

# ***MICRO-FC SECTION***

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## MICRO-FC

Two types of MICRO-FCs are provided with micro-program exchange and on-line patch. Micro-program exchange is explained in chapter 1 to 5.4, and on-line patch in chapter 5.

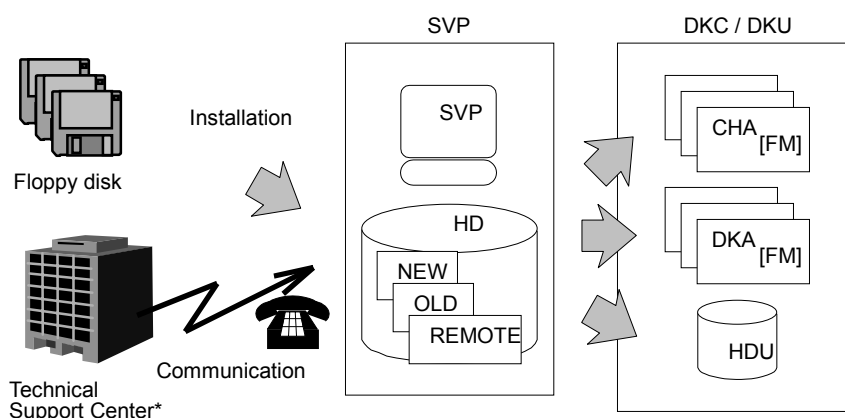
## 1 Overview

### 1.1 Micro-program Types

The micro-programs listed below can be exchanged via the SVP. Therefore, the exchange of micro-programs requires operational knowledge of the SVP.

Micro-program	Written to
Setup installer	—
DKCMAIN	FM
MAIN DIFF	FM
SVP	Hard disk in the SVP
LCP/LCDG	FM
HTP/FCDG	FM
PCDG	FM
CUDG4	Hard disk in the SVP
DKU	HCU
SSVP	FM
RAM BOOT	FM
CONFIG	Hard disk in the SVP

## 1.2 Micro-program Exchange Flow



The SVP keeps two generations (new and old versions) of micro-programs.

\* Technical Support Center : A base of maintenance service and technical support

Micro-programs can be exchanged in four ways.

- (1) Downloading after storing the micro-programs from CD-ROM or floppy disk to the hard disk
- (2) Downloading of the latest versions on the hard disk in the SVP
- (3) Remote (downloading of the micro-programs transferred from the maintenance center)
- (4) Version Down (downloading of old versions on the hard disk)

## 1.3 Micro-program Exchange

Micro-programs can be exchanged off-line or on-line.

### (1) Off-line

All processors are blocked for maintenance. → Micro-programs are rewritten. → All processors are recovered. → The DKC is turned off then on again.

### (2) On-line

The processor is blocked for maintenance. → Micro-programs are rewritten. → The processor is recovered.



This is performed for each exchanging unit.

Note:

- The SVP checks the version of the micro-program to be substituted before rewriting it. When the SVP determines that the micro-program cannot be rewritten, it displays an error message and cancels the exchange of the micro-program.
- The SVP terminates the exchange of micro-programs when the error status is displayed (i.e. when a message “ ..... error ..... ” or “ ..... failed ..... ” is displayed) or when the [Cancel] button is selected.

If you want to retry the exchange, please start from the first step of the MICRO-FC procedure.

However, when the error status is displayed in downloading from SVP to DKC (FM) or DKU by 3.3 Transferring micro-program to the DKC or by 5.4.3 Transferring micro-program, you can retry by 3.4 Hard Disk Download or by 4.4 Hard Disk Download.

- All program files which are automatically exchanged on an SVP during a micro-program exchange, will also be automatically exchanged on the other SVP when the SVP High Availability Feature is installed and the other SVP is functional.

Those programs which are not automatically exchanged, such as Apache, must be manually exchanged on both SVPs.

Please confirm that both SVPs contain the same program versions after exchanging program versions. However, SVP switching must be performed before and after the version check.

(Refer to [SVP02-1360](#) 2.23 “Switch SVPs”.)



### CAUTION

In case of HMRCF/HOMRCF, Differential bit map data on shared memory of DKC is lost by offline micro exchange operation.

To avoid loss of differential bit map, online micro exchange should be used.

## 2 Micro-program substitution in the SVP

We remove replace procedure of PC from SVP section to Replace section, Because the procedure is held right after replacing PC.

### 3 Micro-program Exchange Procedure (Off-line)

If an error occurs during a micro-program exchange, retry the exchanging procedure from the beginning.

#### 3.1 Processing before exchange

- Check the subsystem status through the entire status display. (Check the versions of the all programs through the version display.)
- Make sure that collection copy and other processing are not in progress.)
- Perform postprocessing for PIN data.
- Check that all processors are normal.
- Check that all CHL pass to the subsystem are off-line (to block all micro-programs).
- LCP, LCDG, HTP, FCDG, PCDG, DKCMAIN, MAIN DIFF, and RAMBOOT micro-programs can be exchanged on off-line.
- In the case of HRC Asynchronous components, suspending all volume pairs is required prior to the **RCU's** off-line micro-program exchange. Refer to 3.17.8.1 Managing HRC Asynchronous Subsystems (5) Micro-program Exchange: [THEORY03-1470](#).
- In the case of existing relationship of ShadowImage-FlashCopy(R)option and performing off-line micro-program exchange operation, it is necessary to follow the procedure of THEORY OF OPERATION SECTION”3.14.8 Micro-program Exchange (1) Off-line Micro-program Exchange”.
- In case of using Copycentral, after performing off-line micro-program exchange operation, it is necessary to re-define the command device for Copycentral.

#### Off-line Micro-program Exchange time (approximate)

(unit : minutes)

	CD-ROM → HDD		Downloading
LCP	3	CHA	2
LCDG			
HTP			
FCDG		DKA	2
PCDG			
DKCMAIN			
MAIN DIFF			
RAMBOOT		Reboot	3
TOTAL	3	TOTAL	7

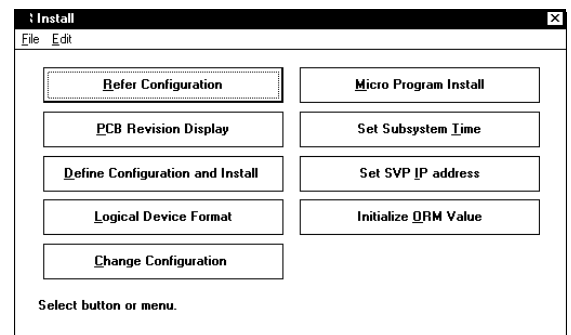
Note: After you execute this operation, DKC will clear the condition that DKC reports SIM to the host. Therefore, DKC will report the next SIM to the host when the host accesses 16K I/O, and after you wait for an hour if P/S on is executed.

### 3.2 Storing the micro-programs to be substituted in the SVP

(1) <Initial screen>

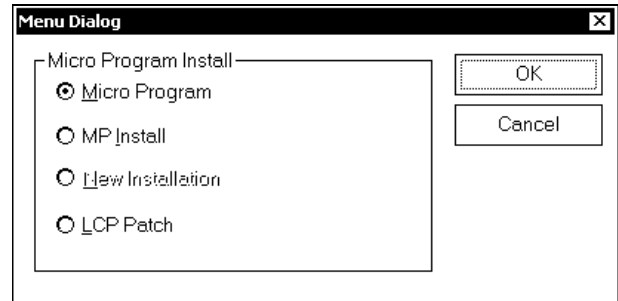
(2)  
Change the mode to [Modify Mode] (CL).  
Select (CL) [Install].

(3) In the 'Install' window, select (CL)  
[Micro Program Install].



(4)

Select (CL) [Micro Program] and select (CL) [OK].



(5)

In the 'Setup Microprogram' dialog box,  
[How]: select (CL) [Offline].  
[From]: select (CL) the source from which to store the  
micro-programs.

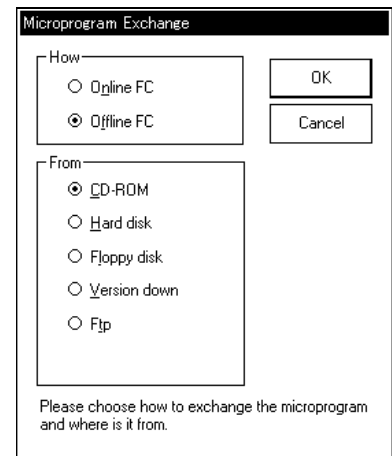
CD-ROM: After being stored on the hard disk from CD-ROM, the micro-programs are downloaded. --- Select(CL) [OK] and Go to (6).

Hard Disk: The latest versions on the SVP hard disk are downloaded.--- Go to 3.4 (1). ([MICRO-FC03-270](#))

Floppy Disk: After being stored on the hard disk from floppy disks, the micro-programs are downloaded. --- Select(CL) [OK] and Go to (6).

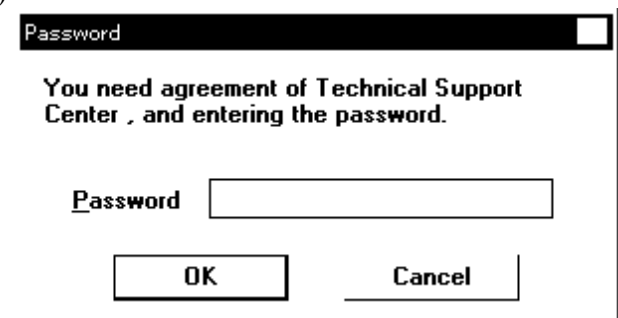
Version Down: Old versions on the hard disk are downloaded. --- Go to 3.5 (1). ([MICRO-FC03-290](#))

Ftp: After being stored on the hard disk by FTP transfer, the micro-programs are downloaded. --- Select (CL) [OK] and Go to 3.6 (1)



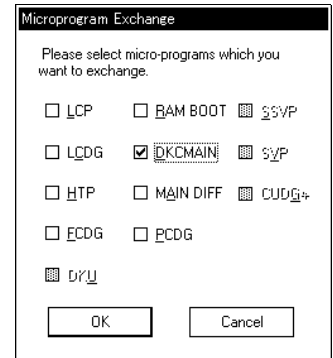
Selecting (CL) [Cancel] returns you to be step (4).

(6) If you want to continue this process, select (CL) [OK] and enter the password, and select (CL) [OK].

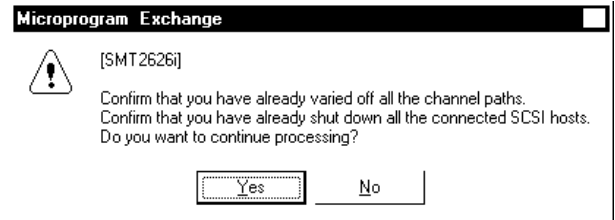
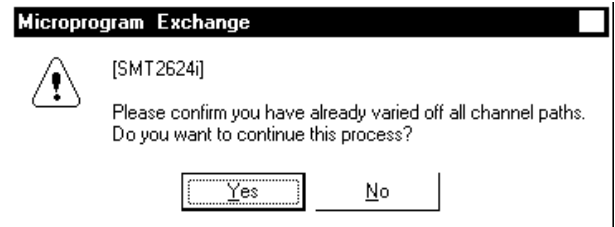
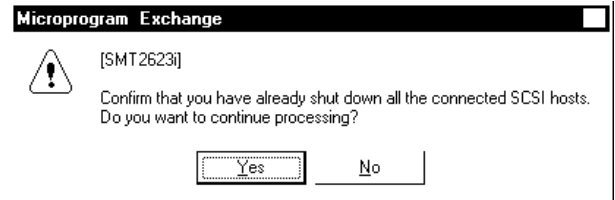


- (7) The 'Micro-program Exchange' dialog box appears.  
Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].

☒ : Micro-programs to be substituted.



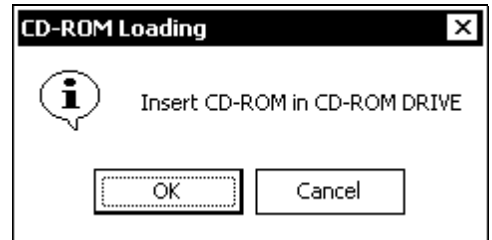
One of messages are displayed by the subsystem configuration.



After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

- (8) If you select CD-ROM, a dialog “Insert CD-ROM in CD-ROM DRIVE” appears. Insert the CD-ROM and select (CL) [OK].

If you select floppy disk, in response to the message “Insert No.n FD of DKCMAIN in FDD”, remove the inserted floppy disk and insert the appropriate floppy disk and select (CL) [OK].



<<Error>>

No CD-ROM or no floppy disk or uncorrect CD-ROM or uncorrect floppy disk in the disk drive:

The same message is displayed again, returning you to (8).

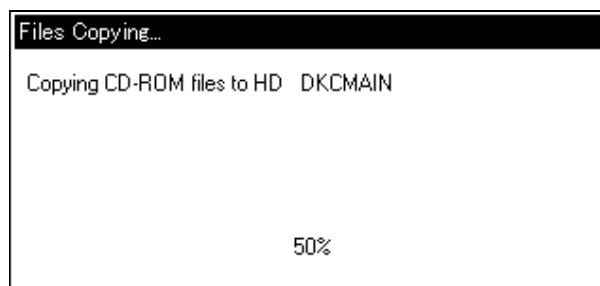
Internal error:

- “Old files erase failed, copy stop.”
- “Memory error has occurred.”
- “File I/O error has occurred.”
- “Logical error has occurred.”
- “The directory create error and copy stop.”
- “The file size is Wrong and copy stop.”

- (9) If you select CD-ROM, the message “Copying CD-ROM files to HD DKCMAIN” appears.

If you select floppy disk, the message “Copying FD files to HD DKCMAIN” appears.

Execute the steps (8) to (9) once for each floppy disk.



<<Error>>

Internal error:

- “The file size is Wrong and copy stop.”
- “The directory create error and copy stop.”
- “Micro-program version disagreement and copy stop.”
- “Logical error has occurred.”
- “File I/O error has occurred.”
- “Memory error has occurred.”

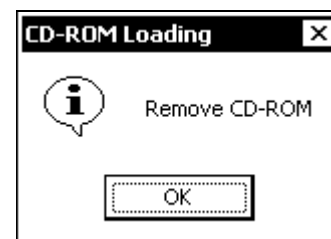
Note : When the error message “File I/O error has occurred.” or “Memory error has occurred.” is displayed, power SVP off and on again if the same message appears after reexecuting the micro-program exchange (see [SVP01-50](#) in the SVP SECTION).

Then execute the same micro-program exchange again. If the same error occurs (the same error message is displayed), replace SVP hardware (see [REP01-170](#) in the REPLACE SECTION).

- (10) If you select CD-ROM, a dialog “Remove CD-ROM” appears.

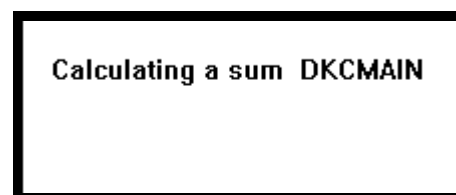
Remove the CD-ROM and select (CL) [OK].

If you select floppy disk, upon completion of reading from all floppy disks, the message “Remove FD” appears. In response to this message, remove the floppy disk and select (CL) [OK].



After copy end, sum checker starts.

While checking, the message appears.



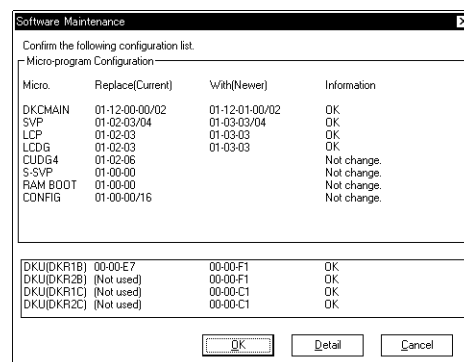
- (11) On the 'Software Maintenance' dialog box, the micro-program types, current versions, new versions, and message are displayed.

<Display with no error>

The message “Confirm the following configuration list.” is displayed below the title bar. The micro-program can be replaced only when all rows in the information column show “OK”, “Not change” or “Warning”.

To make processing progress, select (CL) [OK].

To terminate micro-program replacement, select (CL) [Cancel].



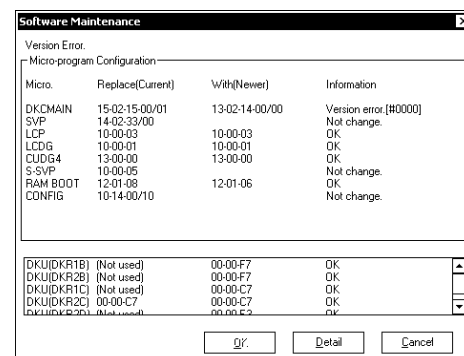
### CAUTION

If “Warning” is displayed. Refrain from selecting (CL) “OK” or “Cancel”. Select (CL) “Detail” surely. Confirm the contents and ask the technical support center for decision for selecting “OK” or “Cancel” according to the contents. To make processing progress, select (CL) [OK], input the password and select (CL) [OK]. Password is needed for this operation. Please call Technical Support Center to obtain password and authorization.

<Display with an error>

A sample display at occurrence of an error is shown on the right. An error message is displayed below the title bar. At the same time, error information is displayed in the information column.

Select (CL) [Cancel] to terminate micro-program replacement. (Note: The [OK] button is not displayed.)  
 Select (CL) [Detail] to display detailed error information.  
 Before making an attempt to rerun, be sure to correct the cause of the error by referring to the entire status (SVP SECTION), action code (ACC SECTION), and other information.



Below are messages and information that may be displayed in the Information column.

Note: Select (CL) [Detail] to display detailed error information, and confirm the cause of these errors.

- “Version error”
- “Revision error”
- Warning”
- “Can’t read the configuration of the micro-program.”
- “Warning” (Function bit map error)

Version Check Message Table.

	Message :	Contents and Maintenance
1	Confirm the following configuration list.	Check the version (Normal or Warning). If Warning, it is necessary to be approved by TSC (Technical Support Center).
2	Version error.	Incorrect version. Confirm the micro-program version.
3	Can't read the configuration of the micro-program.	Error caused while the micro-program configuration is being read. Recover the blockade of a concerned processor.
4	Internal error. (On SVP Logic)	Inconsistent logic. (SVP logic) Retry exchange. If the same message is displayed, power SVP off and on.
5	Internal error. (On SVP Memory)	Inconsistent logic. (SVP memory) Retry exchange. If the same message is displayed, power SVP off and on.
6	Internal error. (On Temporary Files)	Inconsistent logic. (temporary file) Retry exchange. If the same message is displayed, power SVP off and on.
7	Version error. (Previous maintenance needed)	Incorrect version. (partial replacement) Confirm the micro-program version.
8	Version error. (Incompatible MP exists)	Incorrect version. (partial replacement) Confirm the micro-program version.
9	Sum Check error.	Sum check code is incorrect. Micro-program data in FD isn't correct. Exchange the FD.
10	Revision error	Incorrect revision. Confirm the micro-program revision.
11	The micro-program is incompatible with the system.	Incorrect micro-program. Confirm the micro-program version and system. Contact TSC (Technical Support Center).
12	Combination error	Incorrect micro-program exchange process. Confirm the combination of micro-program version and the exchange process.

	Information	Contents
1	OK	The micro-program is replaceable.
2	Version error [#xxxx]	MP has an incorrect micro-program version. [processor number]
3	FC Condition [#xxxx]	MP has an incorrect micro-program version with partial replacement. [processor number]
4	Internal error [#xxxx]	Inconsistent logic error has occurred. [internal error code]
5	Not change	The micro-program will not be replaced.
6	Read error	An error has occurred while reading the current configuration.
7	Sum Check error	The sum check code is incorrect.
8	Warning	It is necessary to contact TSC (Technical support center) for approval.
9	Revision error	MP has an incorrect micro-program revision.
10	Package condition	The combination error of micro-program and package has occurred.
11	Facility condition [#xxxx]	MP has an incorrect micro-program version with function of system. [Facility condition error code]
12	Combination error [#xxxx]	The combination error of more than two micro-programs has occurred. [Combination error code]

	Internal error code	Contents
1	0001	Parameter error.
2	0002, 0003	Memory allocation error.
3	0005	File I/O error.

	Combination error code	Contents
1	8000	High Speed Adapter error
2	8001	Compressed LCDG error

	Facility condition error code	Contents
1	C000 ~ C011	Reserve
2	C012	Compressed DKCMAIN error

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0100 0000	HMRCF/HRC/ HIHSM effective flag setting function	HMRCF/HRC/HIHSM effective flag setting functional support without SM capacity change	An error message is not displayed for this function.
0010 0000	Extended Copy Manager	Extended Copy Manager Support	Please stop the E-COPY commands and remove E-COPY Group. (The backup process send the E- COPY commands)
0000 1000 0000	OracleData Check Sum	Oracle Check Sum Support	Please perform again after deleting "DB Check Sum Enabler" Program Product.
0000 0100 0000	HMRCF	ShadowImage- FlashCopy (R) Option Support	Please delete all HMRCF pairs and retry again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0010 0000	HRC, HORC	Fibre HRC/HORC Performance Function Support. Escon HRC Support.	Please Suspend or delete all Fibre HRC/HORC Pairs, and delete all Escon HRC/HORC RCUs, Pairs and CT Groups. And then retry exchange again.
0000 0000 1000 0000	LDEV Security	Hitachi SANTinel- S/390(R) Function Support	Please delete all LDEV Security Setting and retry again.
0000 0000 0010 0000	HPAV	Main Frame Performance Function Support.	Please unset system option 217, and then retry exchange again after wait for 10 minutes.
0000 0000 0001 0000	LDEV Guard	LDEV Guard Support	Please delete ReadOnly and Product of volume (LDEV). Then retry again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 1000 0000	HOMRCF	Track Level Incremental and Differential Backup Assist	Please delete all Track Level Incremental and Differential Backup Assist pairs and retry again.
0000 0000 0000 0010 0000	HRC, HORC	8GSE Package 2nd or 4th port Support as Fibre HRC/HORC. Pair Coincidence Rate Performance Function Support.	Please delete all Fibre HRC/HORC pairs and paths which have relevance to the 2nd or 4th port of 8GSE package. Please delete all LUs and E-Copy groups which is defined onto the 2nd or 4th port of 8GSE package. Please delete all Fibre/ESCON HRC/HORC pairs.
0000 0000 0000 0001 0000	DKC-F460I-16HSE/F	DKC-F460I-16HSE/F P/K Support	Please de-install DKC-F460I-16HSE/F P/K and retry exchanging again.
0000 0000 0000 0000 1000 0000	Extended Copy Manager	E-COPY Performance Upgrade	1. Please switch Mode220 ON or 2. Please stop the E-COPY and remove E-COPY group. In case of 1, please switch Mode220 OFF after exchange of micro code finished.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0100 0000	HXRC	HXRC Performance Function Support	Please delete all HXRC pairs and retry again.
0000 0000 0000 0000 0010 0000	NAS PCB	NAS PCB Support	Please de-install NAS PCB and retry exchanging again.
0000 0000 0000 0000 0001 0000	HORC	ESCON RAID300/400 Connection Support	Please delete all ESCON HORC Pairs, and then retry exchange again.
0000 0000 0000 0000 0000 1000 0000	HRC, HORC	HRC Performance Function Support	Please suspend (or delete) the pair whose status is 'Duplex- Pending' or 'Copy'. Then retry exchanging again.

