Firmware

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 subsystem.

Firmware version format is shown.

08xx/y

08: AMS 2000 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 Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), 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 subsystem 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(‡1)
- LAN cross cable
- CD-ROM for firmware installation

‡1 : The service PC must have a CD-ROM drive for the firmware installation. If the Maintenance PC has no CD-ROM 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).

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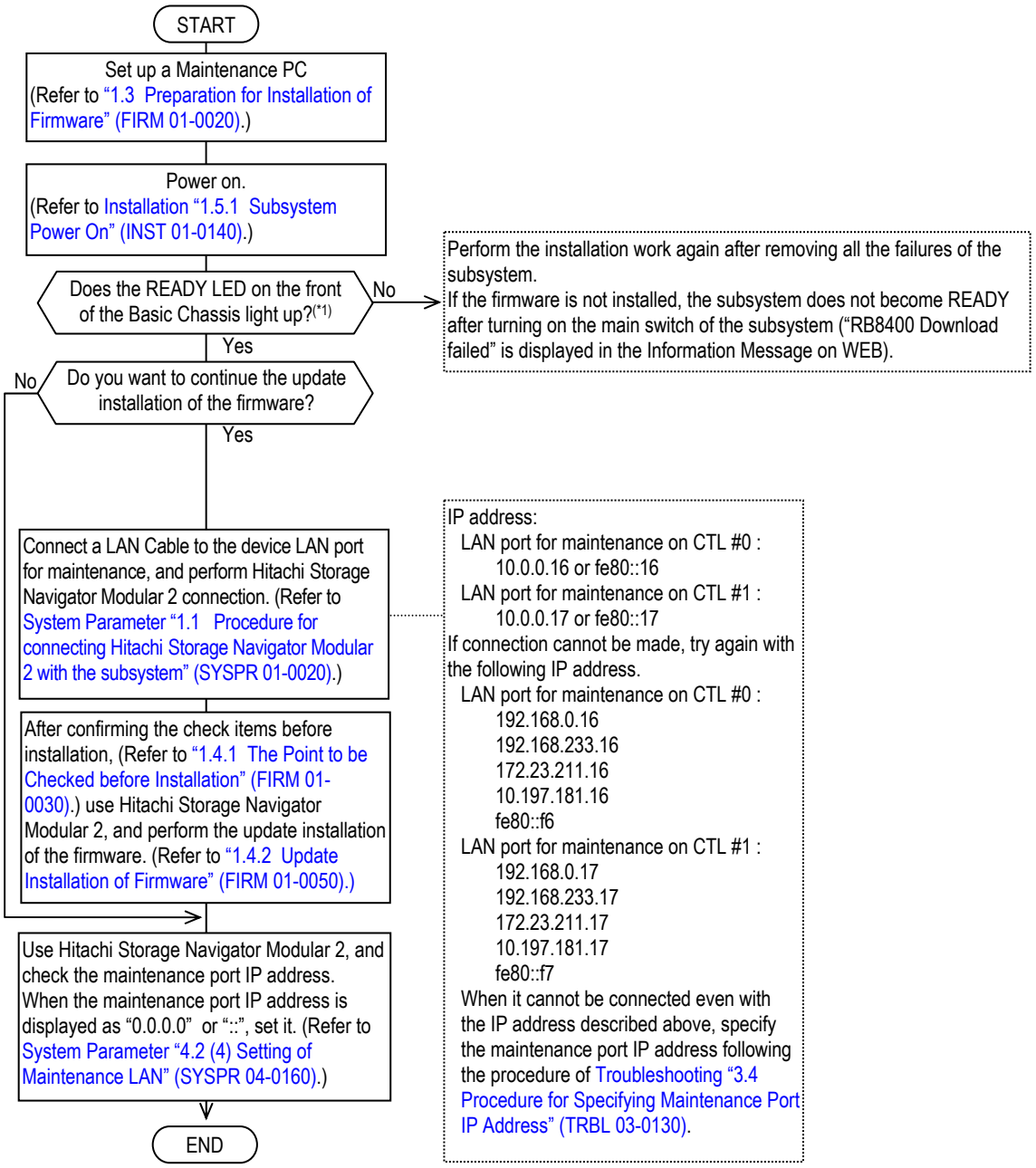
1.2 Outline of Procedure for Installation (Update Installation)

(1) Install the firmware using the WEB or Hitachi Storage Navigator Modular 2 connection from the Maintenance PC.

(2) In the Maintenance PC, JRE (‡1) 1.6 must be installed. (See WEB "3.3.2 (4) Procedure for setting up the Maintenance PC" (WEB 03-0310).)



*1 : Wait if the READY LED (green) on the front of the Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), 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]/).

‡1 : Java runtime environment.

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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 CD-ROM for firmware installation. Since the firmware (zip file) is stored under "program\microprogram" in the CD-ROM for firmware installation, store the ZIP file from the CD-ROM under the directory "C:\diskarray-microprogram\microprogram" and unzip it.

Table 1.3.1 CD-ROM Directory Hierarchy

First stratum	Second stratum	Third stratum
manual	HostInst	Manual file
	UG	
program	Microprogram	Firmware zip file
	DF800JSetup10e.exe (Java setup file)	-

The hierarchical structure of firmware storage ZIP file (08xxx.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: 0810A)	DF800EH	disk 01 - disk X	Firmware file
		fmins	
	DF800EM	disk 01 - disk X	Firmware file
		fmins	
	DF800ES	disk 01 - disk X	Firmware file
		fmins	
	DF800EXS	disk 01 - disk X	Firmware file
		fmins	
	DF800M	disk 01 - disk X	Firmware file
		fmins	
	DF800S	disk 01 - disk X	
		fmins	
	DF800H	disk 01 - disk X	
		fmins	
	drvfirm	DKR2F-VIPERAP	Drive firmware file
		:	
	ENC	ENC Firmware file	–

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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 subsystem is turned on. If it is turned off, turn it on to start the subsystem.
- In the single configuration, to update a new firmware, turn off the main switch on the disk array system, and then turn on it 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 Basic Chassis lights up. When the READY LED (green) on the front of the Basic Chassis 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 RKH) until the READY LED (green) lights up because the automatic download of the ENC firmware is being executed.
- When the firmware is already installed in the disk array system, check that the WARNING LED (orange) on the front of the Basic Chassis goes out, and the READY LED (green) lights up. When the WARNING LED (orange) on the front of the Basic Chassis 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 Basic Chassis goes out and the READY LED (green) lights up because the update of the flash program or the automatic download of the ENC 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 Disk 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.

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- In case of the subsystem where Power Saving of the priced option is used, when RAID group whose power saving status is "Normal (command monitoring)" exists, perform the firmware update work according to the following firmware revision and actions to be taken.

Firmware revision	Actions to be taken
Firmware replacement from less than 0897/A to less than 0897/A	When RAID group whose power saving status is "Normal (command monitoring)" exists, if the update installation is performed for the firmware, the spin-down may fail because of the recognition processing of the host immediately after the firmware replacement is completed. Check that there is no RAID group whose power saving status is "Normal (command monitoring)" after executing the spin-down, and then perform the update install for the firmware. If the spin-down fails, execute the spin-down again.
Firmware replacement from 0897/A or more to less than 0897/A	When RAID group whose power saving status is "Normal (command monitoring)" exists, the update installation cannot be performed for the firmware. Install the firmware after completing the spin-down, or have the user perform the spin-down or spin-up instruction, and then perform the update installation for the firmware after there is no RAID group whose power saving status is "Normal (command monitoring)".

- Referring to the setting of the user management port on the subsystem (System Parameter "4.2 (3) Setting of LAN" (SYSPR 04-0120)), check that the subnet mask is not set to 0.0.0.0. Depending on the firmware revision, the subsystem does not operate normally. Therefore, check the correct value with the customer and set it before performing the firmware installation.

  NOTE : If the firmware revision to be installed is 0872/D or later, this confirmation is not necessary.

Firmware revision	Operation
Earlier than 0860/A	Operates according to the class of the set IP address. IP address 0.0.0.0 to 127.255.255.255 -> Subnetmask 255.0.0.0 IP address 128.0.0.0 to 191.255.255.255 -> Subnetmask 255.255.0.0 IP address 192.0.0.0 to 223.255.255.255 -> Subnetmask 255.255.255.0
0860/A to 0872/C	Does not operate. A controller blockade will occur.
0872/D or later	Operates according to the class of the set IP address. (Same as the one earlier than 0860/A)

- 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.

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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 Control Units in the dual controller configuration, perform "(1) Update continuing the I/O of both Control Units (Dual controller configuration)" (FIRM 01-0060). (Normally, perform this way. However, when RKH is used and when the firmware before update is less than version 0865/B, do not perform this procedure. Perform the procedure for updating firmware for each Control Unit stopping the I/O in the dual controller configuration.)

  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 Control Unit one by one stopping the I/O in the dual controller configuration (Only when the instruction is given, perform this way.), perform "(2) Update stopping the I/O for each Control Unit (Dual controller configuration)" (FIRM 01-0110).
  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 Control Unit whose firmware will be updated.
- In the single controller configuration, perform "(3) Update for single controller" (FIRM 01-0760).

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(1) Update continuing the I/O of both Control Units (Dual controller configuration)
Replace the firmware of the subsystem.

NOTE :
- Request the customer to perform the firmware update work in the time with low I/O load.
- When RKH is used and when the firmware revision before update is less than version 0865/B, do not perform this procedure. Perform "(2) Update stopping the I/O for each Control Unit (Dual controller configuration)" (FIRM 01-0110).
- Do not perform the update installation of the firmware while the READY LED (green) on the front of the Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
- When registering the disk array system at the time of connecting the disk array system, specify only the Control Unit #0 in [Connection Destination]. (Refer to System Parameter "1.1 (4) (c) Registering the disk array system" (SYSPR 01-0090).)
- When the LU, 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 subsystem, change the status of the LU to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).
- When the firmware revision before the update is less than V11.7/K, download the online ENC firmware before replacing the firmware. (Refer to Troubleshooting "Chapter 12. Procedure for Online ENC Firmware Download" (TRBL 12-0000).)

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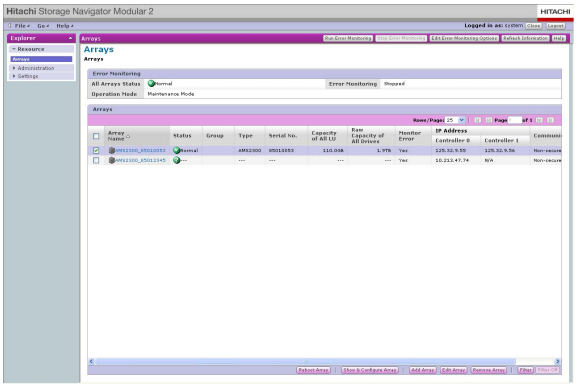
(1-1) Transfer and update firmware

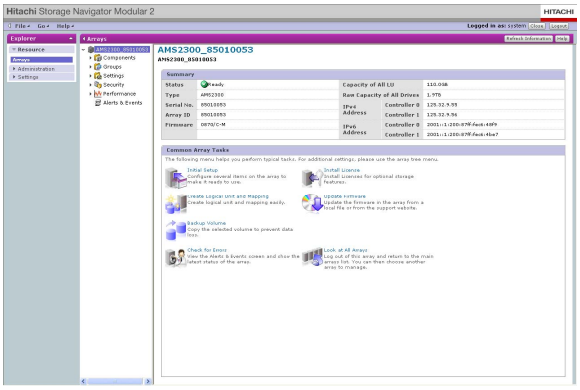
(a) Connect the LAN cross cable to the subsystem LAN connector for maintenance and connect the subsystem to the Web. (Refer to Troubleshooting "3.1 Procedure to WEB Connection" (TRBL 03-0000).

(b) Start Hitachi Storage Navigator Modular 2, put a checkmark to the array subsystem to set, press the [Ctrl] key, [Shift] key and [E] key at the same time, and change the operation mode to "Maintenance Mode".(‡1)
Check that "Maintenance Mode" is displayed in [Operation Mode] on the top of the main window.



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

NOTE : When the main window is not displayed even if you select the array subsystem, 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.



‡1 : When the array subsystem 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.

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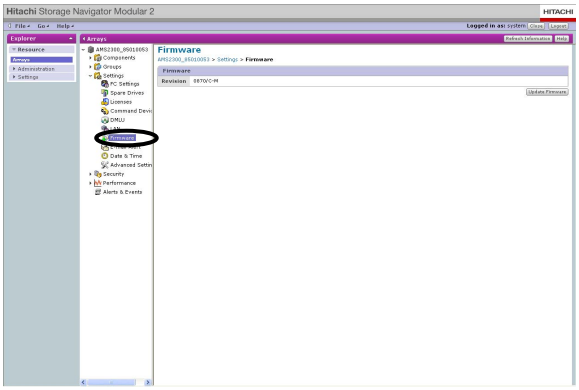
(d) Select [Settings] – [Firmware] on the unit window.
Click the [Update Firmware] button.



(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®:

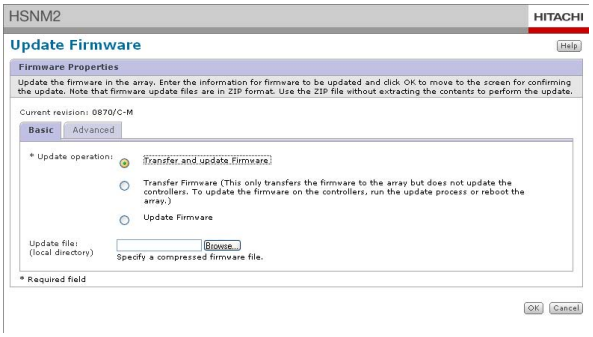
c:/diskarray-microprogram/microprogram/micro/0830A.zip

When using Solaris™ or Red Hat Linux®:

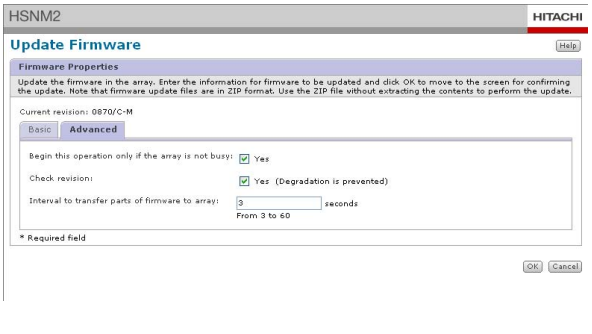
diskarray-microprogram/microprogram/micro/0830A.zip

Specified firmware file (ZIP form file)

Basic tab



Advanced tab



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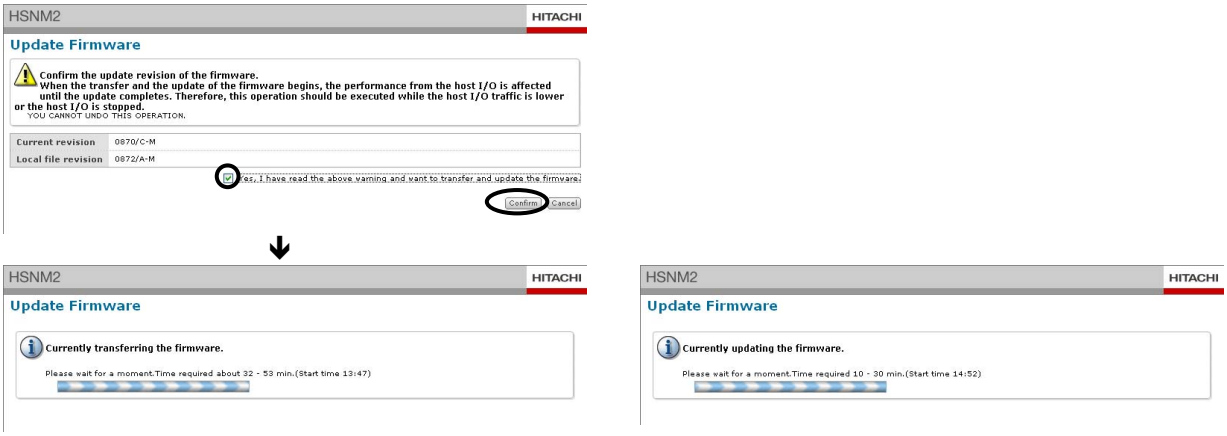
(f) The confirmation window of the firmware to update is displayed. Check it, and then click the [Confirm] button.



(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 subsystem.
If a failure occurs, perform maintenance or parts replacement, and then restore the subsystem 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 subsystem.
If a failure occurs, perform maintenance or parts replacement, and then restore the subsystem 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 subsystem once and then turn on it again after obtaining the consent of turning on/off the subsystem 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.

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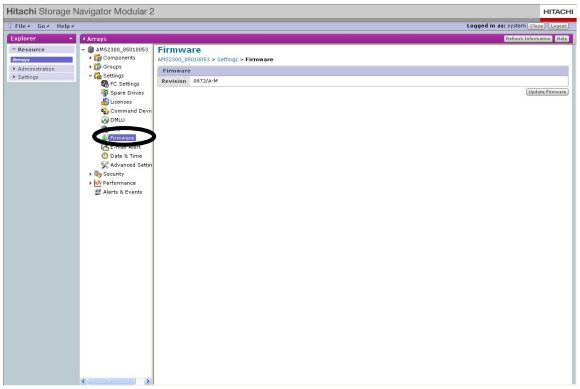
(h) Since a message is displayed when the updates of the firmware is completed, click the [Close] button.

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



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

(k) When the revision check is completed, the firmware replacement of the subsystem ends.

NOTE : When the firmware was replaced online after performing the processing to change the system configuration (LU formation, 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 Basic Chassis

Check that the READY LED (green) on the front of the Basic Chassis lights up. When the READY LED (green) on the front of the Basic Chassis is blinking at high speed, the READY LED (green) on the front of the Basic Chassis lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the RKH) because the automatic download of the ENC 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 Disk 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 01-0890).)

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(2) Update stopping the I/O for each Control Unit (Dual controller configuration)
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 Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).
- When registering the disk array system at the time of connecting the disk array system, specify only the Control Unit #0 in [Connection Destination] (refer to System Parameter "1.1 (4) (c) Registering the disk array system" (SYSPR 01-0090)).
- When the LU, 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 subsystem, change the status of the LU to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).

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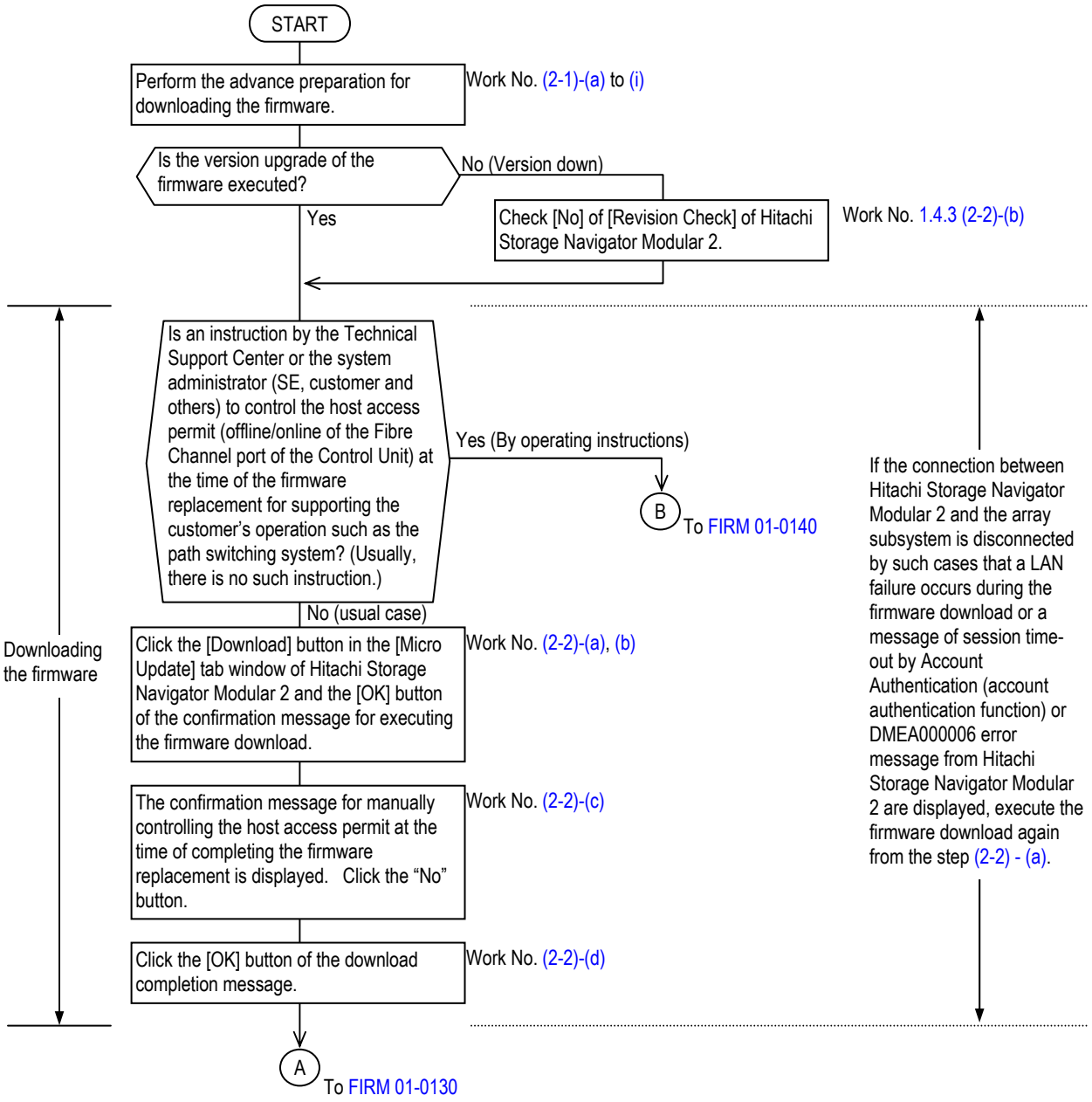

