

MICRO-FC SECTION

REV.0	Jan.2000					
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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.

In addition to the above, you can use the MP installation as a partial complementary function for a case where a microprogram replacement is interrupted for some reason.

1 Overview

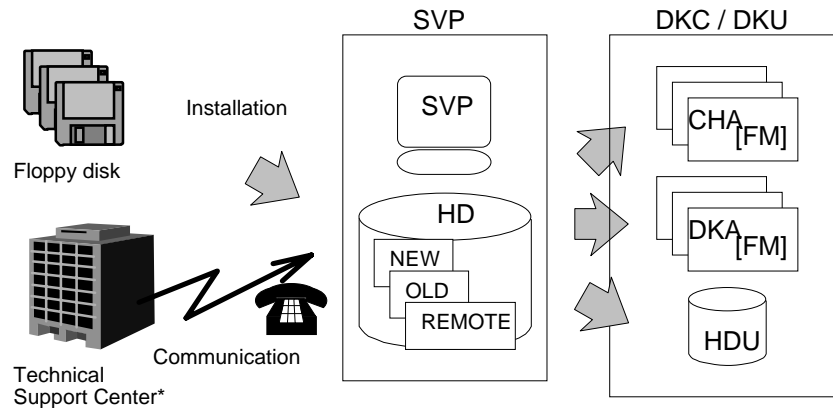
1.1 Micro-program Types

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
CUDG4	Hard disk in the SVP
FOP	FM
DKU	HDU
SSVP	FM
RAM BOOT	FM
CONFIG	Hard disk in the SVP

* In the micro-program exchange, select DKCMAIN and FOP program the same time. Otherwise FOP may be blocked due to version inconsistency.

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 most 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.

 **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, FOP, DKCMAIN, MAIN DIFF, RAMBOOT micro-programs can be exchanged on off-line.
(The MAINDIFF is not exchanged on off-line if the MAINDIFF applied for the version of the DKCMAIN including in the CD-ROM is provided by an FD.
In this case, the MAINDIFF has to be exchanged by Online micro-program exchange after the Off-line micro-program exchange using the CD-ROM is performed. (Refer to [MICRO-FC04-10](#))
- In the case of HRC Asynchronous components, Suspending all volume pairs is required prior to the RCU's off-line micro-program exchange. Refer 3.17.8.1 Managing HRC Asynchronous Subsystems (5) Micro-program Exchange:THEORY03-1440.

Off-line Micro-program Exchange time (approximate)

(unit : minutes)

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

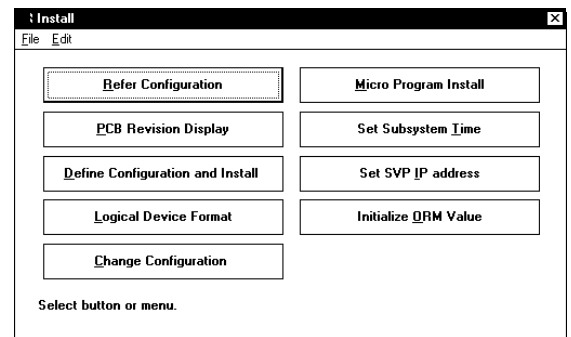
NOTE: After you execute this operation, DKC will clear the condition that DKC reports SIM to the host. Therefore, DKC will report the next SIM to the host when the host accesses 16K I/O, and after you will wait for an hour if P/S on is executed.

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

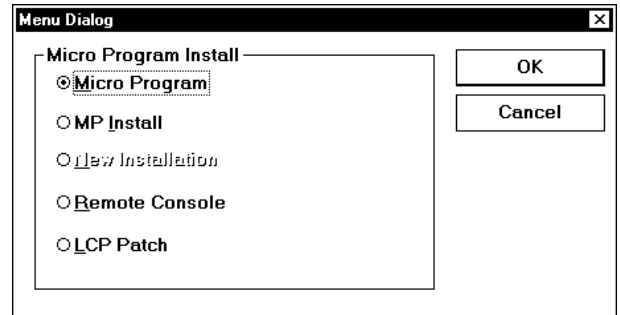
(1) <Initial screen>

(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 FC(volatile)].

Online FC: Online Micro-program Exchange.

Offline FC(non-volatile): Non-volatile Offline Micro-program Exchange. (Note1)

Offline FC(volatile): Volatile Offline Micro-program Exchange.

[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-FC03-170](#))

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-FC03-190](#))

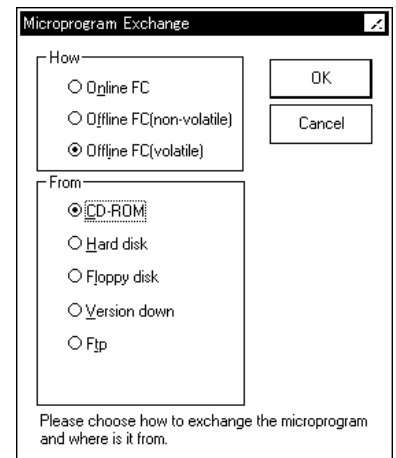
FTP: After being stored on the hard disk by FTP transfer, the micro-programs are downloaded.

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

<<Error>>

When the target file is not found, processing is terminated with the error message "Old files erase failed, copy stop."

(Note1) Non-volatile offline Micro-program Exchange is used with technical support center directions only at the time of the special measure against the accident. Usually, this is not used.



- (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].

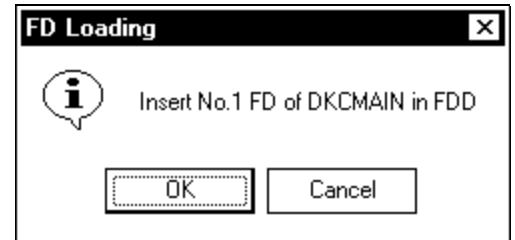
: Micro-programs to be substituted.

One of messages are displayed by the subsystem configuration.

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

- (8) 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].

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



<<Error>>

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

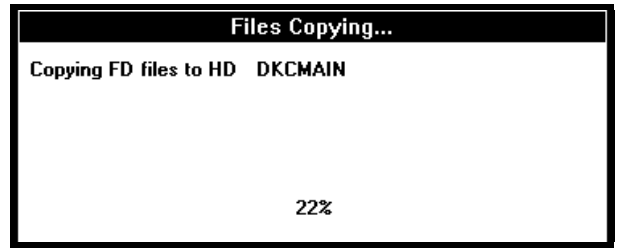
The same message is displayed again, returning you to (8).

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 floppy disk, the message “Copying FD files to HD DKCMAIN” appears.
Execute the steps (8) to (9) once for each floppy disk.

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



<<Error>>

Internal error:

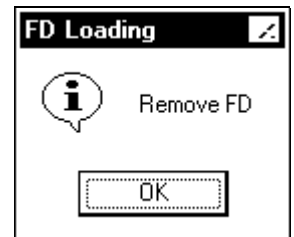
- “The file size is Wrong and copy stop.”
- “The directory create error and copy stop.”
- “Micro-program version disagreement and copy stop.”
- “Logical error has occurred.”
- “File I/O error has occurred.”
- “Memory error has occurred.”

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).

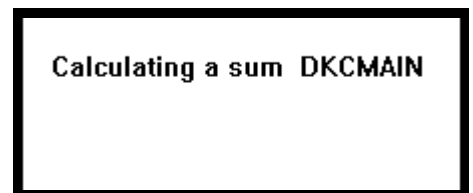
Then execute the same micro-program exchange again. If the same error occurs (the same error message is displayed), replace SVP hardware (see [REP01-170](#) in the REPLACE SECTION).

- (10) If you select 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].

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



After copy end, sum checker starts.
While checking, the message appears.



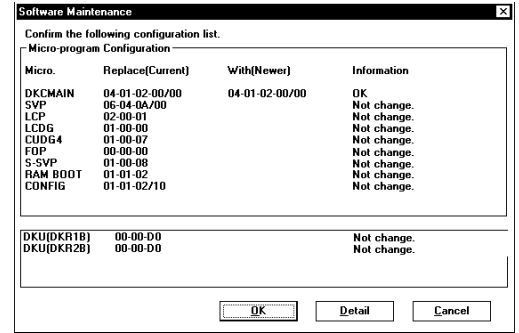
(11) On the 'Software Maintenance' dialog box, the micro-program types, current versions, new versions, and message are displayed.

<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”.

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

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



NOTICE

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.

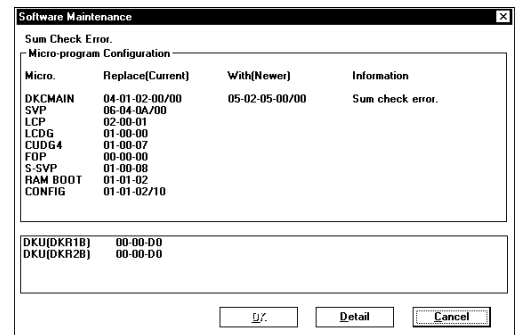
<Display with an error>

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. Blockade processor exists, recover it.
4	Internal error. (On SVP Logic)	Inconsistent logic. (SVP logic) Retry exchange. If same message is displayed, power SVP off and on.
5	Internal error. (On SVP Memory)	Inconsistent logic. (SVP memory) Retry exchange. If same message is displayed, power SVP off and on.
6	Internal error. (On Temporary Files)	Inconsistent logic. (temporary file) Retry exchange. If 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 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 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	Error has occurred while reading the current configuration.
7	Sum Check error	Sum check code is incorrect.
8	Warning	It is necessary to contact TSC (Technical support center) for approval.
9	Revision error	MP has incorrect micro-program revision.
10	Package condition	The combination error of micro-program and package has occurred.
11	Facility condition [#xxxx]	MP has incorrect micro-program version with function of system. [Facility condition error code]
12	Combination error [#xxxx]	The combination error of more than two micro-program 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)
0001 0000	Prioritized Port Control	Prioritized Port Control Support	Please release Prioritized Port Control and retry exchanging again.
0000 1000 0000	HMRCF, HOMRCF, HIHSM	HMRCF, HOMRCF, HIHSM Max.2048 support	Please delete all HMRCF, HOMRCF, HIHSM pair and reset all Reserve volume setting. Then retry exchanging again.
0000 0100 0000	Spare Drive	There is a spare drive which has larger capacity than a data drive, and the spare drive is used for a failed data drive	Replace the failed data drive, and do correction copy for the replaced data drive. You have to wait for finishing the correction copy.
0000 0010 0000	HMRCF, HOMRCF, HIHSM	MRCF read (MRCF High Performance copy function) support	Please delete all HMRCF, HOMRCF, HIHSM pair and reset all Reserve volume setting. Then retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0001 0000	HXRC	HXRC DEV BLOCKING function.	Please delete all HXRC pairs and retry again.
0000 0000 0000 0100 0000	LUSE	LUSE Support	Please be free all Open VOL and retry exchanging again.
0000 0000 0000 0010 0000	Archival Function	Archival Function Support	Please release Archival Function and retry exchanging again.
0000 0000 0000 0001 0000	HMRCF	HMRCF Support	Please delete all HMRCF pair and reset all Reserve volume setting. Then retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 1000 0000	HMRS	Emulation types OPEN-K and 3390-3C(KC) support.	Please de-install OPEN-K volume or HMDE volume, and retry exchanging again.
0000 0000 0000 0000 0001 0000	FM data format	Configuration data is written on FM at high compression rate. Old microprogram can't expand that data.	You can't exchange.
0000 0000 0000 0000 0000 1000 0000	Performance	Performance (Sequential Read) improvement	Please stop HOST I/O (JOB) and retry exchange again.
0000 0000 0000 0000 0000 0001 0000	Extended function bit map	Some bits after bit31 are ON.	Be all bits after bit31 OFF. To be them OFF, see other rows in this table.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HMRCF	HMRCF Max.512 support	Please delete all HMRCF pair and reset all Reserve volume setting. Then retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HMDE	CVS/DCR function for HMDE support.	Please delete the setting of CVS/DCR and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	FIBRE-LUNE	FIBRE-LUNE Support	Please delete SCSI Path definition more than LUN=08 and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HMRS	CVS/DCR function for SCSI volume support.	Please delete the setting of CVS/DCR and retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	DKC-F410I-4GS	DKC-F410I-4GS Support	Please de-install DKC-F410I-4GS P/K and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	Multiplatform	Dynamic LUN Addition support	An error message is not displayed for this function.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HOMRCF	HOMRCF support	Please delete all HOMRCF pair and reset all Reserve volume setting. Then retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	Multiplatform	Dynamic LUN deletion support	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 0000 0000 0000 0000 0000 1000 0000	LUN Security	LUN Security Support	Please delete all LUN security setting.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	HOMRCF	Cascade support.	Please delete all Cascade pair and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HMRS	CVS/DCR function for OPEN-K emulation type support.	Please delete the setting of CVS/DCR and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	HMRCF, HOMRCF	High Speed Resync support.	Please complete all Resync Copy 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 0000 0100 0000	Multiplatform	LUSE combined uncontinuous LDEVs	Please delete LUSE for uncontinuous LDEVs and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HMRCH, HOMRCF	Reverse Copy support.	Please complete all Reverse Copy and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	Multiplatform	Emulation type OPEN-8 support.	Please de-install OPEN-8 volume, and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HIHSM	HIHSM support	Please delete all HIHSM pair and reset all Reserve volume setting. Then 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 0000 0000 0000 1000 0000	HOMRCF	Hidden Secondary Volume Support	Please delete all HOMRCF pair and reset all Reserve volume setting. Then retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	HRCA, HORCA	Async HRC Performance Function Support	Please refer to Chapter 3.17.7.6 'On-line Micro-program exchange procedure'.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0010 0000	HRC, HORC	Logical address reassignment for using of multiple CU and CHL Extender.	Please delete all RCUs and retry exchange again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HRCA	Async HRC N-to-1 Configuration Support	Please refer to Chapter 3.17.7.6 'On-line Micro-program exchange procedure'.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	HMRCF, HOMRCF	HMRCF, HOMRCF QuickSplit support	Please delete all HMRCF, HOMRCF, and HIHSM pair. Then retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0000	OPEN-E	Emulation type of OPEN-E support	Please de-install OPEN-E volume, and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1000 0000	OPEN-M	Emulation type of OPEN-M support	Please de-install OPEN-M volume, and retry exchanging again.
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0100 0000	OPEN-L	Emulation type of OPEN-L support	Please de-install OPEN-L volume, 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 0000 0000 0000 0000 0000 0000 0000 0001 0000	HORC, HORCA	P/S-VOL SWAP Resync Function Support	Please delete all HORC pair and retry exchanging again.
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	Common	PDEV Deinstall Performance Support	After executing dummy- replacement of cache memory on both side (CL1 & CL2), retry exchanging again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HMRCF, HOMRCF	HMRCF, HOMRCF QuickRestore support	Please delete all HMRCF, HOMRCF, HIHSM pair and reset all Reserve volume setting. Then retry exchanging again.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HRCA	Async HRC Performance Function Support	Please delete all Async Groups and retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	DKC Emulation Type	DKC Emulation Type “2105” support	A version down cannot be done because the DKC Emulation Type “2105” is being used. Retry the operation after setting the DKC emulation type to that other than “2105”.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HRC, HORC	HRC same serial number configuration support	Please delete all HRC and HORC (VOL, CU) pair. Then retry exchanging again.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HPAV	HPAV function support	A version down cannot be done because the HPAV function is being used. Retry the operation after deleting All alias volumes.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	2nd extended function bitmap	Some bits after bit 95 are ON.	Match SVP micro program to DKC micro program. Or be all after bit 95 OFF. To be them OFF, see other rows in this table.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HMRCF, HOMRCF	Copy Speed Control	Please delete all pair or be MODE168 in Special Mode OFF. And retry exchanging again.
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	CMG ONDEMAND	CMG ONDEMAND support	Please De-Install Ondemand Cache Memory Modules. And retry again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	Fibre HORC	Fibre HORC support	An exchange is tried again after all the components (port/RCU/pair/CTGroup) of FibreHORC are canceled and De-installed of WP411-B in the subsystem.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	Prioritized Port Control	Prioritized Port/WWN Control support (256 WWN support)	Please release Prioritized Port/WWN Control information and retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	High Speed Communication between SVP- DKC	High Speed Communication between SVP-DKC support	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	E-COPY	E-COPY command support.	Please delete all the port settings of E-COPY. Then retry exchanging again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HMRCF, HIHSM	HMRCF, HIHSM HMDE volume support	Please reset all HMDE volume of Reserve volume setting of HMRCF, and HIHSM. Then retry exchanging again.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	Prioritized Port Control	Prioritized Port/WWN Control support (1024 WWN support)	Please release Prioritized Port/WWN Control information and retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HXRC	HXRC CNT Multi pathing function	Please delete all HXRC pairs and retry again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	LUN Security	PLOGI restricts a use security checkmark ON/OFF.	Delete a 'USE SECURITY' checkmark of the port on which no WWN are registered and 'USE SECURITY' is checked.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HIHSM	HIHSM supports HRC/HORC volumes	Please cancel all HIHSM volume moving requests. And retry again.
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HXRC, CC	HXRC unplanned outage function	Please delete all HXRC/CC pairs and retry again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	DKC-F410I-8HSE PCB	DKC-F410I-8HSE PCB Support	Please de-install DKC-F410I-8HSE P/K and retry exchanging again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HMRCF, HOMRCF, HRC, HORC	HMRCF, HOMRCF, HRC, HORC Used capacity support.	An error message is not displayed for this function.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	2105PPRC	2105PPRC support	Please delete PPRC pair establishing DKC emulation type is 2105. And retry exchange again.
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	Fibre-HRC	Fibre-HRC support	Please delete all Fibre-HRC pair and group, retry exchange again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HRCA	Async HRC Performance Function Support	Please delete all HRCA/Dummy Volume pair and retry exchanging again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HXRC, CC	HXRC, CC 2105 emulation support	Please delete all HXRC/CC pairs and retry again.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	TPF	ESS mode support (2105 Emulation)	If CU type is 2105, it is in possible to exchange. If CU type is 3990, retry exchanging again.
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	M-FIBRE	Mainframe Fibre Channel support	Retry after all M-Fibre PK deinstallation.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	Fibre-HRC	Fibre-HRC support	Please delete all Fibre-HRC pair and group, retry exchange again.
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HOMRCF	Track level Incremental and Differential Backup Assist Support	Please delete all HOMRCF pairs and retry again.
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000 0000	HMRCF	HMRCF combination HMDE volume and M/F volume support	Please delete all pairs of combination HMDE volume and M/F volume (e.g. 3390-3A and 3390-3) and retry again.
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000 0000	HORC	Concurrent write for Fibre_HORC support.	Please suspend (or delete) all Fibre_HORC pair. Then retry exchanging again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000 0000	MF	2105 New command support	A version down cannot be done, because the DKC Emulation Type '2105' is being used. Retry the operation after setting the DKC emulation type to that other than '2105'.
0000 0001 0000 0000 0000 0000 0000 0000 0000 0000 0000	HRC	Mix configuration of DKC emulation type "2105 and 3990" for HRC support.	Please delete all Fibre_HRC/HRCA and Escon_HRC/HRCA pair. Then retry exchanging again.
0000 1000 0000 0000 0000 0000 0000 0000 0000 0000	HRC	Concurrent write for Fibre_HORC and Escon_HRC support.	Please suspend all Fibre_HRC and Escon_HRC pair. Then retry exchanging again.
0000 0100 0000 0000 0000 0000 0000 0000 0000 0000	HPAV	HPAV performance improvement.	You can't exchange.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0010 0000 0000 0000 0000 0000 0000 0000 0000	HRCA	Async HRC Performance Function Support	Please delete all Async Groups and retry exchanging again.
0000 1000 0000 0000 0000 0000 0000 0000 0000	TruCluster	TruCluster/BootDisk Support	Please change the host mode 07 to other the host modes or trun the system option 198 into off.
0000 0100 0000 0000 0000 0000 0000 0000 0000	3390-L	DKU Emulation type 3390-L support.	Please de-install 3390-L volume, and retry exchanging again.
0000 0010 0000 0000 0000 0000 0000 0000 0000	LDEV Guard	LDEV Guard support	Please delete ReadOnly and Protect of volume (LDEV). Then retry again.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 1000 0000 0000 0000 0000 0000 0000	HMRCF	HCAFE support	Please delete all HMRCF pairs and retry again.
0000 0100 0000 0000 0000 0000 0000 0000	HXRC	HXRC Performance function support	Please delete all HXRC Pairs and retry again.
0000 0010 0000 0000 0000 0000 0000 0000	LDEV Guard	Variable VTOC function support	Please set the VTOC Size (SVP05-10, 'System Option' window) for all DKU Emulation to CC='0', HH='14' and retry again.
0000 0001 0000 0000 0000 0000 0000 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 1000 0000 0000 0000 0000 0000	Non-Volatiled Off-line Micro-program Exchange	Non-Volatiled Off-line Micro-program Exchange Function Support	An error message is not displayed for this function.
0000 0100 0000 0000 0000 0000 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 0010 0000 0000 0000 0000 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.

