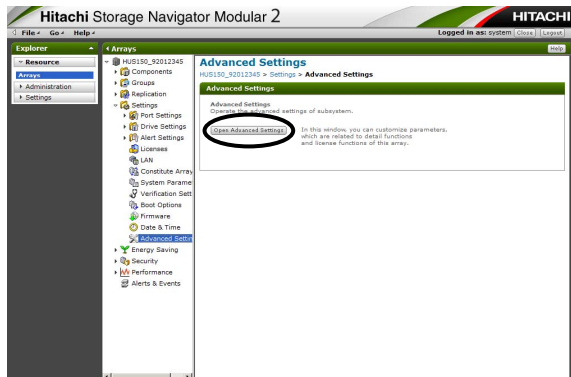




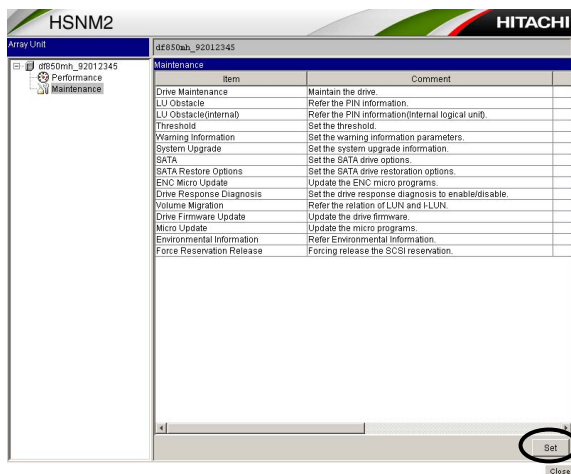
## (2-1) Preparation for downloading the firmware

Download the firmware from the CD-R into the array. In the download, the firmware is stored in the array; the firmware of the array is not replaced.

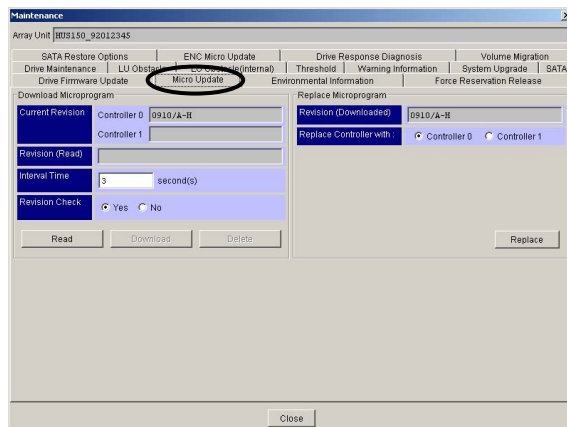
- (a) Store the firmware (ZIP file) in the Maintenance PC in which Hitachi Storage Navigator Modular 2 is installed, and decompress the stored ZIP file.
- (b) Connect the LAN cross cable to the array LAN connector for maintenance and connect the array to the Web. (See [Troubleshooting “3.1 Procedure to WEB connection” \(TRBL 03-0000\)](#)).
- (c) Select [Settings] - [Advanced Settings], and click the [Open Advanced Settings] button.



- (d) Select the [Maintenance] on the applet window, and click the [Set] button.



- (e) Click the [Micro Update] tab.



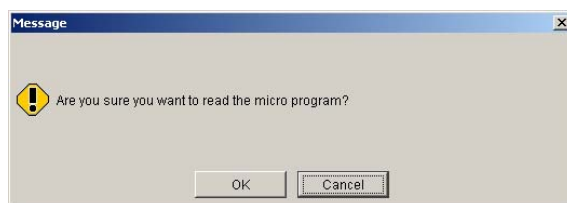
- (f) Read in the firmware to the Maintenance PC in which Hitachi Storage Navigator Modular 2 is installed. Click the [Read] button.

When a firmware revision is displayed in the [Revision(Read)] box, the firmware has already been read in. When only the Unified version directory<sup>(†1)</sup> storing the firmware is specified, the whole firmware is read in automatically.

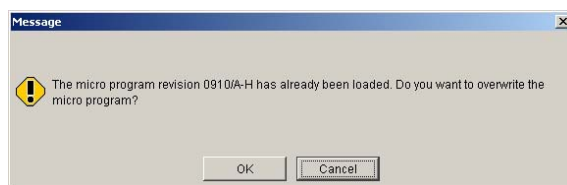
When firmware is not updated, click the [Delete] button, and then delete the read firmware from the Revision (Read).

- (g) Since a message asking for confirmation whether or not to read in the firmware, click the [OK] button.

NOTE : When a LAN failure, etc. occurred and the processing of the Hitachi Storage Navigator Modular 2 terminated abnormally, execute the download of the firmware again from the beginning.



In the case where the firmware has already been read in, the message asking for the confirmation is displayed. When you click the [OK] button, the firmware is overwritten. When you abort the reading in, click the [Cancel] button.



†1 : For the unified version directory, refer to “1.3.1 Hierarchy of Firmware Storage Directories” (FIRM 01-0020).

- (h) Since a window for specifying the directory in which the firmware to be read in is stored is displayed, specify the Unified version directory<sup>(†1)</sup>. When you click the [OK] button, reading in of the firmware is started.

Examples of the path entry are shown below.

When using Windows<sup>®</sup>:

c:/diskarray-microprogram/microprogram/micro/0915B

When using Solaris<sup>™</sup> or Red Hat Linux<sup>®</sup>:

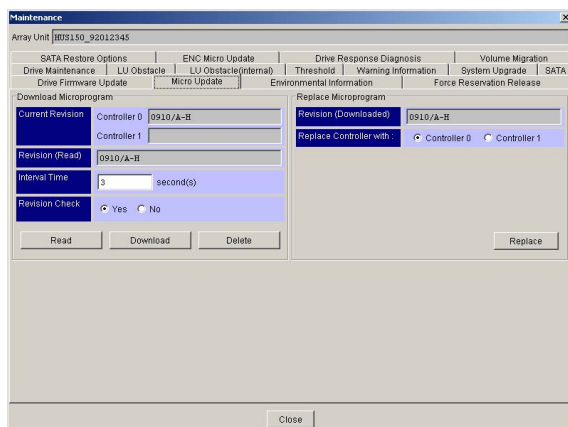
diskarray-microprogram/microprogram/micro/0915B

Unified version  
directory<sup>(†1)</sup> of  
Specified  
firmware

- (i) Since a message is displayed when the reading in of the firmware is completed, click the [OK] button.



The revision of the firmware that has been read in is displayed in the [Revision(Read)] box.

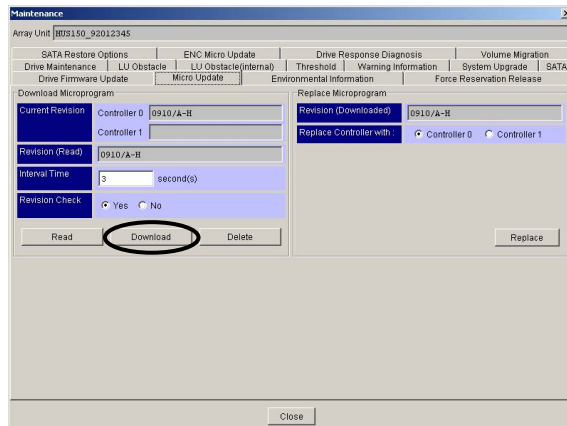


†1 : For the unified version directory, refer to “1.3.1 Hierarchy of Firmware Storage Directories” (FIRM 01-0020).

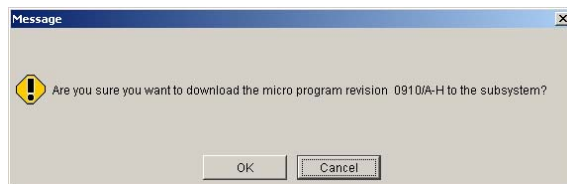
## (2-2) Downloading the firmware (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or DMEA000006 error message from Hitachi Storage Navigator Modular 2 are displayed, execute the firmware download again from the beginning ((2-2)-(a)).

### (a) Click the [Download] button.



### (b) The confirmation window is displayed. Click the [OK] button.



When you abort the downloading, click the [Cancel] button.

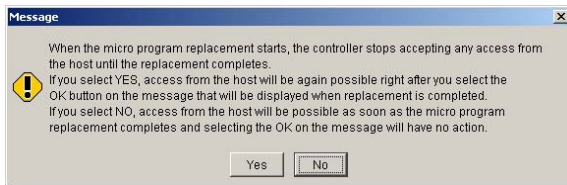
A message asking for confirmation is displayed. When you click the [OK] button, the downloading is aborted.

When you click the [Cancel] button, the downloading is continued.



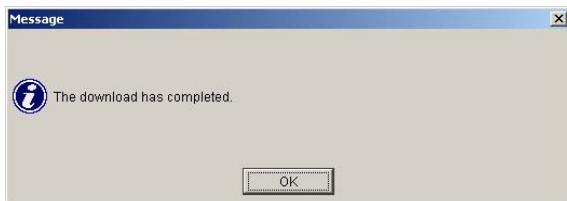
- (c) The confirmation window is displayed. Click the [No] button.

The [No] button is selected by default. Therefore, just click the [No] button.



If the [Yes] button is pressed at the time, the download completion message of (d) is displayed. Click the [OK] button of the message, and then download the firmware again from the beginning ((2-2)-(a)).

- (d) Since a message is displayed when the downloading is completed normally, click the [OK] button.



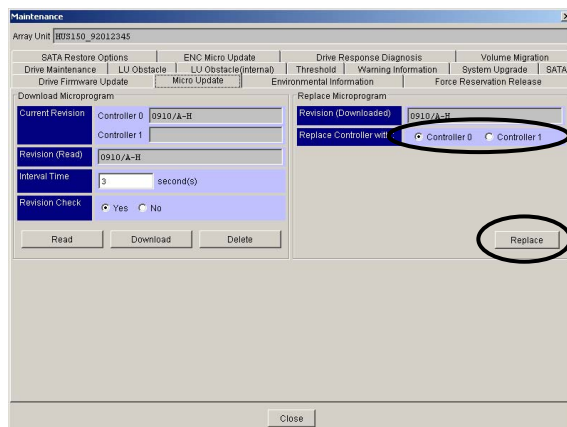
NOTE : • After the firmware is downloaded, be sure to restart the disk array system or replace the firmware. If the Controller board is replaced in the online mode before restarting the disk array system or replacing the firmware, the replaced Controller may be detached. When the array is burdened with a heavy I/O load by a host at the time of the downloading, the downloading may be terminated abnormally. Perform the downloading again.

## (2-3) Firmware replacement (first Controller “A”) (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware replacement or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware replacement again from the beginning ((2-3)-(a)).

Replace the firmware that was downloaded to the disk array system with the firmware installed in the Controller. When making replacement, be sure to replace the firmware of the both Controllers 0 and 1. When the firmware of one of the Controllers is replaced and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, replace the firmware after changing the registration to that in which only the Controller whose firmware has not be replaced is registered.

## (a) Select the Controller whose firmware is to be replaced and click the [Replace] button.

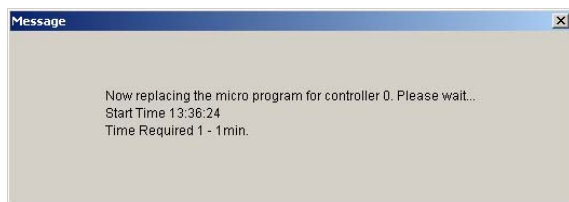


NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.



- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (2-3)-(d) is displayed, execute the firmware replacement again from the step (2-3)-(a).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (c) Click the [OK] button according to the dialog message.

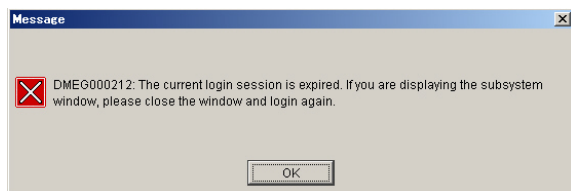


NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the step (2-3)-(a) according to the DMEA00200E error message.

- (d) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-2)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.



- (e) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The messages “W01z0x CTL alarm (CTL-x)” and “I0010x CTL recovered (CTL-x)” are displayed, and “I1G70x FC I/F ports remain offline (CTL-x)” is not displayed between those messages.

If the above-mentioned item is not established, continue the update installation of the firmware from the step (2-6)-(g) of “(2-6) Firmware replacement (first Controller “A”) (By operating instructions)” (FIRM 01-0340).

---

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information message on WEB, check that the following message is displayed.  
(Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware replacement is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [No] is selected in the step [\(2-2\)-\(c\)](#), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

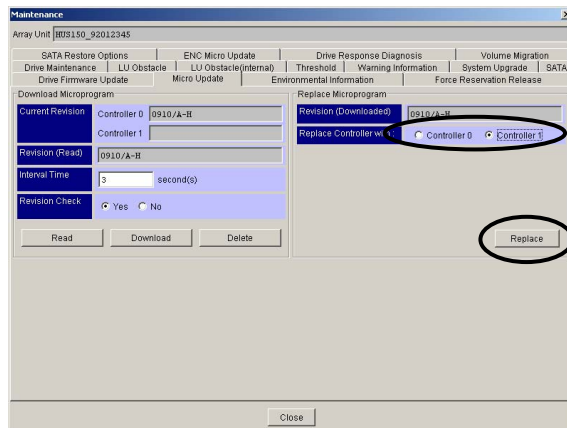
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

- (g) In the case of the dual controller configuration, also replace the firmware of the other Controller.

## (2-4) Firmware replacement (Second Controller “B”) (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware replacement or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware replacement again from the step (2-3)-(a).

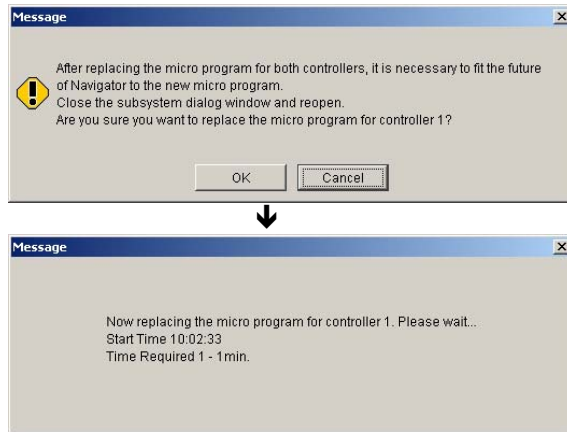
(a) Select the Controller whose firmware is to be replaced and click the [Replace] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (2-4)-(d) is displayed, execute the firmware replacement again from the step (2-3)-(a).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (c) Click the [OK] button according to the dialog message.

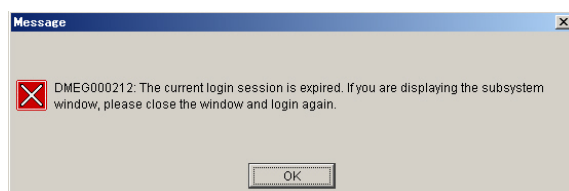


NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the step (2-3)-(a) according to the DMEA00200E error message.

- (d) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-2)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.



‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (e) Check that the following message is displayed referring to the Information Message on the WEB. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

When [No] is selected in the step (2-2)-(c), the following message is displayed.

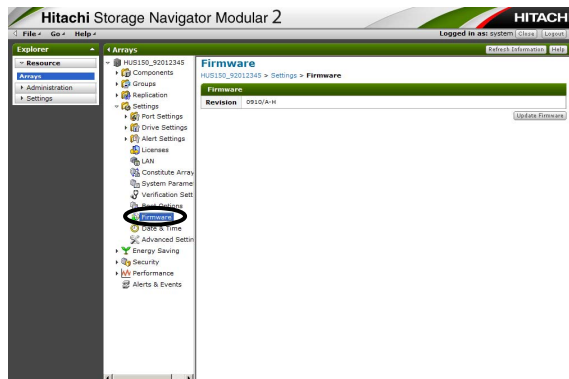
If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

```
MM/DD/YYYY hh:mm:ss 10 119000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 142001 Online micro-update (CTL-1)
MM/DD/YYYY hh:mm:ss 10 100101 CTL recovered (CTL-1)
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1) :CTL /CTRC
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

- (f) Click the [Close] button in the [Micro Update] tab window.

- (g) Select [Settings] - [Firmware] on the unit window, and click the [Refresh Information] button.



- (h) Check that the revision of the replaced firmware is displayed.

- (i) When the revision check is completed, the firmware replacement of the array ends.

NOTE :

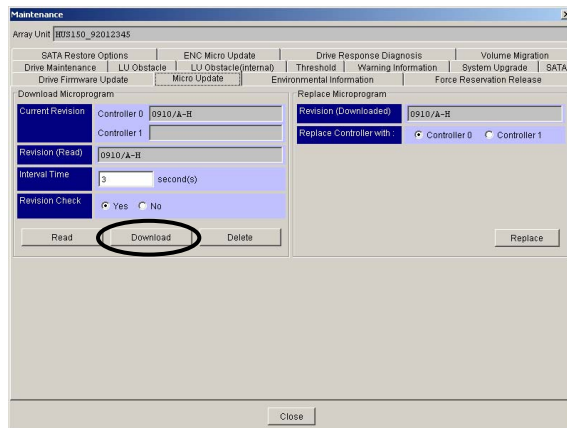
- When the replacement of the firmware is made for only one of the dual Controller, the disk array system is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is replaced. When you replace the firmware, be sure to make the replacement for the both Controllers continuously.
- When the firmware was replaced online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “114000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

(2-5) Downloading the firmware (Case with operating instructions)

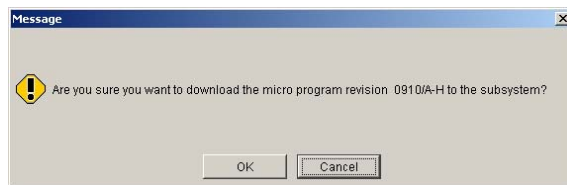
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or DMEA000006 error message from Hitachi Storage Navigator Modular 2 are displayed, execute the firmware download again from the step (2-5)-(a).

(a) Click the [Download] button.



(b) The confirmation window is displayed. Click the [OK] button.



When you abort the downloading, click the [Cancel] button.

A message asking for confirmation is displayed. When you click the [OK] button, the downloading is aborted.

When you click the [Cancel] button, the downloading is continued.





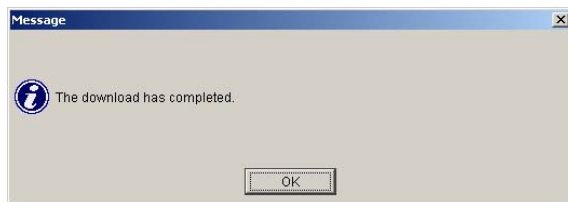
(c) The confirmation window is displayed. Click the [Yes] button.

The [No] button is selected by default. Click the [Yes] button not to be incorrect.



If the [No] button is pressed at this time the download completion message of (d) is displayed. Click the [OK] button of the message, and then download the firmware again from the beginning ((2-5)-(a)).

(d) Since a message is displayed when the downloading is completed normally, click the [OK] button.



NOTE : • After the firmware is downloaded, be sure to restart the disk array system or replace the firmware. If the Controller board is replaced in the online mode before restarting the disk array system or replacing the firmware, the replaced Controller may be detached. When the array is burdened with a heavy I/O load by a host at the time of the downloading, the downloading may be terminated abnormally. Perform the downloading again.

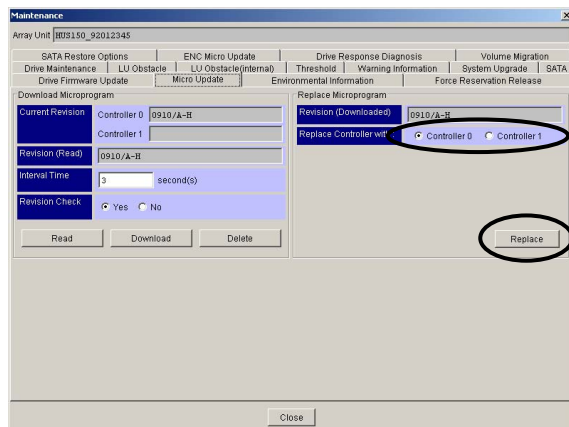
## (2-6) Firmware replacement (first Controller “A”) (By operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware replacement or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware replacement again from the beginning ((2-6)-(a)).

Replace the firmware that was downloaded to the disk array system with the firmware installed in the Controller. When making replacement, be sure to replace the firmwares of the both Controllers 0 and 1. When the firmware of one of the Controllers is replaced and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, replace the firmware after changing the registration to that in which only the Controller whose firmware has not be replaced is registered.

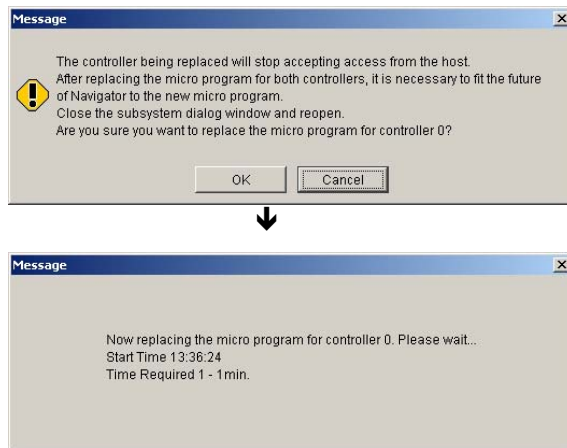
## (a) Select the Controller whose firmware is to be replaced and click the [Replace] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (2-6)-(e) is displayed, execute the firmware replacement again from the beginning ((2-6)-(a)).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.  
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the step (2-6)-(a) according to the DMEA00200E error message.

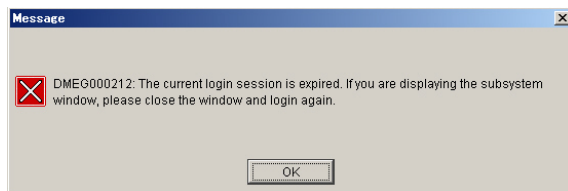
- (d) Click the [OK] button according to the dialog message



- (e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-5)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(†1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(†1)</sup> is unnecessary.



- (f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB "2.5 Information Message" \(WEB 02-0150\)](#).)
- The message "I1G70x FC I/F ports remain offline (CTL-x)" is displayed between "W01z0x CTL alarm (CTL-x)" and "I0010x CTL recovered (CTL-x)".

If the above-mentioned item is not established, continue the update installation of the firmware from the step (2-3)-(f) of "(2-3) Firmware replacement (first Controller "A") (usual case)" ([FIRM 01-0240](#)) again.

<sup>†1</sup> : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (g) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The message “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “W3A00x Online micro-update executing (CTL-x)”.

If the above- mentioned items are not established, referring to the Information message on WEB, check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware replacement is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Yes] is selected in the step [\(2-5\)-\(c\)](#), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

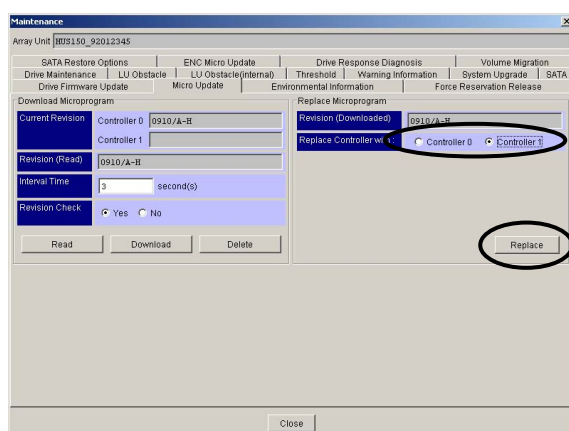
However, only when “I1G800 FC I/F ports change to online (CTL-0)” is not displayed, execute the update installation of the firmware of the same Controller again from the step [\(2-6\) \(a\) of “\(2-6\) Firmware replacement \(first Controller “A”\) \(By operating instructions\)”](#).

MM/DD/YYYY hh:mm:ss 00 I1G800 FC I/F ports change to online (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I1G700 FC I/F ports remain offline (CTL-0)	:Manual
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

- (h) In the case of the dual controller configuration, also replace the firmware of the other Controller.

- (2-7) Replacing the firmware (second Controller “B”) (Case with operating instructions)  
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)  
If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware replacement or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, refer to the working flowchart, and execute the firmware replacement again from the step (2-6)-(a), (2-7)-(a) or (2-10).

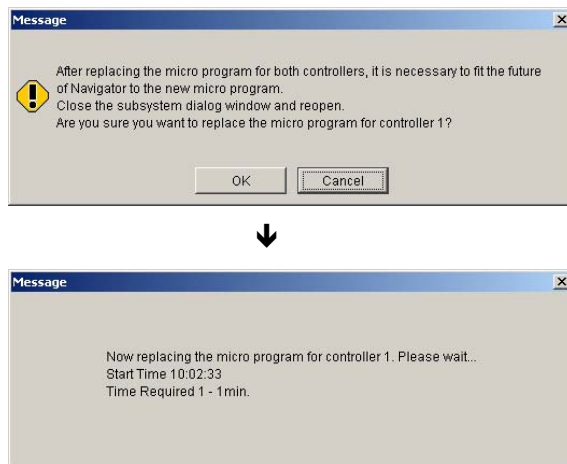
- (a) Select the Controller whose firmware is to be replaced and click the [Replace] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

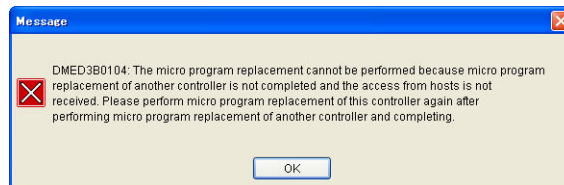
- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (2-7)-(e) is displayed, execute the update installation of the firmware after this according to “(2-10) Recovery procedure when the firmware replacement (second Controller “B”) (By operating instructions) fails” (FIRM 01-0410).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

NOTE : If a DMED3B0104 error message (firmware replacement on the Controller “A” side is not completed) is displayed after clicking the [OK] button to replace the firmware, click the [OK] button of the error message, and then execute the firmware replacement again from the step (2-6)-(a).



- (c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.  
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the [“\(2-10\) Recovery procedure when the firmware replacement \(second Controller “B”\) \(By operating instructions\) fails” \(FIRM 01-0410\)](#) according to the DMEA00200E error message.

- (d) Click the [OK] button according to the dialog message.

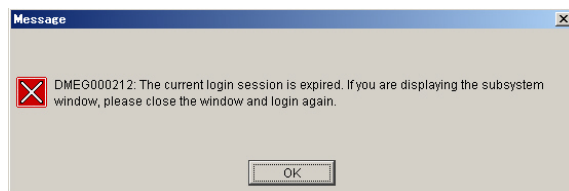




- (e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-5)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.



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‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “IZYR00 Automatic ENC firmware download completed successfully”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

When [Yes] is selected in the step (2-5)-(c), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

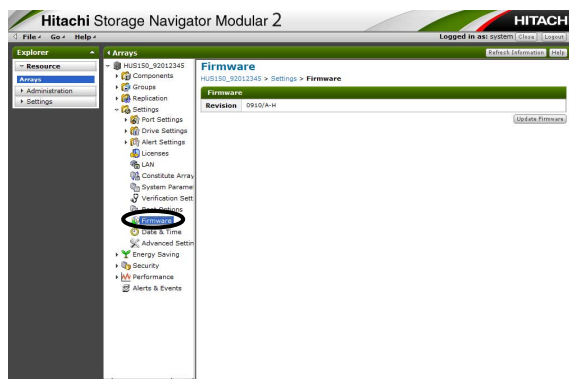
However, only when “I1G800 FC I/F ports change to online (CTL-1)” is not displayed, execute the update installation of the firmware, from now on, along the flow chart in operation and according to [“\(2-10\) Recovery procedure when the Firmware replacement \(second Controller “B”\) \(By operating instructions\) fails” \(FIRM 01-0410\)](#) or the step (2-14) (a).

```
MM/DD/YYYY hh:mm:ss 10 I1G801 FC I/F ports change to online (CTL-1)
:
:
:
MM/DD/YYYY hh:mm:ss 10 I19000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 I42001 Online micro-update(CTL-1)
MM/DD/YYYY hh:mm:ss 10 I00101 CTL recovered(CTL-1)
MM/DD/YYYY hh:mm:ss 10 I1G701 FC I/F ports remain offline (CTL-1)
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1)
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

:MANUAL  
:CTL /CTRC

- (g) Click the [Close] button in the [Micro Update] tab window.

- (h) Select [Settings] - [Firmware] on the unit window, and click the [Refresh Information] button.



- (i) Check that the revision of the replaced firmware is displayed.
- (j) When the revision check is completed, the firmware replacement of the array ends.

NOTE :

- When the replacement of the firmware is made for only one of the dual Controller, the disk array system is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is replaced. When you replace the firmware, be sure to make the replacement for the both Controllers continuously.
- When the firmware was replaced online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

(2-8) Checking the READY LED (green) on the front of the Controller Box

Check that the READY LED (green) on the front of the Controller Box lights up. When the READY LED (green) on the front of the Controller Box is blinking at high speed, the READY LED (green) on the front of the Controller Box lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)) because the automatic download of the ENC firmware and the backup controller firmware is being operated.

(2-9) Checking the automatic download of the ENC firmware and the backup controller firmware and the automatic download of the drive firmware

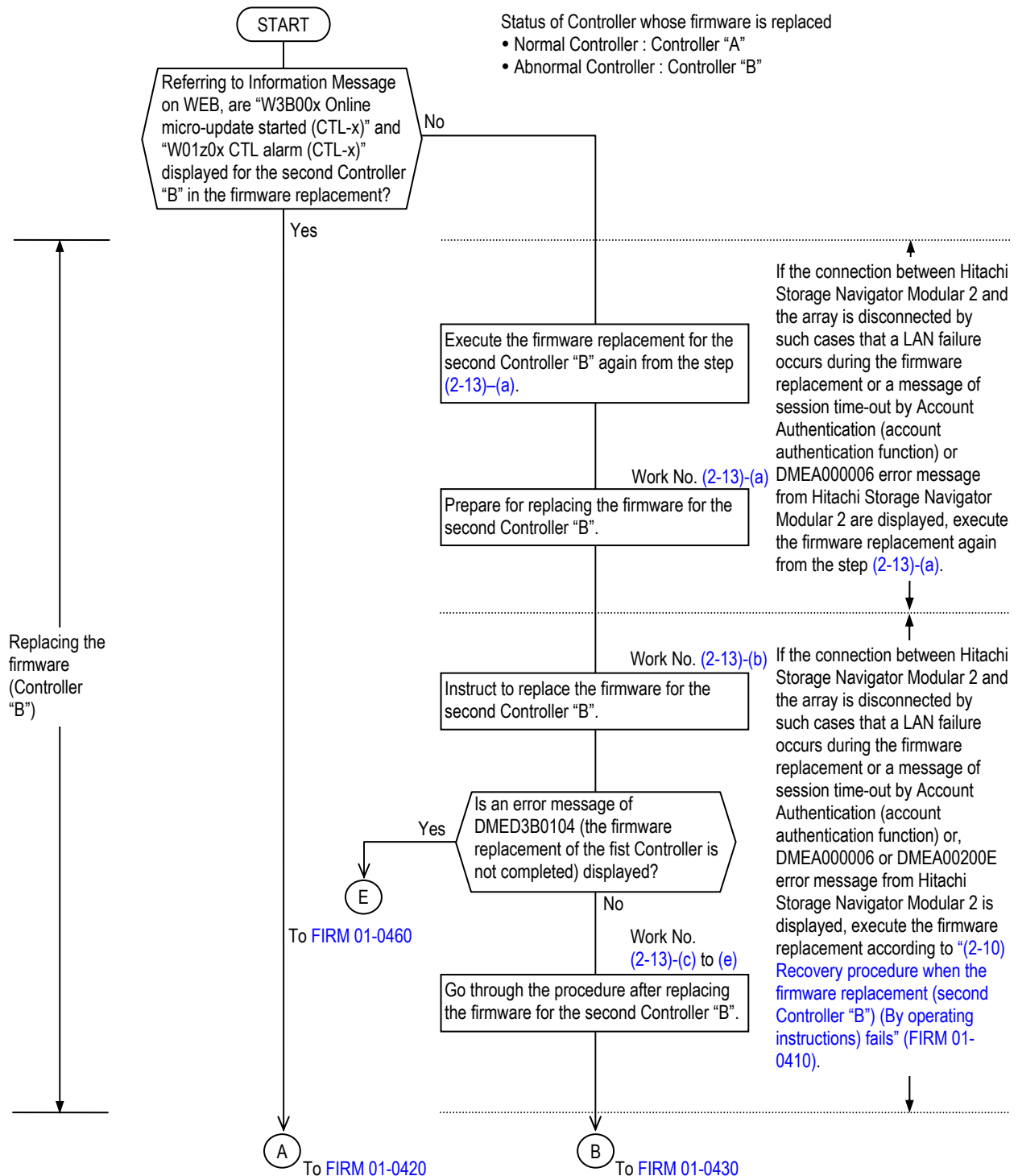
(a) Checking the completion of the automatic download of the ENC firmware and the backup controller firmware

Check that “IZYR00 Automatic ENC firmware download completed successfully” and “IZYS00 Automatic ENC firmware download started” are displayed in Information Message on WEB. When “IZYQ00 Automatic ENC firmware download failed” is displayed in Information Message on WEB, perform the maintenance according to the recovery method of the message code. However, in the unit window of Hitachi Storage Navigator Modular 2, select [Settings] - [Detailed Settings] and press the [Start Detailed Settings] button. Next, select [Maintenance] and press the [Settings] button, and then select the [ENC Micro Update] tab. If [Automatic Download] is set to [Disabled], the procedure (2-9)-(a) is not required.

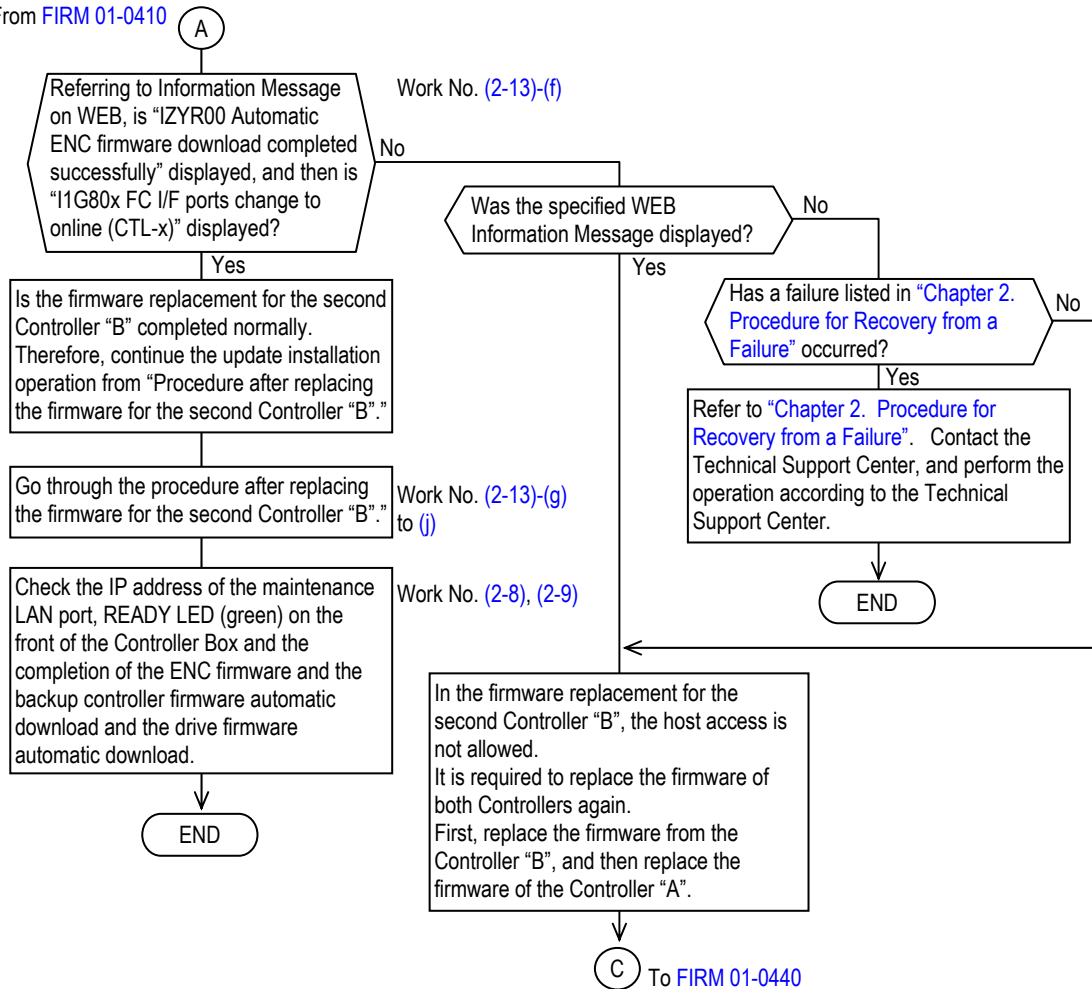
- (b) Check that the start message and the end message of the drive firmware automatic download are displayed. When the drive firmware version of the Drive is new, the start message and completion message of the drive firmware automatic download are not displayed. When the message indicating the abnormal termination is displayed, perform the maintenance according the recovery method in the message code. (Refer to “1.6 (4) [Checking the start message and end message of the automatic download](#)” (FIRM 01-1620).)

