INSTALLATION SECTION

Contents

1. Storage System Configuration Outline

1.1 General Information

1.1.1 Model List

(1) Model list of DW700
Table 1.1.1-1 shows the model list of DW700.

Table 1.1.1-1 Model List of DW700

No.	Model Number	Model Name	Major Part	Remarks
1	DW700-CBX	Controller Chassis	• CBX × 1 • MAIN Blade × 2 • MPB × 2 • SVP × 1 • DKCPS × 2 • Bezel × 1	This model name doesn't contain Power cables, CHB, DKB and Rack.
2	DW-F700-DBL	LFF Drive Box	• SBB × 1 • ENC × 2 • DBPS × 2 • SAS Cable (1m) × 2 • Bezel × 1	
3	DW-F700-DBS	SFF Drive Box	• SBB × 1 • ENC × 2 • DBPS × 2 • SAS Cable (1m) × 2 • Bezel × 1	
4	DW-F700-DBX	Drive Box (Dense)	• DENSE × 1 • ENC × 4 • DBPS × 4 • SAS Cable (3m) × 4 • Bezel × 1	(*1)
5	DW-F700-DBF	Flash Module Drive Box	• SBB × 1 • ENC × 2 • DBPS × 2 • SAS Cable (1m) × 2 • Bezel × 1	
6	DW-F700-RRCBR	Rack Rail of CBX	• Rail × 2	
7	DW-F700-RRDB	Rack Rail of DBS/DBL	• Rail × 2	

(To be continued)

*1: Up to six DBX (DENSE) can be installed in a rack. Up to five DBX can be installed in a rack when a DKC (CBX) is installed there.
Install the DBX at a height of 1,300mm or less above the ground (at a range between 2U and 26U).

(Continued from the preceding page)

No.	Model Number	Model Name	Major Part	Remarks
8	DW-F700-SC1	SAS Cable (1m)	• SAS Cable (1m) × 1	
9	DF-F850-SC3	SAS (ENC) Cable	• SAS Cable (3m) × 1	
10	DF-F850-SC5	SAS (ENC) Cable	• SAS Cable (5m) × 1	
11	DF-F850-4GB	Cache Memory (4GB)	• 4GB DIMM × 1	
12	DF-F850-8GB	Cache Memory (8GB)	• 8GB DIMM × 1	
13	DW-F700-16GB	Cache Memory (16GB)	• 16GB DIMM × 1	
14	DW-F700-BM160	Cache Flash Memory (160GB)	• CFM (80GB) × 2	
15	DW-F700-BM256	Cache Flash Memory (256GB)	• CFM (128GB) × 2	
16	DW-F700-BS6G	Backend I/O Module	• DKB × 1	
17	DW-F700-BS6GE	Encryption Backend I/O Module	• DKB × 1	
18	DF-F850-HF8GR	Host I/O Module (FC 8G)	• CHB × 1	
19	DW-F700-1US	FC SFP for 8Gbps Shortwave	• Fibre 8Gbps SFP (Shortwave) × 1	
20	DW-F700-1UL	FC SFP for 8Gbps Longwave	• Fibre 8Gbps SFP (Longwave) × 1	

(To be continued)

(Continued from the preceding page)