Function Bit Map Table			
Bit Pattern	Function	Contents	Action (*1)
0000 0000 0000 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 0000			
0000 0000 0000 0000			
0000 0000 0000 0000			
0000 0000 0000 0000			
0000 0000 0000 0000			
0000 0000 0001 0000			
0000 0000 0000 0000			
0000 0000 0000 0000			

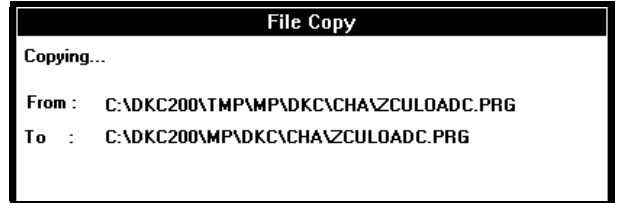
(*1) If SVP displayed an error message as 2179 during microcode exchange, please check which function is detected by this message, and do the corresponding action. After, please retry exchanging again.

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

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

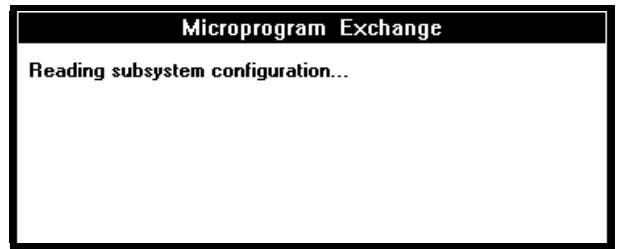
(12) File copy in SVP

Go to 3.3 (1).



3.3 Transferring micro-programs to the DKC

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



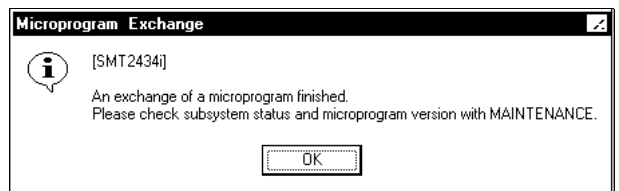
<<Error>>

- “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.

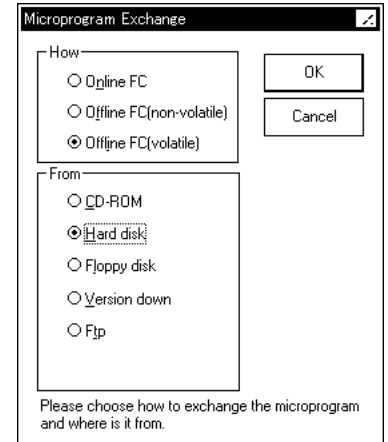
- (4) After downloading the micro-programs, SVP makes the sub-system to be enable and displays the following message “An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE.”, select (CL) [OK]. Go to 3.6 ([MICRO-FC03-200](#)).



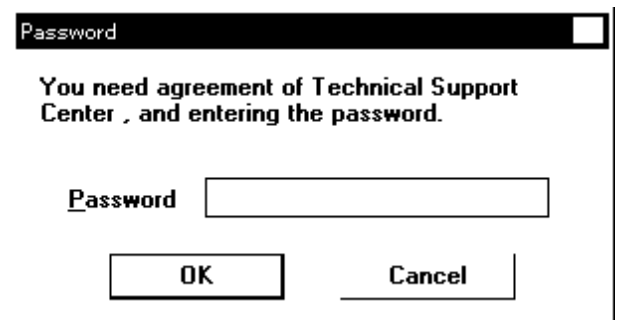
3.4 Hard Disk Download

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

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

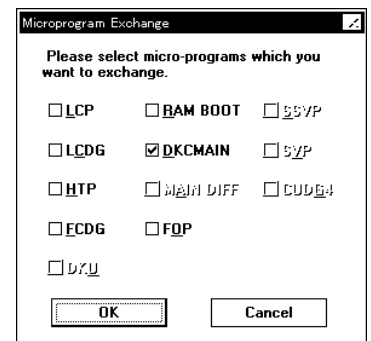


If you want to continue this process, select (CL) [OK] and enter the password, and select (CL) [OK].




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?

Microprogram Exchange ■

 [SMT2624i]
 Please confirm you have already varied off all channel paths.
 Do you want to continue this process?

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?

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

Go to 3.2 (11). ([MICRO-FC03-140](#))

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-FC03-170](#)) or [Floppy Disk] at 3.2 (5) ([MICRO-FC-03-30](#)).

(2)

Go to 3.3 (1) ([MICRO-FC03-150](#)).

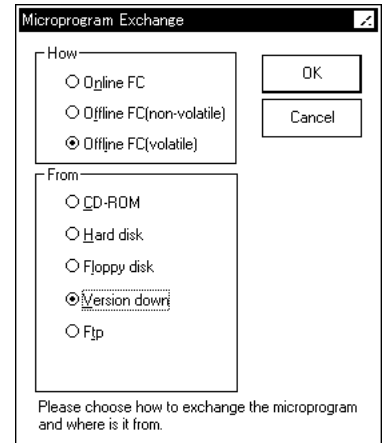
3.5 Version Down

NOTICE

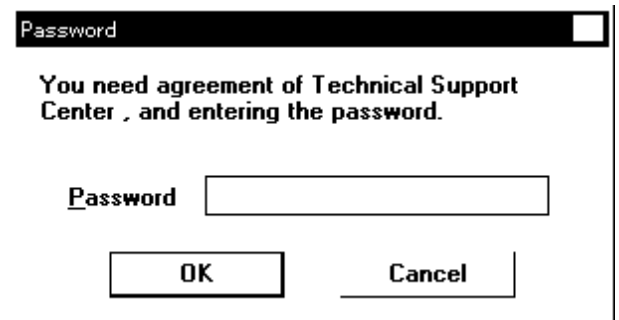
Please ask your TSC if you can operate this.

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

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

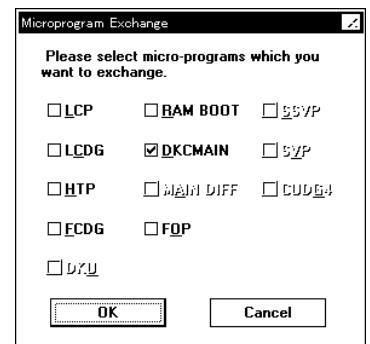


If you want to continue this process, select (CL) [OK] and enter the password, and select (CL) [OK].

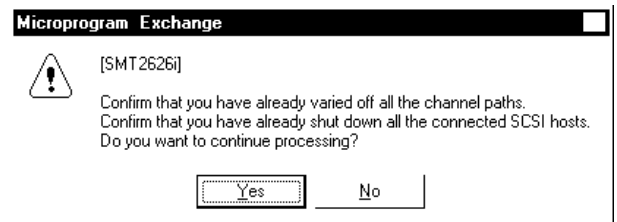
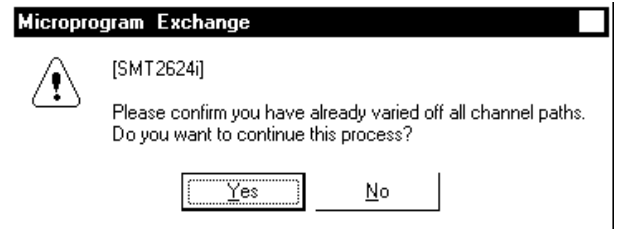
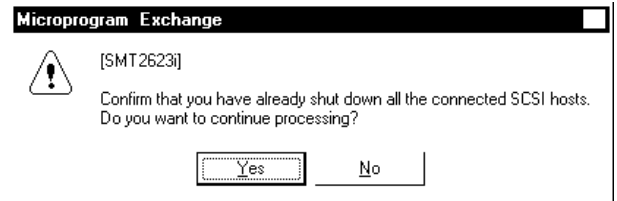


The ‘Micro-program Exchange’ dialog box appears. Select (CL) one or more items from the list of the type of micro-programs, and select (CL) [OK].

: Micro-programs to be substituted.



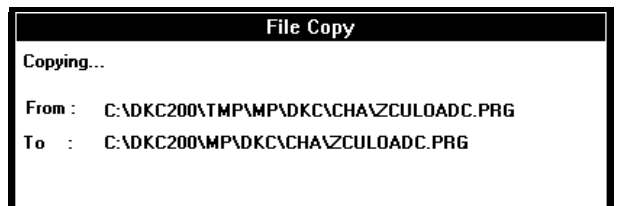
One of messages are displayed by the subsystem configuration.



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

Go to 3.2 (11). ([MICRO-FC03-140](#))

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



3.6 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 version display in the MAINTENANCE function.
(See SVP SECTION.)

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

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)	
FOP		1/(3)	
DKCMAIN		4	
MAIN DIFF		4	
RAM BOOT		1	
DKU		60	
SSVP	2	15	—
SVP		3	—
CUDG4		0	—
Total	5	92	6

(Processors : 16, Drive capacity : 180GB)

Note: Make sure the following if the MAINDIFF is provided by an FD.

- (1) The DKCMAIN micro-program with the version that the MAINDIFF is applied is installed in the HDD (SVP) and the DKC subsystem. (Check their versions by “STATUS” operation.)
- (2) If their programs are installed, execute the Online micro-program exchange of the MAINDIFF only.

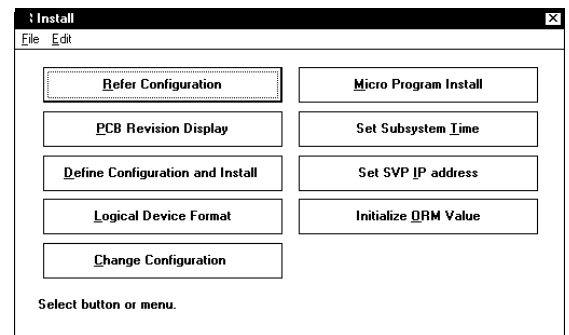
If their programs are not installed, execute the Online micro-program exchange of the MAINDIFF only after you installed the DKCMAIN micro-program with the version applied by the MAINDIFF.

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

(1) <Initial screen>

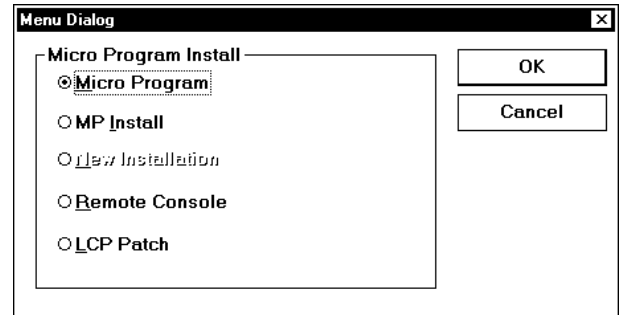
(2) Change the mode to [Modify Mode] (CL).
Select (CL) [Install].

(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].
 Online FC: Online Micro-program Exchange.
 Offline FC(non-volatile): Non-volatile Offline Micro-program Exchange. (Note1)
 Offline FC(volatile): Volatile Offline Micro-program Exchange.

[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](#))

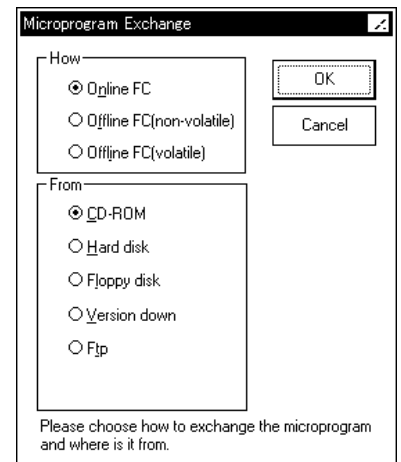
FTP: After being stored on the hard disk by FTP transfer, the micro-programs are downloaded.

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

<<Error>>

When the target file is not found, processing is terminated with the error message "Old files erase failed, copy stop."