(2-10) Recovery procedure when the firmware replacement (second Controller "B") (By operating instructions) fails

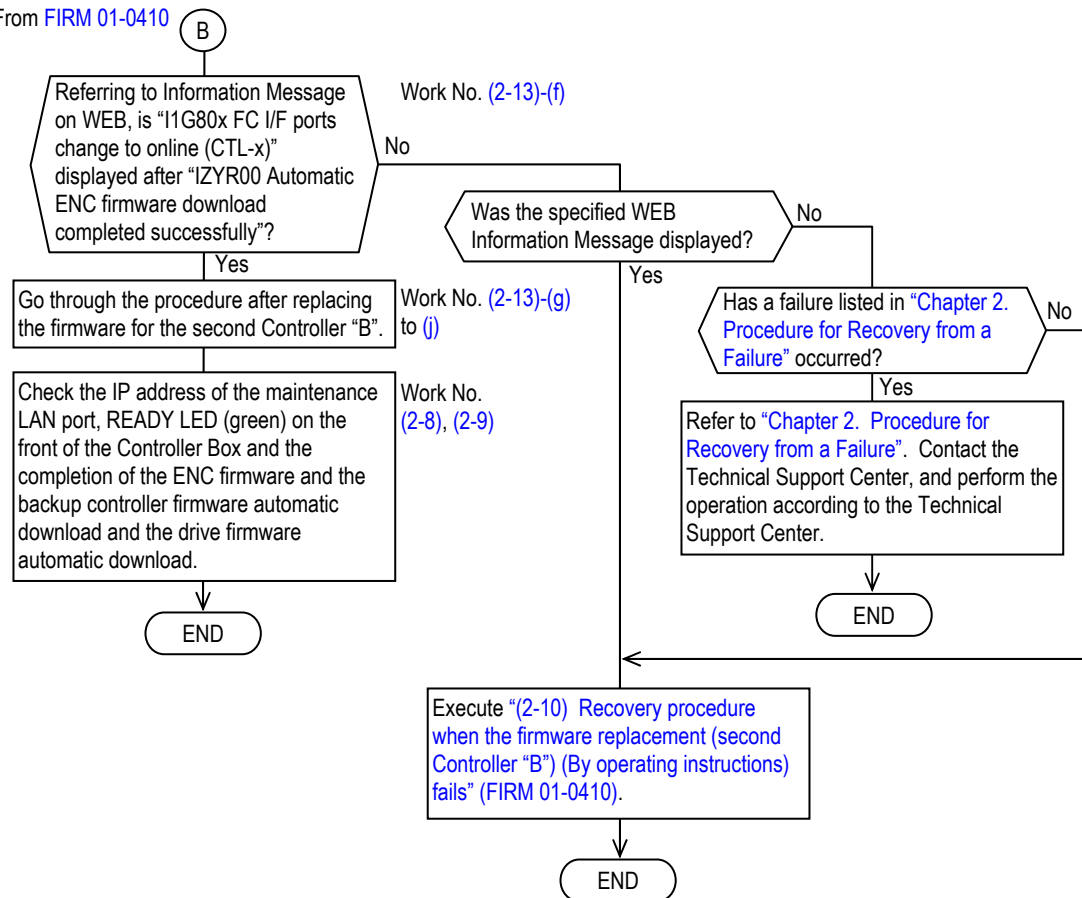
(In case that there is a special instruction by the Technical Support Center, SE, customer and others to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

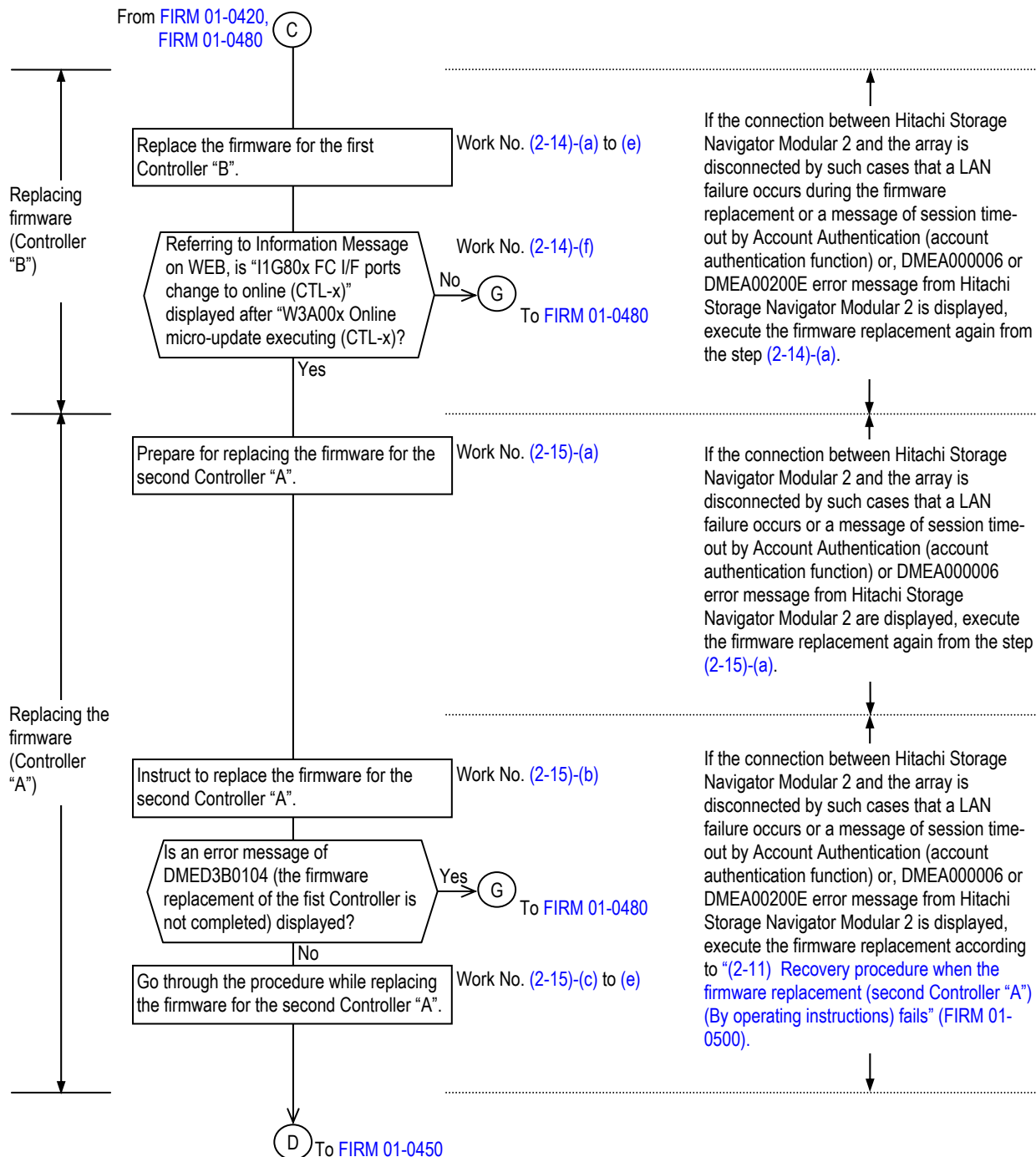


From FIRM 01-0410

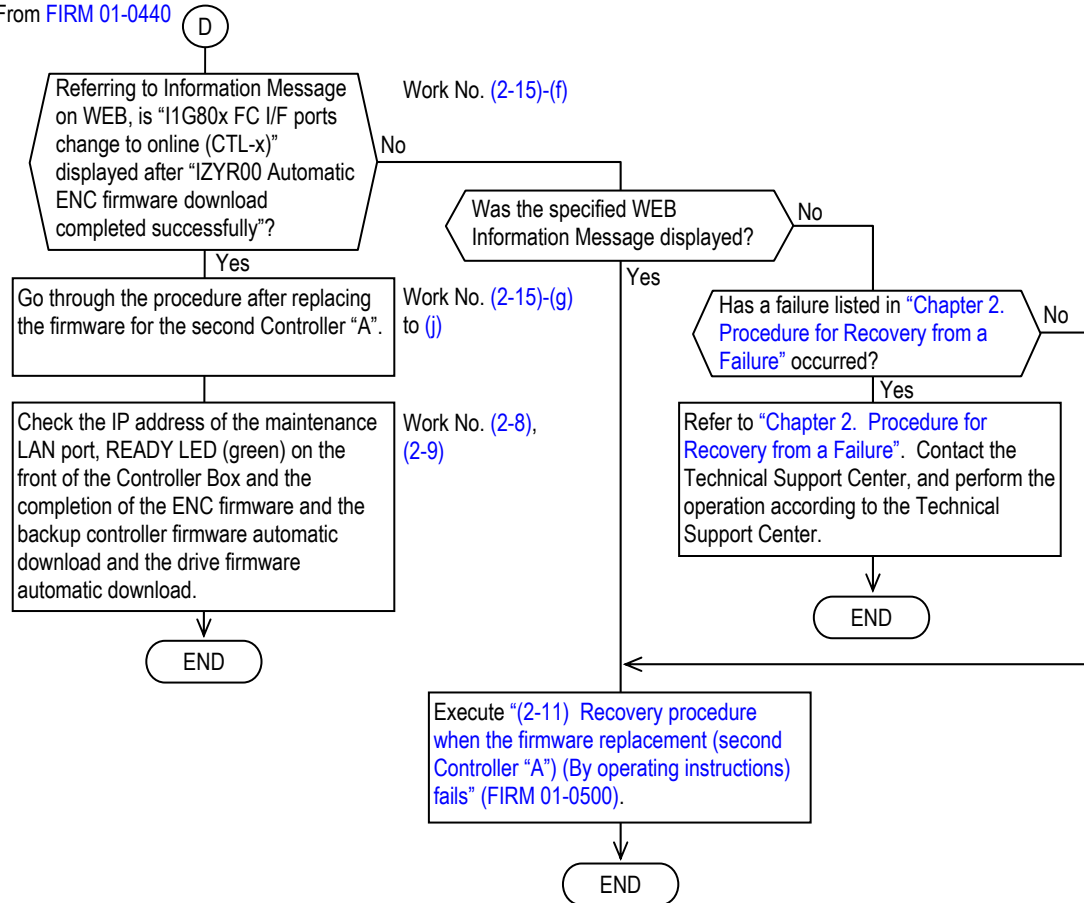


From FIRM 01-0410

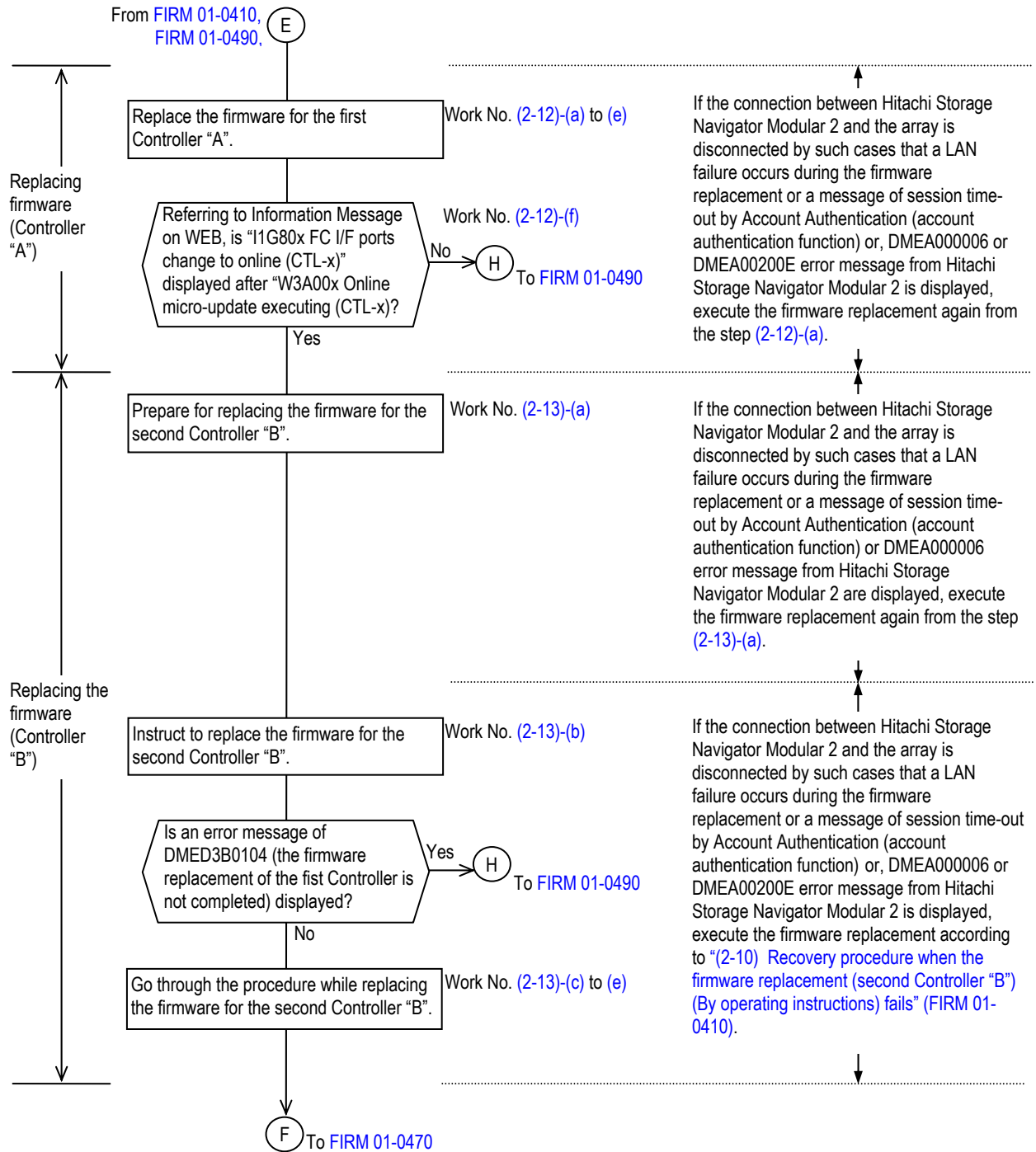




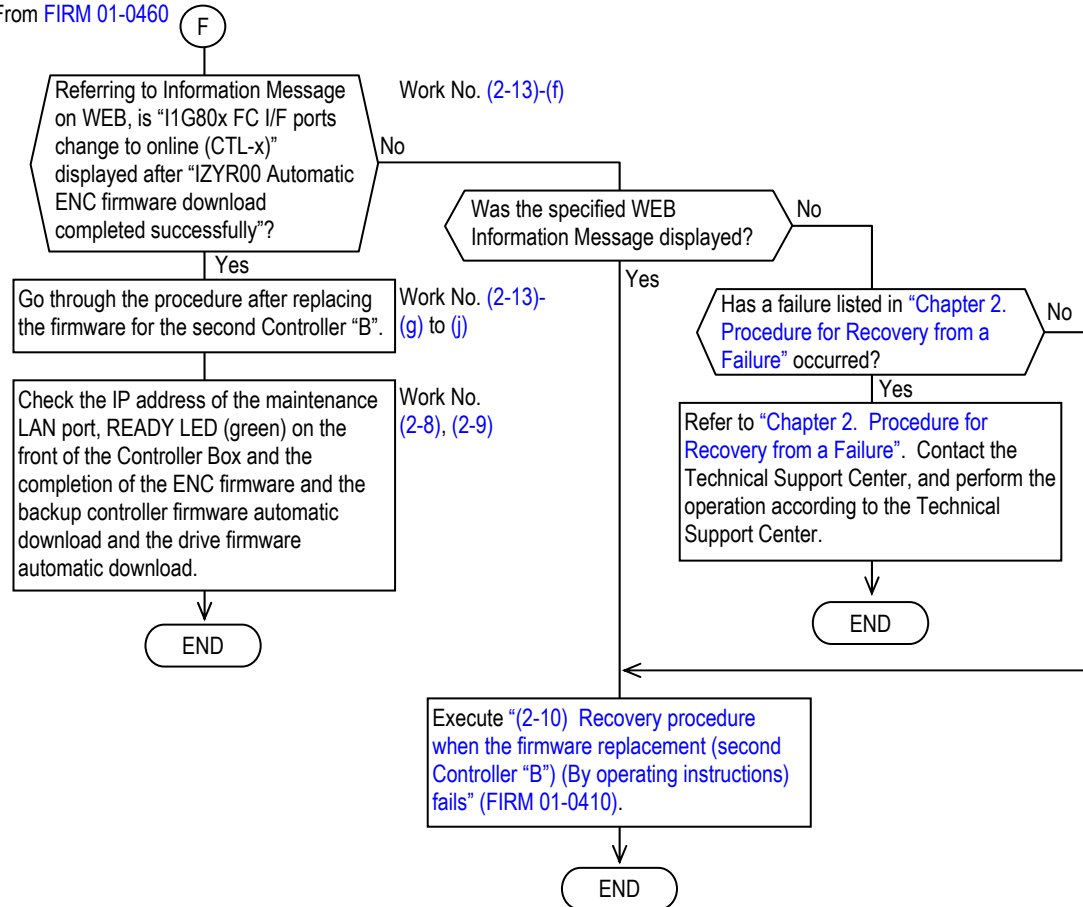
From FIRM 01-0440

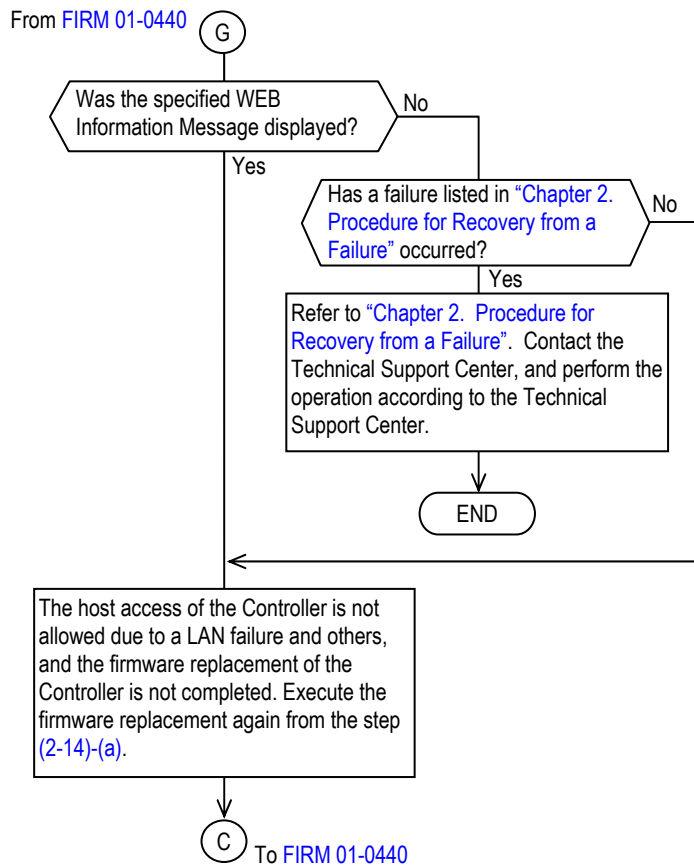


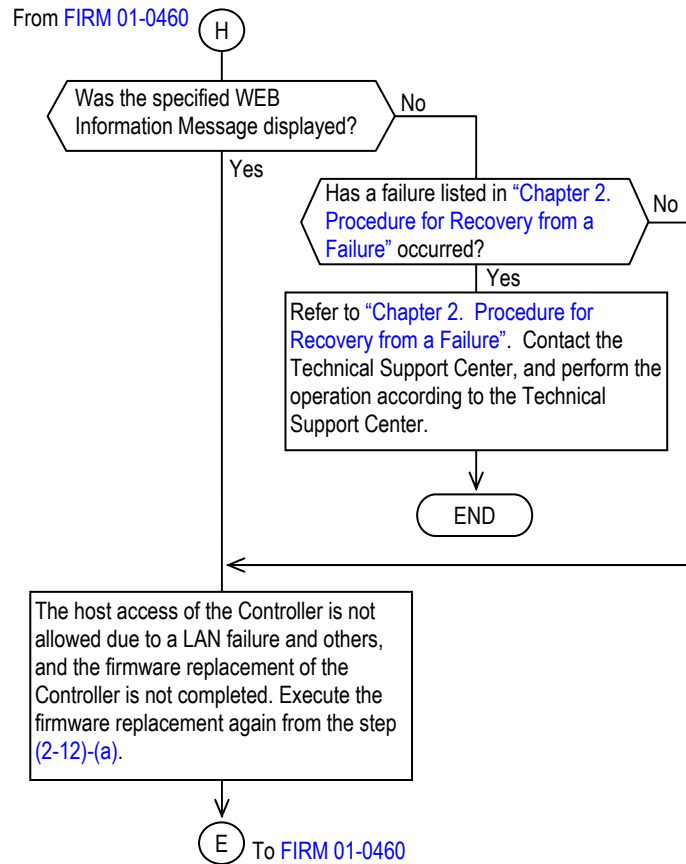




From FIRM 01-0460

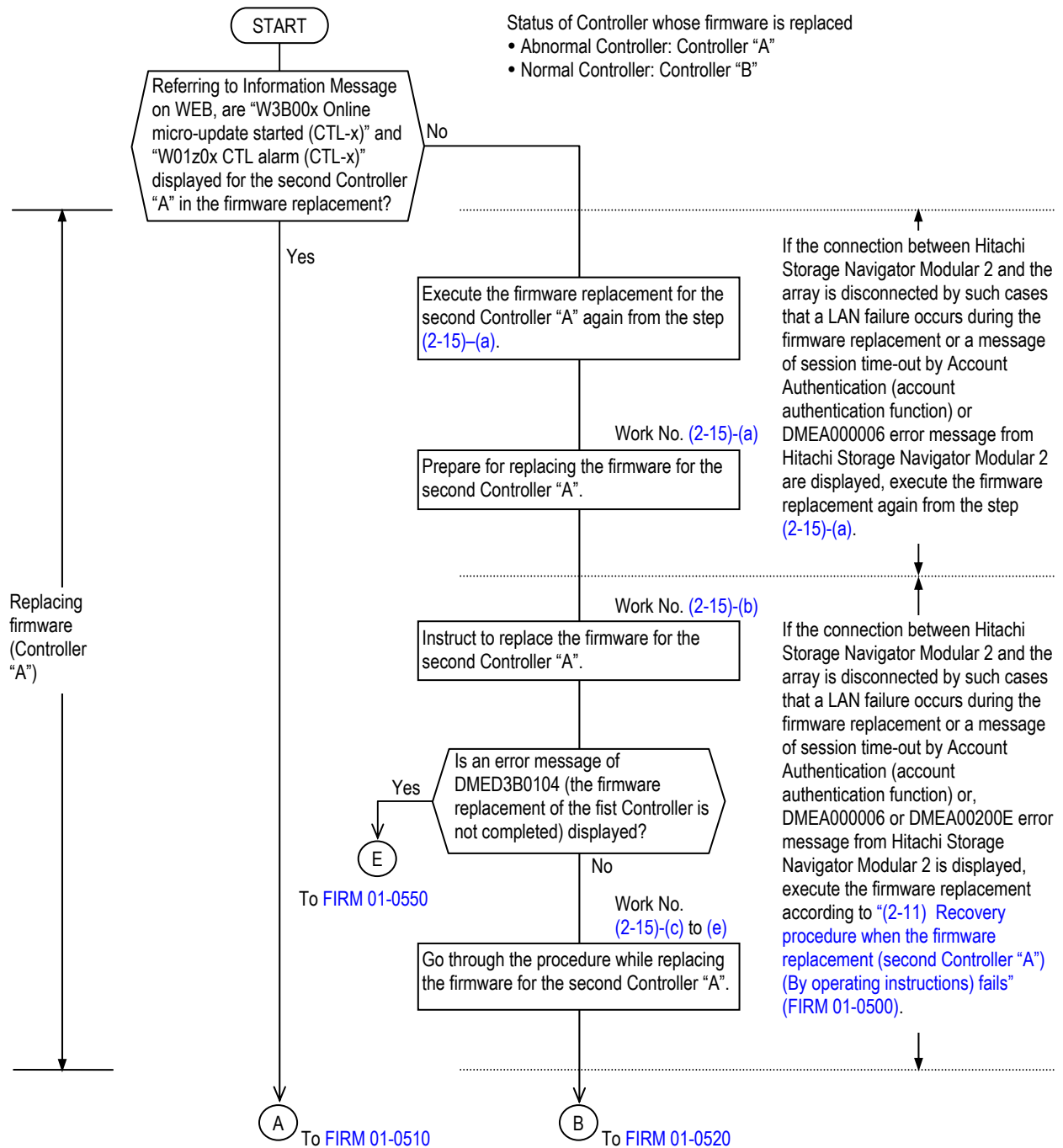




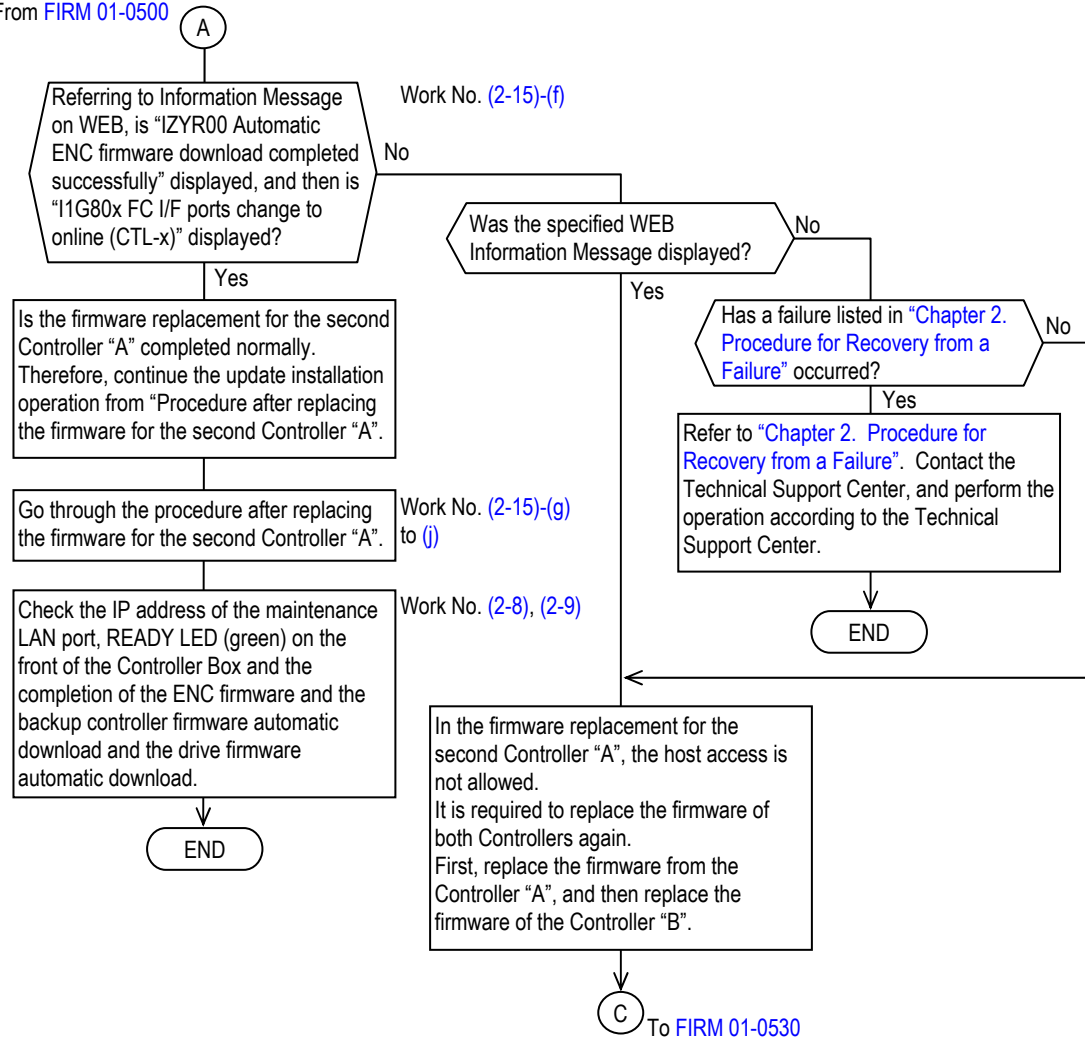


(2-11) Recovery procedure when the firmware replacement (second Controller "A") (By operating instructions) fails

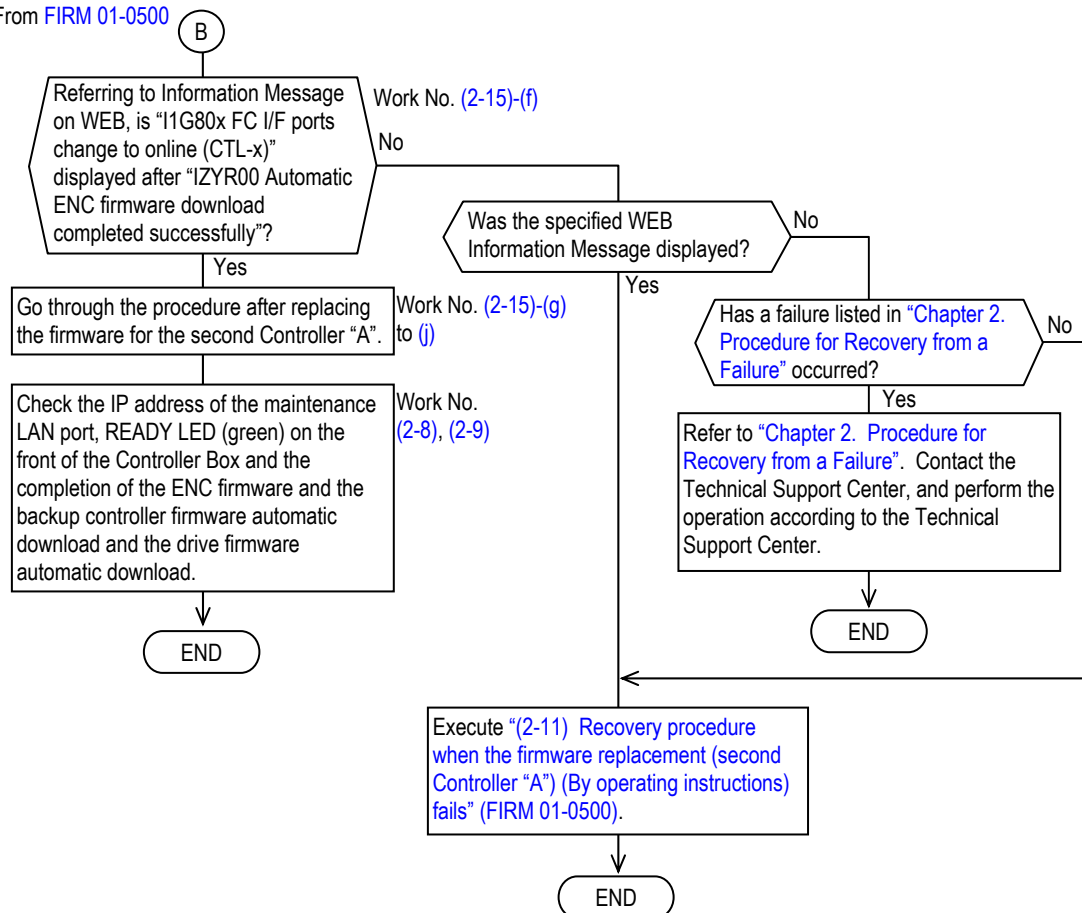
(In case that there is a special instruction by the Technical Support Center, SE, customer and others to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