No	Model Number	Model Name	Major Part	Remarks
21	DF-F850-3HGSSH	Drive (300GB SAS SFF)	• 300GB/15k/6Gbps/ SAS-HDD × 1	For DBS
22	DF-F850-6HGSS	Drive (600GB SAS SFF)	• 600GB/10k/6Gbps/ SAS-HDD × 1	For DBS
23	DF-F850-9HGSS	Drive (900GB SAS SFF)	• 900GB/10k/6Gbps/ SAS-HDD × 1	For DBS
24	DF-F850-12HGSS	Drive (1.2TB SAS SFF)	• 1.2TB/10k/6Gbps/ SAS-HDD × 1	For DBS
25	DF-F850-3TNL	Drive (3TB SAS LFF)	• 3TB/7.2k/6Gbps/ SAS-HDD × 1	For DBL
26	DF-F850-4TNL	Drive (4TB SAS LFF)	• 4TB/7.2k/6Gbps/ SAS-HDD × 1	For DBL
27	DF-F850-3TNX	Drive (3TB SAS LFF)	• 3TB/7.2k/6Gbps/ SAS-HDD × 1	For DBX
28	DF-F850-4TNX	Drive (4TB SAS LFF)	• 4TB/7.2k/6Gbps/ SAS-HDD × 1	For DBX
29	DF-F850-2HGDM	Drive (200GB SAS SSD SFF)	• 200GB/6Gbps/SSD × 1	For DBS
30	DF-F850-4HGDM	Drive (400GB SAS SSD SFF)	• 400GB/6Gbps/SSD × 1	For DBS
31	DF-F850-8HGDM	Drive (800GB SAS SSD SFF)	• 800GB/6Gbps/SSD × 1	For DBS
32	DKC-F710I-1R6FM	1.6TB Flash Module Drive	• 1.6TB/6Gbps/SSD × 1	For DBF
33	DKC-F710I-3R2FM	3.2TB Flash Module Drive	• 3.2TB/6Gbps/SSD × 1	For DBF

(2) Disk drive model

SVP displays each drive model as the following table.

Disk drive model	SVP screen	Drive Form Factor
DKS5C-K300SS	DKS5C-K300SS	2.5 inch SAS HDD
DKR5C-J600SS	DKR5C-J600SS	2.5 inch SAS HDD
DKR5D-J600SS	DKR5D-J600SS	2.5 inch SAS HDD
DKS5D-J600SS	DKS5D-J600SS	2.5 inch SAS HDD
DKS5E-J600SS	DKS5E -J600SS	2.5 inch SAS HDD
DKR5D-J900SS	DKR5D-J900SS	2.5 inch SAS HDD
DKS5D-J900SS	DKS5D-J900SS	2.5 inch SAS HDD
DKS5E-J900SS	DKS5E-J900SS	2.5 inch SAS HDD
DKR5E-J1R2SS	DKR5E-J1R2SS	2.5 inch SAS HDD
SLB5A-M200SS	SLB5A-M200SS	2.5 inch SSD
SLR5B-M200SS	SLR5B-M200SS	2.5 inch SSD
SLB5A-M400SS	SLB5A-M400SS	2.5 inch SSD
SLR5B-M400SS	SLR5B-M400SS	2.5 inch SSD
SLB5A-M800SS	SLB5A-M800SS	2.5 inch SSD
NFH1A-P1R6SS	NFH1A-P1R6SS	Flash Module Drive
DKR2D-H3R0SS	DKR2D-H3R0SS	3.5 inch SAS HDD
DKS2D-H3R0SS	DKS2D-H3R0SS	3.5 inch SAS HDD
DKR2E-H3R0SS	DKR2E-H3R0SS	3.5 inch SAS HDD
DKS2E-H3R0SS	DKS2E-H3R0SS	3.5 inch SAS HDD
NFH1B-P3R2SS	NFH1B-P3R2SS	Flash Module Drive
DKR2E-H4R0SS	DKR2E-H4R0SS	3.5 inch SAS HDD
DKS2E-H4R0SS	DKS2E-H4R0SS	3.5 inch SAS HDD

(3) SVP screen display and conversion table of option type names

• SVP screen display of CHB

Model Number	SVP screen
DF-F850-HF8GR	HF8GR (CHB)

• SVP screen display of DKB

Model Number	SVP screen
DW-F700-BS6G	BS6G (DKB)
DW-F700-BS6GE	BS6GE (DKB)

• SVP screen display of Cache memory

Model Number	SVP screen
DF-F850-4GB	4GB
DF-F850-8GB	8GB
DW-F700-16GB	16GB

1.1.2 Configuration

1.1.2.1 CHB Option Installation Rule

The CHB options can be installed also in the DKB slots in addition to the CHB slots in DW700. After the dedicated CHB slots are fully installed, the CHB options can be installed in the DKB slots.
The order of CHB installation is shown below.