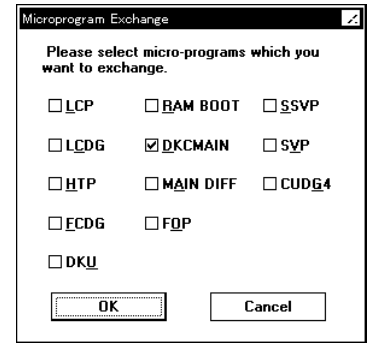
(Note1) Non-volatile offline Micro-program Exchange is used with technical support center directions only at the time of the special measure against the accident. Usually, this is not used.



- (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.

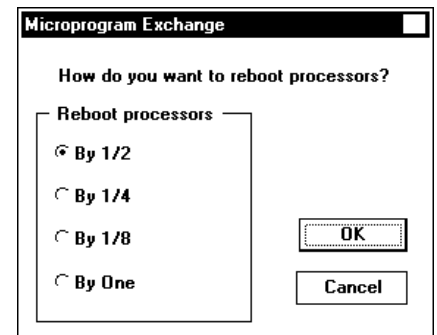
Note : SVP changed the message in FM download process. If an operator selected "LCP" or "LCDG", SVP displayed a message as "LCP/LCDG" during the download.



(7)

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



NOTICE

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

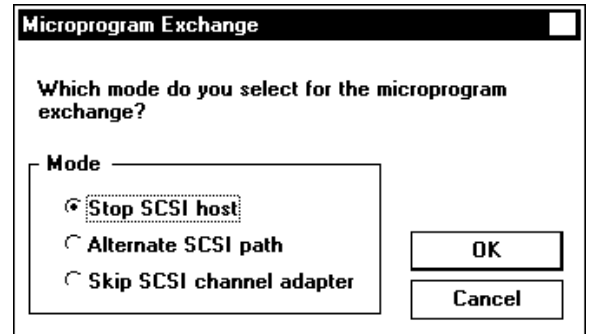
Reboot Pattern		By 1/2	By 1/4	By 1/8	By One
Exchange Time	Standard value(*) [minute](approx.)	14	19	37	78
		Short ←————→ Long			
Effect on performance of DKC		Big ←————→ Small			

(*)measure condition : 32MP (CHA(serial) × 4, DKA × 4), no I/O.

NOTICE

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

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



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

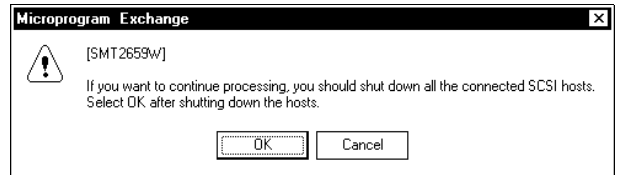
NOTICE

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 [MULTI13-10](#) 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 SCSI channel adapter.

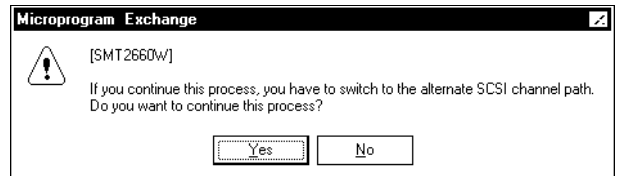
(8-1) <If “Stop SCSI host” is selected>

Shut down all the SCSI hosts and Select (CL) [OK]. Go to step (9).
When [Cancel] is selected (CL), the processing step is returned to (8).



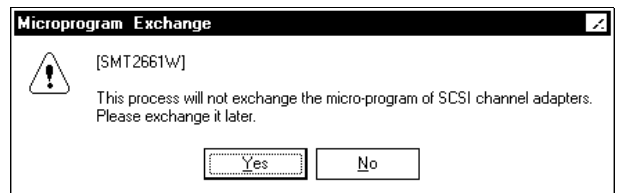
(8-2) <If “Alternate SCSI path” is selected>

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]. Go to step (10).
When [No] is selected (CL), the processing step is returned to (8).



(8-3) <If “Skip SCSI channel adapter” is selected>

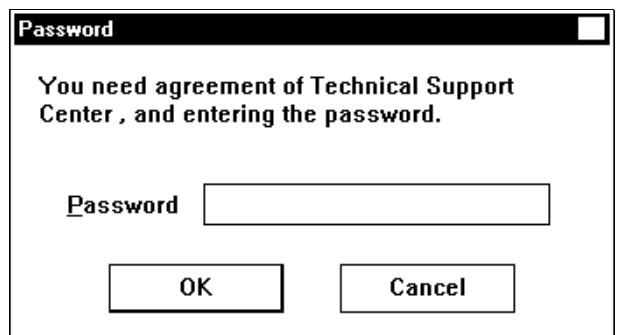
The microprogram FC for the CHA (SCSI) PCB will not be executed. Execute it in the future in the Stop SCSI host mode or the Alternate SCSI path mode.



NOTICE

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] and enter the password, and select (CL) [OK].



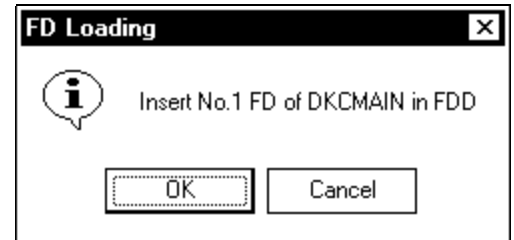
(9) <If SCSI channel adapter is installed, when DKCMAIN, RAMBOOT or FOP were selected.>

After you confirm that you have stopped all SCSI channel paths, select (CL) [OK].



- (10) 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].

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



<<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).

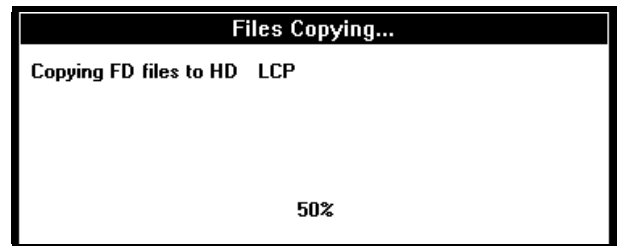
Internal error:

- “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 floppy disk, the message “Copying FD files to HD” appears.

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

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



<<Error>>

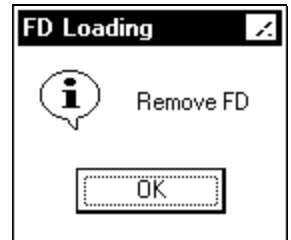
Internal error:

- “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.).

- (12) 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].



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

After copy end, sum checker starts. While checking, the message appears.



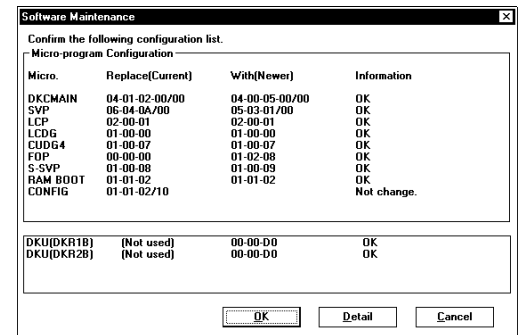
- (13) On the ‘Software Maintenance’ dialog box, the micro-program types, current versions, new versions, and message are displayed.

<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” or “Warning”.

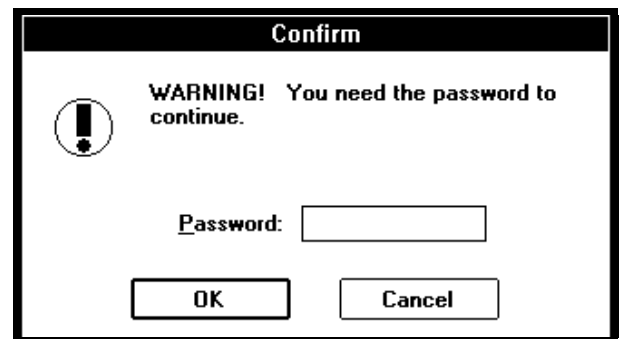
To continue processing, select (CL) [OK].

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



NOTICE

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.



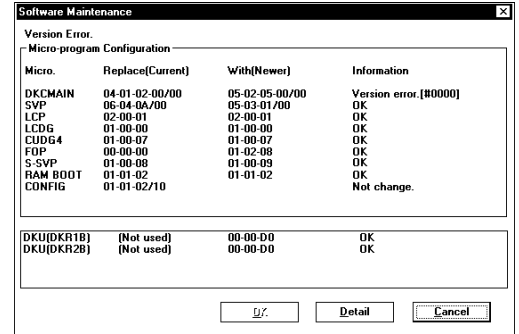
<Display with an error>

A sample error display is shown at 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.



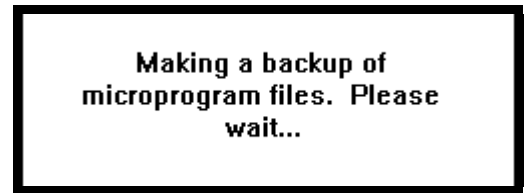
See Version Check Message Table ([MICRO-FC03-70](#)).

Note :

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

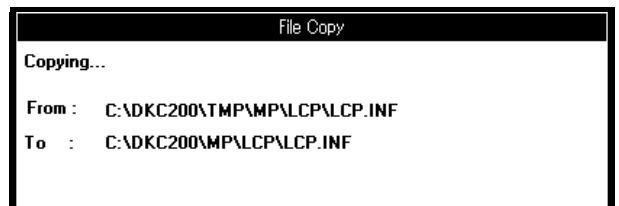
- “Version error”
- “Revision error”
- “Warning”
- “Can’t read the configuration of the micro-program”
- “Warning” (Function bit map error)

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



(15) File copy in SVP

Go to 4.3.1 (1) ([MICRO-FC04-90](#)) or
 4.3.2 (1) ([MICRO-FC04-130](#)) or
 4.3.2 (5) ([MICRO-FC04-140](#)).

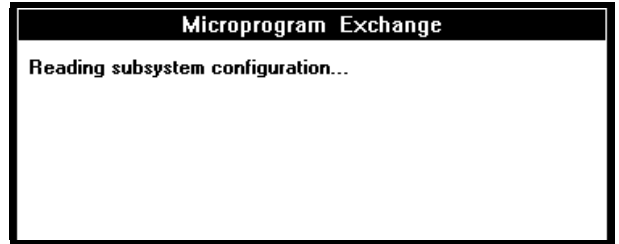


4.3 Transferring micro-programs

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](#)).

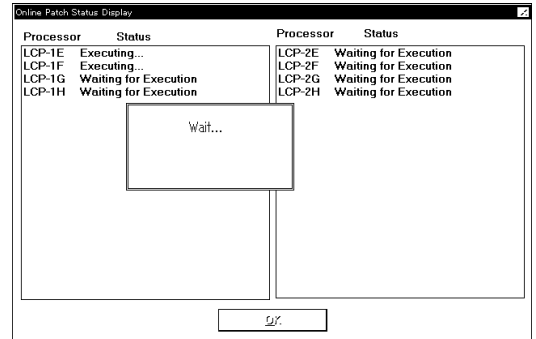
<LCP/HTP Micro code Exchange>

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

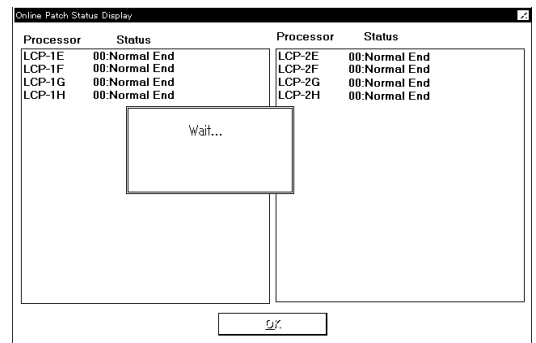
- (a) The message displays the execution status of the online patch in the installed LCP/HTP.

<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 blocked.



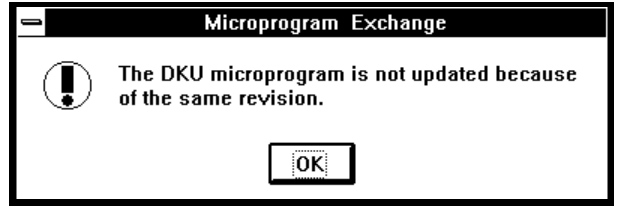
- (b) When execution is completed for all targets, you will go to step (2). If some errors occur, you can now select the [OK] button.
Select (CL) [OK].
You will return to 4.2 (3).



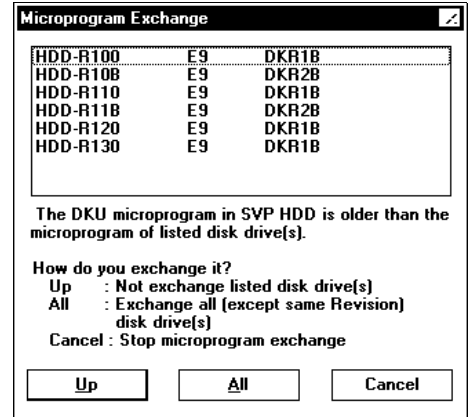
- (2) The message “Downloading *** micro-program...” (***: MAIN, LCP, ...) appears.

<Replacement of the DKU micro-program>

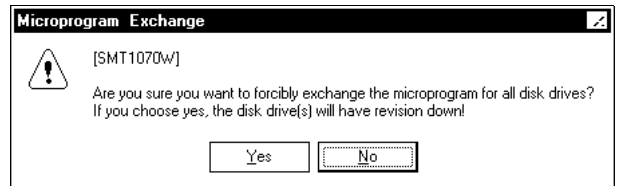
- (a) When the SVP hard disk and the HDU have DKU micro-programs of the same revision, the replacement of the DKU micro-program ends with the following message on the screen:
 “The DKU microprogram is not updated because of the same revision.”



- (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.

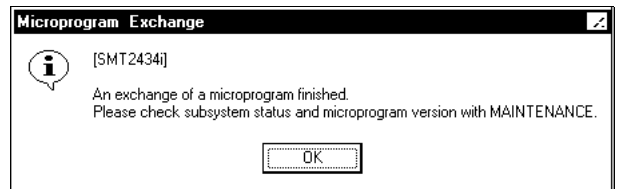


When you select (CL) [All], the message shown on the right is displayed.
 When you select (CL) [Yes] in response to the message, DKU micro-programs of the HDUs having micro-programs of different versions are updated.



- (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 4.6. ([MICRO-FC04-190](#))

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.

Go to 4.6. ([MICRO-FC04-190](#))



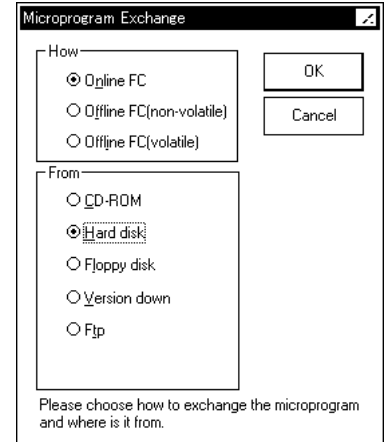
<<Error>>

- "The change of SVP microprogram has failed."
<<Action>>
 - Stop SVP and Power off PC.
 - Power on PC again.

4.4 Hard Disk Download

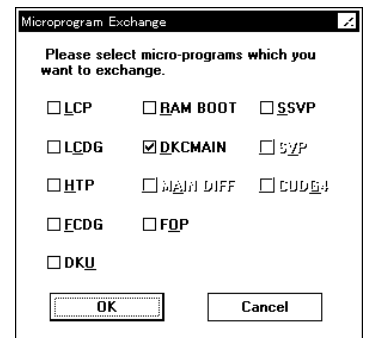
The latest version of micro-programs on the SVP hard disk are downloaded to DKC.

- (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-FC04-90](#)).

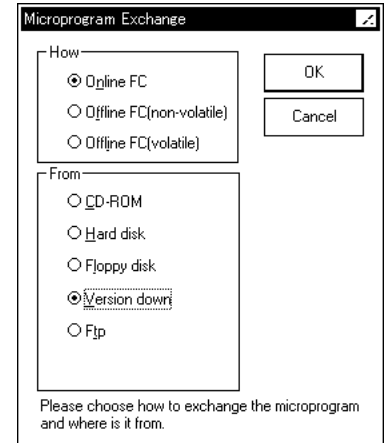
4.5 Version Down

NOTICE

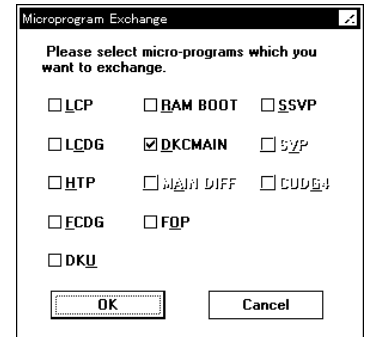
Please ask your TSC if you can operate this.