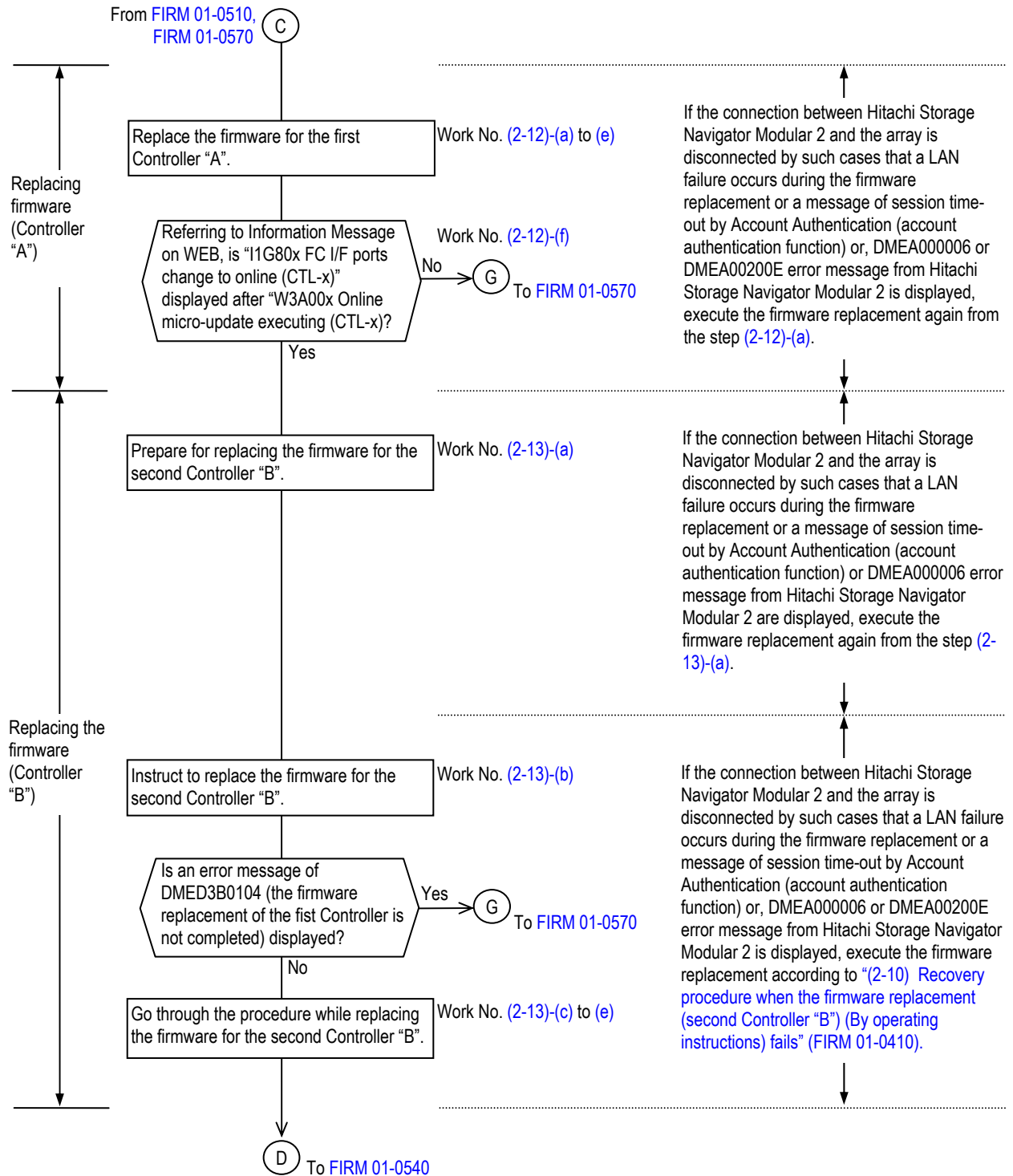


From FIRM 01-0500



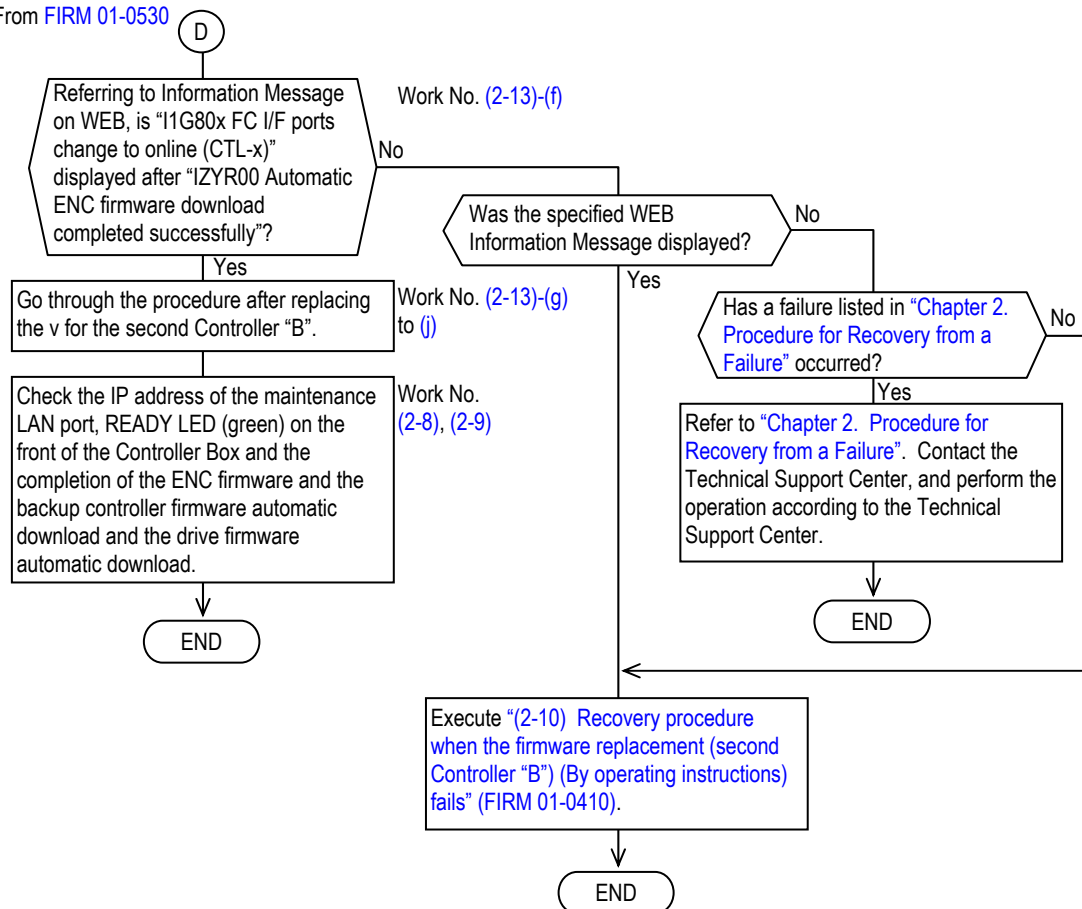
From FIRM 01-0500

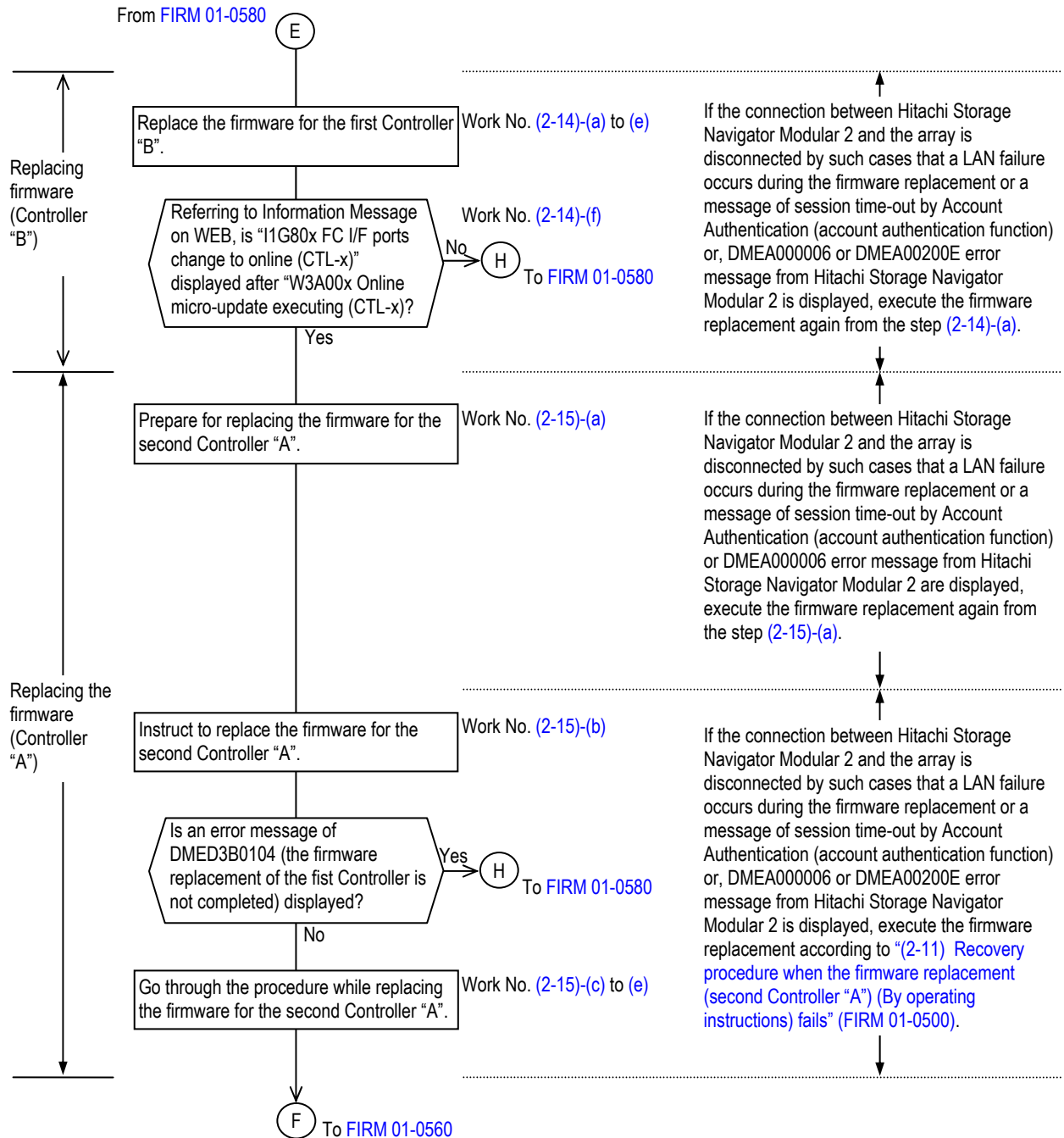




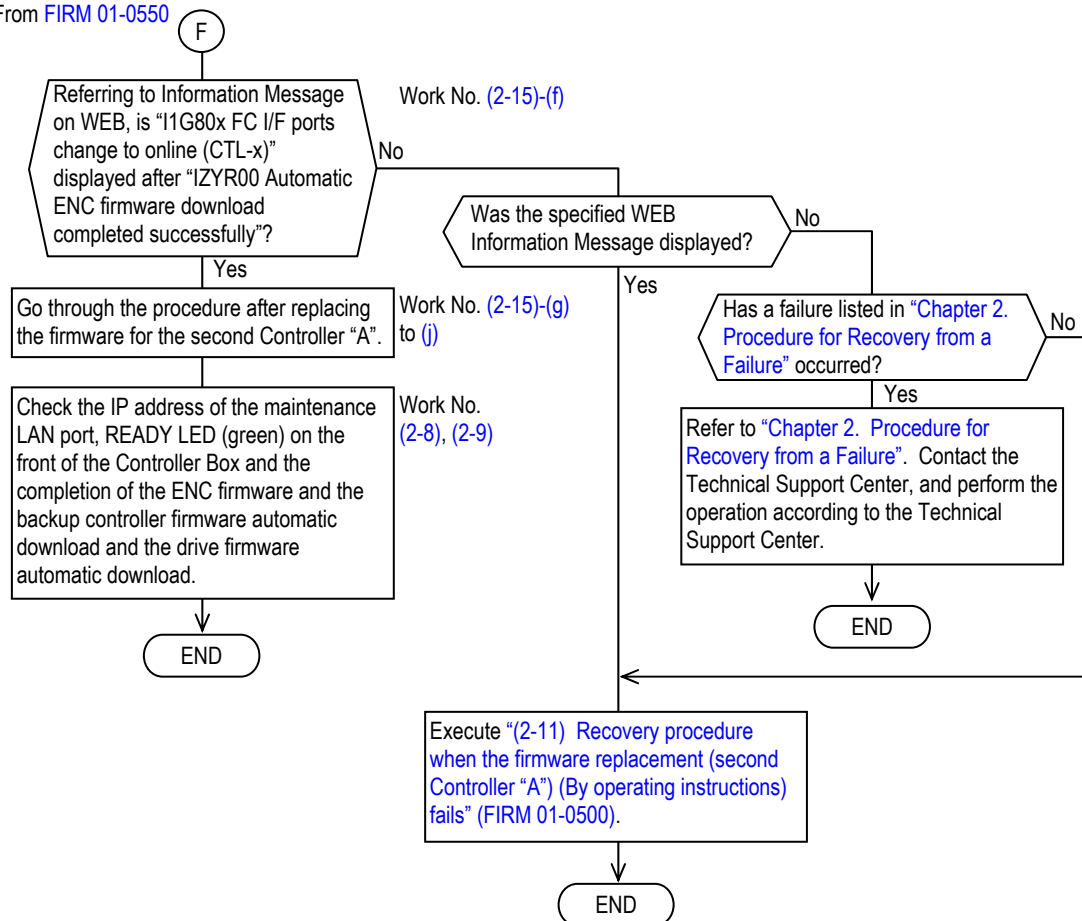


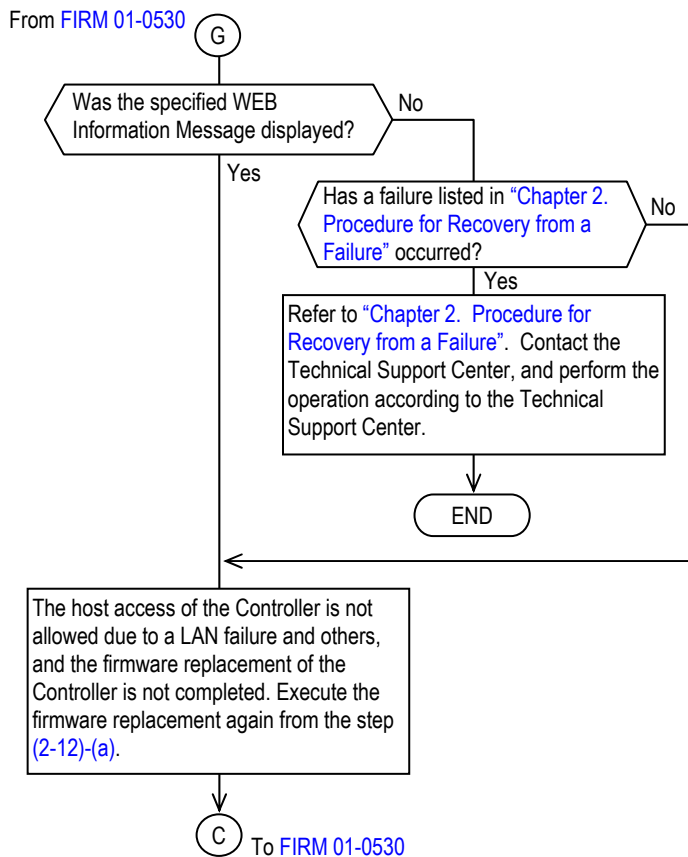
From FIRM 01-0530

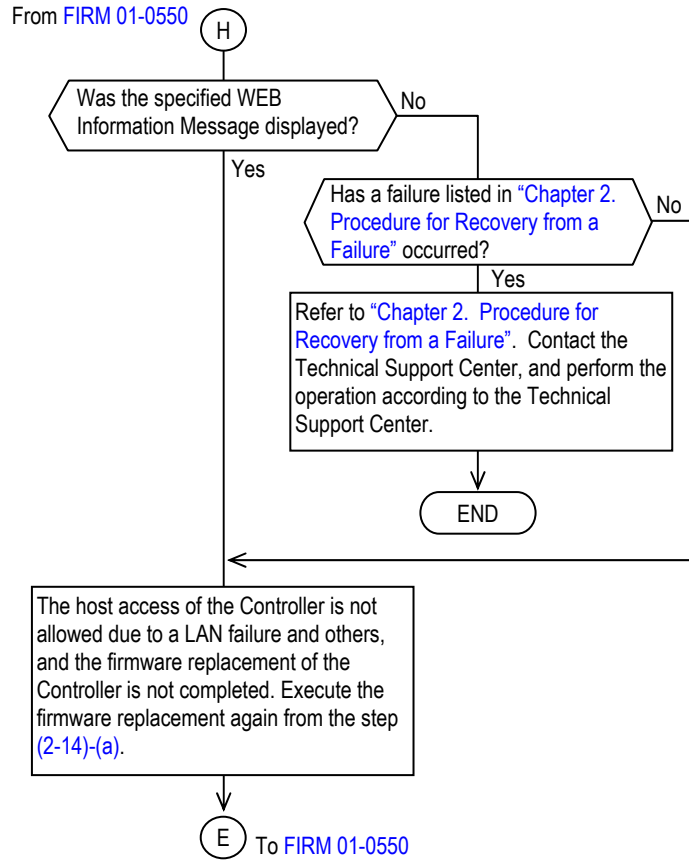




From FIRM 01-0550







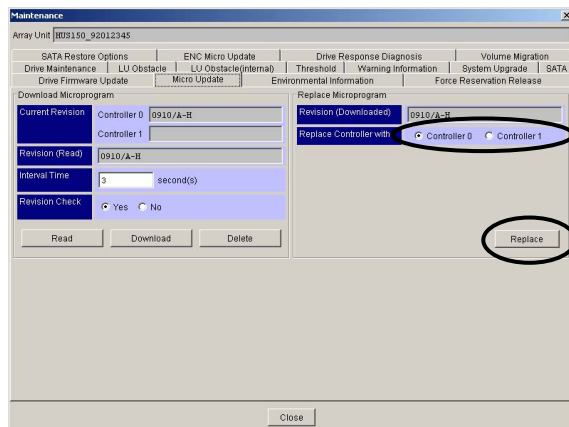
## (2-12) Replacing the firmware (first Controller “A”) (By operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware replacement again from the beginning ((2-12)-(a)).

Replace the firmware that was downloaded to the disk array system with the firmware installed in the Controller. When making replacement, be sure to replace the firmware of the both Controllers 0 and 1. When the firmware of one of the Controllers is replaced and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, replace the firmware after changing the registration to that in which only the Controller whose firmware has not be replaced is registered.

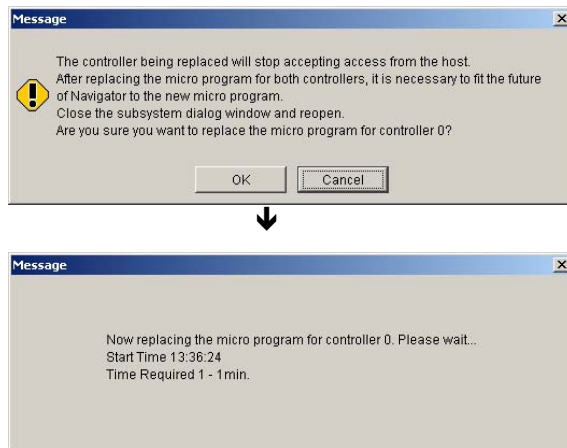
## (a) Select the Controller whose firmware is to be replaced and click the [Replace] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (2-12)-(e) is displayed, execute the firmware replacement again from the beginning ((2-12)-(a)).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.  
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the step (2-12)-(a) according to the DMEA00200E error message.

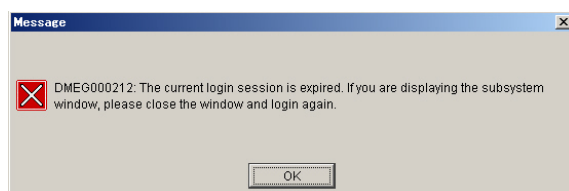
- (d) Click the [OK] button according to the dialog message.



- (e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-5)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.



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‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.



- (f) Referring to the Information Message on WEB, confirm the following items.
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “W3A00x Online micro-update executing (CTL-x)”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\).](#))

NOTE : The following message is displayed when the firmware replacement is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Yes] is selected in the step [\(2-5\)-\(c\)](#), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

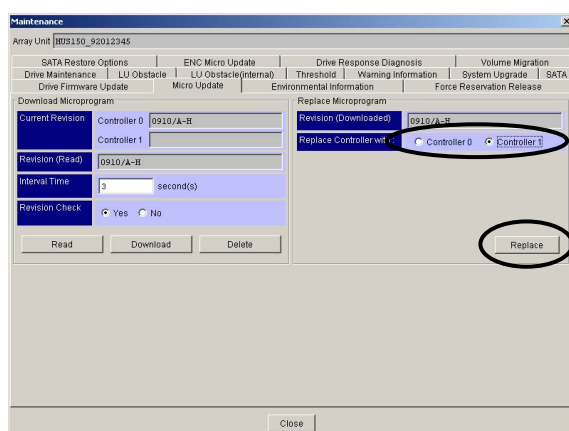
However, only when “I1G800 FC I/F ports change to online (CTL-0)” is not displayed, execute the update installation of the firmware of the same Controller again from the step [\(2-12\) Replacing the firmware \(first Controller “A”\) \(By operating instructions\)](#).

MM/DD/YYYY hh:mm:ss 00 I1G800 FC I/F ports change to online (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I1G700 FC I/F ports remain offline (CTL-0)	:Manual
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

- (g) In the case of the dual controller configuration, also replace the firmware of the other Controller.

- (2-13) Replacing the firmware (second Controller “B”) (Case with operating instructions)  
 (In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)  
 If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware replacement or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, refer to the working flowchart, and execute the firmware download again from the step (2-10), (2-12) or (2-14).

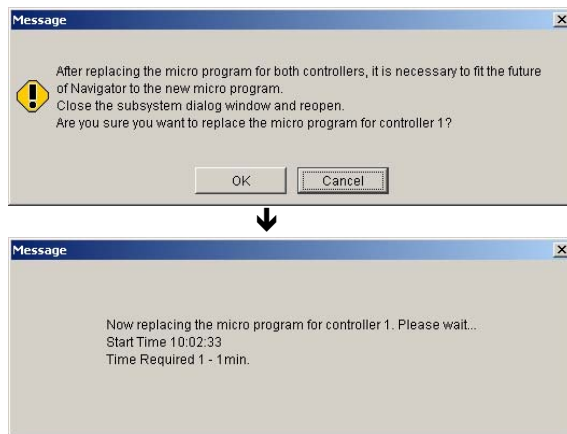
- (a) Select the Controller whose firmware is to be replaced and click the [Replace] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

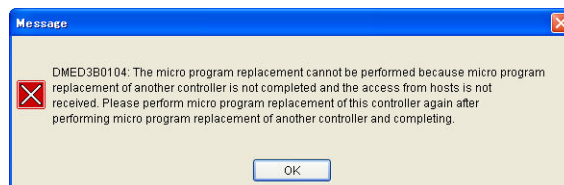
- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (2-13)-(e) is displayed, execute the update installation of the firmware after this according to “(2-10) Recovery procedure when the firmware replacement (first Controller “B”) (By operating instructions) fails” (FIRM 01-0410).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

NOTE : If a DMED3B0104 error message (firmware replacement on the Controller “A” side is not completed) is displayed after clicking the [OK] button to replace the firmware, click the [OK] button of the error message, and then execute the firmware replacement again from the step (2-12)-(a).



- (c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.

Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the [“\(2-10\) Recovery procedure when the firmware replacement \(second Controller “B”\) \(By operating instructions\) fails”](#) according to the DMEA00200E error message.

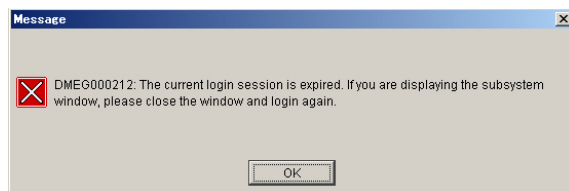
- (d) Click the [OK] button according to the dialog message.



- (e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-5)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.



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‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\).](#))
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “IZYR00 Automatic ENC firmware download completed successfully”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\).](#))

NOTE : The following message is displayed when the firmware replacement is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

When [Yes] is selected in the step (2-5)-(c), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\).](#)

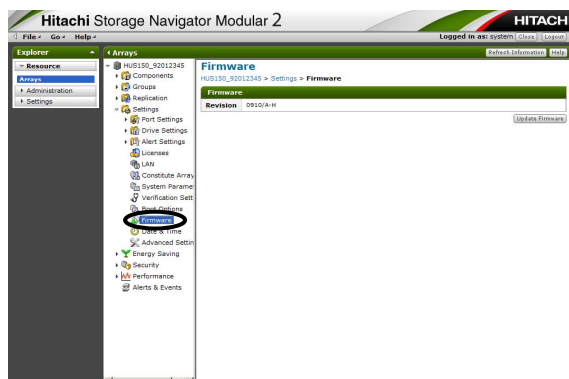
Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-1)” is not displayed, execute the update installation of the firmware, from now on, along the flow chart in operation and according to [“\(2-10\) Recovery procedure when the firmware replacement \(second Controller “B”\) \(By operating instructions\) fails” \(FIRM 01-0410\)](#) or the step (2-14) (a).

```
MM/DD/YYYY hh:mm:ss 10 I1G801 FC I/F ports change to online (CTL-1)
:
:
:
MM/DD/YYYY hh:mm:ss 10 I19000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 I42001 Online micro-update (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I00101 CTL recovered (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I1G701 FC I/F ports remain offline (CTL-1)           :MANUAL
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1)                         :CTL /CTRC
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

- (g) Click the [Close] button in the [Micro Update] tab window.

- (h) Select [Settings] - [Firmware] on the unit window, and click the [Refresh Information] button.



- (i) Check that the revision of the replaced firmware is displayed.
- (j) When the revision check is completed, the firmware replacement of the array ends.

NOTE :

- When the replacement of the firmware is made for only one of the dual Controller, the disk array system is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is replaced. When you replace the firmware, be sure to make the replacement for the both Controllers continuously.
- When the firmware was replaced online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

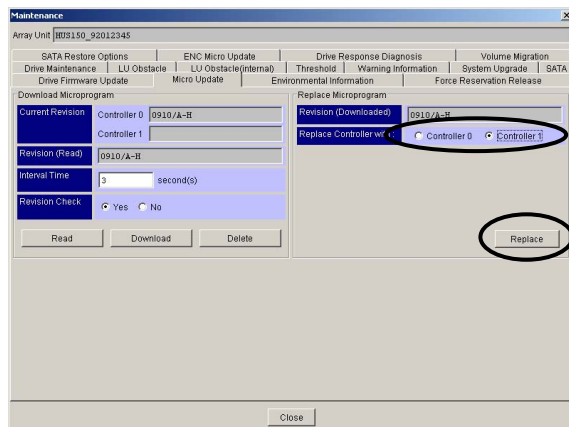
## (2-14) Replacing the firmware (first Controller “B”) (By operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware replacement again from the beginning ((2-14)-(a)).

Replace the firmware that was downloaded to the disk array system with the firmware installed in the Controller. When making replacement, be sure to replace the firmwares of the both Controllers 0 and 1. When the firmware of one of the Controllers is replaced and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, replace the firmware after changing the registration to that in which only the Controller whose firmware has not be replaced is registered.

## (a) Select the Controller whose firmware is to be replaced and click the [Replace] button.

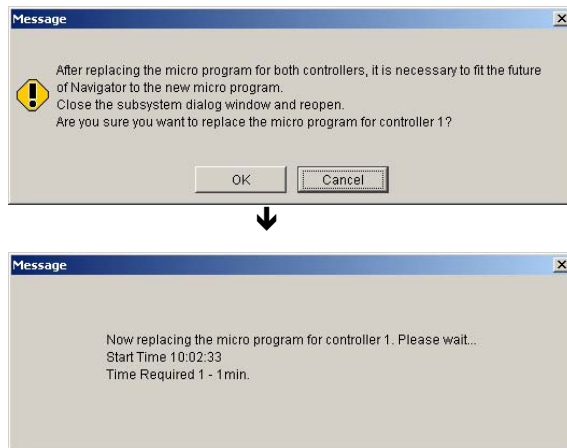


NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.



- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (h) is displayed, execute the firmware replacement again from the beginning ((2-14)-(a)).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.  
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the step (2-14)-(a) according to the DMEA00200E error message.

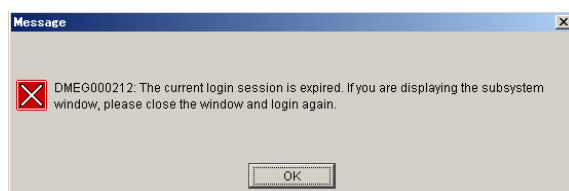
- (d) Click the [OK] button according to the dialog message.



- (e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-5)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(†1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(†1)</sup> is unnecessary.



<sup>†1</sup> : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items.
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “W3A00x Online micro-update executing (CTL-x)”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\).](#))

NOTE : The following message is displayed when the firmware replacement is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Yes] is selected in the step [\(2-5\)-\(c\)](#), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-0)” is not displayed, execute the update installation of the firmware of the same Controller again from the step [\(2-14\) \(a\) of “\(2-14\) Replacing the firmware \(first Controller “B”\) \(By operating instructions\)”](#).

MM/DD/YYYY hh:mm:ss 00 I1G800 FC I/F ports change to online (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I1G700 FC I/F ports remain offline (CTL-0)	:Manual
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

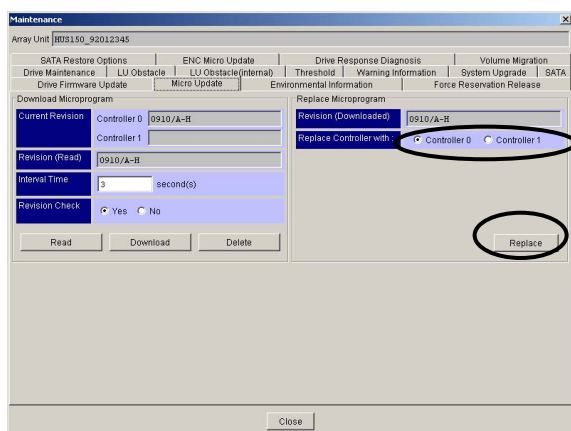
- (g) In the case of the dual controller configuration, also replace the firmware of the other Controller.

## (2-15) Replacing the firmware (second Controller “A”) (Case with operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware replacement or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, refer to the working flowchart, and execute the firmware download again from the step (2-11), (2-12) or (2-14).

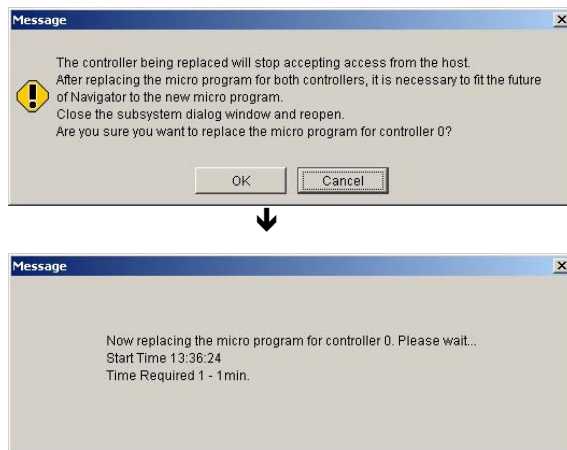
(a) Select the Controller whose firmware is to be replaced and click the [Replace] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

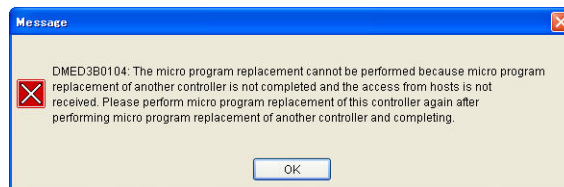
- (b) The confirmation window is displayed. Check if the selected Controller is correctly displayed and click the [OK] button.

NOTE : By clicking the [OK] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (h) is displayed, execute the update installation of the firmware after this according to “(2-11) Recovery procedure when the firmware replacement (second Controller “A”) (By operating instructions) fails” (FIRM 01-0500).



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

NOTE : If a DMED3B0104 error message (firmware replacement on the Controller “B” side is not completed) is displayed after clicking the [OK] button to replace the firmware, click the [OK] button of the error message, and then execute the firmware replacement again from the step (2-14)-(a).



- (c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.  
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the [“\(2-11\) Recovery procedure when the firmware replacement \(second Controller “A”\) \(By operating instructions\) fails” \(FIRM 01-0500\)](#) according to the DMEA00200E error message.

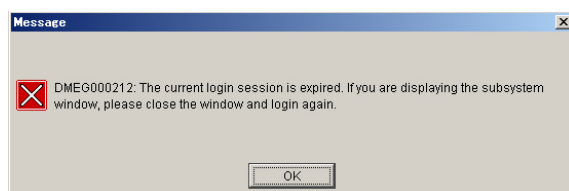
- (d) Click the [OK] button according to the dialog message.



- (e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Yes] is selected in the step (2-5)-(c)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was replaced to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.



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‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “IZYR00 Automatic ENC firmware download completed successfully”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

When [Yes] is selected in the step (2-5)-(c), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

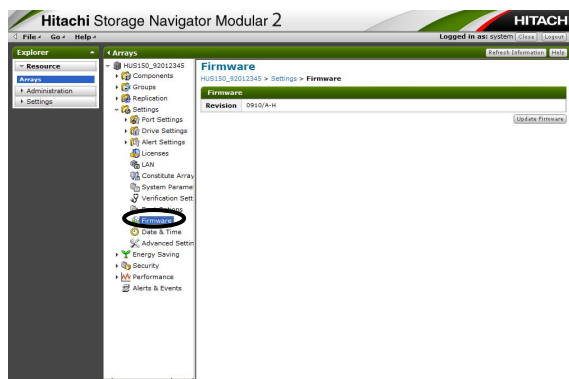
Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-1)” is not displayed, execute the update installation of the firmware, from now on, along the flow chart in operation and according to [“\(2-11\) Recovery procedure when the firmware replacement \(second Controller “A”\) \(By operating instructions\) fails” \(FIRM 01-0500\)](#) or the step (2-12) (a).

```
MM/DD/YYYY hh:mm:ss 10 I1G801 FC I/F ports change to online (CTL-1)
:
:
:
MM/DD/YYYY hh:mm:ss 10 I19000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 I42001 Online micro-update (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I00101 CTL recovered (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I1G701 FC I/F ports remain offline (CTL-1)           :MANUAL
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1)                         :CTL /CTRC
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

- (g) Click the [Close] button in the [Micro Update] tab window.

- (h) Select [Settings] - [Firmware] on the unit window, and click the [Refresh Information] button.





- (i) Check that the revision of the replaced firmware is displayed.
- (j) When the revision check is completed, the firmware replacement of the array ends.

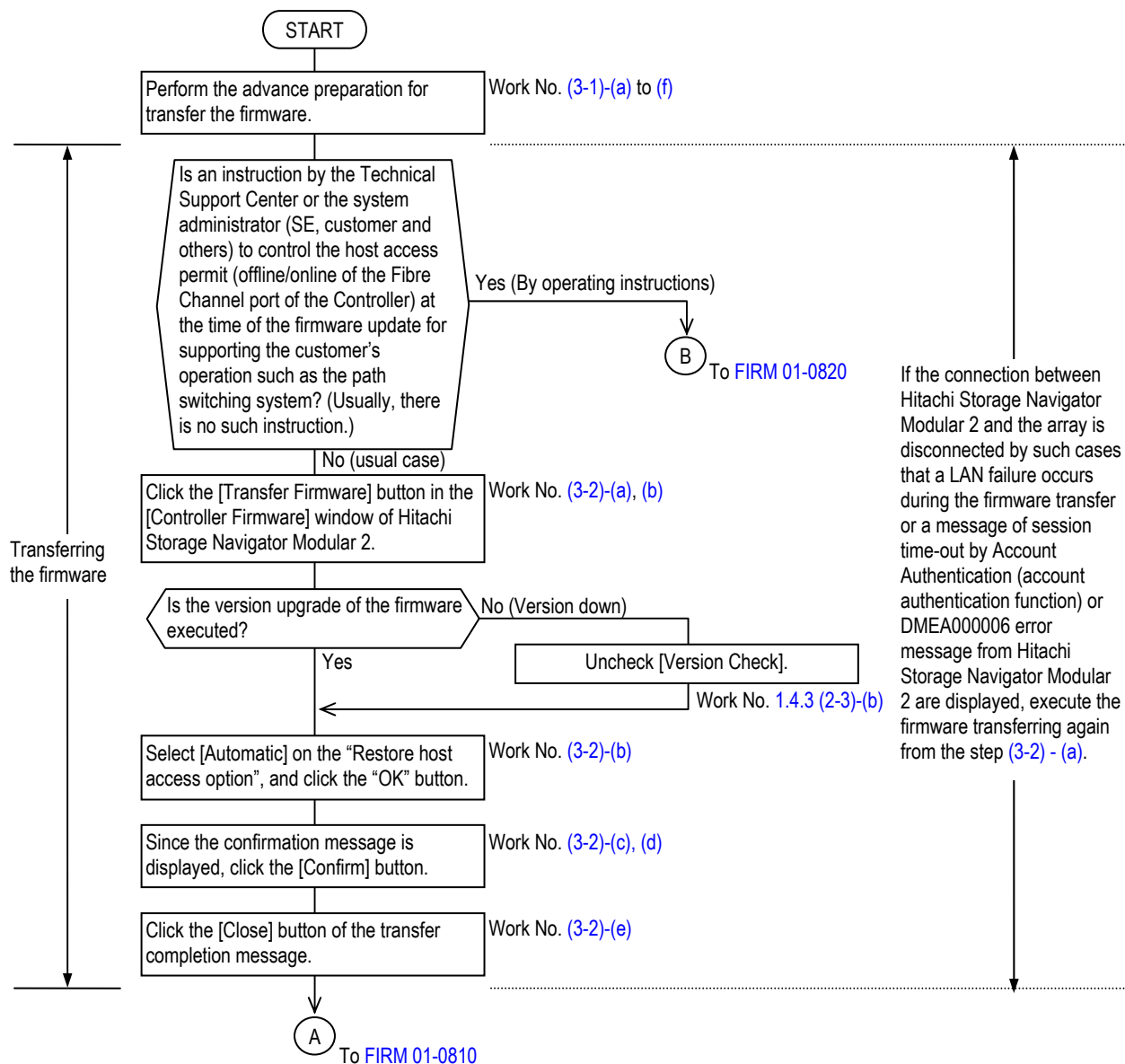
NOTE :

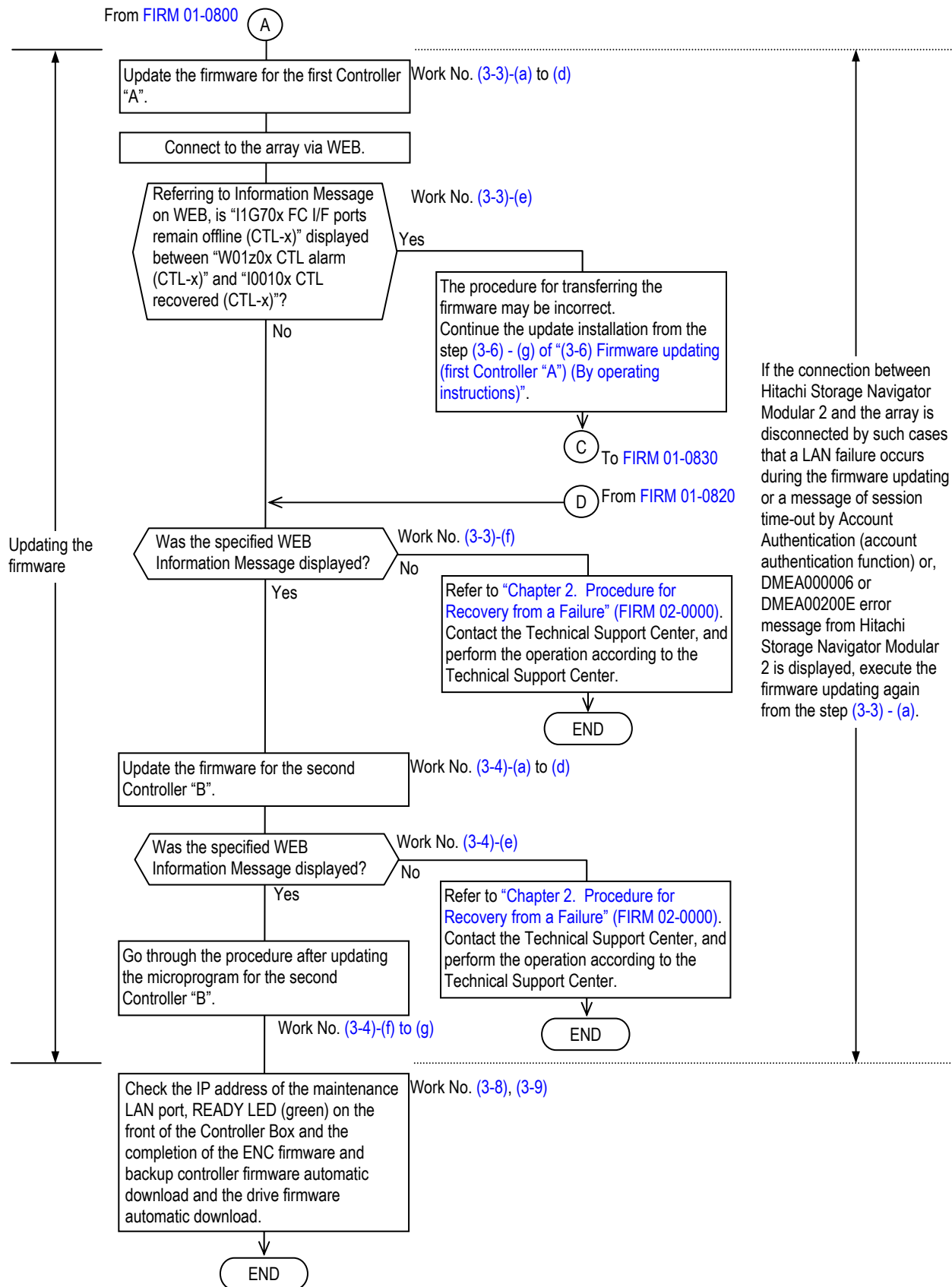
- When the replacement of the firmware is made for only one of the dual Controller, the disk array system is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is replaced. When you replace the firmware, be sure to make the replacement for the both Controllers continuously.
- When the firmware was replaced online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

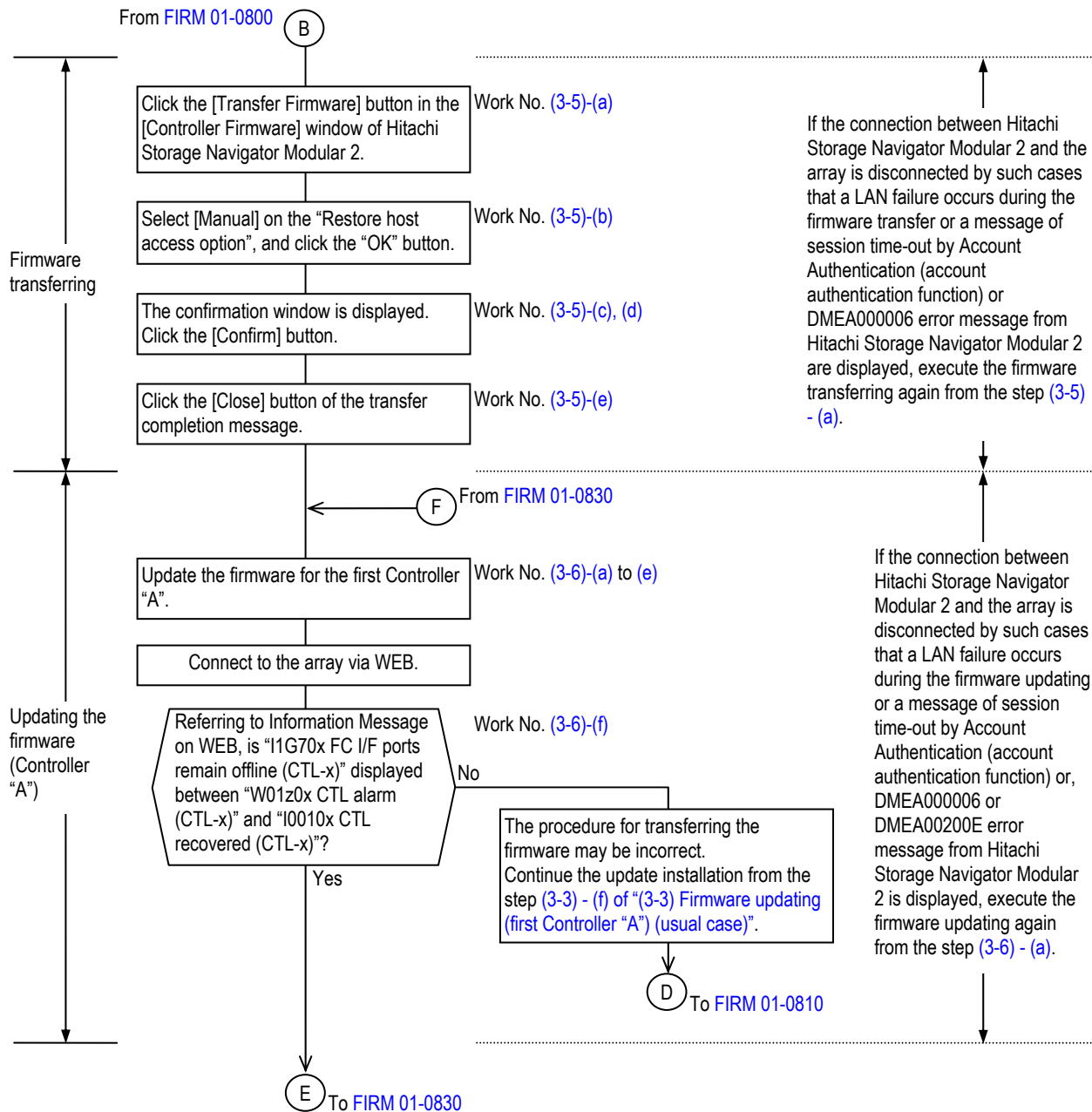
(3) Updating I/O stop for each Controller (Dual controller configuration) in Ver.22.00 or more of Hitachi Storage Navigator Modular 2

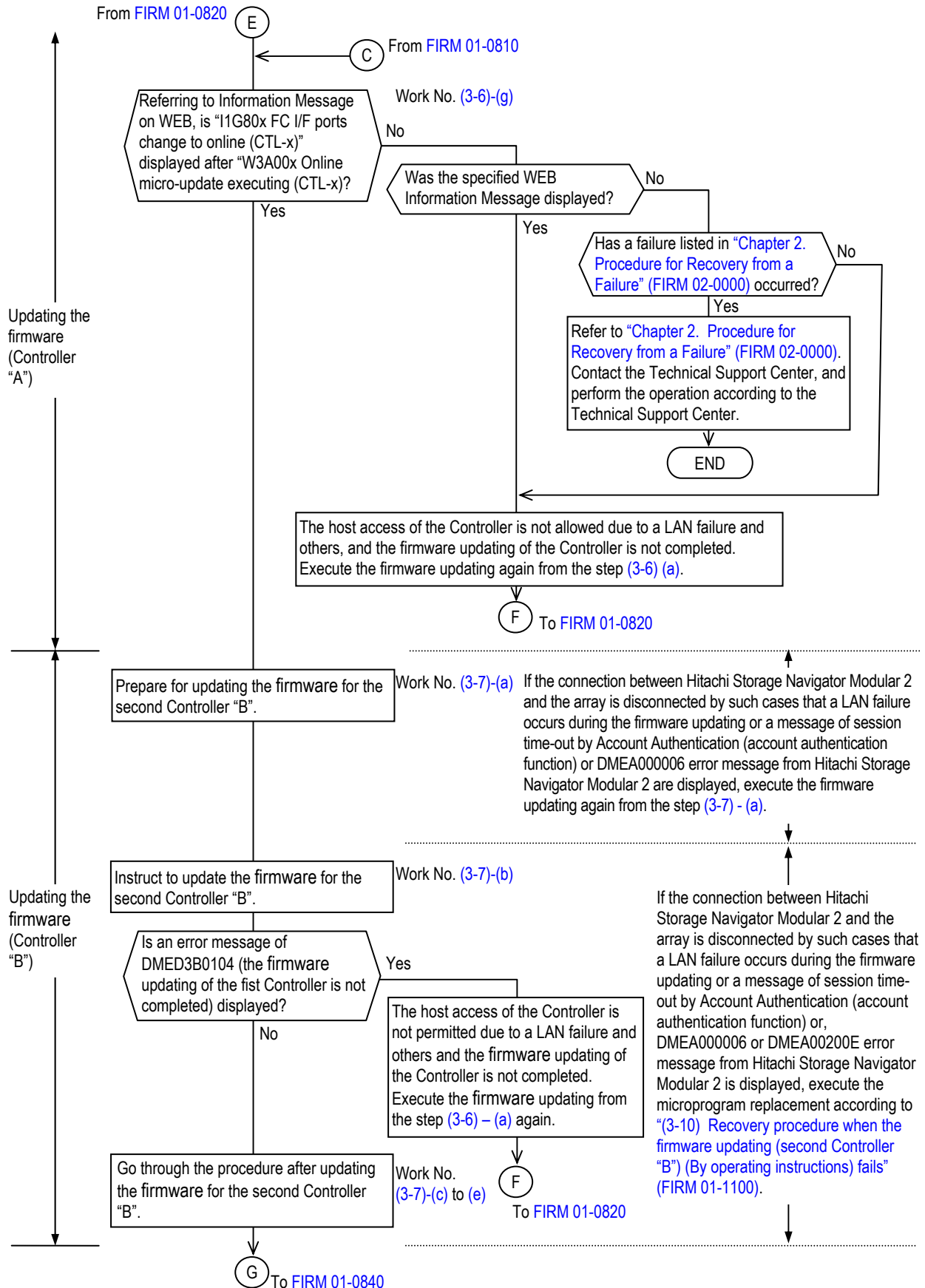
Refer to the following flowchart to perform the update installation.