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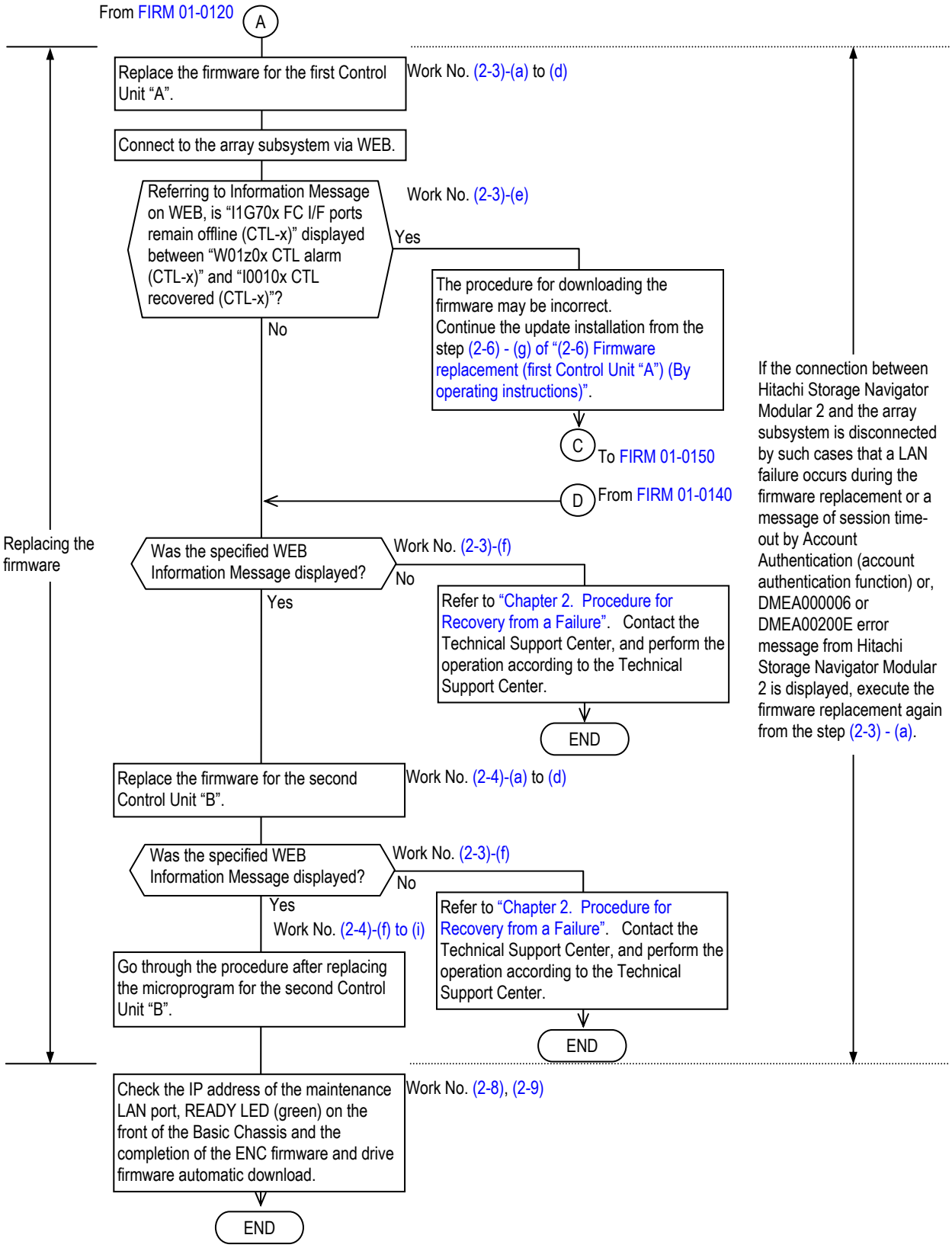

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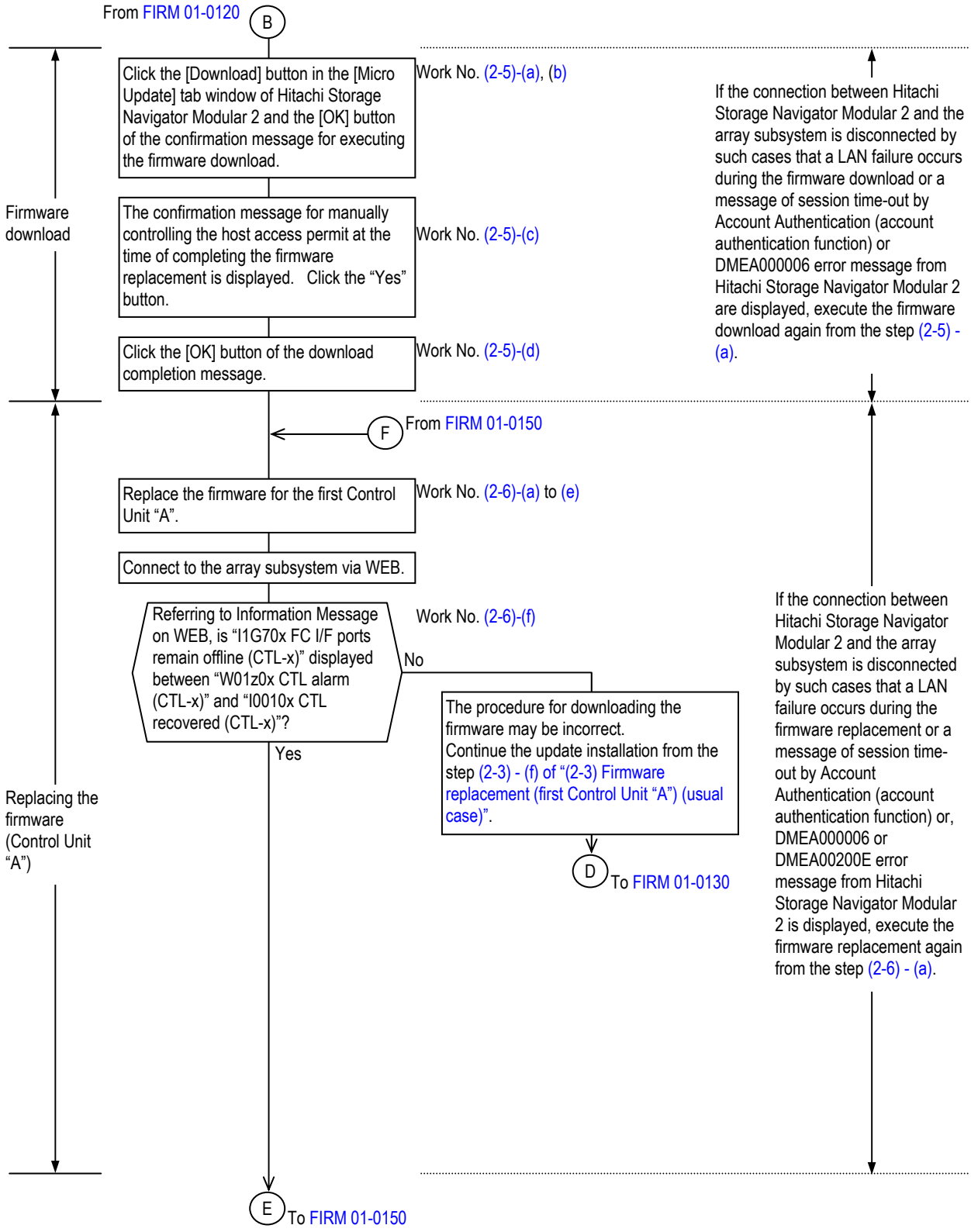

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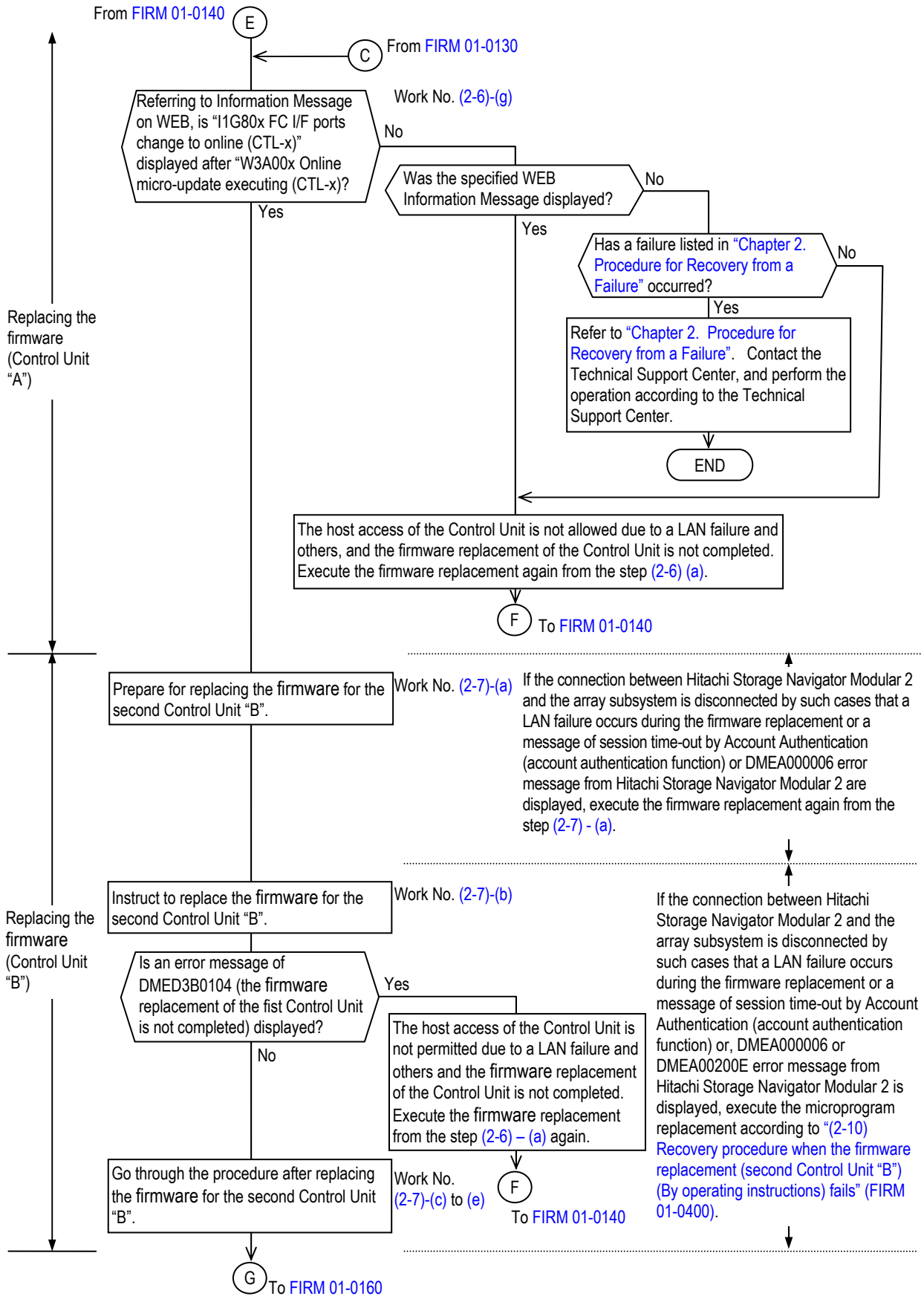

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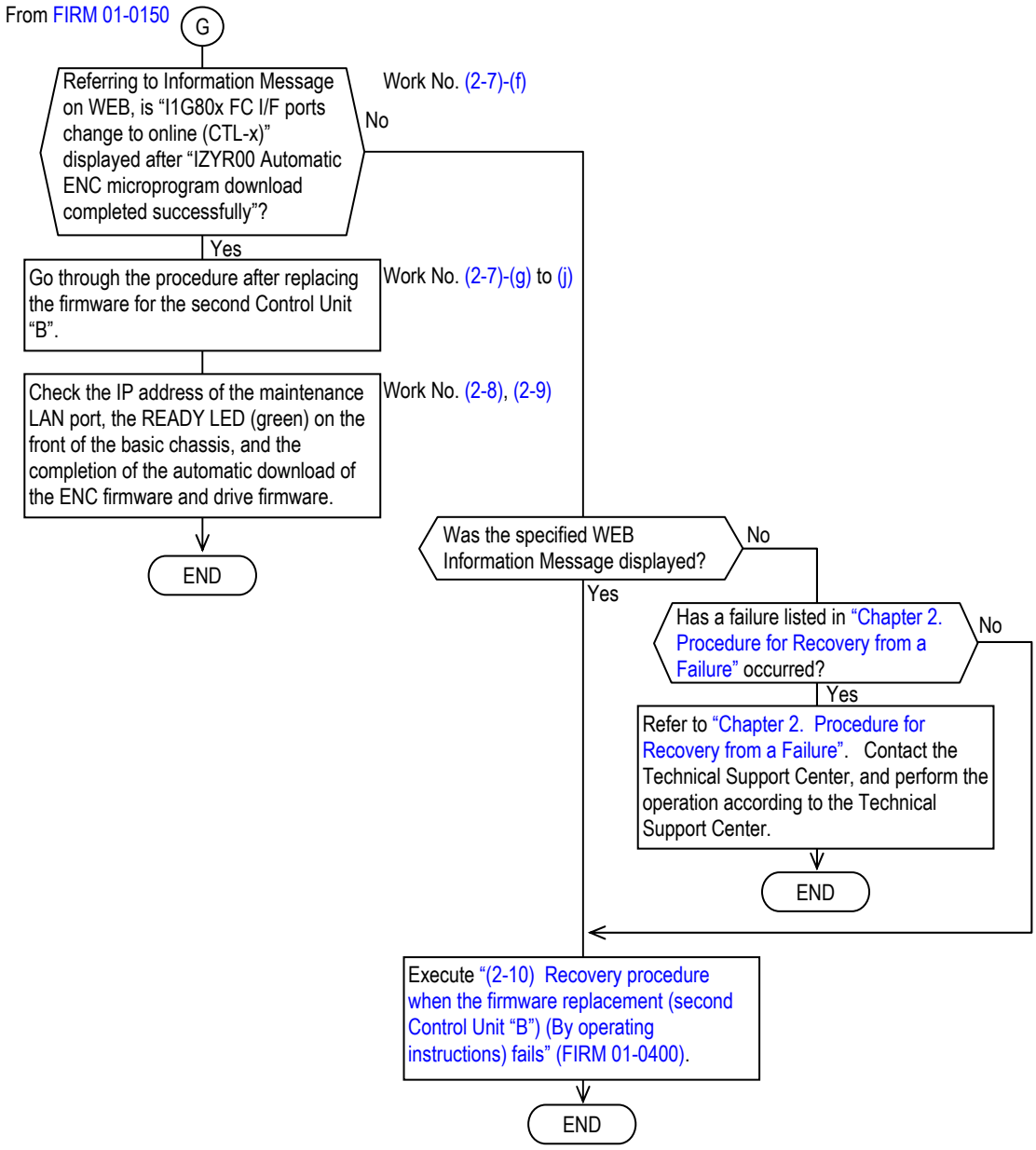

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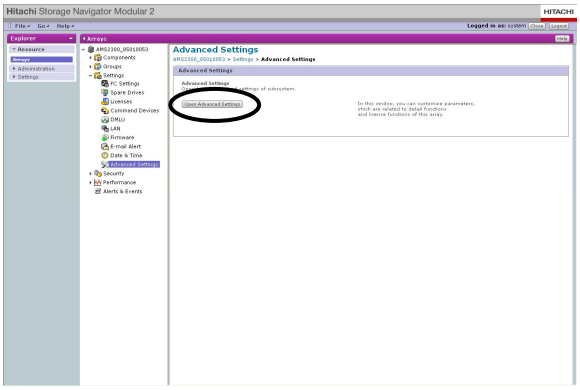
(2-1) Preparation for downloading the firmware

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

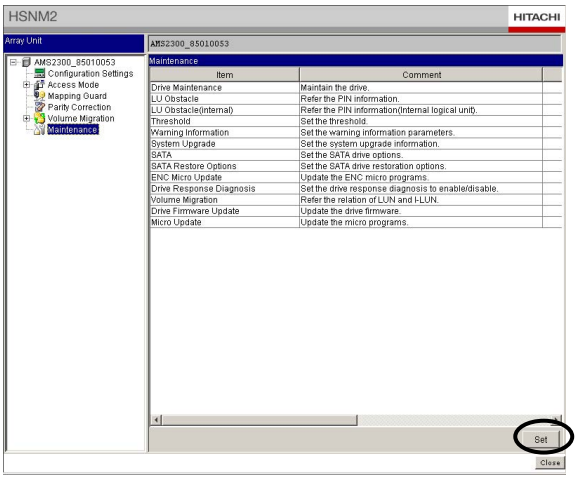
(a) Store the firmware (ZIP file) in the Maintenance PC in which Hitachi Storage Navigator Modular 2 is installed, and decompress the stored ZIP file.

(b) Connect the LAN cross cable to the subsystem LAN connector for maintenance and connect the subsystem 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.



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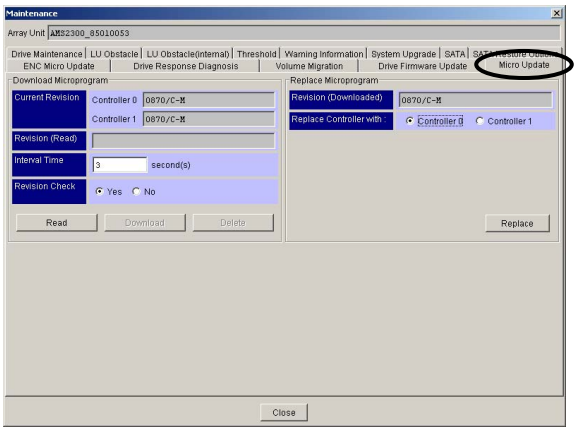
(e) Click the [Micro Update] tab.

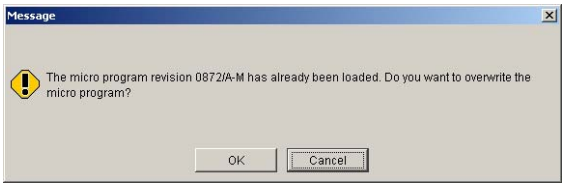


(f) Read in the firmware to the Maintenance PC in which Hitachi Storage Navigator Modular 2 is installed. Click the [Read] button.
When a firmware revision is displayed in the [Revision(Read)] box, the firmware has already been read in. When only the Unified version directory(‡1) storing the firmware 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).

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(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(‡1). When you click the [OK] button, reading in of the firmware is started.
Examples of the path entry are shown below.

When using Windows®:

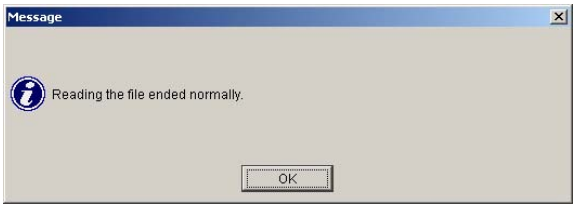
c: /diskarray-microprogram/microprogram/micro/0830A

When using Solaris™ or Red Hat Linux®:

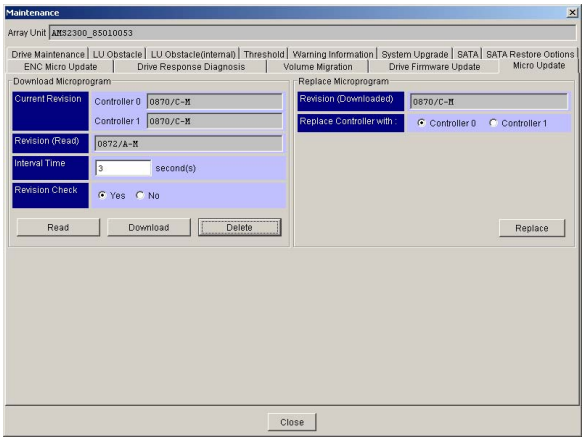
diskarray-microprogram/microprogram/micro/0830A

Unified version directory(‡1) 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).

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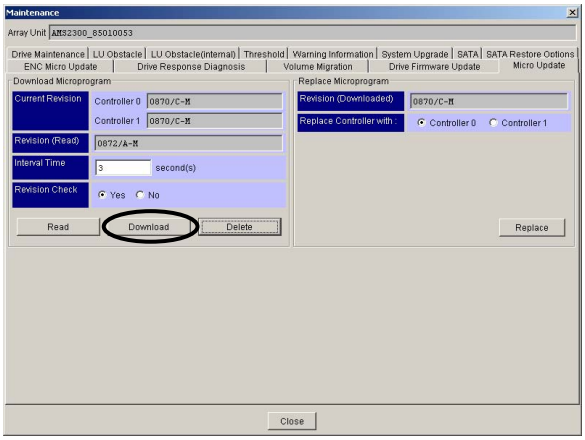
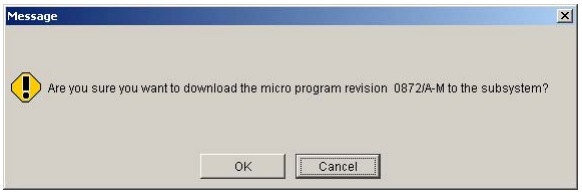
(2-2) Downloading the firmware (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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)).

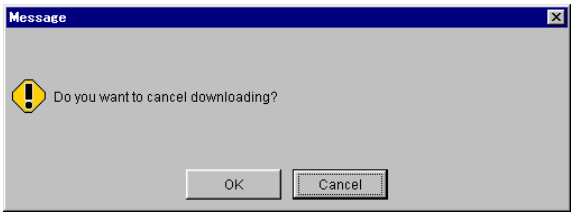
(a) Click the [Download] button.



(b) The confirmation window is display. 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.



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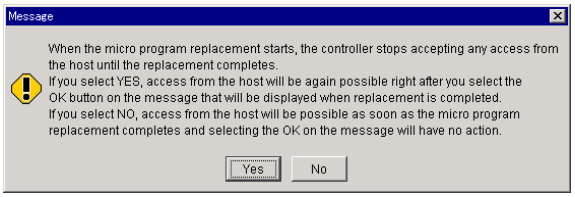
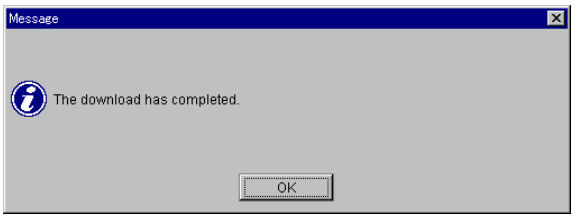
(c) The confirmation window is display. Click the [No] button.
The [No] button is selected by default. Therefore, just click the [No] button.