If you want to restore micro-programs to the previous versions of the micro-programs after the exchange (by Floppy Disk 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.



- (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-FC04-90](#))

- 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 Version Down, replace the PCB.

4.6 Checking the functions after exchange

Conduct the same testing performed 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 at the section 7.1.

5 MP Install

5.1 Over view

This facility is used to restore the micro-programs in the FM (Flash Memory) that failed to complete the rewrite of them due to an error for some reason during the Micro-program exchange. Since a processor that encountered such a problem started unsuccessfully without loading micro-programs, it is loaded with FM write only programs. Whenever FM write only program are loaded, a SIM with reference code = 7900XX (for the CHA (Channel adaptor))/7901XX (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.

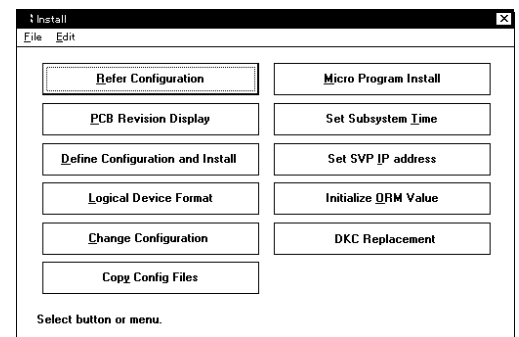
If the MP installation is executed for a processor that has not issued the SIM or SSB concerned, the installation terminates abnormally.

Also, you must check the status of the object PCB after you have executed the MP installation, and if a blocked part exists, you must replace it with the same PCB. Besides, even if the microprogram replacement has been completed using the MP installation in a state in which the online microprogram replacement is incomplete, you must end the interruption by executing the online microprogram replacement again.

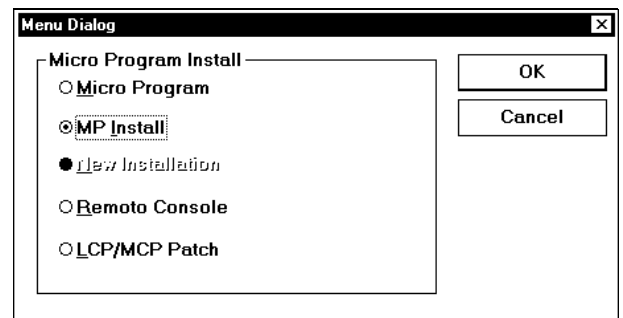
5.2 MP Install

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

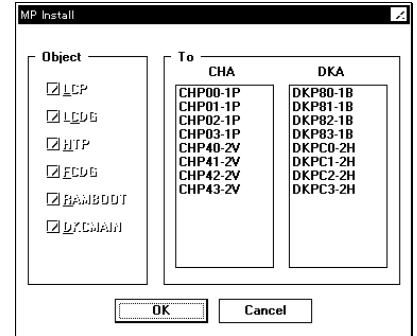
(2) Select (CL) [Micro Program Install] in the 'Install. Subsystem' window box



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

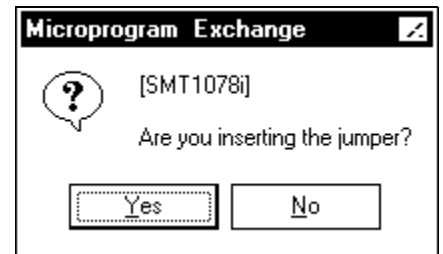


(4) Select (CL) processor in the 'To' and select (CL) [OK].



(5) Make one of the following responses to message "Are you inserting the jumper?".

- When starting up DKC by connecting JP to CSW-1N J9 and CSW-2M J9:
(Single cabinet model : CSW-1AJ9/CSW-2MJ9)
Select (CL) [Yes]. Then processor recovery processing is skipped and branches to (8).
- When starting up DKC as usual:
Select (CL) [No].

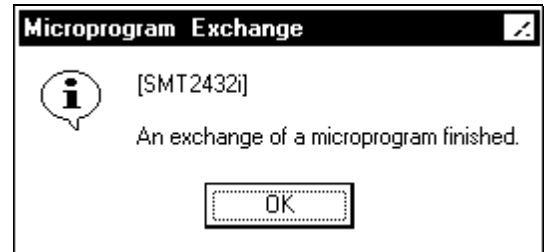


(6) The message "Downloading Main micro-program..." appears.

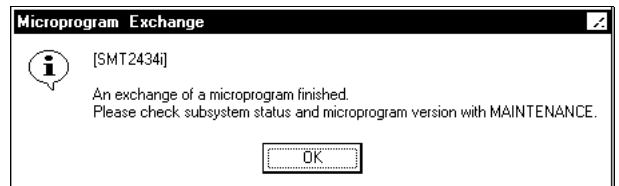
(7) The message "Processor in now recovering..." appears.
The processor is recovered.

(8)

- When select (CL) [Yes] on step (5):
In response to the message “An exchange of a microprogram finished.”, select (CL) [OK].



- When select (CL) [No] on step (5):
In response to the message “An exchange of a microprogram finished. Please check subsystem status and microprogram version with MAINTENANCE.”, select (CL) [OK].



(10) You will return 'Install' screen.

6 LCP Patch

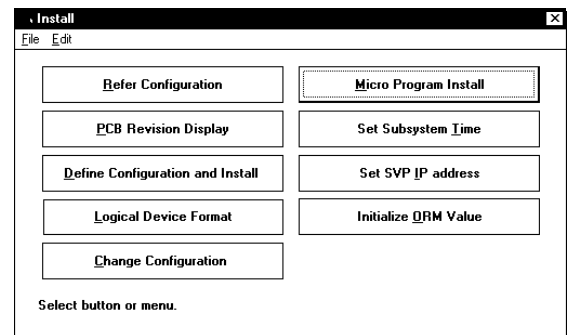
6.1 Methods of entering a patch file

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

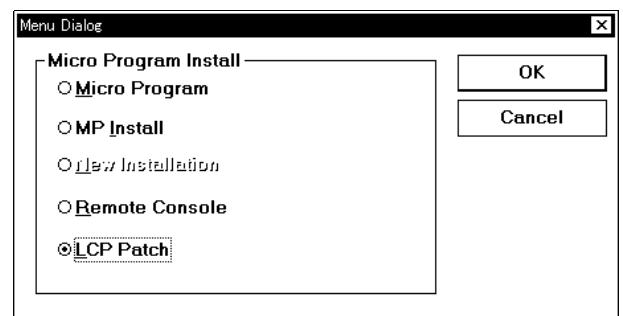
- (1) <Mode Change>
Change the mode to [Modify Mode] (CL).

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

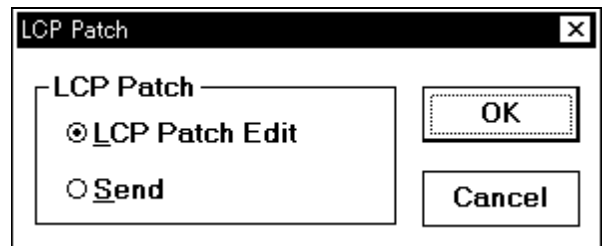
- (3) Select (CL) [Micro Program Install].



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



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



(6) Editing patch data

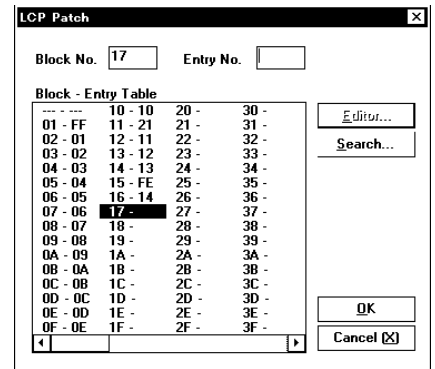
A procedure to edit the LCP patch data is shown below as an example.

- (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

(6-0) Entry No. selection screen

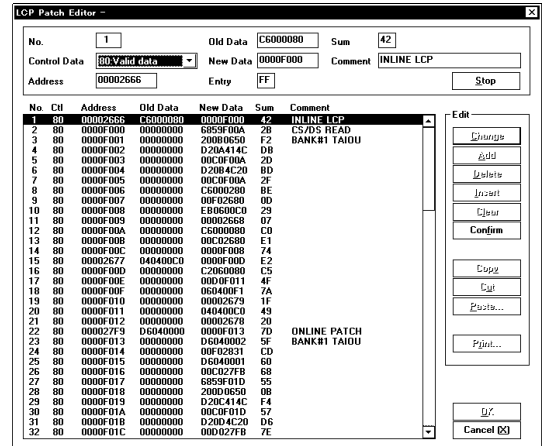
Execute “New addition (or insertion is allowed) of entry No.” or “Selection of entry No. of registered data” on the entry No. selection screen.

When the [Editor...] button is selected (CL), the ‘LCP Patch Editor -’ screen appears.



(6-1) Changing patch data

- (1) Select (CL) the patch data to be edited from the patch data list in the lower part of the screen and select (CL) [Change] button. Edit it in the upper part of the screen.
- (2) After editing, select (CL) the [Confirm] button and registered the patch data.



(6-2) Adding patch data

- (1) When the [Add] button is selected (CL), data all digits of it are "0" is added to the end of the data list. Edit the data in the upper part of the screen.
- (2) After editing, select (CL) the [Confirm] button and registered the patch data.

(6-3) Deleting patch data

- (1) Select (CL) the patch data (multiple patch data can be selected) and select (CL) [Delete] button.
- (2) Selected patch data can be deleted.

(6-4) Inserting patch data

- (1) Select (CL) an insert line in the patch list and select (CL) [Insert] button. All digits are "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 registered the patch data.

(6-5) Clearing patch data

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

(6-6) Copying patch data

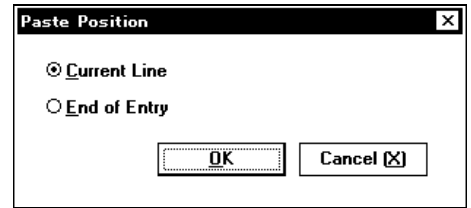
- (1) Select (CL) the patch data (multiple patch data can be selected) and select (CL) [Copy] button.
- (2) Selected patch data can be copied.

(6-7) Cutting patch data

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

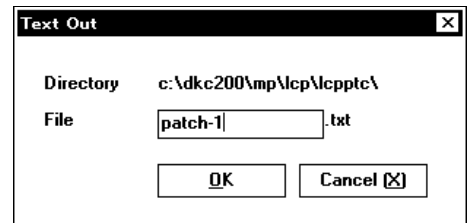
(6-8) Pasting patch data

- (1) Select (CL) an one line to paste copied or cut patch data and select (CL) [Paste...] button. 'Paste Position' screen appears.
- (2) [Current Line] : To paste patch data at the selected line.
[End of Entry] : To paste patch data at 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) [Print...] button. 'Text Out' screen appears.
- (2) Input a file name of “*.txt” file and select (CL) [OK] button.

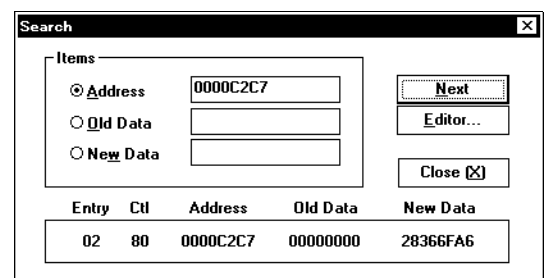


(6-10) Stopping editing

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

(6-11) Searching patch data

- (1) Select (CL) [Search...] button in entry No. selection screen. '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) [Next] button. The found data is displayed at the bottom of this screen.
- (3) If you need to edit the found patch data, select (CL) [Editor...] button. 'LCP Patch Editor -' screen appears. And (6-1)-(6-10) operation will be available.



6.2 Methods of sending a patch file

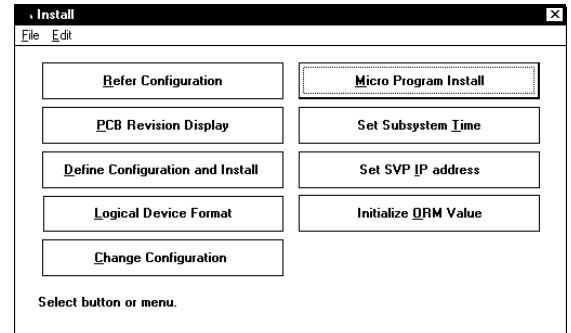
6.2.1 Rewriting LCP itself

Let's send the online-patch record specified by Execute Entry NO. to the processor specified by TARGET.

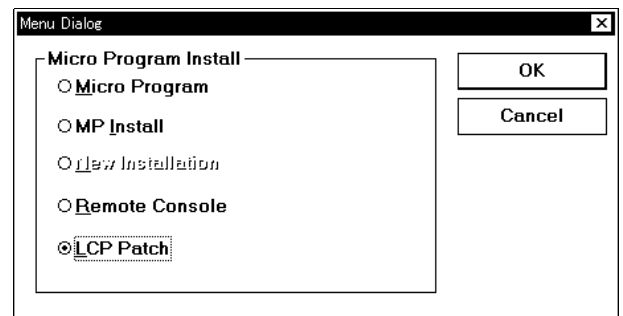
- (1) <Mode Change>
Change the mode to [Modify Mode] (CL).

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

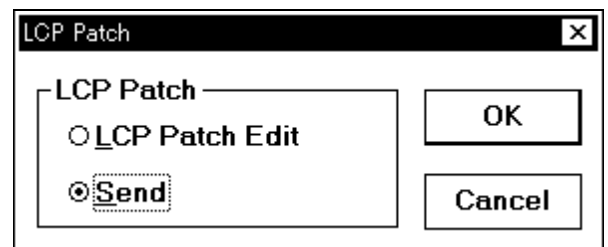
-
- (3) Select (CL) [Micro Program Install].



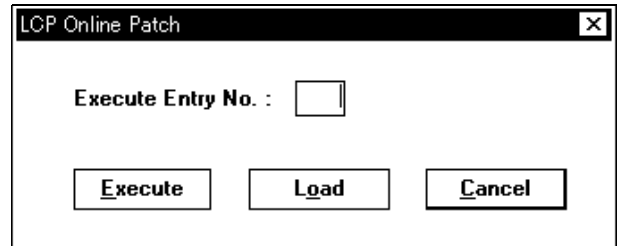
-
- (4) Select (CL) [LCP Patch] and select (CL) [OK].



-
- (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.

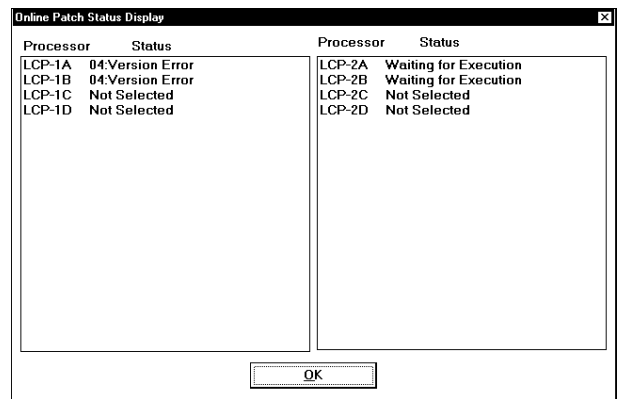
<Explanation of status>

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 the [OK] button.
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.

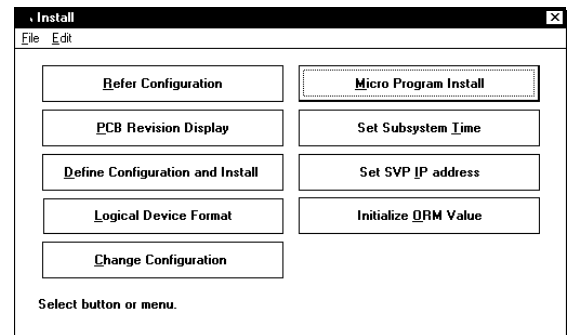
6.2.2 Including the patch into a load module and update FM

Let's download the load module contain all records in the online-patch file FM of the processor for which Execute has been executed. If Execute is not yet executed for processor, the load module is downloaded to the processor currently specified by TARGET.