- NOTE :
- Request the customer to perform the firmware update work in the time with low I/O load.
  - Do not perform the update installation of the firmware while the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
  - When registering the array at the time of connecting the array, specify only the Controller #0 in [Connection Destination]. (Refer to [System Parameter "1.1 \(4\) \(b\) Array registration" \(SYSPR 01-0090\)](#).)
  - When the Volume, whose status of the forced parity correction is any of "Parity Correction", "Waiting Parity Correction", "Waiting Drive Reconstruction", "Uncorrected", "Uncorrected and Drive Detached" and "Correction Aborted", is in the array, change the status of the Volume to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).

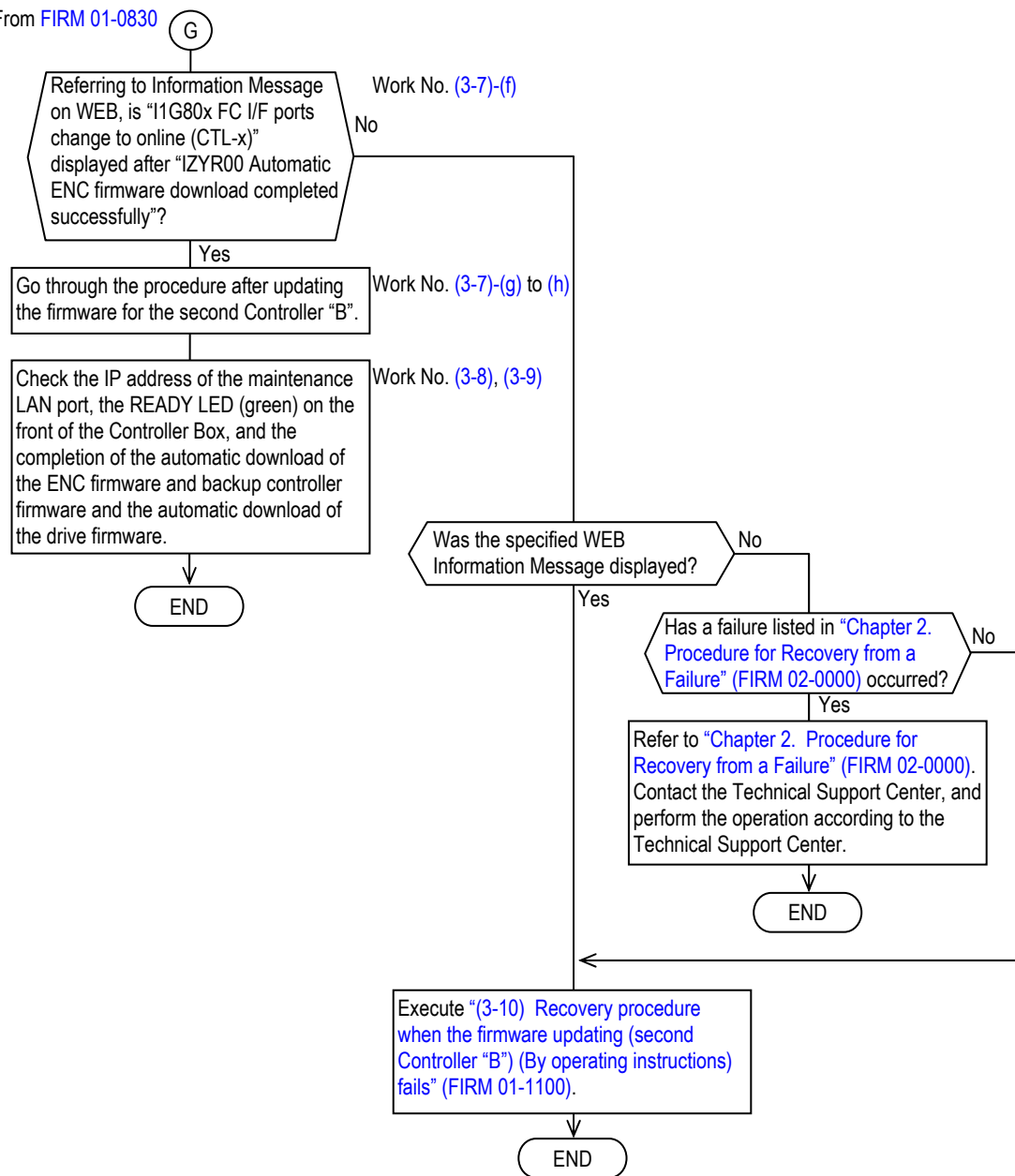








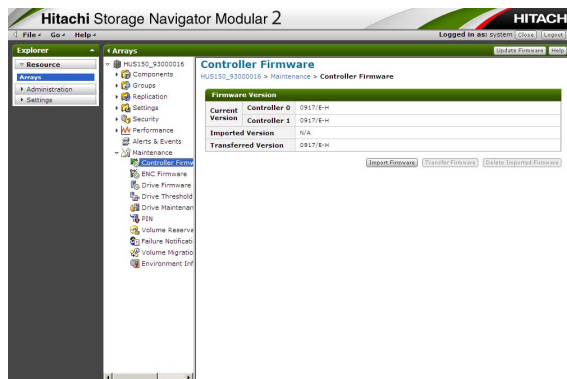
From FIRM 01-0830



## (3-1) Preparation for transferring the firmware

Transfer the firmware from the CD-R into the array. In the firmware transfer, the firmware is stored in the array; the firmware of the array is not transferred.

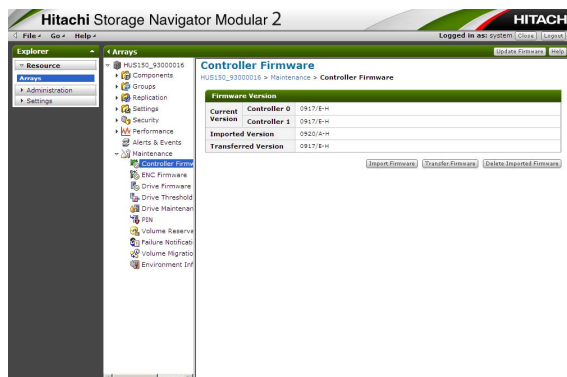
- (a) Store the firmware (ZIP file) in the Maintenance PC in which Hitachi Storage Navigator Modular 2 is installed.
- (b) Connect the LAN cross cable to the array LAN connector for maintenance and connect the array to the Web. (Refer to [Troubleshooting “3.1 Procedure to WEB connection” \(TRBL 03-0000\)](#).)
- (c) Select [Maintenance] - [Controller Firmware].



- (d) Import in the firmware to the Maintenance PC in which Hitachi Storage Navigator Modular 2 is installed. Click the [Import Firmware] button.

When a firmware version is displayed in the “Imported Version”, the firmware has already been import in.

When firmware is not updated, click the [Delete Import Firmware] button, and then delete the import firmware from the “Imported Version”.





(e) Specify the compression file of firmware, and click the [OK] button.

When using Windows®:

c:/diskarray-microprogram/microprogram/micro/09xxx.zip

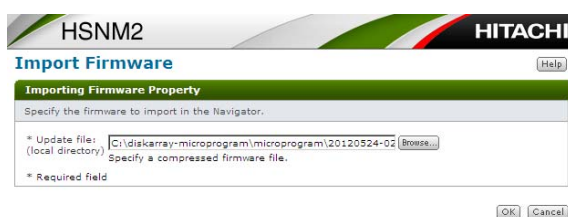
When using Solaris™ or Red Hat Linux®:

diskarray-microprogram/microprogram/micro/09xxx.zip

Specified firmware file  
(ZIP form file)

The file name “xxx” differs depending on the firmware version.

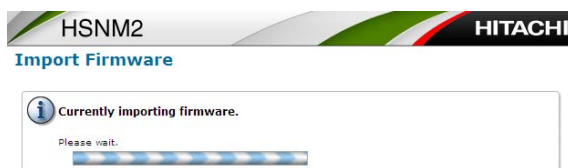
NOTE : When a LAN failure, etc. occurred and the processing of the Hitachi Storage Navigator Modular 2 terminated abnormally, execute the download of the firmware again from the beginning.



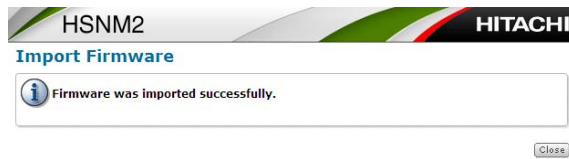
In the case where the firmware has already been read in, the message asking for the confirmation is displayed. When you click the [Confirm] button, the firmware is overwritten. When you abort the reading in, click the [Cancel] button.



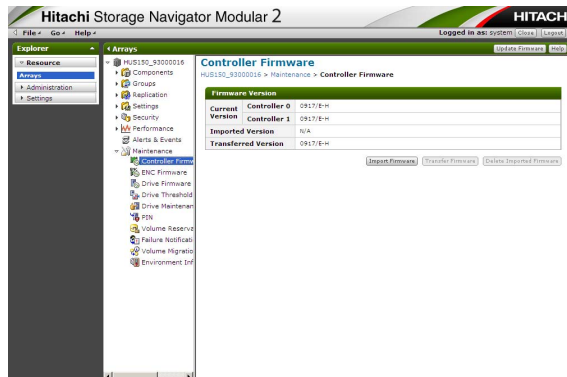
The window is displayed during the import firmware.



- (f) Since a message is displayed when the importing in of the firmware is completed, click the [Close] button.



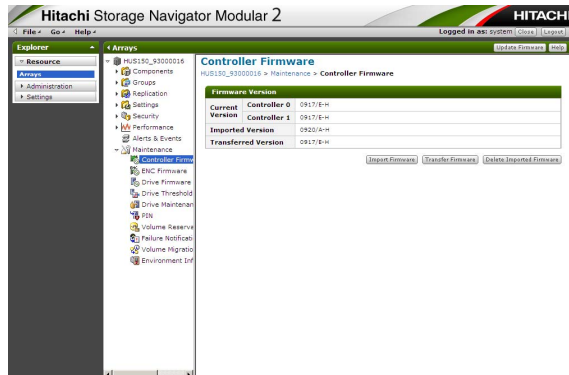
The version of the firmware that has been import in is displayed in the [Imported Version].



## (3-2) Transferring the firmware (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or, DMEA000006 error message from Hitachi Storage Navigator Modular 2 are displayed, execute the firmware transferring again from the beginning ((3-2)-(a)).

## (a) Click the [Transfer Firmware] button.



## (b) Specify each item of the firmware transfer property and click the [OK] button.

Check Version : If checked, prevents the downgrade.

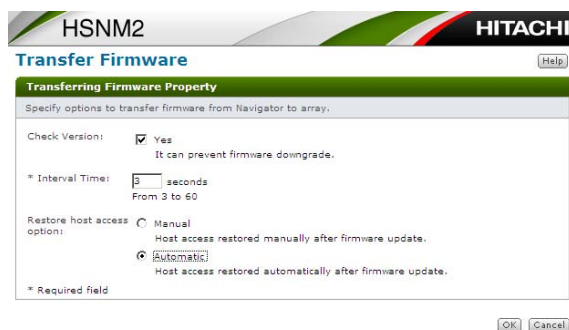
Interval Time : Specifies the interval to transfer the firmware. The initial value is three seconds.

Restore host access option : Specifies the restoration timing of the host access.

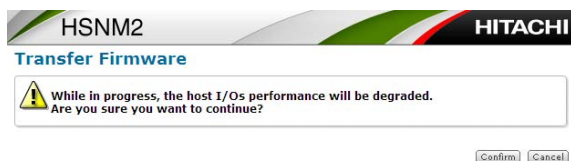
Manual : The host access restarts at the point of clicking the [Close] button in the completion window after the firmware update.

Automatic : After completing the firmware update, the host access restarts automatically by the firmware.

Select [Automatic] here.

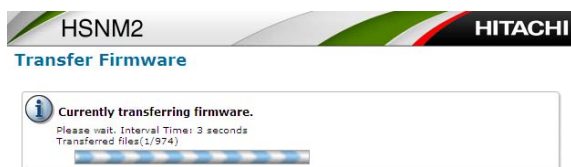


- (c) Since the confirmation message is displayed. Click the [Confirm] button.



When you abort the downloading, click the [Cancel] button.

- (d) The window during the firmware transfer is displayed.



- (e) When the transfer is normally completed, a message is displayed. Click the [Close] button.



NOTE : • After the firmware is transferred, be sure to updating the firmware. If the Controller board is replaced in the online mode before update the firmware, the replaced Controller may be detached.  
When the array is burdened with a heavy I/O load by a host at the time of the transferring, the transferring may be terminated abnormally. Perform the transferring again.

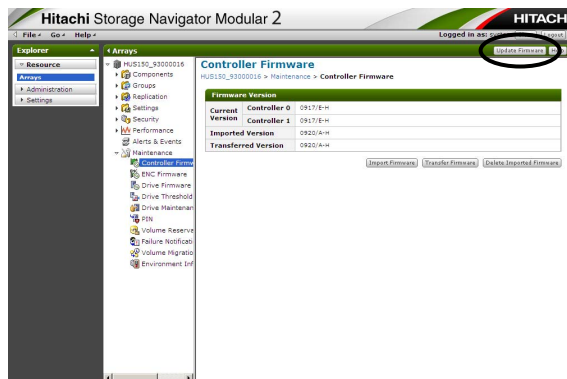
## (3-3) Firmware updating (first Controller “A”) (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware updating or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware updating again from the beginning ((3-3)-(a)).

Update the firmware of the controller for the firmware transferred to the array. When updating, be sure to update both controllers of Controller #0 and Controller #1.

When the firmware of one of the Controllers is updated and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, update the firmware after changing the registration to that in which only the Controller whose firmware has not be updated is registered.

## (a) Click the [Update Firmware] button.



## (b) Select the Controller whose firmware is to be updated and click the [OK] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (3-3)-(d) is displayed, execute the firmware updating again from the step (3-3)-(a).

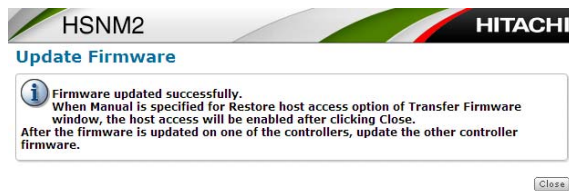


The window during the firmware update is displayed.



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

(d) When it is completed normally, a message is displayed. Click the [Close] button.



NOTE : • If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the step (3-3)-(a) according to the DMEA00200E error message.

- When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-2)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

#### Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

(e) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

- The messages “W01z0x CTL alarm (CTL-x)” and “I0010x CTL recovered (CTL-x)” are displayed, and “I1G70x FC I/F ports remain offline (CTL-x)” is not displayed between those messages.

If the above-mentioned item is not established, continue the update installation of the firmware from the step (3-6)-(g) of “(3-6) Firmware updating (first Controller “A”) (By operating instructions)” (FIRM 01-1030).

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information message on WEB, check that the following message is displayed.  
(Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware updating is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Automatic] of “Restore host access option” is selected in the step [\(3-2\)-\(b\)](#), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

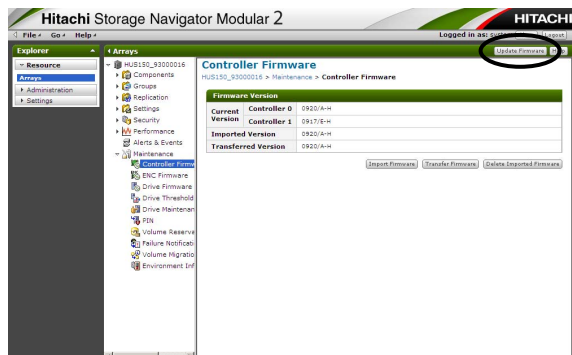
- (g) In the case of the dual controller configuration, also update the firmware of the other Controller.



## (3-4) Firmware updating (Second Controller “B”) (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware updating or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware updating again from the step (3-3)-(a).

## (a) Click the [Update Firmware] button.



## (b) Select the Controller whose firmware is to be update and click the [OK] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (3-4)-(d) is displayed, execute the firmware updating again from the step (3-3)-(a).



The window during the firmware update is displayed.



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

(d) When it is completed normally, a message is displayed. Click the [Close] button.



- NOTE :
- If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the step (3-3)-(a) according to the DMEA00200E error message.
  - When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-2)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

#### Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (e) Check that the following message is displayed referring to the Information Message on the WEB. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware updating is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

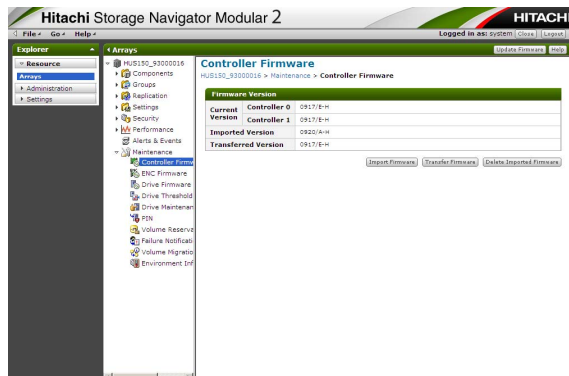
When [Automatic] of “Restore host access option” is selected in the step (3-2)-(b), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

```
MM/DD/YYYY hh:mm:ss 10 I19000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 I42001 Online micro-update (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I00101 CTL recovered (CTL-1)
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1)                                :CTL /CTRC
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

- (f) Check that the version of the updated firmware is displayed.



- (g) When the version check is completed, the firmware updating of the array ends.

NOTE :

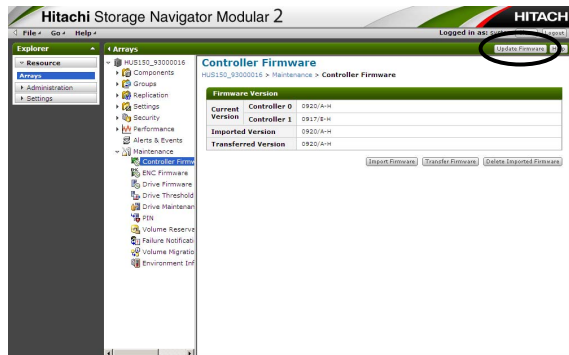
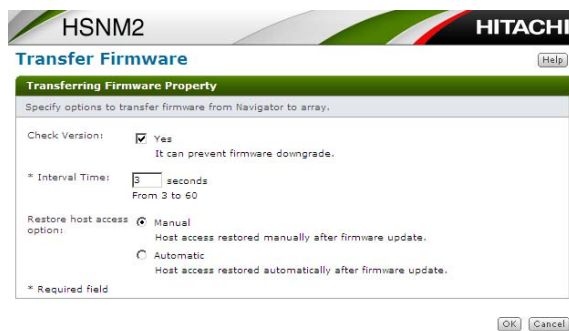
- When the updating of the firmware is made for only one of the dual Controller, the array is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is updated. When you update the firmware, be sure to make the updating for the both Controllers continuously.
- When the firmware was updated online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

## (3-5) Transferring the firmware (Case with operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or DMEA000006 error message from Hitachi Storage Navigator Modular 2 are displayed, execute the firmware Transferring again from the step (3-5)-(a).

## (a) Click the [Update Firmware] button.

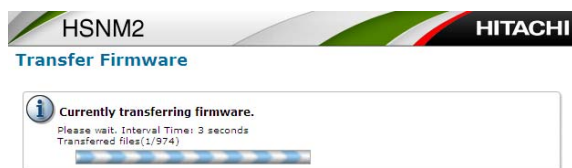
(b) Specify each item of the firmware transfer property and click the [OK] button.  
For the “Restore host access”, select [Manual].

## (c) Since the confirmation message is displayed. Click the [Confirm] button.



When you abort the downloading, click the [Cancel] button.

(d) The window during the firmware transfer is displayed.



(e) When the transfer is normally completed, a message is displayed. Click the [Close] button.



NOTE : • After the firmware is transferred, be sure to update the firmware. If the Controller board is replaced in the online mode before updating the firmware, the replaced Controller may be detached.  
When the array is burdened with a heavy I/O load by a host at the time of the transferring, the transferring may be terminated abnormally. Perform the transferring again.

## (3-6) Firmware updating (first Controller “A”) (By operating instructions)

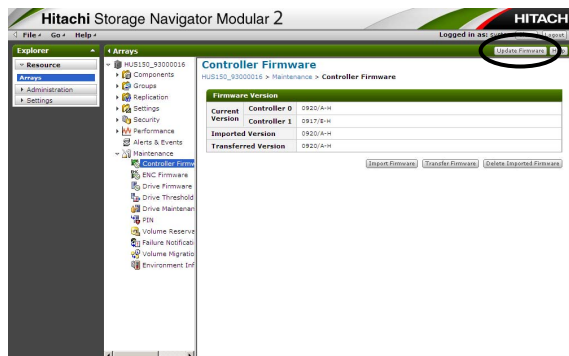
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware updating or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware updating again from the beginning ((3-6)-(a)).

Update the firmware that was transferred to the array with the firmware installed in the Controller. When making updating, be sure to update the firmwares of the both Controllers 0 and 1.

When the firmware of one of the Controllers is updated and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, update the firmware after changing the registration to that in which only the Controller whose firmware has not be updated is registered.

## (a) Click the [Update Firmware] button.



## (b) Select the Controller whose firmware is to be update and click the [OK] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (3-6)-(e) is displayed, execute the firmware updating again from the beginning ((3-6)-(a)).



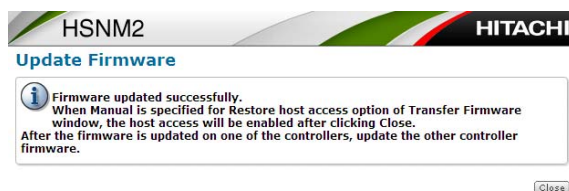
The window during the firmware update is displayed.



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (d) When the update completion message is displayed, contact the Technical Support Center or the system administrator (SE, customer, etc.) and request the prior procedure required for the path switching.

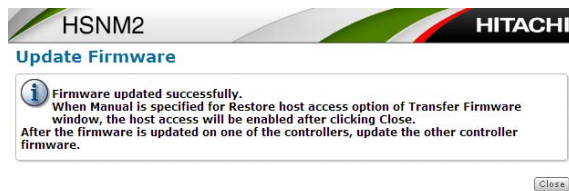
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the step (3-6)-(a) according to the DMEA00200E error message.



(e) Click the [Close] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-5)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted.

However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy updating.

If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

(f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

- The message “I1G70x FC I/F ports remain offline (CTL-x)” is displayed between “W01z0x CTL alarm (CTL-x)” and “I0010x CTL recovered (CTL-x)”.

If the above-mentioned item is not established, continue the update installation of the firmware from the step (3-3)-(f) of “(3-3) Firmware updating (first Controller “A”) (usual case)” ([FIRM 01-0930](#)) again.

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (g) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The message “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “W3A00x Online micro-update executing (CTL-x)”.

If the above- mentioned items are not established, referring to the Information message on WEB, check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware updating is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Manual] of “Restore host access option” is selected in the step (3-5)-(b), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-0)” is not displayed, execute the update installation of the firmware of the same Controller again from the step (3-6) (a) of [“\(3-6\) Firmware updating \(first Controller “A”\) \(By operating instructions\)”](#).

MM/DD/YYYY hh:mm:ss 00 I1G800 FC I/F ports change to online (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I1G700 FC I/F ports remain offline (CTL-0)	:Manual
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

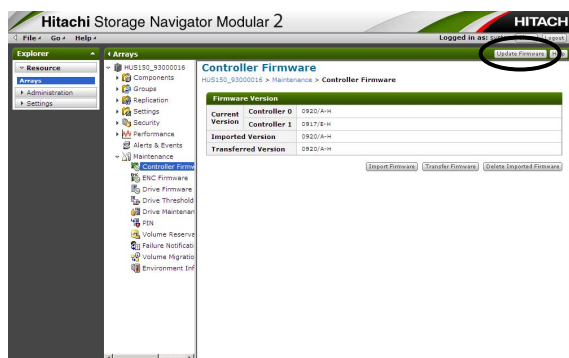
- (h) In the case of the dual controller configuration, also update the firmware of the other Controller.

## (3-7) Updating the firmware (second Controller “B”) (Case with operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware updating or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, refer to the working flowchart, and execute the firmware updating again from the step (3-6)-(a), (3-7)-(a) or (3-10).

## (a) Click the [Update Firmware] button.



## (b) Select the Controller whose firmware is to be updated and click the [OK] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (3-7)-(e) is displayed, execute the update installation of the firmware after this according to “(3-10) Recovery procedure when the firmware updating (second Controller “B”) (By operating instructions) fails” (FIRM 01-1100).



The window during the firmware update is displayed.



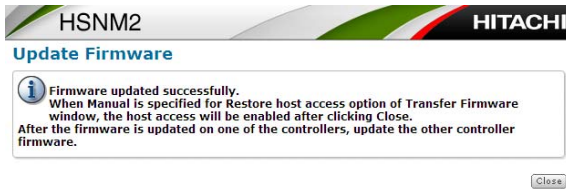
- NOTE :
- Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.
  - If a DMED3B0104 error message (firmware updating on the Controller “A” side is not completed) is displayed after clicking the [Confirm] button to update the firmware, click the [OK] button of the error message, and then execute the firmware updating again from the step (3-6)-(a).

#### Message

DMED3B0104 : The firmware replacement cannot be performed because firmware replacement of another controller is not completed and the access from hosts is not received. Please perform firmware replacement of this controller again after performing firmware replacement of another controller and completing.

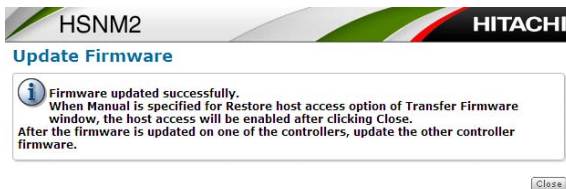
- (d) When the update completion message is displayed, contact the Technical Support Center or the system administrator (SE, customer, etc.) and request the prior procedure required for the path switching.

Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the “(3-10) Recovery procedure when the firmware updating (second Controller “B”) (By operating instructions) fails” (FIRM 01-1100) according to the DMEA00200E error message.

- (e) Click the [Close] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-5)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

#### Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “IZYR00 Automatic ENC firmware download completed successfully”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware updating is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

When [Manual] of “Restore host access option” is selected in the step (3-5)-(b), the following message is displayed.

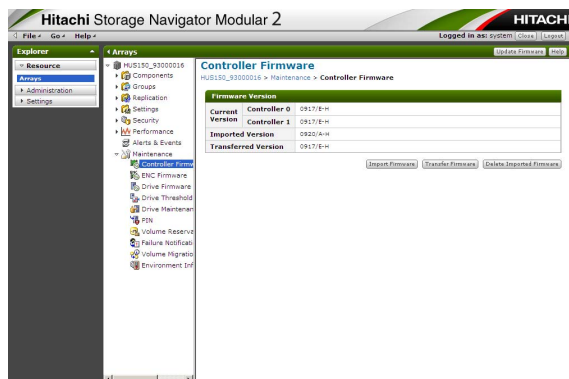
If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-1)” is not displayed, execute the update installation of the firmware, from now on, along the flow chart in operation and according to [“\(3-10\) Recovery procedure when the Firmware updating \(second Controller “B”\) \(By operating instructions\) fails” \(FIRM 01-1100\)](#) or the step (3-14) (a).

```
MM/DD/YYYY hh:mm:ss 10 I1G801 FC I/F ports change to online (CTL-1)
:
:
:
MM/DD/YYYY hh:mm:ss 10 I19000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 I42001 Online micro-update(CTL-1)
MM/DD/YYYY hh:mm:ss 10 I00101 CTL recovered(CTL-1)
MM/DD/YYYY hh:mm:ss 10 I1G701 FC I/F ports remain offline (CTL-1)           :MANUAL
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1)                           :CTL /CTRC
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

(g) Check that the version of the update firmware is displayed.



(h) When the version check is completed, the firmware updating of the array ends.

- NOTE :
- When the updating of the firmware is made for only one of the dual Controller, the array is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is updated. When you updated the firmware, be sure to make the updating for the both Controllers continuously.
  - When the firmware was updated online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “114000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

(3-8) Checking the READY LED (green) on the front of the Controller Box

Check that the READY LED (green) on the front of the Controller Box lights up. When the READY LED (green) on the front of the Controller Box is blinking at high speed, the READY LED (green) on the front of the Controller Box lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)) because the automatic download of the ENC firmware and the backup controller firmware is being operated.

(3-9) Checking the automatic download of the ENC firmware and the backup controller firmware and the automatic download of the drive firmware

(a) Checking the completion of the automatic download of the ENC firmware and the backup controller firmware.

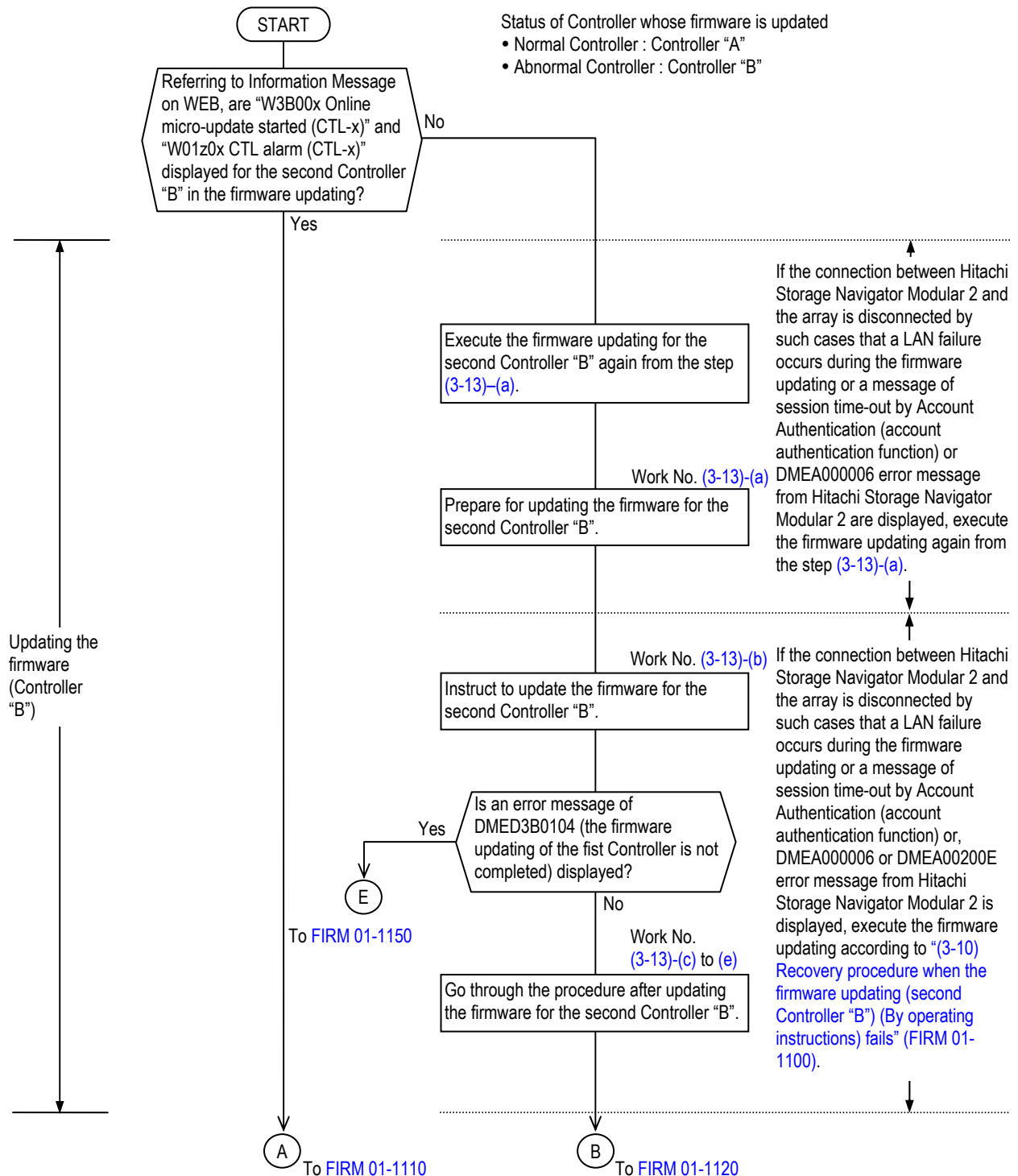
Check that “IZYR00 Automatic ENC firmware download completed successfully” and “IZYS00 Automatic ENC firmware download started” are displayed in Information Message on WEB. When “IZYQ00 Automatic ENC firmware download failed” is displayed in Information Message on WEB, perform the maintenance according to the recovery method of the message code. However, in the unit window of Hitachi Storage Navigator Modular 2, select [Maintenance] - [ENC Firmware]. If [Automatic Update] is set to [Disabled], the procedure (3-9)-(a) is not required.

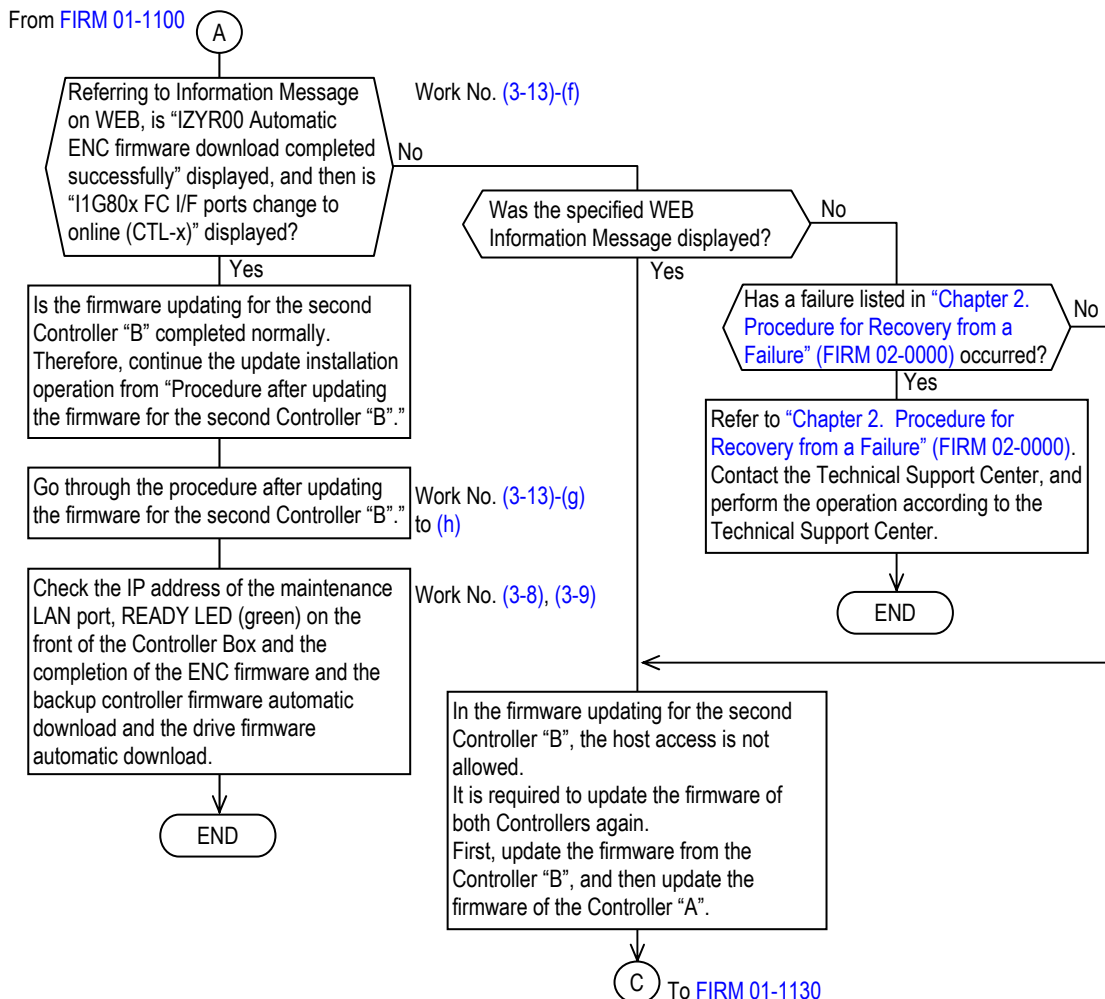
(b) Check that the start message and the end message of the drive firmware automatic download are displayed. When the drive firmware version of the Drive is new, the start message and completion message of the drive firmware automatic download are not displayed. When the message indicating the abnormal termination is displayed, perform the maintenance according the recovery method in the message code. (Refer to “1.6 (4) Checking the start message and end message of the automatic download” (FIRM 01-1620).)