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 Control Unit board is replaced in the online mode before restarting the disk array system or replacing the firmware, the replaced Control Unit may be detached. When the subsystem 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.

• If the NAS Unit is connected and the NAS service is in operation, ask the NAS Unit administrator for planned shutdown of the NAS Unit.
After rebooting the array device, ask the NAS Unit administrator to reboot the NAS Unit and check the status of the FC path (Fibre Channel path). Refer to "Recovering from FC path errors" in "Hitachi NAS Manager User's Guide" to check the status of the FC path, and if there is a failure in the FC path, ask the NAS Unit administrator to recover the FC path.

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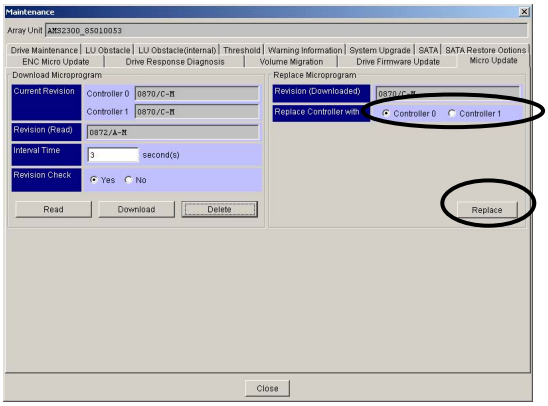
(2-3) Firmware replacement (first Control Unit "A") (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit. When making replacement, be sure to replace the firmware of the both Control Units 0 and 1. When the firmware of one of the Control Units 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 Control Unit whose firmware has not be replaced is registered.

(a) Select the Control Unit 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 Control Unit whose firmware will be updated.

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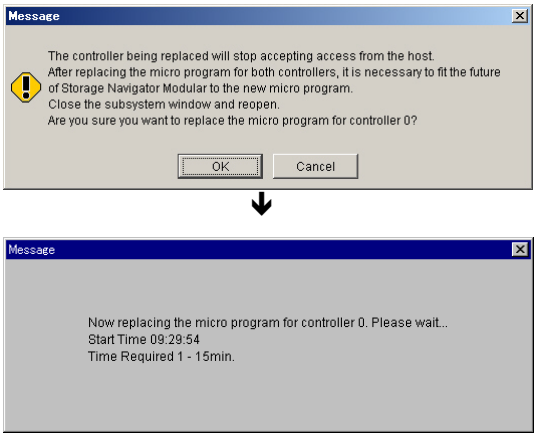
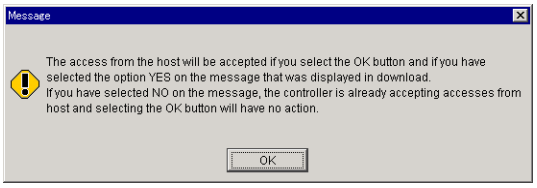
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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.

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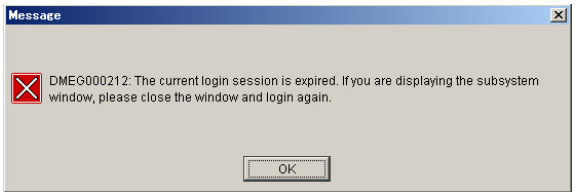
(d) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.

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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



(e) Referring to the Information Message on WEB, confirm the following items. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

- 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 Control Unit "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.

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(f) Referring to the Information message on WEB, check that the following message is displayed. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

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

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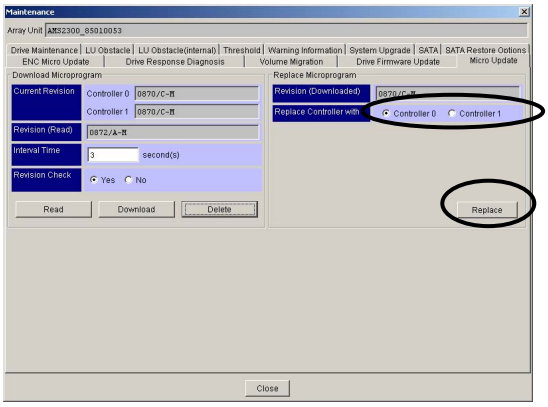
(2-4) Firmware replacement (Second Control Unit "B") (usual case)

If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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).

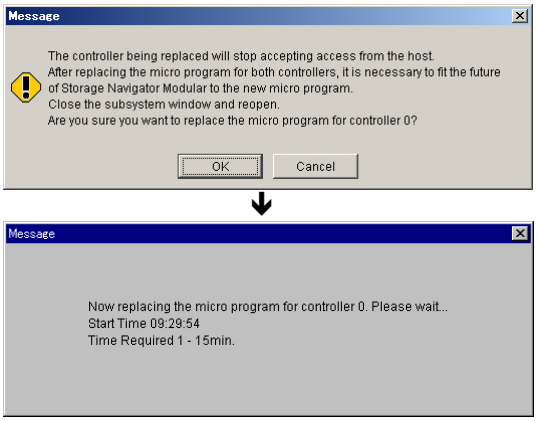
(a) Select the Control Unit whose firmware is to be replaced and click the [Replace] button.



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 Control Unit whose firmware will be updated.

(b) The confirmation window is display. Check if the selected Control Unit 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 "Wz100x CTL alarm (CTL-x)" message is displayed in information message of Web and Array Unit becomes Warning Status.

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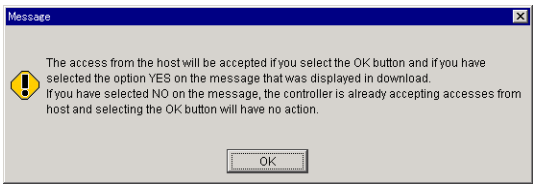
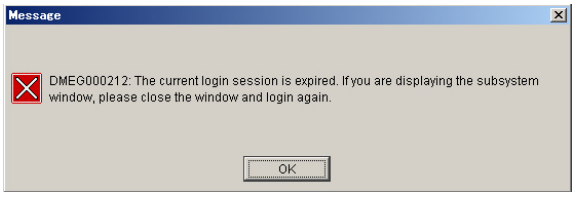
(c) Click the [OK] button according to the dialog message.



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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



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

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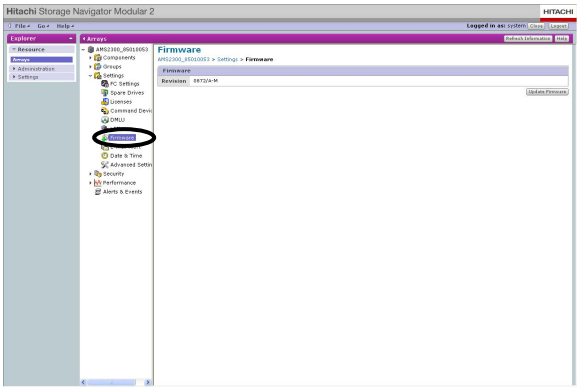
(e) Check that the following message is displayed referring to the Information Message on the WEB. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Control Unit #0 to Control Unit #1. When it is performed in order from the Control Unit #1 to Control Unit #0, convert the Control Unit 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 I19000 Online micro-update completed
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) 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 subsystem ends.

NOTE : • When the replacement of the firmware is made for only one of the dual Control Unit, 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 Control Unit is replaced. When you replace the firmware, be sure to make the replacement for the both Control Units continuously.
• When the firmware was replaced online after performing the processing to change the system configuration (LU formation, 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.

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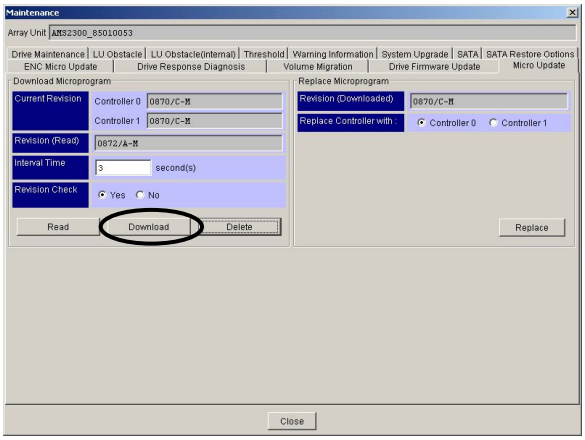
(2-5) Downloading the firmware (Case with operating instructions)

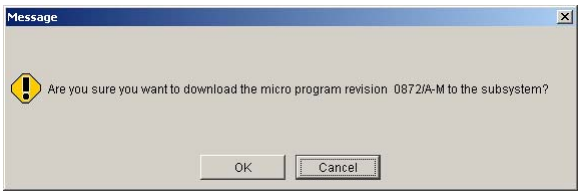
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Control Unit) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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.



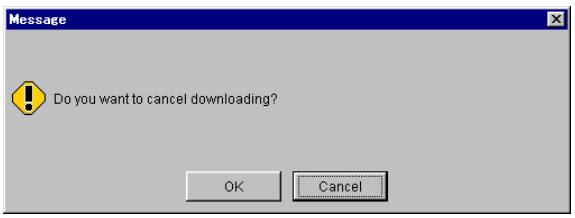
(b) The confirmation window is display. Click the [OK] button.



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.



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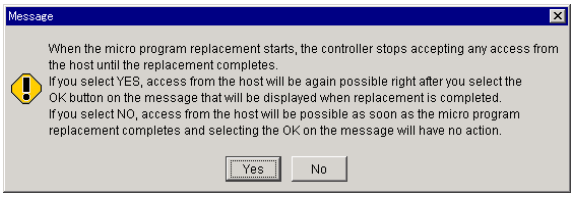
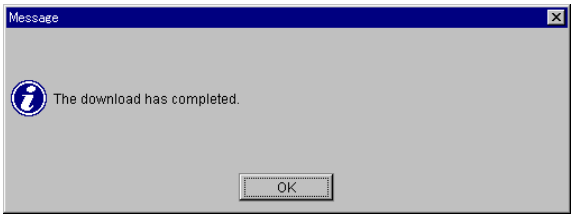
(c) The confirmation window is display. Click the [Yes] button.
The [No] button is selected by default. Click the [Yes] button not to be incorrect.



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 Control Unit board is replaced in the online mode before restarting the disk array system or replacing the firmware, the replaced Control Unit may be detached. When the subsystem 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.

• If the NAS Unit is connected and the NAS service is in operation, ask the NAS Unit administrator for planned shutdown of the NAS Unit.
After rebooting the array device, ask the NAS Unit administrator to reboot the NAS Unit and check the status of the FC path (Fibre Channel path). Refer to "Recovering from FC path errors" in "Hitachi NAS Manager User's Guide" to check the status of the FC path, and if there is a failure in the FC path, ask the NAS Unit administrator to recover the FC path.

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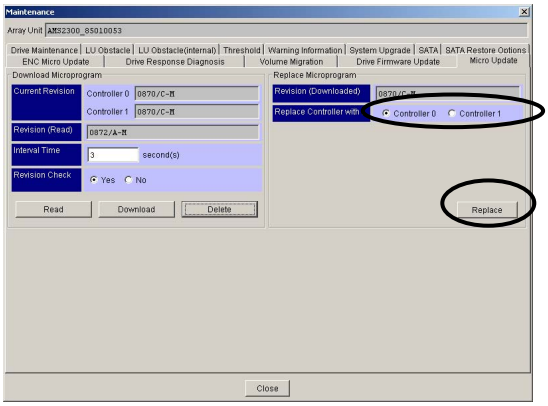
(2-6) Firmware replacement (first Control Unit "A") (By operating instructions)
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Control Unit) at the time of the firmware replacement)
If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit. When making replacement, be sure to replace the firmwares of the both Control Units 0 and 1. When the firmware of one of the Control Units 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 Control Unit whose firmware has not be replaced is registered.

(a) Select the Control Unit 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 Control Unit whose firmware will be updated.

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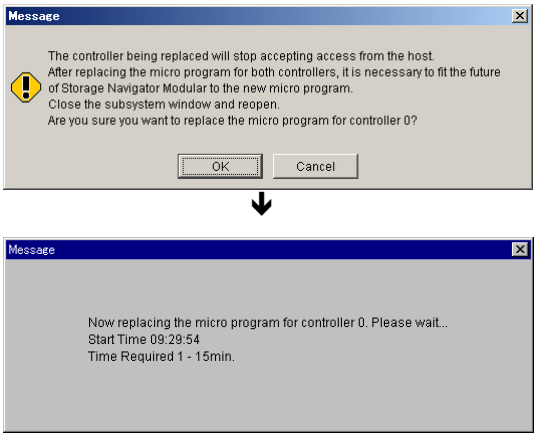
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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)).

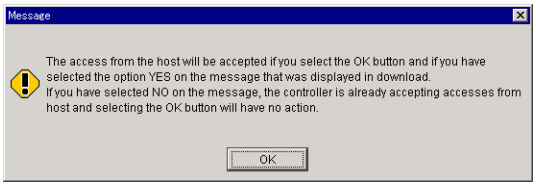


NOTE : Then “Wz100x CTL alarm (CTL-x)” message is displayed in information message of Web and Array Unit becomes Warning Status.

(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



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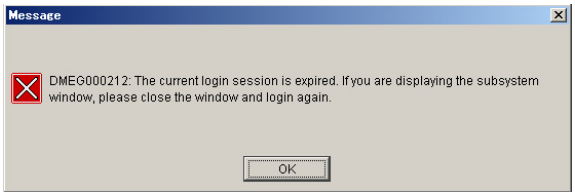
(e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.

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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



(f) Referring to the Information Message on WEB, confirm the following items. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

- 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 Control Unit "A") (usual case)" (FIRM 01-0250) again.

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

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(g) Referring to the Information Message on WEB, confirm the following items. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

- 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 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed starting from the Control Unit #0. When it is performed starting from the Control Unit #1, convert the Control Unit 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 Control Unit again from the step (2-6) (a) of "(2-6) Firmware replacement (first Control Unit "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 Control Unit.

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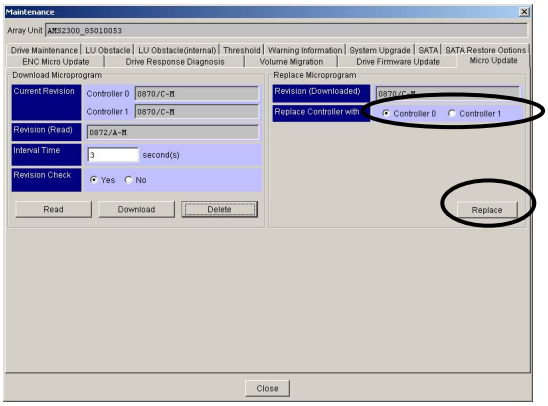
(2-7) Replacing the firmware (second Control Unit "B") (Case with operating instructions)
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Control Unit) at the time of the firmware replacement)
If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit 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 Control Unit whose firmware will be updated.

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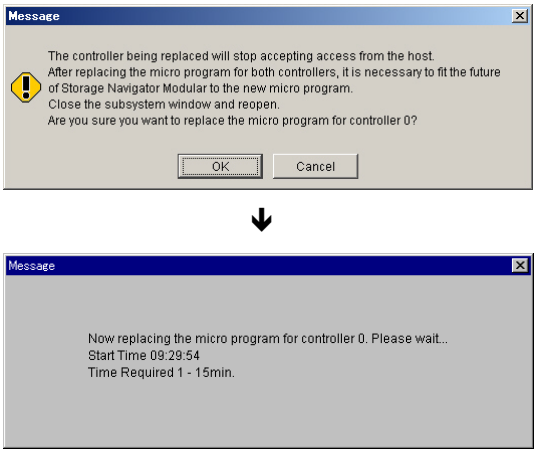
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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 Control Unit “B”) (By operating instructions) fails” (FIRM 01-0400).



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 Control Unit “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).

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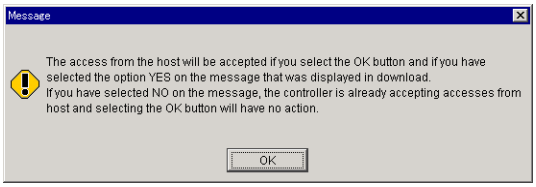
(c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.
Wait until the procedure is completed.

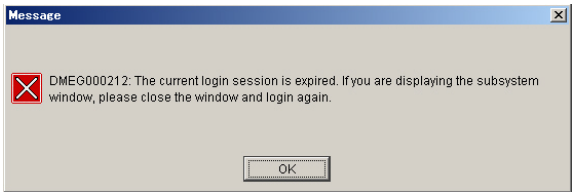


NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the "(2-10) Recovery procedure when the firmware replacement (second Control Unit "B") (By operating instructions) fails" according to the DMEA00200E error 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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



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

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(f) Referring to the Information Message on WEB, confirm the following items. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

- The messages "I1G80x FC I/F ports change to online (CTL-x)" is displayed after "IZYR00 Automatic ENC microprogram download completed successfully".

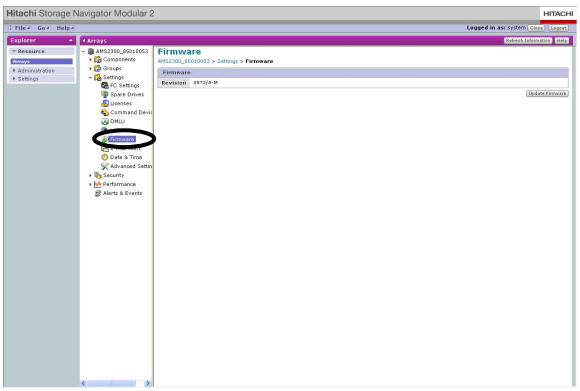
If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Control Unit #0 to Control Unit #1. When it is performed in order from the Control Unit #1 to Control Unit #0, convert the Control Unit 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 Control Unit "B") (By operating instructions) fails" (FIRM 01-0400) 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 micro-update completed
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.



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

NOTE : • When the replacement of the firmware is made for only one of the dual Control Unit, 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 Control Unit is replaced. When you replace the firmware, be sure to make the replacement for the both Control Units continuously.
• When the firmware was replaced online after performing the processing to change the system configuration (LU formation, 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 Basic Chassis
Check that the READY LED (green) on the front of the Basic Chassis lights up. When the READY LED (green) on the front of the Basic Chassis is blinking at high speed, the READY LED (green) on the front of the Basic Chassis lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the RKH) because the automatic download of the ENC firmware is being operated.

(2-9) Checking the automatic download of the ENC firmware and drive firmware
(a) Checking the completion of the automatic download of the ENC firmware
Check that "IZYR00 Automatic ENC microprogram download completed successfully" and "IZYS00 Automatic ENC microprogram download start" are displayed in Information Message on WEB.
When "IZYQ00 Automatic ENC microprogram 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 Disk 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 01-0890).)