Table 1.1.2.1-1 CHB Installation Rule

Installation Order	Installation Slot Location	
	Diskless Model	Disk-in Model
1	1A/2A (CHB-1A/2A)	1A/2A (CHB-1A/2A)
2	1B/2B (CHB-1B/2B)	1B/2B (CHB-1B/2B)
3	1C/2C (CHB-1C/2C)	1C/2C (CHB-1C/2C)
4	1D/2D (CHB-1D/2D)	1D/2D (CHB-1D/2D)
5	1E/2E (CHB-1E/2E)	—
6	1F/2F (CHB-1F/2F)	—

1.1.2.2 Cache Memory Installation Rule

Cache Memory (CM-DIMM) is installed in the MAIN Blades (MAIN).
The data of Shared Memory, to which the storage system configuration information is written, is saved in Cache Memory in DW700. Shared Memory capacity plus Cache Memory capacity equals Total Cache Memory Capacity necessary for the storage system. Shared Memory capacity must be allocated to CMG0 (Cache Memory Group 0).

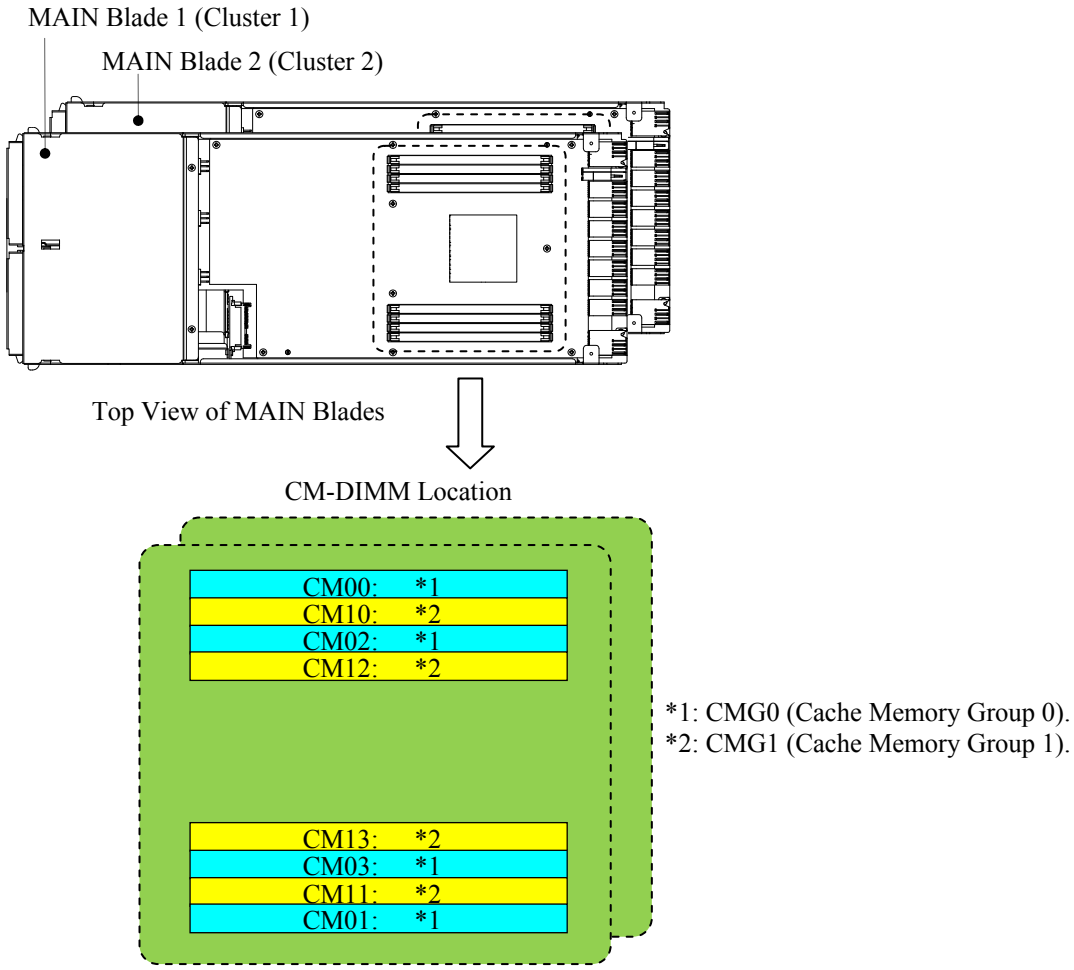


Fig. 1.1.2.2-1 CM-DIMM Location

Table 1.1.2.2-1 Total Cache Memory Capacity

No.	Total Cache Memory Capacity	Pattern of the combination				Number of option				
		MAIN1		MAIN2		DF-F850-		DW-F700-		
		CMG0 (*1)	CMG1	CMG0 (*1)	CMG1	4GB	8GB	16GB	BM160	BM256
1	32GB	16GB	0	16GB	0	8	0	0	1 (*2)	0
2	64GB	16GB	16GB	16GB	16GB	16	0	0	1 (*2)	0