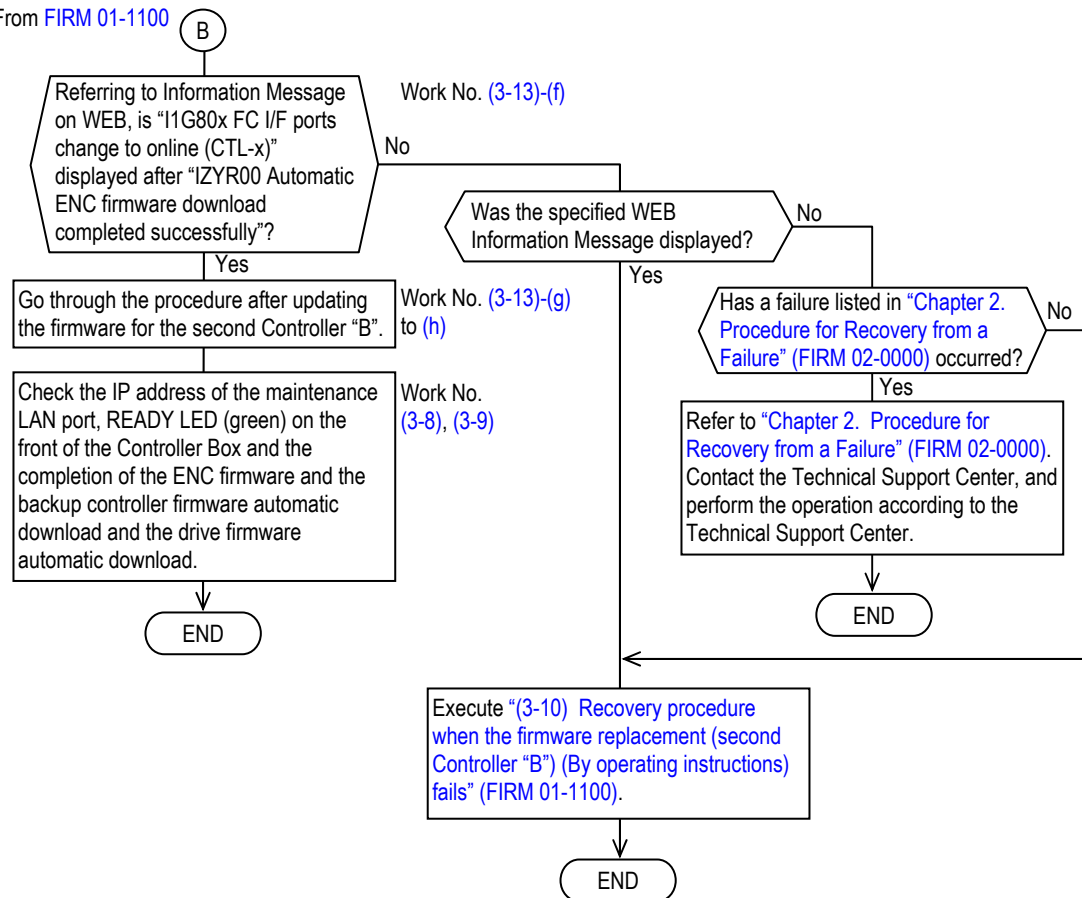
(3-10) Recovery procedure when the firmware updating (second Controller "B") (By operating instructions) fails

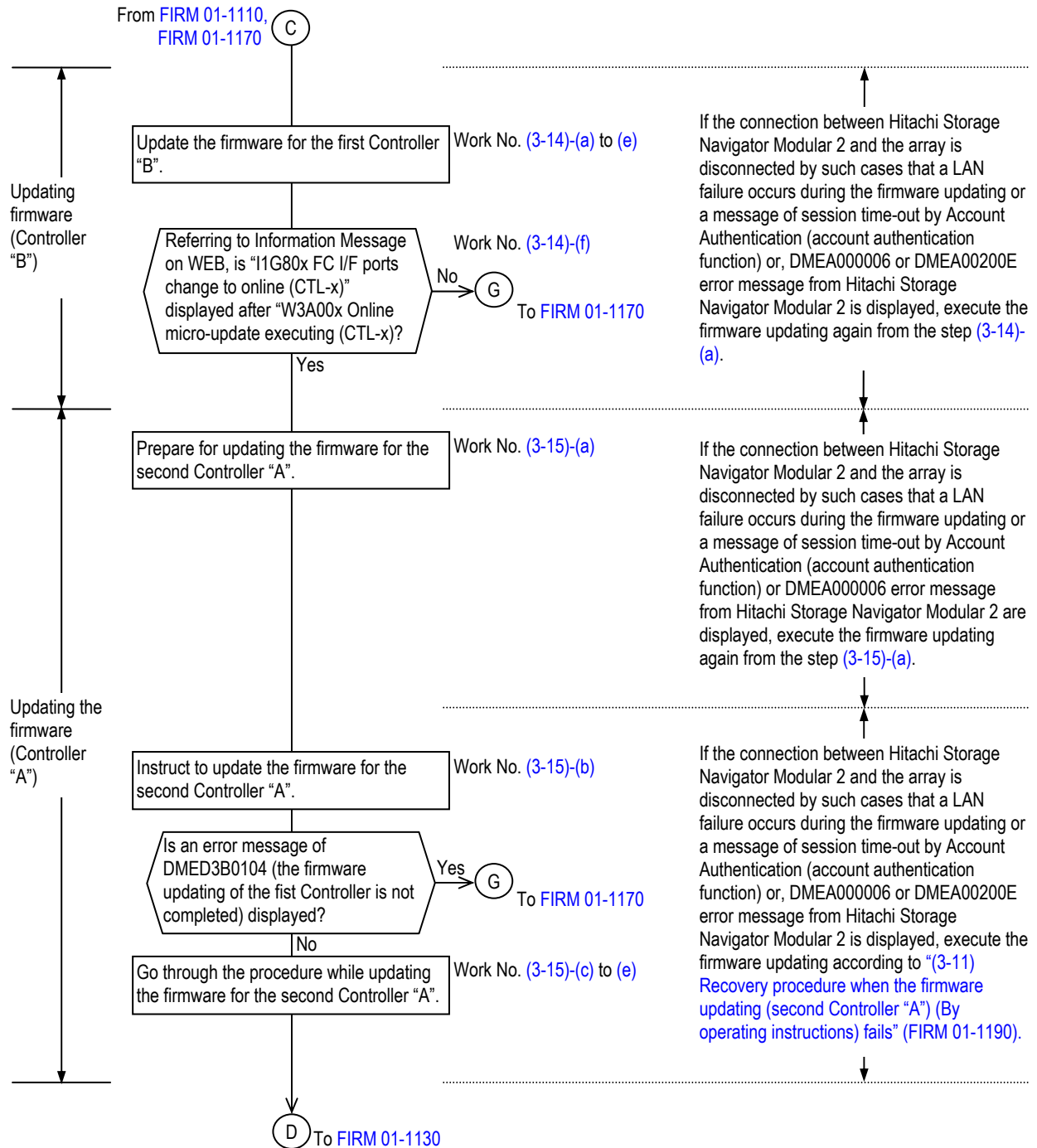
(In case that there is a special instruction by the Technical Support Center, SE, customer and others to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)



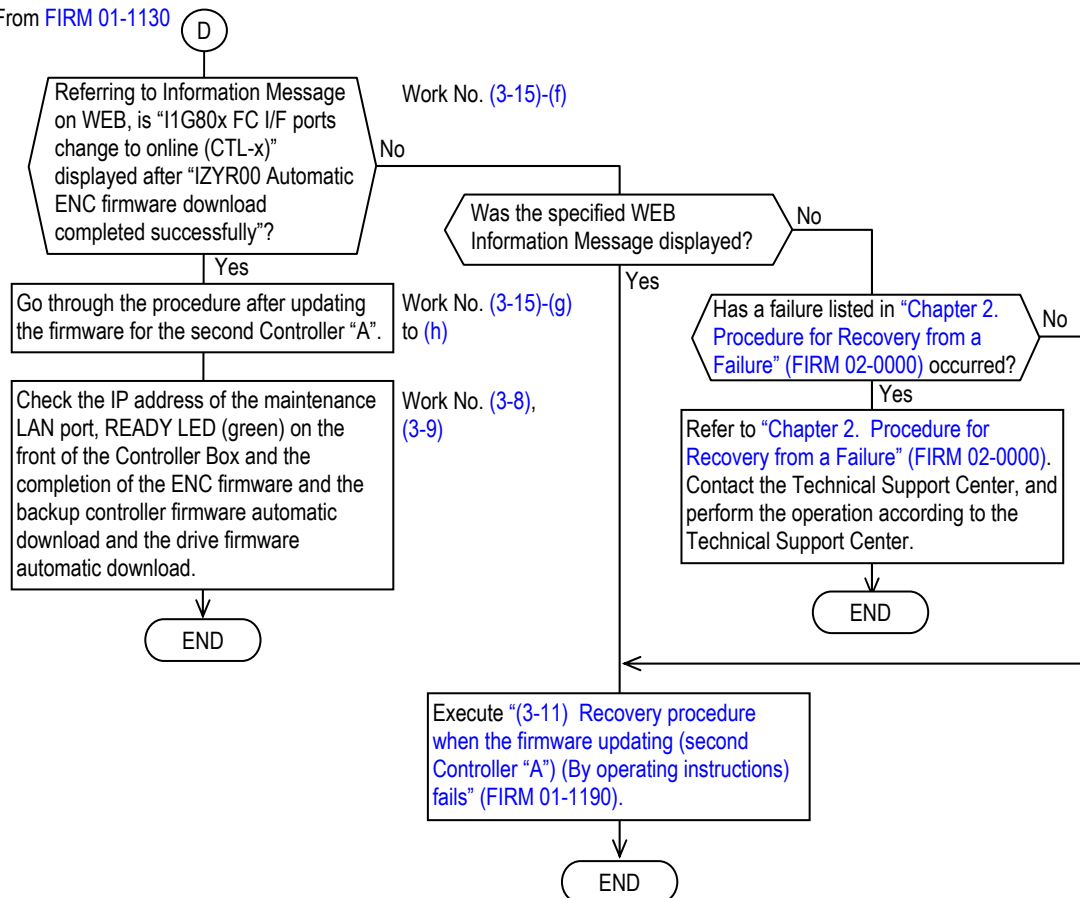


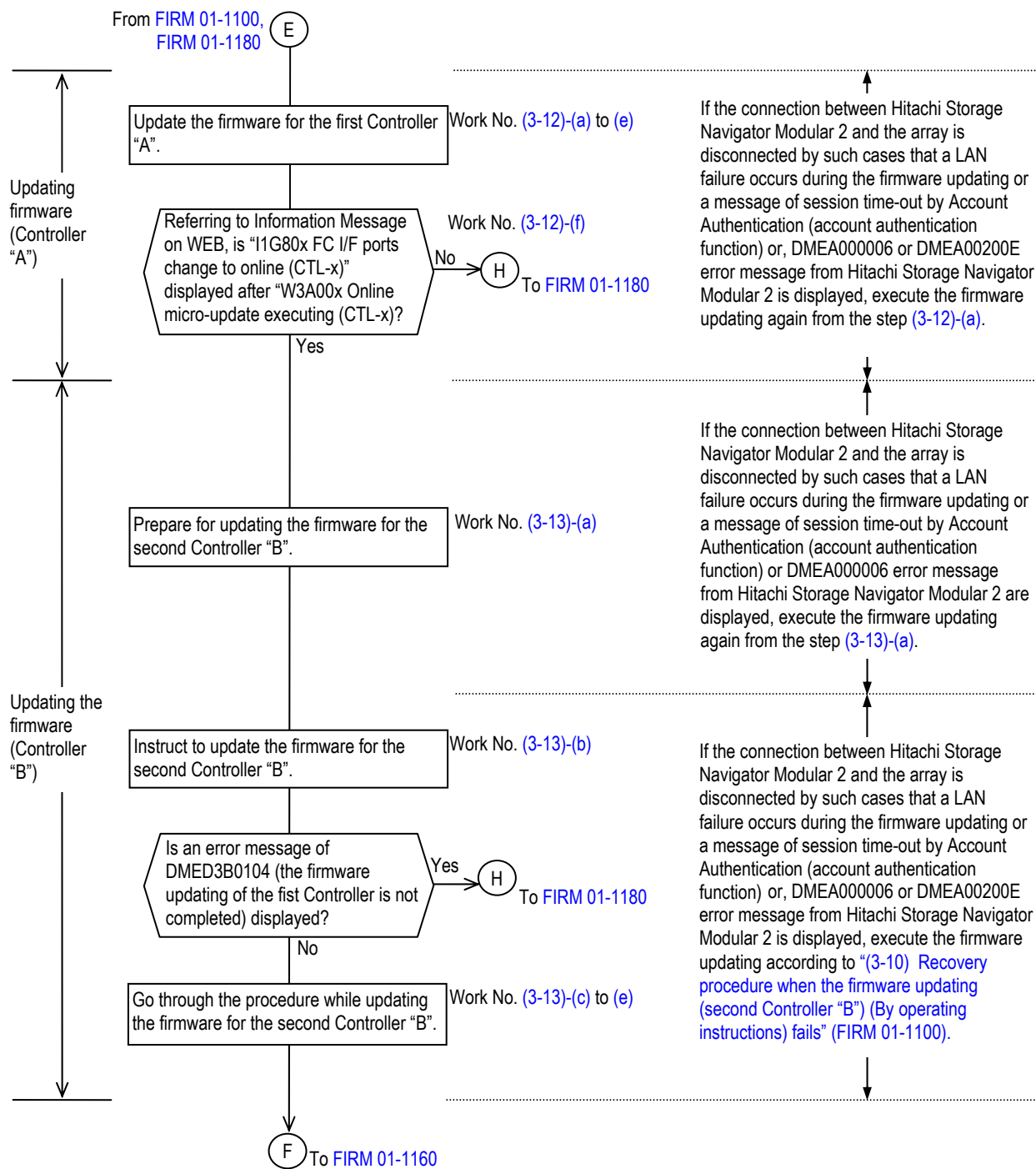
From FIRM 01-1100

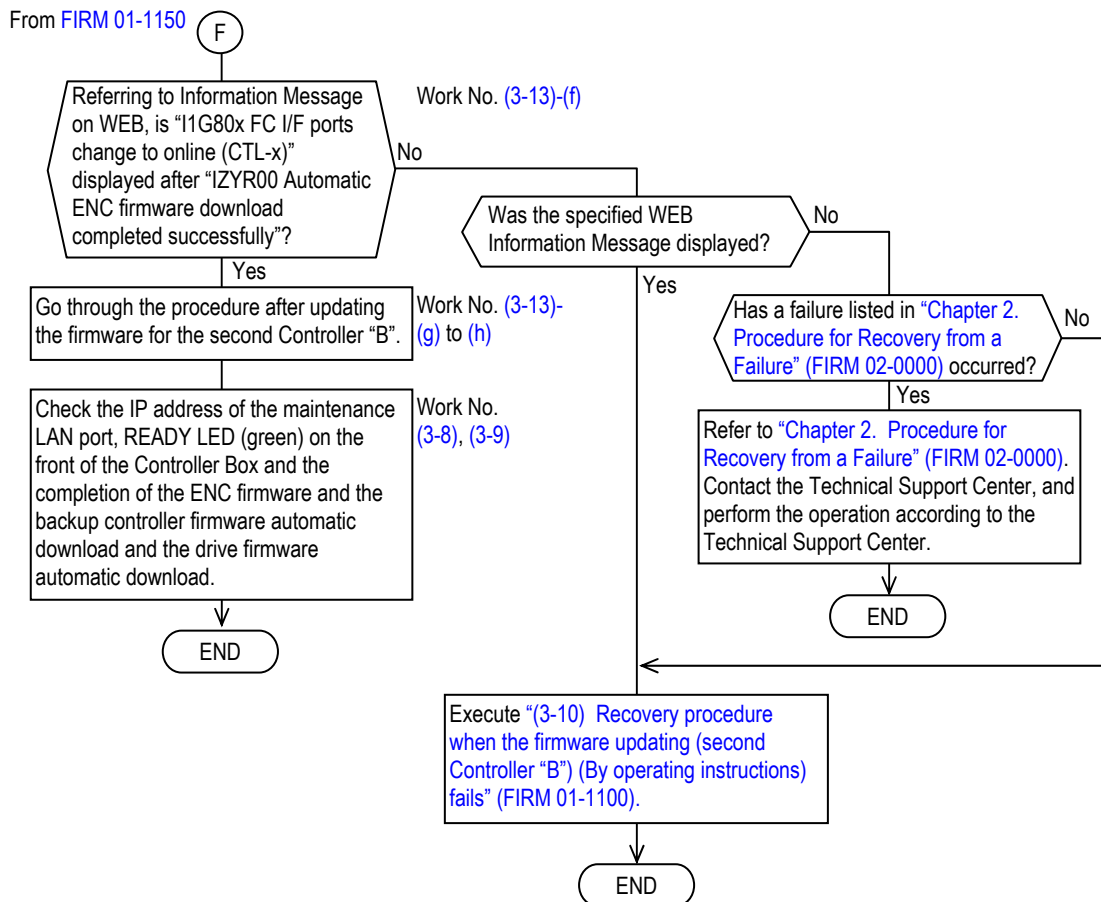


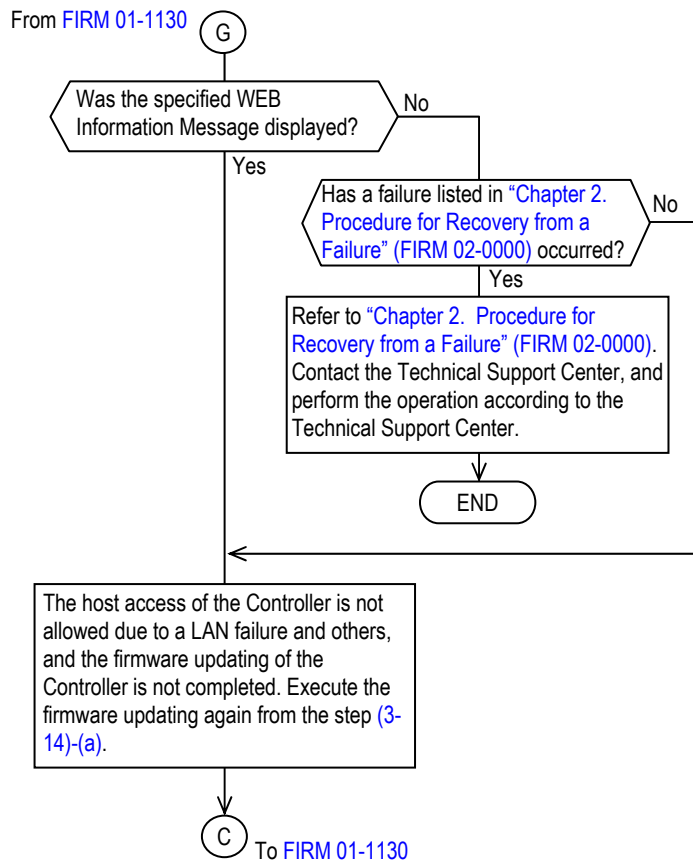


From FIRM 01-1130

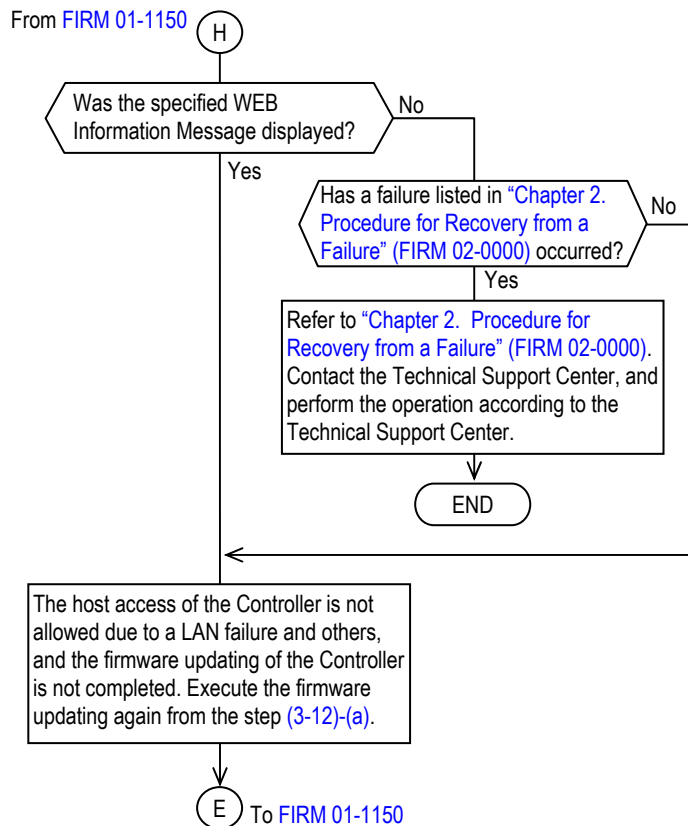






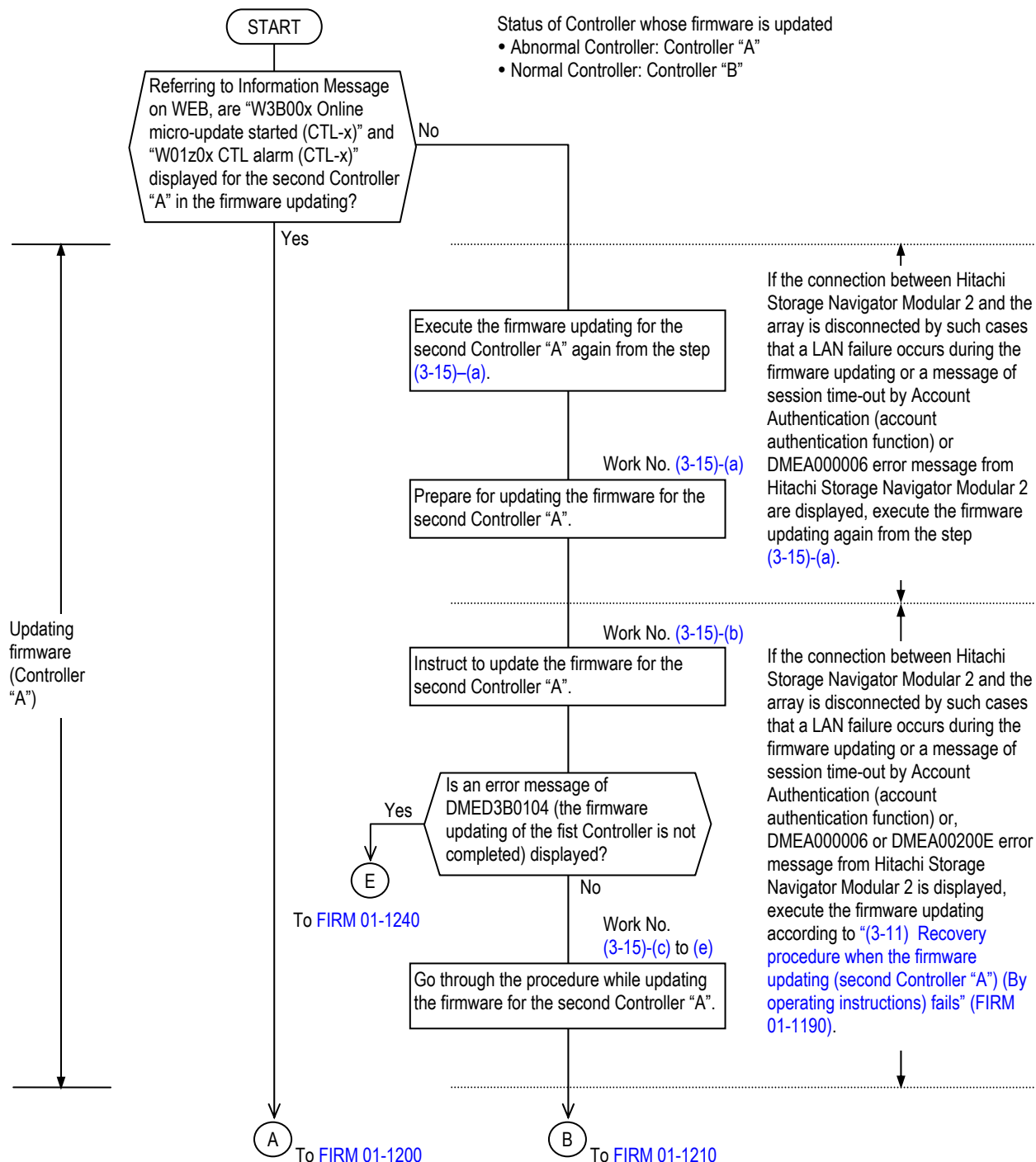




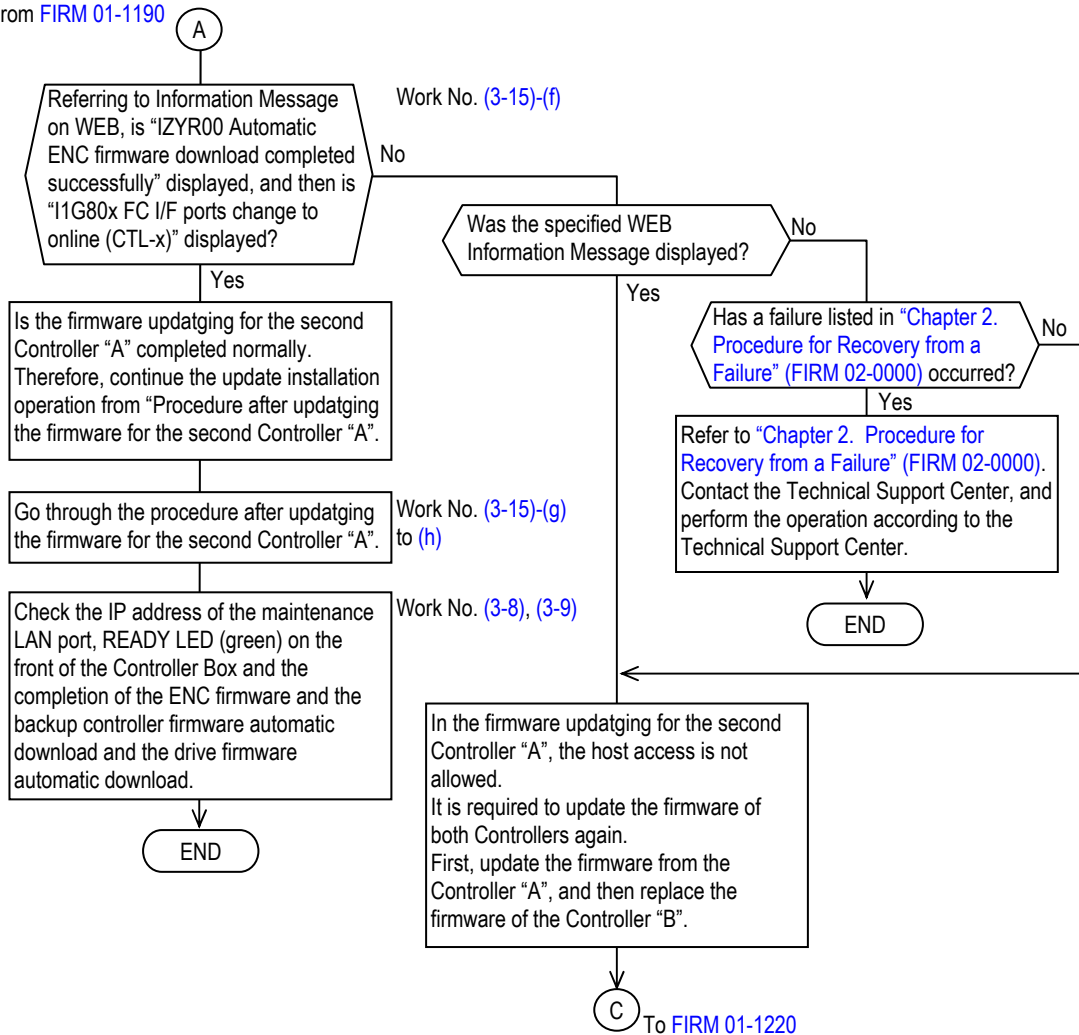


(3-11) Recovery procedure when the firmware updating (second Controller "A") (By operating instructions) fails

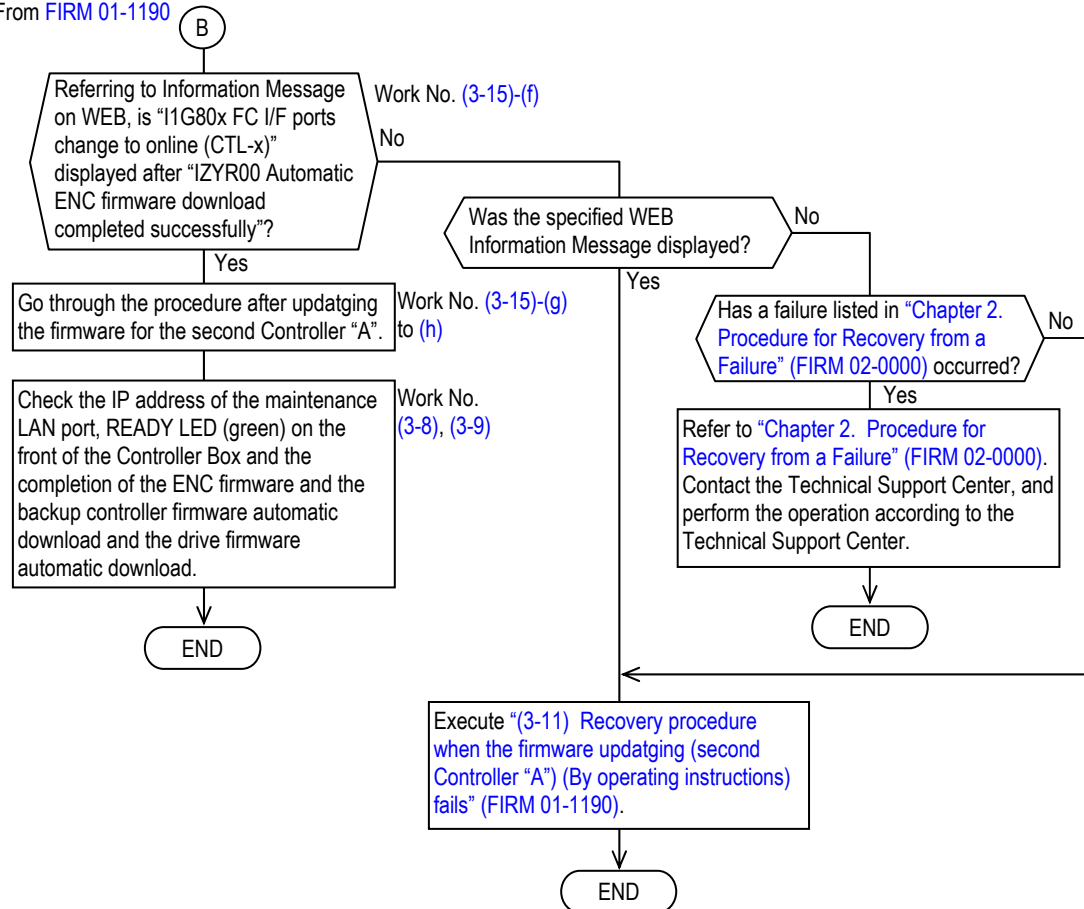
(In case that there is a special instruction by the Technical Support Center, SE, customer and others to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