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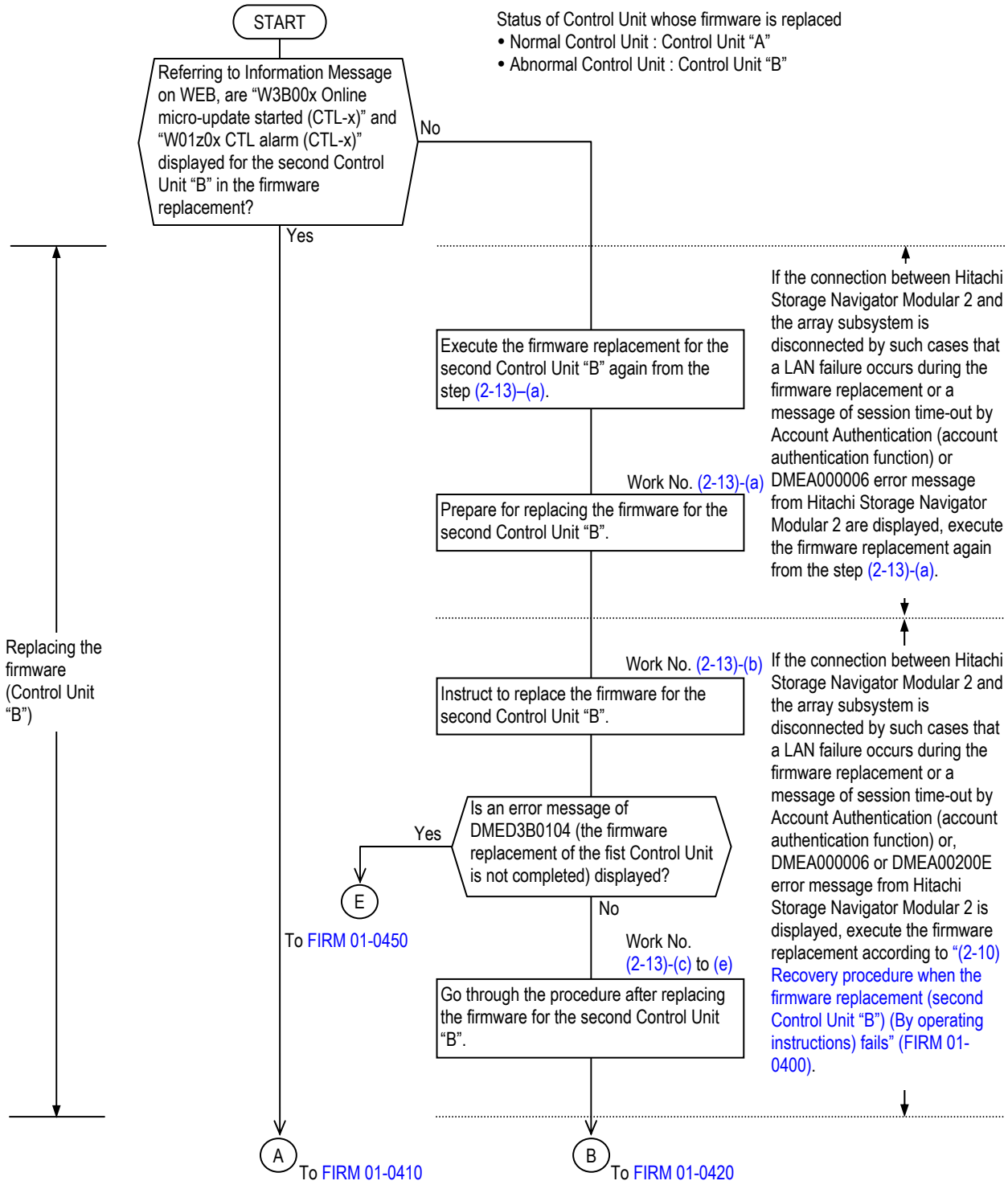
(2-10) Recovery procedure when the firmware replacement (second Control Unit "B") (By operating instructions) fails

(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 Control Unit) at the time of the firmware replacement)



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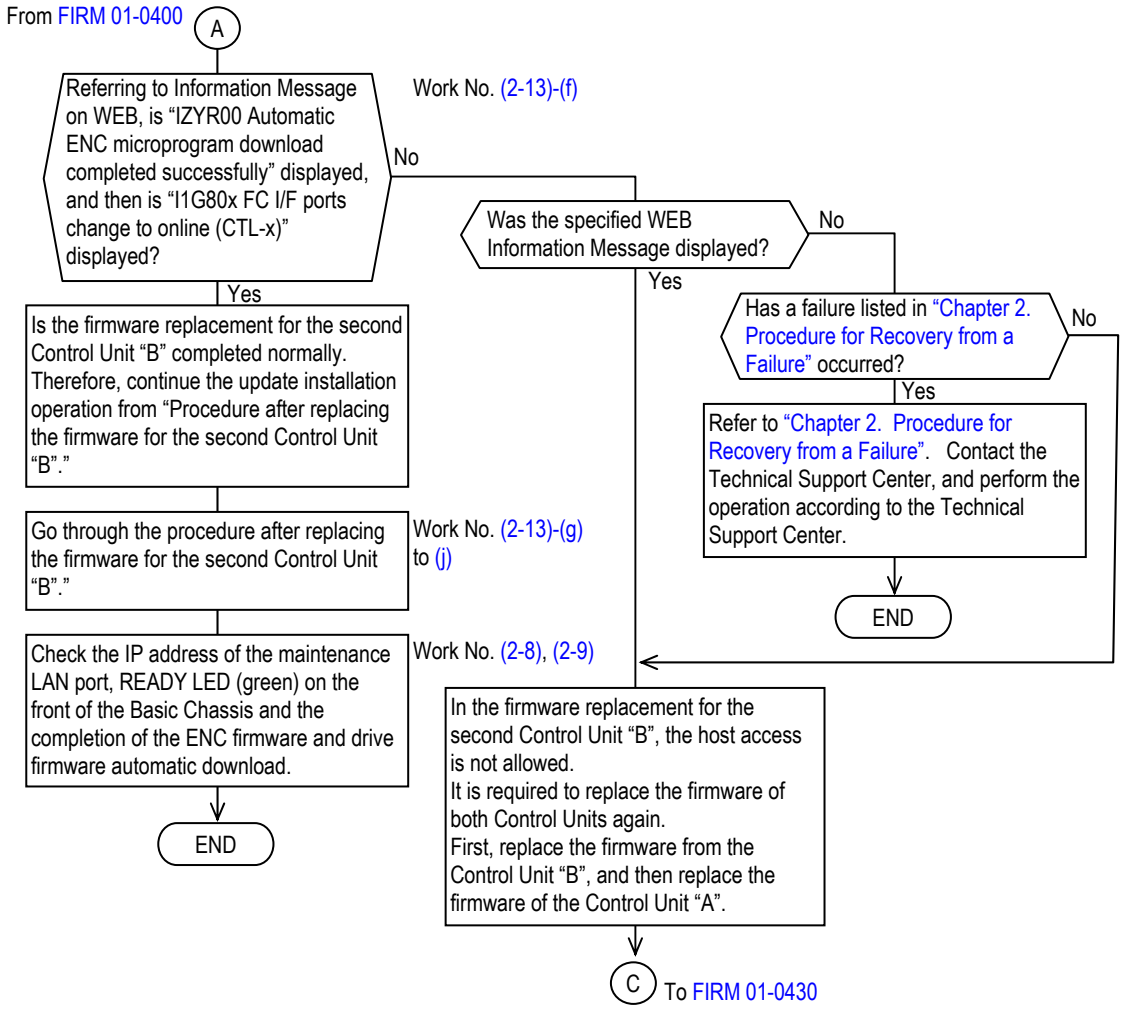

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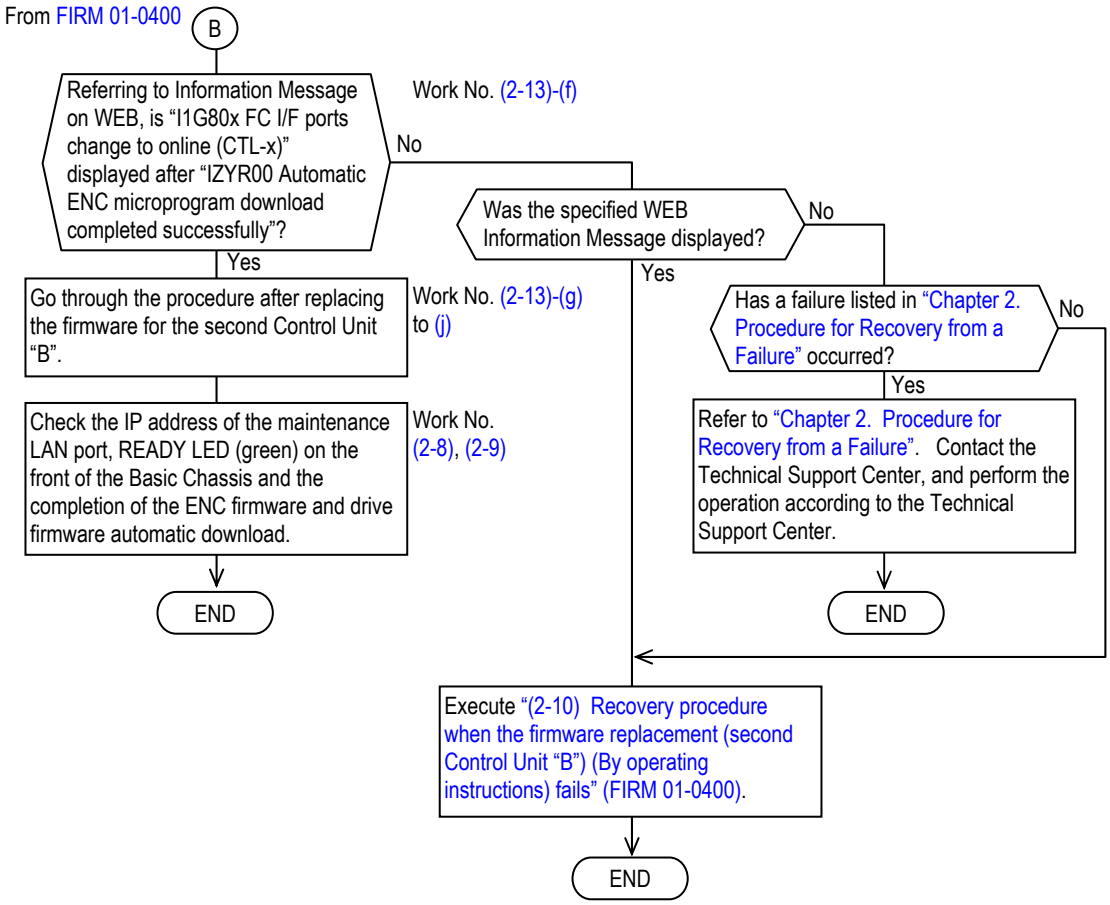

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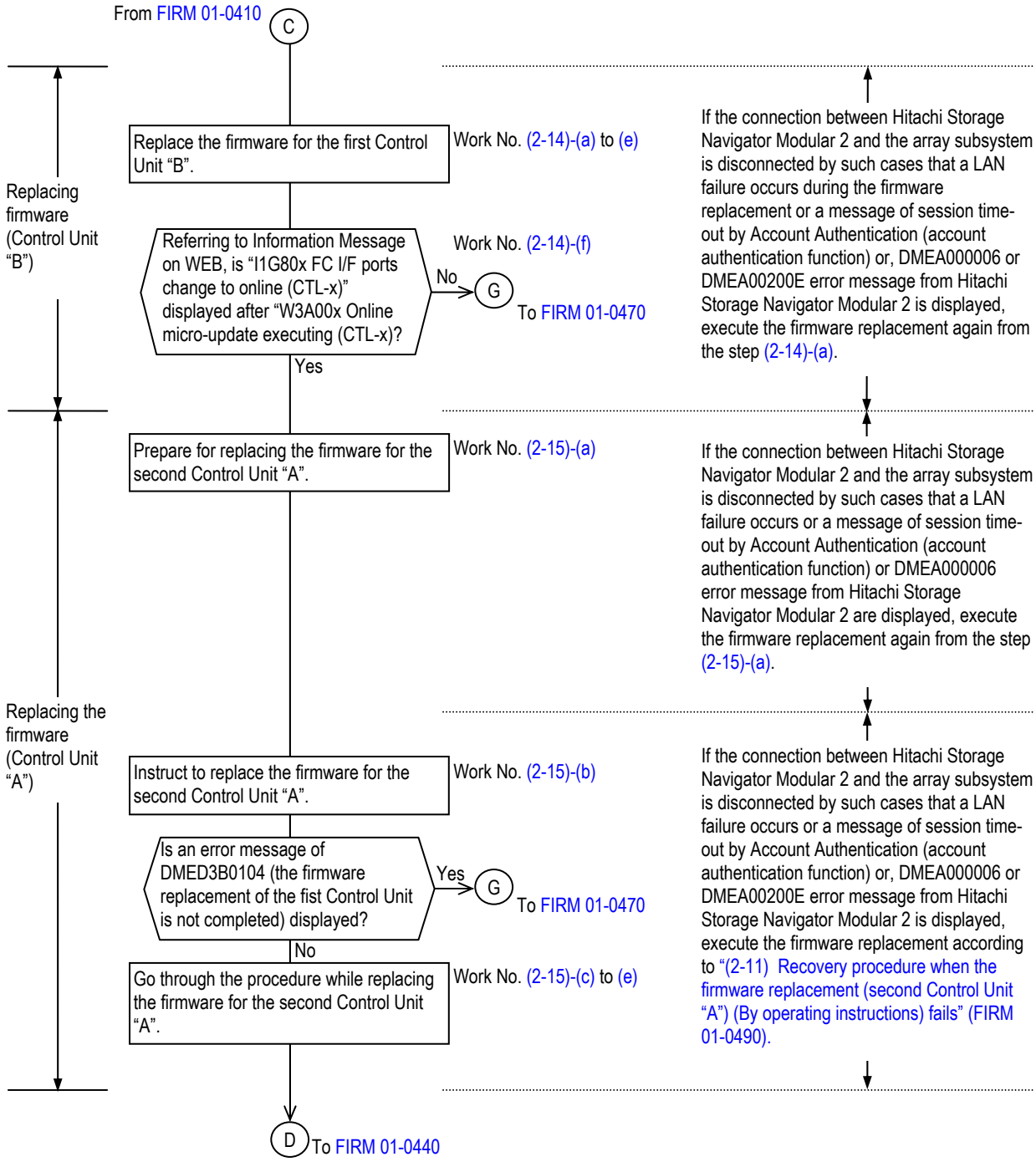

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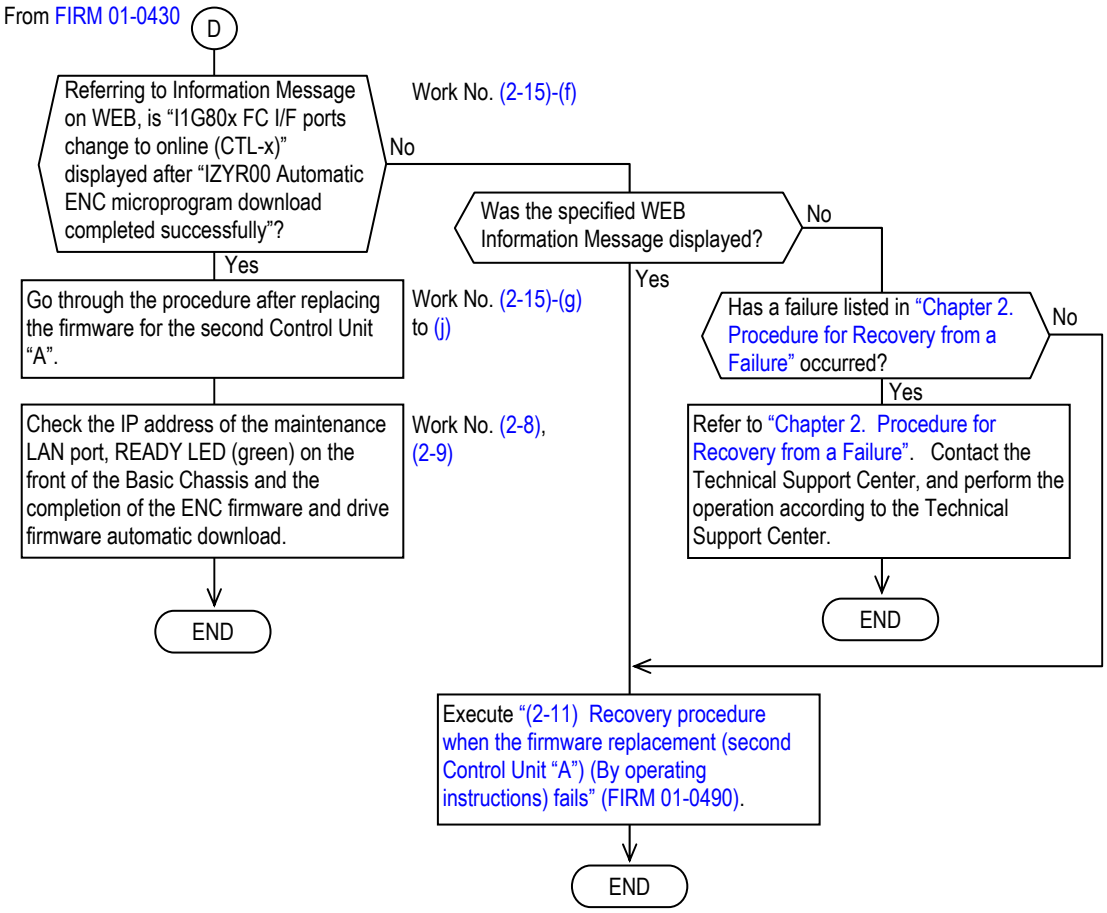

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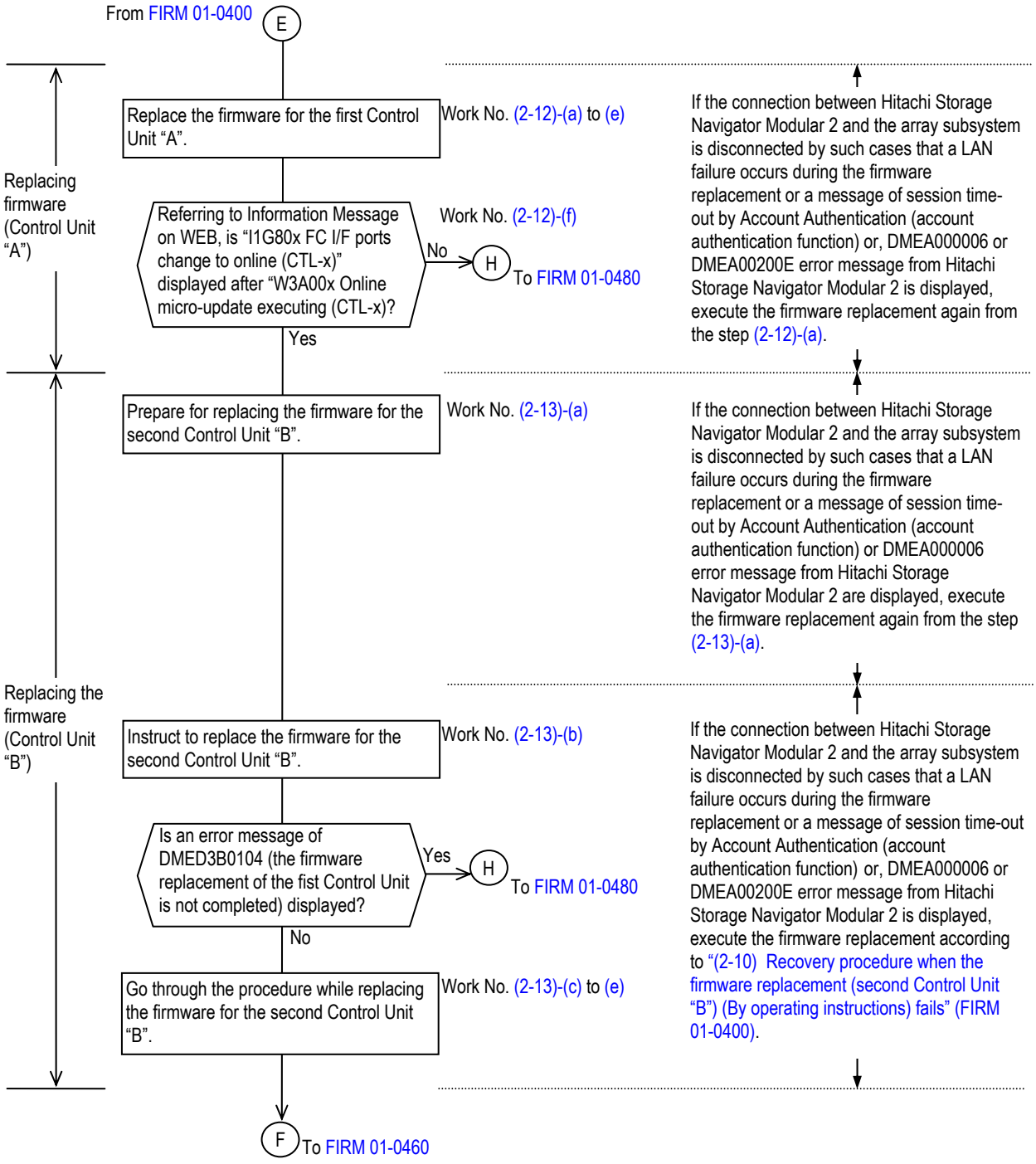

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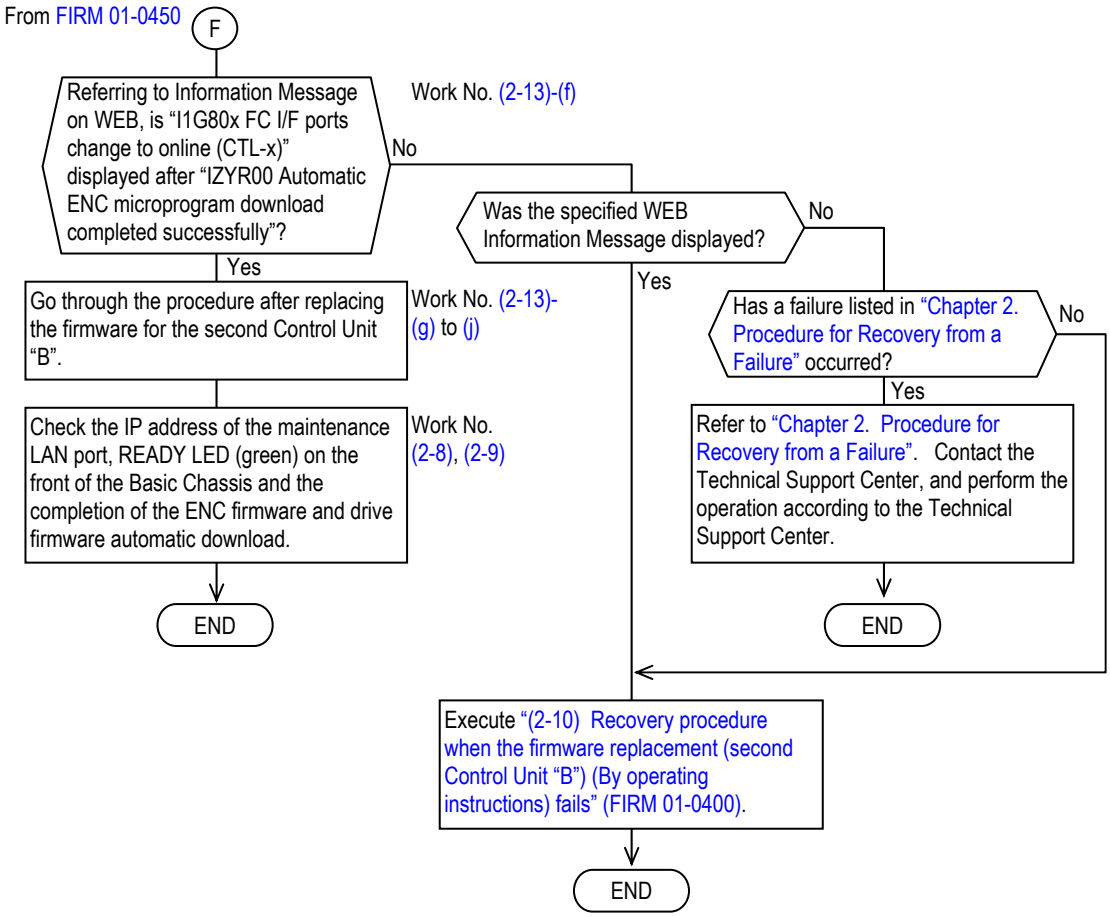