Function Bit Map Table																																																																					
Bit Pattern	Function	Contents	Action (*1)																																																																		
0000 0000 0000 0000 0000 0100 0000	FICON 32 LPN per paired ports	Support 32 LPN per paired ports function in FICON channel	Refer to the logical paths of HTP from the SVP panel (See SVP03- 230) and check if a logical path in each node is in the range of PT#. (Ex.: For HTP 1A, if PT# 0x010 ~ 0x01F is assigned, Version Down cannot be executed.) Delete all the relevant logical paths (CHP ID off) and retry. <table><tr><th>NODE</th><th>The range of PT# prohibiting version-down</th></tr><tr><td>HTP 1A</td><td>0x010 ~ 0x01F</td></tr><tr><td>HTP 1B</td><td>0x000 ~ 0x00F</td></tr><tr><td>HTP 1C</td><td>0x030 ~ 0x03F</td></tr><tr><td>HTP 1D</td><td>0x020 ~ 0x02F</td></tr><tr><td>HTP 1E</td><td>0x050 ~ 0x05F</td></tr><tr><td>HTP 1F</td><td>0x040 ~ 0x04F</td></tr><tr><td>HTP 1G</td><td>0x070 ~ 0x07F</td></tr><tr><td>HTP 1H</td><td>0x060 ~ 0x06F</td></tr><tr><td>HTP 1J</td><td>0x090 ~ 0x09F</td></tr><tr><td>HTP 1K</td><td>0x080 ~ 0x08F</td></tr><tr><td>HTP 1L</td><td>0x0B0 ~ 0x0BF</td></tr><tr><td>HTP 1M</td><td>0x0A0 ~ 0x0AF</td></tr><tr><td>HTP 1N</td><td>0x0D0 ~ 0x0DF</td></tr><tr><td>HTP 1P</td><td>0x0C0 ~ 0x0CF</td></tr><tr><td>HTP 1Q</td><td>0x0F0 ~ 0x0FF</td></tr><tr><td>HTP 1R</td><td>0x0E0 ~ 0x0EF</td></tr><tr><td>HTP 2A</td><td>0x110 ~ 0x11F</td></tr><tr><td>HTP 2B</td><td>0x100 ~ 0x10F</td></tr><tr><td>HTP 2C</td><td>0x130 ~ 0x13F</td></tr><tr><td>HTP 2D</td><td>0x120 ~ 0x12F</td></tr><tr><td>HTP 2E</td><td>0x150 ~ 0x15F</td></tr><tr><td>HTP 2F</td><td>0x140 ~ 0x14F</td></tr><tr><td>HTP 2G</td><td>0x170 ~ 0x17F</td></tr><tr><td>HTP 2H</td><td>0x160 ~ 0x16F</td></tr><tr><td>HTP 2J</td><td>0x190 ~ 0x19F</td></tr><tr><td>HTP 2K</td><td>0x180 ~ 0x18F</td></tr><tr><td>HTP 2L</td><td>0x1B0 ~ 0x1BF</td></tr><tr><td>HTP 2M</td><td>0x1A0 ~ 0x1AF</td></tr><tr><td>HTP 2N</td><td>0x1D0 ~ 0x1DF</td></tr><tr><td>HTP 2P</td><td>0x1C0 ~ 0x1CF</td></tr><tr><td>HTP 2Q</td><td>0x1F0 ~ 0x1FF</td></tr><tr><td>HTP 2R</td><td>0x1E0 ~ 0x1EF</td></tr></table>	NODE	The range of PT# prohibiting version-down	HTP 1A	0x010 ~ 0x01F	HTP 1B	0x000 ~ 0x00F	HTP 1C	0x030 ~ 0x03F	HTP 1D	0x020 ~ 0x02F	HTP 1E	0x050 ~ 0x05F	HTP 1F	0x040 ~ 0x04F	HTP 1G	0x070 ~ 0x07F	HTP 1H	0x060 ~ 0x06F	HTP 1J	0x090 ~ 0x09F	HTP 1K	0x080 ~ 0x08F	HTP 1L	0x0B0 ~ 0x0BF	HTP 1M	0x0A0 ~ 0x0AF	HTP 1N	0x0D0 ~ 0x0DF	HTP 1P	0x0C0 ~ 0x0CF	HTP 1Q	0x0F0 ~ 0x0FF	HTP 1R	0x0E0 ~ 0x0EF	HTP 2A	0x110 ~ 0x11F	HTP 2B	0x100 ~ 0x10F	HTP 2C	0x130 ~ 0x13F	HTP 2D	0x120 ~ 0x12F	HTP 2E	0x150 ~ 0x15F	HTP 2F	0x140 ~ 0x14F	HTP 2G	0x170 ~ 0x17F	HTP 2H	0x160 ~ 0x16F	HTP 2J	0x190 ~ 0x19F	HTP 2K	0x180 ~ 0x18F	HTP 2L	0x1B0 ~ 0x1BF	HTP 2M	0x1A0 ~ 0x1AF	HTP 2N	0x1D0 ~ 0x1DF	HTP 2P	0x1C0 ~ 0x1CF	HTP 2Q	0x1F0 ~ 0x1FF	HTP 2R	0x1E0 ~ 0x1EF
NODE	The range of PT# prohibiting version-down																																																																				
HTP 1A	0x010 ~ 0x01F																																																																				
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HTP 1N	0x0D0 ~ 0x0DF																																																																				
HTP 1P	0x0C0 ~ 0x0CF																																																																				
HTP 1Q	0x0F0 ~ 0x0FF																																																																				
HTP 1R	0x0E0 ~ 0x0EF																																																																				
HTP 2A	0x110 ~ 0x11F																																																																				
HTP 2B	0x100 ~ 0x10F																																																																				
HTP 2C	0x130 ~ 0x13F																																																																				
HTP 2D	0x120 ~ 0x12F																																																																				
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HTP 2F	0x140 ~ 0x14F																																																																				
HTP 2G	0x170 ~ 0x17F																																																																				
HTP 2H	0x160 ~ 0x16F																																																																				
HTP 2J	0x190 ~ 0x19F																																																																				
HTP 2K	0x180 ~ 0x18F																																																																				
HTP 2L	0x1B0 ~ 0x1BF																																																																				
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HTP 2P	0x1C0 ~ 0x1CF																																																																				
HTP 2Q	0x1F0 ~ 0x1FF																																																																				
HTP 2R	0x1E0 ~ 0x1EF																																																																				
0000 0000 0000 0000 0000 0010 0000	OPEN-V	OPEN-V Support	De-Install all OPEN-V volume, and then retry exchange again.																																																																		

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 1000 0000	HRC, HORC	(1) ENAS HORC function support (2) Mixture support of ESCON HORC and Fibre HRC/HORC (3) HRC/HORC Extended JCB quota support	(1) Delete all the HORC pairs of LU defined as each port of a CHN package. (2) ESCON HORC pairs is delete, or Fibre HRC/HORC pairs are delete, when ESCON HORC pairs and Fibre HRC/HORC pairs are intermingled, in the MCU. (3) Suspend all the HRC/HORC pairs. And then retry exchange again.
0000 0000 0000 0000 0000 0000 0100 0000	HORC	ESCON HORC MCU Connection Support	Please delete all ESCON HORC Pairs, and then retry exchange again.
0000 0000 0000 0000 0000 0000 0010 0000	DKA2MP RAID5(7D+1P) Support	Support RAID5(7D+1P) in DKA2MP × 2pair	Please micro exchange after making it one composition of the followings. <ul style="list-style-type: none"> <li>• DKA4MP (DKC-F465I-200) × 2 pair</li> <li>• DKA4MP (DKC-F465I-200) × 1 pair</li> <li>• DKA2MP (DKC-F460I-100) × 1 pair</li> </ul>
0000 0000 0000 0000 0000 0000 0001 0000	Verify Improvement	Verify Improvement	An error message is not displayed for this function.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 1000 0000	OPEN Extended JCB quota	OPEN Extended JCB quota function Support	Please turn off System Option mode 217. And retry.
0000 0000 0000 0000 0000 0000 0000 0100 0000	FICON	FICON 2Gbps (Auto Negotiation) function support	Delete all logical paths from the host with the "CHPID OFFLINE" operation, which are related to the FICON port with the 2Gbps link bandwidth. And pull out the FICON cable which is connected to that FICON port in DKC. Then retry exchange.
0000 0000 0000 0000 0000 0000 0000 0010 0000	ESCON Ports Expansion	ESCON Ports Expansion	Check that the Extended CHE (WP468-A) are not installed in the SUBSYSTEM. Then retry.
0000 0000 0000 0000 0000 0000 0000 0001 0000	FICON	FICON Cascade function support	Delete all logical paths of the FICON cascade connection from the host with the "CHPID OFFLINE" operation. Then retry exchange.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	ONLINE LUSE Function	The online LUSE function is used with Windows connection.	Please shutdown the windows servers and change the host mode to 0x0C.
0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	TPF	Extend Message Buffer Support	Turn off a system option 229 and wait for SSB log (F/M=x9f, CODE=x4C7F) to appear. Then, retry again. (When an off-line microprogram exchange is chosen, there is no necessity of waiting for this SSB appearing.)
0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	Open LDEV Guard	Open LDEV Guard Reserve Attribute Support	Please delete Reserve Attribute of LDEV. Then retry again.
0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	LDEV Security Port Security	Hitachi SANTinel- S/390(R) Function Port Security Support	Please delete all LDEV Security Setting and retry again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	HRC, HORC	"Point to Point" connection support	Please change all the FC ports configuration with non "Point to Point". And then retry exchange again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	2 Port High Performance Mode	When the settings 2 Port High Performance Mode	Please cancel 2 Port High Performance Mode.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	Connection to external storage	Support for connection to external storage	Dissolve all the settings of connection to external storage with the Web Console. Then retry the operation. Disconnection of cable from the external storage only is not enough.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	HOMRCF	Large LU support	Please delete all HOMRCF pairs.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	FICON	FICON 32 LPN per single port function support	Refer to "RAID450 FICON 32 Logical Paths/Single Port Feature Operation Manual".
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	512MB DIMM	512MB DIMM is installed.	Please try exchange again after De-Install 512MB DIMM.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HMRCF	HMRCF At-TimeSplit support	Please reset all of HMRCF CTG. Then retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	HRC	"MF S-VOL WR takeover" connection support	Please delete all HRC pairs. And then retry exchange again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	I-SCSI	iSCSI PCB installed	Please de-install iSCSI PCB and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HRC	Remote Pair Control and HRC-Sync Group support	Please delete all HRC-Sync pairs with group, and remove all command devices for Remote Pair Control. And then retry exchange again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	HOMRCF	HOMRCF 8192pairs support	Please delete all HOMRCF pairs.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	I-SCSI	iSCSI function support	Please de-install iSCSI PCB and retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	ESCON 32CU connection with 2105 types	RDCNF command correspondence at the time of 17 or more CU number mounting under 2105 types	Please perform the following procedures. (1) Use of equipment (all Devices) is stopped. (2) The system option MODE277 is turned off. (3) PS OFF (4) PS ON (5) Use of equipment is resumed after micro program FC completion.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	Change of the "Plant of manufacture" in NODE ID of mainframe	The processing which sets up a "Plant manufacture" in NODE ID is supported.	Please perform the following procedures. (1) A micro program FC is continued. (2) Use of all the devices of mainframe is stopped after FC completion, and it is off-line about all devices. (3) All the packages of Serial channel or MF Fiber channel for mainframe are replaced. In this case, drawn-out PK is reput as it is, without exchanging. (4) Use of the device of mainframe is resumed.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	HRC	Hyperswap function support	Please execute Failback all Failover pair, or delete all Failover pair. And then retry exchange again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	HMRCF	FlashCopy®V2 support	Please delete all FlashCopy®V2 pairs. And then retry exchange again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	I-SCSI	Persistent Reserve command support	Please release all Persistent Reserve command of I-SCSI Port and retry again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	iSCSI related information download support	iSCSI related information download support	An error message is not displayed for this function.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	MRCF	HMRCF Write Error PIN support	An error message is not displayed for this function.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HMDE	Version down operation is prevented to change to microprogram, which is not supported for 3390-9A/B/C and 3390-LA/B/C.	Change DKU emulation from 3390-9A/B/C to 3390-9 and from 3390-LA/B/C to 3390-L and then execute microprogram version down operation.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HRC	Freeze command specification change	Please delete all HRC Pairs and RCU, And then retry exchange again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	Default bit of Function Bit	The bit for making the default value of Function Bit into values other than zero	An error message is not displayed for this function.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	Hi-Copy	Differential Hi-Copy function support	Please delete all Hi-Copy pairs.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0001 0000	Default bit of Function Bit	The bit for making the default value of Function Bit into values other than zero	An error message is not displayed for this function.
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	CMG ONDEMAND	CMG ONDEMAND Support	De-Install Ondemand Cache Memory Modules. And retry.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000	Default bit of Function Bit	The bit for making the default value of Function Bit into values other than zero	An error message is not displayed for this function.
0000 0001	Default bit of Function Bit	The bit for making the default value of Function Bit into values other than zero	An error message is not displayed for this function.

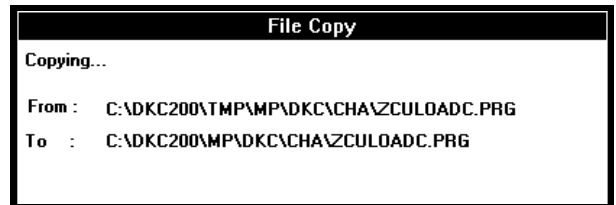
(\*1) If SVP displayed an error message as 2179 during microcode exchange, please check which function is detected by this message, and do the corresponding action. After, please retry exchanging.

- (12) The message “Making a backup of micro-program files. Please Wait...” appears.

**Making a backup of  
microprogram files. Please  
wait...**

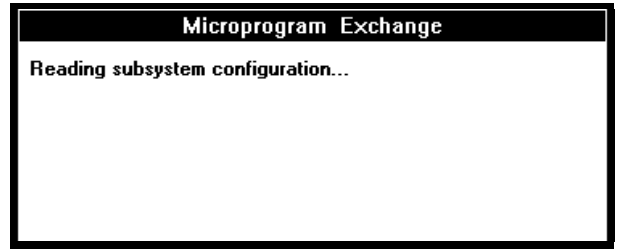
- (13) File copy in SVP

Go to 3.3 (1).



### 3.3 Transferring micro-programs to the DKC

- (1) The message “Reading subsystem configuration...” appears.



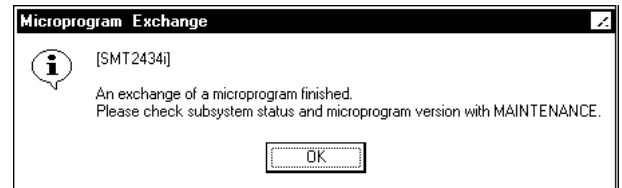
<<Error>>

- “On exchanging a micro-program, An error has occurred. XX processing is stopped”
- “The processor of an obstacle blockade exits. XX processing is stopped”
- “The processor that failed in an exchange of micro-program exists”
- “An error had occurred in XX blockade processing”
- “File size check error”
- “Invalid file contents”

- (2) The message “Downloading \*\*\* micro-program...” (\*\*\*: MAIN, ...) appears.

- (3) The message “Now MP Rebooting... Group# n/N” appears.  
All processors are recovered.

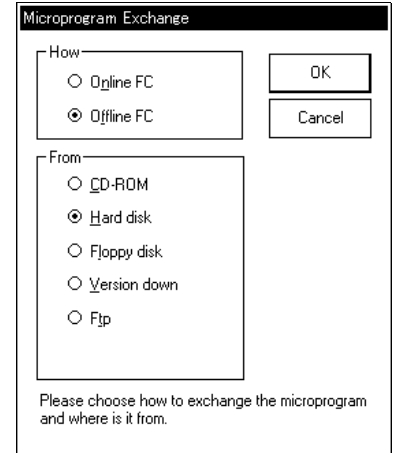
- (4) After downloading the micro-programs, SVP makes the sub-system to be enable and displays the following message “An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE.”, select (CL) [OK].  
Go to 3.7 ([MICRO-FC03-330](#)).



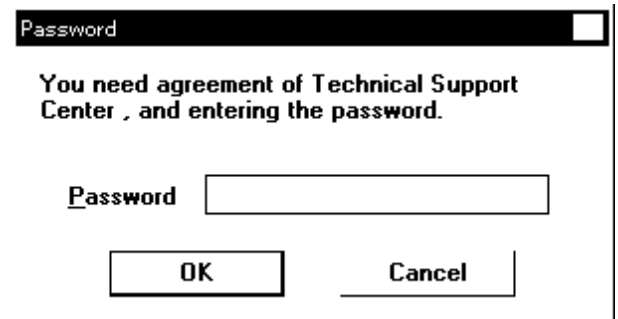
### 3.4 Hard Disk Download

The latest version of the DKCMAIN micro-program on the SVP hard disk is downloaded to the DKC.

- (1) [How]: Select (CL) [Offline].  
 [From]: Select (CL) [Hard Disk] in the 'Setup Microprogram' dialog box.  
 And select (CL) [OK].

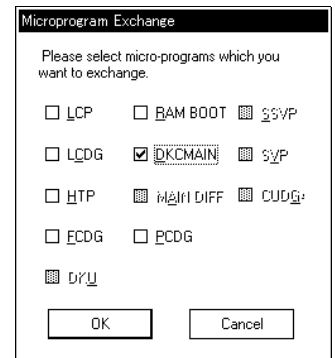


If you want to continue this process, select (CL) [OK], enter the password, and select (CL) [OK].





The 'Micro-program Exchange' dialog box appears. Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].


☒ : Micro-programs to be substituted.



One of messages are displayed by the subsystem configuration.

Microprogram Exchange	
	[SMT2623i] Confirm that you have already shut down all the connected SCSI hosts. Do you want to continue processing?
<input type="button" value="Yes"/> <input type="button" value="No"/>	

Microprogram Exchange	
	[SMT2624i] Please confirm you have already varied off all channel paths. Do you want to continue this process?
<input type="button" value="Yes"/> <input type="button" value="No"/>	

Microprogram Exchange	
	[SMT2626i] Confirm that you have already varied off all the channel paths. Confirm that you have already shut down all the connected SCSI hosts. Do you want to continue processing?
<input type="button" value="Yes"/> <input type="button" value="No"/>	

After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

Go to 3.2 (11). ([MICRO-FC03-70](#))

If an error occurs in downloading micro-programs to DKC, remove the cause of an error using Maintenance Display (SVP section), Action Code (Action Code section), and other information to execute the exchange again. Then start from the first step of MICRO-FC procedure. At this time, you can select [Hard Disk] at 3.4 ([MICRO-FC03-270](#)) or [Floppy Disk] at 3.2 (5) ([MICRO-FC-03-30](#)).

(2)

Go to 3.3 (1) ([MICRO-FC03-250](#)).

### 3.5 Version Down

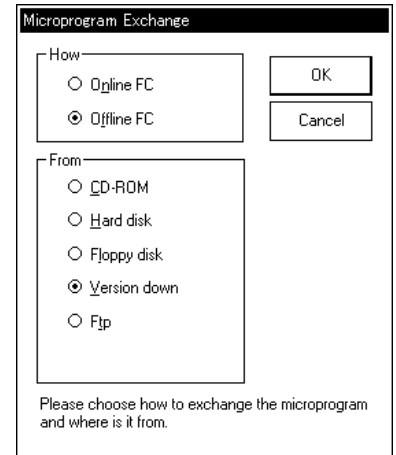


#### CAUTION

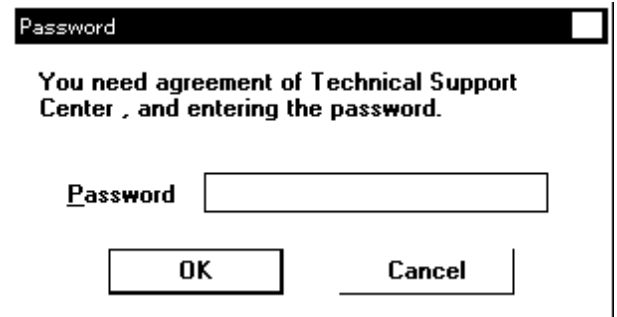
Ask the technical support center about the appropriateness of the operation.

If you want to restore the micro-program to the previous version of the micro-program after the exchange (by CD-ROM, Floppy Disk, Ftp or Remote function) , execute the Version Down function.

- (1) [How]: Select (CL) [Offline].  
 [From]: Select (CL) [Version Down] in the 'Setup Microprogram' dialog box.  
 And select (CL) [OK].



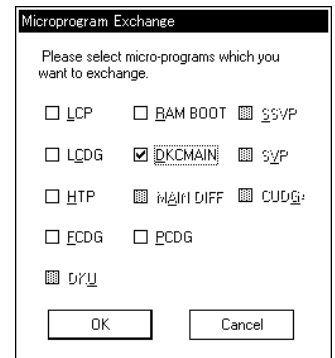
If you want to continue this process, select (CL) [OK], enter the password, and select (CL) [OK].



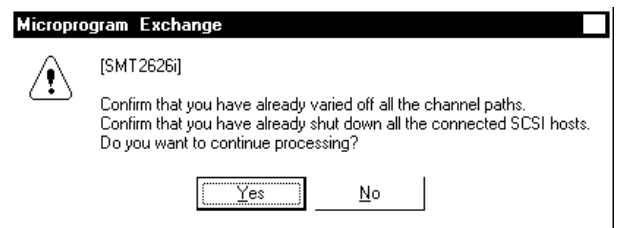
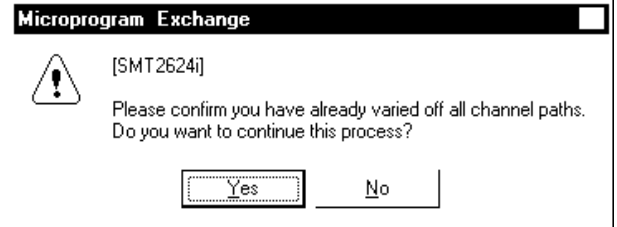
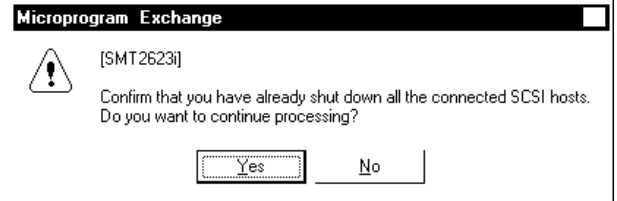
The 'Micro-program Exchange' dialog box appears.  
 Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].

☒ : Micro-programs to be substituted.

\*: Can not select SSVP, SVP, MAIN DIFF, CUDG4 and DKU.



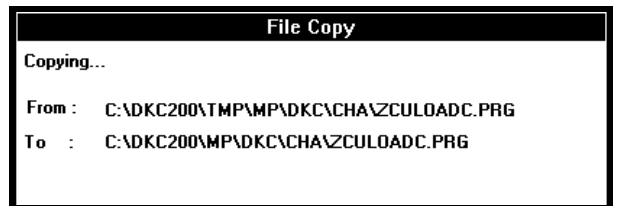
One of messages are displayed by the subsystem configuration.



After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

Go to 3.2 (11). ([MICRO-FC03-70](#))

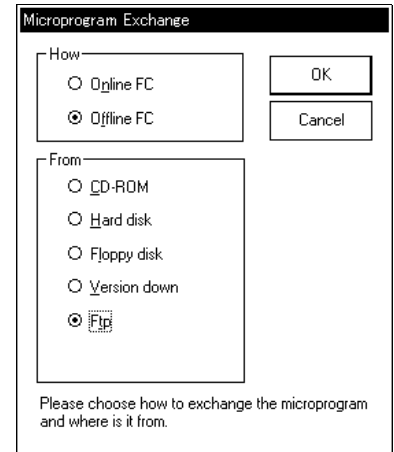
- (2) Copy source and copy destination are displayed.



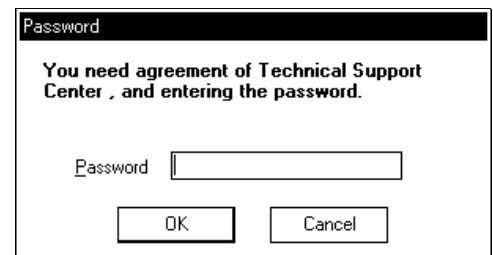
### 3.6 FTP

After being stored on the hard disk by FTP transfer, the micro-programs are downloaded to the DKC.

- (1) [How] : Select (CL) [Offline].  
 [From]: Select (CL) [Ftp] in the 'Microprogram Exchange' dialog box.  
 And select (CL) [OK].



If you want to continue this process, select (CL) [OK], enter the password, and select (CL) [OK].

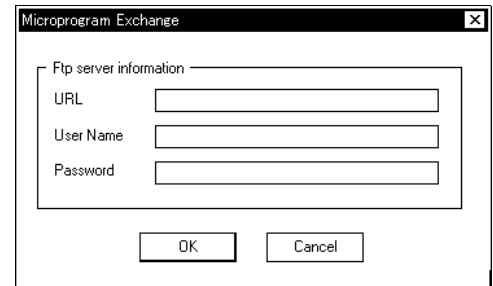


Input the information of the server that the microprogram which is transported by FTP, and select (CL) [OK]

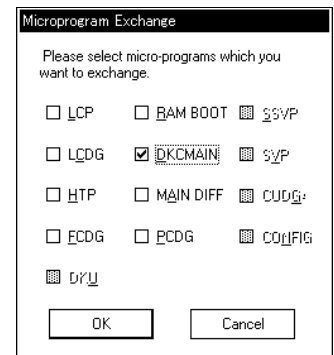
**URL:** The micro program storing server name and the file path from a home directly

**User Name:** The user name for making FTP connection at the micro program storing server.




**Password:** Password.



The 'Microprogram Exchange' dialog box appears. Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].



One of messages are displayed by the subsystem configuration.

Microprogram Exchange	
	<p>[SMT2623i]</p> <p>Confirm that you have already shut down all the connected SCSI hosts. Do you want to continue processing?</p> <p><input type="button" value="Yes"/> <input type="button" value="No"/></p>
<hr/>	
<p><b>Microprogram Exchange</b></p>	
	<p>[SMT2624i]</p> <p>Please confirm you have already varied off all channel paths. Do you want to continue this process?</p> <p><input type="button" value="Yes"/> <input type="button" value="No"/></p>
<hr/>	
<p><b>Microprogram Exchange</b></p>	
	<p>[SMT2626i]</p> <p>Confirm that you have already varied off all the channel paths. Confirm that you have already shut down all the connected SCSI hosts. Do you want to continue processing?</p> <p><input type="button" value="Yes"/> <input type="button" value="No"/></p>

After you confirm that you have already varied all the CHL paths to off-line, select (CL) [Yes].

Go to 3.2 (11). ([MICRO-FC03-70](#))

If an error occurs in downloading micro-programs to DKC, remove the cause of an error using Maintenance Display (SVP section), Action Code (Action Code section), and other information to execute the exchange again. Then start from the first step of MICRO-FC procedure. At this time, you can select [Hard Disk] at 3.4 ([MICRO-FC03-270](#)) or [Floppy Disk] at 3.2 (5) ([MICRO-FC-03-30](#)).

(2)

Go to 3.3 (1) ([MICRO-FC03-250](#)).

### 3.7 Checking the functions after exchange

Check that the version of the recently installed micro-program is the same as that of the replaced micro-program by using the version display in the MAINTENANCE function.  
(See SVP SECTION.)

Note: If you find “??-??...” or incompatibility version, recover the status following the section 7.2.

You must exit and restart all Web browsers on the Storage Navigator PC, when the microprogram is updated on the SVP.

## 4 Micro-program Exchange Procedure (On-line)

If an error occurs during a micro-program exchange, retry the exchanging procedure from the beginning or execute the procedure explained in Chapter 7 “Trouble Recovery Procedure in Exchanging Micro-programs”.

Note : In case an error occurs during an exchange of the DKU micro-programs, make a note on the number of the DKU in which the error occurred when the error is recovered.

### 4.1 Processing before exchange

- Check the subsystem status through the entire status display. (Check the versions of all the programs through the version display.)
- Make sure that collection copy and other processing are not in progress.
- Perform postprocessing for PIN data.
- Check that all processors are normal.