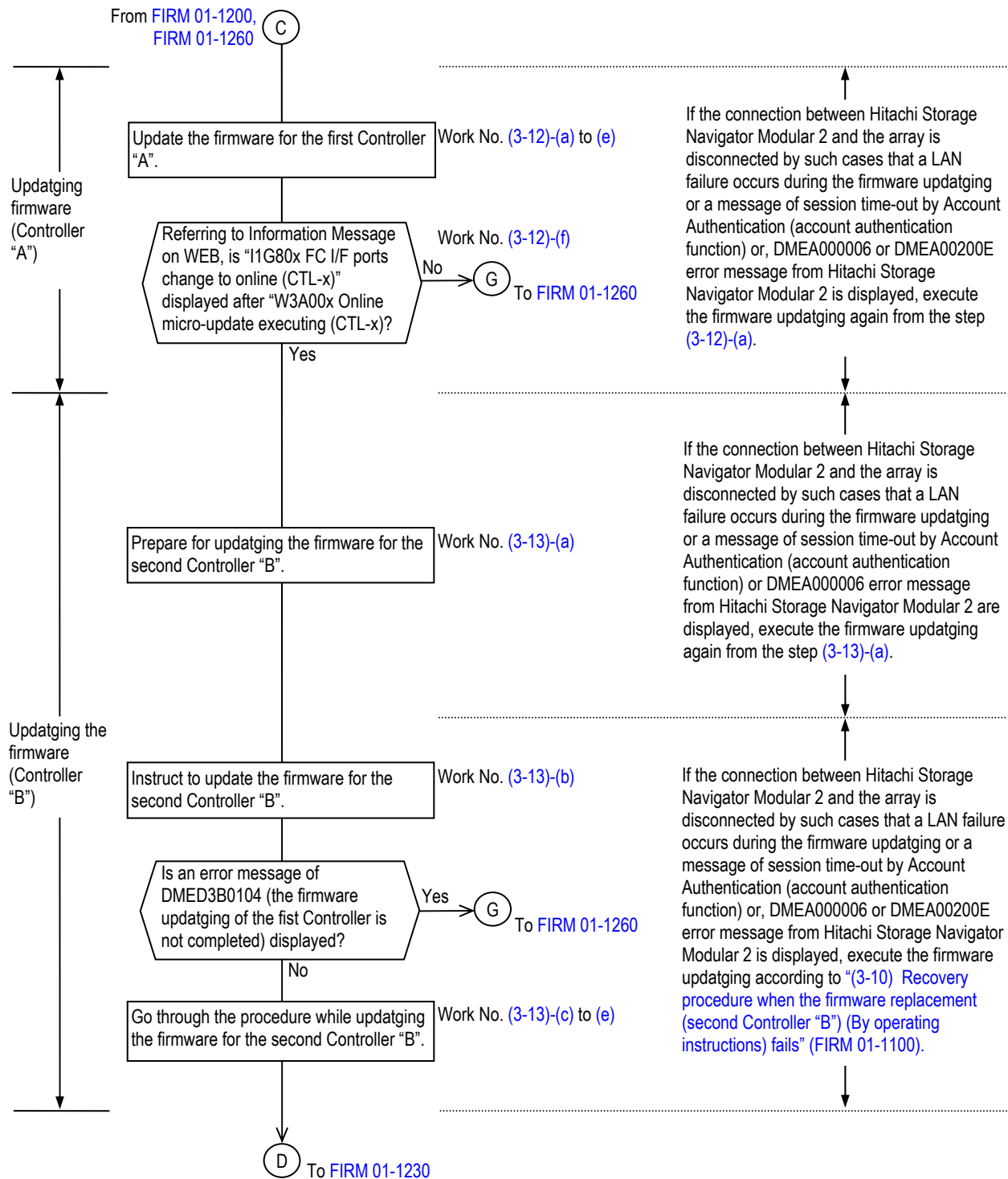


From FIRM 01-1190

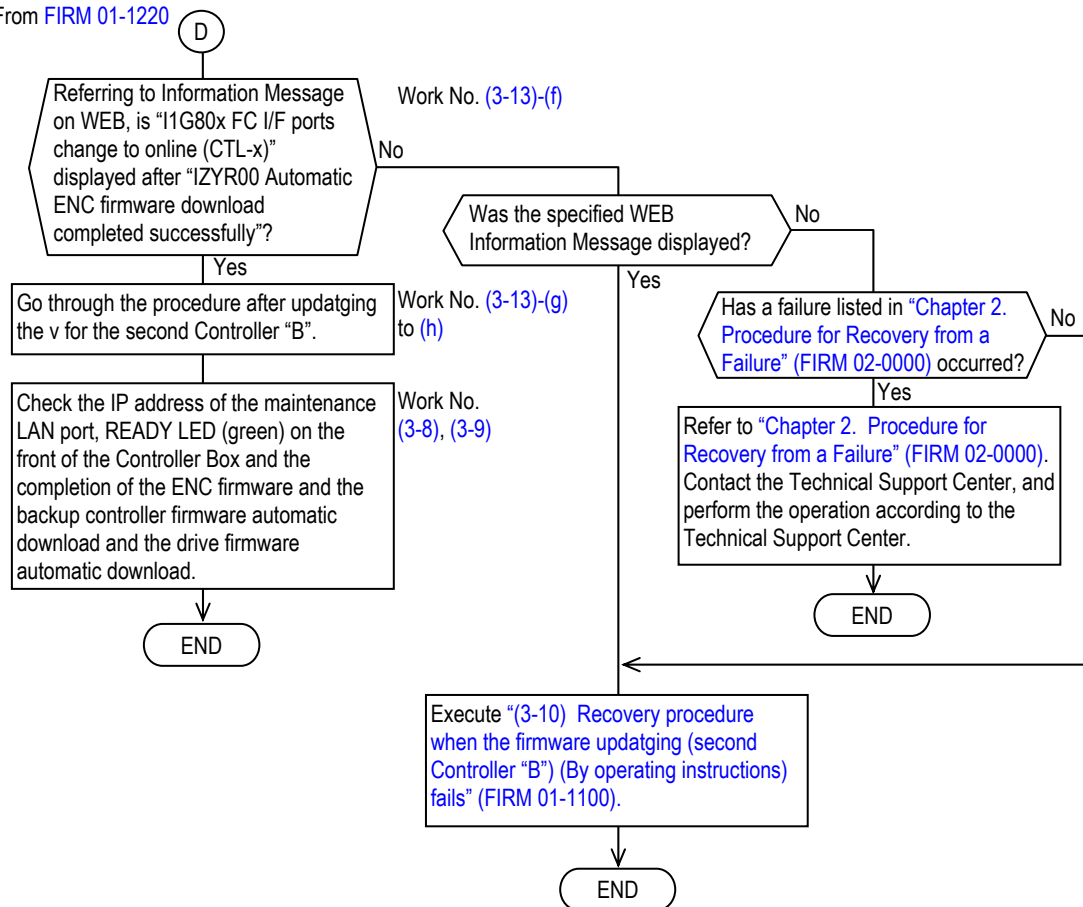


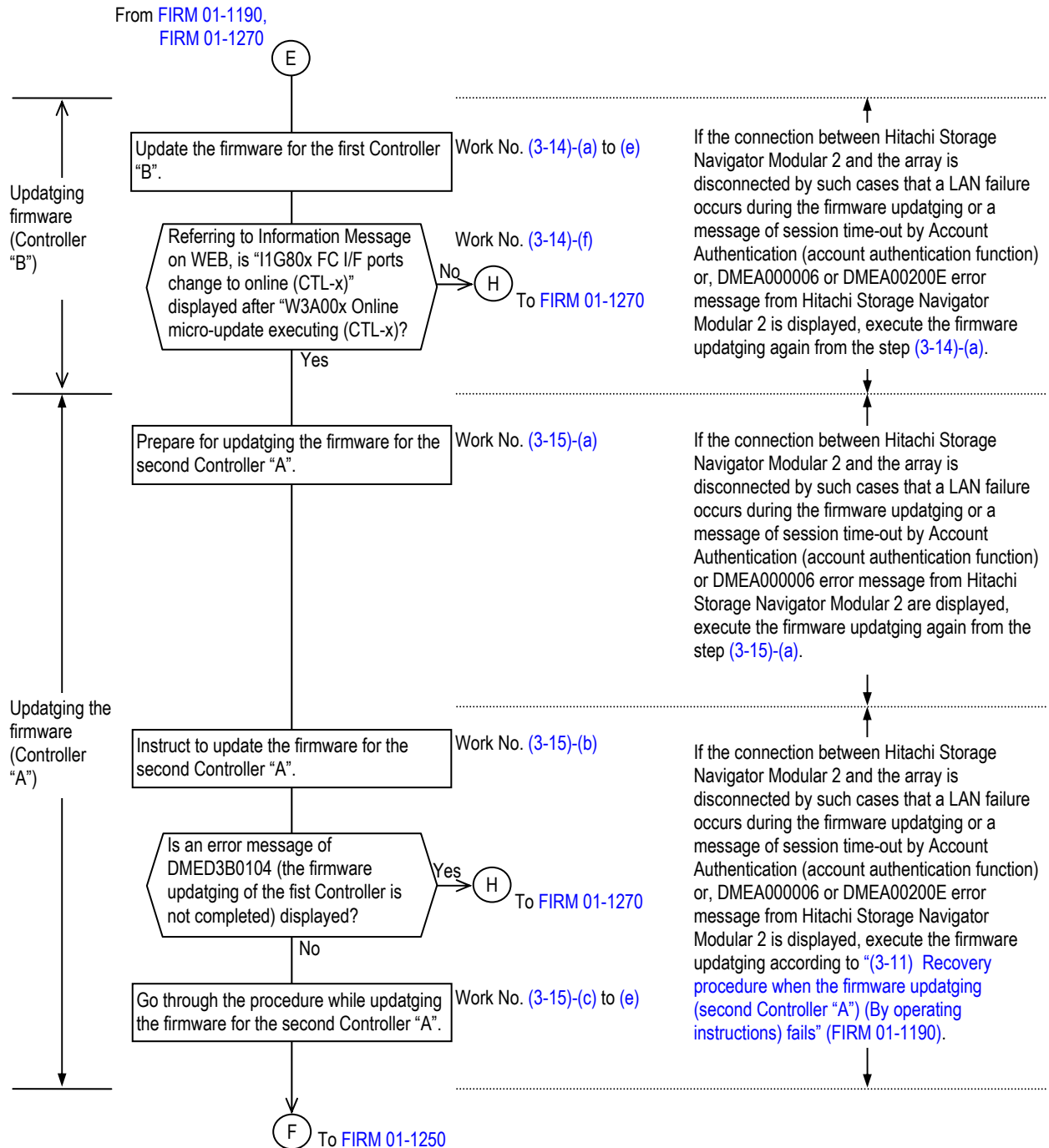
From FIRM 01-1190



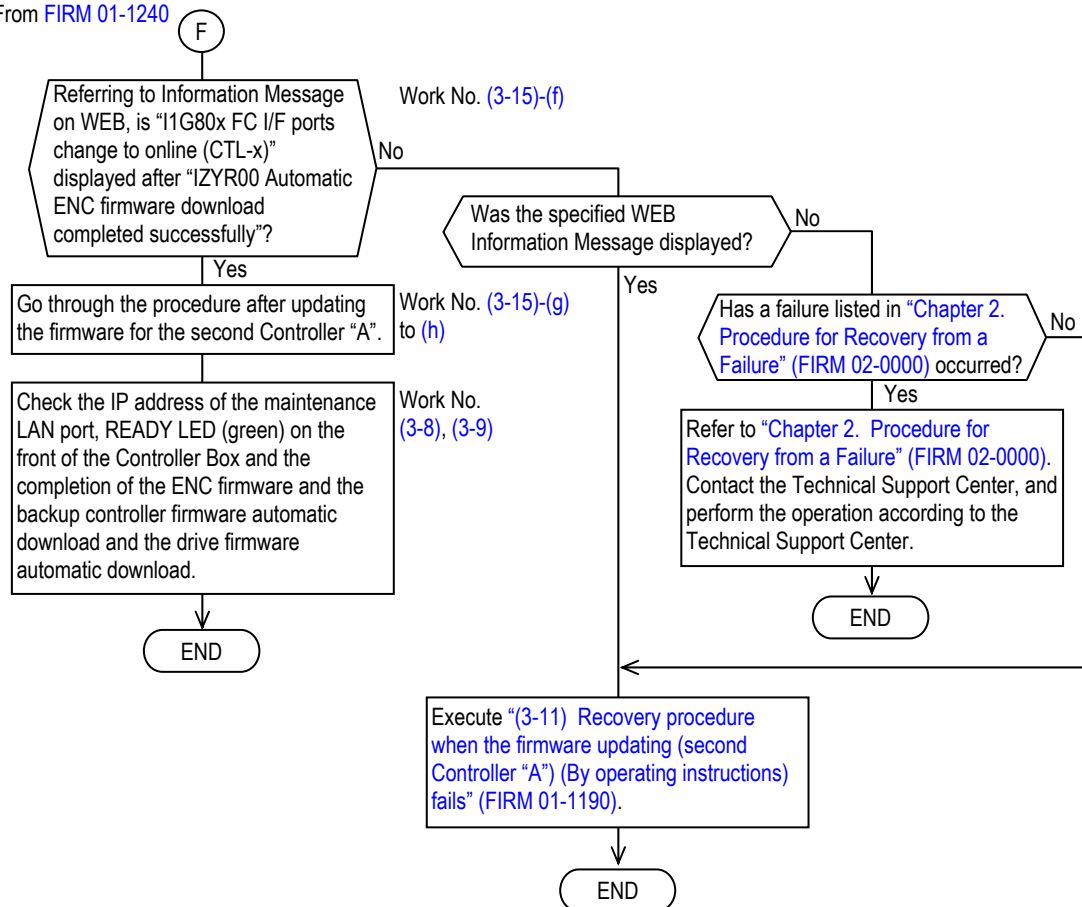


From FIRM 01-1220

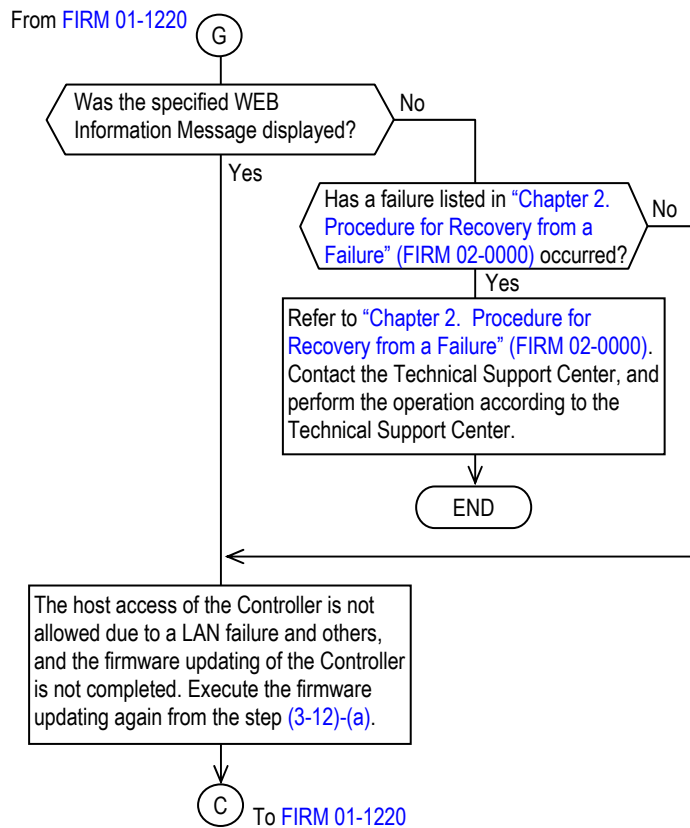


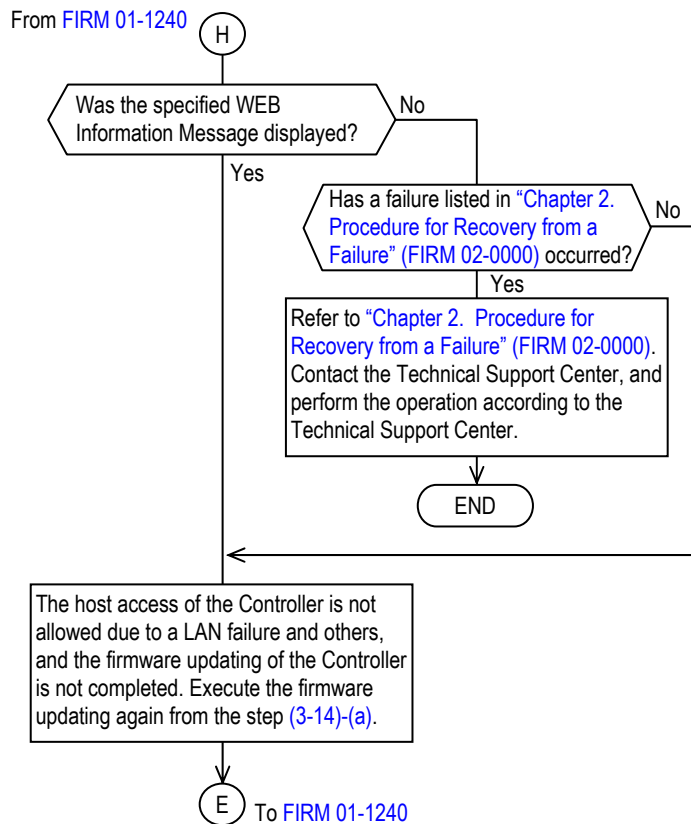


From FIRM 01-1240









## (3-12) Updating the firmware (first Controller “A”) (By operating instructions)

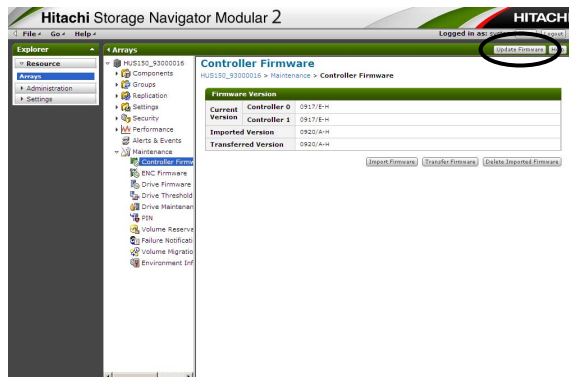
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware updating again from the beginning ((3-12)-(a)).

Update the firmware that was transferred to the array with the firmware installed in the Controller. When making update, be sure to update the firmware of the both Controllers 0 and 1.

When the firmware of one of the Controllers is updated and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, update the firmware after changing the registration to that in which only the Controller whose firmware has not be updated is registered.

## (a) Click the [Update Firmware] button.



## (b) Select the Controller whose firmware is to be updated and click the [OK] button.



**NOTE :** After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (3-12)-(e) is displayed, execute the firmware updating again from the beginning ((3-12)-(a)).



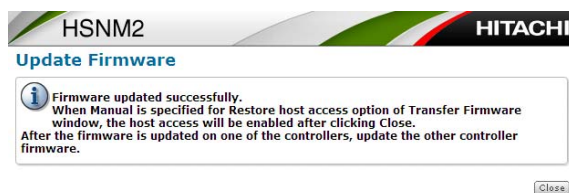
The window during the firmware update is displayed.



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

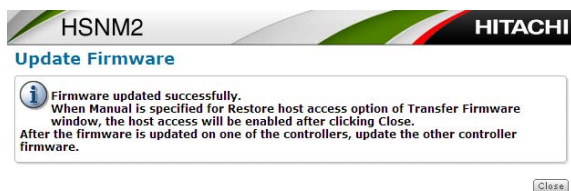
- (d) When the update completion message is displayed, contact the Technical Support Center or the system administrator (SE, customer, etc.) and request the prior procedure required for the path switching.

Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the step (3-12)-(a) according to the DMEA00200E error message.

(e) Click the [Close] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-5)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted. However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement. If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

**Message**

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items.
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “W3A00x Online micro-update executing (CTL-x)”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\).](#))

NOTE : The following message is displayed when the firmware updating is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Manual] of “Restore host access option” is selected in the step (3-5)-(b), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\).](#)

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

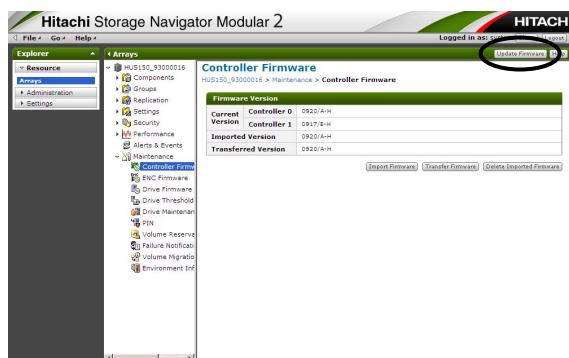
However, only when “I1G800 FC I/F ports change to online (CTL-0)” is not displayed, execute the update installation of the firmware of the same Controller again from the step (3-12) [Updating the firmware \(first Controller “A”\) \(By operating instructions\)”.](#)

MM/DD/YYYY hh:mm:ss 00 I1G800 FC I/F ports change to online (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I1G700 FC I/F ports remain offline (CTL-0)	:Manual
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

- (g) In the case of the dual controller configuration, also update the firmware of the other Controller.

- (3-13) Updating the firmware (second Controller “B”) (Case with operating instructions)  
 (In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)  
 If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware updating or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, refer to the working flowchart, and execute the firmware updating again from the step (3-10), (3-12) or (3-14).

- (a) Click the [Update Firmware] button.



- (b) Select the Controller whose firmware is to be updated and click the [OK] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (3-13)-(e) is displayed, execute the update installation of the firmware after this according to “(3-10) Recovery procedure when the firmware updating (first Controller “B”) (By operating instructions) fails” (FIRM 01-1100).



The window during the firmware update is displayed.



- NOTE :
- Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.
  - If a DMED3B0104 error message (firmware replacement on the Controller “A” side is not completed) is displayed after clicking the [Confirm] button to update the firmware, click the [OK] button of the error message, and then execute the firmware updating again from the step (3-12)-(a).

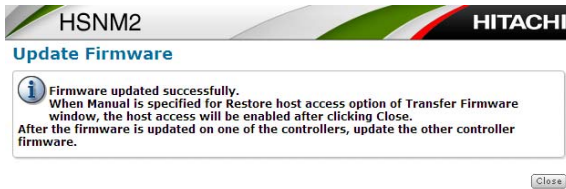
#### Message

DMED3B0104 : The firmware replacement cannot be performed because firmware replacement of another controller is not completed and the access from hosts is not received. Please perform firmware replacement of this controller again after performing firmware replacement of another controller and completing.



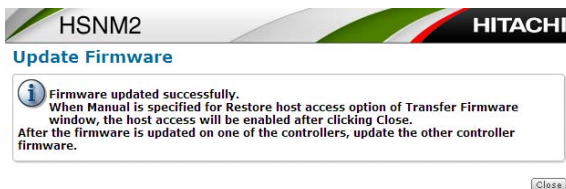
- (d) When the update completion message is displayed, contact the Technical Support Center or the system administrator (SE, customer, etc.) and request the prior procedure required for the path switching.

Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the “(3-10) Recovery procedure when the firmware updating (second Controller “B”) (By operating instructions) fails” according to the DMEA00200E error message.

- (e) Click the [Close] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-5)-(b), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(†1)</sup> of the Controller whose firmware was updated to make the access from the host accepted.

However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement.

If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(†1)</sup> is unnecessary.

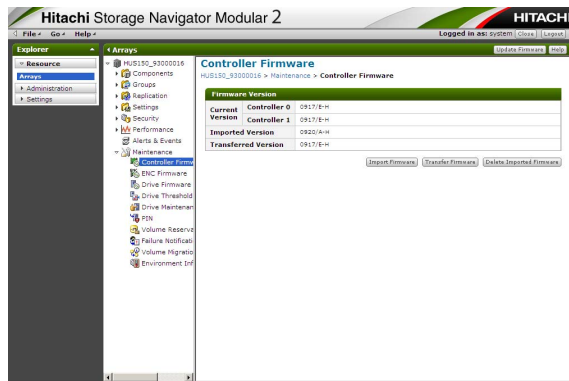
#### Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

<sup>†1</sup> : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.



(g) Check that the version of the updated firmware is displayed.



(h) When the version check is completed, the firmware updating of the array ends.

- NOTE :
- When the updating of the firmware is made for only one of the dual Controller, the array is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is updated. When you update the firmware, be sure to make the updating for the both Controllers continuously.
  - When the firmware was updated online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “114000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

## (3-14) Updating the firmware (first Controller “B”) (By operating instructions)

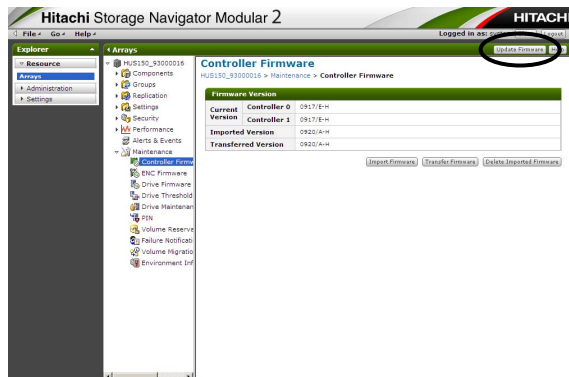
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, execute the firmware updating again from the beginning ((3-14)-(a)).

Update the firmware that was transferred to the disk array system with the firmware installed in the Controller. When making update, be sure to updating the firmwares of the both Controllers 0 and 1.

When the firmware of one of the Controllers is updated and the unit window of Hitachi Storage Navigator Modular 2 is closed, the unit window may be opened no more. If the unit window becomes unable to be opened, update the firmware after changing the registration to that in which only the Controller whose firmware has not be updated is registered.

## (a) Click the [Update Firmware] button.



## (b) Select the Controller whose firmware is to be updated and click the [OK] button.



**NOTE :** After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.

- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (h) is displayed, execute the firmware updating again from the beginning ((3-14)-(a)).

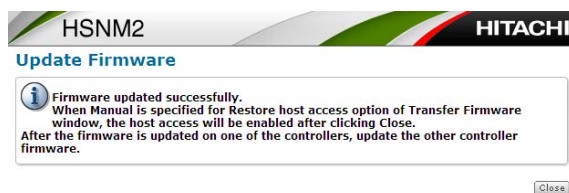


The window during the firmware update is displayed.



NOTE : Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

- (d) If the confirmation message of the updating completed is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.  
Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the step (3-14)-(a) according to the DMEA00200E error message.

(e) Click the [Close] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-5)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted.

However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement.

If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

#### Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

---

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items.
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “W3A00x Online micro-update executing (CTL-x)”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\).](#))

NOTE : The following message is displayed when the firmware updating is performed starting from the Controller #0. When it is performed starting from the Controller #1, convert the Controller number in the message.

When [Manual] of “Restore host access option” is selected in the step (3-5)-(b), the following message is displayed.

If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\).](#)

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-0)” is not displayed, execute the update installation of the firmware of the same Controller again from the step (3-14) (a) of [“\(3-14\) Updating the firmware \(first Controller “B”\) \(By operating instructions\)”](#).

MM/DD/YYYY hh:mm:ss 00 I1G800 FC I/F ports change to online (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 W3A001 Online micro-update executing (CTL-1)	
MM/DD/YYYY hh:mm:ss 00 I42000 Online micro-update (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I00100 CTL recovered (CTL-0)	
MM/DD/YYYY hh:mm:ss 00 I1G700 FC I/F ports remain offline (CTL-0)	:Manual
MM/DD/YYYY hh:mm:ss 10 W01400 CTL alarm (CTL-0)	:CTL /CTRC
MM/DD/YYYY hh:mm:ss 10 W3B000 Online micro-update started (CTL-0)	

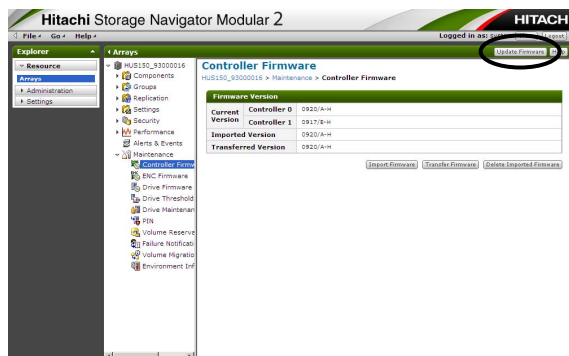
- (g) In the case of the dual controller configuration, also update the firmware of the other Controller.

## (3-15) Updating the firmware (second Controller “A”) (Case with operating instructions)

(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Controller) at the time of the firmware updating)

If the connection between Hitachi Storage Navigator Modular 2 and the array is disconnected by such cases that a LAN failure occurs during the firmware updating or a message of session time-out by Account Authentication (account authentication function) or, DMEA000006 or DMEA00200E error message from Hitachi Storage Navigator Modular 2 is displayed, refer to the working flowchart, and execute the firmware updating again from the step (3-11), (3-12) or (3-14).

(a) Click the [Update Firmware] button.



(b) Select the Controller whose firmware is to be updated and click the [OK] button.



NOTE : After this procedure, confirm if the I/O path can be switched, or if the I/O can be stopped because of stopping the I/O of the Controller whose firmware will be updated.



- (c) Since the confirmation message is displayed. Confirm the contents and click the [Confirm] button.

NOTE : By clicking the [Confirm] button in the window, if a LAN failure and others occur and the Hitachi Storage Navigator Modular 2 processing terminates abnormally before “W3B00x Online micro-update started (CTL-x)” and “W01z0x CTL alarm (CTL-x)” are displayed in Information Message on WEB and the window of the procedure (h) is displayed, execute the update installation of the firmware after this according to “(3-11) Recovery procedure when the firmware updating (second Controller “A”) (By operating instructions) fails” (FIRM 01-1190).



The window during the firmware update is displayed.



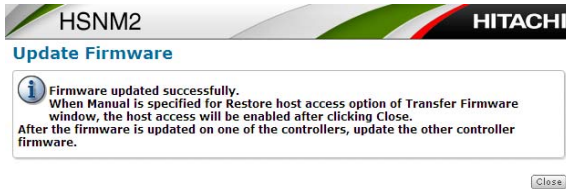
- NOTE :
- Then “W01z0x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.
  - If a DMED3B0104 error message (firmware updating on the Controller “B” side is not completed) is displayed after clicking the [Confirm] button to update the firmware, click the [OK] button of the error message, and then execute the firmware replacement again from the step (3-14)-(a).

#### Message

DMED3B0104 : The firmware replacement cannot be performed because firmware replacement of another controller is not completed and the access from hosts is not received. Please perform firmware replacement of this controller again after performing firmware replacement of another controller and completing.

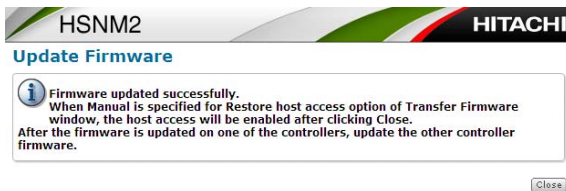
- (d) When the update completion message is displayed, contact the Technical Support Center or the system administrator (SE, customer, etc.) and request the prior procedure required for the path switching.

Wait until the procedure is completed.



NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware updating again from the “(3-11) Recovery procedure when the firmware updating (second Controller “A”) (By operating instructions) fails” (FIRM 01-1190) according to the DMEA00200E error message.

- (e) Click the [Close] button.



NOTE : When making the access from the host accepted by the instruction from Hitachi Storage Navigator Modular 2 (when the [Manual] of “Restore host access option” is selected in the step (3-5)-(b)), the following message may be displayed if it is not operated for 20 minutes or more in the case where Account Authentication is valid, and it may not be completed normally. Perform the dummy replacement <sup>(‡1)</sup> of the Controller whose firmware was updated to make the access from the host accepted.

However, when the C-PWR LED (green) on the Controller blinks at high speed, wait until it goes out. When it blinks at low speed, contact the Technical Support Center without doing dummy replacement.

If the access from the host is made accepted when the updating of the firmware is completed, the dummy replacement <sup>(‡1)</sup> is unnecessary.

#### Message

DMEG000212 : The current login session is expired. If you are displaying the subsystem dialog window, please close the window and login again. Please select the subsystem in the Arrays screen again.

‡1 : To remove the part concerned once, and then to reinstall it after waiting for 20 seconds or more.

- (f) Referring to the Information Message on WEB, confirm the following items. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)
- The messages “I1G80x FC I/F ports change to online (CTL-x)” is displayed after “IZYR00 Automatic ENC firmware download completed successfully”.

If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to [WEB “2.5 Information Message” \(WEB 02-0150\)](#).)

NOTE : The following message is displayed when the firmware updating is performed in order from Controller #0 to Controller #1. When it is performed in order from the Controller #1 to Controller #0, convert the Controller number in the message.

When [Manual] of “Restore host access option” is selected in the step (3-5)-(b), the following message is displayed.

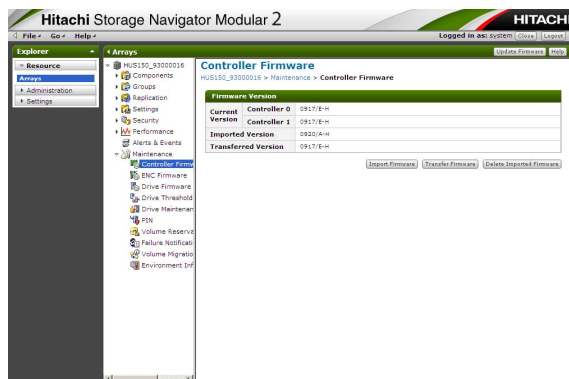
If the following message is not displayed, refer to [“Chapter 2. Procedure for Recovery from a Failure” \(FIRM 02-0000\)](#).

Contact the Technical Support Center, and perform the operation according to the Technical Support Center.

However, only when “I1G800 FC I/F ports change to online (CTL-1)” is not displayed, execute the update installation of the firmware, from now on, along the flow chart in operation and according to [“\(3-11\) Recovery procedure when the firmware updating \(second Controller “A”\) \(By operating instructions\) fails” \(FIRM 01-1190\)](#) or the step (3-12) (a).

```
MM/DD/YYYY hh:mm:ss 10 I1G801 FC I/F ports change to online (CTL-1)
:
:
:
MM/DD/YYYY hh:mm:ss 10 I19000 Online microprogram update completed [The firmware version *****]
MM/DD/YYYY hh:mm:ss 10 I42001 Online micro-update (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I00101 CTL recovered (CTL-1)
MM/DD/YYYY hh:mm:ss 10 I1G701 FC I/F ports remain offline (CTL-1)           :MANUAL
MM/DD/YYYY hh:mm:ss 00 W01401 CTL alarm (CTL-1)                           :CTL /CTRC
MM/DD/YYYY hh:mm:ss 00 W3B001 Online micro-update started (CTL-1)
```

(g) Check that the version of the updated firmware is displayed.



(h) When the version check is completed, the firmware updating of the array ends.

- NOTE :
- When the updating of the firmware is made for only one of the dual Controller, the array is put in the status in which a warning is issued. The warning is called off when the other one of the dual Controller is updated. When you update the firmware, be sure to make the updating for the both Controllers continuously.
  - When the firmware was updated online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

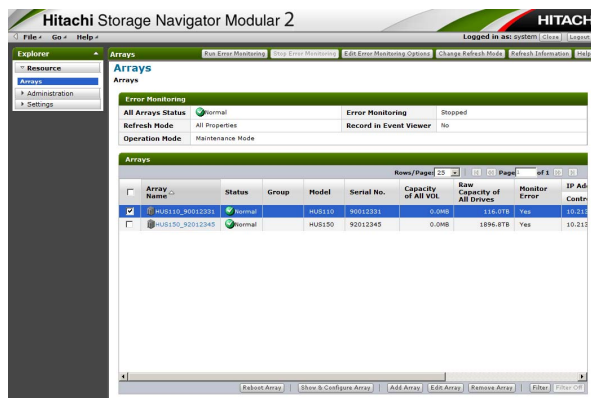
## (4) Update for single controller

- NOTE :
- Do not perform the update installation of the firmware while the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
  - When registering the array at the time of connecting the array, specify only the Controller #0 in [Connection Destination]. (Refer to [System Parameter "1.1 \(4\) \(b\) Array registration" \(SYSPR 01-0090\)](#).)
  - When the Volume, whose status of the forced parity correction is any of "Parity correction", "Waiting parity correction", "Waiting Drive Reconstruction", "Uncorrected", "Uncorrected and Drive Detached" and "Correction Aborted", is in the array, change the status of the Volume to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).

## (4-1) Transfer and update of firmware

- Connect the LAN cross cable to the array LAN connector for maintenance and connect the array to the Web. (Refer to [Troubleshooting "3.1 Procedure to WEB Connection" \(TRBL 03-0000\)](#).)
- Start Hitachi Storage Navigator Modular 2, put a checkmark to the array to set, press the [Ctrl] key, [Shift] key and [E] key at the same time, and change the operation mode to "Maintenance Mode".<sup>‡1</sup>

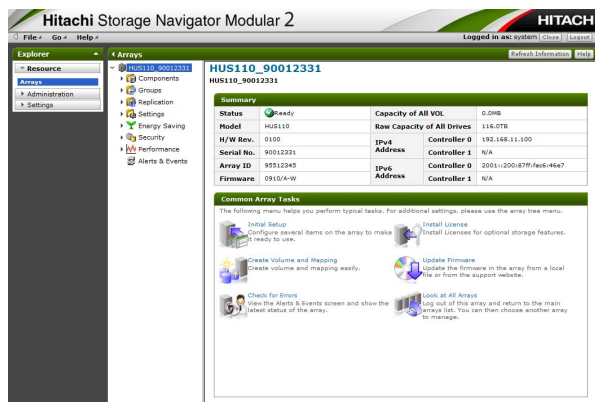
Check that "Maintenance Mode" is displayed in [Operation Mode] on the top of the main window.



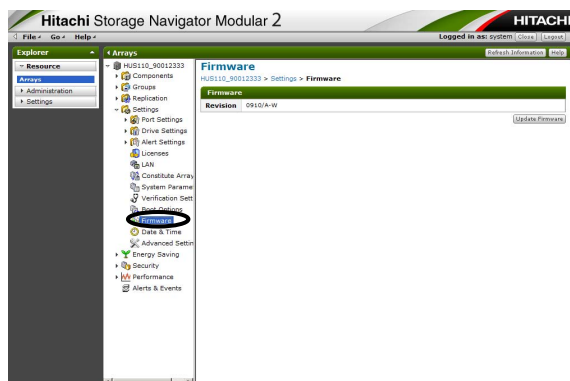
<sup>‡1</sup> : When the array to operate is not registered, click the blank area (other than buttons and characters) in the "Arrays" window, and press the [Ctrl] key, [Shift] key and [E] key at the same time.

(c) Click the array name, and open the unit window.

NOTE : When the main window is not displayed even if you select the array, check that the LAN port number is not changed. (Refer to [System Parameter “1.2 LAN Port Number Change by Hitachi Storage Navigator Modular 2” \(SYSPR 01-0120\).](#)) Use the changed LAN Port Number, and execute it again.



(d) Select [Settings] - [Firmware] on the unit window.  
Click the [Update Firmware] button.



- (e) Enter [Update file] (Specify the ZIP form file) on the [Basic] tab, set the necessary items of the [Advanced] tab, and click the [OK] button.

When using Windows®:

c:/diskarray-microprogram/microprogram/micro/09xxx.zip

When using Solaris™ or Red Hat Linux®:

diskarray-microprogram/microprogram/micro/09xxx.zip

Specified firmware file  
(ZIP form file)

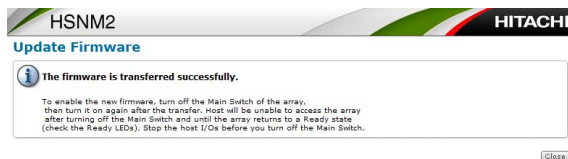
The file name “xxx” differs depending on the firmware version.

#### Basic tab

#### Advanced tab

- (f) The confirmation window of the firmware to update is displayed. Check it, and then click the [Confirm] button. Start transfer and update of the firmware.

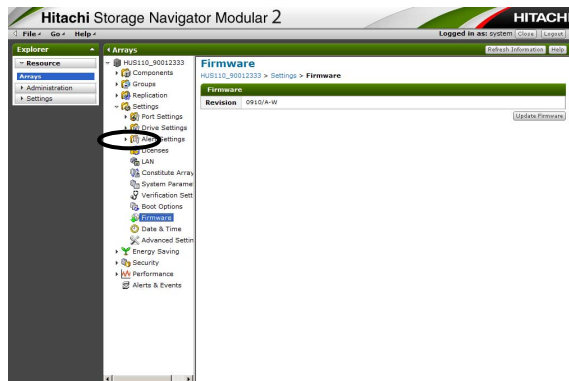
- (g) When the Hitachi Storage Navigator Modular 2 is abnormally terminated, perform maintenance on each message.
- (g-1) Message code “DMEA000006”
- (i) Check if a failure occurs in the array.  
If a failure occurs, perform maintenance or parts replacement, and then restore the array condition to normal.
  - (ii) Check if a LAN failure occurs.  
If a failure occurs, review the network condition, and then restore it to normal.
  - (iii) Perform the transfer firmware again from the beginning.
- (g-2) Message code “DMEA00200E”
- (i) Check if a failure occurs in the array.  
If a failure occurs, perform maintenance or parts replacement, and then restore the array condition to normal.
  - (ii) Check if a LAN failure occurs.  
If a failure occurs, review the network condition, and then restore it to normal.
  - (iii) Check the [Update Firmware] radio button on [Basic] tab. Execute it again at least 3 times until it is normally completed.
  - (iv) When it is not completed normally after the retries, turn off the array once and then turn it on again after obtaining the consent of turning on/off the array from your customer.  
The replacement of firmware is completed by this operation.
- (h) Since a message is displayed when the reading in of the firmware is completed, click the [Close] button.



- (i) After waiting one or more minutes after turning off the main switch (after the POWER LED is turned off), turn on the main switch.  
Check that the READY LED (green) on the front of Controller Box lights up. If the WARNING LED (orange) on the front of Controller Box blinks at high speed, the READY LED (green) on the front of Controller Box (green) lights up after the WARNING LED blinks at high speed for the maximum of 30 to 85 minutes.



- (j) Select [Settings] - [Firmware] on the unit window, and click the [Refresh Information] button.



- (k) Check that the revision of the replaced firmware is displayed.  
 (l) When the revision check is completed, the firmware replacement of the array ends.

NOTE : When the firmware was replaced online after performing the processing to change the system configuration (Volume creation, format, LU owner right change, etc.), the “I14000 System copy started” message may be displayed two or more times in Information Message on WEB, but it is not a problem.

#### (4-2) Checking the READY LED (green) on the front of the Controller Box

Check that the READY LED (green) on the front of the Controller Box lights up. When the READY LED (green) on the front of the Controller Box is blinking at high speed, the READY LED (green) on the front of the Controller Box lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)) because the automatic download of the ENC firmware and the backup controller firmware is being operated.

#### (4-3) Check that the start message and the end message of the drive firmware automatic download are displayed. When the drive firmware version of the Drive is new, the start message and completion message of the drive firmware automatic download are not displayed.

When the message indicating the abnormal termination is displayed, perform the maintenance according the recovery method in the message code. (Refer to [“1.6 \(4\) Checking the start message and end message of the automatic download” \(FIRM 01-1620\)](#).)

### 1.4.3 Procedure for the Version Downgrade

NOTE : Do not perform the update installation of the firmware while the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).

(1) Restrictions of the version downgrade of the firmware

For the restrictions of the version downgrade of the firmware, refer to “1.7 Restrictions of the Version Downgrade of the Firmware” (FIRM 01-1640).

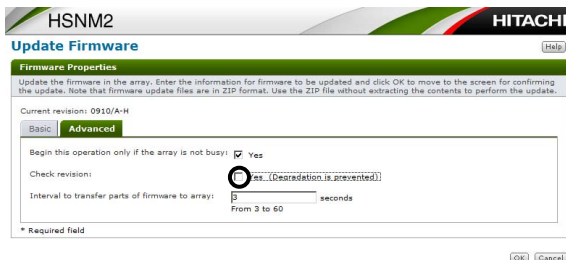
(2) Download of the firmware

(2-1) Concurrent update in both Controllers (Dual controller configuration)

(a) Prepare for the version downgrade according to the procedure of update installation. (Refer to “1.4.2 Update Installation of Firmware (1-1) Transfer and update firmware (a) to (e)” (FIRM 01-0050 to FIRM 01-0070).)

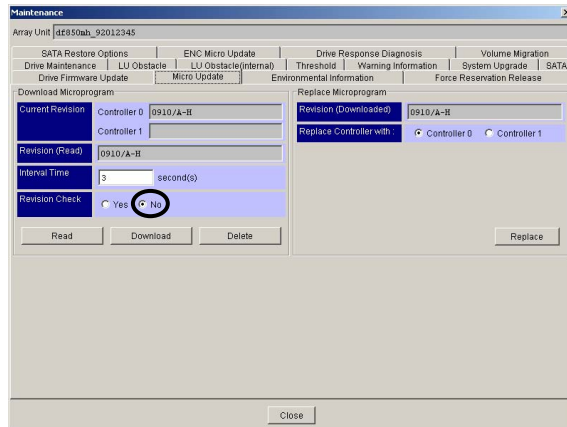
(b) Click the [Advanced] tab.

Take the checkmark off from [Check revision], and click the [OK] button.



(c) Update the firmware according to the procedure of update installation. (Refer to “1.4.2 Update Installation of Firmware (1-1) Transfer and update firmware (f) to (j)” (FIRM 01-0070 to FIRM 01-0090).)

- (2-2) Update for each Controller (Dual controller configuration) is less than Ver.22.00
- (a) Prepare for the version downgrade according to the procedure for update installation (“1.4.2 Update Installation of Firmware (2-1) Preparation for downloading the firmware (a) to (i)” (FIRM 01-0160 to FIRM 01-0180)).
- (b) Check [No] of [Revision Check].

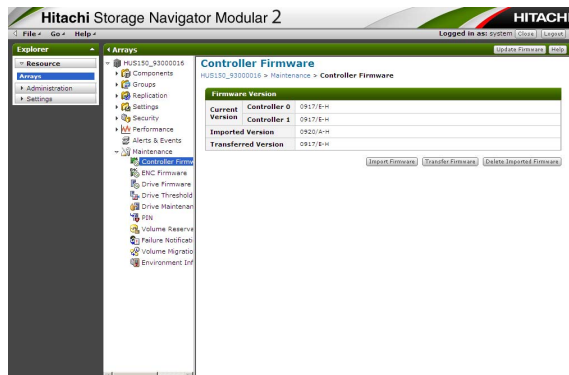


- (c) Update the firmware according to the procedure for update installation (“1.4.2 Update Installation of Firmware (2) Update stopping the I/O for each Controller (Dual controller configuration)” (FIRM 01-0100)).