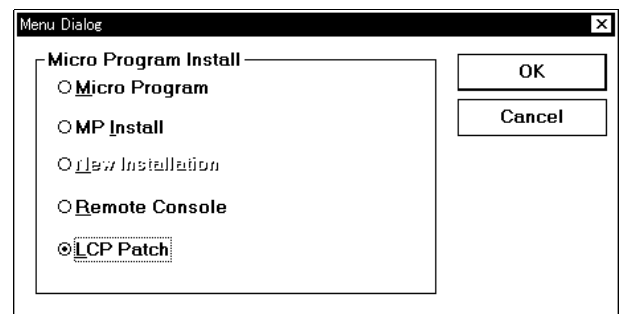
- (1) <Mode Change>
Change the mode to [Modify Mode] (CL).

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

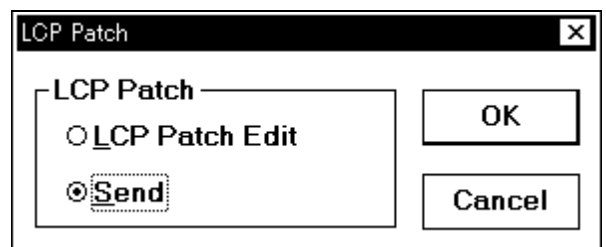
- (3) Select (CL) [Micro Program Install].



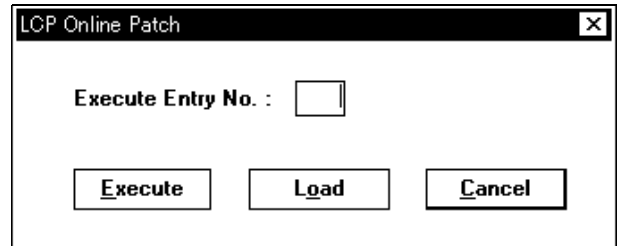
- (4) Select (CL) [LCP Patch] and select (CL) [OK].



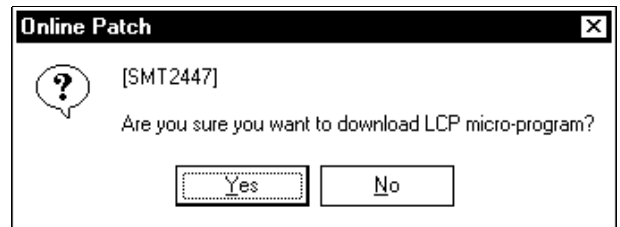
- (5) Select (CL) [Send] and select (CL) [OK].



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



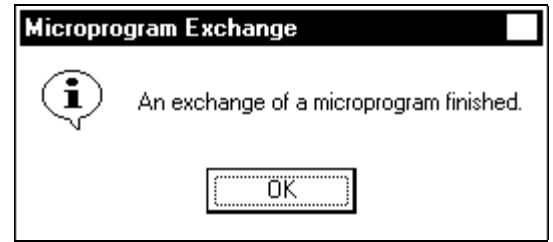
- (7) The message “Are you sure you want to download LCP micro-program?” is displayed. Select (CL) [Yes].



- (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

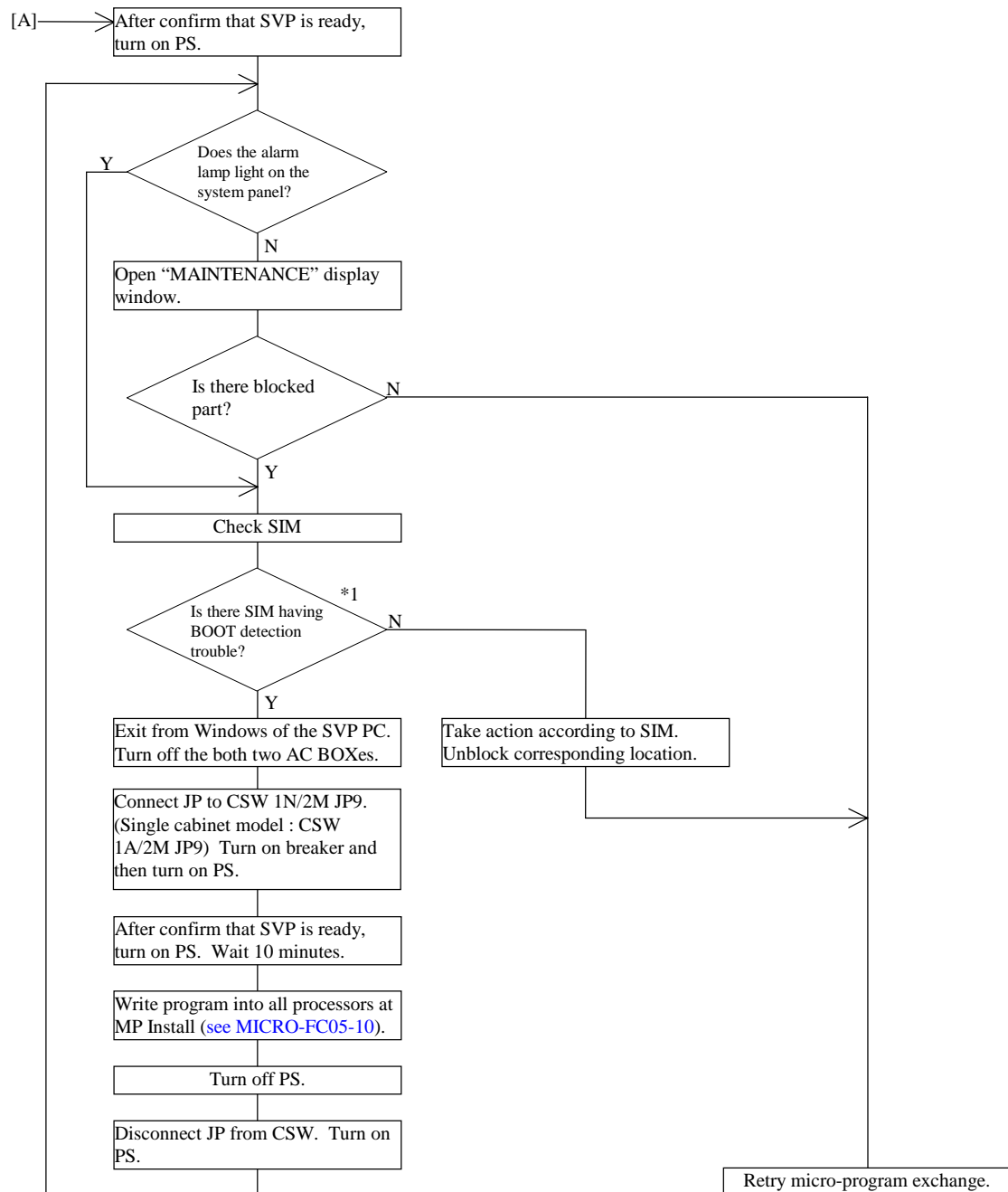
If trouble occurs while the micro-programs are being exchanged, symptoms (1) to (6) below can be observed apparently. In these cases, use the recovery procedures shown in flowcharts [A] to [D]. And if you want to return the version of micro-program to the previous version, use the procedure shown in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

- (1) A power failure occurs.
→Go to [A] ([MICRO-FC07-20](#))
- (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-FC07-30](#))
 - (b) Trouble in blocking the processor (the message “Processor in now blocking” is displayed).
→Go to [C] ([MICRO-FC07-40](#))
 - (c) Trouble in recovering the processor (the message “Processor in now recovering” is displayed).
→Go to [C] ([MICRO-FC07-40](#))
 - (d) Trouble in downloading the micro-program (the message “Downloading DKU micro-program” is displayed).
→Go to [F] ([MICRO-FC07-80](#)).
- (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-FC07-30](#))
- (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-FC07-50](#))
- (5) An AP error occurs, resulting in PC trouble (Key-in operations are disabled and the screen disappears).
→Go to [B] ([MICRO-FC07-30](#))
- (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-FC07-60](#))
- (8) In case of uncorrect version display (“??-??...” or incompatibility).
→Go to [B] ([MICRO-FC07-30](#))

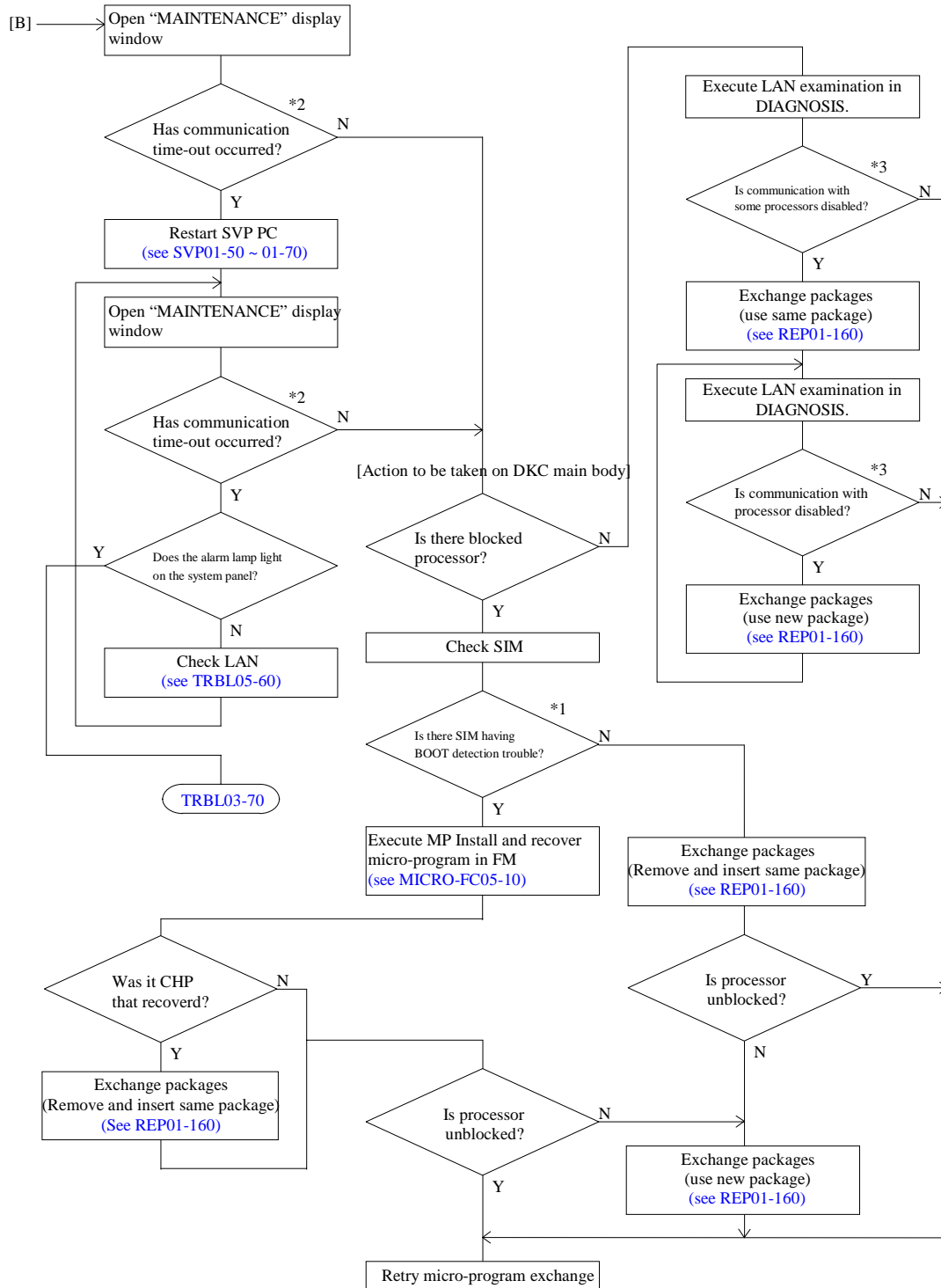
[Sections to be referenced for recovery procedure]

- (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](#)

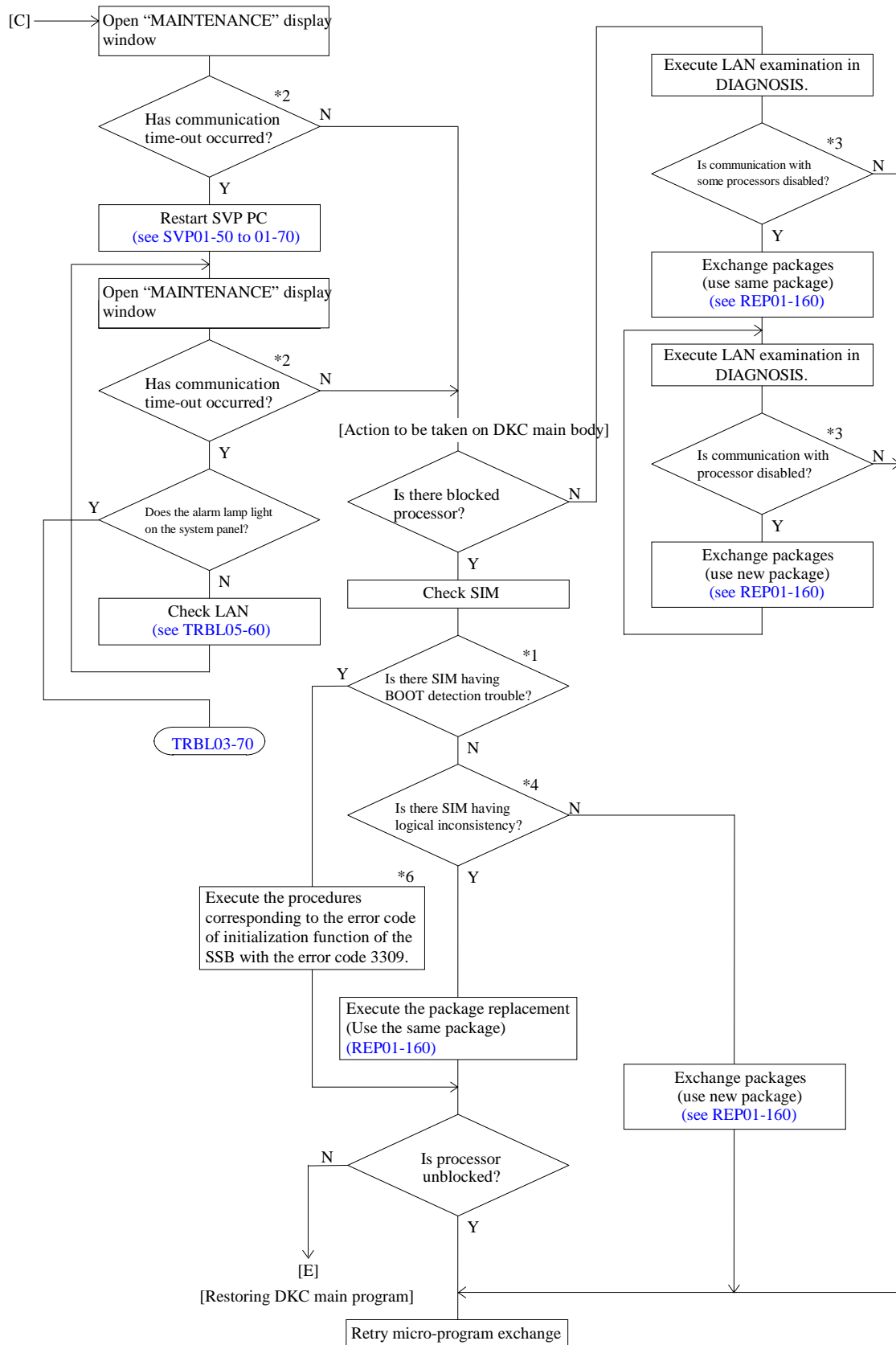
[Recovery Procedure for Power Failure]



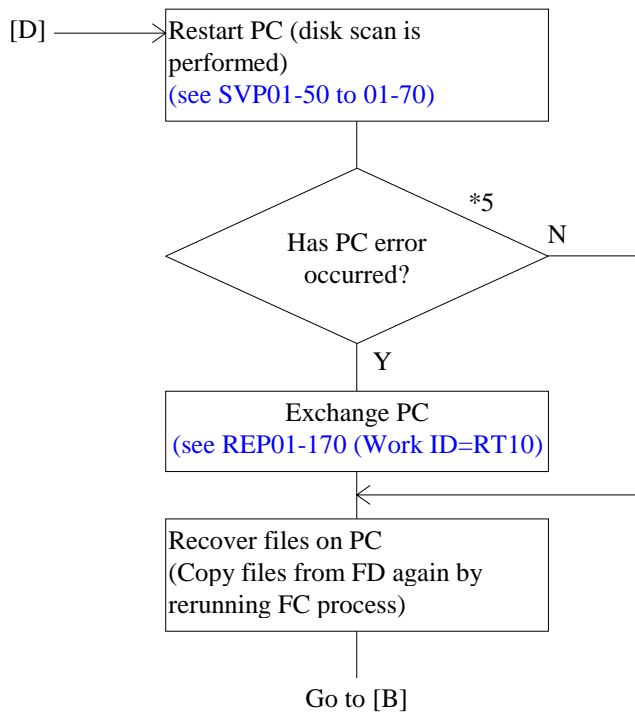
[Recovery Procedure for Communication Time-out/PC Trouble in Downloading Micro-program /Version incompatibility]