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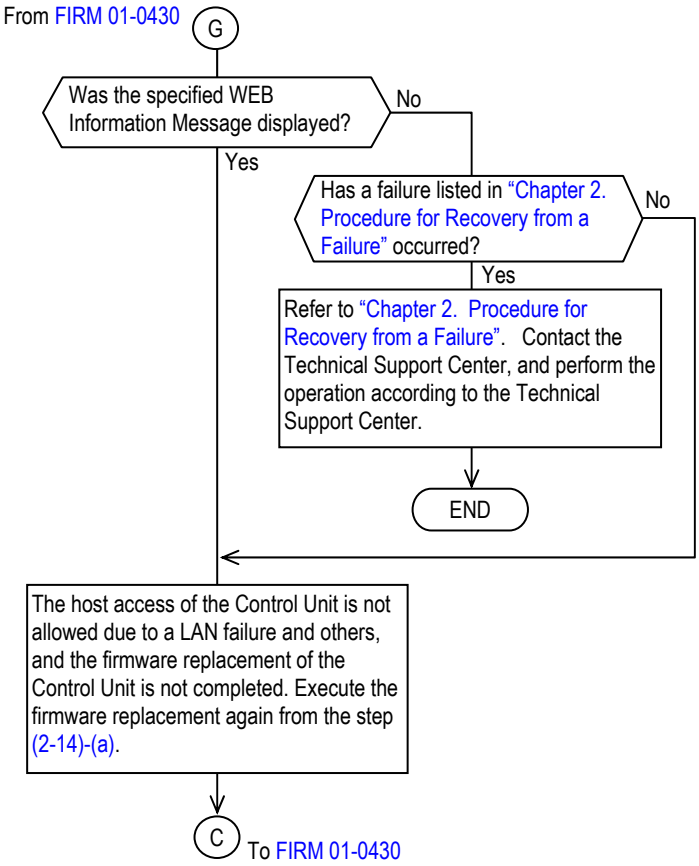

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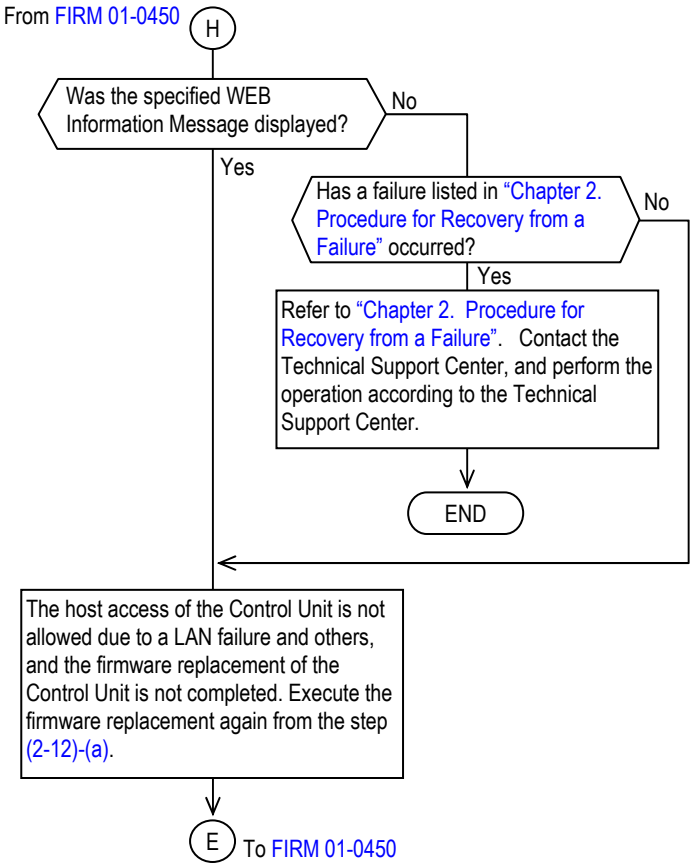

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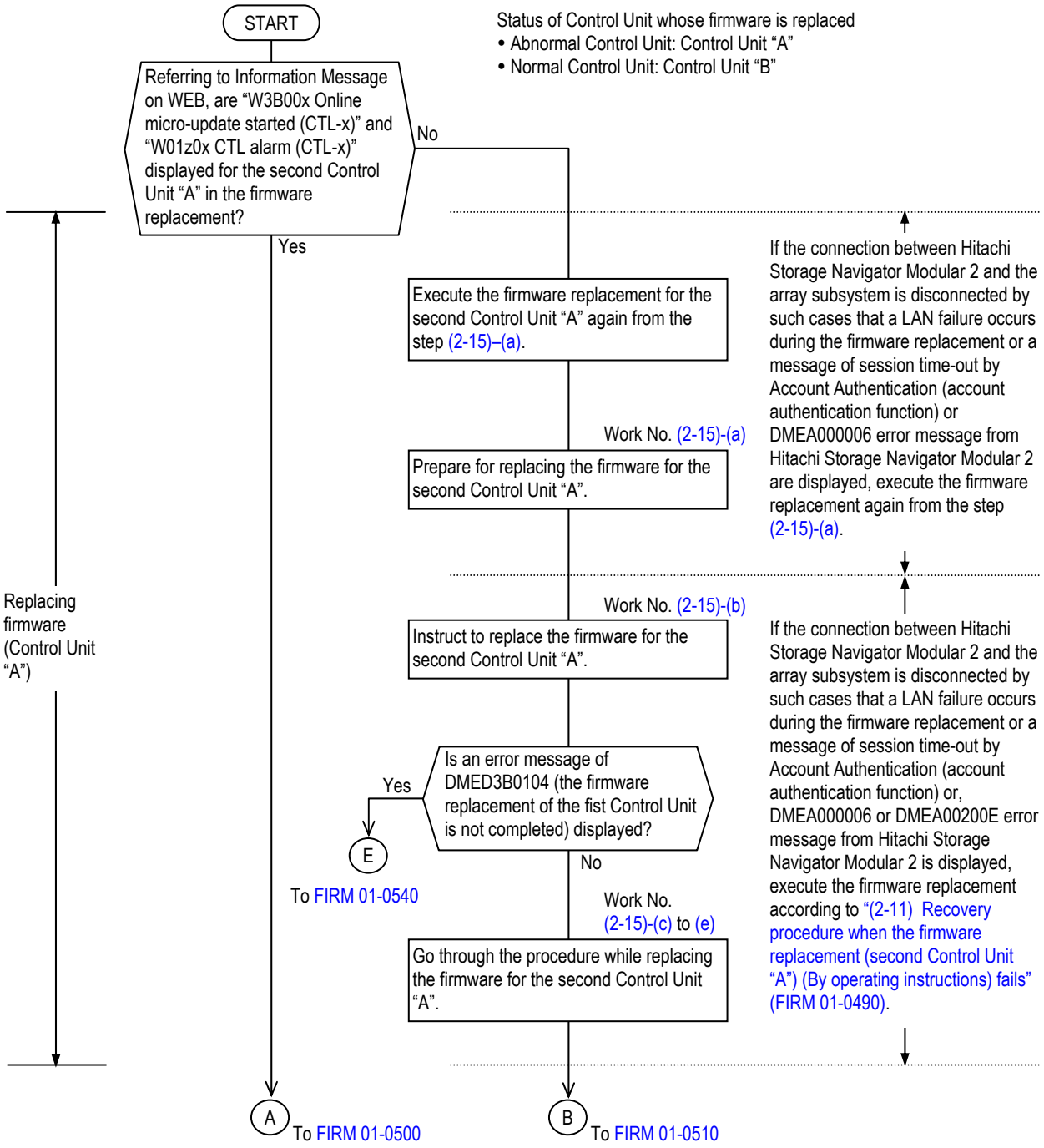
(2-11) Recovery procedure when the firmware replacement (second Control Unit "A") (By operating instructions) fails

(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 Control Unit) at the time of the firmware replacement)



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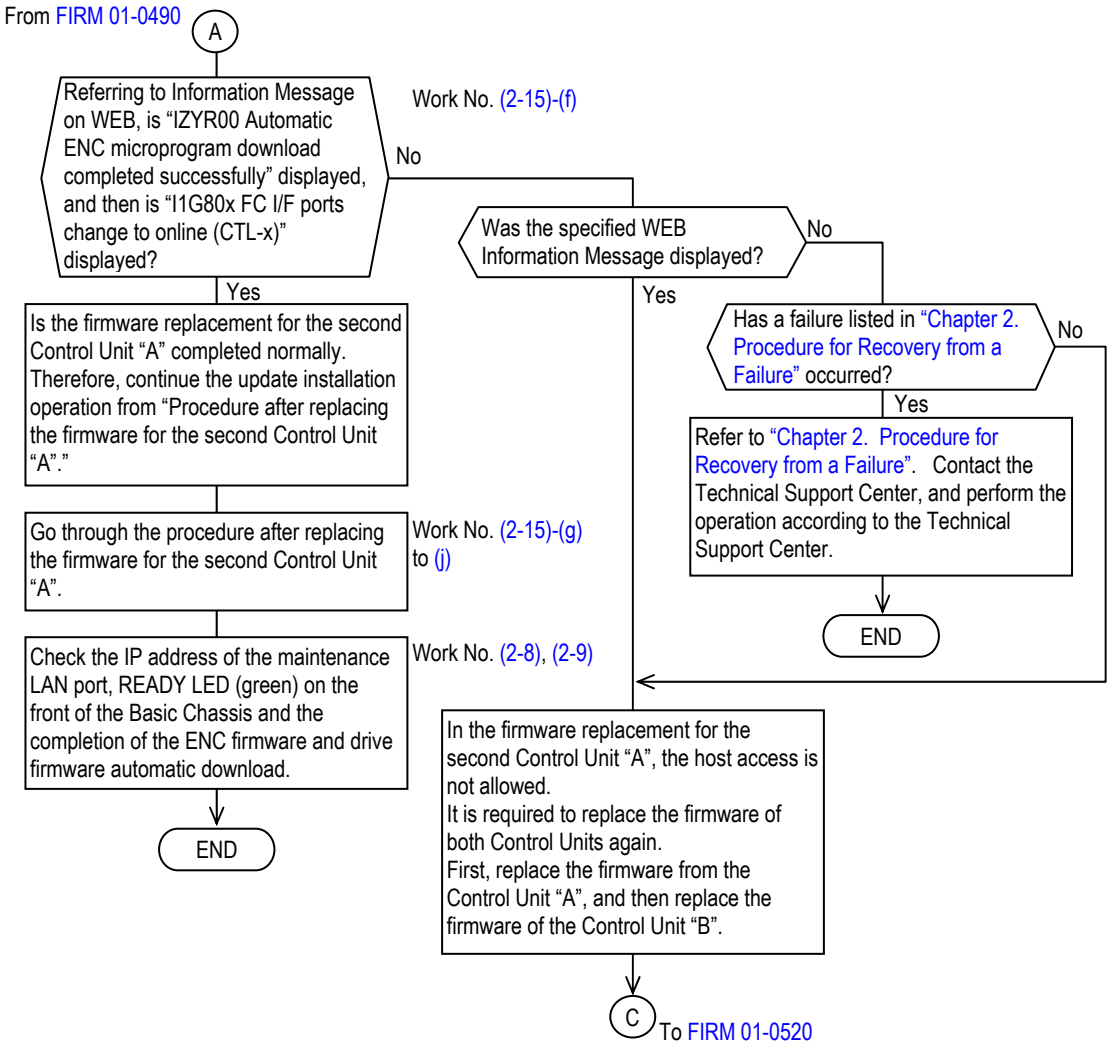

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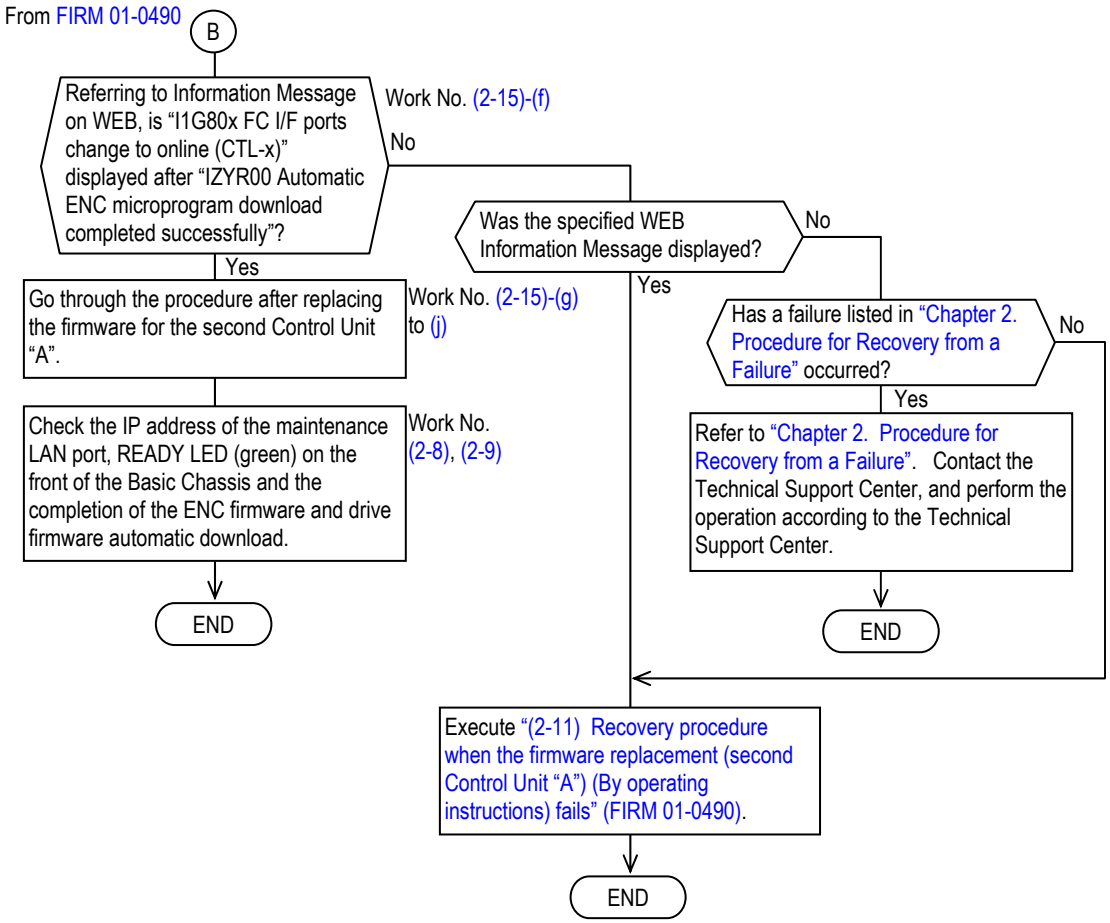

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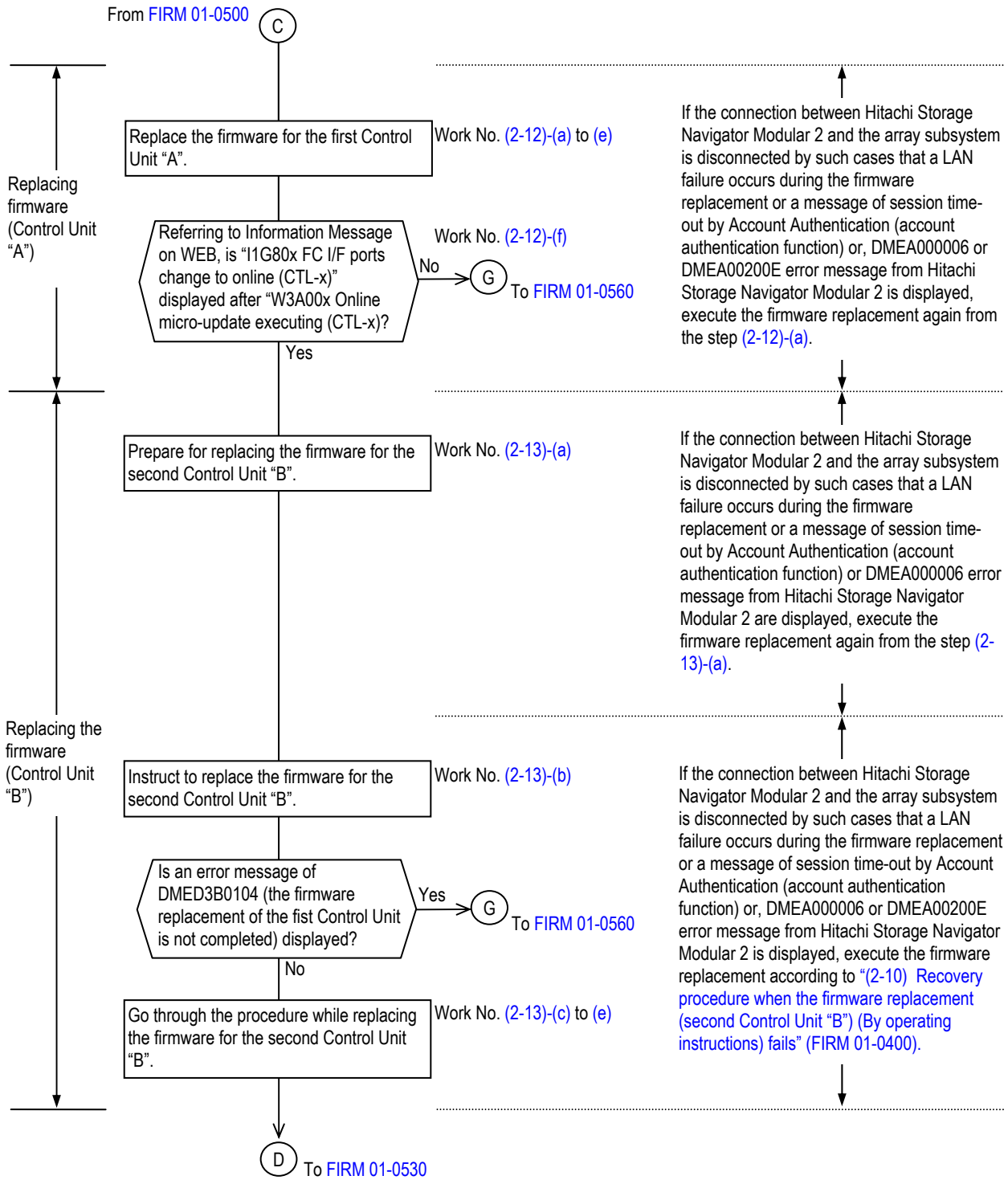

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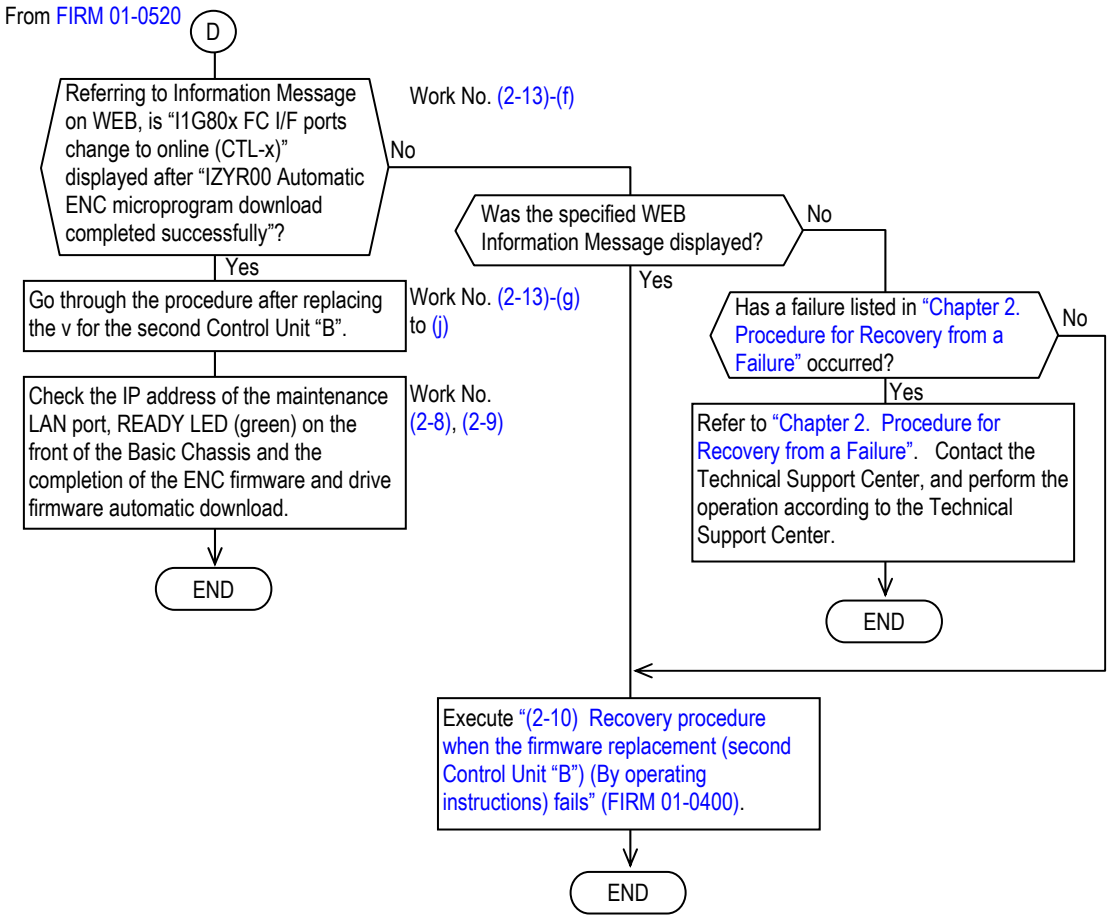