On-line Micro-Program Exchange time (approximate)

(unit : minutes)

	CD-ROM → HDD	Download HDD → SM/(HDD → FM)	MP Reboot
LCP	3	1/(3)	6
LCDG		1/(3)	
HTP		1/(3)	
FCDG		1/(3)	
PCDG		1/(3)	
DKCMAIN		4	
MAIN DIFF		4	
RAM BOOT		1	
DKU		60	
SSVP	2	15	—
SVP		3	—
CUDG4		0	—
Total	5	86/(92)	6

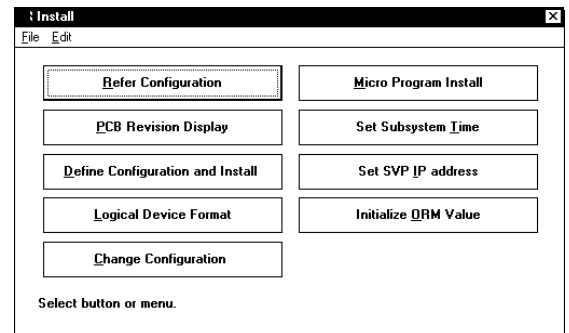
(Processors : 16, Drive capacity : 180GB)

## 4.2 Storing the micro-programs to be substituted in the SVP

(1) <Initial screen>

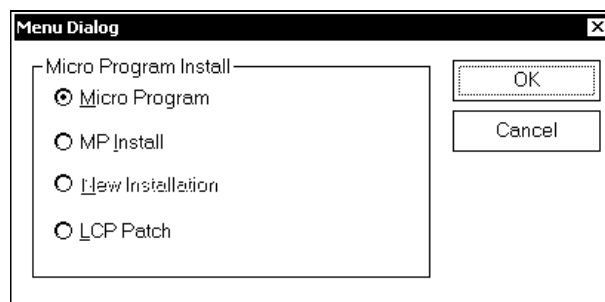
(2)  
Change the mode to [Modify Mode] (CL).  
Select (CL) [Install].

(3)  
In the 'Install Subsystem' window, select (CL) [Micro Program Install].



(4)

Select (CL) [Micro Program].  
 Select (CL) [OK].  
 Selecting (CL) [Cancel] returns you to step (3).



(5)

In the 'Setup Microprogram' dialog box,  
 [How] : select (CL) [Online].  
 [From]: select (CL) the source from which to store the micro-  
 programs.

CD-ROM: After being stored on the hard disk from CD-ROM, the micro-programs are downloaded. --- Select(CL) [OK] and Go to (6).

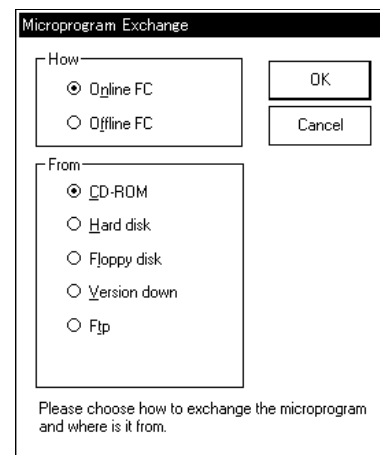
Hard Disk: The latest versions on the SVP hard disk are downloaded. --- Go to 4.4 (1). (MICRO-FC04-160)

Floppy Disk: After being stored on the hard disk from floppy disks, the micro-programs are downloaded. --- Select (CL) [OK] and Go to (6).

Version Down: Old versions on the hard disk are downloaded. --- Go to 4.5 (1). (MICRO-FC04-170)

Ftp: After being stored on the hard disk by FTP transfer, the micro-programs are downloaded. --- Select (CL) [OK] and Go to 4.6 (1)

Selecting (CL) [Cancel] returns you to be step (4).

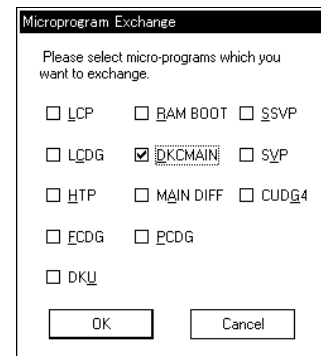


(6) The 'Micro-program Exchange' dialog box appears.

Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].

☒ : Micro-programs to be substituted.

Note : SVP changed the message in FM download process. If an operator selected "LCP" or "LCDG", SVP displayed a message as "LCP/LCDG" during the download.



(7)

When DKCMAIN, MAIN DIFF or RAMBOOT were selected, you can select the reboot pattern from the list.

**CAUTION**

Please select a reboot pattern by taking the following table into account.

REBOOT PATTERN		BY 1/2	BY 1/4	BY 1/8	BY ONE
EXCHANGE TIME	STANDARD VALUE(*) [MINUTE][APPROX.]	14	19	37	78
		SHORT  LONG			
EFFECT ON PERFORMANCE OF DKC		BIG  SMALL			

(\*) MEASURE CONDITION : 32MP (CHA(SERIAL) × 4, DKA × 4), NO I/O.

Sometimes an “error” message is displayed temporarily in [Reboot status display].  
But, there is no problem if the reboot is finished without error.

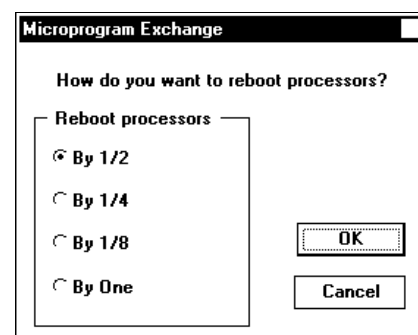
Please select (CL) one of these patterns and select (CL) [OK].

By 1/2 : Reboot by half MPs in the DKC sub system.

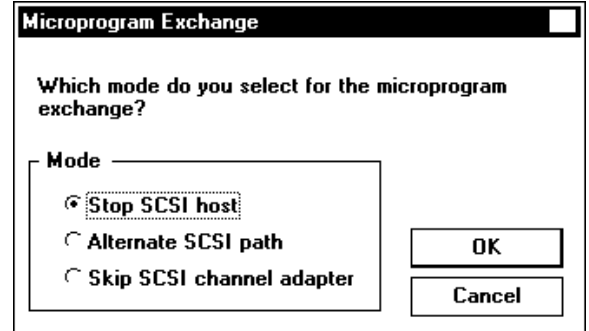
By 1/4 : Reboot by quarter MPs in the DKC sub system.

By 1/8 : Reboot by 1/8 MPs in the DKC sub system.

By One : Reboot by minimum reboot unit MPs in the DKC sub system.



- (8) <If SCSI channel adapter is equipped>  
 Select (CL) one of the exchange modes of DKCMAIN micro-program as follows, and select (CL) [OK].



- “Stop SCSI host” : Exchange micro-programs by varying off-line the SCSI host paths.

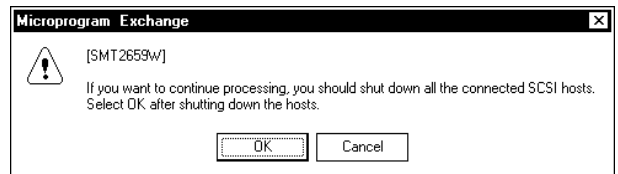


### CAUTION

You should request your customer to shut down the SCSI host. However, it is possible to operate a microprogram exchange without stopping I/O for some kinds of SCSI hosts. See [OPEN13-10](#) in detail.

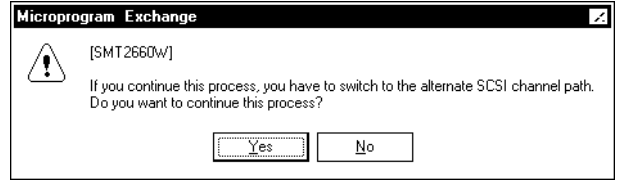
- “Alternate SCSI path” : Exchange micro-programs by changing the SCSI host path to the alternative path.
- “Skip SCSI channel adapter” : Exchange micro-programs without a SCSI channel adapter.

- (8-1) <If “Stop SCSI host” is selected>  
 Shut down all the SCSI hosts and select (CL) [OK]. Go to step (9).  
 When [Cancel] is selected (CL), the processing is returned to (8).

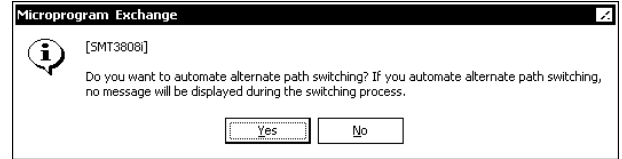


## (8-2) &lt;If “Alternate SCSI path” is selected&gt;

It is necessary to switch the SCSI path to the alternate path before executing the microprogram FC for the CHA (SCSI) PCB. To continue the processing, select (CL) [Yes]. When [No] is selected (CL), the processing step is returned to (8).

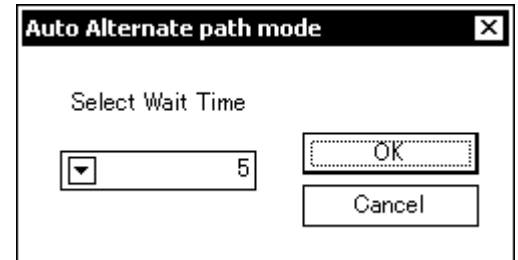


Then, the right message is displayed. When you want to automate alternate path switching without messages, select (CL) [Yes], and when you want to switch alternate path with messages, select (CL) [No].



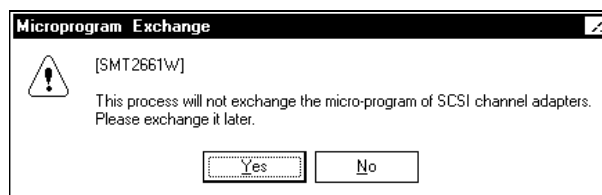
If [Yes] is selected, the dialog which selects wait time is displayed. Select wait time and [OK] button.

Go to Step (10).



## (8-3) &lt;If “Skip SCSI channel adapter” is selected&gt;

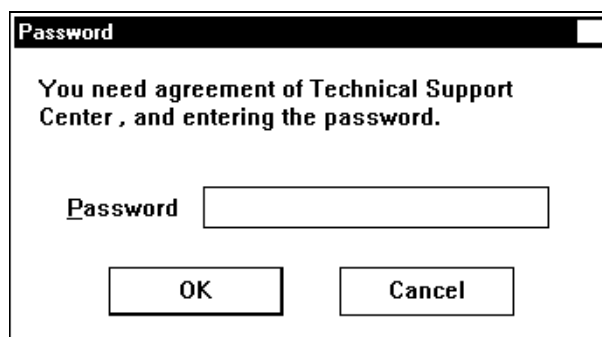
The microprogram FC for the CHA (SCSI) PCB will not be executed. Execute it in the future in the Stop SCSI host mode or the Alternate SCSI path mode.



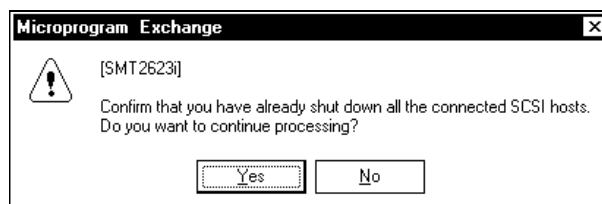
 **CAUTION**

Ask the technical support center about the appropriateness of the operation, and input a password after getting an approval of executing the operation.

If you want to continue this process, select (CL) [Yes], enter the password, and select (CL) [OK].



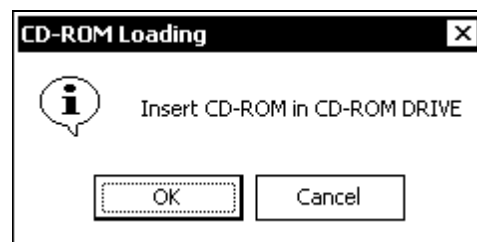
(9) <If SCSI channel adapter is installed when DKCMAIN or RAMBOOT were selected.>  
After you confirm that you have stopped all SCSI channel paths, select (CL) [Yes].



(10) If you select CD-ROM, a dialog “Insert CD-ROM in CD-ROM DRIVE” appears.

Insert the CD-ROM and select (CL) [OK].

If you select floppy disk, in response to the message “Insert No.n FD of DKCMAIN in FDD”, remove the inserted floppy disk, insert the appropriate floppy disk and select (CL) [OK].



<<Error>>

No CD-ROM or No floppy disk or uncorrect CD-ROM or uncorrect floppy disk in the floppy disk drive:

The same message is displayed again, returning you to (10).

Internal error:

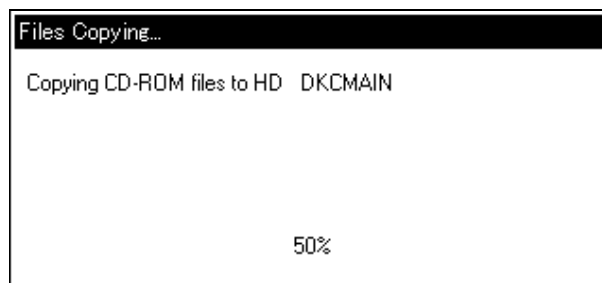
- “Old files erase failed, copy stop.”
- “Memory error has occurred.”
- “File I/O error has occurred.”
- “Logical error has occurred.”
- “The directory create error and copy stop.”
- “The file size is Wrong and copy stop.”

(11) If you select CD-ROM, the message “Copying CD-ROM files to HD DKCMAIN” appears.

If you select floppy disk, the message

“Copying FD files to HD” appears.

Execute the steps (10) to (11) once for each floppy disk.



<<Error>>

Internal error:

- “The file size is Wrong and copy stop.”
- “The directory create error and copy stop.”
- “Micro-program version disagreement and copy stop.”
- “Logical error has occurred.”
- “File I/O error has occurred.”
- “Memory error has occurred.”

Note : When the error message “File I/O error has occurred.” or “Memory error has occurred.” is displayed, power SVP off and on again if the same message appears after reexecuting the micro-program exchange (see [SVP01-50](#) in the SVP SECTION).

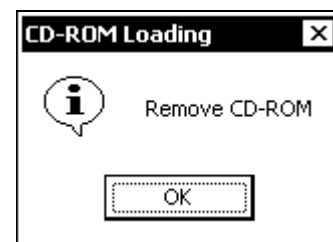
Then execute the same micro-program exchange again. If the same error occurs (the same error message is displayed), replace the SVP hardware (see [REP01-170](#) in the REPLACE SECTION.).

- (12) If you select CD-ROM, a dialog “Remove CD-ROM” appears.

Remove the CD-ROM and select (CL) [OK].

If you select floppy disk, upon completion of reading from all floppy disks, the message “Remove FD” appears.

In response to this message, remove the floppy disk and select (CL) [OK].



After copy end, sum checker starts.

While checking, the message appears.



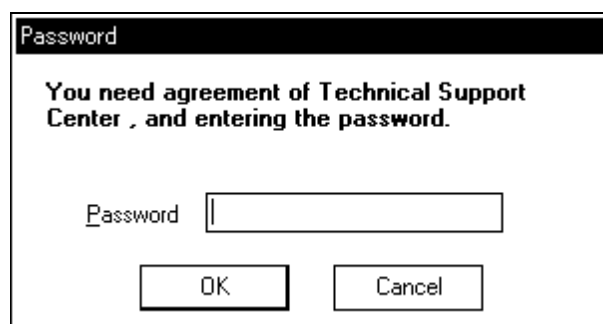
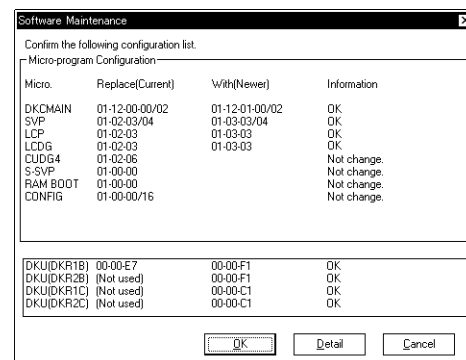
- (13) On the ‘Software Maintenance’ dialog box, the micro-program types, current versions, new versions, and message are displayed.

<Display with no error>

The message “Confirm the following configuration list.” is displayed below the title bar. The micro-program can be replaced only when all rows in the information column show “OK”, “Not change” or “Warning”.

To continue processing, select (CL) [OK].

To terminate micro-program replacement, select (CL) [Cancel].



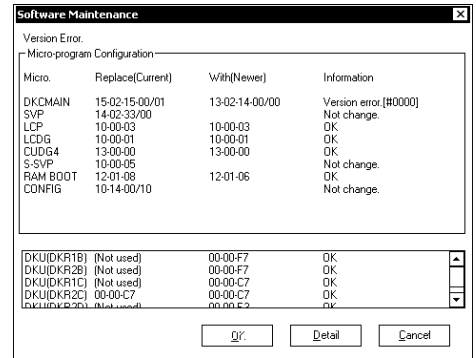
### CAUTION

If “Warning” is displayed. Select (CL) “Detail” surely. Confirm the contents and ask the technical support center for decision for selecting “OK” or “Cancel” according to the contents. To make processing progress, select (CL) [OK], input the password and select (CL) [OK]. Password is needed for this operation. Please call Technical Support Center to obtain password and authorization.

## &lt;Display with an error&gt;

A sample error display is shown on the right. An error message is displayed below the title bar. At the same time, error information is displayed in the information column.

Select (CL) [Cancel] to terminate the micro-program replacement. (Note: The [OK] button is not displayed.)  
 Select (CL) [Detail] to display detailed error information.  
 Before attempting to rerun, be sure to correct the cause of the error. Refer to the entire status (SVP SECTION), action code (ACC SECTION), and other information.



See Version Check Message Table ([MICRO-FC03-80](#)).

Note : Select (CL) [Detail] to display detailed error information, and confirm the cause of these error

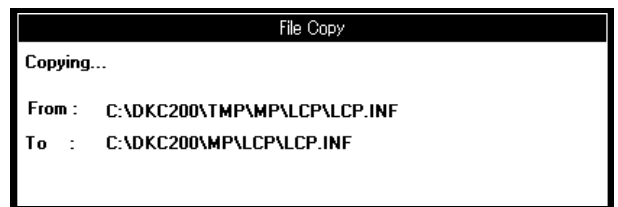
- “Version error”
- “Revision error”
- “Warning”
- “Can’t read the configuration of the micro-program”
- “Warning” (Function bit map error)

(14) The message “Making a backup of micro-program files. Please Wait...” appears.

**Making a backup of  
microprogram files. Please  
wait...**

(15) File copy in SVP

Go to 4.3.1 (1) ([MICRO-FC04-100](#)) or  
 4.3.2 (1) ([MICRO-FC04-140](#)) or  
 4.3.2 (5) ([MICRO-FC04-150](#)).

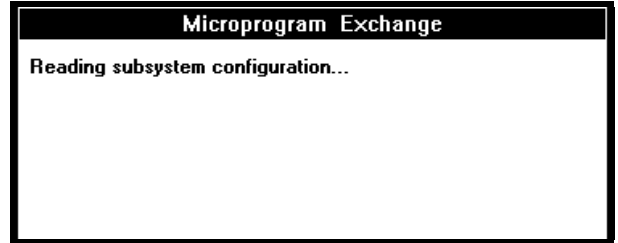


## 4.3 Transferring micro-programs

### 4.3.1 Transferring micro-programs to the DKC/DKU

- (1) The message “Reading subsystem configuration...” appears.

Read the current DKC configuration.



Note: When a match is not found in the version and revision between the micro-program in the DKC and that on the SVP hard disk, the micro-program cannot be exchanged on on-line. In this case, the message “Is the device off-line?” appears, and the exchange is canceled.

When a processor is blocked due to a failure, the message “Processing cannot be continued because of a processor blocked due to a failure” appears, and the exchange is canceled.

If an error occurs in downloading micro-programs, resolve the cause of an error using Maintenance Display (SVP section), Action Code (Action Code section), and other information to execute the exchange again. Then start from the beginning of the MICRO-FC procedure. At this time, you can select [Hard Disk] at 4.4 ([MICRO-FC04-160](#)) or [Floppy Disk] at 4.2 (5) ([MICRO-FC04-30](#)).

## &lt;LCP/HTP Micro code Exchange&gt;

If LCP/HTP Micro code Exchange, the following message appears.

- (a) The message displays the execution status of the online patch in the installed LCP/HTP.

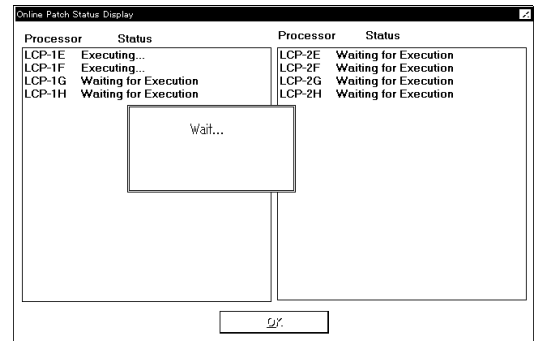
## &lt;Explanation of status&gt;

Not selected-----Not selected as the target.

Waiting for Execution---Execution is awaited.

Executing... -----Execution is in progress.

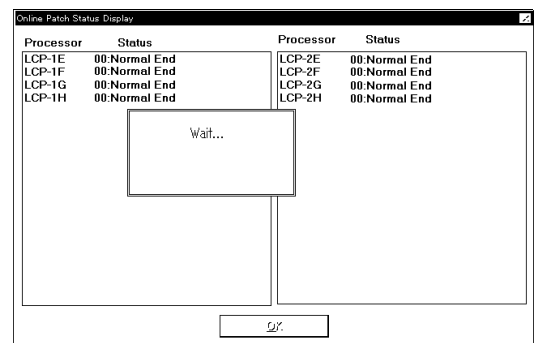
XXXX Blockade Error--Processor XXXX is  
blockaded.



Processor	Status	Processor	Status
LCP-1E	Executing...	LCP-2E	Waiting for Execution
LCP-1F	Executing...	LCP-2F	Waiting for Execution
LCP-1G	Waiting for Execution	LCP-2G	Waiting for Execution
LCP-1H	Waiting for Execution	LCP-2H	Waiting for Execution

Wait...

- (b) When execution is completed for all targets, you will go to step (2). If some errors occur, you can now select [OK].  
Select (CL) [OK].  
You will return to 4.2 (3).



Processor	Status	Processor	Status
LCP-1E	00:Normal End	LCP-2E	00:Normal End
LCP-1F	00:Normal End	LCP-2F	00:Normal End
LCP-1G	00:Normal End	LCP-2G	00:Normal End
LCP-1H	00:Normal End	LCP-2H	00:Normal End

Wait...

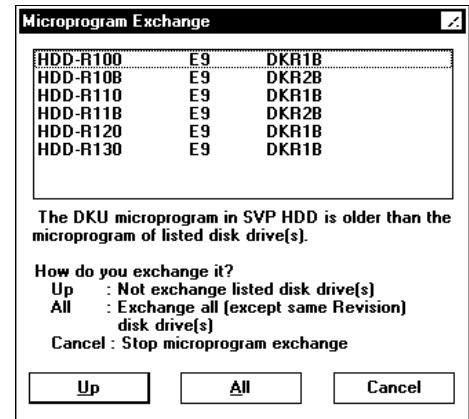
- (2) The message “Downloading \*\*\* micro- program...” (\*\*\*: MAIN, LCP, ...) appears.

<Replacement of the DKU micro-program>

- (a) When the SVP hard disk and the HDU have DKU micro-programs of the same revision, the replacement of the DKU micro-program ends with the following message on the screen:  
“The DKU microprogram is not updated because of the same revision.”

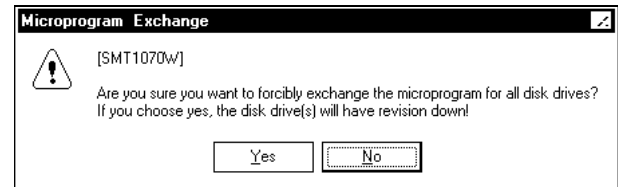


- (b) When the revision of the DKU micro-program in the HDU is older than that in the SVP hard disk, the HDD location number and the revision are displayed in the Revision Down HDU list.  
When you select (CL) [Up], the DKU micro-program in the revised HDU only is updated.



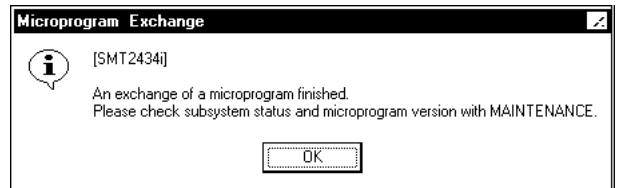
When you select (CL) [All], the message shown on the right is displayed.

When you select (CL) [Yes] in response to the message, DKU micro-programs of the HDUs having micro-programs of different versions are updated.



- (3) The message “Now MP Rebooting... Group# n/N” appears.  
The processor is recovered.  
SVP executes steps (2) and (3) for each exchanging unit.

- (4) In response to the message “An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE”, select (CL) [OK].



Go to 4.7. ([MICRO-FC04-200](#))

### 4.3.2 Transferring micro-programs to SVP/SSVP

(1) Start of the exchange (SSVP).

The message “Changing SSVP microprogram.  
Wait...” is displayed.

**Changing SSVP microprogram.  
Wait...**

<<Error>>

Internal error :

- “Read/Write error has occurred !”
- “Information file doesn’t exist or open error has occurred!”
- “SSVP RESET switch on.”
- “Communication Initialize error!”
- “Cannot change SSVP micro-program while following process is in action. SSVP micro-program download. SSVP memory dump. SVP-SSVP communication error.”
- “Information file doesn’t exist or open error has occurred!”

(2) The message “SSVP microprogram download.” is displayed.

**SSVP microprogram download.  
(1/16)**

(3) Start of the exchange (SVP).

The message “Blocking SVP-SSVP communication  
Wait...” is displayed.