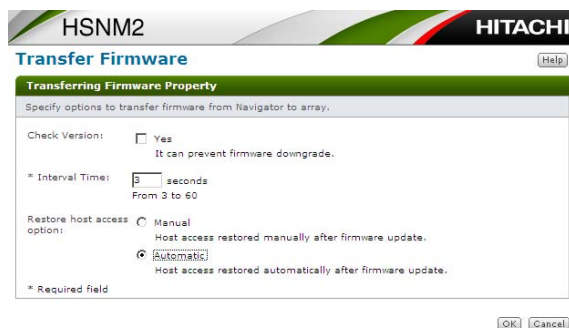
(2-3) Updating I/O stop for each Controller (Dual controller configuration) in Ver.22.00 or more of Hitachi Storage Navigator Modular 2

(a) Prepare for the version downgrade according to the procedure of update installation. (Refer to “1.4.2 Update Installation of Firmware (3-1) Preparation for transferring the firmware (a) to (f)” (FIRM 01-0850 to FIRM 01-0870).)

(b) Click the [Transfer Firmware] button.



(c) Uncheck [Version Check], select “Automatic” of [Host Access Restoration Method] and click the [OK] button.



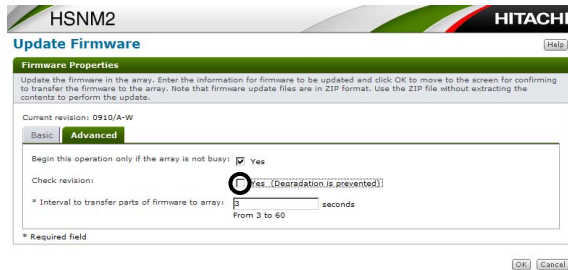
(d) Update the firmware according to the procedure of update installation. (Refer to “1.4.2 Update Installation of Firmware (3-2) Transferring the firmware (usual case)” (FIRM 01-0880).)

(2-4) Update for single controller

(a) Prepare for the version downgrade according to the procedure of update installation. (Refer to “1.4.2 Update Installation of Firmware (4-1) Transfer and update of firmware (a) to (e)” (FIRM 01-1460 to FIRM 01-1480).)

(b) Click the [Advanced] tab.

Take the checkmark off from [Check revision], and click the [OK] button.



(c) Update the firmware according to the procedure of update installation. (Refer to “1.4.2 Update Installation of Firmware (4-1) Transfer and update of firmware (f) to (j)” (FIRM 01-1480 to FIRM 01-1500).)

## 1.5 Checking the Start and the Termination of the ENC Firmware/Backup Controller Firmware Automatic Download

The ENC firmware/backup controller firmware is a function that is managed as a part of the firmware and checks the version of all ENC firmware/backup controller firmware in the array when the array starts or the Drive I/O Module, I/O Module (ENC) or I/O Card(ENC) is replaced, and downloads it automatically if necessary.

### (1) Opportunity to start the automatic download

The ENC firmware/backup controller firmware starts the download automatically in the following opportunities.

In the single controller configuration, the automatic download of the ENC firmware/backup controller firmware operates only at the time of the starting opportunity.

#### <Start-up Opportunity>

- When the main switch of the array is turned on, and the array enters the READY status
- When rebooting on remote
- When rebooting automatically
- When rebooting the Controller in the maintenance mode

#### <Maintenance Opportunity>

- When the Controller is inserted online
- When the Drive I/O Module, I/O Module (ENC) or I/O Card(ENC) are inserted online
- When the chassis frame is added online
- When the firmware is changed online
- When the ENC firmware/backup controller firmware automatic download function is enabled
- When the following warnings are released before starting the automatic download  
ENC Warning/Controller Warning/SNMP Warning/Drive Warning/PIN Warning/Power Unit Warning/UPS Warning/Battery backup Unit Warning/Battery backup circuit Warning/Fan Module Warning/Drive I/O module Warning/Host I/O module Warning/Management module Warning
- When the following warnings, which caused the abnormal termination of the automatic download, are released  
ENC Unit Warning/Controller Warning/Drive Warning/ENC replacement which occurred in the SES error

### (2) Restriction items during the automatic download

Do not perform the following work during the ENC firmware and the backup controller firmware automatic download.

- Planned shutdown
- Update installation of the firmware from Hitachi Storage Navigator Modular 2
- Setting change of Boot Options by Hitachi Storage Navigator Modular 2
- Setting change of LAN by Hitachi Storage Navigator Modular 2
- Text file input of Boot Options of the configuration copy information by Hitachi Storage Navigator Modular 2

- Unlocking of the priced options by Hitachi Storage Navigator Modular 2
- Setting change of SNMP by Hitachi Storage Navigator Modular 2
- Setting change of Cache Residency Manager by Hitachi Storage Navigator Modular 2
- Validation of Power Saving/Power Saving Plus with Hitachi Storage Navigator Modular 2
- Parts replacement
- Adding optional components
- Subtracting optional components
- Relocation / Removal work
- Changing to the maintenance mode of the array by pressing RST SW of the Controller

Execute the above-mentioned work after the ENC firmware and the backup controller firmware automatic download is completed.

(3) Checking the start messages and the termination messages of the automatic download.

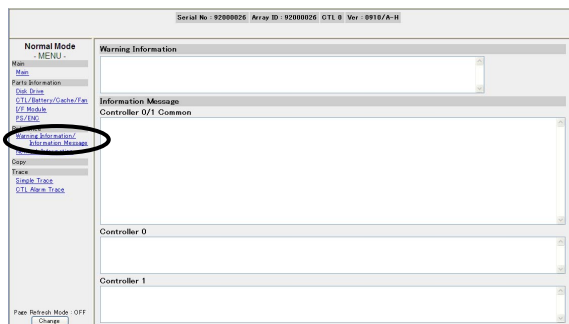
When the download starts, it takes up to 30 to 180 minutes to terminate it.

NOTE : The download does not start when the array is in the warning status.

Connect to the WEB and perform the recovery procedure for each on the Information Message. (Refer to [Troubleshooting “Chapter 4. Trouble Analysis by WEB Connection” \(TRBL 04-0000\)](#).)

If the warning status is recovered and the array is maintained in the normal status for one minute, the download starts.

- (a) Connect the LAN cross cable to the LAN connector for maintenance of the array and connect to WEB. (Refer to [Troubleshooting “3.1 Procedure to WEB Connection” \(TRBL 03-0000\)](#).)
- (b) Click [Information Message] in the main window menu frame in the normal mode.



- (c) Check that there are the start message and the normal termination message displayed in “Information Message”.

**Table 1.5.1 Message Check**

Message	Content
IZYS00 Automatic ENC firmware download started IAF200 Automatic Backup Controller firmware download started	Indicates that the automatic ENC firmware download started. (ENC and backup controller are displayed by a pair.)
IZYR00 Automatic ENC firmware download completed successfully IAF000 Automatic Backup Controller firmware download completed successfully	Indicates that the automatic ENC firmware download terminated normally. (ENC and backup controller are displayed by a pair.)
IZYQ00 Automatic ENC firmware download failed IAF100 Automatic Backup Controller firmware download failed	Indicates that the automatic ENC firmware download terminated abnormally. (ENC and backup controller are displayed by a pair.)

<Message Check Example>

- When it is normal (ENC Unit #0 and #1, and backup controller#0 and backup controller#1 are objects)

IZYS00 Automatic ENC firmware download started  
 IAF200 Automatic Backup Controller firmware download started  
 IAE000 Backup Controller#0 firmware download started  
 IAE100 Backup Controller#0 firmware download completed  
 IAE001 Backup Controller#1 firmware download started  
 IAE101 Backup Controller#1 firmware download completed  
 IZY200 ENC#0 firmware download started  
 IZY400 ENC#0 firmware download completed  
 IZY201 ENC#1 firmware download started  
 IZY401 ENC#1 firmware download completed  
 IZYR00 Automatic ENC firmware download completed successfully  
 IAF000 Automatic Backup Controller firmware download completed successfully

NOTE : The time required for downloading ENC #1 includes the download time for the shared parts of ENC #0/ENC #1. Therefore, the time required for ENC #1 (time from when the message IZY201 <ENC#1 firmware download started> is displayed till when IZY401 <ENC#1 firmware download completed> is displayed) may be longer than that for ENC #0 (time from when the message IZY200 <ENC#0 firmware download started> is displayed till when IZY400 <ENC#0 firmware download completed>).

- When it is normal (when there is no object ENC Unit and backup controller)

IZYS00 Automatic ENC firmware download started  
 IAF200 Automatic Backup Controller firmware download started  
 IZYR00 Automatic ENC firmware download completed successfully  
 IAF000 Automatic Backup Controller firmware download completed successfully



- When it is abnormal (In case of ENC)

IZYS00 Automatic ENC firmware download started  
IAF200 Automatic Backup Controller firmware download started  
IZY200 ENC#0 firmware download started  
IZY400 ENC#0 firmware download completed  
IZY201 ENC#1 firmware download started  
WOFA00 ENC alarm (Unit-01, ENC-1)  
:  
IZYM01 ENC firmware download error was detected (Unit-01)  
:  
IZY401 ENC#1 firmware download completed  
IZYQ00 Automatic ENC firmware download failed  
IAF100 Automatic Backup Controller firmware download failed

- When it is abnormal (In case of backup controller)

IZYS00 Automatic ENC firmware download started  
IAF200 Automatic Backup Controller firmware download started  
IAE000 Backup Controller#0 firmware download started  
IAE100 Backup Controller#0 firmware download completed  
IAE001 Backup Controller#1 firmware download started  
IAE201 Backup Controller#1 firmware download failed  
IZYQ00 Automatic ENC firmware download failed  
IAF100 Automatic Backup Controller firmware download failed

(4) Recovery method when terminating abnormally after starting the automatic download.

- (a) Perform the maintenance for the warnings which were output from the automatic download start to the abnormal termination.
- (b) Check the start message and the termination message of the automatic download again.

## 1.6 Checking the Start and End of the Drive Firmware Automatic Download

The drive firmware is managed as a part of the firmware, and it has a function which checks the firmware version of all the drives in the array at the time of starting the array or replacing the drive and downloads it automatically as needed.

### (1) Opportunities to start the automatic download

Check the necessity of the drive firmware download in the following opportunities. When the download is required (the drive firmware is old, etc.) by the necessity check, the download starts automatically.

#### [Starting opportunities]

- When turning on the main switch of the array and the array becomes the Ready status
- When rebooting the array by remote
- When the blocked Controller was recovered by automatic reboot
- When rebooting the Controller in the maintenance mode to transfer it to the normal mode
- When rebooting the array from the Hitachi Storage Navigator Modular 2

#### [Maintenance opportunities]

- When inserting the Controller online
- When inserting/adding the drive online
- When replacing the firmware online
- When changing the power saving status from “Spin-down” to “Normal (Spin-up)” with the Power Saving/Power Saving Plus function
- When setting the drive firmware automatic download function from the “Disable” to the “Enable” (The default setting is “Enable”).)

#### [Regular opportunity]

- Once in 24 hours

(2) Restrictions during the automatic download

Do not execute the following works during the drive firmware automatic download because the following processing inside the array does not run. When the works were executed, Hitachi Storage Navigator Modular 2 outputs the message, and the works will not be executed.

DMED3D0001: The process cannot be performed because the drive firmware is being replaced. Please retry after replacement completes.

- Update installation of the firmware from Hitachi Storage Navigator Modular 2
- Giving the instruction of the power saving (spin-down) in the Power Saving/Power Saving Plus by Hitachi Storage Navigator Modular 2
- Executing RAID Group creation/deletion/expansion by Hitachi Storage Navigator Modular 2
- Executing creation/deletion/capacity change (expansion and reduction) of Volumes by Hitachi Storage Navigator Modular 2
- ENC firmware download by Hitachi Storage Navigator Modular 2

Do not execute the following works during the drive firmware automatic download because the following processing inside the array does not run. When the works were executed, Hitachi Storage Navigator Modular 2 outputs the message, and the works will not be executed.

DMED260017: The process cannot be performed because the drive firmware is being replaced. Please retry after replacement completes.

- Executing DP pool creation/deletion/capacity expansion by Hitachi Storage Navigator Modular 2

Do not execute the following works during the drive firmware automatic download because the drive firmware automatic download processing is affected by the works, and may terminate abnormally.

- Replacing the parts
- Adding the options
- Removing the array
- Moving/removal work
- Moving to the maintenance mode of the array by pressing RST SW of the Controller

Execute the works above after completing the drive firmware automatic download.

(3) Supplementary explanation for the specification

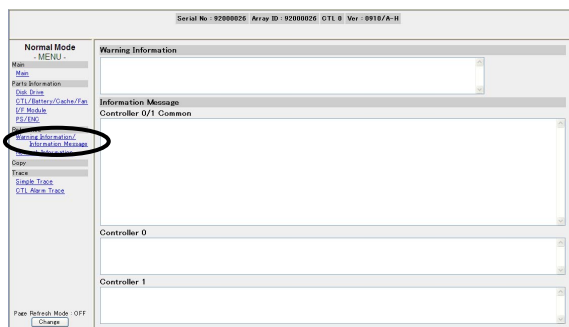
- (a) Target Drive for the drive firmware automatic download execution is SAS Drive, SAS7.2K Drive and Flash Drive.
- (b) Drive firmware is not downloaded into the Drive with the power saving (spin-down) setting. To the Drive with the power saving (spin-down) setting, when the power saving status is released (spin-up), the drive firmware is downloaded automatically. (Exclude the “Normal (Command Monitoring)” status during the power saving setting of the I/O interlock enabled of the Power Saving Plus function.)
- (c) To the blocked Drive, drive firmware is not downloaded automatically.
- (d) If only one normal system drive exist (when four system drives which are blocked or whose the system area is blocked exist), the drive firmware is not downloaded automatically for the system drive.  
In this case, by performing the maintenance to restore abnormal system drive to normal and replacing the Drive, drive firmware is downloaded automatically to the system drive.
- (e) To the Drive which configures the regressed parity group, drive firmware is not downloaded automatically.  
In this case, by replacing the blocked Drive, drive firmware is downloaded automatically to the Drive that configures this parity group.
- (f) If Controller is blocked due to a certain failure when drive firmware automatic download runs, the drive firmware automatic download is interrupted.  
After the Controller is recovered, the drive firmware automatic download restarts.
- (g) If the drive firmware update terminates abnormally in a certain Drive, to avoid multiple Drives blockage due to the same failure factor, terminate the drive firmware automatic download abnormally at the time. To the subsequent Drive, drive firmware will not be downloaded automatically.  
In this case, perform the maintenance according to the message output to the WEB information message.
- (h) When any of the following operations runs, drive firmware automatic download does not run even if it meets the opportunities described in (1). After the following operation is completed, the drive firmware automatic download starts.
  - Firmware update runs
  - ENC firmware and backup controller firmware automatic down load runs
  - ENC firmware manual download runs with the array power on
  - A failure occurs in the array backend part and then the backend diagnostic processing runs
  - RAID group expansion processing runs
  - DP pool creation, deletion, or capacity expansion runs

## (4) Checking the start message and end message of the automatic download.

If the automatic download starts, it takes time of the maximum of 30 to 60 minutes × the number of drive types<sup>(#1)</sup> <sup>(#2)</sup>.

- NOTE :
- When a failure occurs in the drive or Controller, it does not start the automatic download. Connect it to WEB and execute the recovery procedure for each message on the Information Message. (Refer to [Troubleshooting “Chapter 4. Trouble Analysis by WEB Connection \(TRBL 04-0000\)”](#).)
  - When the message “IZ0000 HDU firmware download start” indicating the start of the drive firmware is not displayed although you wait for up to two minutes after the message “IZYR00 Automatic ENC firmware download completed successfully” indicating the completion of the ENC firmware and the backup controller firmware automatic download is displayed, the drive firmware automatic download will not be performed because the version of the drive firmware is new.

- (a) Connect the LAN cross cable to the maintenance LAN connector and connect the array to WEB. (Refer to [Troubleshooting “3.1 Procedure to WEB Connection \(TRBL 03-0000\)”](#).)
- (b) Click [Information Message] from the main window menu frame in the normal mode.



- (c) Check that the start message and normal termination message are displayed in the Information Message.

NOTE : If any of “IZ0G00 HDU firmware download failed”, “IZ0E00 HDU firmware update was skipped (Unit-x, HDU-y)” or “IZ0300 HDU update failed (Unit-x, HDU-y)” is not displayed when “IZ0100 HDU firmware download end” is not displayed, drive firmware is being downloaded. Wait for the completion of the automatic download.

#1 : It indicates the number of Drives distinguished by the Drive capacity. For example, only 146 Gbytes and 300 Gbytes Drives are installed in the array, the number of the Drive type is 2.

#2 : If multiple RAID Groups are used consisting of the same type of Drives, up to 10 RAID Groups are processed in parallel.

Table 1.6.1 Checking the Messages

Message	Content
IZ0000 HDU firmware download start	Indicates that the automatic download starts
IZ0100 HDU firmware download end	Indicates that the automatic download is completed normally
IZ0G00 HDU firmware download failed	Indicates that the automatic download terminated abnormally
IZ0E00 HDU firmware update was skipped (Unit-x, HDU-y)	Indicates that the automatic download terminated abnormally
IZ0300 HDU update failed (Unit-x, HDU-y)	Indicates that the automatic download terminated abnormally

## &lt;Example of the message check&gt;

- In case of normal
  - IZ0000 HDU firmware download start
  - IZ0200 HFWD completed (Unit-00, HDU-00)
  - IZ0200 HFWD completed (Unit-00, HDU-01)
  - IZ0200 HFWD completed (Unit-00, HDU-02)
  - :
  - IZ0100 HDU firmware download end
- In case of trouble
  - IZ0000 HDU firmware download start
  - :
  - IZ0300 HDU update failed (Unit-00, HDU-00)
  - :
  - IZ0G00 HDU firmware download failed

## (5) Recovery method when terminating abnormally after starting the automatic download

- (a) Perform the maintenance for Warning output between the automatic download start and abnormal termination.
- (b) Check the start message and end message of the automatic download again.  
(The automatic download is executed again not immediately after the maintenance but within 24 hours depending on the failure.)

## 1.7 Restrictions of the Version Downgrade of the Firmware

For the firmware of the old version (version downgrade firmware), if there are factors shown in Table 1.7.1, the firmware cannot be downgraded. Therefore, follow the action to be taken.

When the WEB Information Message “R54S00 A firmware downgrading error was detected [Code-xx]” is displayed, follow the action to be taken which is described on the factor code (Code-xx) in Table 1.7.1.

**Table 1.7.1 Restrictions of the Version Downgrade of the Firmware**

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0915/B or more	0915/B or more	-	-
0916/A or more	Less than 0916/A	Code-01	<p>Since the priced option of TrueCopy Extended Distance is unlocked, the version downgrade to the firmware which does not support the TrueCopy Extended Distance function cannot be performed.</p> <ol style="list-style-type: none"> <li>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation “1.5.1 Array Power On” (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Request the customer/SE to delete all the pairs and paths created with the TrueCopy Extended Distance function.</li> <li>4. Request the customer/SE to lock the license of TrueCopy Extended Distance. (Refer to <a href="#">System Parameter “14.2 Procedure for Locking the License of Priced Option” (SYSPR 14-0020)</a>.)</li> <li>5. Change it to the maintenance mode. (Refer to <a href="#">WEB “Chapter 3. The Maintenance Mode Operation Procedure” (WEB 03-0000)</a>.)</li> <li>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB “3.3.1 Microprogram” (WEB 03-0270)</a>.)</li> </ol>
0917/A or more	Less than 0917/A	Code-02	<p>Since the priced option of True Copy Modular Distributed is unlocked, the version downgrade to the firmware which does not support the True Copy Modular Distributed function cannot be performed.</p> <ol style="list-style-type: none"> <li>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation “1.5.1 Array Power On” (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. • Request the customer/SE to delete all the pairs and paths created with the True Copy Modular Distributed function. • When TrueCopy remote replication and TrueCopy Extended Distance are used other than True Copy Modular Distributed, for deleting the remote path, those pairs also need to be deleted. Request the customer/SE to delete the TrueCopy remote replication pair. Request the customer/SE to delete the TrueCopy Extended Distance pair. After completing the version downgrade, when using TrueCopy remote replication and TrueCopy Extended Distance, execute all the settings of the priced options to be used again.</li> <li>4. Request the customer/SE to lock the license of True Copy Modular Distributed. (Refer to <a href="#">System Parameter “14.2 Procedure for Locking the License of Priced Option” (SYSPR 14-0020)</a>.)</li> <li>5. Change it to the maintenance mode. (Refer to <a href="#">WEB “Chapter 3. The Maintenance Mode Operation Procedure” (WEB 03-0000)</a>.)</li> <li>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB “3.3.1 Microprogram” (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
—	—	Code-03	Not used
0920/B or more	Less than 0920/B	Code-04	<p>Since the number of groups (CTG<sup>*1</sup>) used in TrueCopy Extended Distance is 17 or more, the version downgrade to the firmware whose number of the maximum supported groups (CTG<sup>*1</sup>) is 16 cannot be executed.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Confirm the customer/SE of the number of the used groups by the pair information created by the TrueCopy Extended Distance function. For the method of confirmation, check the array in Hitachi Storage Navigator Modular 2 and confirm it in the [Replication] – [Remote Replication] window.</p> <p>4. If the number of the used groups is 17 or more, request the customer/SE to reduce the number of the used groups to 16 or less by cancelling the pair of TrueCopy Extended Distance.</p> <p>5. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>
		Code-05	<p>The version downgrade to the firmware which does not support the iSCSI connection in the TrueCopy Modular Distributed function cannot be executed.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Execute either of the following procedures.</p> <ul style="list-style-type: none"> <li>• Request the customer/SE to cancel the pair created by the TrueCopy Extended Distance function. After the cancellation, request for the cancellation of the remote path setting and the remote port CHAP setting.</li> <li>• Request the customer/SE to cancel the pair created by the TrueCopy Extended Distance function referring. After the cancellation, request for locking the TrueCopy Modular Distributed license. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> </ul> <p>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>

\*1 : CTG is an abbreviation of consistency group.



Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0930/A or more	Less than 0930/A	Code-06	<p>Since the priced option of Dynamic Tiering is unlocked, the version downgrade to the firmware which does not support the Dynamic Tiering function cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Request the customer/SE to delete all the DP pools whose tier mode is enabled.</li> <li>4. Request the customer/SE to lock the license of Dynamic Tiering. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> <li>5. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
		Code-07	<p>Since the license of Dynamic Tiering is not locked or memory reconfiguration or the reboot array is not performed after the locking, the version downgrade to the firmware not supporting the Dynamic Tiering function is impossible.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Select [Settings] – [License] of Hitachi Storage Navigator Modular 2 and check that D_TIERING (Dynamic Tiering) is displayed in the column of the license name in the License window.</li> <li>4. Check whether "Status" of the D_TIERING license is "Locked" and "Reconfigure Memory Status" is "Pending" or not. (Refer to <a href="#">System Parameter "Chapter 14. Setting Licenses" (SYSPR 14-0000)</a>.) <ul style="list-style-type: none"> <li>• When "Locked" and "Pending" : Request the customer/SE to memory reconfiguration or the reboot array while the memory reconfiguration has not completed.</li> <li>• When "Locked" but not "Pending" : Since the D_TIERING license is not locked, request the customer/SE to memory reconfiguration after locking the D_TIERING license referring.</li> </ul> <p>Memory reconfiguration method : Select [Settings] – [License] of Hitachi Storage Navigator Modular 2 and click the [Reconfigure Memory] button in the License window.</p> <p>Reboot array method : Select [Array] in the Arrays window of Hitachi Storage Navigator Modular 2 and click the [Reboot Array] button.</p> </li> <li>5. Select [Settings] – [License] of Hitachi Storage Navigator Modular 2 and check that D_TIERING (Dynamic Tiering) is displayed in the column of the license name in the License window.</li> <li>6. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>7. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0930/A or more	Less than 0930/A	Code-08	<p>Since the memory reconfiguration of Dynamic Tiering has not completed (reconfiguring or reconfigure is uncompleted due to a failure), the version downgrade to the firmware not supporting the Dynamic Tiering function is impossible.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Select [Settings] – [License] of Hitachi Storage Navigator Modular 2 and check "Status" of "D_TIERING".</p> <p>4. • When "Status" of "D_TIERING" is "Reconfiguring", wait until the memory reconfiguration is completed.</p> <p>• When "D_TIERING" is being unlocked or set to Enabled/Disabled, "Status" of Dynamic Tiering is changed from "Reconfiguring" to "Normal" at the time of completing the memory reconfiguration.</p> <p>• When "D_TIERING" is being locked, D_TIERING is not displayed in the column of the License name in the license window of [Settings] – [License] of Hitachi Storage Navigator Modular 2 at the time of completing the memory reconfiguration.</p> <p>5. When "Status" of "D_TIERING" is "Failure of Reconfigure Memory", request the customer/SE to perform the maintenance corresponding to the failure factors.</p> <p>6. When "Status" of "D_TIERING" is changed to "Normal", request the customer/SE to lock the priced option of Dynamic Tiering. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</p> <p>7. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>8. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>
		Code-09	<p>Since five or more DBWs are connected, the version downgrade to the firmware whose number of the maximum connected DBWs is four cannot be performed.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Remove the DBWs until the number of the DBWs connected to the array becomes four or less. (Refer to <a href="#">Addition/Removal/Relocation "2.3 Removing Drive Box on Rack Frame" (ADD 02-0130)</a>.)</p> <p>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0935/A or more	Less than 0935/A	Code-0A	<p>Since the priced options of TrueCopy remote replication and True Copy Modular Distributed are unlocked, the version downgrade to the firmware which does not support these functions to be used together is impossible.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Request the customer/SE to delete all TrueCopy pair.</p> <p>4. Request the customer/SE to delete all remote port CHAP secrets.</p> <p>5. Request the customer/SE to delete all remote path.</p> <p>6. Request the customer/SE to lock the True Copy Modular Distributed license key. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</p> <p>7. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>8. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>
		Code-0B	<p>Since two or more cascaded pairs of Copy-on-write SnapShot and TrueCopy remote replication are set, the version downgrade to the firmware which does not support the cascade configuration of Copy-on-write SnapShot-TrueCopy remote replication by multiple pairs is impossible.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Click [Copy] – [SnapShot Information] – [P-VOL Information] of the menu frame in the WEB window (normal mode).</p> <p>4. Select the volume numbers on the top of the [LUN] row of [P-VOL Information] and display the data of [Pair Information]. Record the [LUN] number (Copy-on-write SnapShot V-VOL number) of [SnapShot Image] of the displayed [Pair Information].</p> <p>5. Same as Step ①-4, record all V-VOL numbers of Copy-on-write SnapShot for all volumes in the [LUN] row of [P-VOL Information].</p> <p>6. Click [Copy] – [TrueCopy Pair Information] of the menu frame in the WEB window.</p> <p>7. Search the volumes to match the V-VOL numbers of Copy-on-write SnapShot recorded in Steps ①-4 and ①-5 for the volume numbers displayed in the [LU No] row of [Local Information] of [Pair Information].</p> <p>8. Request the customer/SE to cancel the pairs until the number of pairs becomes one or less for the TrueCopy remote replication pairs configured by the volumes searched in Step ①-7 (this makes the number of cascaded pairs of Copy-on-write SnapShot, V-VOL and TrueCopy remote replication be one or less).</p> <p>9. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>10. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0937/A or more	Less than 0937/A	Code-0C	<p>Since the DP Pool whose Over Provisioning Limit Enforcement function is enabled exists, the version downgrade to the firmware which does not support the Over Provisioning Limit Enforcement function cannot be performed.</p> <ol style="list-style-type: none"> <li>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Press the DP Pools tab in the Volumes window of [Group] – [Volumes] of Hitachi Storage Navigator Nodular 2 and display the DP Pool list.</li> <li>4. Select one DP Pool from [DP Pool] on the DP Pool list and display the DP Pool-xxx window.</li> <li>5. Click the [Notifications] tab in the DP Pool-xxx window.</li> <li>6. Check whether [Limit Enforcement] of [Over Provisioning] is set to "Enabled". <ul style="list-style-type: none"> <li>• When [Limit Enforcement] is set to "Enabled" <ol style="list-style-type: none"> <li>1. Click the [Edit Pool Attribute] button and display the Edit DP Pool Attribute window.</li> <li>2. Uncheck [Limit Enforcement] of [Over Provisioning] and change [Limit Enforcement] to "Disabled".</li> <li>3. Click the [OK] button.</li> </ol> </li> </ul> </li> <li>7. Repeat the steps ①-4 to ①-6 and set [Limit Enforcement] of [Over Provisioning] to "Disabled" for all the DP Pools.</li> <li>8. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>9. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
		Code-0D	<p>Since the DBW is connected, the version downgrade to the firmware which does not support the DBW cannot be performed.</p> <ol style="list-style-type: none"> <li>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Remove all the DBWs connected to the array. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0937/A or more	Less than 0937/A	Code-0E	<p>Since the Drive is installed beyond the 144th drive slot per backend path counting from the Controller Box, the version downgrade to the firmware which does not support to install 240 Drives per backend path cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Count the drive slots in ascending order of the unit numbers of the boxes and the drive slots from the bottom in each box for each backend path and specify the position of the 144th drive slot (the Drive slots of CBSL/CBSS/CBXSL/CBXSS attribute to path #1). (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>4. When a backend path which has the 145th drive slot and later exists, check whether Drives are installed in the 145th drive slot and later. When Drives are installed in the 145th drive slot and later, remove all the Drives. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>5. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
		Code-0F	<p>Since the Drive Box is installed and connected after the Drive Box which has the 144th drive slot per backend path counting from the Controller Box, the version downgrade to the firmware which does not support to install 240 Drives per backend path cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Count the drive slots in ascending order of the unit numbers of the boxes and the drive slots from the bottom in each box for each backend path and specify the position of the 144th drive slot. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>4. Check whether the Drive Boxes are connected after the box which has the 144th drive slot. When the Drive Boxes are connected after the box which has the 144th drive slot, remove all the Drive Boxes. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>5. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0937/A or more	Less than 0937/A	Code-10	<p>Since the priced option of Power Saving Plus is unlocked, the version downgrade to the firmware which does not support the Power Saving Plus function cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Request the customer/SE to lock the license of Power Saving Plus. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
		Code-11	<p>Since the DP volume whose Auto DP Optimize function is enabled exists, the version downgrade to the firmware which does not support the Auto DP Optimize function cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Display the DP Optimization window of [Performance] – [DP Optimization] of Hitachi Storage Navigator Modular 2.</li> <li>4. Select all the DP volumes whose [Status] of [Auto DP Optimize] on the DP Pool volume list is set to "Enabled".</li> <li>5. Click the [Change Attributes] button and display the Change Attributes window.</li> <li>6. Uncheck "Enabled" of [Auto DP Optimize] and click the [OK] button.</li> <li>7. Check that [Status] of [Auto DP Optimize] of all the DP volumes is "Disabled" on the DP Pool volume list in the DP Optimization window.</li> <li>8. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>9. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0937/A or more	Less than 0937/A	Code-12	<p>Since [Command Queue Expansion Mode] of the port option is "Enabled" for the iSCSI port, the version downgrade to the firmware which does not support [Command Queue Expansion Mode] of the port option for the iSCSI port cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Display the Port Options window of [Settings] – [Port Settings] – [Port Options] of Hitachi Storage Navigator Modular 2.</li> <li>4. Check whether [Command Queue Expansion Mode] is set to "Enabled" for the Port whose [Port Type] is "iSCSI" on the Port Options list. <ul style="list-style-type: none"> <li>• When a port whose [Command Queue Expansion Mode] is set to "Enabled" exists <ol style="list-style-type: none"> <li>1. Select the checkbox of the Port, and then click [Edit Port Options] and display the Edit Port Options window.</li> <li>2. Uncheck [Command Queue Expansion Mode] and change [Command Queue Expansion Mode] to "Disabled".</li> <li>3. Click the [OK] button.</li> </ol> </li> </ul> </li> <li>5. Check that [Command Queue Expansion Mode] is set to "Disabled" for all the iSCSI ports on the Port Option list in the Port Options window.</li> <li>6. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>7. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
0940/A or more	Less than 0940/A	Code-13	<p>Unable to downgrade because the flash drive (SSD) whose size exceeds 400 GB is used. The firmware to be applied does not support the flash drive (SSD) whose size exceeds 400 GB.</p> <ol style="list-style-type: none"> <li>① Retry installation with the firmware that supports the Flash Drive (SSD) whose size exceeds 400 GB. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> <li>② Remove all the Flash Drives (SSDs) each of whose sizes exceeds 400 GB. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.) <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Remove all the Flash Drives (SSDs) each of whose sizes exceeds 400 GB. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol> </li> </ol>



Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0940/A or more	Less than 0940/A	Code-14	<p>Unable to downgrade because a volume exists that is reserved by the Persistent Reserve OUT command (Type Code 7h or 8h). The firmware to be applied does not support the Persistent Reserve IN/Persistent Reserve OUT commands (Type Code 7h or 8h).</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Display reserved volumes by using [Maintenance] - [Volume Reservation] in Hitachi Storage Navigator Modular 2.</p> <p>4. Determine the volume whose [Reservation Status] is "Reservation for Persistent Group Reservation". (Refer to <a href="#">Troubleshooting "8.3.10 Setting the Host Reservation Forced Release Function" (TRBL 08-0400)</a>.)</p> <p>Select every volume whose [Reservation Status] is "Reservation for Persistent Group Reservation" and then click [Release Reservation] to change the reserve status to "No Reservation".</p> <p>5. Make sure no volume is displayed whose [Reservation Status] is "Reservation for Persistent Group Reservation".</p> <p>6. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>7. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>
		Code-15	<p>Unable to downgrade because a DP volume exists where the [Disabling Tier Relocation] function is enabled. The firmware to be applied does not support the [Disabling Tier Relocation] function.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Ask the customer/SE to display the DP Tier Management screen by using [Performance] - [DP Tier Management] in Hitachi Storage Navigator Modular 2.</p> <p>4. Ask the customer/SE to select every DP volume whose [Disabling Tier Relocation] is [Enabled] on the [Volumes] tab and then click [Edit Attributes] to display the Edit Attributes screen.</p> <p>5. Ask the customer/SE to clear the [Enable] check box for [Disabling Tier Relocation] and then click [OK].</p> <p>6. Ask the customer/SE to make sure [Disabling Tier Relocation] is "Disabled" in every DP volume.</p> <p>7. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>8. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>



Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0940/A or more	Less than 0940/A	Code-16	<p>Since the priced option of Power Saving Plus is unlocked, the version downgrade to the firmware which does not support the Power Saving Plus function cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Request the customer/SE to lock the license of Power Saving Plus. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
		Code-17	<p>Unable to downgrade because Secure LAN or Port 80 Block is "Enabled". The firmware to be applied does not support Secure LAN.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Check if the Port 80 Block function is enabled in Hitachi Storage Navigator Modular 2. (In the command line, type "aulanportblock -unit (unit_name of the registered array) -refer".) <ul style="list-style-type: none"> <li>• If "Block Port 80 : Enable" is displayed (meaning the Port 80 Block function is enabled), type "aulanportblock -unit (unit_name of the registered array) -set-blockport80 disable" in the command line and then type "y" to the "Are you sure you want to set the LAN port block information? (y/n [n])" question to "Disable" the Port 80 block function.</li> <li>• If "Block Port 80 : Disable" is displayed (meaning the Port 80 Block function is disabled), follow the next step.</li> </ul> </li> <li>4. Check if [Packet Filtering] under [Secure LAN] is [Enabled] by using [Security] - [Secure LAN] in Hitachi Storage Navigator Modular 2. (Refer to <a href="#">System Parameter "7.4 Setting of the secure LAN" (SYSPR 07-0220)</a>.) <ul style="list-style-type: none"> <li>• If [Packet Filtering] is "Enabled"; click [Change Packet Filtering] in the upper-right of the screen to display the [Change Packet Filtering] screen, clear the [Enable] check box for [Packet Filtering], and then click [OK] to change [Packet Filtering] to be "Disabled".</li> <li>• If [Packet Filtering] is "Disabled", follow the next step.</li> </ul> </li> <li>5. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>6. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0945/A or more	Less than 0945/A	Code-18	<p>Since the "Shrink Pool Capacity" function is operating in the DP Pool, the version downgrade to the firmware which does not support the "Shrink Pool Capacity" function is impossible.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Request the customer/SE to display the DP Pool list by clicking the [DP Pool] tab in the volume window under [Group] – [Volume] of Hitachi Storage Navigator Modular 2.</p> <p>4. Check that DP Pools displaying "Shrinking" exist referring to [Status] on the DP Pool list.</p> <p>5. Select one DP Pool number of DP Pools whose [Status] is [Shrinking] from the DP Pool list and display the DP Pool-xxx window.</p> <p>6. Select the [DP RAID Groups] tab and display the DP RAID Group list.</p> <p>7. Check that DP RAID Groups displaying "Shrinking" exist referring to [Status] on the DP RAID Group list.</p> <p>8. Execute the following steps for respective DP RAID Groups displaying "Shrinking".</p> <p>-1 When [Status] of DP RAID Groups is as shown below, select all the relevant DP RAID Groups and click the [Cancel Shrink Pool Capacity] button.</p> <ul style="list-style-type: none"> <li>• In case of "Shrinking(Relocating)"</li> <li>• In case of "Shrinking(Pending)"</li> <li>• In case of "Shrinking(Suspend)"</li> <li>• In case of "Shrinking(Failed)"</li> </ul> <p>1. Select all the checkboxes of the relevant DP RAID Groups from the DP RAID Group list.</p> <p>2. Click the [Cancel Shrink Pool Capacity] button and cancel "Shrink Pool Capacity".</p> <p>-2 When [Status] of DP RAID Groups is as shown below, the "Shrink Pool Capacity" function is operating. Wait until "Shrink Pool Capacity" is completed.</p> <ul style="list-style-type: none"> <li>• In case of "Shrinking(Reconfiguring)"</li> <li>• In case of "Shrinking(Canceling)"</li> </ul> <p>1. When "Shrink Pool Capacity" is completed, "Shrinking" display in the [Status] row of DP RAID Groups disappears.</p> <p>2. Since [Status] of DP RAID Groups is not updated automatically, click the [Refresh Information] button in the upper right of the window to acquire the latest [Status] of the DP RAID Groups.</p> <p>9. Repeat Procedure ①-4 or ①-5 through ①-8 and make the "Shrink Pool Capacity" function not operating for all DP Pools.</p> <p>10. Check that no DP Pool displaying "Shrinking" exists in [Status] on the DP Pool list.</p> <p>11. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>12. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0945/A or more	Less than 0945/A	Code-19	<p>In the following cases, since DP Pools meet the configurations, the version downgrade to the firmware which does not support those configurations is impossible.</p> <ul style="list-style-type: none"> <li>DP Pools meet the following configurations among the DP Pools whose [Tier Mode] is "Disabled" <ul style="list-style-type: none"> <li>DP RAID Groups in different RAID Levels are mixed and created.</li> <li>DP RAID Groups with different Drive Types (SAS, SAS7.2K, SSD) are mixed and created.</li> <li>DP RAID Groups with different RAID Ranges (x of xD+yP) are mixed and created.</li> </ul> </li> <li>DP Pools meet the following configurations among the DP Pools whose [Tier Mode] is "Enabled" <ul style="list-style-type: none"> <li>DP RAID Groups in different RAID Levels are mixed and created in one Tier.</li> <li>DP RAID Groups with different RAID Ranges (x of xD+yP) are mixed and created in one Tier.</li> </ul> </li> </ul> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Request the customer/SE to display the DP Pool list by clicking the [DP Pool] tab in the volume window under [Group] – [Volume] of Hitachi Storage Navigator Modular 2.</p> <p>4. Among the DP Pools whose [Tier Mode] is "Disabled" in the DP Pool list, check whether the DP Pools whose [RAID Level] is "Mixed" or [Drive Type/RPM] is "Mixed" ("SAS/Mixed", "SAS7K/Mixed" and "SSD/Mixed" are outside the target) exist.</p> <ul style="list-style-type: none"> <li>When DP Pools are "Mixed", proceed to Procedure ①-4-1.</li> <li>When no DP Pool is "Mixed", proceed to Procedure ①-5.</li> </ul> <p>1 Check with the customer/SE whether the DP Pool which meets the conditions in Procedure ①-4 is deletable. If it is deletable, select checkboxes of DP Pools to be deleted and click the [Delete Pool] button to delete the DP Pool. Then, return to Procedure ①-4. If it is not deletable, proceed to Procedure ①-4-2.</p> <p>2 Select the relevant DP Pool number and display the DP Pool-xxx window.</p> <p>3 Select the [DP RAID Groups] tab and display the DP RAID Group list.</p> <p>4 Check that DP RAID Groups with different [Drive Type/RPM] (SAS, SAS7K, SSD) or [RAID Level] (RAID Level of RAID Range &lt;x of xD+yP&gt;) are mixed.</p> <p>5 Inform the customer/SE of the fact that "DP RAID Groups whose [Drive Type] and [RAID Level] are the same can only remain in this DP Pool". Therefore, request the customer/SE to select DP RAID Groups to execute "Shrink Pool Capacity" (Delete).</p> <p>6 Select all the checkboxes of the DP RAID Groups to execute "Shrink Pool Capacity" and click the [Shrink Pool Capacity] button to execute it.</p> <p>7 Execute Procedures ①-4-1 through ①-4-6 for all the DP Pools meeting the conditions of ①-4. After the completion, proceed to Procedure ①-5.</p> <p>To be continued to the next page.</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
			<p>5. Among the DP Pools whose [Tier Mode] is "Enabled" in the DP Pool list, check whether the DP Pools whose [RAID Level] is "Mixed" exist.</p> <ul style="list-style-type: none"> <li>• When DP Pools are "Mixed", proceed to Procedure ①-5-1.</li> <li>• When no DP Pool is "Mixed", proceed to Procedure ①-6.</li> </ul> <p>①-1 Check with the customer/SE whether the DP Pool which meets the conditions in Procedure ①-5 is deletable. If it is deletable, select checkboxes of DP Pools to be deleted and click the [Delete Pool] button to delete the DP Pool. Then, return to Procedure ①-5. If it is not deletable, proceed to Procedure ①-5-2.</p> <p>①-2 Select the relevant DP Pool number and display the DP Pool-xxx window.</p> <p>①-3 Select the [DP RAID Groups] tab and display the DP RAID Group list.</p> <p>①-4 Check for all the DP RAID Groups whose [Tier] is "1st Tier" whether the DP RAID Groups with different [RAID Level] (RAID Level of RAID Range &lt;x of xD+yP&gt;) are mixed.</p> <ul style="list-style-type: none"> <li>• If mixed, proceed to Procedure ①-5-5.</li> <li>• If not mixed, proceed to Procedure ①-5-6.</li> </ul> <p>①-5 Inform the customer/SE of the fact that "DP RAID Groups whose [RAID Level] is the same can only remain in this DP Pool" among the DP RAID Groups whose [Tier] is "1st Tier". Therefore, request the customer/SE to select DP RAID Groups to execute "Shrink Pool Capacity" (Delete) among the DP RAID Groups whose [Tier] is "1st Tier".</p> <p>①-6 Check for all the DP RAID Groups whose [Tier] is "2nd Tier" whether the DP RAID Groups with different [RAID Level] (RAID Level of RAID Range &lt;x of xD+yP&gt;) are mixed.</p> <ul style="list-style-type: none"> <li>• If mixed, proceed to Procedure ①-5-7.</li> <li>• If not mixed, proceed to Procedure ①-5-8.</li> </ul> <p>①-7 Inform the customer/SE of the fact that "DP RAID Groups whose [RAID Level] is the same can only remain in this DP Pool" among the DP RAID Groups whose [Tier] is "2nd Tier". Therefore, request the customer/SE to select DP RAID Groups to execute "Shrink Pool Capacity" (Delete) among the DP RAID Groups whose [Tier] is "2nd Tier".</p> <p>①-8 Check for all the DP RAID Groups whose [Tier] is "3rd Tier" whether the DP RAID Groups with different [RAID Level] (RAID Level of RAID Range &lt;x of xD+yP&gt;) are mixed.</p> <ul style="list-style-type: none"> <li>• If mixed, proceed to Procedure ①-5-9.</li> <li>• If not mixed, proceed to Procedure ①-5-10.</li> </ul> <p>①-9 Inform the customer/SE of the fact that "DP RAID Groups whose [RAID Level] is the same can only remain in this DP Pool" among the DP RAID Groups whose [Tier] is "3rd Tier". Therefore, request the customer/SE to select DP RAID Groups to execute "Shrink Pool Capacity" (Delete) among the DP RAID Groups whose [Tier] is "3rd Tier".</p> <p>①-10 According to Procedures ①-5-5, ①-5-7 and ①-5-9, select all the checkboxes of the DP RAID Groups to execute "Shrink Pool Capacity" and click the [Shrink Pool Capacity] button to execute it.</p> <p>①-11 Execute Procedures ①-5-1 through ①-5-10 for all the DP Pools meeting the conditions of ①-5. After the completion, proceed to Procedure ①-5.</p>

To be continued to the next page.