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



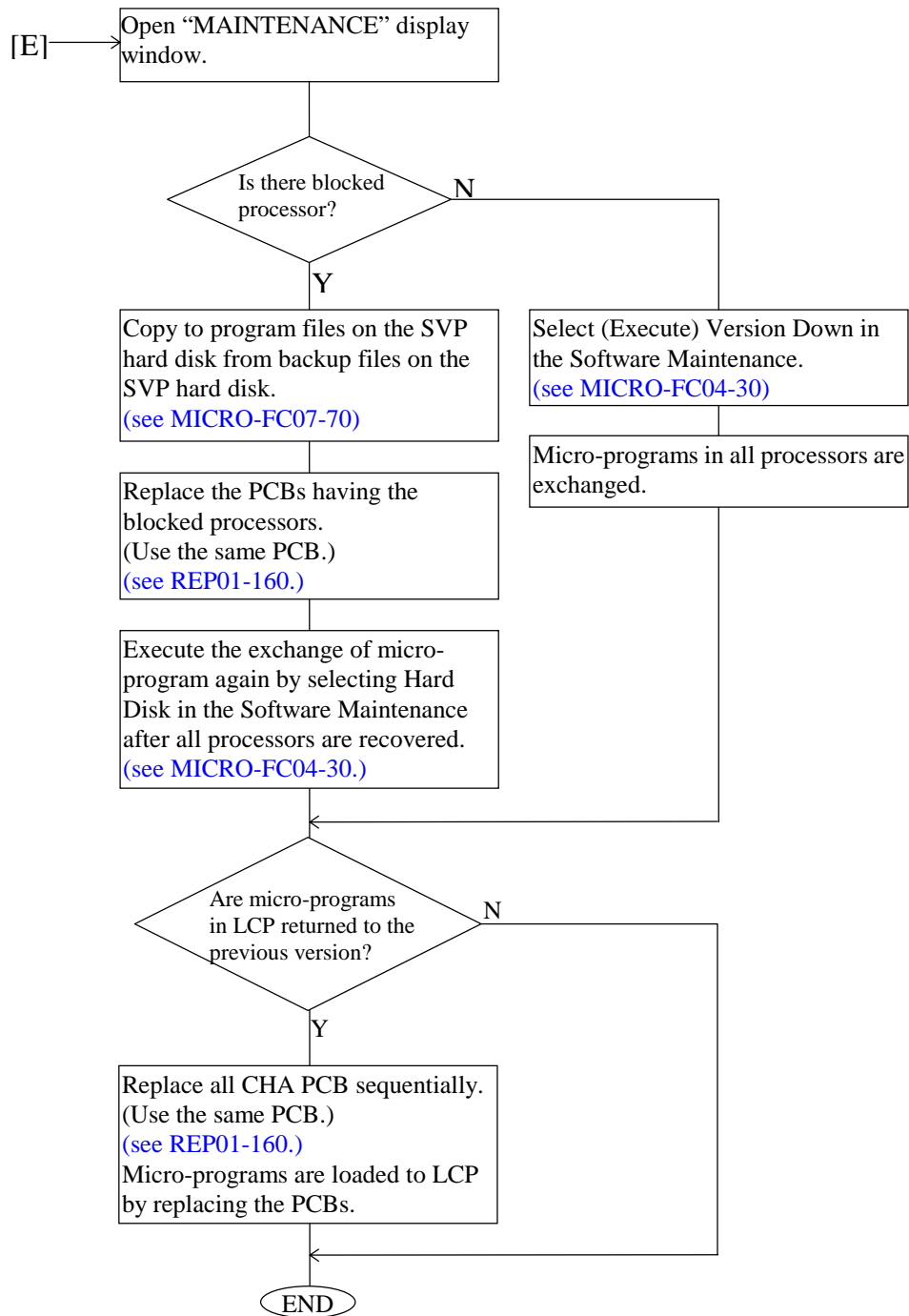
[Recovery Procedure for I/O Error on SVP Hard Disk]



- *1) Reference code “7900X0” or “7901X0”
X: Shows processor id. (see SIM-RC02-200)
For details of the trouble, refer to the explanation about BOOT detected error at SSB (Byte27 =8C).
(see SSBLOG05-1580)
- *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 “SSBLOG05-1580” 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]



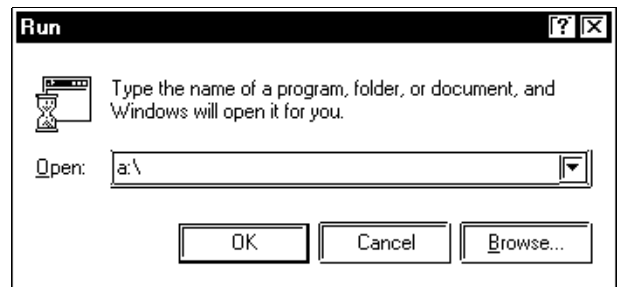
[Copy to program files from backup files on the SVP hard disk]

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

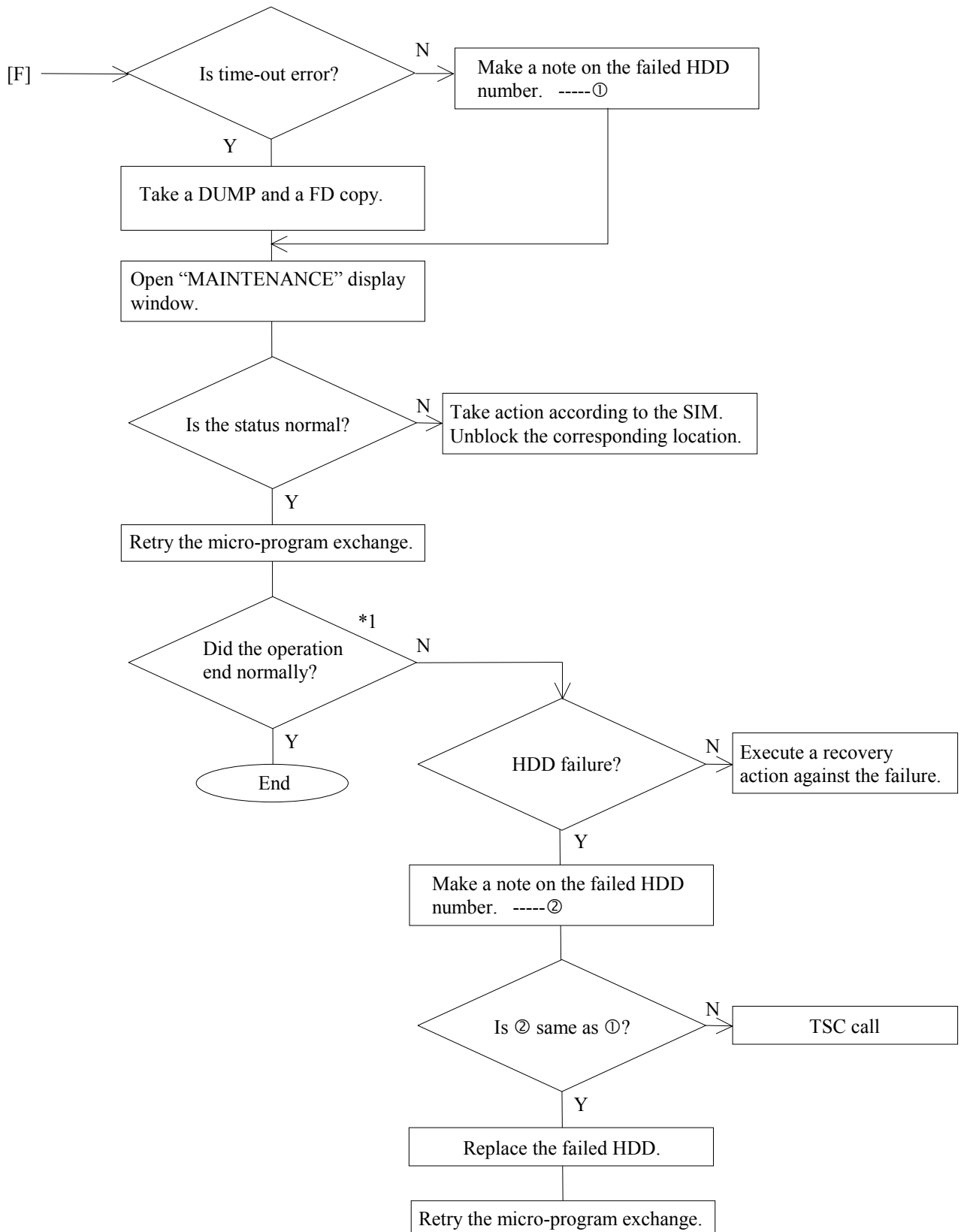


- (2) Insert the Micro-program media (CD-ROM) in the CD-ROM drive, and wait until the CD-ROM drive recognizes the CD-ROM.

- (3) Input 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

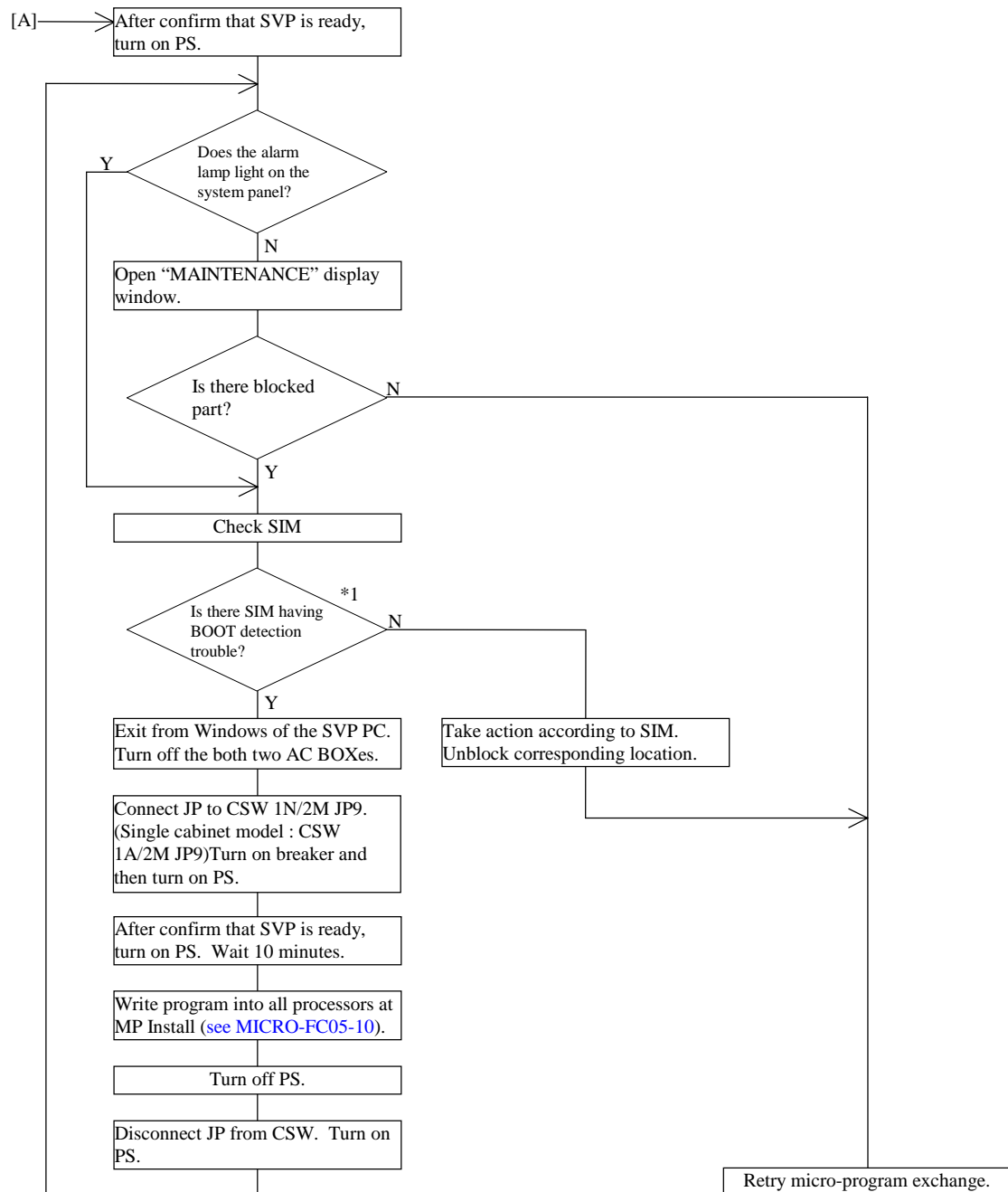
If trouble occurs while the micro-programs are being exchanged, symptoms (1) to (8) below can be observed apparently. In these cases, use the recovery procedures shown in flowcharts [A] to [F].

- (1) A power failure occurs.
→Go to [A] ([MICRO-FC07-100](#))
- (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-FC07-110](#))
 - (b) Micro-program downloading (phase: download display) error.
→Go to [C] ([MICRO-FC07-110](#))
 - (c) System recovery processing (phase: recover display) error.
→Go to [D] ([MICRO-FC07-120](#))
- (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-FC07-130](#))
- (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-FC07-140](#))
- (5) An AP error occurs, resulting in PC trouble (Key-in operations are disabled and the screen disappears).
→Go to [E] ([MICRO-FC07-130](#))
- (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-FC07-110](#))

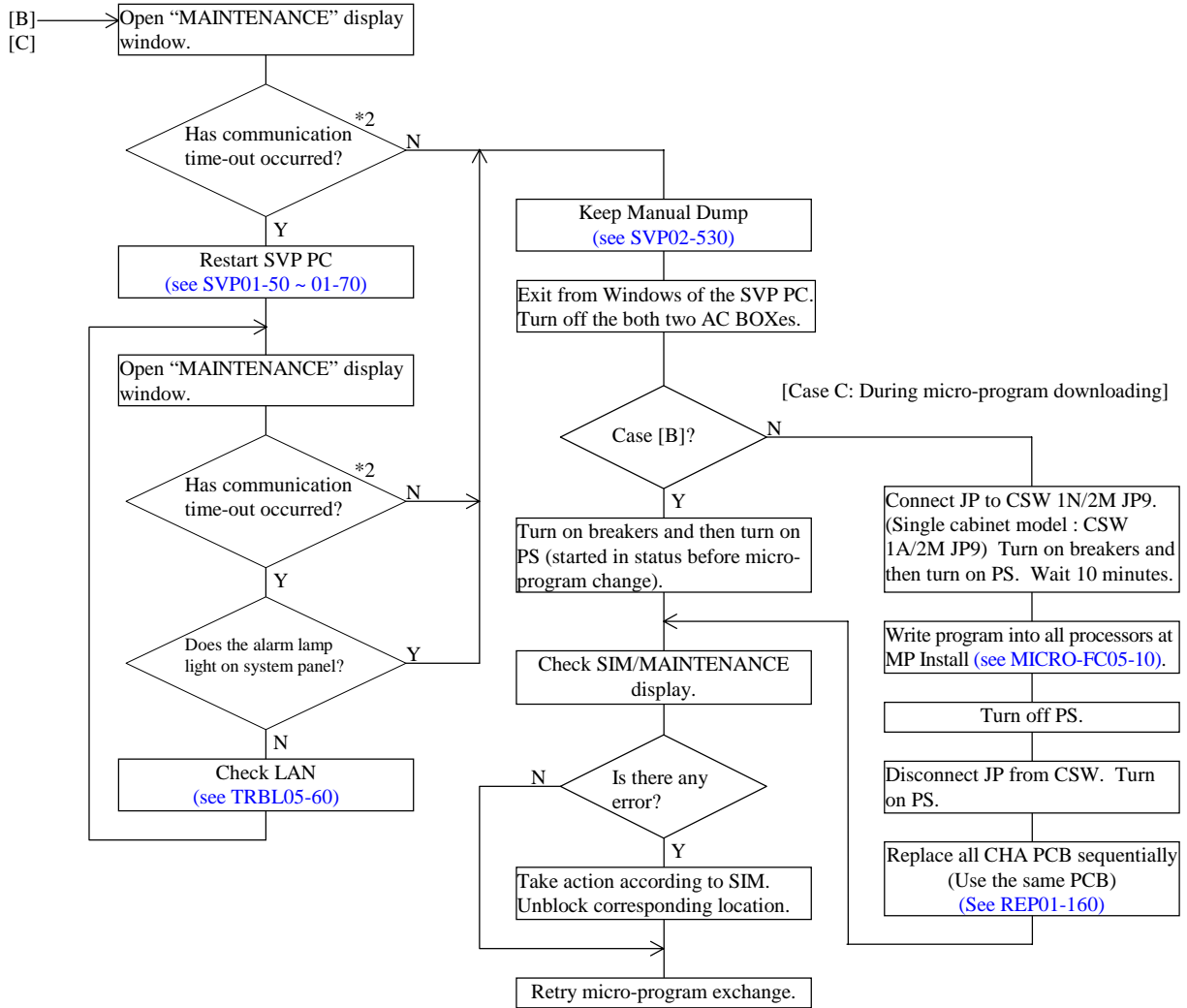
[Sections to be referenced for recovery procedure]