**Blocking SVP-SSVP  
communication. Wait...**

<<Error>>

Internal error :

- “Information file doesn’t exist or open error has occurred!”
- “SVP-SSVP communication blockade error has occurred.”

- (4) The message “Blocking DKC-SVP communication. Wait...” is displayed.



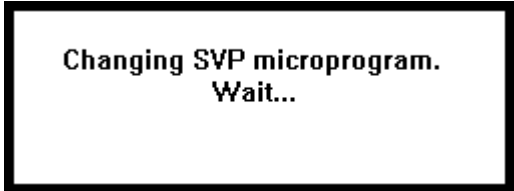
Blocking DKC-SVP  
communication. Wait...

<<Error>>

Internal error :

- “DKC-SVP communication blockade error has occurred.”
- “DKC-SVP communication restore error has occurred. Confirm the cables are connected correctly.”

- (5) The message “Changing SVP microprogram. Wait...” is displayed.



Changing SVP microprogram.  
Wait...

<<Error>>

Internal error :

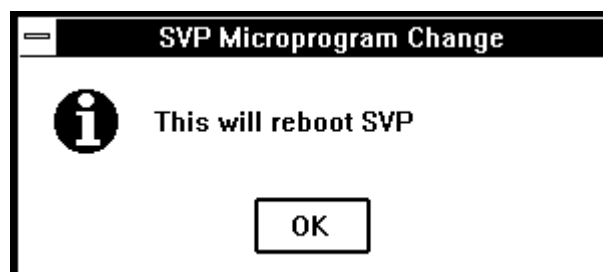
- “Read/Write error has occurred !”
- “Information file doesn’t exist or open error has occurred!”
- “Can’t find a file (BKTASK.DAT)!”

- (6) End of the exchange (SVP).

Select (CL) [OK].

Terminate some application programs, so SVP is rebooted automatically.

Note: After SVP reboot, check surely the message of the microprogram exchange end.



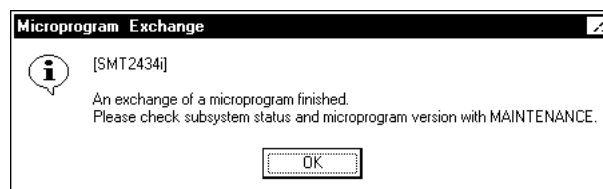
<<Error>>

- “The change of SVP microprogram has failed.”

<<Action>>

- Stop SVP and Power off PC.
- Power on PC again.

- (7) In response to the message “An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE”, select (CL) [OK].

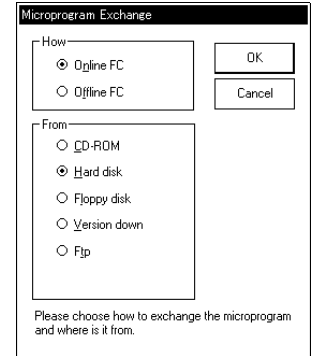


Go to 4.7. ([MICRO-FC04-200](#))

## 4.4 Hard Disk Download

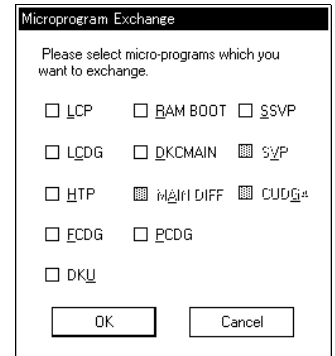
The latest version of micro-programs on the SVP hard disk are downloaded to DKC.

- (1) [How]: Select (CL) [Online].  
 [From]: Select (CL) [Hard Disk] in the 'Setup Microprogram' dialog box.  
 And select (CL) [OK].



- (2) Select (CL) one or more items from the list of the type of micro-programs.  
 And select (CL) [OK].

☒ : Micro-programs to be substituted.



- (3) Go to 4.2 (7) ([MICRO-FC04-40](#)).

- (4) Execute from 4.3.1 (1).  
 Go to 4.3.1 (1) ([MICRO-FC04-100](#)).

## 4.5 Version Down

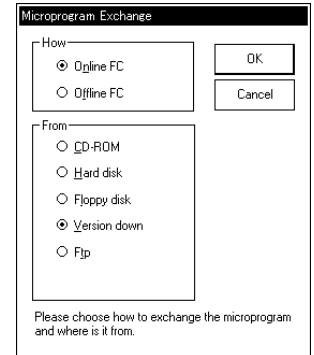


### CAUTION

Please ask your TSC if you can operate this.

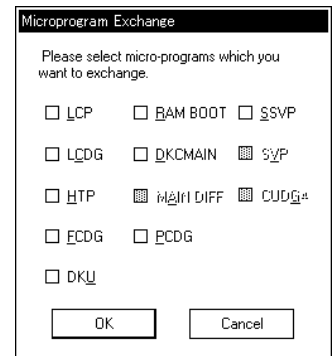
If you want to restore micro-programs to the previous versions of the micro-programs after the exchange (by CD-ROM, Floppy Disk, Ftp or Remote function), execute the Version Down function.

- (1) [How]: Select (CL) [Online].  
 [From]: Select (CL) [Version Down] in the 'Setup Microprogram' dialog box.  
 And select (CL) [OK].



- (2) Micro-programs to be restored are displayed in the 'Micro-program Exchange' dialog box.

\*: Can not select SVP, MAIN DIFF and CUDG4.



- (3) Go to 4.2 (7) ([MICRO-FC04-40](#)).

(4) Copy source and copy destination are displayed.

Execute 4.3 (1).

Go to 4.3.1 (1) ([MICRO-FC04-100](#))

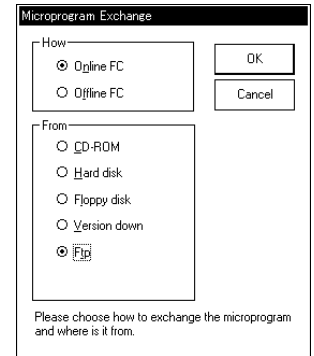
Note:

- The Version Down function can restore only micro-programs that have been exchanged by Floppy Disk or Remote function of the MICRO-FC.  
When the MICRO-FC (Floppy Disk or Remote function) has not been executed the Version Down function cannot be executed until the next MICRO-FC is done.
- After LCP/HTP Version Down, replace the PCB.

## 4.6 FTP

After being stored on the hard disk by FTP transfer, the micro-programs are downloaded to the DKC.

- (1) [How]: Select (CL) [Online].  
 [From]: Select (CL) [Ftp] in the 'Microprogram Exchange' dialog box.  
 And select (CL) [OK].

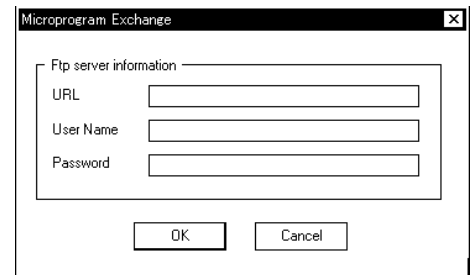


Input the information of the server that the microprogram which is transported by FTP, and select (CL) [OK]

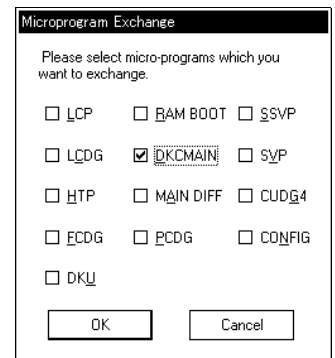
**URL:** The micro program storing server name and the file path from a home directly

**User Name:** The user name for making FTP connection at the micro program storing server.

**Password:** Password.



The 'Microprogram Exchange' dialog box appears.  
 Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].



- (2) Execute 4.2 (7), (8), (9).  
 Go to [MICRO-FC04-40](#).

- (3) Execute from 4.2 (13).  
 Go to [MICRO-FC04-80](#).

## 4.7 Checking the functions after exchange

Conduct the same testing which was performed at the installation.

Check that the version of the recently installed micro-program is the same as that of the replaced micro-program by using the version display in the MAINTENANCE function.

(See SVP SECTION.)

Note: If you find “??-??...” or incompatibility version, recover the status following the section 7.1.

You must exit and restart all Web browsers on the Storage Navigator PC, when the microprogram is updated on the SVP.

Note: When it is connected main frame host and DKC emulation is 2105, this DKC has the possibility that “RDFEAT” is reported in the EF-CHK column when a QDASD command is issued after the micro-program exchange.

In this case, please add a VALIDATE parameter, and issue a QDASD command again.

## 5 MP Install

### 5.1 Over view

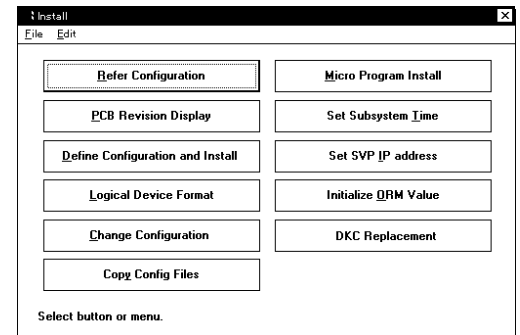
This facility is used to restore a processor that failed to complete the rewrite of the micro-programs in FM (Flash Memory) due to an error during the micro-program download.

Since a processor that encountered such a problem started unsuccessfully without loading micro-programs, it is loaded with the FM write only programs. Whenever the FM write only program are loaded, a SIM with reference code = 7900X0 (for the CHA (Channel adaptor))/7901X0 (for the DKA (Disk Adaptor)) is reported. Also, an SSB (F/M = 8C, EC = 3309) is reported. The user must examine this SIM or SSB and perform MP Install on the processor that issued the SIM or the SSB. If MP Install has failed, please replace the PCB. (see REPLACE SECTION)

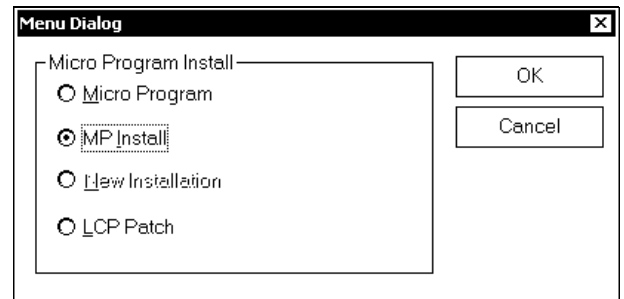
## 5.2 MP Install

(1) Select (CL) the [Install] icon in the 'SVP' window.

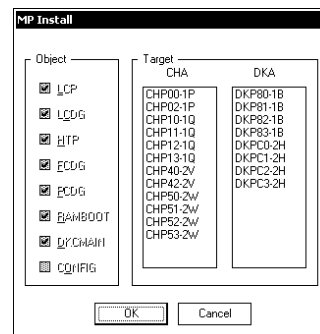
(2) Select (CL) [Micro Program Install] in the 'Install. Subsystem' window box



(3) Select (CL) the [Install] menu in the 'Menu Dialog' window and select (CL) [MP Install].



- (4) Select (CL) a processor in the 'To' and select (CL) [OK].

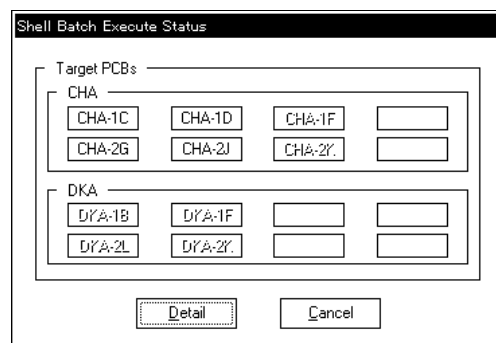


- (5) Progress Dialog appears.

Executing PCB button blink.

When MP Install process finished, the dialog will be closed automatically.

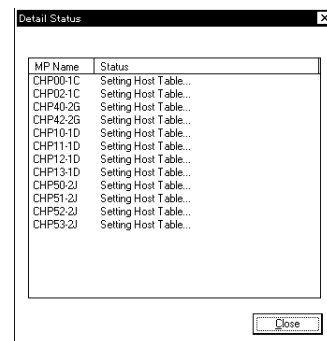
- [Detail]: You can see detail status.  
See following "Detail status display".
- [Cancel]: You can interrupt MP Install process.



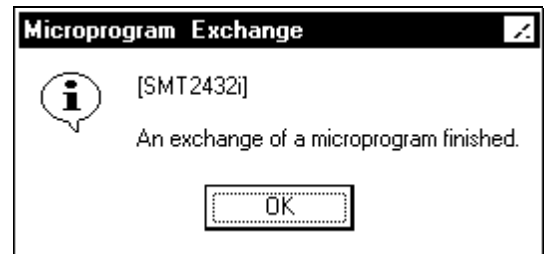
"Detail status display"

Executing MP location and detail status are displayed.

Select (CL) [Close] and return progress dialog.



- (6) In response to the message “An exchange of a microprogram finished.”, select (CL) [OK].



- (7) You will return to the 'Install' screen.

## 6 LCP Patch

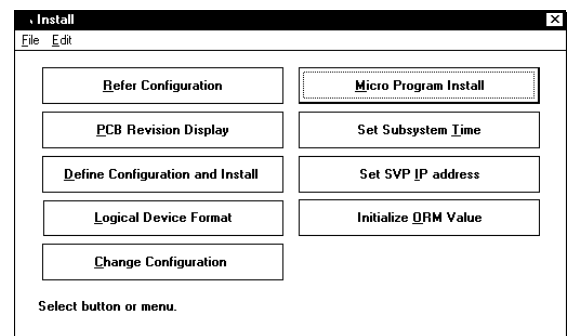
### 6.1 Methods of entering a patch file

#### 6.1.1 Entering the patch file from the SVP by using a patch editor

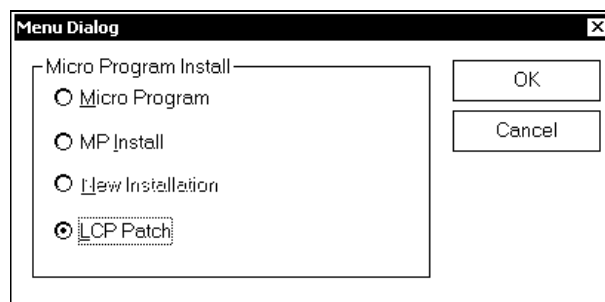
- (1) <Mode Change>  
Change the mode to [Modify Mode] (CL).

- 
- (2) Select (CL) [Install].

- 
- (3) Select (CL) [Micro Program Install].



- (4) Select (CL) [LCP Patch] and select (CL) [OK].



- (5) Select (CL) [LCP Patch] and select (CL) [OK].



- (6) Editing patch data

A procedure to edit the LCP patch data is shown below as an example.

(6-0) Entry No. selection screen

(6-1) Changing patch data

(6-2) Adding patch data

(6-3) Deleting patch data

(6-4) Inserting patch data

(6-5) Clearing patch data

(6-6) Copying patch data

(6-7) Cutting patch data

(6-8) Pasting patch data

(6-9) Printing patch data

(6-10) Stopping editing

(6-11) Searching patch data



**(6-4) Inserting patch data**

- (1) Select (CL) an insert line in the patch list and select (CL) the [Insert] button. The data full of "0" is inserted to the selected line. Edit the data in the upper part of the screen.
- (2) After editing, select (CL) the [Confirm] button and register the patch data.

---

**(6-5) Clearing patch data**

- (1) Select (CL) the [Clear] button.
- (2) Deletion of the patch data for each entry No.

---

**(6-6) Copying patch data**

- (1) Select (CL) the patch data (multiple patch data can be selected) and select (CL) the [Copy] button.
- (2) The selected patch data will be copied.

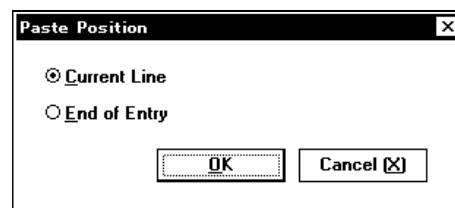
---

**(6-7) Cutting patch data**

- (1) Select (CL) the patch data (multiple patch data can be selected) and select (CL) the [Cut] button.
- (2) The selected patch data will be cut (copied and deleted).

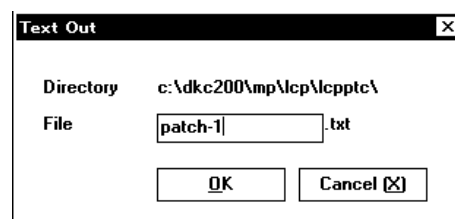
## (6-8) Pasting patch data

- (1) Select (CL) the one line to paste the copied or cut patch data and select (CL) the [Paste...] button. The 'Paste Position' screen appears.
- (2) [Current Line] : Pastes patch data to the selected line.  
[End of Entry] : Pastes patch data to the end of the entry.



## (6-9) Printing patch data

- (1) Select (CL) the patch data (multiple patch data can be selected) and select (CL) the [Print...] button. The 'Text Out' screen appears.
- (2) Input a file name of "\*.txt" file and select (CL) [OK].

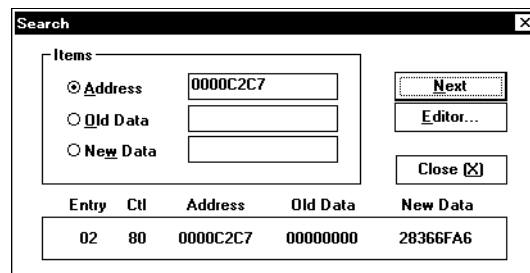


## (6-10) Stopping editing

- (1) Select (CL) the [Stop] button to stop editing (changing, adding, or inserting) patch data.

## (6-11) Searching patch data

- (1) Select (CL) the [Search...] button in the entry No. selection screen. The 'Search' screen appears. Address, Old Data or New Data searching can be done.
- (2) Input an Address, an Old Data or a New Data, and select (CL) the [Next] button. The data found is displayed at the bottom of this screen.
- (3) If you need to edit the found patch data, select (CL) the [Editor...] button. The 'LCP Patch Editor -' screen appears. And (6-1)-(6-10) operations will be available.



## 6.2 Methods of sending a patch file

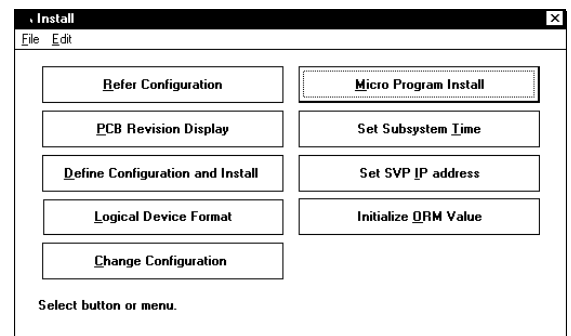
### 6.2.1 Rewriting LCP itself

This subsection describes how to send the online-patch record specified by Execute Entry NO. to the processor specified by TARGET.

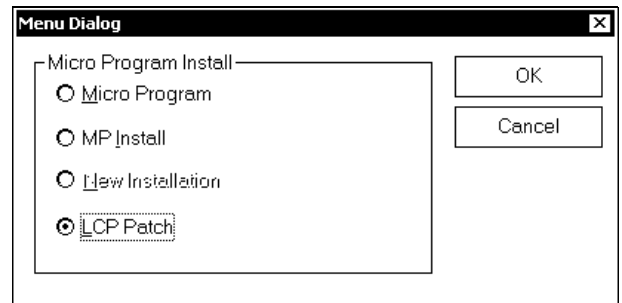
- (1) <Mode Change>  
Change the mode to [Modify Mode] (CL).

- 
- (2) Select (CL) [Install].

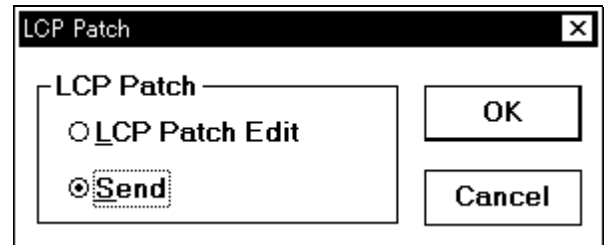
- 
- (3) Select (CL) [Micro Program Install].



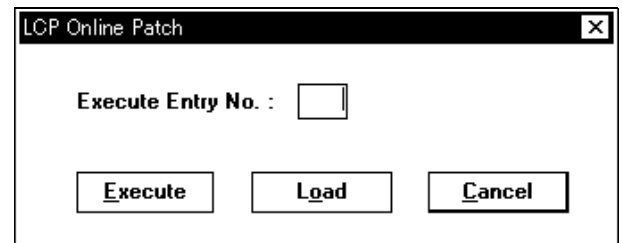
- (4) Select (CL) [LCP Patch] and select (CL) [OK].



- (5) Select (CL) [Send] and select (CL) [OK].



- (6) 'LCP Online Patch' is displayed.  
Enter an execute entry number, then select (CL) [Execute].



Execute entry number : Specify the registration number (two-digit hexadecimal number) of the online-patch record.

- (7) The execution status of the online patch in the installed LCP is displayed.

<Explanation of status>

Not selected	Not selected as the target.
Waiting for Execution	Execution is awaited.
Executing...	Execution is in progress.
XXXX Blockade Error	Processor XXXX is blockaded.

- (8) When execution is completed for all targets,  
you can now select [OK].  
Select (CL) [OK].  
You will return to step (6).

<Explanation of status>

Sumcheck Error

Version Error

Data Error

Bank Error

Address Error

Level Error

Record Count Over Error

ID Error

Access Mode Error

CBF CHK2 Error

Busy Time Out Error \*1

Not Ready Error

Time Out Error before Patch Transfer

Time Out Error during Patch Transfer

Time Out Error after Patch Transfer

Status = "Dead"

Status = "HOLD"

Abnormal Error Check

Busy Retry Error \*1

Other Frame Receive Error

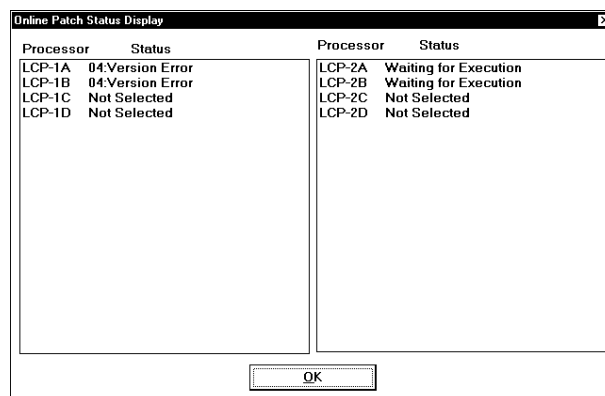
Time Out Error

Abnormal Error

DMA Abnormal Error

Parameter Error

Asynchronous Error



\*1 : When "Execute" is performed in the processor which is going along I/O, it turns into this error.

Then, till it becomes Normal End, "Execute" is performed.

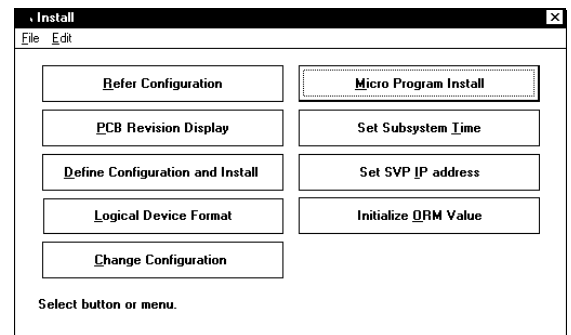
## 6.2.2 Including the patch into a load module and update FM

This subsection describes how to download the load module containing all records in the online-patch file to the “Executed” processor. If “Execute” is not yet done for the processor, the load module is downloaded to the processor currently specified by TARGET.

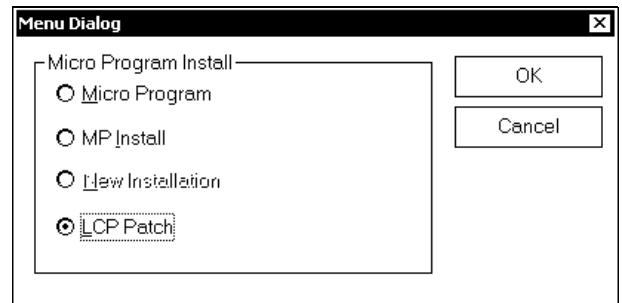
- (1) <Mode Change>  
Change the mode to [Modify Mode] (CL).

- 
- (2) Select (CL) [Install].

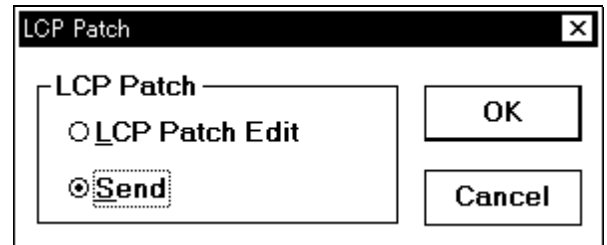
- 
- (3) Select (CL) [Micro Program Install].



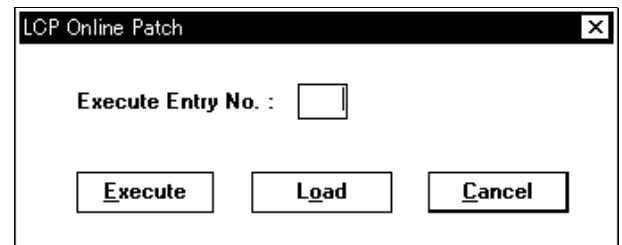
- (4) Select (CL) [LCP Patch] and select (CL) [OK].



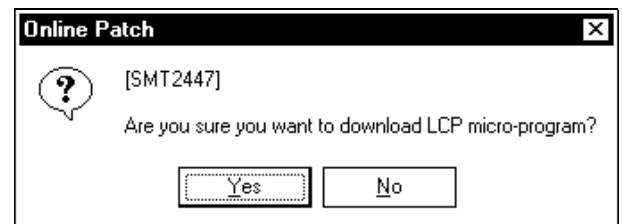
- (5) Select (CL) [Send] and select (CL) [OK].