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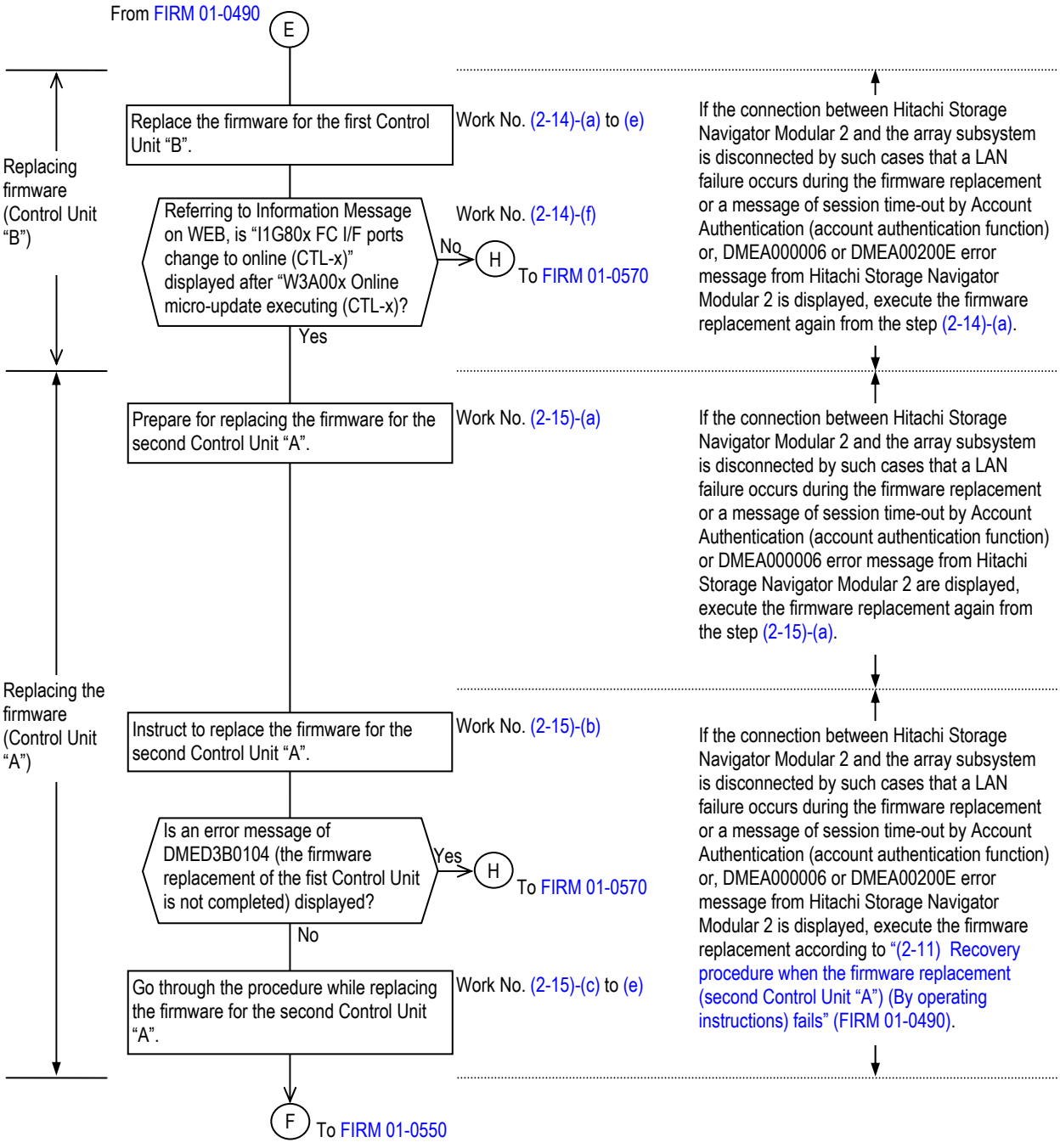

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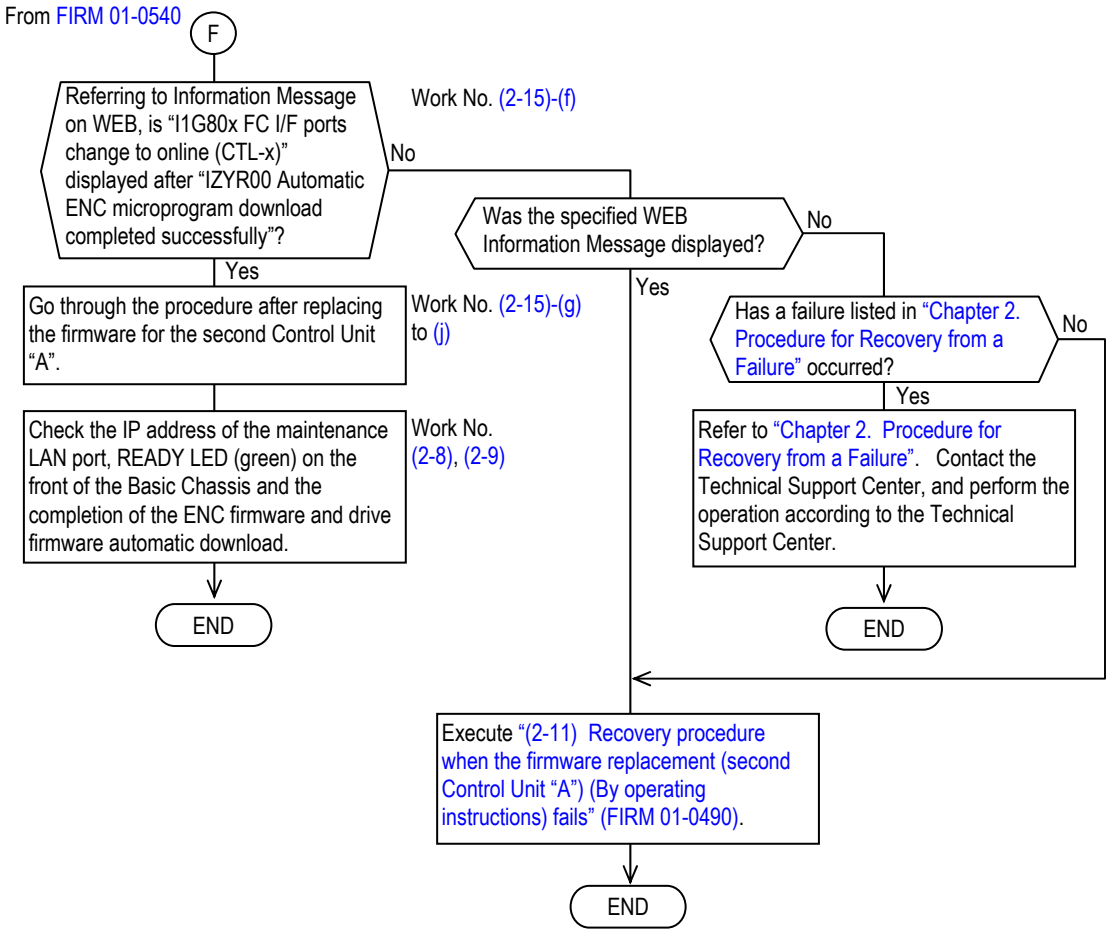

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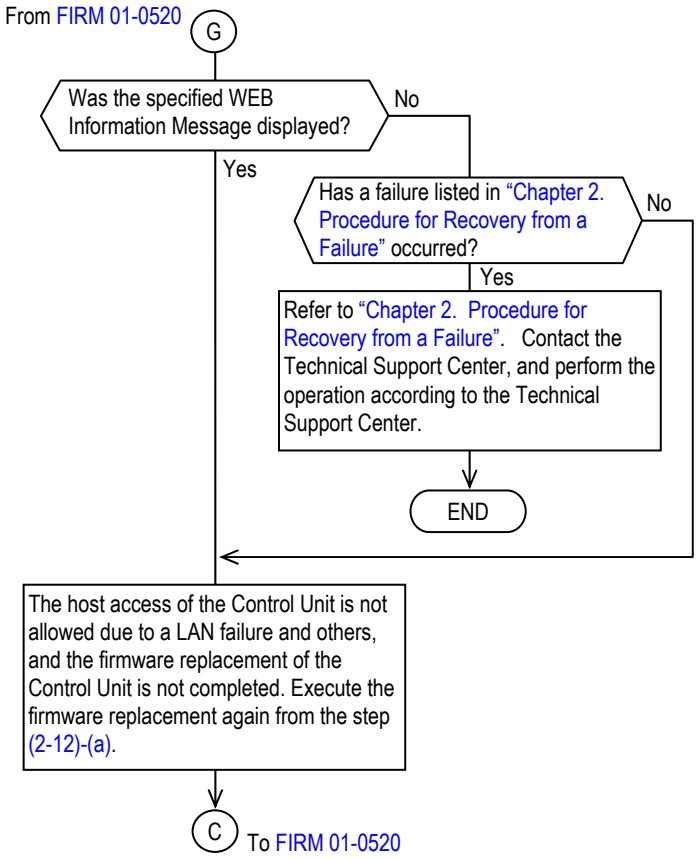

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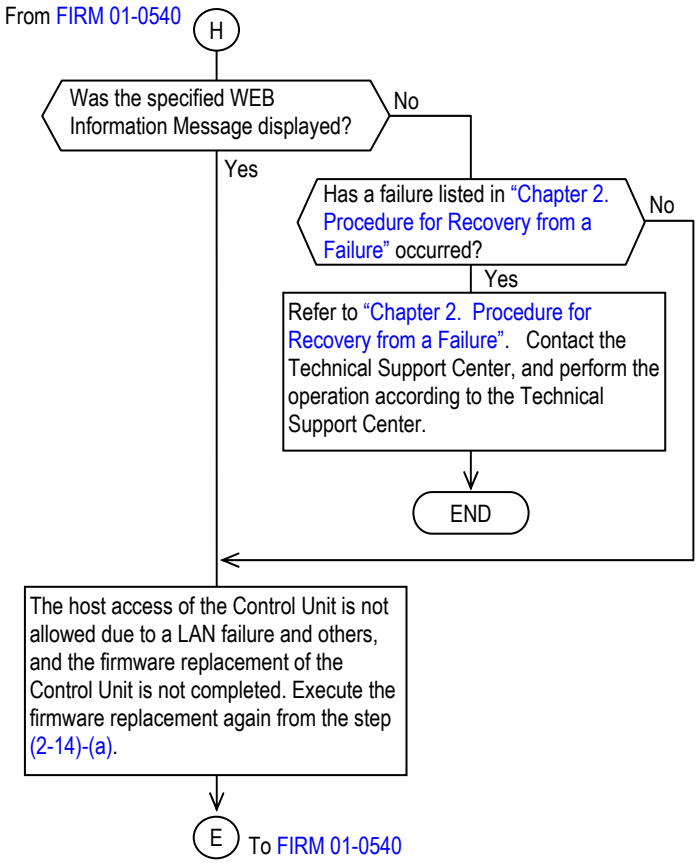

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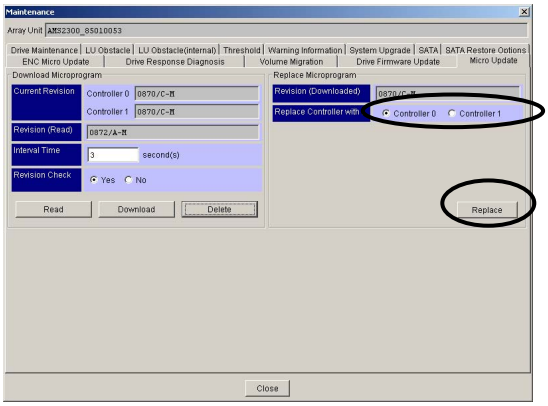
(2-12) Replacing the firmware (first Control Unit "A") (By operating instructions)
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Control Unit) at the time of the firmware replacement)
If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit. When making replacement, be sure to replace the firmware of the both Control Units 0 and 1. When the firmware of one of the Control Units 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 Control Unit whose firmware has not be replaced is registered.

(a) Select the Control Unit 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 Control Unit whose firmware will be updated.

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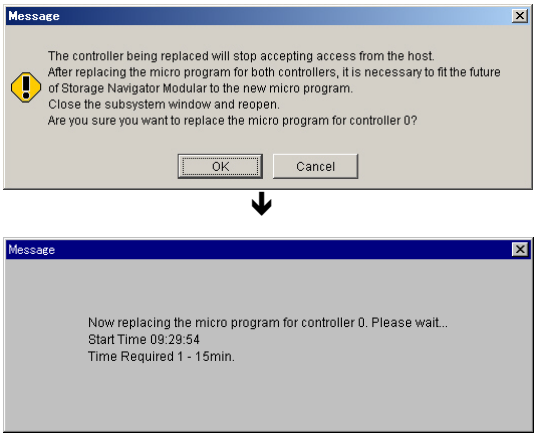
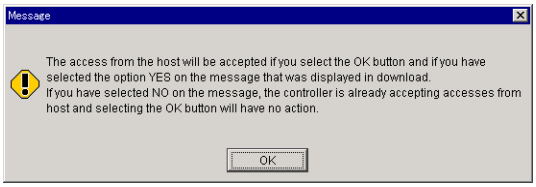
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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)).



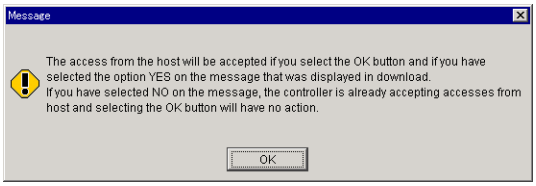
NOTE : Then "W01z0x CTL alarm (CTL-x)" message is displayed in information message of Web and Array Unit becomes Warning Status.

(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.



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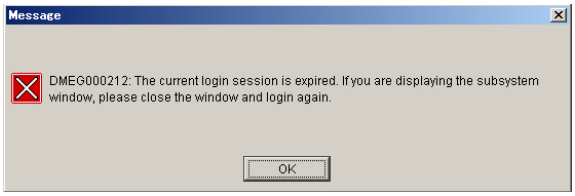
(e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.

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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



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

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(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 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed starting from the Control Unit #0. When it is performed starting from the Control Unit #1, convert the Control Unit 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 Control Unit again from the step (2-12) Replacing the firmware (first Control Unit “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 Control Unit.

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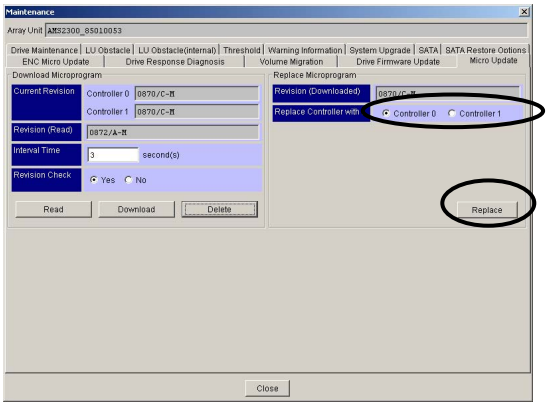
(2-13) Replacing the firmware (second Control Unit "B") (Case with operating instructions)
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Control Unit) at the time of the firmware replacement)
If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit 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 Control Unit whose firmware will be updated.

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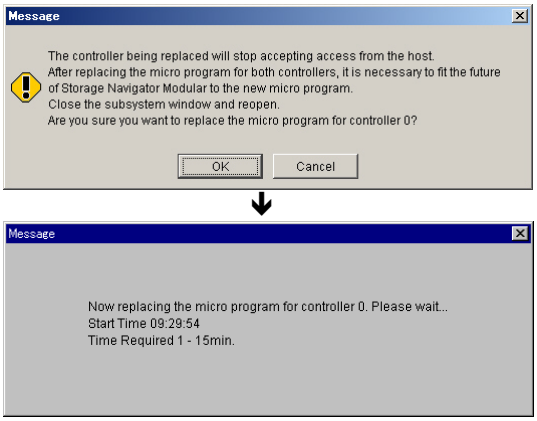
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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 Control Unit “B”) (By operating instructions) fails” (FIRM 01-0400).



NOTE : Then “W0100x 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 Control Unit “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).

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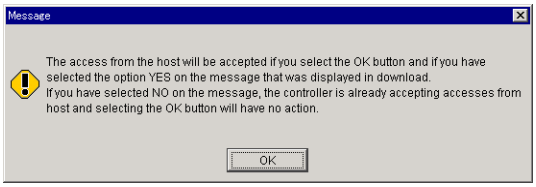
(c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.
Wait until the procedure is completed.

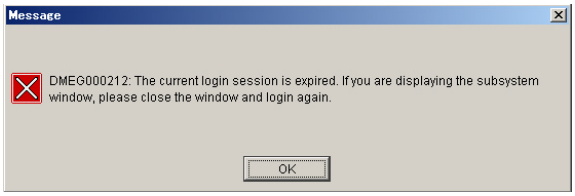


NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the "(2-10) Recovery procedure when the firmware replacement (second Control Unit "B") (By operating instructions) fails" according to the DMEA00200E error 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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



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

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(f) Referring to the Information Message on WEB, confirm the following items. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

- The messages "I1G80x FC I/F ports change to online (CTL-x)" is displayed after "IZYR00 Automatic ENC microprogram download completed successfully".

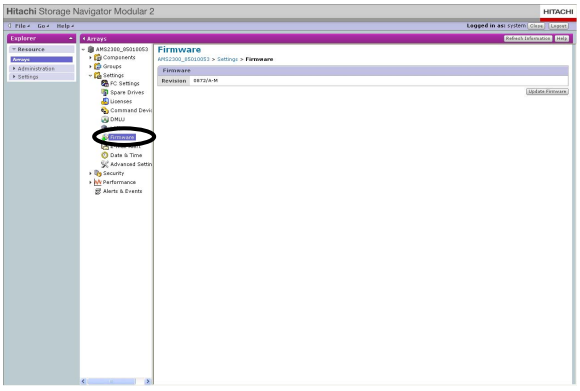
If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Control Unit #0 to Control Unit #1. When it is performed in order from the Control Unit #1 to Control Unit #0, convert the Control Unit 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 Control Unit "B") (By operating instructions) fails" (FIRM 01-0400) 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 micro-update completed
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.



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

NOTE : • When the replacement of the firmware is made for only one of the dual Control Unit, 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 Control Unit is replaced. When you replace the firmware, be sure to make the replacement for the both Control Units continuously.
• When the firmware was replaced online after performing the processing to change the system configuration (LU formation, 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.

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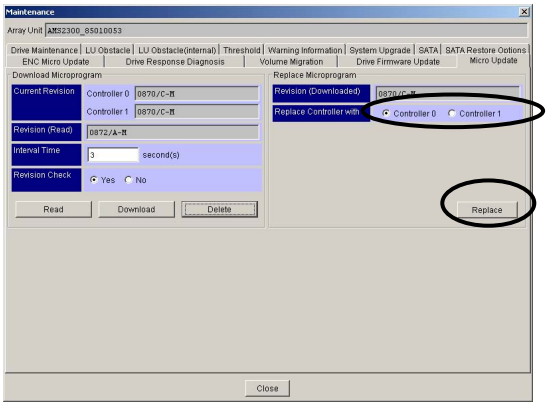
(2-14) Replacing the firmware (first Control Unit "B") (By operating instructions)
(In case that there is a special instruction by the Technical Support Center or the system administrator (SE, customer and others) to control the host access permit (offline/online of the Fibre Channel port of the Control Unit) at the time of the firmware replacement)
If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit. When making replacement, be sure to replace the firmwares of the both Control Units 0 and 1. When the firmware of one of the Control Units 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 Control Unit whose firmware has not be replaced is registered.

(a) Select the Control Unit 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 Control Unit whose firmware will be updated.

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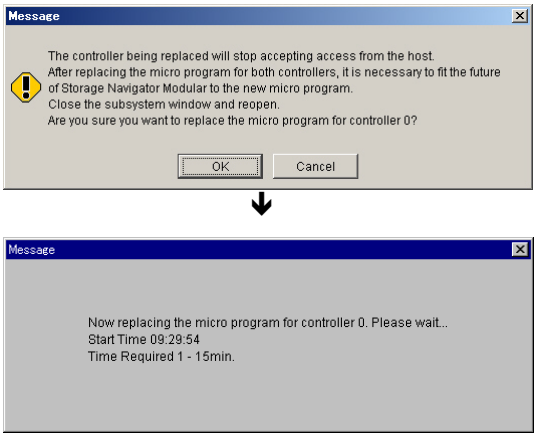
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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)).

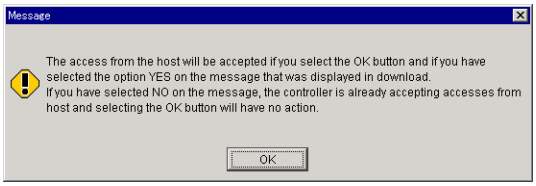


NOTE : Then "W01z0x CTL alarm (CTL-x)" message is displayed in information message of Web and Array Unit becomes Warning Status.

(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.



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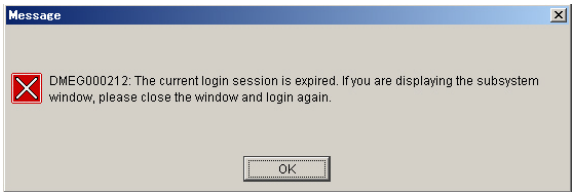
(e) When the replacement of the firmware terminates normally, a completion message is displayed. Click the [OK] button.

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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



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

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(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 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed starting from the Control Unit #0. When it is performed starting from the Control Unit #1, convert the Control Unit 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 Control Unit again from the step (2-14) (a) of “(2-14) Replacing the firmware (first Control Unit “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 Control Unit.

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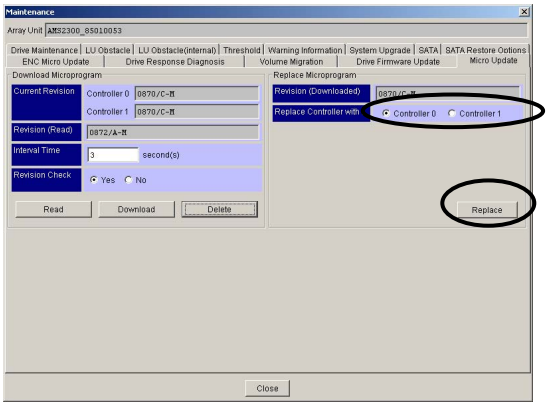
(2-15) Replacing the firmware (second Control Unit "A") (Case with operating instructions)

(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 Control Unit) at the time of the firmware replacement)

If the connection between Hitachi Storage Navigator Modular 2 and the array subsystem 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 Control Unit 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 Control Unit whose firmware will be updated.

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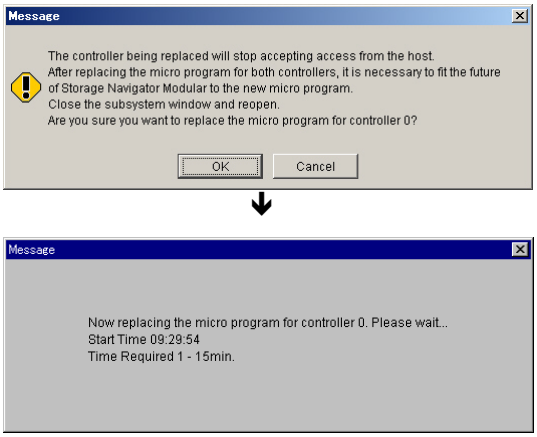
(b) The confirmation window is display. Check if the selected Control Unit is correctly displayed and click the [OK] button.