- | | |
|-----------------------|--|
| (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 |

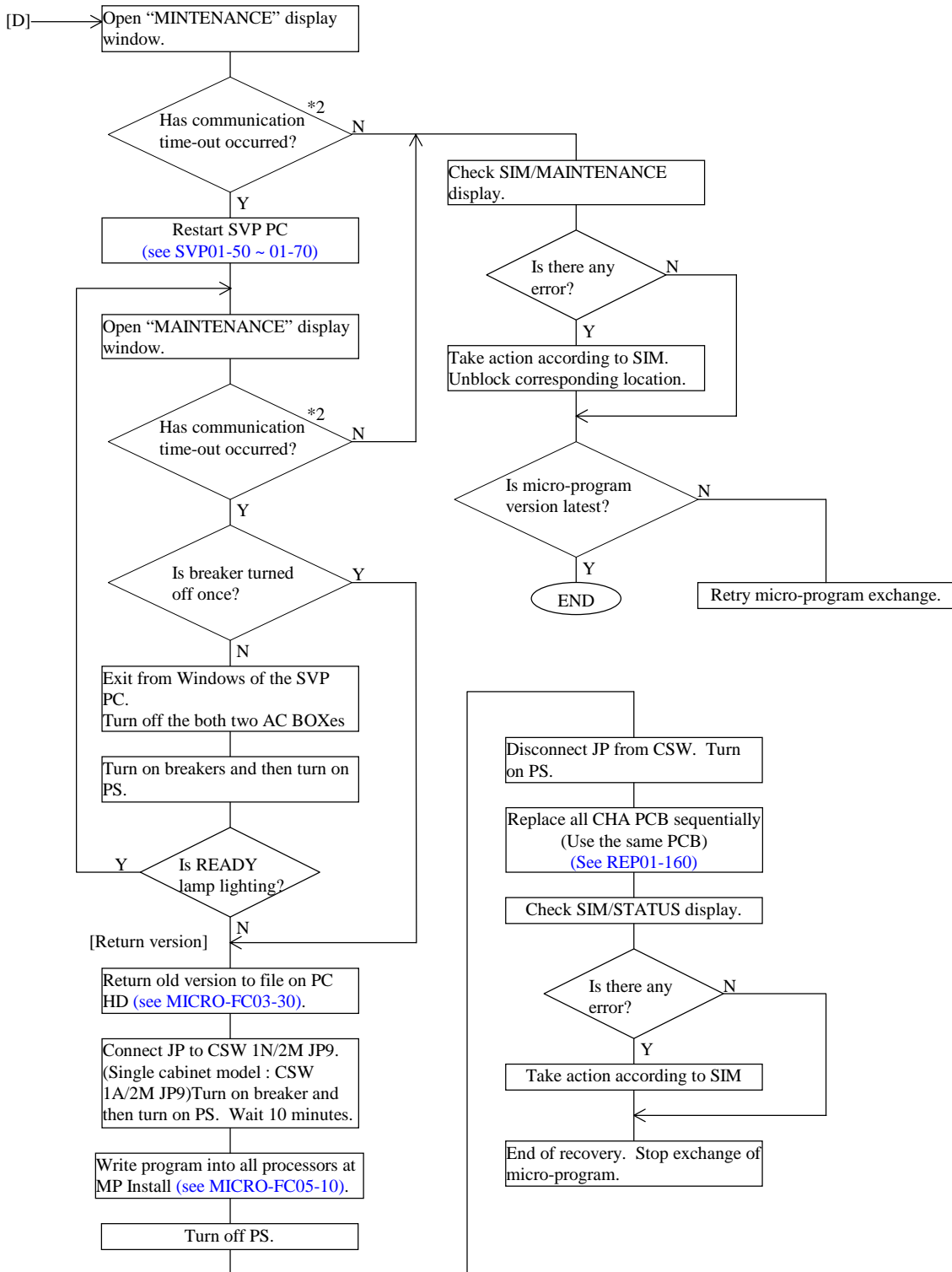
[Recovery Procedure for Power Failure]



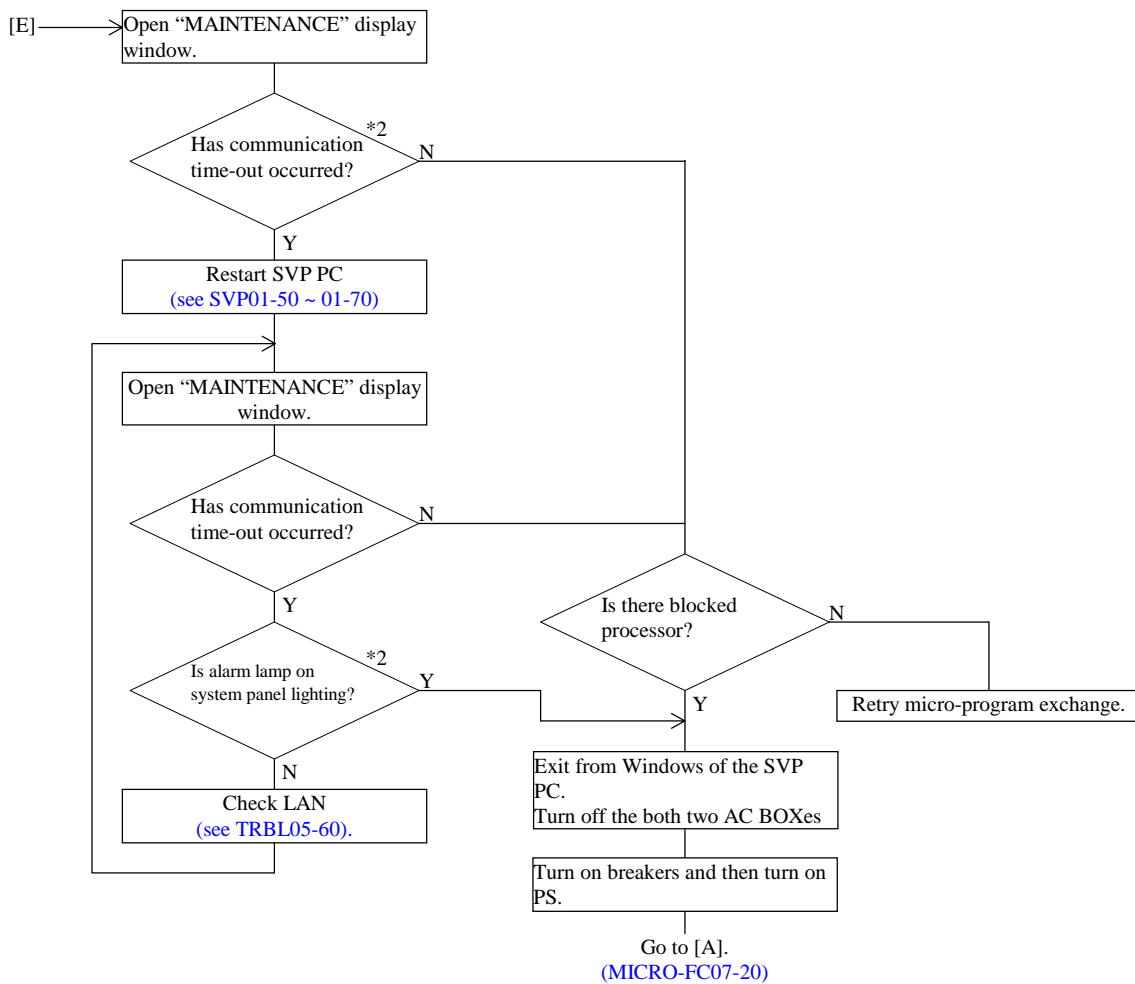
[Recovery procedure in case of time-out during system block processing/micro-program downloading/Version incompatibility]



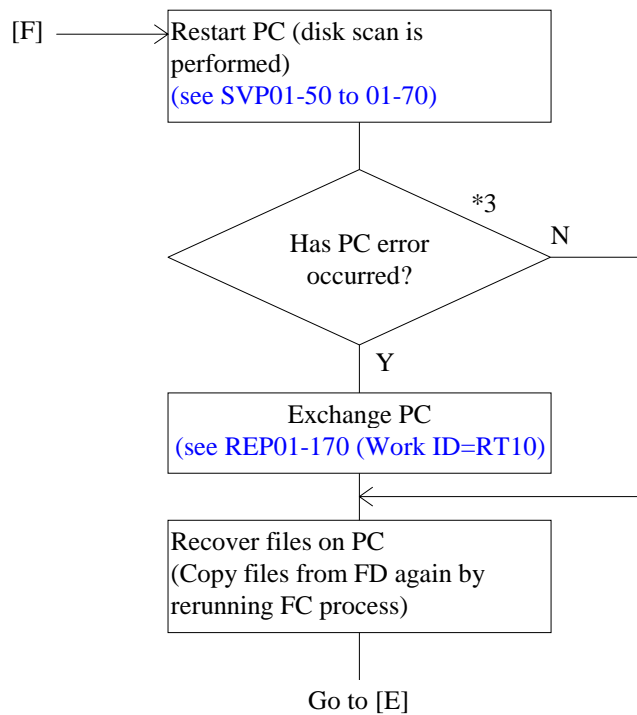
[Recovery procedure in case of time-out during system recovery processing]



[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-RC02-200)
For details of the trouble, refer to the explanation about BOOT detected error at SSB (Byte27 =8C).
(see SSBLOG05-1580)
- *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-FC03-170](#).
 - For Version up by Online FC : Refer to [MICRO-FC04-160](#).
 - For Version down by Offline FC : Refer to [MICRO-FC03-190](#).
 - For Version down by Online FC : Refer to [MICRO-FC04-170](#).

<Note>

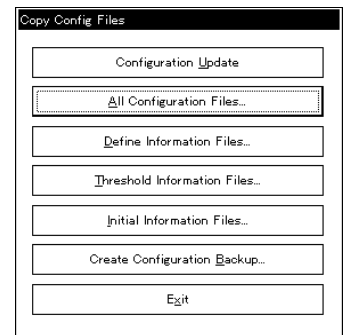
 - The processors which had finished the micro-program exchange to new version will be skipped.
 - Password is necessary.

2. Then, replace the failure parts according to SIM message and M.M..

8 Config Exchange Procedure

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

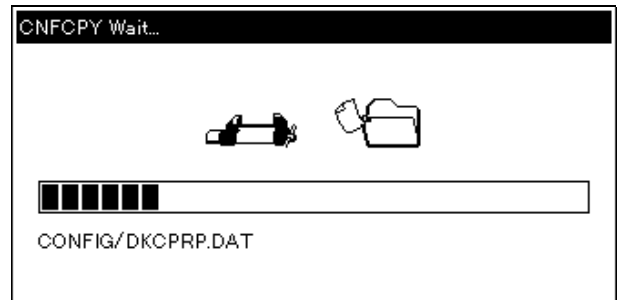
- (2) Select (CL) a button in ‘Copy Config Files’ (For detail, go to (3)).
Select (CL) [OK] in response to “Please insert the Config FD in the FDD.”.



‘CNFCPY Wait...’ window is displayed (This window may not be displayed.).

Select (CL) [OK] in response to “Please remove the Config FD.”.

Select (CL) [Exit] to finish this operation.



(3)

(3-1) 'Config Version Up'

• Automatic version up processing

- ① Select (CL) [Configuration Update].
- ② When OK "SVP is rebooted." is selected, SVP PC reboots.
- ③ After SVP PC starts, 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 [SVP02-1370](#)).
- ④ Select (CL) [MAINTENANCE] in the 'SVP' windows (See [SVP03-10](#)).

• Manual version up processing

- ① Select (CL) [Initial Information Files...].
Please remove config FD.
- ② Please reboot SVP PC.
- ③ Select (CL) [Define Information Files...].
Please remove config FD.
- ④ Select (CL) [Threshold Information Files...].
- ⑤ 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 [SVP02-1370](#)).
- ⑥ Select (CL) [MAINTENANCE] in the 'SVP' windows (See [SVP03-10](#)).

(3-2) 'Config Backup'

Select (CL) [Create Configuration Backup...].

(3-3) 'Define Configuration & Install'

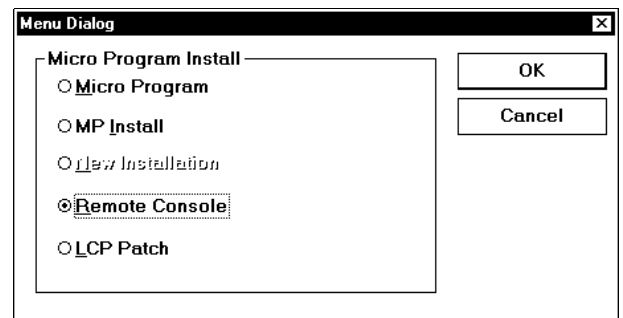
Select (CL) [All Configuration Files...] and execute 'Define Configuration & Install' (go to [INST05-80](#)).

9 Remote Console Program Install from SVP

9.1 Program Installation

- (1) Start the program install
Change the SVP mode to [Modify Mode] and start [Install].
Select (CL) [Micro Program Install] in the Install Screen.

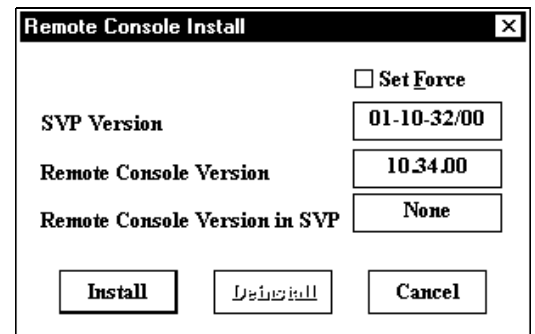
- (2) Select "Remote Console"
From the Micro Program Install, Select (CL) "Remote Console" and select (CL) [OK] button.



- (3) Remote Console Install Screen
SVP will display Remote Console Install Screen.

In this screen, there are three versions.

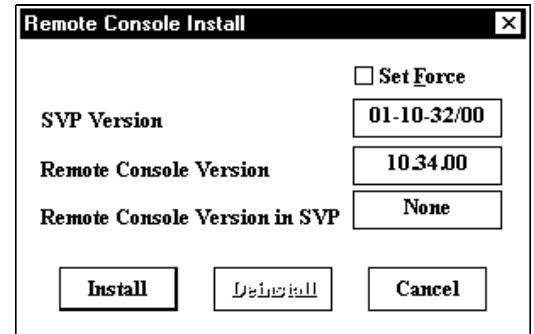
- (a) SVP Version
Current SVP Version
- (b) Remote Console Version
Remote Console version which is the most appropriate version against the current SVP version.
- (c) Remote Console Version in SVP
Remote Console version which has already been installed in the SVP. If the Remote Console program does not installed yet, SVP will display the column as "None".



- (4) Check the version
Check the Remote Console version to compare the appropriate version with the version which you want to install. If they are different, you could not install your remote console program. If your remote console program is the same as the appropriate version, go to (5), if others, go to (6) to install your program forcibly.

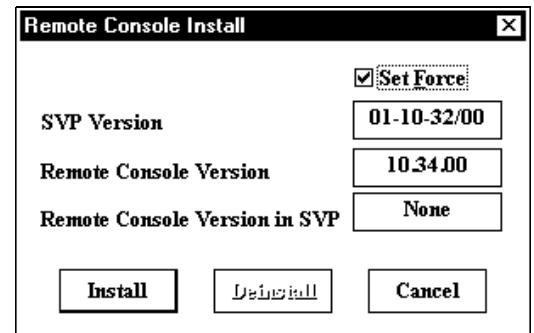
(5) Select Install

Select (CL) [Install] button. SVP will start the program installation. Go to (7).