- (6) When you have mode the Execute operation on LCP Online Patch, select (CL) [Load].



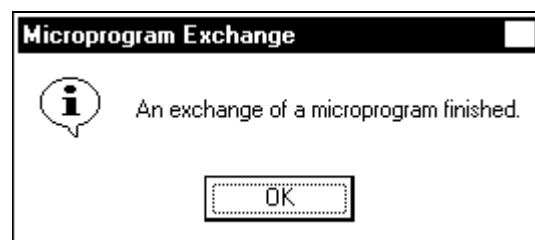
- (7) The message “Are you sure you want to download LCP micro-program?” is displayed. Select (CL) [Yes].



- (8) SM is being updated.  
“Now Down Loading...” is displayed.

- (9) FM is being updated.  
“Now Down Loading... [XXX]” (XXX : PCB location) is displayed.

- (10) Upon completion of downloading, the message  
“An exchange of a microprogram finished” is  
displayed.  
In response to this message, select (CL) [OK].



## 7 Trouble Recovery Procedure in Exchanging Micro-programs

### 7.1 Recovery procedure in on-line menu was selected

If trouble occurs while the micro-programs are being exchanged, symptoms (1) to (6) below can be observed apparently. In these cases, use the recovery procedures shown in flowcharts [A] to [D]. And if you want to return the version of micro-program to the previous version, use the procedure shown in (7) and flowchart [E].

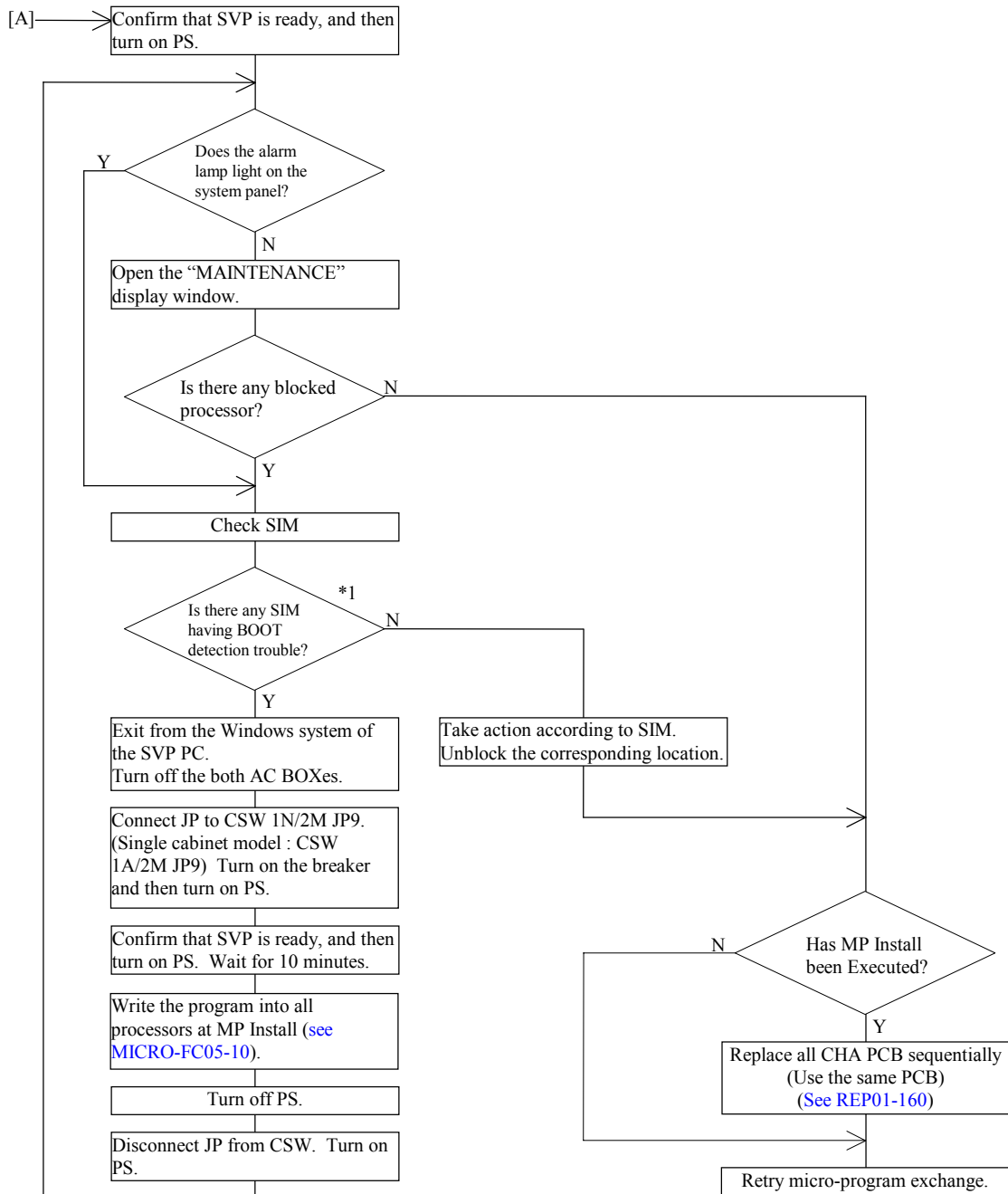
- (1) A power failure occurs.  
→Go to [A] ([MICRO-FC07-30](#))
- (2) The time-out message is displayed on the SVP screen.
  - (a) Trouble in downloading the micro-program (the message “Downloading Main micro-program” is displayed).  
→Go to [B] ([MICRO-FC07-40](#))
  - (b) Trouble in blocking the processor (the message “Processor in now blocking” is displayed).  
→Go to [C] ([MICRO-FC07-50](#))
  - (c) Trouble in recovering the processor (the message “Processor in now recovering” is displayed).  
→Go to [C] ([MICRO-FC07-50](#))
  - (d) Trouble in downloading the micro-program (the message “Downloading DKU micro-program” is displayed).  
→Go to [F] ([MICRO-FC07-90](#)).
- (3) An error occurs in data transferred to the DKC.  
(The message “It failed in the writing to the flash memory” is displayed.)  
→Go to [B] ([MICRO-FC07-40](#))
- (4) An I/O error occurs on the SVP hard disk.  
(The message “File I/O error has occurred” is displayed)  
(The message “Memory error has occurred” is displayed)  
→Go to [D] ([MICRO-FC07-60](#))
- (5) An AP error occurs, resulting in PC trouble (Key-in operations are disabled and the screen disappears).  
→Go to [B] ([MICRO-FC07-40](#))
- (6) Recovery of a cache failure during the micro-program exchange of DKCMAIN Action.

- (7) Procedure for returning the micro-program version to the previous version.  
→Go to [E] ([MICRO-FC07-70](#))
- (8) In case of uncorrect version display (“??-??...” or incompatibility).  
→Go to [B] ([MICRO-FC07-40](#))

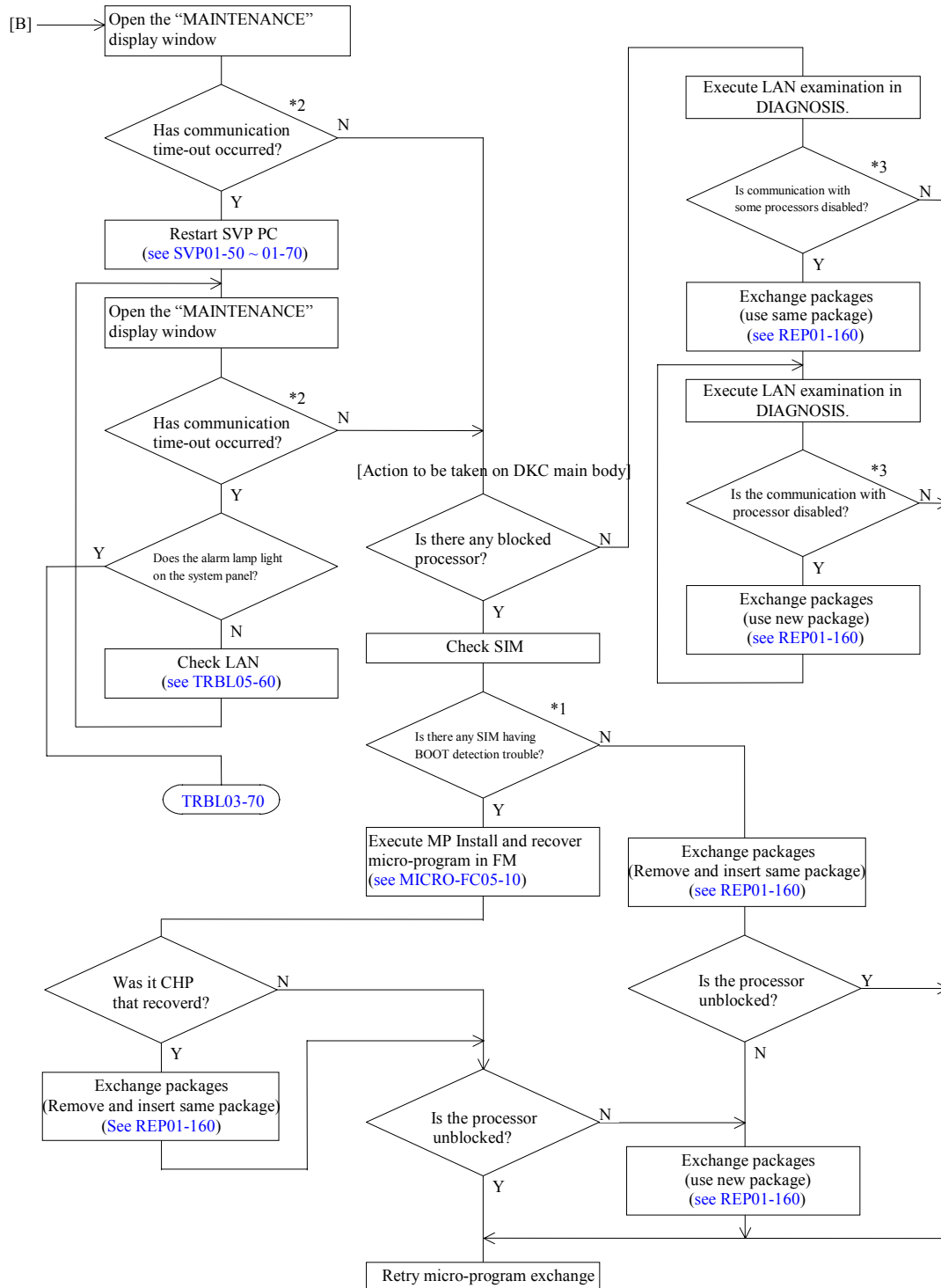
[Sections to be referenced for recovery procedure]

- (i) Status display : 3.4 Main screen on SVP section
- (ii) Version display : 3.9 Micro-program version on SVP section
- (iii) MP installation : 5 MP Install
- (iv) Package exchange : 1 Hot Replace on REPLACE section
- (v) PC exchange : 1 Hot Replace on REPLACE section

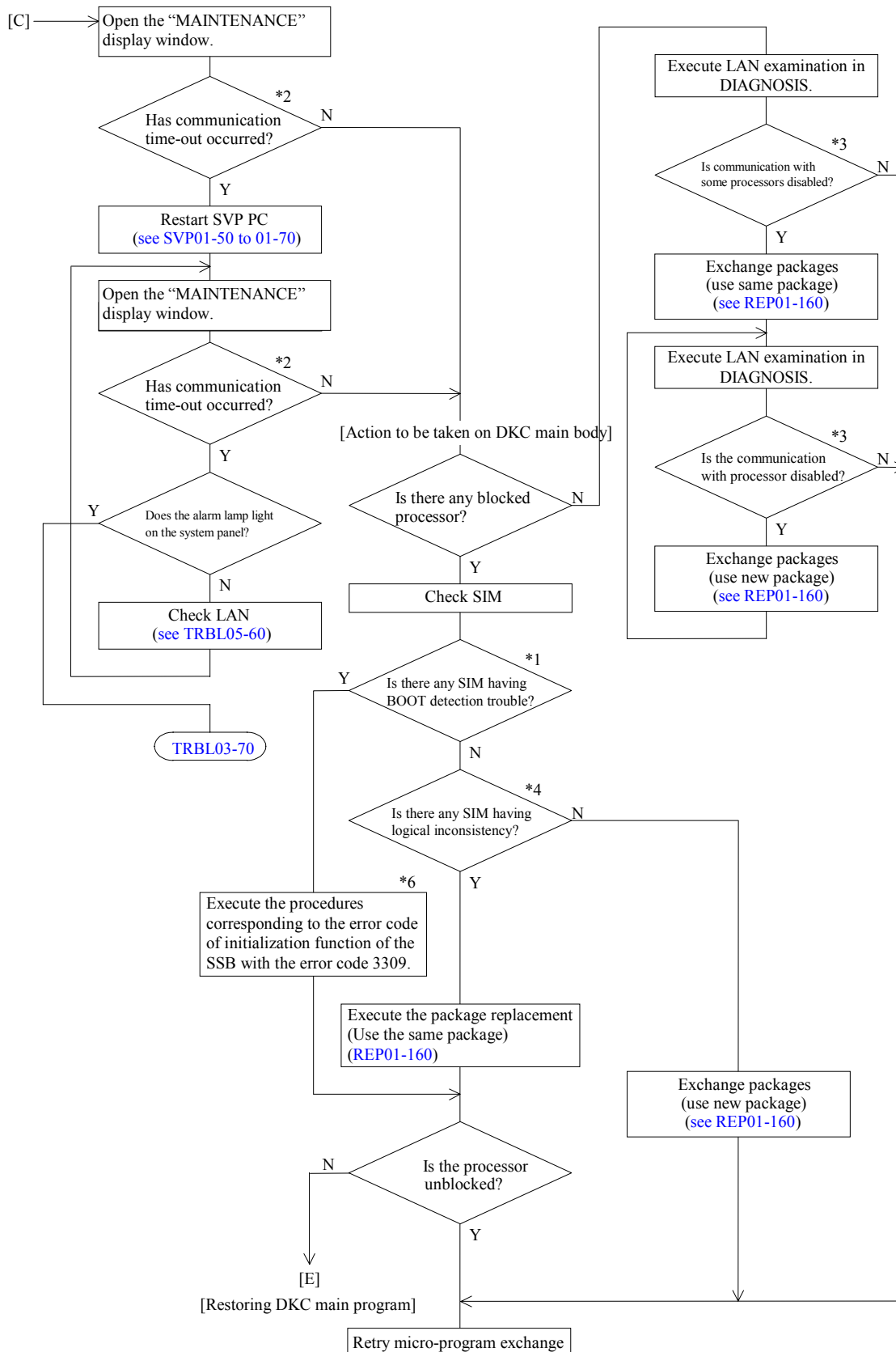
## [Recovery Procedure for Power Failure]



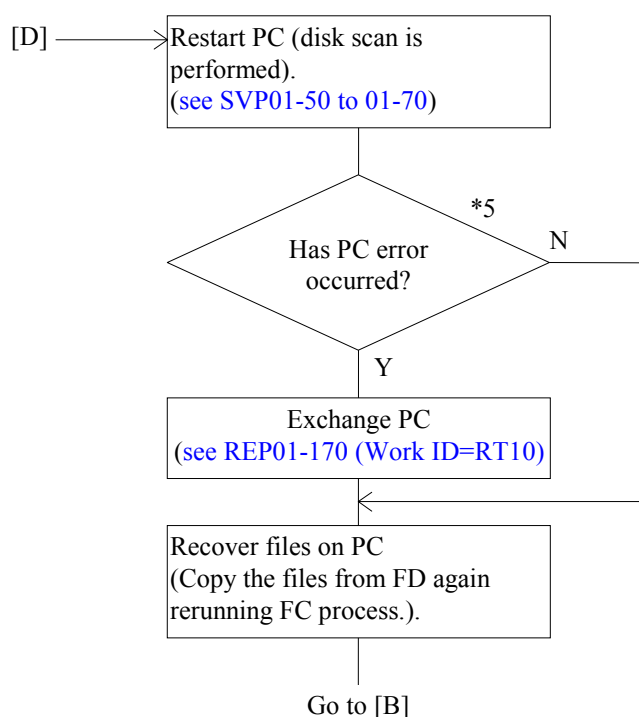
# [Recovery Procedure for Communication Time-out/PC Trouble in Downloading Micro-program /Version incompatibility]



## [Recovery Procedure for Communication Time-out in Blocking/Unblocking Processor]



## [Recovery Procedure for I/O Error on SVP Hard Disk]



\*1) Reference code “7900X0” or “7901X0”

X: Shows processor id. (see SIM-RC02-270)

For details of the trouble, refer to the explanation about the BOOT detected error at SSB (Byte27 =8C).

(see SSBLOG05-1620)

\*2) The message “connection error occurred SVP-DKC” is displayed.

\*3) Each LAN error processor button blinks.

\*4) Reference code

3080x0: Indicates that a WCHK1 dump has occurred.

3081x0: Indicates that an ABEND dump has occurred.

x: Shows processor id.

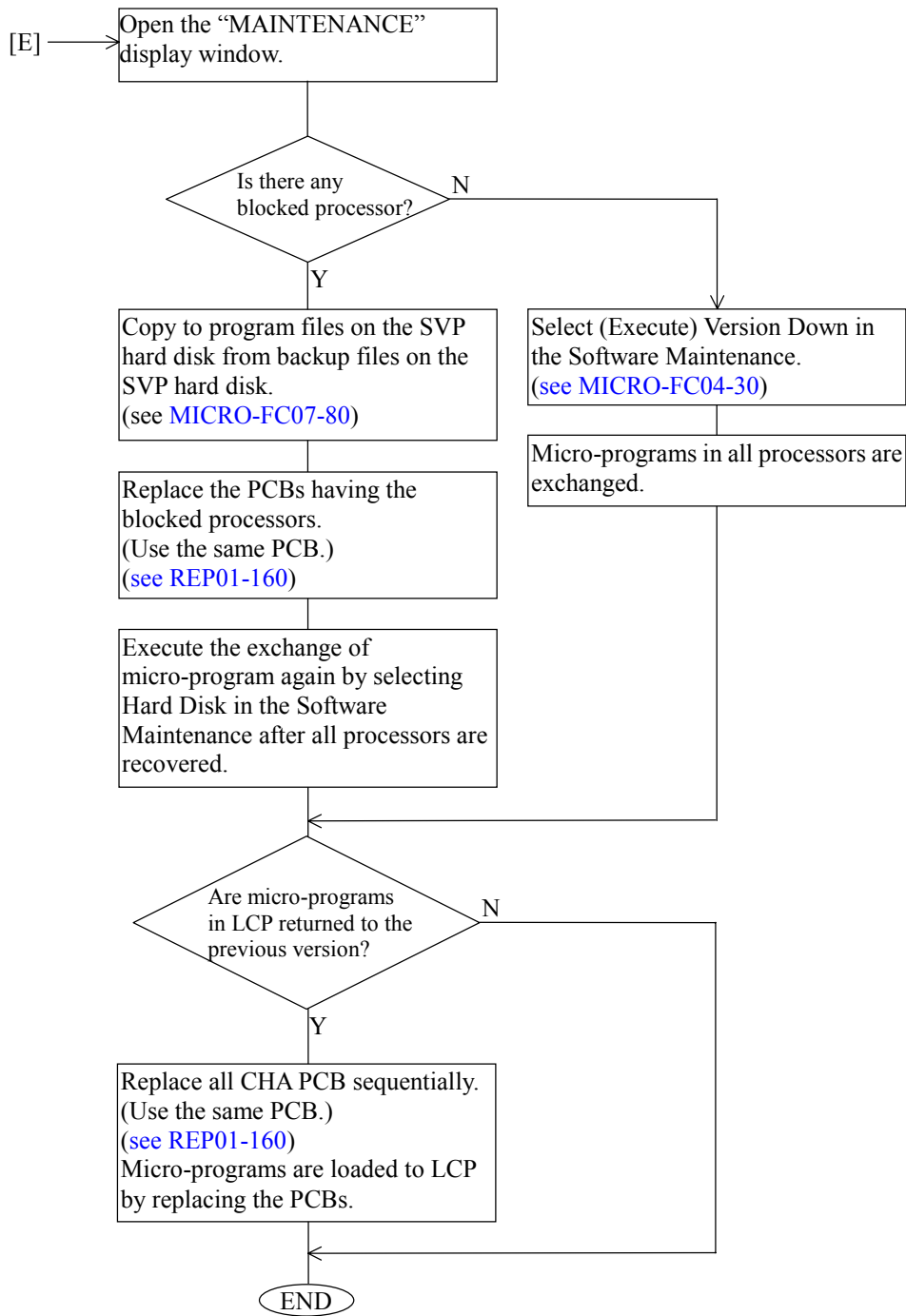
\*5) The message “Please turn off SVP and replace it” is displayed.

\*6) Refer to “SSBLOG05-1620” for the SSB with the error code 3309.

Also, the error code of initialization function is shown in 5C-5Fth byte of the SSB. The procedures corresponding to the error code of initialization function are as follows.

Error code of initialization function	Procedures	Note
56000041	① SVP Replace ② MP Install ③ Package Replace	Use the same package in ③. Refer to “REP01-170 (Work ID : RT10)” for SVP Replace.
others	① MP Install ② Package Replace	Use the same package in ②.

## [Procedure for returning the micro-program version to the previous version]



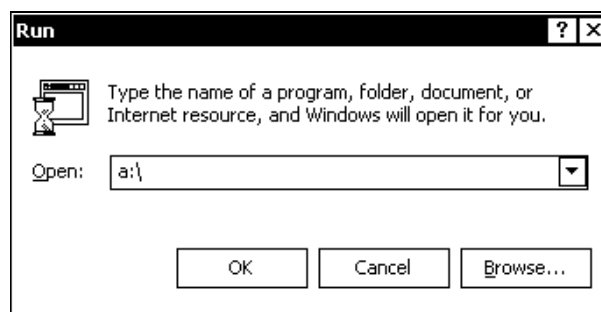
[Copy to program files from backup files on the SVP hard disk]

- (1) Select (CL) [Run...] from the [Start] button.

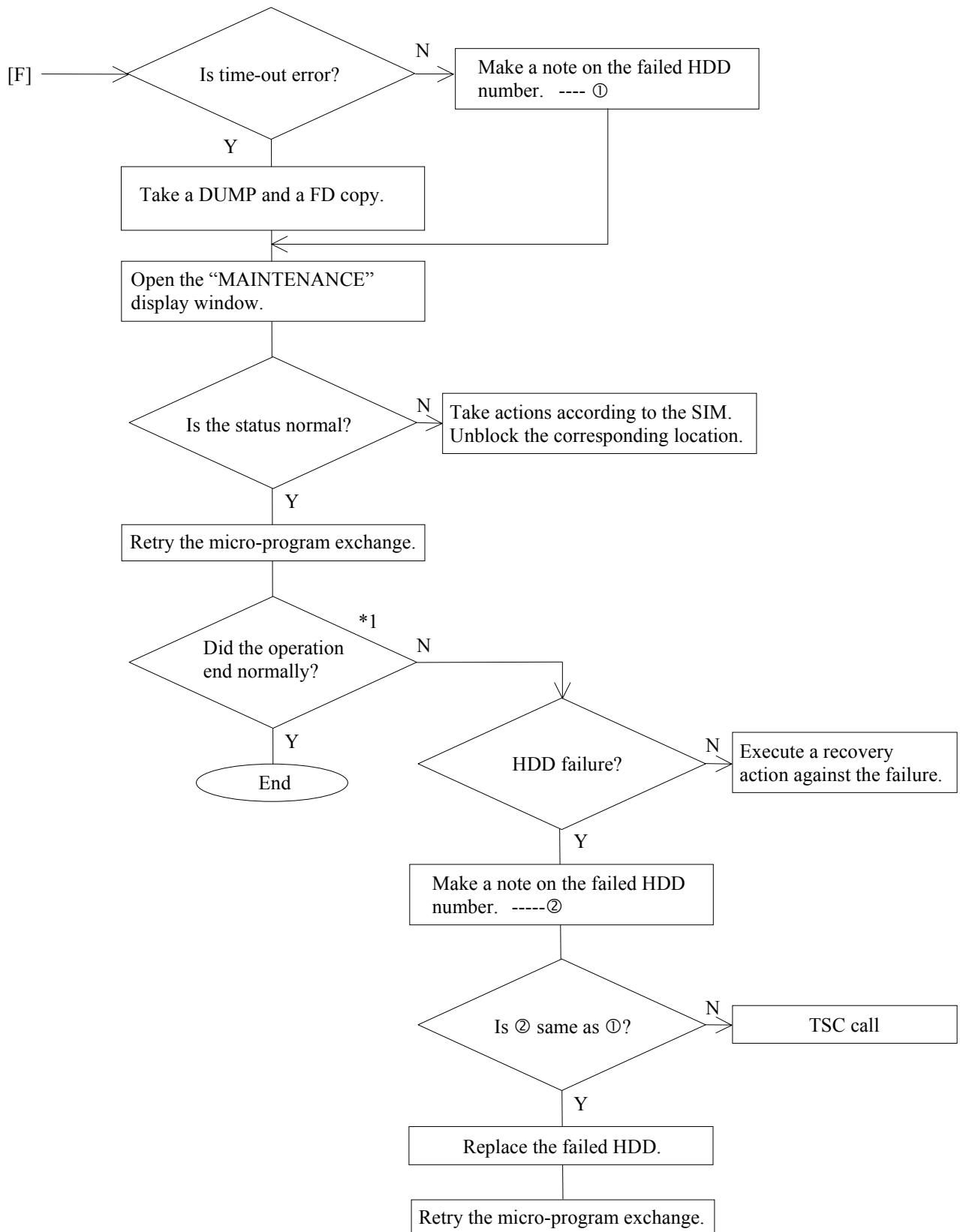


- (2) Insert the Micro-program media (CD-ROM) in the CD-ROM drive, and wait until the CD-ROM drive recognizes the CD-ROM.