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 Control Unit “A”) (By operating instructions) fails” (FIRM 01-0490).



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 Control Unit “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).

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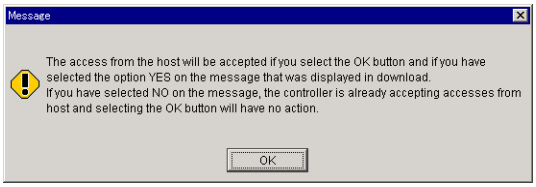
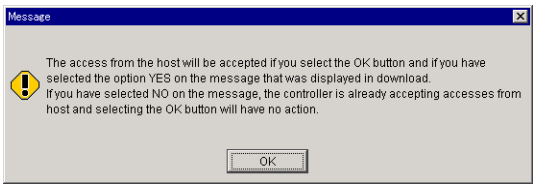
(c) If the confirmation message of the host access permit is displayed, contact the Technical Support Center or the system administrator (SE, customer and others), and request the prior procedure necessary for the path switching.
Wait until the procedure is completed.



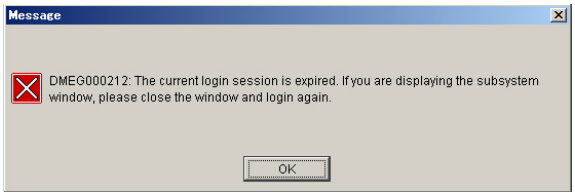
NOTE : If the above-mentioned message is not displayed, and if DMEA00200E error message is displayed, execute the firmware replacement again from the "(2-11) Recovery procedure when the firmware replacement (second Control Unit "A") (By operating instructions) fails" (FIRM 01-0490) according to the DMEA00200E 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 (‡1) of the Control Unit whose firmware was replaced to make the access from the host accepted.
If the access from the host is made accepted when the replacement of the firmware is completed, the dummy replacement (‡1) is unnecessary.



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

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(f) Referring to the Information Message on WEB, confirm the following items. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

- The messages "I1G80x FC I/F ports change to online (CTL-x)" is displayed after "IZYR00 Automatic ENC microprogram download completed successfully".

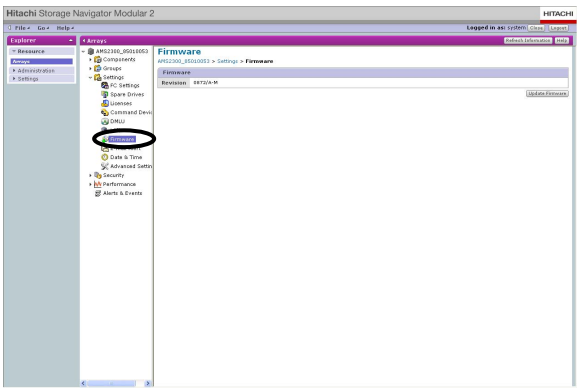
If the above- mentioned items are not established, refer to the Information Message on WEB, and check that the following message is displayed. (Refer to WEB "2.5 Information Message" (WEB 02-0110).)

NOTE : The following message is displayed when the firmware replacement is performed in order from Control Unit #0 to Control Unit #1. When it is performed in order from the Control Unit #1 to Control Unit #0, convert the Control Unit 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 Control Unit "A") (By operating instructions) fails" (FIRM 01-0490) 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 micro-update completed
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.



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

NOTE : • When the replacement of the firmware is made for only one of the dual Control Unit, 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 Control Unit is replaced. When you replace the firmware, be sure to make the replacement for the both Control Units continuously.
• When the firmware was replaced online after performing the processing to change the system configuration (LU formation, 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.

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(3) Update for single controller

NOTE : • Do not perform the update installation of the firmware while the READY LED (green) on the front of the Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).

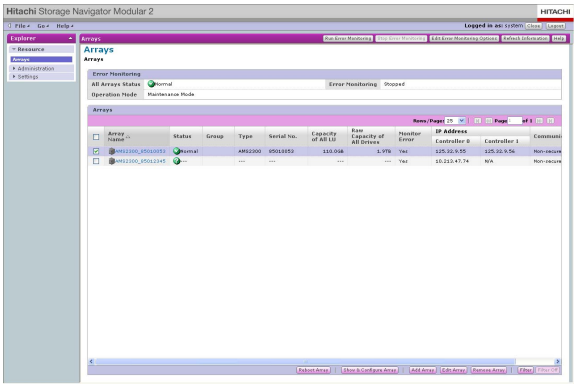
• When registering the disk array system at the time of connecting the disk array system, specify only the Control Unit #0 in [Connection Destination] (refer to System Parameter "1.1 (4) (c) Registering the disk array system" (SYSPR 01-0090)).

• When the LU, 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 subsystem, change the status of the LU to "Restored" or "Correction Skipped" by executing or skipping the forced parity correction (recommendation).

(3-1) Transfer and update of firmware

(a) Connect the LAN cross cable to the subsystem LAN connector for maintenance and connect the subsystem 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 subsystem to set, press the [Ctrl] key, [Shift] key and [E] key at the same time, and change the operation mode to "Maintenance Mode".(‡1)
Check that "Maintenance Mode" is displayed in [Operation Mode] on the top of the main window.



‡1 : When the array subsystem 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.

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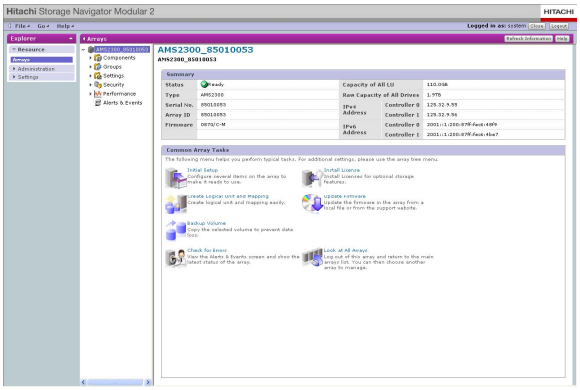
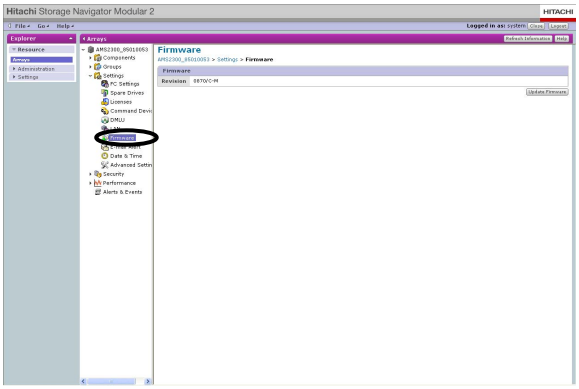
(c) Click the array subsystem name, and open the unit window.

NOTE : When the main window is not displayed even if you select the array subsystem, 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.



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(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®:

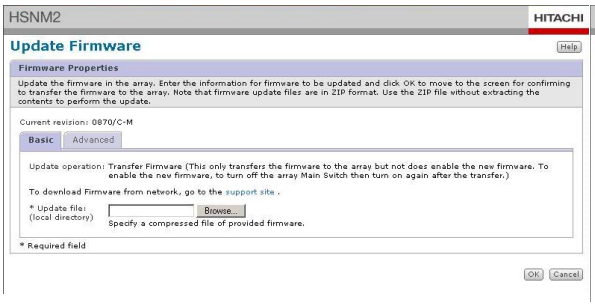
c:/diskarray-microprogram/microprogram/micro/0830A.zip

When using Solaris™ or Red Hat Linux®:

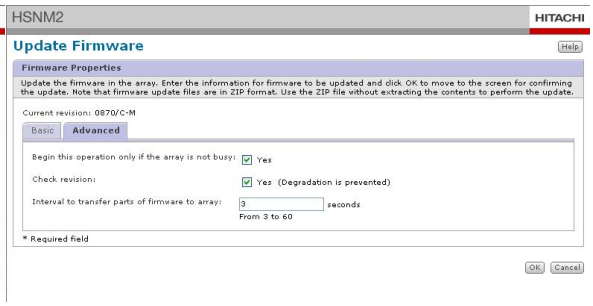
diskarray-microprogram/microprogram/micro/0830A.zip

Specified firmware file (ZIP form file)

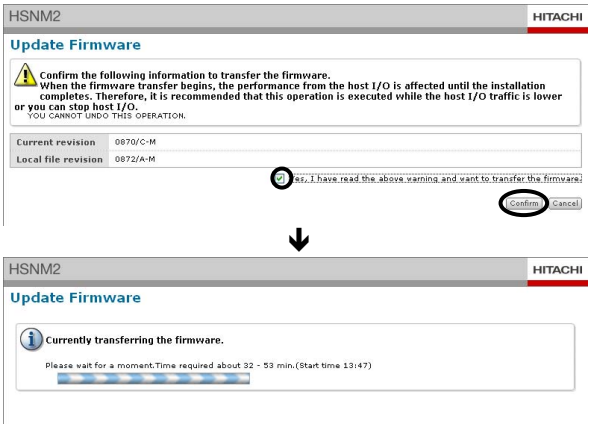
Basic tab



Advanced tab



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



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(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 subsystem.
If a failure occurs, perform maintenance or parts replacement, and then restore the subsystem 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”

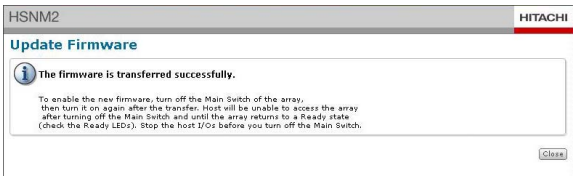
(i) Check if a failure occurs in the subsystem.
If a failure occurs, perform maintenance or parts replacement, and then restore the subsystem condition to normal.

(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 subsystem once and then turn on it again after obtaining the consent of turning on/off the subsystem 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 Basic Chassis lights up. If the WARNING LED (orange) on the front of Basic Chassis blinks at high speed, the READY LED (green) on the front of Basic Chassis (green) lights up after the WARNING LED blinks at high speed for the maximum of 30 to 85 minutes.

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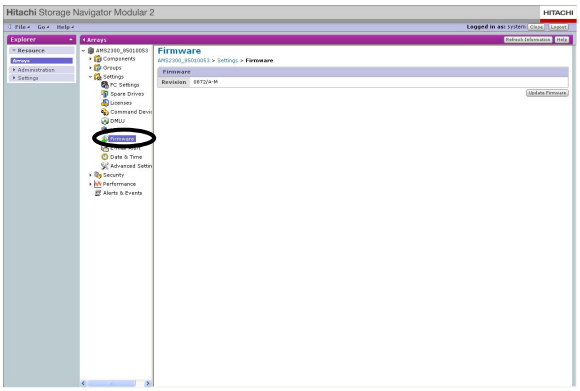
(j) Select [Settings] – [Firmware] on the unit window, and click the [Refresh Information] button.



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

(l) When the revision check is completed, the firmware replacement of the subsystem ends.

NOTE : When the firmware was replaced online after performing the processing to change the system configuration (LU formation, 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.

(3-2) Checking the READY LED (green) on the front of the Basic Chassis

Check that the READY LED (green) on the front of the Basic Chassis lights up. When the READY LED (green) on the front of the Basic Chassis is blinking at high speed, the READY LED (green) on the front of the Basic Chassis lights up after blinking at high speed for the maximum of 30 to 50 minutes (40 to 60 minutes in case of the RKH) because the automatic download of the ENC firmware is being operated.

(3-3) Check that the start message and the end message of the drive firmware automatic download are displayed. When the drive firmware version of the Disk 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 01-0890).)

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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 Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), or the WARNING LED (orange) is blinking at high speed (for the maximum of 30 to 85 minutes).

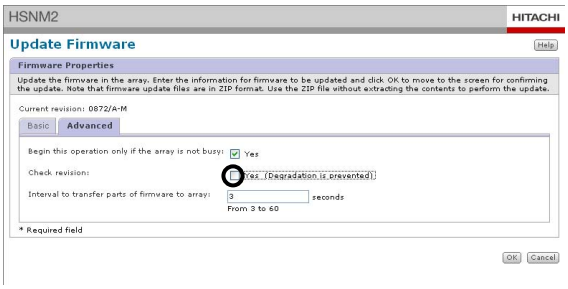
(1) Restrictions of the version downgrade of the firmware
For the restrictions of the version downgrade of the firmware, refer to "1.7 Restrictions of the Version Downgrade of the Firmware" (FIRM 01-0910).

(2) Download of the firmware

(2-1) Concurrent update in both Control Units (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) Concurrent update for both Control Units (Dual controller configuration) (1-1)-(a) to (e)" (FIRM 01-0070 to FIRM 01-0080.)

(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) Concurrent update for both Control Units (Dual controller configuration) (1-1)-(f) to (j)" (FIRM 01-0090 to FIRM 01-0100.)

(2-2) Update for each Control Unit (Dual controller configuration)

(a) Prepare for the version downgrade according to the procedure for update installation ("1.4.2 Update Installation of Firmware (2) Update for each Control Unit (Dual controller configuration) (2-1)-(a) to (i)" (FIRM 01-0170 to FIRM 01-0190)).

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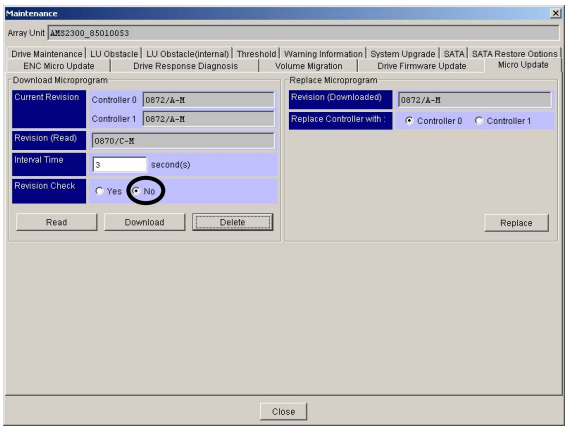
(b) Check [No] of [Revision Check].

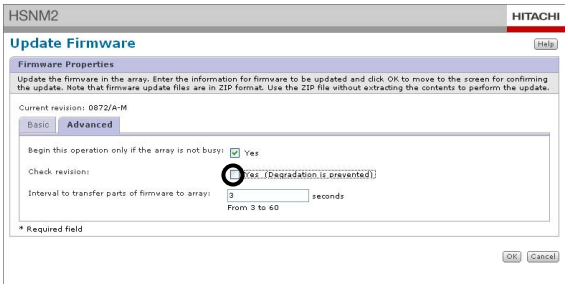


(c) Update the firmware according to the procedure for update installation ("1.4.2 Update Installation of Firmware (2) Update for each Control Unit (Dual controller configuration)" (FIRM 01-0110)).

(2-3) 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 (3) Update for single controller (3-1)-(a) to (e)" (FIRM 01-0760 to FIRM 01-0780).)

(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 (3) Update for single controller (3-1)-(f) to (j)" (FIRM 01-0780 to FIRM 01-0800).)

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1.5 Checking the Start and the Termination of the ENC Firmware Automatic Download

The ENC firmware is a function that is managed as a part of the firmware and checks the version of all ENC firmware in the subsystem when the subsystem starts or the ENC Unit is replaced, and downloads it automatically if necessary.

(1) Opportunity to start the automatic download

The ENC firmware starts the download automatically in the following opportunities.
In the single controller configuration, the automatic download of the ENC firmware operates only at the time of the starting opportunity.

<Start-up Opportunity>

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

<Maintenance Opportunity>

- When the Control Unit is inserted online
- When the ENC Unit are inserted online
- When the chassis frame is added online
- When the firmware is changed online
- When the ENC firmware automatic download function is enabled
- When the following warnings are released before starting the automatic download
  ENC Warning/Control Unit Warning/SNMP Warning/Disk drive Warning/PIN Warning/Power Unit Warning/UPS Warning/Battery backup Unit Warning/Battery backup circuit Warning/Fan Unit Warning
- When the following warnings, which caused the abnormal termination of the automatic download, are released
  Loop Warning/ENC Unit Warning/Control Unit Warning/Disk 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 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 with Hitachi Storage Navigator Modular 2
- Parts replacement

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- Adding optional components
- Subtracting optional components
- Relocation / Removal work
- Changing to the maintenance mode of the array subsystem by pressing RST SW of the Control Unit

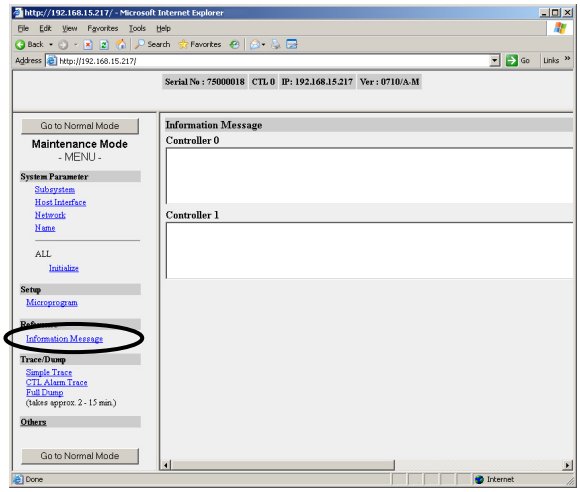
Execute the above-mentioned work after the ENC firmware automatic download is completed.

(3) Checking the start messages and the termination messages of the automatic download.
When the download starts, it takes up to 30 to 85 minutes to terminate it.

NOTE : The download does not start when the subsystem 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 subsystem 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 subsystem 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.



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(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 microprogram download start	Indicates that the automatic download started.
IZYR00 Automatic ENC microprogram download completed successfully	Indicate that the automatic download terminated normally.
IZYQ00 Automatic ENC microprogram download failed	Indicate that the automatic download terminated abnormally.

<Message Check Example>

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

  IZYS00 Automatic ENC microprogram download start
  IZY200 ENC#0 microprogram download start
  IZY400 ENC#0 microprogram download complete
  IZY201 ENC#1 microprogram download start
  IZY401 ENC#1 microprogram download complete
  IZYQ00 Automatic ENC microprogram download completed successfully

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

  IZYS00 Automatic ENC microprogram download start
  IZYQ00 Automatic ENC microprogram download completed successfully

- When it is abnormal

  IZYS00 Automatic ENC microprogram download start
  IZY200 ENC#0 microprogram download start
  IZY400 ENC#0 microprogram download complete
  IZY201 ENC#1 microprogram download start
  WOFA00 ENC alarm (Unit-01, ENC-1)
  :
  IZYM01 ENC microprogram download error detected (Unit-01)
  :
  IZY401 ENC#1 microprogram download complete
  IZYQ00 Automatic ENC microprogram 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.

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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 subsystem at the time of starting the subsystem 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 subsystem and the subsystem becomes the Ready status
- When rebooting the subsystem by remote
- When the blocked Control Unit was recovered by automatic reboot
- When rebooting the Control Unit in the maintenance mode to transfer it to the normal mode
- When rebooting the subsystem from the Hitachi Storage Navigator Modular 2

[Maintenance opportunities]

- When inserting the Control Unit 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 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

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(2) Restrictions during the automatic download

Do not execute the following works during the drive firmware automatic download because the following processing inside the subsystem 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 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 LUs 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 subsystem 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 subsystem
- Moving/removal work
- Moving to the maintenance mode of the array subsystem by pressing RST SW of the Control Unit

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

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(3) Supplementary explanation for the specification

(a) Target Disk Drive for the drive firmware automatic download execution is SAS/SAS(SED) Disk Drive, SAS7.2K Disk Drive, and Flash Drive.

(b) Drive firmware is not downloaded into the Disk Drive with the power saving (spin-down) setting.
To the Disk Drive with the power saving (spin-down) setting, when the power saving status is released (spin-up), the drive firmware is downloaded automatically.

(c) To the blocked Disk Drive, drive firmware is not downloaded automatically.

(d) If only one normal system disk exist (when four system disks which are blocked or whose the system area is blocked exist), the drive firmware is not downloaded automatically for the system disk.
In this case, by performing the maintenance to restore abnormal system disk to normal and replacing the Disk Drive, drive firmware is downloaded automatically to the system disk.

(e) To the Disk Drive which configures the regressed parity group, drive firmware is not downloaded automatically.
In this case, by replacing the blocked Disk Drive, drive firmware is downloaded automatically to the Disk Drive that configures this parity group.

(f) If Control Unit is blocked due to a certain failure when drive firmware automatic download runs, the drive firmware automatic download is interrupted.
After the Control Unit is recovered, the drive firmware automatic download restarts.

(g) If the drive firmware update terminates abnormally in a certain Disk Drive, to avoid multiple Disk Drives blockage due to the same failure factor, terminate the drive firmware automatic download abnormally at the time. To the subsequent Disk 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 automatic down load runs
- ENC firmware manual download runs with the subsystem power on
- A failure occurs in the subsystem backend part and then the backend diagnostic processing runs
- RAID group expansion processing runs
- DP pool creation, deletion, or capacity expansion runs

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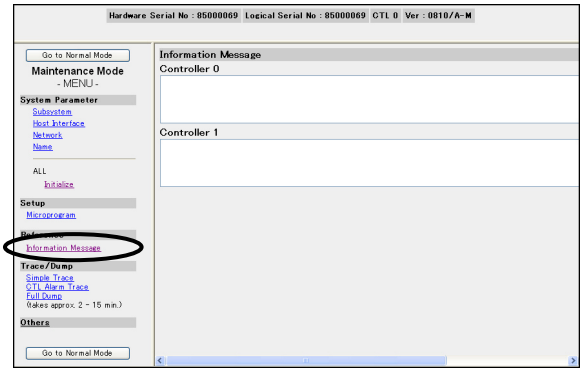
(4) Checking the start message and end message of the automatic download.
If the automatic download starts, it takes time of the maximum of 30 to 60 minutes × the number of drive types(‡1) (‡2).

NOTE : • When a failure occurs in the drive or Control Unit, 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 microprogram download completed successfully" indicating the completion of the ENC 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 subsystem 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 subsystem, 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.

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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

<Example of the message check>

• 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.)

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1.7 Restrictions of the Version Downgrade of the Firmware

The version of the firmware cannot be downgraded if corresponding to the conditions in Table 1.7.1, so follow the actions to be taken.