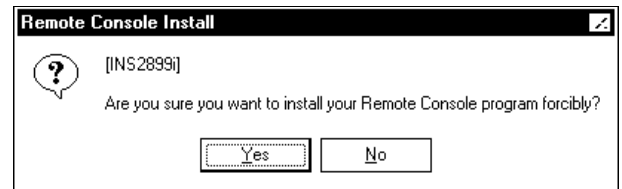
(6) Installation by forcibly

Select (CL) “Set Force” option flag and select (CL) [Install] button. SVP will start the program installation forcibly.



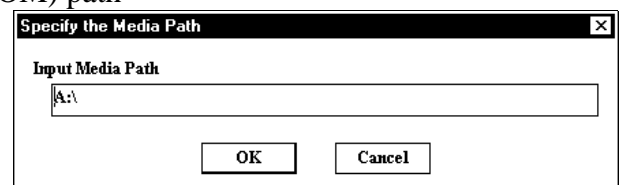
After, SVP will display the confirmation message so that you should check the contents and select (CL) [Yes].

Go to (7).



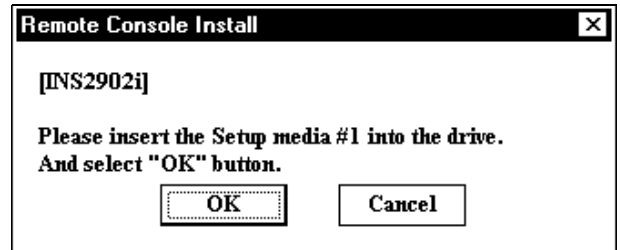
(7) Input the Remote Console Media (FD or CD-ROM) path

Input the Remote Console Media (FD or CD-ROM) path. SVP has already inputted the path by default value, “A:”. If you want to change, input the appropriate path. After checking the input value, select (CL) [OK] button.

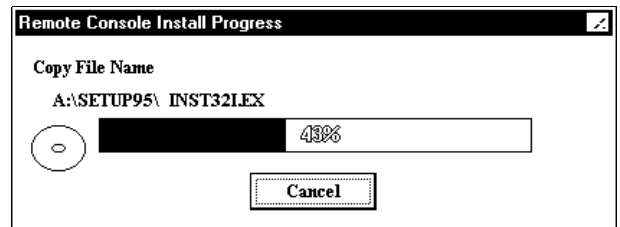


- In case of FD
Input “A:” (where A: is the floppy disk drive).
- In case of CD-ROM
Input “E:\program\rmc\rmcmain\” (where E: is the CD-ROM drive).

- (8) Input the Media (FD or CD-ROM)
SVP displays the Media (FD or CD-ROM) Number to insert the Media (FD or CD-ROM) drive. Insert the corresponding media into your inputted path at the (7) step and select (CL) [OK].

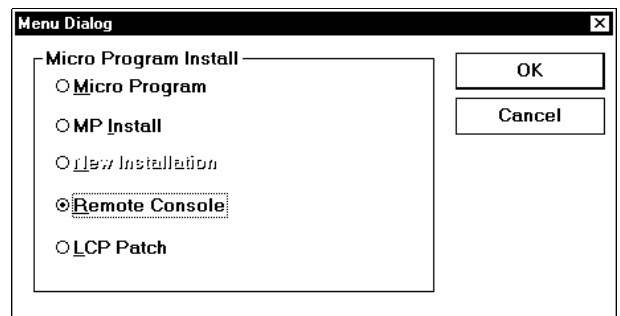


- (9) Start installation
SVP starts copying the program from the Media (FD or CD-ROM) to PC HDD.
- In case of FD;
After finishing the copy for one FD, SVP will display the message to change to the next FD. In this case, go back to (8) and insert the corresponding FD, and repeat (8) (9).

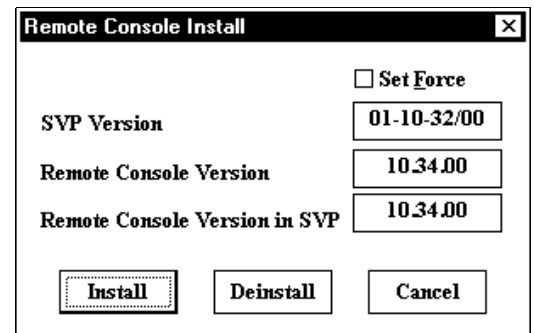


If the Media (FD or CD-ROM) are complete, SVP will finish this program.

- (10) Restart the install program to check
Select (CL) [Install] button and select (CL) [Micro Program Install]. In the “Micro Program Install”, select (CL) “Remote Console”.



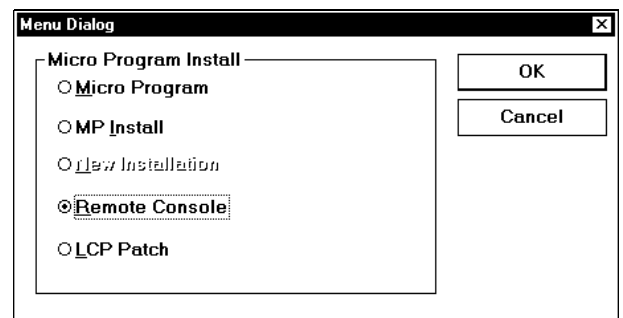
- (11) Confirm the installed version
SVP will display installed Remote Console version. Check the version in “Remote Console Version in SVP” column.
If the version is wrong, go to the next “Remote Console program de-install form SVP” to de-install the program, and retry the same install operations.



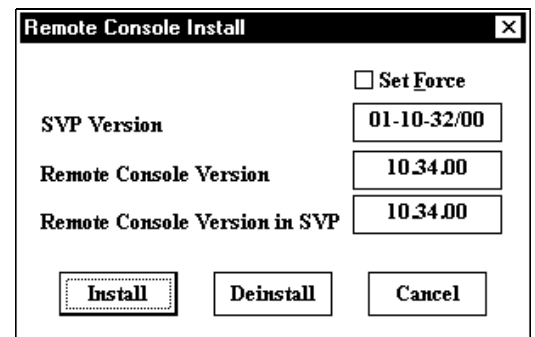
9.2 Program de-installation

- (1) Start the program install
Change the SVP mode to [Modify Mode] and start [Install].
Select (CL) [Micro Program Install] in the Install Screen.

- (2) Select "Remote Console"
From the Micro Program Install, Select (CL) "Remote Console" and select (CL) [OK] button.

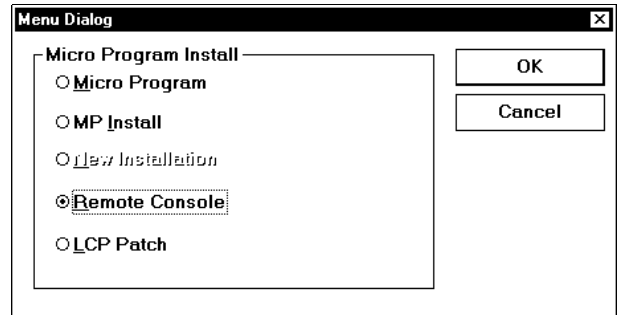


- (3) Remote Console Install Screen
SVP displays the installed Remote Console version in the Remote Console Install Screen.
Select (CL) [Deinstall] button.

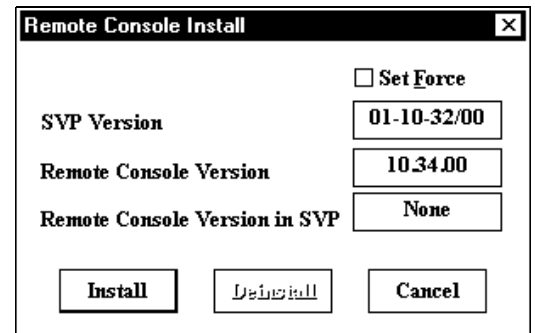


- (4) Complete message
After de-installing the remote console program, SVP will display the complete message.
Select (CL) [OK].

- (5) Re-start the function to check your operations
 Select (CL) [Install] and select (CL) [Micro Program Install] in the Install Screen. From the Micro Program Install, Select (CL) "Remote Console" and select (CL) [OK] button.



- (6) Confirm the de-installed result
 SVP will display Remote Console Install Screen. Check the "Remote Console Version in SVP" as "None". If the result is not "None", retry these de-install operations again.



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

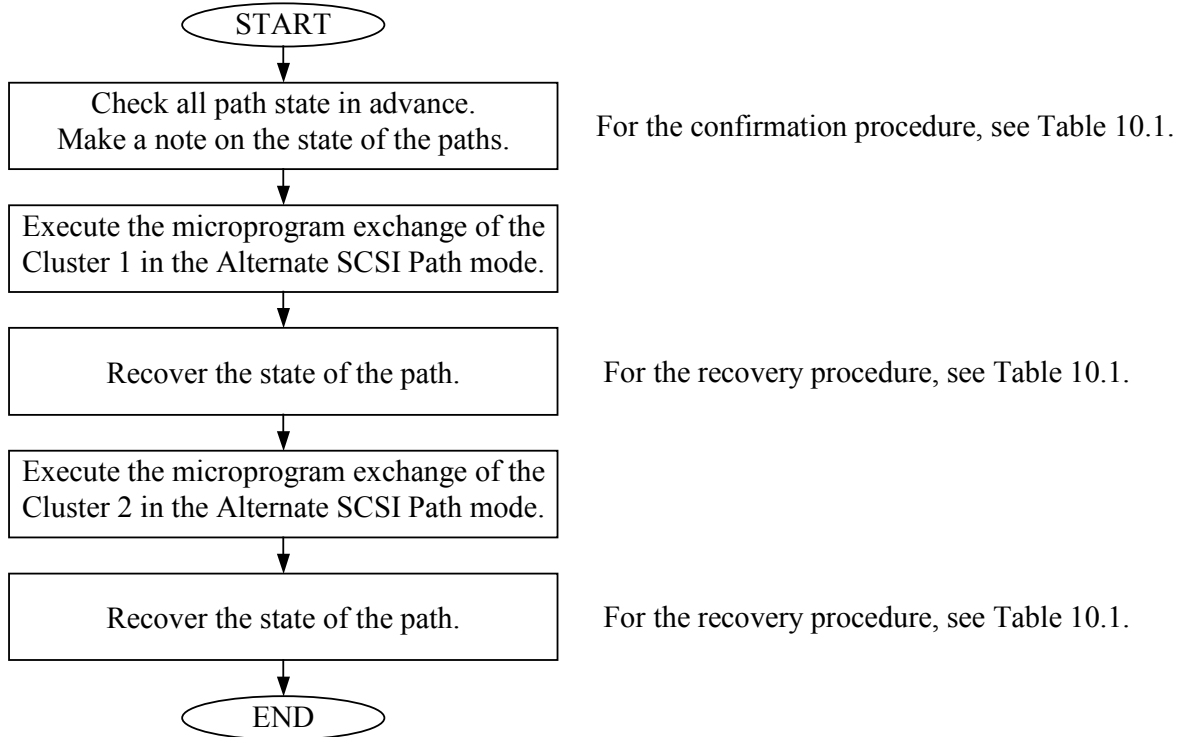
HP-UX, Solaris, AIX, and WindowsNT: Alternate SCSI Path mode

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, or WindowsNT, 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

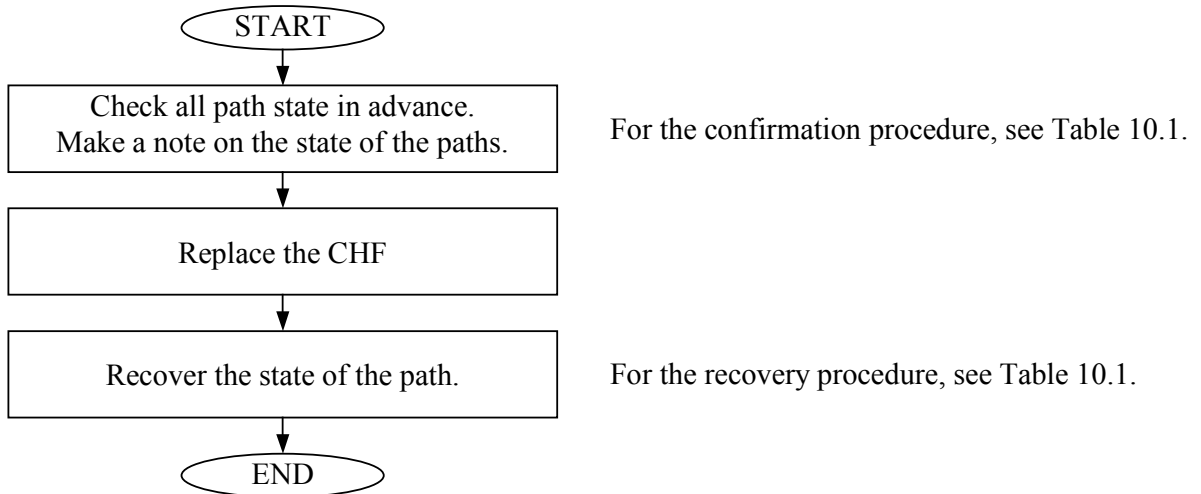


Table 10.1 Procedures for Confirming and Recovering Alternate Path State (1 of 6)

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 failback vmunix: LVM: Restored PV 0 to VG 19</p> <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"> • All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF. • DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <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 failback vmunix: WARNING: vpath4 path 2 on adapter 2 manually restored to service</p>	<p>Automatic recovery Display and confirm the path states (Pstates) of all the devices (LUs) by the “vgdisplay-v” command.</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"> • All NORMAL: All paths are in use. • 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.

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"> • All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF. • All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <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"> • All ONLINE : All paths are in use. • 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.

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"> • 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. • Enabled: After recording this state, execute the microprogram exchange or CHF replacement. <p>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.</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 failback vxvm:vxdmp: enabled path 32/0x17db8 belonging to the dmpnode 106/0x8</p>	<p>[VxVM DMP]</p> <p>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] Display and confirm the path states of all the devices (LUs) by the “display /dev/rdsk/ <i>cctxdxsx</i> “</p> <ul style="list-style-type: none"> • ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF. • OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <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 failback multipath status: optimal, path ··· to target address: WWN,7 is online</p>	<p>[SUN StorEdge Traffic Manager] Automatic recovery luxadm display /dev/rdsk/ <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
2	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"> • All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF. • DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <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>[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"> • All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF. • All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <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>[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"> • All NORMAL: All paths are in use. • 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. <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 - 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"> • All ONLINE : All paths are in use. • 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.

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

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
3	WindowsNT	<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"> • All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF. • DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <p>OPerform one of the following operations depending on the path state. (1) Path failover Kind : Error Source : Pathman EventID : 1 Explanation : Device \\Device\Harddiskxx\Partitionxx path 0 offline.</p> <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"> • All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF. • All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <p>OPerform one of the following operations depending on the path state. (1) Path failover dlmmgr:KAPL08019-E The path detected an error. Dimmgr: KAPL08022-E A path error occurred.</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"> • All NORMAL: All paths are in use. • 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. <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"> • All ONLINE : All paths are in use. • 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.

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

No.	Platform	Alternate path state confirmation procedure	Recovery procedure
4	AIX	<p>[Path Manager]</p> <p>Confirm the states of all adapters by using the “datapath query adapter” command.</p> <p>Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> • All NORMAL: All paths are in use. It is possible to exchange microprogram or replace CHF. • DEGRAD or FAILED: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover</p> <ul style="list-style-type: none"> Link Failure Software Program Error Disk Operation Error Error Log Buffer Over Flow Device Access Problem Adapter Error 	<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"> • All NORMAL: All paths are in use. • 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.
		<p>[HDLM]</p> <p>Confirm the states of all adapters by using the “dlnkmgr view –path” command.</p> <p>Perform one of the following operations depending on the Adapter State.</p> <ul style="list-style-type: none"> • All ONLINE: All paths are in use. It is possible to exchange microprogram or replace CHF. • All OFFLINE: The path is faulty. Recover the path failure, then set the path online according to the Recovery procedure. <p>○Perform one of the following operations depending on the path state.</p> <p>(1) Path failover</p> <ul style="list-style-type: none"> Link Failure Software Program Error Disk Operation Error 	<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 - 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"> • All ONLINE : All paths are in use. • 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.