- (3) Input the file name "E:\mainbk.bat" in 'Open' and select (CL) [OK].



[Recovery procedure when a DKU error occurs during a downloading of the micro-program (DKU micro-program)]



## 7.2 Recovery procedure in off-line menu was selected

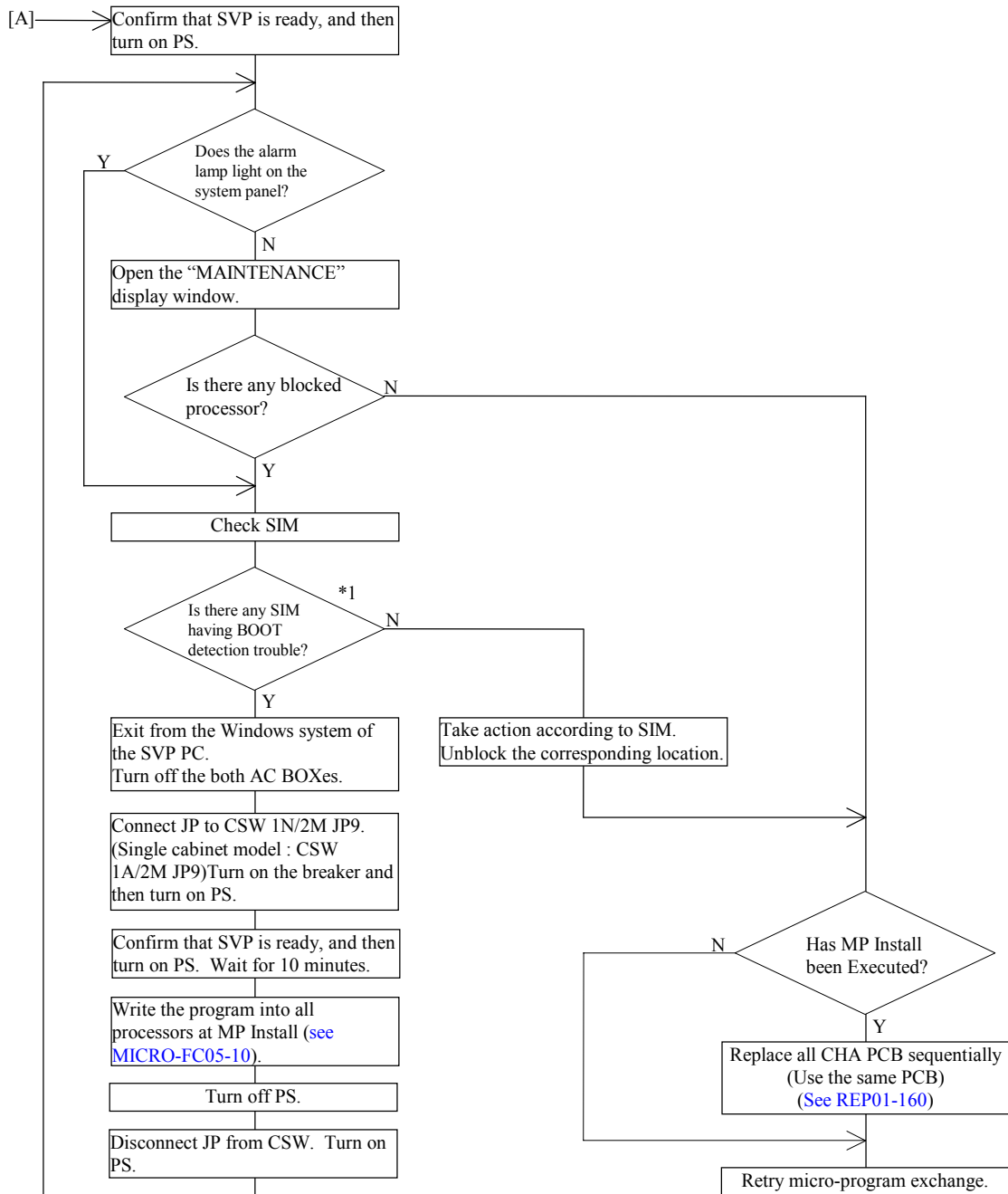
If trouble occurs while the micro-programs are being exchanged, symptoms (1) to (8) below can be observed apparently. In these cases, use the recovery procedures shown in flowcharts [A] to [F].

- (1) A power failure occurs.  
→Go to [A] ([MICRO-FC07-120](#))
- (2) Time-out display appears on SVP screen. (“On exchanging a microprogram. An error has occurred. Processing is stopped. Confirm the status and Version of subsystem. Phase: xxxx” message is displayed.)
  - (a) System block processing (phase: preprocedure display) error.  
→Go to [B] ([MICRO-FC07-130](#))
  - (b) Micro-program downloading (phase: download display) error.  
→Go to [C] ([MICRO-FC07-130](#))
  - (c) System recovery processing (phase: recover display) error.  
→Go to [D] ([MICRO-FC07-140](#))
- (3) An error occurs in data transferred to the DKC.  
(The message “It failed in the writing to the flash memory” is displayed.)  
→Go to [E] ([MICRO-FC07-150](#))
- (4) An I/O error occurs on the SVP hard disk.  
(The message “File I/O error has occurred” is displayed)  
(The message “Memory error has occurred” is displayed)  
→Go to [F] ([MICRO-FC07-160](#))
- (5) An AP error occurs, resulting in PC trouble (Key-in operations are disabled and the screen disappears).  
→Go to [E] ([MICRO-FC07-150](#))
- (6) Off-line micro-program exchange function not supported.  
(“The version of Main microprogram is inconsistent with the SVP.” message is displayed.)
- (7) Recovery of a cache failure during the micro-program exchange of DKCMAIN Action.
- (8) In case of uncorrect version display (“??-??...” or incompatibility).  
→Go to [B] ([MICRO-FC07-130](#))

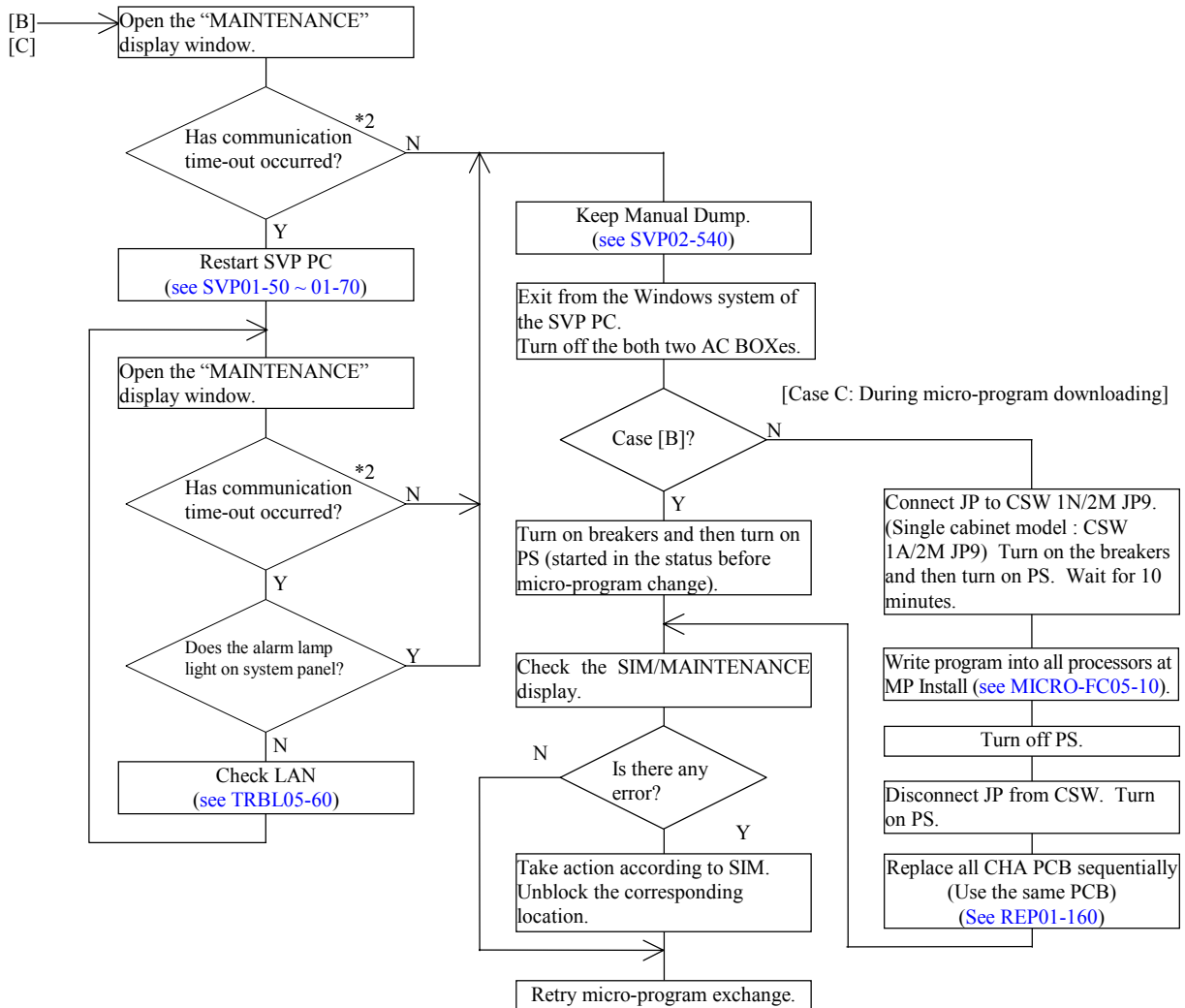
[Sections to be referenced for recovery procedure]

- (i) Status display : 3.4 Main screen on SVP section
- (ii) Version display : 3.9 Micro-program version on SVP section
- (iii) MP installation : 5 MP Install
- (iv) Package exchange : 1 Hot Replace on REPLACE section
- (v) PC exchange : 1 Hot Replace on REPLACE section

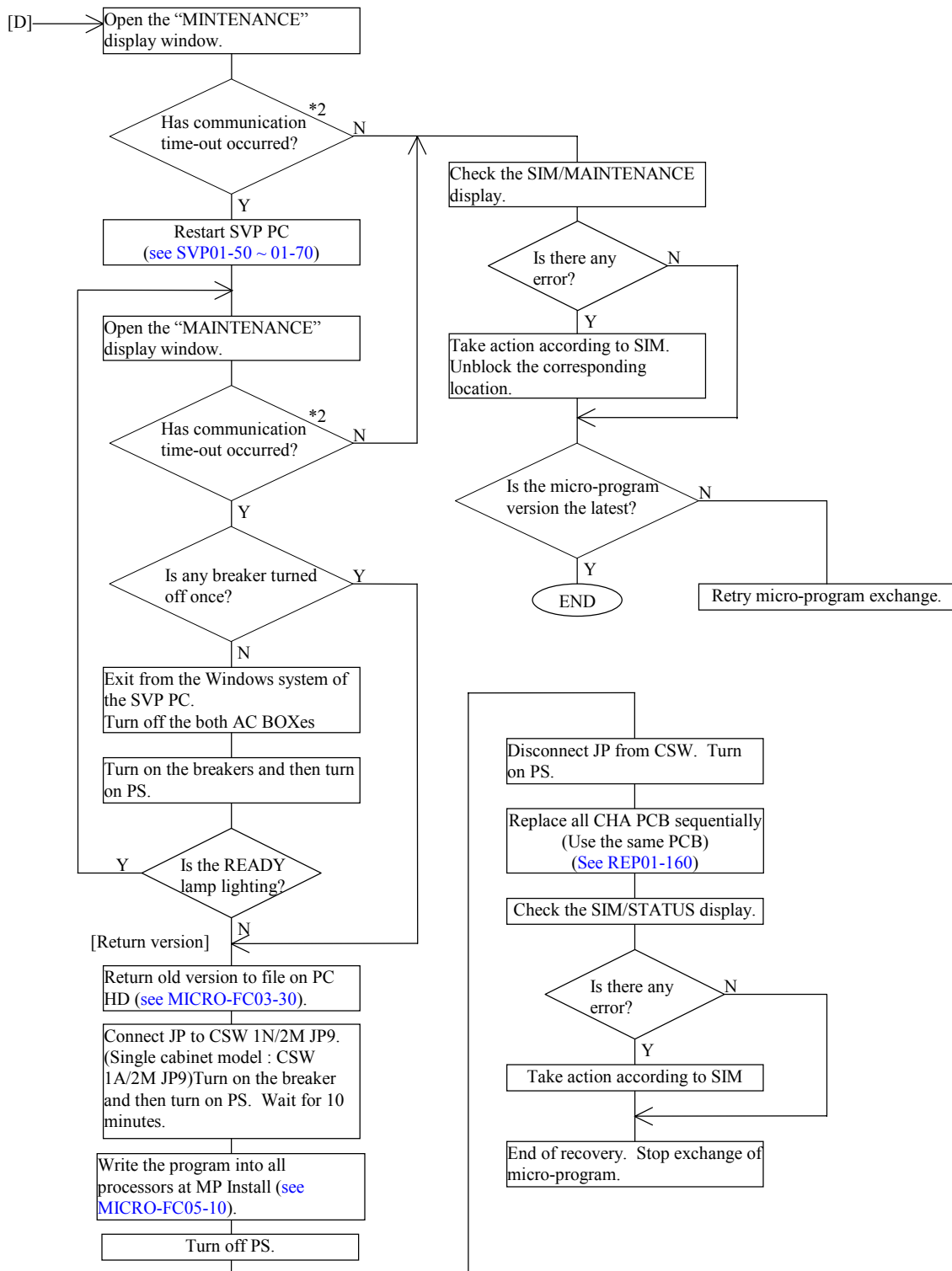
## [Recovery Procedure for Power Failure]



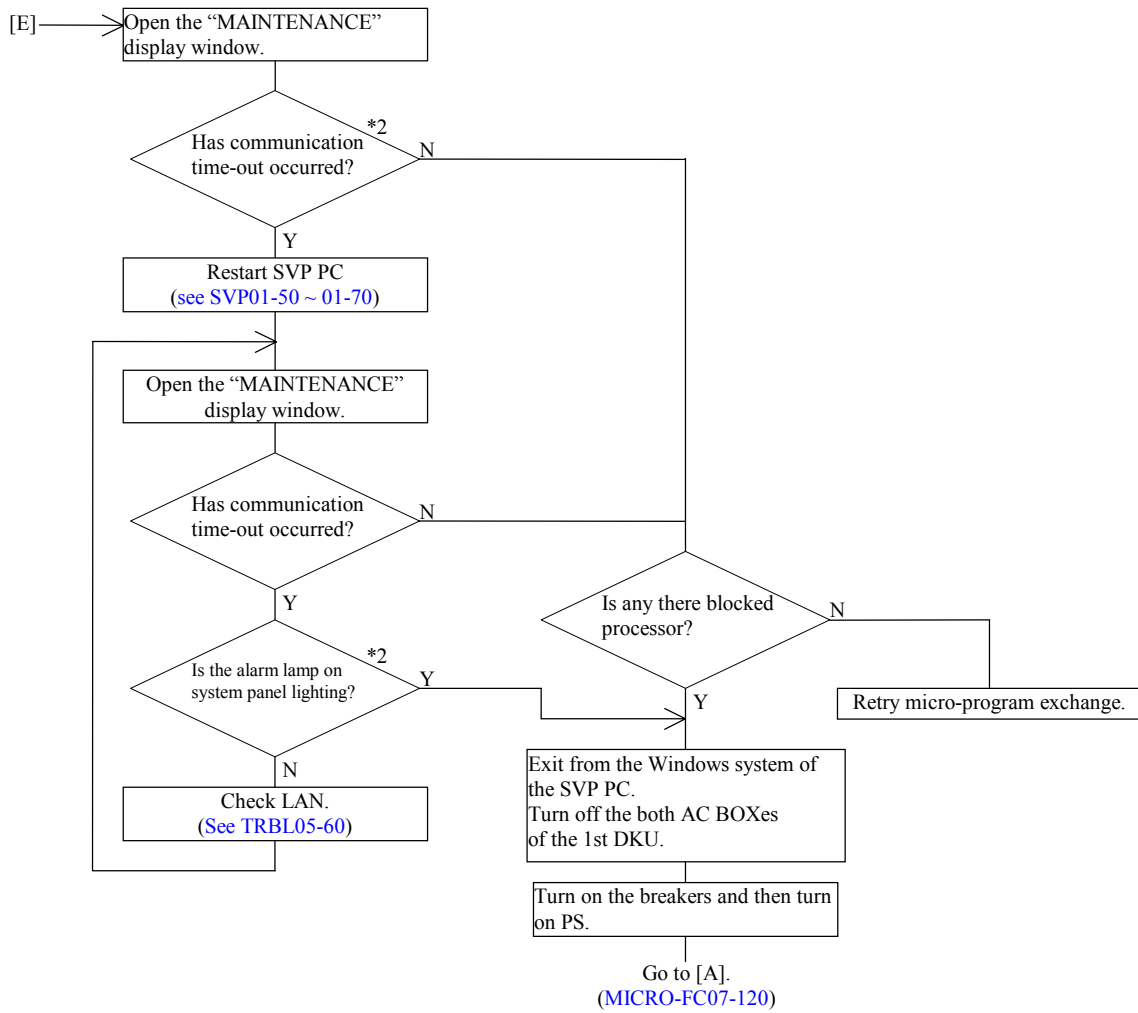
[Recovery procedure for communication time-out during system block processing/micro-program downloading/Version incompatibility]



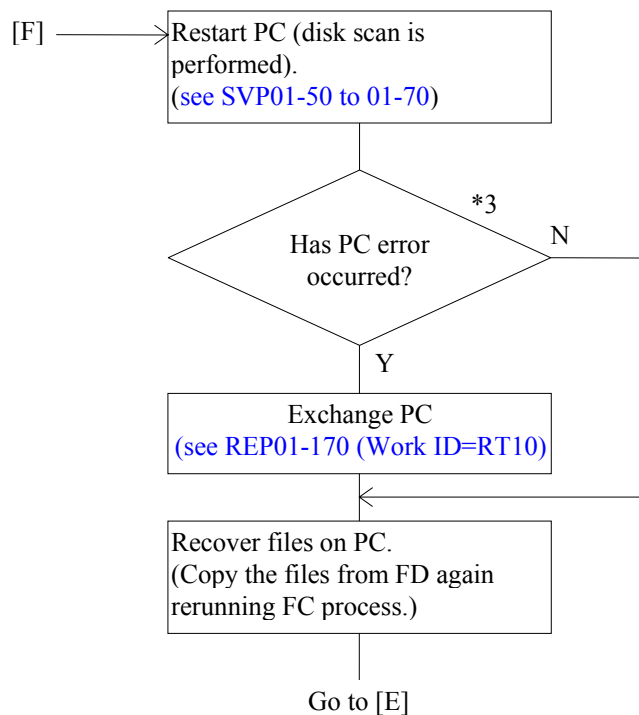
## [Recovery procedure for communication time-out during system recovery processing]



## [Recovery Procedure for an error in data transferred to the DKC/AP error/PC error]



## [Recovery Procedure for I/O Error on SVP Hard Disk]



\*1) Reference code “7900X0” or “7901X0”

X: Shows processor id. (See [SIM-RC02-270](#))

For details of the trouble, refer to the explanation about the BOOT detected error at SSB (Byte27 =8C).

(See [SSBLOG05-1620](#))

\*2) The message “connection error occurred SVP-DKC” is displayed.

\*3) The message “Please turn off SVP and replace it” is displayed.

---

<Recovery of a cache failure during the micro-program exchange of DKCMAIN Action>

1. Retry micro-program exchange of DKCMAIN program.
  - For Version up by Offline FC : Refer to [MICRO-FC03-270](#).
  - For Version up by Online FC : Refer to [MICRO-FC04-160](#).
  - For Version down by Offline FC : Refer to [MICRO-FC03-290](#).
  - For Version down by Online FC : Refer to [MICRO-FC04-170](#).

<Note>

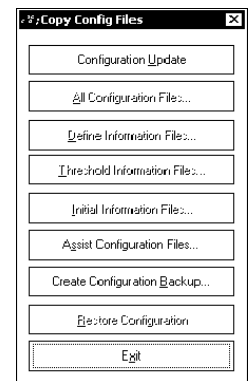
  - The processors which had finished the micro-program exchange to new version will be skipped.
  - Password is necessary.
2. Then, replace the failure parts according to SIM message and M.M..

## 8 Config Exchange Procedure

### 8.1 Config Version Up

- (1) Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

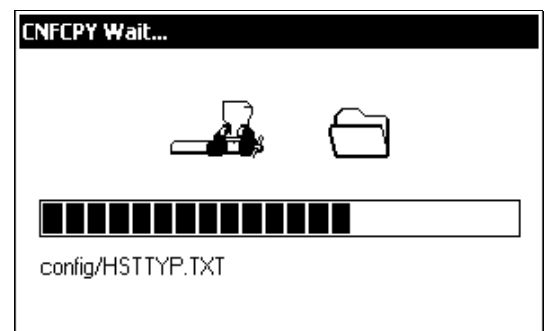
- (2) Select (CL) [Configuration Update] in the 'Copy Config Files'.



- (3) Select (CL) [OK] after the Config FD insertion for upgrade.



- (4) Perform copy processing of composition information from Config FD to SVP.  
In the meantime, the 'CNFCPY Wait...' window is displayed.

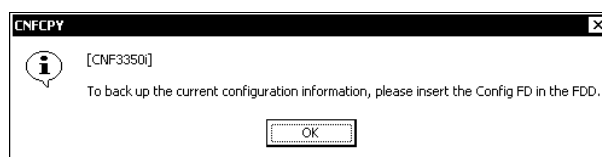


- (5) Select (CL) [OK] in response to 'Please remove the Config FD'.

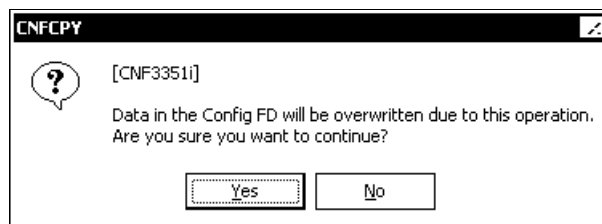


- (6) Processing for reflecting composition information is performed.  
In the meantime, the wait window is displayed.

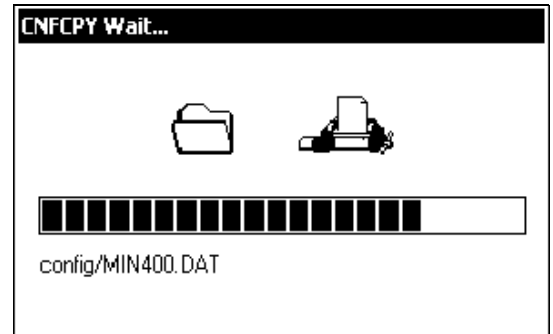
- (7) Select (CL) [OK] after the Config FD insertion for backup.



- (8) If you want to continue, select (CL) [Yes].  
(Select (CL) [No], when the backup to Config FD is unnecessary.)



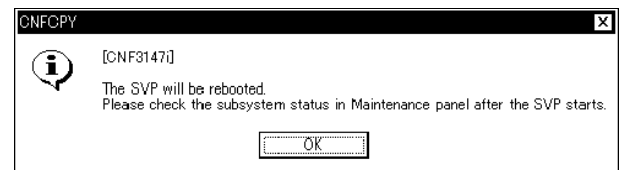
- (9) Perform backup processing of composition information to Config FD for backup. In the meantime, the 'CNFCPY Wait...' window is displayed.



- (10) Select (CL) [OK] in response to 'Please remove the Config FD'.



- (11) When Selecting [OK] to the message 'The SVP will be rebooted.' SVP PC reboots.

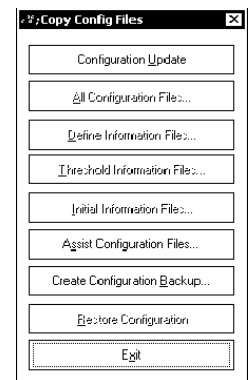


- (12) After SVP PC starts, select (CL) [MAINTENANCE] in the 'SVP' windows (See [SVP03-10](#)).

## 8.2 Config Backup

- (1) Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

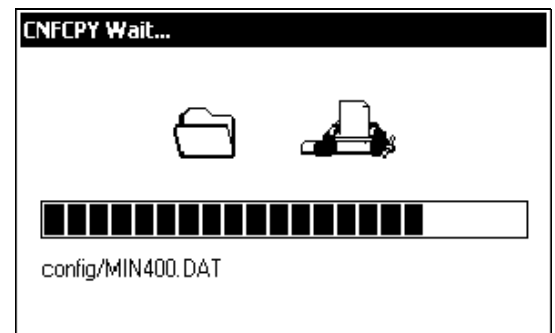
- (2) Select (CL) [Create Configuration Backup...] in the 'Copy Config Files'.



- (3) Select (CL) [OK] after the Config FD insertion for backup.



- (4) The 'CNFCPY Wait...' window is displayed.



- (5) Select (CL) [OK] in response to 'Please remove the Config FD'.

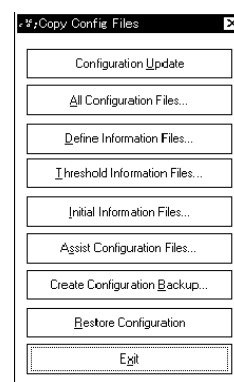


- (6) Select (CL) [Exit] of the 'Copy Config Files' to finish this operation.