Table 1.7.1 Restrictions of the Version Downgrade of the Firmware

Unified version (*1) ("x" is optional.)		Restrictions of the Firmware to be downloaded	Actions to be taken
Firmware of the Control Unit	Firmware to be downloaded		
0830/A or more	0830/A	-	-
0852/A or more	0852/A or less	The RAID Group is under expansion or the specific operation of the RAID Group is performed.	Install it again after completing the expansion of all RAID Groups. If the expansion of all RAID Groups is completed, install the firmware whose integrated version is 0852/A or more.
0860/A or more	0860/A or less	The installation or the addition of the RKAKX was executed.	Install the firmware whose integrated version is 0860/A or more. Or, after backing up the user data, cancel the connection with the host, and remove the additional subsystems so that no RKAKX be connected. (*2)
		The server (NTP server, Syslog server, SMTP server or SNMP Manager) with the IPv6 address is used.	If you downgrade the version as is, it will not be able to communicate with the server correctly. Therefore, change all the server settings so that the IPv4 address is used, and then downgrade the version.
0862/A or more	0862/A or less	The license of TrueCopy Modular Distributed is unlocked and enabled, and the TrueCopy Modular Distributed mode is Hub.	Lock or disable the license of TrueCopy Modular Distributed, and then execute the version downgrade again.
0872/G or more	0872/G or less	The problem may occur when all following conditions are met. • Dynamic Provisioning Program Product using. • DP pool is made.	Please execute sequential shutdown and power on after completing the firmware version down. (Refer to Installation "1.5 Power On/Off Procedure" (INST 01-0130).) The problem may occur when the cash volatilizing is generated. There is no influence as long as the cash volatilizing by the power supply determination is not generated. However, a same problem occurs when the firmware upgrade is executed without the sequential shutdown and power on operation.
0880/A or more	0860/A or more and less than 0880/A	When the Basic Chassis is RKS, two or more RKAKXs were installed or added.	Install the firmware whose integrated version is 0880/A or more. Or, after backing up the user data, cancel the connection with the host, and remove the additional subsystems so that one or less RKAKX be connected. (*2)
0890/A or more	0890/A or less	The problem may occur when all following conditions are met. • Account Authentication Program Product using. • Advanced Security Mode is enabled.	Lock of Account Authentication or disable of the Advanced Security Mode, and then execute the version downgrade again.

*1 : Refer to "1.3.1 Hierarchy of Firmware Storage Directories" (FIRM 01-0020) for the unified version.

*2 : Refer to Addition/Removal/Relocation "2.3 Removing Additional Subsystem on Rack Frame" (ADD 02-0130).

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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			
		AMS2100		AMS2300	
		H/W Rev.0100	H/W Rev.0200	H/W Rev.0100	H/W Rev.0200
		Initial revision : 0832/E-S	Initial revision : 0890/A-X	Initial revision : 0832/E-M	Initial revision : 0890/A-Y
Basic Chassis	DF800-RK2	0846/A-S	-	0846/A-M	-
	DF800-RKEM	N/A	N/A	N/A	-
	DF800-RKES	N/A	-	N/A	N/A
Additional Chassis	DF-F800-RKAK	-	-	-	-
	DF-F800-RKAKX	0860/A-S	-	0860/A-M	-
	DF-F800-RKAKS	08B0/A-S	08B0/A-X	08B0/A-M	08B0/A-Y
SAS Disk Drive	DF-F800-AKH146	-	-	-	-
	DF-F800-AKH300	-	-	-	-
	DF-F800-AMF300	08B0/A-S	08B0/A-X	08B0/A-M	08B0/A-Y
	DF-F800-AKH450	0850/A-S	-	0850/A-M	-
	DF-F800-AKH450X	0890/B-S	0890/B-X	0890/B-M	0890/B-Y
	DF-F800-AKH600	0883/A-S	-	0883/A-M	-
	DF-F800-AKH600X	0890/B-S	0890/B-X	0890/B-M	0890/B-Y
	DF-F800-AMF600	08B0/A-S	08B0/A-X	08B0/A-M	08B0/A-Y
	DF-F800-AKF400	-	-	-	-
SAS(SED) Disk Drive	DF-F800-ANH600	08A0/A-S	08A0/A-X	08A0/A-M	08A0/A-Y
	DF-F800-ANH600X	08A0/A-S	08A0/A-X	08A0/A-M	08A0/A-Y
SATA Disk Drive	DF-F800-AVE500	-	-	-	-
	DF-F800-AVE750	-	-	-	-
	DF-F800-AVE1K	-	-	-	-
	DF-F800-AVE1KX	0860/A-S	-	0860/A-M	-
	DF-F800-AVE2K	0883/A-S	-	0883/A-M	-
	DF-F800-AVE2KX	0883/A-S	-	0883/A-M	-
	DF-F800-AVE3K	08B5/A-S	08B5/A-X	08B5/A-M	08B5/A-Y
	DF-F800-AVE3KX	08B5/A-S	08B5/A-X	08B5/A-M	08B5/A-Y
SAS7.2K Disk Drive	DF-F800-AWE2K	0895/A-S	0895/A-X	0895/A-M	0895/A-Y
	DF-F800-AWE2KX	0895/A-S	0895/A-X	0895/A-M	0895/A-Y
Flash Drive	DF-F800-AKS200	0883/A-S	-	0883/A-M	-
Cache Unit	DF-F800-C1GK	-	-	-	-
	DF-F800-C2GK	-	-	-	-
	DF-F800-C4GK	0845/A-S	-	0845/A-M	-
FC Interface Board	DF-F800-DKF42	-	-	N/A	N/A
	DF-F800-DKF44	N/A	N/A	-	-
	DF-F800-DKF84	N/A	N/A	0872/A-M	-
	DF-F800-DKF82	N/A	-	N/A	N/A
ISCSI Interface Board	DF-F800-DKS12	0843/A-S	-	0843/A-M	-
	DF-F800-DKSA2	08B3/A-S	08B3/A-X	08B3/A-M	08B3/A-Y
Control Unit	DF-F800-F1KM	N/A	N/A	-	N/A
	DF-F800-F1KS	-	N/A	N/A	N/A
	DF-F800-F1KEM	N/A	N/A	N/A	-
	DF-F800-F1KES	N/A	-	N/A	N/A

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Part name	Type name	Model name				
		AMS2500		AMS2010		
		H/W Rev.0100	H/W Rev.0200	H/W Rev.0200		H/W Rev.0100
		Initial revision : 0840/B-H	Initial revision : 0890/A-Z	Initial revision : 0890/A-W	Initial revision : 0897/C-X	Initial revision : 0893/B-S
Basic Chassis	DF800-RK2	N/A	N/A	-	-	-
	DF800-RKH2	0846/A-H	N/A	N/A	N/A	N/A
	DF800-RKEXS	N/A	N/A	-	N/A	N/A
	DF800-RKEXSA	N/A	N/A	N/A	N/A	-
	DF800-RKEXSB	N/A	N/A	N/A	N/A	-
	DF800-RKEXS8F	N/A	N/A	N/A	-	N/A
	DF800-RKHE	0850/A-H	N/A	N/A	N/A	N/A
	DF800-RKHE2	0850/A-H	N/A	N/A	N/A	N/A
	DF800-RKHED	0862/A-H	N/A	N/A	N/A	N/A
	DF800-RKEH	0890/A-Z	-	N/A	N/A	N/A
	DF800-RKEH2	0890/A-Z	-	N/A	N/A	N/A
	DF800-RKEHD	0890/A-Z	-	N/A	N/A	N/A
	DF800-RKEH2D	0890/A-Z	-	N/A	N/A	N/A
Additional Chassis	DF-F800-RKAK	-	-	-	-	-
	DF-F800-RKAKX	0860/A-H	-	N/A	N/A	N/A
	DF-F800-RKAKD	0862/A-H	-	N/A	N/A	N/A
	DF-F800-RKAKS	08B0/A-H	08B0/A-Z	08B0/A-W	08B0/A-X	08B0/A-S
SAS Disk Drive	DF-F800-AKH146	-	-	N/A	N/A	N/A
	DF-F800-AKH300	-	-	N/A	-	N/A
	DF-F800-AMF300	08B0/A-H	08B0/A-Z	08B0/A-W	08B0/A-X	08B0/A-S
	DF-F800-AKH450	0850/A-H	-	-	-	-
	DF-F800-AKH450X	0890/B-H	0890/B-Z	N/A	N/A	N/A
	DF-F800-AKH600	0883/A-H	-	-	-	-
	DF-F800-AKH600X	0890/B-H	0890/B-Z	N/A	N/A	N/A
	DF-F800-AMF600	08B0/A-H	08B0/A-Z	08B0/A-W	08B0/A-X	08B0/A-S
	DF-F800-AKF400	-	-	N/A	N/A	N/A
SAS(SED) Disk Drive	DF-F800-ANH600	08A0/A-H	08A0/A-Z	N/A	N/A	N/A
	DF-F800-ANH600X	08A0/A-H	08A0/A-Z	NA	NA	NA
SATA Disk Drive	DF-F800-AVE500	-	-	N/A	N/A	N/A
	DF-F800-AVE750	-	-	N/A	N/A	N/A
	DF-F800-AVE1K	-	-	-	-	-
	DF-F800-AVE1KX	0860/A-H	-	N/A	N/A	N/A
	DF-F800-AVE2K	0883/A-H	-	-	-	-
	DF-F800-AVE2KX	0883/A-H	-	N/A	N/A	N/A
	DF-F800-AVE3K	08B5/A-H	08B5/A-Z	08B5/A-W	08B5/A-X	08B5/A-S
	DF-F800-AVE3KX	08B5/A-H	08B5/A-Z	N/A	N/A	N/A
SAS7.2K Disk Drive	DF-F800-AWE2K	0895/A-H	0895/A-Z	0895/A-W	0895/A-X	0895/A-S
	DF-F800-AWE2KX	0895/A-H	0895/A-Z	N/A	N/A	N/A
Flash Drive	DF-F800-AKS200	0883/A-H	-	N/A	N/A	N/A
Cache Unit	DF-F800-C1GK	-	-	N/A	N/A	N/A
	DF-F800-C2GK	-	-	-	-	-
	DF-F800-C4GK	0845/A-H	-	N/A	N/A	N/A
FC Interface Board	DF-F800-DKF44	-	-	N/A	N/A	N/A
	DF-F800-DKF84	0872/A-H	-	N/A	N/A	N/A
ISCSI Interface Board	DF-F800-DKS12	0860/A-H	-	N/A	-	N/A
	DF-F800-DKSA2	08B3/A-H	08B3/A-Z	N/A	N/A	N/A
	DF-F800-N1RKD	0862/A-H	-	N/A	N/A	N/A

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Part name	Type name	Model name				
		AMS2500		AMS2010		
		H/W Rev.0100	H/W Rev.0200	H/W Rev.0200		H/W Rev.0100
		Initial revision : 0840/B-H	Initial revision : 0890/A-Z	Initial revision : 0890/A-W	Initial revision : 0897/C-X	Initial revision : 0893/B-S
Control Unit	DF-F800-F1KEXS	N/A	N/A	-	N/A	N/A
	HDF-F800-SIS2	N/A	N/A	N/A	N/A	-
	DF-F800-F1KES	N/A	N/A	N/A	-	N/A
Additional Battery Box	DF-F800-N1RK	0850/B-H	-	N/A	N/A	N/A

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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 Troubleshooting "Chapter 4. Trouble Analysis by WEB Connection" (TRBL 04-0000).

- 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	Down grade check NG	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 Disk 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 Disk Drive was equal to or less than the size of the system area.

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<Install partially complete (The installation of some of the Disk 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 Troubleshooting "Chapter 4. Trouble Analysis by WEB Connection" (TRBL 04-0000). It may be a Disk Drive failure. For the details, refer to "Chapter 3. Procedure for Isolating Cause of Disk Drive Failure when "Install partially complete" Message is Output" (FIRM 03-0000).

- Details of WEB error logs

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

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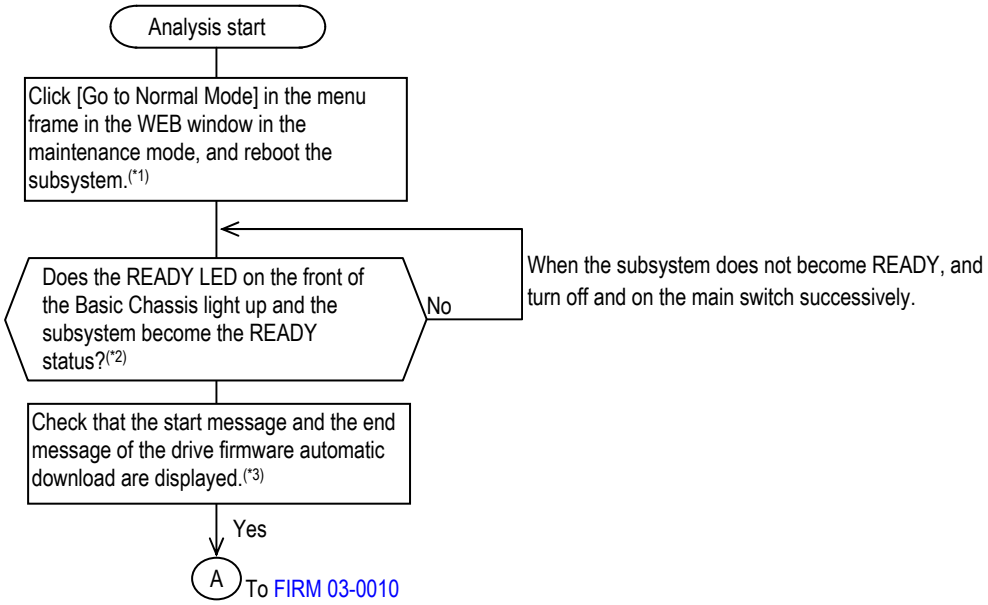
Chapter 3. Procedure for Isolating Cause of Disk Drive Failure when "Install partially complete" Message is Output

The "Install partially complete" message is displayed in the WEB window when the subsystem 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 Disk Drive failure. Therefore, analyze it in the following procedure, and take a necessary action.

- When the firmware was installed in the maintenance mode, at least one Disk Drive was not installed among the Disk Drive #0 to #4 of the RKM/RKS, or the Disk Drives #0 to #4 of the RKAK/RKAKS corresponding to the unit ID#0 connected to the RKH, the Disk Drive #A0 to #A4 of the RKAKX (system drives).
- When the firmware was installed in the maintenance mode, at least one failed in the write of the firmware among the Disk Drive #0 to #4 of the RKM/RKS, or the Disk Drives #0 to #4 of the RKAK/RKAKS corresponding to the unit ID#0 connected to the RKH, the Disk Drive #A0 to #A4 of the RKAKX (system drives).



*1 : In the subsystem where the Power Saving 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 Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, or 40 to 60 minutes in case of the RKH), 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 disk 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 01-0890)".

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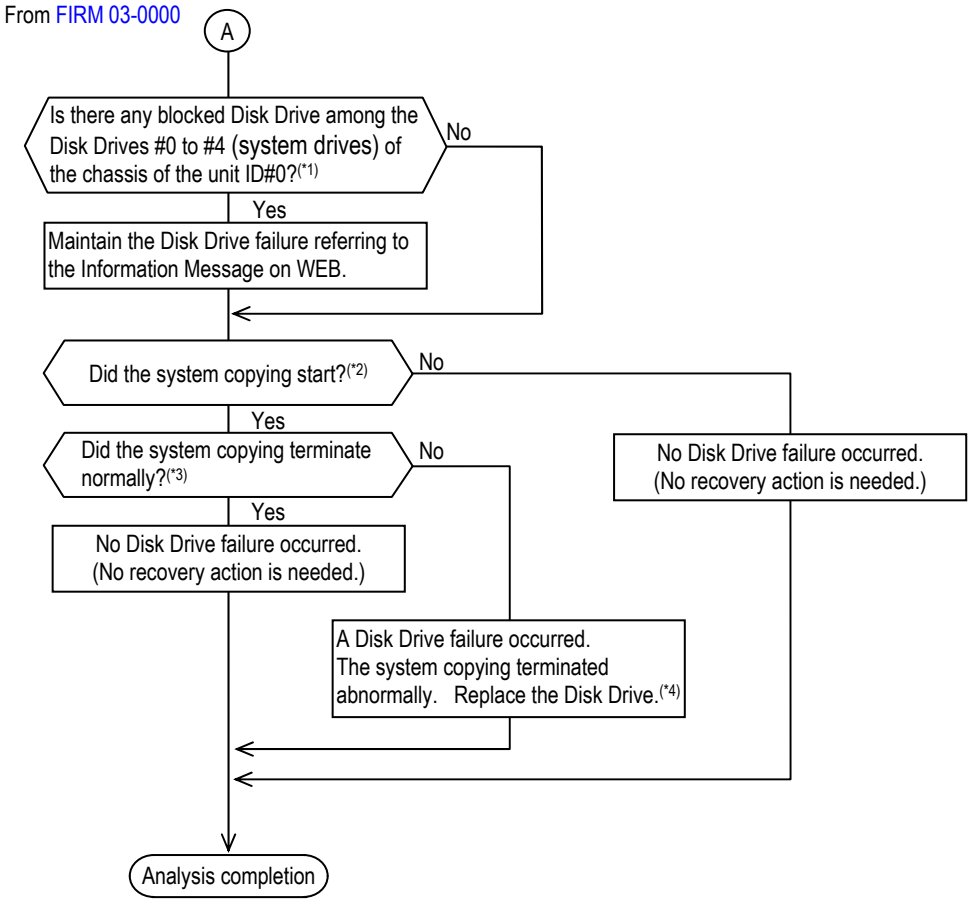

*1 : The ALM LED (red) on the Disk Drive lights up, and any of the following messages is displayed in the Information Message on WEB.
- HDU alarm message ·····“W09zab HDU alarm” or “W0Azab SATA HDU alarm”
- Spare HDU alarm message ···“W0Bzab Spare HDU alarm” or “W0Czab SATA Spare HDU alarm”

*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 Disk Drive, refer to the Replacement “2.2.1 Replacing Disk Drive” (REP 02-0030).

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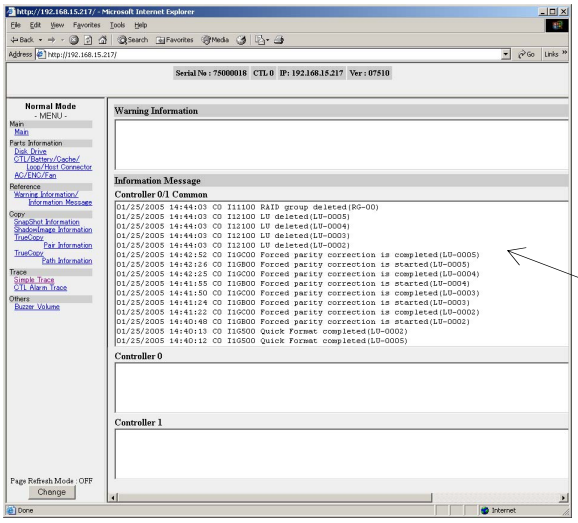
3.1 Procedure for Checking whether System Copy Operation Occurred

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 : Disk Drive #

- When the not occurred of system copy

The message above is not displayed but a message "I10000 Subsystem is Ready" is displayed.

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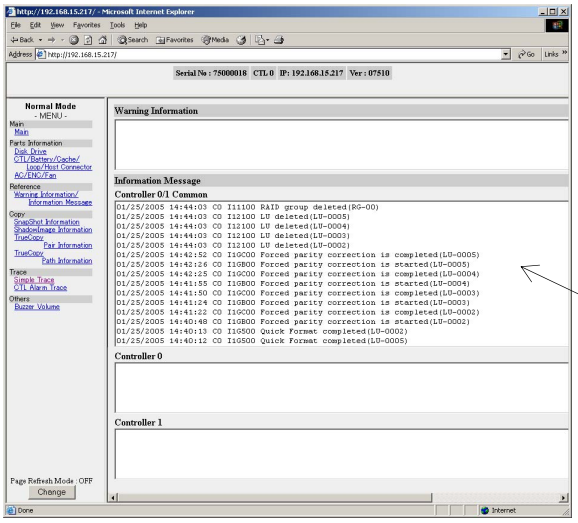
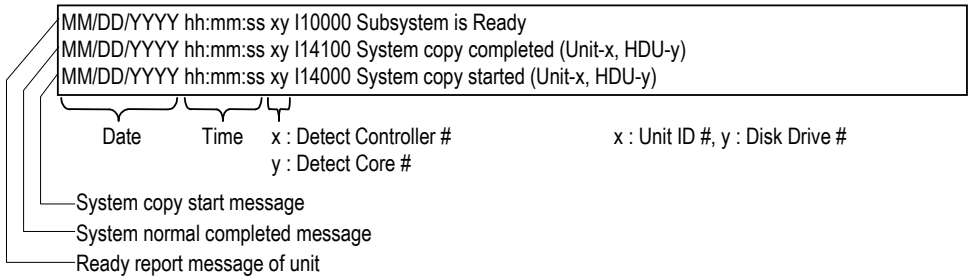
3.2 Procedure for Checking the Status of System Copy Complete

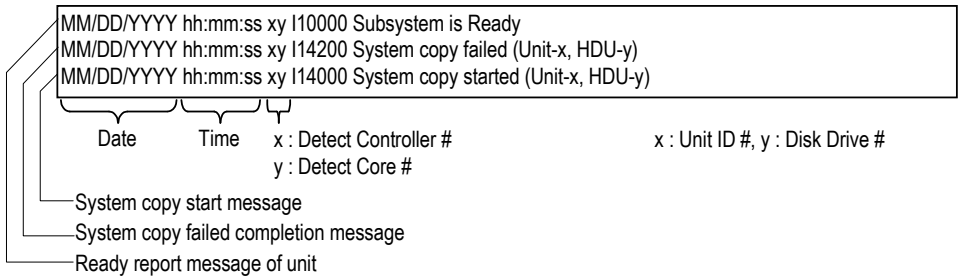
You can verify whether the system copy operation has occurred by viewing the "Information Message" window in the WEB window.



- When the normal completed of system copy



- When the not occurred of system copy



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