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
			<p>6. Check whether the DP Pools whose [Status] is "Shrinking" exist in the DP Pool list.</p> <ul style="list-style-type: none"> <li>• If "Shrinking", wait until "Shrinking" disappears from [Status] for all the DP Pools.</li> </ul> <p>However, Since [Status] of DP RAID Groups is not updated automatically, click the [Refresh Information] button in the upper right of the window to acquire the latest [Status] of the DP RAID Groups.</p> <ul style="list-style-type: none"> <li>• When "Shrinking (Failed (Code-??))" is displayed in [Status], perform the maintenance in accordance with the recovery procedure in the message "IAIU00 DP Pool Shrinking failed (DP Pool-x, DP RG-y, Code-zz)".</li> <li>• When no DP Pool whose [Status] is "Shrinking" exists, proceed to Procedure ①-7.</li> </ul> <p>7. Check whether the DP Pools whose [RAID Level] is "Mixed" exist in the DP Pool list.</p> <ul style="list-style-type: none"> <li>• When DP Pools are "Mixed", proceed to Procedure ①-4.</li> <li>• When no DP Pool is "Mixed", proceed to Procedure ①-8.</li> </ul> <p>8. Check whether the DP Pools whose [Drive Type/RPM] is "Mixed" exist in the DP Pool list.</p> <ul style="list-style-type: none"> <li>• When DP Pools are "Mixed", proceed to Procedure ①-4.</li> <li>• When no DP Pool is "Mixed", proceed to Procedure ①-9.</li> </ul> <p>9. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000).</a>)</p> <p>10. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270).</a>)</p>
0940/A or more	Less than 0940/A	Code-1A	<p>Unable to downgrade because a DC Power Supply Model is used. The firmware to be applied does not support a DC power supply.</p> <p>① Retry update installation with the firmware that supports a DC Power Supply Model. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270).</a>)</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0950/A or more	Less than 0950/A	Code-1B	<p>Since DBWs and Drive Boxes other than DBWs are connected together, the version cannot be downgraded to the firmware which does not support the mixed configuration of the DBWs and the Drive Boxes other than DBWs.</p> <p>① Check whether the fact "Drive boxes other than DBWs and DBWs are connected together" meets the customer's expectations on the device configuration. If the customer's expectations are met, execute update installation of the version firmware which supports the fact "Drive boxes other than DBWs and DBWs are connected together". (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.) If the customer's expectations are not met, proceed to Step ②.</p> <p>② 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. • If the Drive Box should be configured by DBWs as the customer's device configuration, remove all the Drive Boxes other than DBWs. (Refer to <a href="#">Addition/Removal/ Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</p> <p>• If the Drive Box should be configured by Drive Boxes other than DBWs as the customer's device configuration, remove all DBWs. (Refer to <a href="#">Addition/Removal/ Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</p> <p>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>
—	—	Code-1C	Not used

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0950/A or more	Less than 0950/A	Code-1D	<p>Since the Drive I/O Module (encryption) is installed, the version cannot be downgraded to the firmware which does not support the Drive I/O Module (encryption).</p> <p>① Since the Drive I/O Module (encryption) is installed in the array, perform the update installation of the firmware which supports the Drive I/O Module (encryption).</p> <p>② When replacing the Drive I/O Module (encryption) to a Drive I/O Module and performing the update installation of the firmware which does not support the Drive I/O Module (encryption), execute the following procedure ②-1.</p> <ol style="list-style-type: none"> <li>Click [Go to Normal Mode] in the menu frame in the WEB window to start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>Check that the array becomes Ready.</li> <li>Request the customer/SE to check whether the volume displayed as "Enabled" exists in the [Encryption] column on the "Volume" tab from [Groups] – [Volumes] of Hitachi Storage Navigator Modular 2. The encryption data of the volume whose [Encryption] is "Enabled" cannot be decrypted by downgrading the firmware version. When a volume whose [Encryption] is "Enabled" is created, request the customer/SE to back up the data as needed.</li> <li>Request the customer/SE to lock the Data At Rest Encryption license referring to the "Data At Rest Encryption User's Guide". (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> <li>Perform the sequential shutdown of the array. (Refer to <a href="#">Installation "1.5.2 Array Power Off (sequential shutdown)" (INST 01-0260)</a>.)</li> <li>When the sequential shutdown is completed, change all the Drive I/O Modules from the Drive I/O Modules (encryption) to the Drive I/O Modules (Refer to <a href="#">Replacement "2.2.9 Replacing a Drive I/O Module" (REP 02-1320)</a>.)</li> <li>Start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>Check that the array becomes Ready.</li> <li>Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> <li>Request the customer/SE to restore the backup data as needed.</li> </ol>
		Code-1E	<p>Since the Drive of 4T-byte capacity is installed, the version cannot be downgraded to the firmware which does not support the Drive of 4T-byte capacity.</p> <p>① Obtain the firmware which supports the Drive of 4T-byte capacity and install it from the beginning again.</p> <p>② When removing all the installed Drives of 4T-byte capacity and performing update installation of the firmware to be downgraded, execute the following work.</p> <ol style="list-style-type: none"> <li>Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>Check that the array becomes Ready.</li> <li>Remove all the installed Drives of 4T-byte capacity. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>



Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0950/A or more	Less than 0950/A	Code-1F	<p>Since the memory reconfiguration is not completed in the array by the Change DP Capacity Mode (reconfiguring or reconfiguration is incomplete due to a failure), the version cannot be downgraded to the firmware which does not support the DP Capacity Mode.</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Request the customer/SE whether "D_PROVISIONING" (Dynamic Provisioning) is displayed in the [License Name] column by clicking [Settings] – [License] of Hitachi Storage Navigator Modular 2. When "D_PROVISIONING" is not displayed in the [License Name] column, go to Step ①-9.</p> <p>4. When "Reconfigure Memory Status" of the "D_PROVISIONING" license is "Reconfiguring" (memory is reconfiguring), wait until the memory reconfiguration is completed.</p> <ul style="list-style-type: none"> <li>When the "D_PROVISIONING" license is unlocked or set to Enabled/Disabled, "Reconfigure Memory Status" of "D_PROVISIONING" changes from "Reconfiguring" to "Normal".</li> <li>When "D_PROVISIONING" is locked, "D_PROVISIONING" is not displayed in the [License Name] column in the license window under [Settings] – [License] of Hitachi Storage Navigator Modular 2 at the completion of the memory reconfiguration.</li> </ul> <p>5. When [Reconfigure Memory Status] of "D_PROVISIONING" is "Failed", refer to "Dynamic Provisioning User's Guide" and perform the maintenance corresponding to the failure factors.</p> <p>6. Select [Performance] – [DP Optimization] of Hitachi Storage Navigator Modular 2 and check "Reconfigure Memory Status" of [DP Capacity Mode]. When [DP Optimization] is not displayed, go to Step ①-9.</p> <p>7. When "Reconfigure Memory Status" of [DP Capacity Mode] is "Reconfiguring", wait until the memory reconfiguration is completed. After completing the memory reconfiguration, "Reconfigure Memory Status" of [DP Capacity Mode] changes from "Reconfiguring" to "Normal".</p> <p>8. When "Reconfigure Memory Status" of [DP Capacity Mode] is "Failed", refer to "Dynamic Provisioning User's Guide" and perform the maintenance corresponding to the failure factors.</p> <p>9. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>10. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>



Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0950/A or more	Less than 0950/A	Code-20	<p>Since "User Setting" of [DP Capacity Mode] is set to "Maximum Capacity" or "User Setting" is not reflected in "Current" after changing from "Maximum Capacity" to "Regular Capacity", the version cannot be downgraded to the firmware which does not support the "Maximum Capacity" setting of [DP Capacity Mode].</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Request the customer/SE to click [Performance] – [DP Optimization] of Hitachi Storage Navigator Modular 2.</p> <p>4. Request the customer/SE to check the display of "Current" and "User Setting" of [DP Capacity Mode].</p> <ul style="list-style-type: none"> <li>• When "Current" and "User Setting" of [DP Capacity Mode] is "Maximum Capacity"           <ol style="list-style-type: none"> <li>1 Click the [Change DP Capacity Mode] button on the upper right of the DP Optimization window.</li> <li>2 Check the radio button of [Regular Capacity] in the Change DP Capacity Mode window and click [OK]</li> <li>3 Click [Reconfigure Memory] or [Reboot Array].</li> <li>4 When executing [Reconfigure Memory], wait until "Reconfigure Memory Status" of [DP Capacity Mode] in the DP Optimization window is displayed as "Normal". (Since the window is not updated automatically, click the [Update Information] button on the upper right of the DP Optimization window for acquiring the most recent status.)</li> </ol> </li> <li>• When "Current" of [DP Capacity Mode] is "Maximum Capacity" and "User Setting" is "Regular Capacity"           <ol style="list-style-type: none"> <li>1 Click the [Reconfigure Memory] button on the upper right of the DP Optimization window.</li> <li>2 Wait until "Reconfigure Memory Status" of [DP Capacity Mode] is displayed as "Normal". (Since the window is not updated automatically, click the [Update Information] button on the upper right of the DP Optimization window for acquiring the most recent status.)</li> </ol> </li> <li>• When "Current" of [DP Capacity Mode] is "Regular Capacity" and "User Setting" is "Maximum Capacity"           <ol style="list-style-type: none"> <li>1 Click the [Change DP Capacity Mode] button on the upper right of the DP Optimization window.</li> <li>2 Check the radio button of [Regular Capacity] in the Change DP Capacity Mode window and click [OK].</li> </ol> </li> </ul> <p>5. Request the customer/SE to click [Performance] – [DP Optimization] of Hitachi Storage Navigator Modular 2.</p> <p>6. Request the customer/SE to check that "Current" and "User Setting" of [DP Capacity Mode] are "Regular Capacity".</p> <p>7. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>8. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0955/A or more	Less than 0955/A	Code-21	<p>Since the priced option of Tray Power Saving is unlocked, the version downgrade to the firmware which does not support the Tray Power Saving function cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Request the customer/SE to lock the license of Tray Power Saving. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
		Code-22	<p>Since the DBF is connected, the version downgrade to the firmware which does not support the DBF cannot be performed.</p> <ol style="list-style-type: none"> <li>① 1. Check whether "A DBF must be connected to the array" meets the customer's expectation on the array configuration.</li> <li>2. <ul style="list-style-type: none"> <li>• When connecting a DBF is reasonable, perform the update installation of the firmware whose version supports the DBF. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> <li>• When a DBF is connected as a Drive Box of Unit#0, perform the update installation of the firmware whose version support the DBF. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ul> </li> <li>3. If the customer's array cannot connect a DBF even though a DBF is connected as a Drive Box other than Unit #0 at this time, proceed to Step ②.</li> <li>② 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Remove all the DBFs connected to the array. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0970/A or more	Less than 0970/A	Code-23	<p>Unable to downgrade because the SAS Drive whose size exceeds 1.2 TB is used. The firmware to be applied does not support the SAS Drive whose size exceeds 1.2 TB.</p> <p>① Retry installation with the firmware that supports the SAS Drive whose size exceeds 1.2 TB. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p> <p>② Remove all the SAS Drive each of whose sizes exceeds 1.2 TB. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</p> <p>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Remove all the SAS Drive each of whose sizes exceeds 1.2 TB. (Refer to <a href="#">Addition/Removal/Relocation "Chapter 2. Removing Optional Components" (ADD 02-0000)</a>.)</p> <p>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>
		Code-24	<p>Since the capacity reduction of the DP Pool to which the DMLU belongs is in execution, the version downgrade to the firmware which does not support "Capacity reduction of DP Pool capacity to which DMLU belongs".</p> <p>① 1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</p> <p>2. Check that the array becomes Ready.</p> <p>3. Check [Replication] – [Setup] – [DMLU] of Hitachi Storage Navigator Modular 2. (Refer to <a href="#">System Parameter "15.2 Setting DMLU" (SYSPR 15-0020)</a>.)</p> <p>4. Refer to [DP Pools] in the DMLU window and check the DP Pool # to which the DMLU belongs.</p> <p>5. Click [Groups] – [Volumes] of Hitachi Storage Navigator Modular 2.</p> <p>6. Select [DP Pools] tab in the volume window.</p> <p>7. Request the customer/SE to wait until the capacity reduction is completed (display of Shrinking disappears) when "Executing capacity reduction (Shrinking)" is displayed in [Status] in the volume window for the DP Pool with the DP Pool # checked at Step ①-4 (Click the [Refresh Information] button to acquire the most recent status of the capacity reduction progress).</p> <p>8. When "Shrinking(Failed(Code-nn))" is displayed in [Status] in the volume window for the DP Pool with the DP Pool # confirmed in Step ①-4, request the customer/SE to finally complete the DP Pool capacity reduction by performing the recovery procedure of "Code-nn" displayed in [Status] referring to the "Dynamic Provisioning User's Guide".</p> <p>9. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</p> <p>10. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</p>

Firmware of the Controller	Firmware to be downloaded	Factor code	Restrictions of the Firmware to be downloaded
			Actions to be taken
0970/A or more	Less than 0970/A	Code-25	<p>Since the priced option of Data At Rest Encryption, the version downgrade to the firmware which does not support the Data At Rest Encryption function cannot be performed.</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Request the customer/SE to lock the license of Data At Rest Encryption. (Refer to <a href="#">System Parameter "14.2 Procedure for Locking the License of Priced Option" (SYSPR 14-0020)</a>.)</li> <li>4. Change it to the maintenance mode. (Refer to <a href="#">WEB "Chapter 3. The Maintenance Mode Operation Procedure" (WEB 03-0000)</a>.)</li> <li>5. Perform the update installation of the firmware again to downgrade the version of the firmware. (Refer to <a href="#">WEB "3.3.1 Microprogram" (WEB 03-0270)</a>.)</li> </ol>
0977/A or more	Less than 0977/A	Code-26	<p>The version downgrade to the firmware which does not support the function to generate an encryption key in the Key Management Server (KMS) is impossible because the Data At Rest Encryption function of the priced option specifies "Key Management Server" as "Encryption Keys Generated on".</p> <ol style="list-style-type: none"> <li>1. Click [Go to Normal Mode] of the menu frame in the WEB window, and start the array. (Refer to <a href="#">Installation "1.5.1 Array Power On" (INST 01-0230)</a>.)</li> <li>2. Check that the array becomes Ready.</li> <li>3. Wait until the service PC displays the [Arrays] window of Hitachi Storage Navigator Modular 2 and [Status] of the target array changes to "Waiting for KMS's key import" or "Ready" (since the window is not updated automatically, click the [Refresh Information] button at the upper right of the [Encryption Environment] window to acquire the most recent status).</li> <li>4. Actions to be taken differ depending on if [Status] of the target array is "Waiting for KMS's key import" or changes to "Ready". Perform the following procedure. <ul style="list-style-type: none"> <li>• When [Status] changed to "Waiting for KMS's key import". <ol style="list-style-type: none"> <li>1 Check the checkbox of the target array in the [Arrays] window of Hitachi Storage Navigator Modular 2.</li> <li>2 Request the customer/SE to click the [Import Key from Key Management Server] button (it is necessary to import the encryption key information from the Key Management Server at the time of starting the array).</li> <li>3 Importing a key from the Key Management Server starts. After a while, check that the message "The key has been imported from Key Management Server." is displayed.</li> <li>4 Check that the array becomes Ready.</li> </ol> </li> <li>• When [Status] changed to "Ready". <ol style="list-style-type: none"> <li>1 Check that the array becomes Ready.</li> </ol> </li> </ul> </li> </ol>

## 1.8 Adaptable Firmware Revision

Check the firmware revision adapted to the type name referring to [Table 1.8.1](#).

**Table 1.8.1 Adaptable Firmware Revision**

- : No limits N/A : Unsupported

Part name	Type name	Model name			
		HUS110	HUS130	HUS150	HUS150 (DBW connection)
		Initial revision : 0915/B-W	Initial revision : 0915/B-S	Initial revision : 0915/B-H	Initial revision : 0920/B-D
Controller Box	DF850-CBXSL	-	N/A	N/A	N/A
	DF850-CBXSS	-	N/A	N/A	N/A
	DF850-CBSL	N/A	-	N/A	N/A
	DF850-CBSS	N/A	-	N/A	N/A
	DF850-CBL	N/A	N/A	-	-
	DF850-CBLD	N/A	N/A	0940/A-H	-
Drive Box	DF-F850-DBL	-	-	-	N/A
	DF-F850-DBLD	N/A	N/A	0940/A-H	-
	DF-F850-DBS	-	-	-	N/A
	DF-F850-DBSD	N/A	N/A	0940/A-H	-
	DF-F850-DBX	N/A	-	-	N/A
	DF-F850-DBF	-	-	0955/A-H	N/A
	DF-F850-DBW	N/A	0937/A-S	N/A	-
SAS Drive	DF-F850-3HGSS	-	-	-	N/A
	DF-F850-3HGSSH	0917/A-W	0917/A-S	0917/A-H	N/A
	DF-F850-6HGSS	-	-	-	N/A
	DF-F850-9HGSS	-	-	-	N/A
	DF-F850-3HGSLH	0970/A-W	0970/A-S	0970/A-H	N/A
	DF-F850-9HGSL	0970/A-W	0970/A-S	0970/A-H	N/A
	DF-F850-12HGSS	0970/A-W	0970/A-S	0970/A-H	N/A
SAS7.2K Drive	DF-F850-2TNL	-	-	-	N/A
	DF-F850-2TNX	N/A	-	-	N/A
	DF-F850-3TNL	-	-	-	N/A
	DF-F850-3TNX	N/A	-	-	N/A
	DF-F850-3TNW	N/A	0937/A-S	N/A	-
	DF-F850-4TNL	0950/A-W	0950/A-S	0950/A-H	N/A
	DF-F850-4TNX	N/A	0950/A-S	0950/A-H	N/A
	DF-F850-4TNW	N/A	0955/A-S	N/A	-
Flash Drive	DF-F850-2HGDM	0916/A-W	0916/A-S	0916/A-H	N/A
	DF-F850-4HGDM	0916/A-W	0916/A-S	0916/A-H	N/A
	DF-F850-8HGDM	0940/A-W	0940/A-S	0940/A-H	N/A
	DF-F850-2HGDML	0950/A-W	0950/A-S	0950/A-H	N/A
	DF-F850-4HGDML	0950/A-W	0950/A-S	0950/A-H	N/A
	DF-F850-8HGDML	0950/A-W	0950/A-S	0950/A-H	N/A
	DKC-F170I-1R6FM	-	-	0955/A-H	N/A
Cache Memory	DF-F850-CMM4	-	-	N/A	N/A
	DF-F850-CMM8	N/A	0930/A-S	N/A	N/A
	DF-F850-4GB	N/A	N/A	-	-
	DF-F850-8GB	N/A	N/A	-	-

- : No limits N/A : Unsupported

Part name	Type name	Model name			
		HUS110	HUS130	HUS150	HUS150 (DBW connection)
		Initial revision : 0915/B-W	Initial revision : 0915/B-S	Initial revision : 0915/B-H	Initial revision : 0920/B-D
Host I/O Module	DF-F850-HF8G	N/A	N/A	-	-
	DF-F850-HS10G	N/A	N/A	-	-
Host I/O Board	DF-F850-HBF84	N/A	-	N/A	N/A
	DF-F850-HBS102	-	-	N/A	N/A
	DF-F850-HBS12	-	0917/A-S	N/A	N/A
Controller	DF-F850-CTLL	N/A	N/A	-	-
	DF-F850-CTLS	N/A	-	N/A	N/A
	DF-F850-CTLXS	-	N/A	N/A	N/A
Basic Operating System for Modular	P-002D-J500	-	-	-	-
Hitachi Storage Navigator Modular 2	P-002D-J501	-	-	-	-
Password Protection	P-002D-J502	-	-	-	-
SNMP Agent Support Function	P-002D-J503	-	-	-	-
Cache Residency Manager	P-002D-J505	-	-	-	-
Performance Monitor	P-002D-J506	-	-	-	-
Cache Partition Manager	P-002D-J507	-	-	-	-
LUN Manager	P-002D-J508	N/A	N/A	-	-
	P-002D-J508W	-	-	N/A	N/A
Data Retention Utility	P-002D-J509	N/A	N/A	-	-
	P-002D-J509W	-	-	N/A	N/A
Copy-on-write SnapShot	P-002D-J510	N/A	N/A	-	-
	P-002D-J510W	-	-	N/A	N/A
ShadowImage in-system replication	P-002D-J511	N/A	N/A	-	-
	P-002D-J511W	-	-	N/A	N/A
TrueCopy remote replication	P-002D-J512	N/A	N/A	-	-
	P-002D-J512W	-	-	N/A	N/A
In-System Replication Bundle	P-002D-J513	N/A	N/A	-	-
	P-002D-J513W	-	-	N/A	N/A
TrueCopy Extended Distance	P-002D-J515	N/A	N/A	0916/A-H	-
	P-002D-J515W	0916/A-W	0916/A-S	N/A	N/A
TrueCopy remote replication with Modular Distributed	P-002D-J515M	N/A	N/A	0917/A-H	-
	P-002D-J515MW	0917/A-W	0917/A-S	N/A	N/A
Modular Volume Migration	P-002D-J516	N/A	N/A	-	-
	P-002D-J516W	-	-	N/A	N/A
Account Authentication	P-002D-J517	-	-	-	-
Audit Logging	P-002D-J518	-	-	-	-
Power Saving	P-002D-J519	-	-	-	-
Power Saving Plus	P-002D-J530	N/A	N/A	N/A	0940/A-D
Upgrade TrueCopy remote replication with Modular Distributed	P-002D-J522	0917/A-W	0917/A-S	0917/A-H	-
	P-002D-J522N	0935/A-W	0935/A-S	0935/A-H	0935/A-D
Dynamic Provisioning	P-002D-J523	N/A	N/A	-	-
	P-002D-J523W	-	-	N/A	N/A

- : No limits N/A : Unsupported

Part name	Type name	Model name			
		HUS110	HUS130	HUS150	HUS150 (DBW connection)
		Initial revision : 0915/B-W	Initial revision : 0915/B-S	Initial revision : 0915/B-H	Initial revision : 0920/B-D
Dynamic Tiering	P-002D-J528	N/A	N/A	0930/A-H	0930/A-H
	P-002D-J528W	0930/A-W	0930/A-S	N/A	N/A
Fibre Channel Option	P-002D-J529	-	N/A	N/A	N/A
TrueCopy remote replication with Modular Distributed (Sync)	P-002D-J512N	N/A	N/A	0935/A-H	0935/A-D
	P-002D-J512NW	0935/A-W	0935/A-S	N/A	N/A

## Chapter 2. Procedure for Recovery from a Failure

### 2.1 Procedure for Recovery from a Failure during Installation

Identify a factor of the failure based on the statuses of the LEDs and follow the recovery procedure concerned.

<Failure which causes system down>

- LED status

WARNING LED	ALARM LED	Recovery procedure
Blinking	On	Connect the WEB and recover from the failure following the recovery procedure against each on the Information Message. For the details, refer to <a href="#">Troubleshooting "Chapter 4. Trouble Analysis by WEB Connection" (TRBL 04-0000)</a> .

- Details of WEB error logs (Refer to [Message "Chapter 5. Flash Detected Messages" \(MSG 05-0000\)](#) for the detail of content or recovery methods.)

Message code	Message text	Recovery procedure
RB0000	Upload system error	The configuration of the directory from which the firmware is installed on the client PC is incorrect.
RB0100	File remove error	The file in the RAM disk on the device cannot be deleted.
RB0A00	Upload file SUM check error	An error was detected in the file by SUM check.
RB3100	File open error	The file in the RAM disk on the device cannot be opened.
RB3200	File read error	The file in the RAM disk on the device cannot be read.
RB3500	Bad block ID	The block ID is illegal.
RB7000	Program size too large	The program size is too large for the storage capacity.
RB8100	Install failed	The writing to all the system drives failed.
RB8300	Empty system retry full install	The updating installation cannot be done because the firmware is not installed.
RBA000	A check error of firmware downgrading [Parameter "Down Grade Check" is not enabled.]	Although the version downgrade of the firmware was attempted, the update installation terminated abnormally because Down Grade Check was not Disable.
RBC000	No drive available	The access to all the system drives is disabled.
RBC10x	Drive block size error (Unit-0, HDU-x)	The value of the block size of the capacity data reported from the Drive was other than the specified value.
RBC20x	Unknown drive (Unit-0, HDU-x)	The value of the logical block address of the capacity data reported from the Drive was equal to or less than the size of the system area.



<Install partially complete (The installation of some of the Drives failed.)>

- LED status

WARNING LED	ALARM LED	Recovery procedure
Off	Off	Connect the WEB and recover from the failure following the recovery procedure against each on the Information Message. For the details, refer to <a href="#">Troubleshooting "Chapter 4. Trouble Analysis by WEB Connection" (TRBL 04-0000)</a> . It may be a Drive failure. For the details, refer to <a href="#">"Chapter 3. Procedure for Isolating Cause of Drive Failure when "Install partially complete" Message is Output" (FIRM 03-0000)</a> .

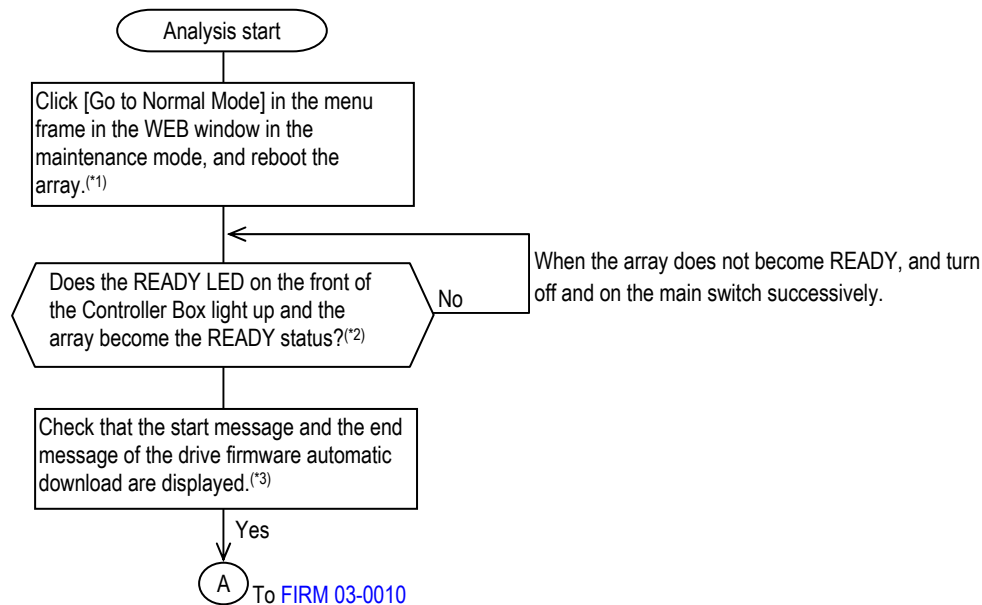
- Details of WEB error logs

Message code	Message text	Recovery procedure
RB8200	Install partially complete	The installation of some of the Drives failed.

## Chapter 3. Procedure for Isolating Cause of Drive Failure when “Install partially complete” Message is Output

The “Install partially complete” message is displayed in the WEB window when the array detected either of the following statuses. Also, the “Install partially complete” status can be checked in the LED status. When this message code is displayed on WEB, there may be a Drive failure. Therefore, analyze it in the following procedure, and take a necessary action.

- When the firmware was installed in the maintenance mode, none of Drives were not installed in the Drives #0 to #4 of the CBXSL/CBXSS/CBSL/CBSS, or the Drives #0 to #4 of the DBL/DBS/DBF/DBW or the Drives #A0 to #A4 of the DBX corresponding to the unit ID#0 connected to the CBL (system drives).
- When the firmware was installed in the maintenance mode, any of the Drives #0 to #4 of the CBXSL/CBXSS/CBSL/CBSS, or the Drives #0 to #4 of the DBL/DBS/DBF/DBW or the Drives #A0 to #A4 of the DBX corresponding to the unit ID#0 connected to the CBL (system drives) failed in the write of the firmware.

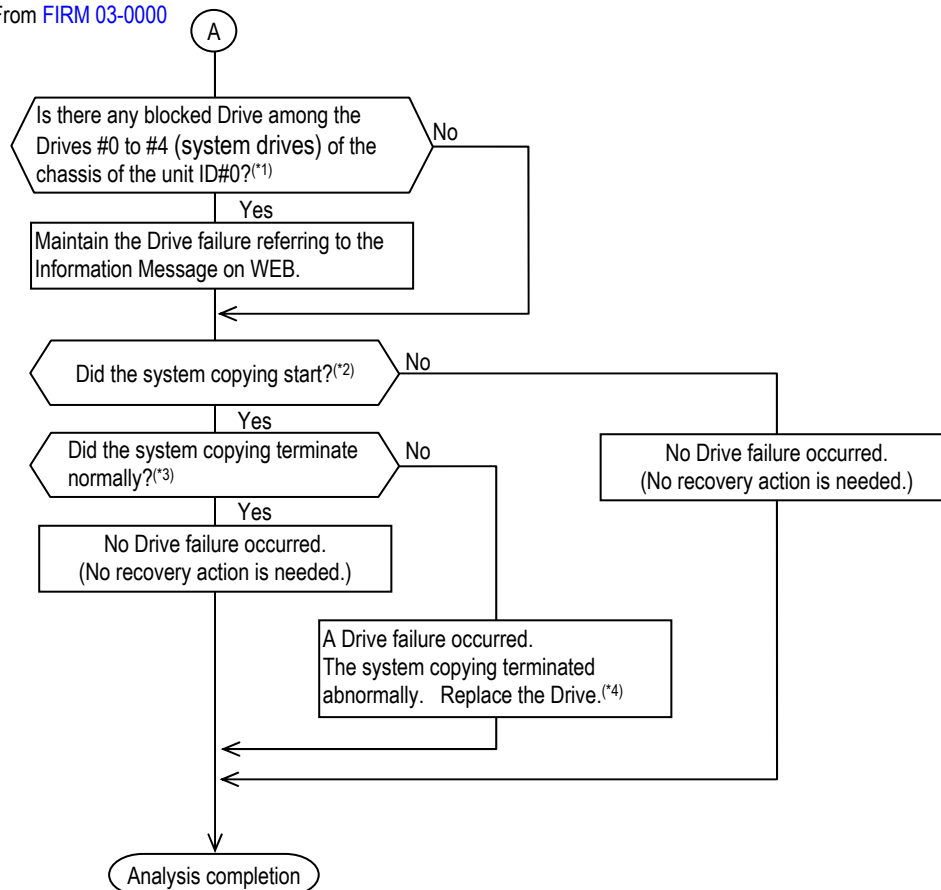


\*1 : In the array where the Power Saving/Power Saving Plus of the priced option is used, when RAID group whose power saving status is “Normal (command monitoring)” exists, do not change to the Maintenance Mode. Change to the Maintenance Mode after completing the spin-down, or have the user perform the spin-down or spin-up instruction, and then change to the Maintenance Mode after there is no RAID group whose power saving status is “Normal (command monitoring)”.

\*2 : Wait if the READY LED (green) on the front of the Controller Box is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the CBL (80 to 180 minutes when the DBW is connected to the CBL)), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).

\*3 : When the drive firmware version of the Drive is new, the start message and completion message of the drive firmware automatic download are not displayed. To check the drive firmware automatic download, refer to [Firmware “1.6 \(4\) Checking the start message and end message of the automatic download \(FIRM 01-1620\)”](#).

From FIRM 03-0000



\*1 : The ALM LED (red) on the Drive lights up, and any of the following messages is displayed in the Information Message on WEB.

- HDU alarm message ..... "W09zab HDU alarm"
- Spare HDU alarm message ... "W0Bzab Spare HDU alarm"

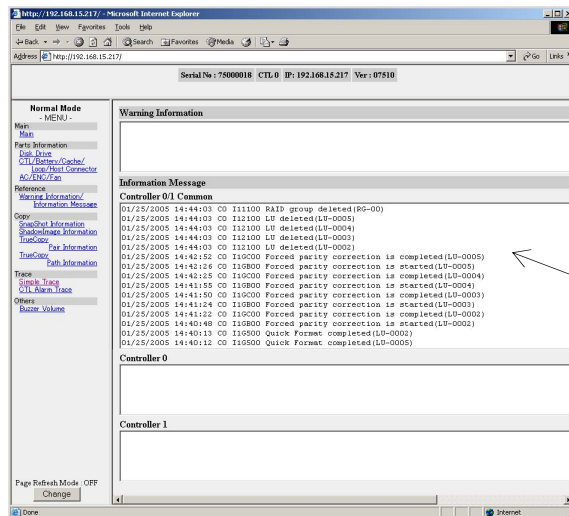
\*2 : Refer to "3.1 Procedure for Checking whether System Copy Operation Occurred" (FIRM 03-0020).

\*3 : Refer to "3.2 Procedure for Checking the Status of System Copy Complete" (FIRM 03-0030).

\*4 : For the replacement of the Drive, refer to the Replacement "2.2.1 Replacing a Drive" (REP 02-0050).

### 3.1 Procedure for Checking whether System Copy Operation Occurred

You can verify whether the system copy operation has occurred by viewing the “Information Message” window in the WEB window.



- When the occurred of system copy

MM/DD/YYYY hh:mm:ss xy I14000 System copy started (Unit-x, HDU-y)

Date      Time      x : Detect Controller #      y : Detect Core #      x : Unit ID #, y : Drive #

- When the not occurred of system copy

The message above is not displayed but a message “I10000 Array is ready [The firmware version \*\*\*\*\*]” is displayed.