### 8.3 Define Configuration & Install

- (1) It changes into [Initial Setting] mode on the 'SVP' window.  
 (Select (CL) [Shift] + [Ctrl] + [I], and enter the password and select (CL) [OK].)  
 Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

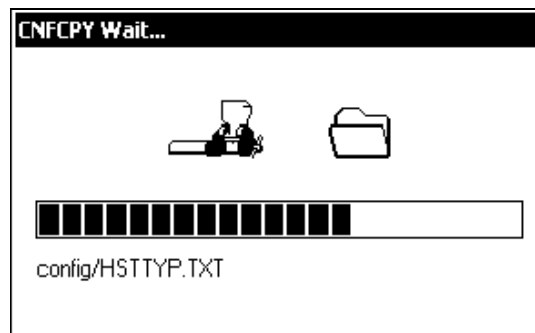
- (2) Select (CL) [All Configuration Files...] in the 'Copy Config Files'.



- (3) Select (CL) [OK] after the Config FD insertion for initial installation.



- (4) The 'CNFCPY Wait...' window is displayed.



- (5) Select (CL) [OK] in response to 'Please remove the Config FD'.



- (6) Select (CL) [Exit] of the 'Copy Config Files', and execute 'Define Configuration & Install' (go to [INST05-80](#)).

## 8.4 Manual version up processing

- (1) It changes into [Initial Setting] mode on the 'SVP' window.  
(Select (CL) [Shift] + [Ctrl] + [I], and enter the password and select (CL) [OK].)  
Select (CL) [Install] in the 'SVP' window and select (CL) [Copy Config Files] in the 'Install'.

- 
- (2) Select (CL) [Initial Information Files...] in the 'Copy Config Files'.  
Please remove Config FD.

- 
- (3) Please reboot SVP PC.

- 
- (4) After processing of (1), Select (CL) [Define Information Files...] in the 'Copy Config Files'.

- 
- (5) Select (CL) [Threshold Information Files...] in the 'Copy Config Files'.  
Please remove Config FD.

- 
- (6) Select (CL) [Set IP Address] in the 'Install Subsystem' window. (See [INST05-60](#))  
(i) Select (CL) [SVP] and then select (CL) [OK] after entering IP Address and Subnet Mask.  
(ii) In response to the message "This will reboot SVP.", select (CL) [OK].

- 
- (7) Select (CL) [Install] in 'SVP'.  
Select (CL) [Change Configuration] in the 'Install Subsystem' window.  
Select (CL) [Tuning Parameter] in the 'Menu Dialog' window and select (CL) [OK] (See [SVP02-1210](#)).

- 
- (8) Select (CL) [MAINTENANCE] in the 'SVP' windows (See [SVP03-10](#)).

## 9. Microprogram Exchange Wizard

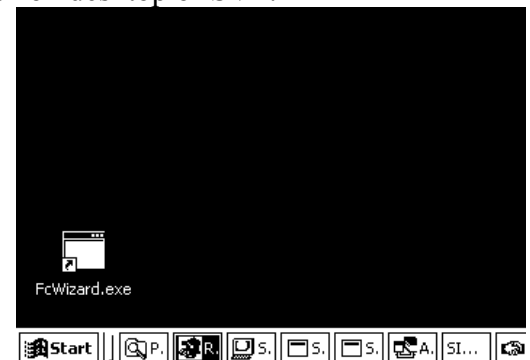
Only inserting the CD-ROM and execute the Microprogram-Exchange-Wizard, microprogram are exchanged automatically according to the contents of the definition.

- The starting method

(1) Insert CD-ROM that the micro program was stored in the CD-ROM drive of SVP.

(2) Change the SVP mode to “MODIFY”.

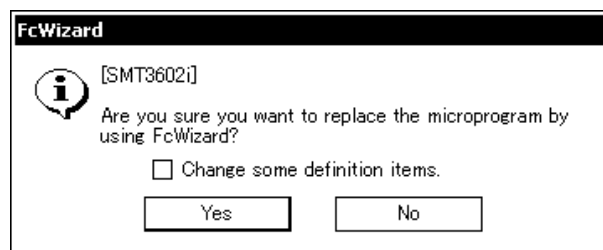
(3) Double-click the icon of the shortcut of “FcWizard.exe” on desktop of SVP.



(4)

The message “Are you sure you want to replace the microprogram by using FcWizard?” appears. Select (CL) [Yes].

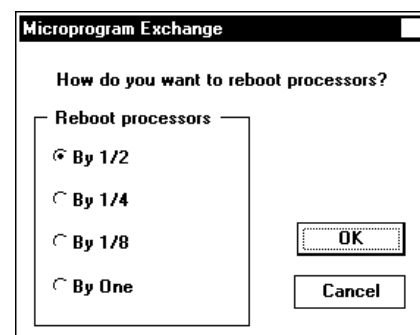
If you check (CL) the “Change some definition items” these following dialog appears and you can change some definition of the microprogram exchange.



[Reboot processor] dialog.

If the target microprograms contains DKCMAIN, MAIN DIFF, ROMBOOT or RAMBOOT, you can select (CL) processors' reboot pattern.

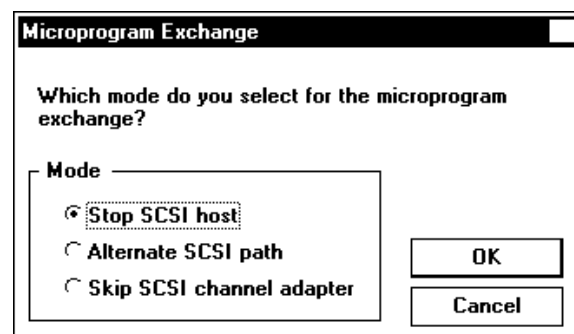
Refer to [MICRO-FC04-40](#) 4.2 (7).



[SCSI change mode] dialog.

If SCSI channel adapter is equipped you can select (CL) the exchange mode.

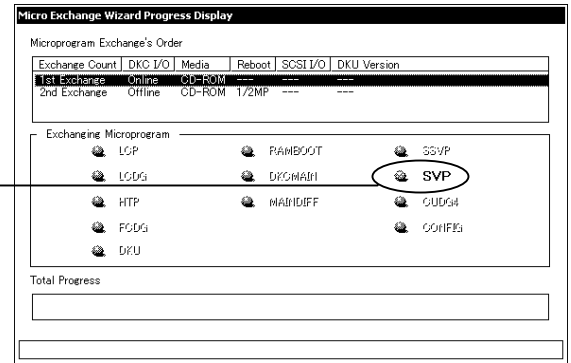
Refer to [MICRO-FC04-50](#) 4.2 (8).



- (5) According to the contents of the definition file stored in the CD-ROM, micro-program is exchanged automatically. (If you change some definitions FcWizard follows those.)

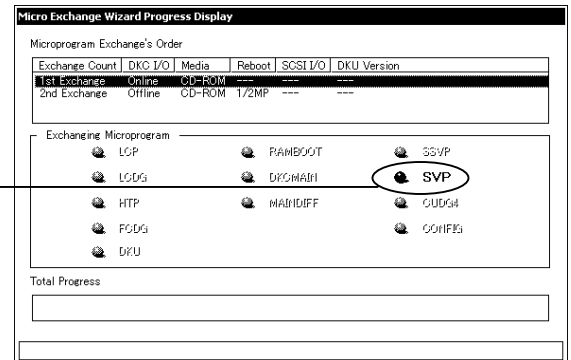
- (6) The progress dialog is displayed upper left, and the lamp of the micro-program under execution blinks in yellow.

The lamp blinks in yellow.



- (7) The lamp of the micro-program exchanged normally lights up blue.

The lamp lights up blue.

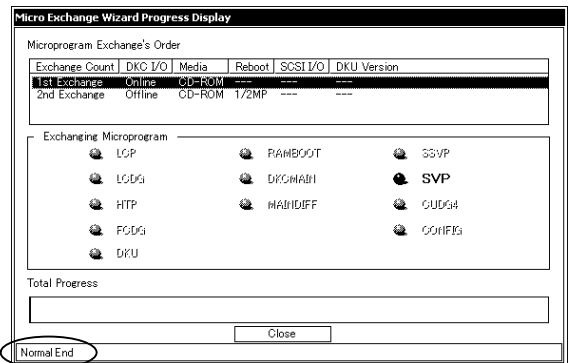


- (8) After the micro-program exchange, [Close] button is displayed.

Normal End:

After all micro-program exchange finish, "Normal End" is displayed on the dialog lower left.

"Normal End" is display.

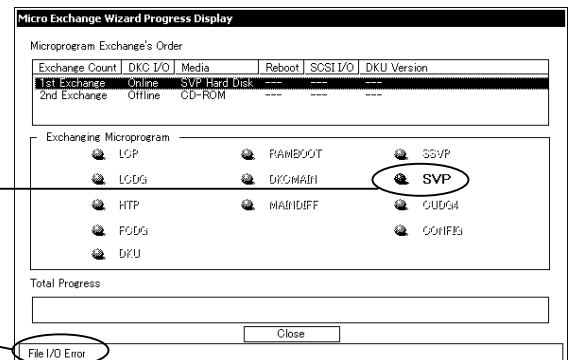


Abnormal End:

The lamp of micro-program lights up red, and the error information is displayed on the dialog lower left.

The lamp lights up red.

The error information.



---

(9) After confirming the message, push the [Close] button and end.

---

(10) Change the SVP mode to “VIEW”.

## 10 Procedures for online microprogram exchange and CHF replacement using alternate path

### 10.1 Outline

The alternate path function enables a microprogram exchange and a CHF replacement without stopping an I/O operation of the host connected to the CHF (that is, online exchange/replacement).

### 10.2 Prior confirmation of alternate path

An alternate path must be correctly established and the path switching must function at the time of exchange/replacement in order to exchange a microprogram or replace the CHF during the online operation. Confirm the path state by asking an SE concerned or a customer.

See “Procedures for Confirming Alternate Path State and Recovering It” shown in Table 10.1.

### 10.3 Types of microprogram exchange

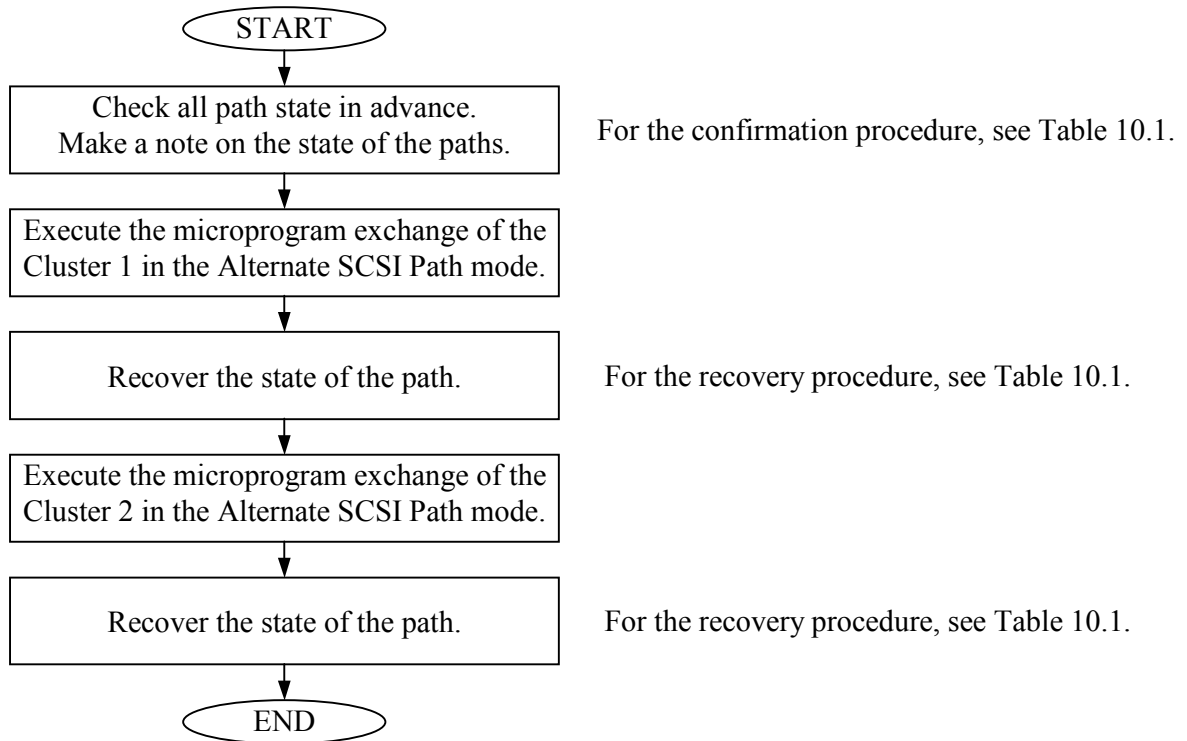
HP-UX, Solaris, AIX, WindowsNT and Windows2000: Alternate SCSI Path mode

### 10.4 Restrictions

- (1) Check that the alternate path is correctly set.
- (2) Online exchange/replacement is possible when both primary and alternate paths are normal. If the path state is abnormal, recover it to be normal, then perform the online exchange/replacement.
- (3) An alternate path function cannot be used with respect to HMDE volume. Disable I/Os to the HMDE volume concerned when exchanging a microprogram or replacing the CHF.
- (4) Disable I/Os to the LDEV for which the alternate path is not set.
- (5) The microprogram exchange on HP-UX, Solaris, AIX, WindowsNT or Windows2000, is executed in the Alternate SCSI Path mode. When these coexist on the same DKC, determine the mode to be the Alternate SCSI Path mode in which to exchange a microprogram, and disable I/Os of a platform in the other mode before exchanging a microprogram.
- (6) In the case of the Dual Active configuration, a load may concentrate on one of the two paths during the microprogram exchange or CHF replacement. Take preventive measures against it such as to choose a period (time zone) when the host load is low to perform the online exchange/replacement.
- (7) When RAID Manager is used with Windows OS's Path Manager, the alternate path can't work. So RAID Manager must be shutdown during microprogram exchange.

## 10.5 Procedures for online microprogram exchange and CHF replacement

- (1) Procedures for microprogram exchange executed on HP-UX, Solaris, AIX or Windows NT



- (2) Procedures for CHF replacement executed on Solaris, AIX or Windows NT

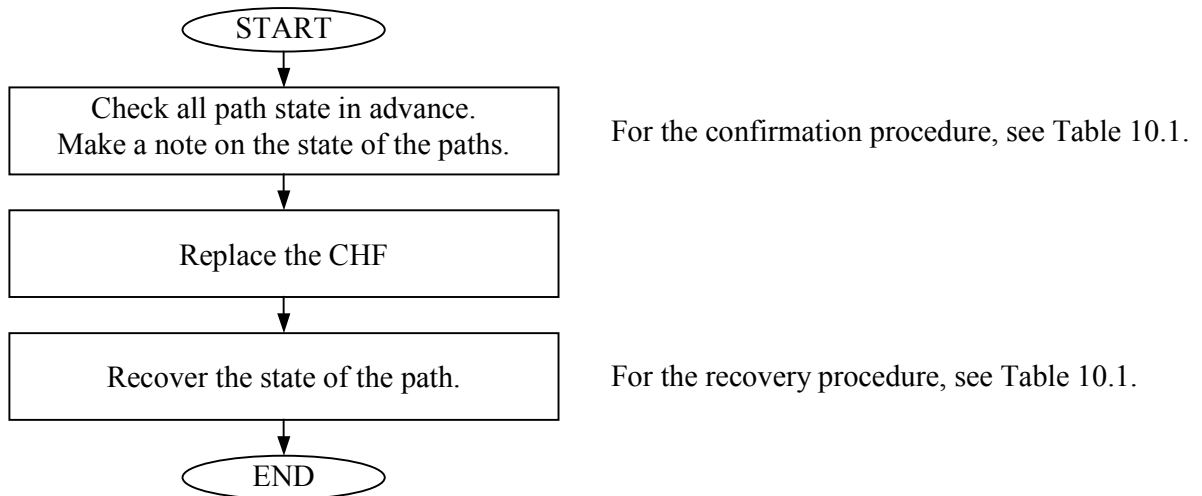


Table 10.1 Procedures for Confirming and Recovering Alternate Path State (1 of 6)

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
1	HP	<p>Display and confirm the path states (Pstates) of all the devices (LUs) by the “vgdisplay-v” command. If “PV Name” is displayed as Alternate Link, the path has been switched to the alternate path.</p> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover            vmunix: SCSI: Async write error –            vmunix: SCSI: Read error --            vmunix: LVM: Performed aswitch for LUN ID...            vmunix: LVM: Recoverd Path...            vmunix: LVM: vg[18]: pvnum=1 is PO            WERFAILED</p> <p>(2) Path fallback            vmunix: LVM: Restored PV 0 to VG 19</p>	<p>Automatic recovery</p> <p>Display and confirm the path states (Pstates) of all the devices (LUs) by the “vgdisplay-v” command.</p>
		<p>[Path Manager]</p> <p>Confirm the states of all adapters by using the “datapath query adapter” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover            vmunix: SCSI: Async write error –            vmunix: SCSI: Read error -- dev:            vmunix: WARNING: vpath20 path 2 removed from service.</p> <p>(2) Path fallback            vmunix: WARNING: vpath4 path 2 on adapter 2 manually restored to service</p>	<p>[Path Manager]</p> <p>Step ①: Check the number of the DEGRAD or FAILED adapter which must be set to online, using the “datapath query adapter” command.</p> <p>Step ②: Use the “datapath set adapter <i>n</i> online” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to NORMAL, using the “datapath query adapter” command again.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use.</li> <li>• DEGRAD or FAILED: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>

Table 10.1 Procedures for Confirming and Recovering Alternate Path State (2 of 6)

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
1	HP	<p>[HDLM]            Confirm the states of all adapters by using the “dlnkmgr view -path” command.            Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover            dlmmgr:KAPL08019-E The path detected an error.            dlmmgr: KAPL08022-E A path error occurred.</p> <p>(2) Path failback            dlmmgr:KAPL01022-1 8path(s) were processed.. Operation name = online            dlmmgr:KAPL01001-1 The HDLM command completed normally. Operation name = online</p>	<p>[HDLM]</p> <p>Step ①: Check the number of the OFFLINE adapter which must be set to online, using the “dlnkmgr view -path” command.</p> <p>Step ②: Use the “dlnkmgr online -pathid x -s” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to ONLINE, using the “dlnkmgr view -path” command again.</p> <ul style="list-style-type: none"> <li>• All ONLINE : All paths are in use.</li> <li>• All OFFLINE: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>

Table 10.1 Procedures for Confirming and Recovering Alternate Path State (3 of 6)

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
2	Solaris	<p>[VxVM DMP] Display and confirm the path states of all the devices (LUs) by the “vxdisk list <i>diskxx</i>” or “vxdisk list <i>cctxdxsx</i>” command of VxVM. Perform one of the following operations depending on the path state.</p> <ul style="list-style-type: none"> <li>Disabled: The path is faulty. (Or, after the microprogram exchange or CHF replacement, the path concerned has not been recovered yet.) After recovery, check it again according to this procedure.</li> <li>Enabled: After recording this state, execute the microprogram exchange or CHF replacement.</li> </ul> <p><b>Note: If there is at least one failed path, do not execute the online microprogram exchange or CHF replacement. Be sure to execute the exchange or replacement after recovering the failure.</b></p> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover vxdmp: Path failure on 32/0x17dd4 vxvm:vxdmp: disabled path 32/0x17dd0 belonging to the dmpnode 106/0x20</p> <p>(2) Path fallback vxvm:vxdmp: enabled path 32/0x17db8 belonging to the dmpnode 106/0x8</p>	<p>[VxVM DMP] Step ①: Recover the path by the “vxdmpadm enable ctrl=cx(cx is controller number.)” command of VxVM.</p> <p>Step ②: Confirm that all the paths are in the Enabled state (initial state) by the “vxdisk list <i>diskxx</i>” or “vxdisk list <i>cctxdxsx</i>” command. If the path in the Disabled state remains, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</p>
		<p>[SUN StorEdge Traffic Manager(MPxIO)] Display and confirm the path states of all the devices (LUs) by the “display /dev/rdisk/ <i>cctxdxsx</i>”</p> <ul style="list-style-type: none"> <li>ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover e4500-2 SCSI transport failed: reason 'aborted': retrying command mpxio:···"device name" multipath status: degraded, path ··· to target address: WWN,6 is offline</p> <p>(2) Path fallback multipath status: optimal, path ··· to target address: WWN,7 is online</p>	<p>[SUN StorEdge Traffic Manager(MPxIO)] Automatic recovery luxadm display /dev/rdisk/ <i>cctxdxsx</i></p>

Table 10.1 Procedures for Confirming and Recovering Alternate Path State (4 of 6)

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
3	Solaris	<p>[Path Manager]</p> <p>Confirm the states of all adapters by using the “datapath query adapter” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) vpathdd: WARNING: 7f790e :scsi hung timeout for vpathxx vpathdd: WARNING: vpathxx path 0 removed from service.</p> <p>(2) vpathdd: WARNING: vpathxx path 0 on adapter 0 manually restored to service</p>	<p>[Path Manager]</p> <p>Step ①: Check the number of the DEGRAD or FAILED adapter which must be set to online, using the “datapath query adapter” command.</p> <p>Step ②: Use the “datapath set adapter <i>n</i> online” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to NORMAL, using the “datapath query adapter” command again.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use.</li> <li>• DEGRAD or FAILED: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>
		<p>[HDLN]</p> <p>Confirm the states of all adapters by using the “dlnkmgr view -path” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover dlmmgr:KAPL08019-E The path detected an error. Dlmmgr: KAPL08022-E A path error occurred.</p> <p>(2) Path fallback dlmmgr:KAPL01022-1 8path(s) were processed.. Operation name = online dlmmgr:KAPL01001-1 The HDLM command completed normally. Operation name = online</p>	<p>[HDLN]</p> <p>Step ①: Check the number of the OFFLINE adapter which must be set to online, using the “dlnkmgr view -path” command.</p> <p>Step ②: Use the “dlnkmgr online -pathid <i>x</i> - <i>s</i>” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to ONLINE, using the “dlnkmgr view -path” command again.</p> <ul style="list-style-type: none"> <li>• All ONLINE : All paths are in use.</li> <li>• All OFFLINE: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>

Table 10.1 Procedures for Confirming and Recovering Alternate Path State (5 of 6)

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
4	WindowsNT Windows2000	<p>[Path Manager] Confirm the states of all adapters by using the “datapath query adapter” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○ Perform one of the following operations depending on the path state.</p> <p>(1) Path failover</p> <pre>Kind      : Error Source    : Pathman EventID   : 1 Explanation : Device \Device\Harddiskxx\Partitionxx path 0 offline.</pre>	<p>[Path Manager]</p> <p>Step ①: Check the number of the DEGRAD or FAILED adapter which must be set to online, using the “datapath query adapter” command.</p> <p>Step ②: Use the “datapath set adapter <i>n</i> online” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to NORMAL, using the “datapath query adapter” command again.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use.</li> <li>• DEGRAD or FAILED: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>
		<p>[HDLM] Confirm the states of all adapters by using the “dlnkmgr view -path” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○ Perform one of the following operations depending on the path state.</p> <p>(1) Path failover</p> <pre>dlnmmgr : KAPL08019-E The path detected an error. Dlnmmgr : KAPL08022-E A path error occurred.</pre>	<p>[HDLM]</p> <p>Step ①: Check the number of the OFFLINE adapter which must be set to online, using the “dlnkmgr view -path” command.</p> <p>Step ②: Use the “dlnkmgr online -pathid <i>x</i> -s” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to ONLINE, using the “dlnkmgr view -path” command again.</p> <ul style="list-style-type: none"> <li>• All ONLINE : All paths are in use.</li> <li>• All OFFLINE: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>

Table 10.1 Procedures for Confirming and Recovering Alternate Path State (6 of 6)

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
5	AIX	<p>[Path Manager]</p> <p>Confirm the states of all adapters by using the “datapath query adapter” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover</p> <ul style="list-style-type: none"> <li>Link Failure</li> <li>Software Program Error</li> <li>Disk Operation Error</li> <li>Error Log Buffer Over Flow</li> <li>Device Access Problem</li> <li>Adapter Error</li> </ul>	<p>[Path Manager]</p> <p>Step ①: Check the number of the DEGRAD or FAILED adapter which must be set to online, using the “datapath query adapter” command.</p> <p>Step ②: Use the “datapath set adapter <i>n</i> online” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to NORMAL, using the “datapath query adapter” command again.</p> <ul style="list-style-type: none"> <li>• All NORMAL: All paths are in use.</li> <li>• DEGRAD or FAILED: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>
		<p>[HDLM]</p> <p>Confirm the states of all adapters by using the “dlnkmgr view -path” command. Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> <li>• All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF.</li> <li>• All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure.</li> </ul> <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover</p> <ul style="list-style-type: none"> <li>Link Failure</li> <li>Software Program Error</li> <li>Disk Operation Error</li> </ul>	<p>[HDLM]</p> <p>Step ①: Check the number of the OFFLINE adapter which must be set to online, using the “dlnkmgr view -path” command.</p> <p>Step ②: Use the “dlnkmgr online -pathid <i>x</i> - <i>s</i>” command. (<i>n</i> is the adapter number checked by Step ①.)</p> <p>Step ③: Check the states of all adapters have returned to ONLINE, using the “dlnkmgr view -path” command again.</p> <ul style="list-style-type: none"> <li>• All ONLINE : All paths are in use.</li> <li>• All OFFLINE: The path is faulty. After the microprogram exchange or CHF replacement, execute the procedure again from Step ① after the path is recovered. Or recover the path failure, then execute the procedure again from Step ①.</li> </ul>

## 11. OEM DKU Microprogram exchange

### 11.1 Offline microprogram exchange

#### CAUTION

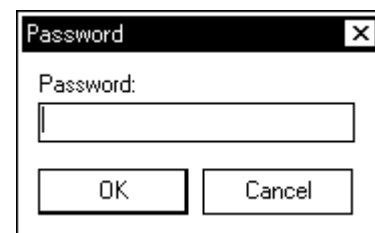
This process with online (not offline channel path ) may cause fatal damage to the subsystem. Ask the technical support center about the appropriateness of the operation, and input a password after getting an approval of executing the operation.

#### (1) <Precheck>

- ① When HRC/HORC/HMRCF/HOMRCF/HHSM are in operation, you need to SUSPEND or DELETE the functions and stop I/Os to DKU (HDD) first. And then, execute the DKU microprogram exchange, and recover the functions after that. (For SUSPENDING, DELETing, and recovering the functions, see the respective user's guides.)
- ② In the 'Log' panel check that 'SIM' is grayed out or completed.  
(See [SVP02-30](#) 2.2.)
- ③ Check that the write pending data is destaged by confirming "Write Pending = 0%" in the SVP monitor. (When Write Pending is not 0%, wait until it becomes 0%.)  
(See [SVP02-190](#) 2.4.)

#### (2) <Mode change>

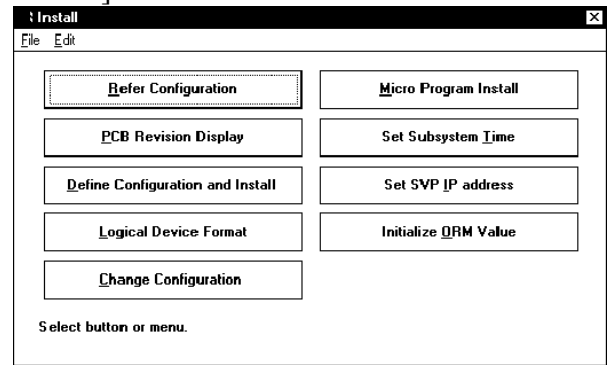
In the 'SVP' panel, change the mode to [OEM Mode].  
Select [Shift]+ [Ctrl]+[O].  
Enter the password and select (CL) [OK].  
(Ask the technical support center about the password.)



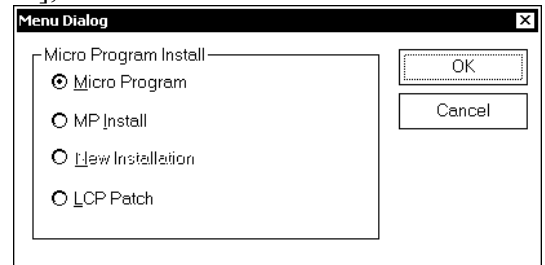
A screenshot of a 'Password' dialog box. It has a title bar with 'Password' and a close button. Inside, there is a label 'Password:' followed by a text input field. At the bottom, there are two buttons: 'OK' and 'Cancel'.

#### (3) Select (CL) [Install] in the 'SVP' panel.

- (4) In the 'Install' panel, select (CL) [Micro Program Install].



- (5) In the 'Menu Dialog' panel, select (CL) [Micro Program], and select (CL) [OK].

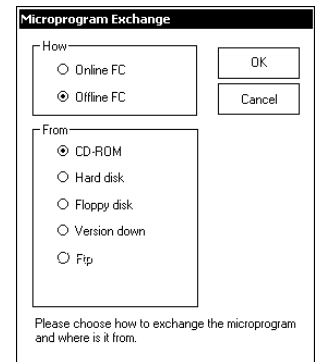


- (6) In the 'Microprogram Exchange' panel, select (CL) the method of microprogram exchange and the media which the microprogram is stored, and select (CL) [OK].

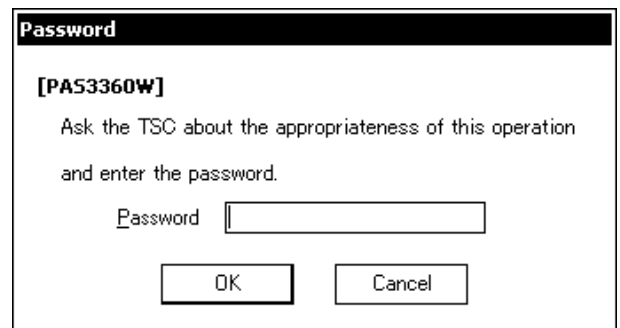
'How' : Select (CL) [Offline].

'From' : Select (CL) [CD-ROM], [Hard disk], [Floppy Disk], or [Version Down].

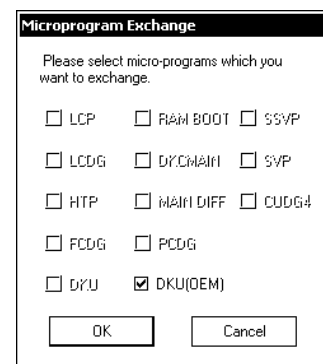
Select (CL) [OK].



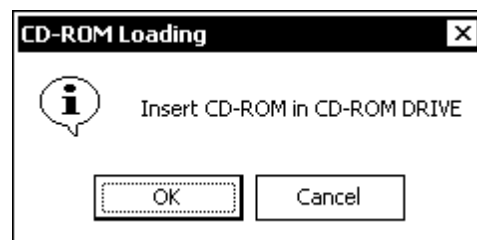
- (7) Enter the password and select (CL) [OK].  
(Ask the technical support center about the password.)



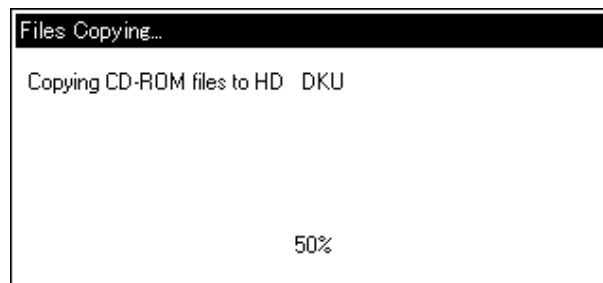
- (8) Select (CL) DKU[OEM] in the list of Microprogram Exchange, and select (CL) [OK].



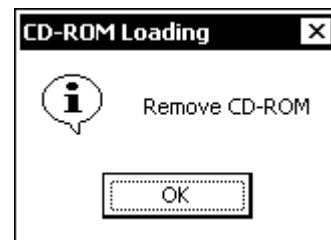
- (9) When you select [CD-ROM],  
 "Insert CD-ROM in CD-ROM DRIVE" will be displayed.  
 When you select [Floppy Disk], "Insert No.n FD of  
 DKU in FDD" will be displayed.



- (10) When you select [CD-ROM], "Copying  
 CD-ROM files to HD DKU" will be displayed.  
 When you select [Floppy Disk], "Copying FD  
 files to HD DKU" will be displayed.

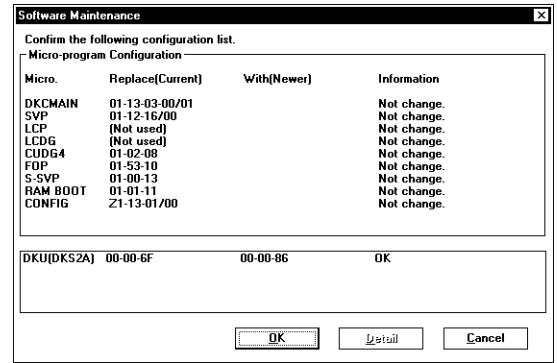


- (11) When you select CD-ROM, "Remove CD-ROM" will be displayed  
 when the reading from the CD-ROM completes.  
 Select (CL) [OK] for removing CD-ROM.  
 When you select Floppy Disk, upon completion of reading from all  
 floppy disks, "Remove FD" appears.  
 Remove the floppy disk and select (CL) [OK].

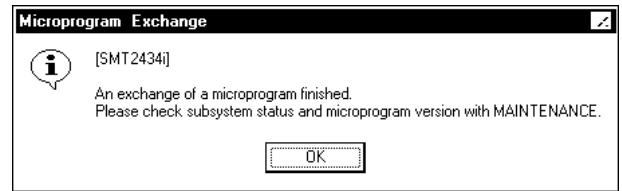


- (12) On the 'Software Maintenance' dialog box, the microprogram types, current versions, new versions, and message are displayed. Select (CL) [OK].

<Display with an error>  
See [M-FC03-70](#) 3.2 (11).



- (13) After microprogram exchange, "An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE." will be displayed. Select (CL) [OK].



- (14) From the 'SVP' panel, change the SVP mode to 'VIEW Mode'.

- (15) If you have SUSPENDED or DELETED the functions in (1), see the manuals for the functions and recover the functions.

## 11.2 Online microprogram exchange

### (1) <Overview>

- ① Start the microprogram exchange from the SVP.
- ② When there are several types of OEM HDD, the HDD where microprogram is exchanged will be selected automatically.
- ③ Specify the degree of multiplex of the microprogram exchange.
- ④ SIM (0x4A1000) indicating the start of microprogram exchange will be output.
- ⑤ Execute the drive copying from the data HDD to the spare HDD. (Execute in the degree of multiplex you have specified in ③)
- ⑥ Execute the microprogram exchange for the HDD where the copying in ⑤ is completed.
- ⑦ Copy back to the HDD where the microprogram exchange in ⑥ is completed.
- ⑧ Processes from ⑤ to ⑦ are repeated automatically until the microprogram exchange for all the HDDs selected in 2 completes.
- ⑨ SIM (0x4A2000) indicating the completion of the microprogram exchange will be output.
- ⑩ When there are several types of OEM HDD, start the microprogram exchange from the SVP again, and repeat ② to ⑨ above.

## (2) &lt;Precheck&gt;

- ① In the 'Log panel,' check that 'SIM' is grayed out or completed.  
See [SVP02-30](#) 2.2 "Log indication."

## ② Check the number of spare HDDs.

You need at least two spare HDDs which can be used for microprogram exchange, because you execute the microprogram exchange while migrating and recovering the data on the data HDD to the spare HDD. You can operate multiple copy processes at a time and save time required for microprogram exchange by increasing spare HDDs. The relationship between the number of spare HDDs and the degree of multiplex of microprogram exchange is as shown in the table below.

# of spare HDDs	Multiplex
0 - 1	Cannot execute microprogram exchange. (Spare HDD cannot be used when a failure occurs.)
2 - 5	The number of spare HDDs - 1
More than 5	4

Since only one copy process can be performed in one ECC group at a time, you need ECC groups for all the copy operations you perform at a time. The above degree of multiplex is the maximum value you can specify, so you can specify a smaller number for the degree of multiplex.

- About the equipped location of the spare HDD, See [INST05-360](#) "Refer configuration."
- About the usable kind of the spare HDD, See [INST01-170](#) 1.2 "NOTICE".

- Caution:
- When DKU405/DKU455 coexist, the spare HDD in one DKU cannot be used from the other DKU. The required number of spare HDDs needs to be installed in each DKU.
  - There are timings by which micro-program exchange is executed with the degree of multiplex fewer than the degree of multiplex set up, depending on the subsystem configuration.

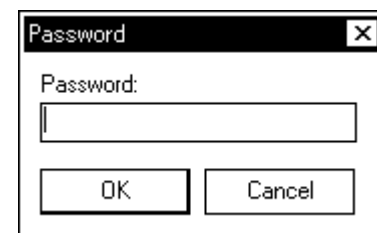
## (3) &lt;Mode change&gt;

In the 'SVP' panel, change the mode to [OEM Mode].

Select [Shift]+ [Ctrl]+[O].

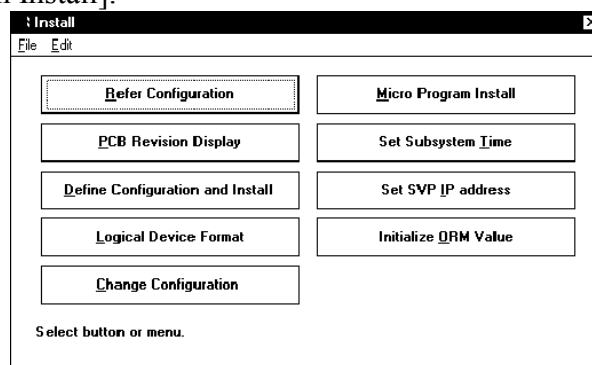
Enter the password and select (CL) [OK].

(Ask the technical support center about the password.)

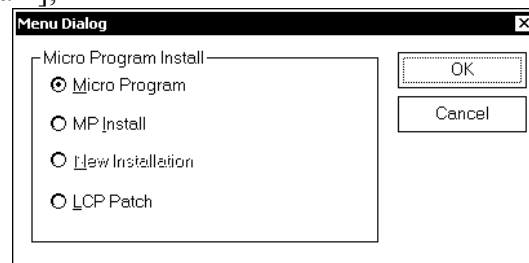


## (4) Select (CL) [Install] in the 'SVP' panel.

## (5) In the 'Install' panel, select (CL) [Micro Program Install].



## (6) In the 'Menu Dialog' panel, select (CL) [Micro Program], and select (CL) [OK].

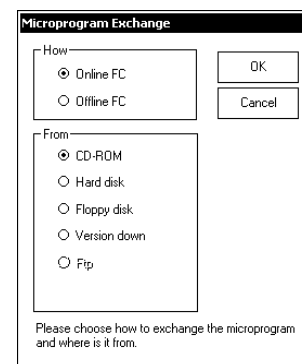


- (7) In the 'Microprogram Exchange' dialog box, select (CL) the method of microprogram exchange and the place where the microprogram is stored, and select (CL) [OK].

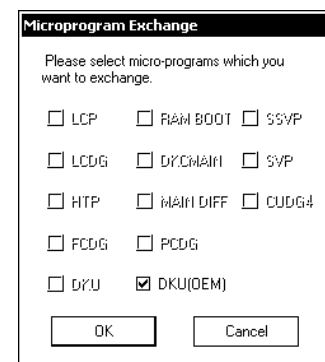
'How' : Select (CL) [Online].

'From' : Select (CL) [CD-ROM], [Hard disk], [Floppy Disk], or [Version Down].

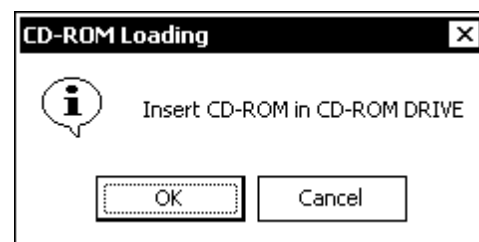
Select (CL) [OK].



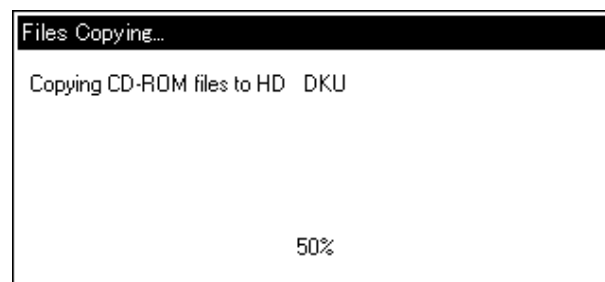
- (8) Select (CL) DKU[OEM] in the list of Microprogram Exchange, and select (CL) [OK].



- (9) When you select [CD-ROM],  
"Insert CD-ROM in CD-ROM DRIVE" will be displayed.  
When you select [Floppy Disk], "Insert No.n FD of  
DKU in FDD" will be displayed.

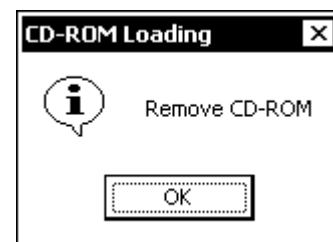


- (10) When you select [CD-ROM], "Copying  
CD-ROM files to HD DKU" will be displayed.  
When you select [Floppy Disk], "Copying FD  
files to HD DKU" will be displayed.



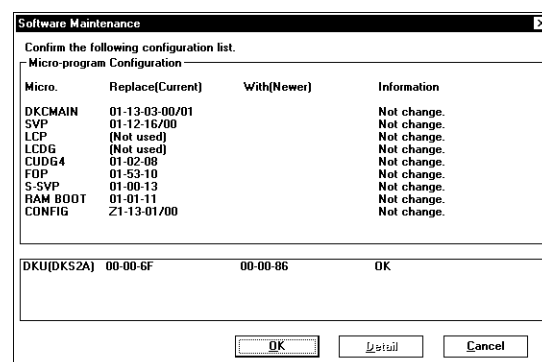
- (11) When you select CD-ROM, “Remove CD-ROM” will be displayed when the reading from the CD-ROM completes.  
Select (CL) [OK] for removing CD-ROM.

When you select Floppy Disk, upon completion of reading from all floppy disks, “Remove FD” appears.  
Remove the floppy disk and select (CL) [OK].

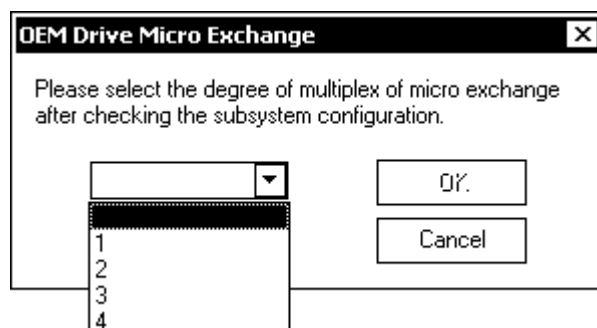


- (12) On the ‘Software Maintenance’ dialog box, the microprogram types, current versions, new versions, and message are displayed.  
Select (CL) [OK].

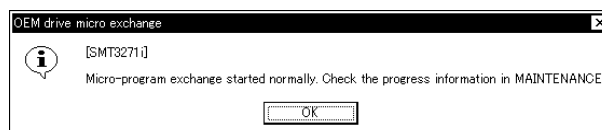
<Display with an error>  
See [M-FC03-70](#) 3.2 (11).



- (13) Select (DR) the degree of multiplex of microprogram exchange, and select (CL) [OK].

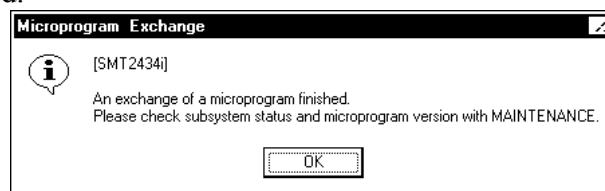


- (14) After the microprogram is downloaded, “Micro-program exchange started normally. Check the progress information in MAINTENANCE” will be displayed. Select (CL) [OK].



(15) When “An exchange of a microprogram finished.

Please check subsystem status and microprogram version with MAINTENANCE.” is displayed, select (CL) [OK].



(16) In the ‘SVP’ panel , Change the SVP mode ‘VIEW Mode’.

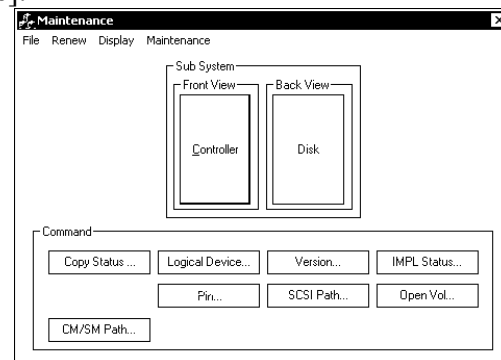
Now, microprogram exchange will start and will be executed automatically. When the SIM (0x4A1000) is output, the microprogram exchange completes.

(17) <Display of progress>

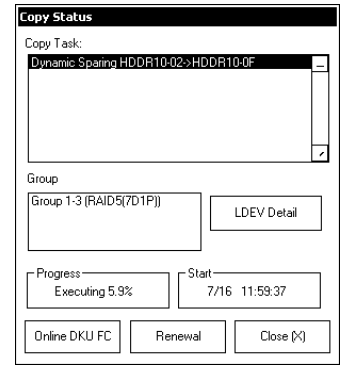
You can display the progress in (17) to (20).

From the ‘SVP’ panel, select (CL) [Maintenance].

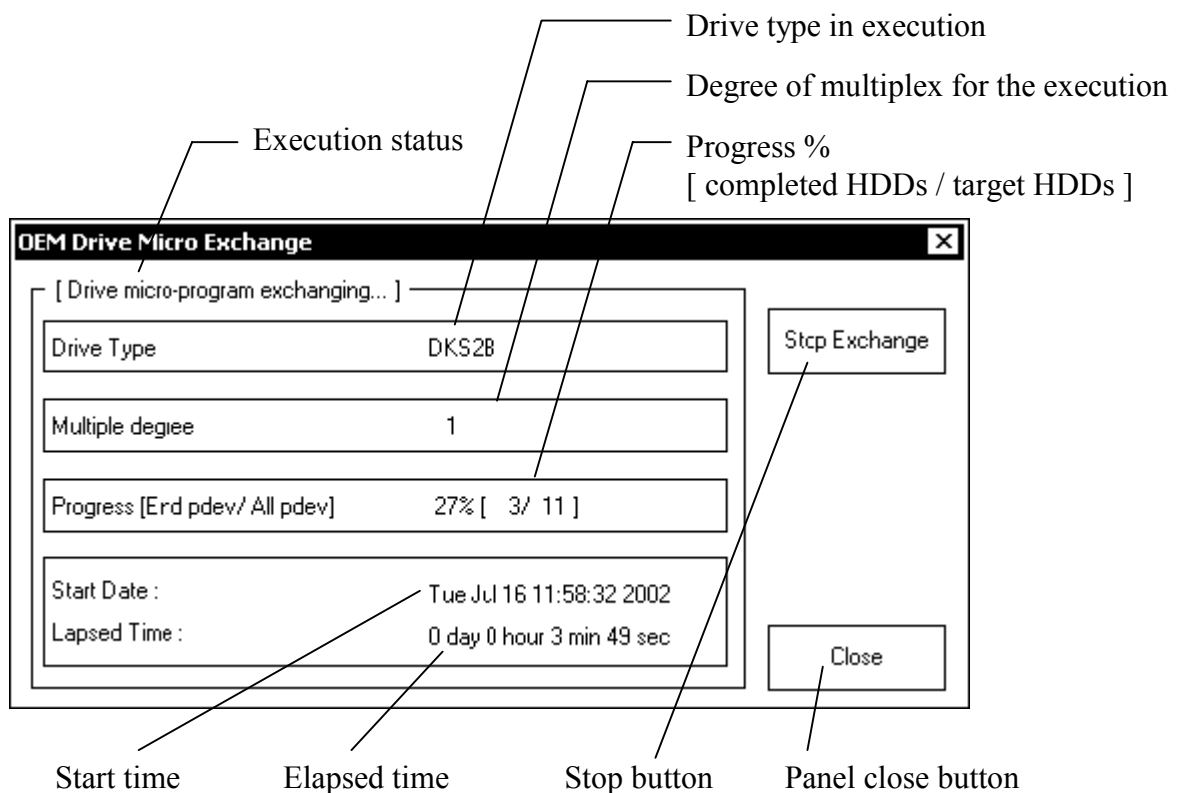
(18) From the [Maintenance] panel, select (CL) [Copy Status].



(19) Select (CL) [Online DKU FC].



(20) OEM DKU microprogram exchange progress panel



Since the data is acquired periodically, new data will be always displayed in the progress panel above, even though the panel is left open. However after you check the progress data, select (CL) [Close] and close the panel.

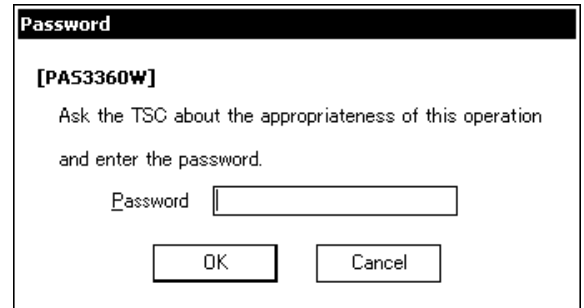
#### ■ Execution status

- [Drive micro-program exchanging...] : Microprogram exchange is in process
- [Drive micro-program exchange finish] : Microprogram exchange is completed
- [Drive micro-program exchange stopping] : Microprogram exchange stops

## ■ Stop Exchange (Stop microprogram exchange)

Stop microprogram exchange in the following procedure.

- ① Select (CL) [Stop Exchange].
- ② Enter the password in the password panel on the right, and click [OK].  
(Ask the technical support center about the password.)
- ③ Check that the execution status is changed to [Drive micro-program exchange stopping], and after a period of time, it is changed to [Drive micro-program exchange finish].  
However, if the copy back to the data HDD from the spare HDD is in progress, the microprogram exchange cannot be stopped.



**Password**

**[PA53360W]**

Ask the TSC about the appropriateness of this operation and enter the password.

Password

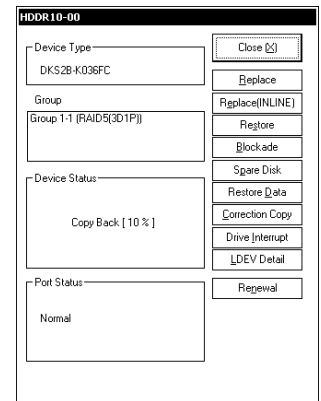
### <How to stop the copy back process>

See [SVP03-130 to 150](#), display the “HDD status panel” of the source HDD, and select (CL) [Drive Interrupt].

Perform this procedure for all the HDDs where copy back is being performed.

**Note:** When OEM micro exchange is interrupted, drive copy processing or the copy back processing discontinuation LOG is extracted, and there is a thing of “Start Date/Time” for which a column is displayed as “Unknown”.  
(Refer to [SVP02-30, 150](#))

### (HDD status panel)



**HDDR10-00**

Device Type DKS2B-K036FC	<input type="button" value="Close"/> <input type="button" value="Replace"/> <input type="button" value="Replace(INLINE)"/> <input type="button" value="Restore"/> <input type="button" value="Blockade"/> <input type="button" value="Spare Disk"/> <input type="button" value="Restore Data"/> <input type="button" value="Correction Copy"/> <input type="button" value="Drive Interrupt"/> <input type="button" value="LDEV Detail"/> <input type="button" value="Renewal"/>
Group Group 1-1 (RAID5(3D1P))	
Device Status Copy Back [ 10 % ]	
Port Status Normal	