3	64GB	32GB	0	32GB	0	0	8	0	1 (*2)	0
4	96GB	32GB	16GB	32GB	16GB	8	8	0	1 (*2)	0
5	96GB	16GB	32GB	16GB	32GB	8	8	0	1 (*2)	0
6	128GB	32GB	32GB	32GB	32GB	0	16	0	1 (*2)	0
7	128GB	64GB	0	64GB	0	0	0	8	1 (*2)	0
8	160GB	64GB	16GB	64GB	16GB	8	0	8	1 (*2)	0
9	160GB	16GB	64GB	16GB	64GB	8	0	8	1 (*2)	0
10	192GB	64GB	32GB	64GB	32GB	0	8	8	0	1
11	192GB	32GB	64GB	32GB	64GB	0	8	8	0	1
12	256GB	64GB	64GB	64GB	64GB	0	0	16	0	1

*1: The required SM capacity must be installed in CMG0.

*2: The DW-F700-BM256 also can be used instead of the DW-F700-BM160.

1.1.2.3 Drive Installation Order

1. In Case of Drive Box (DBS)
   Drives are installed in 00 to 23 in order.

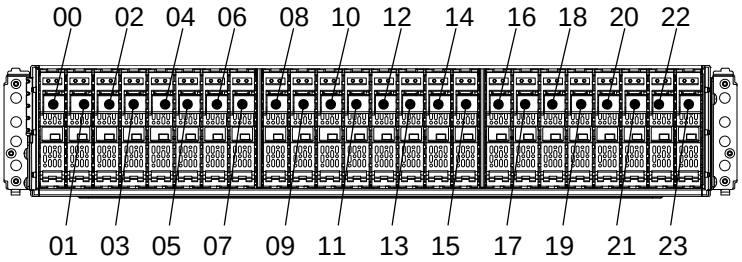


Fig. 1.1.2.3-1 Drive Location of Drive Box (DBS)

2. In Case of Drive Box (DBL)
   Drives are installed in 00 to 11 in order.

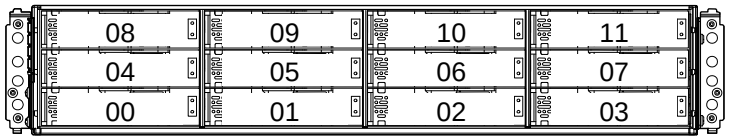


Fig. 1.1.2.3-2 Drive Location of Drive Box (DBL)

3. In Case of Drive Box (DBX)
   The Drive Box (DBX) is divided into individual right and left drive boxes.
   The number of the left drive box is smaller.
   Drives are installed in 00 to 23 in order.

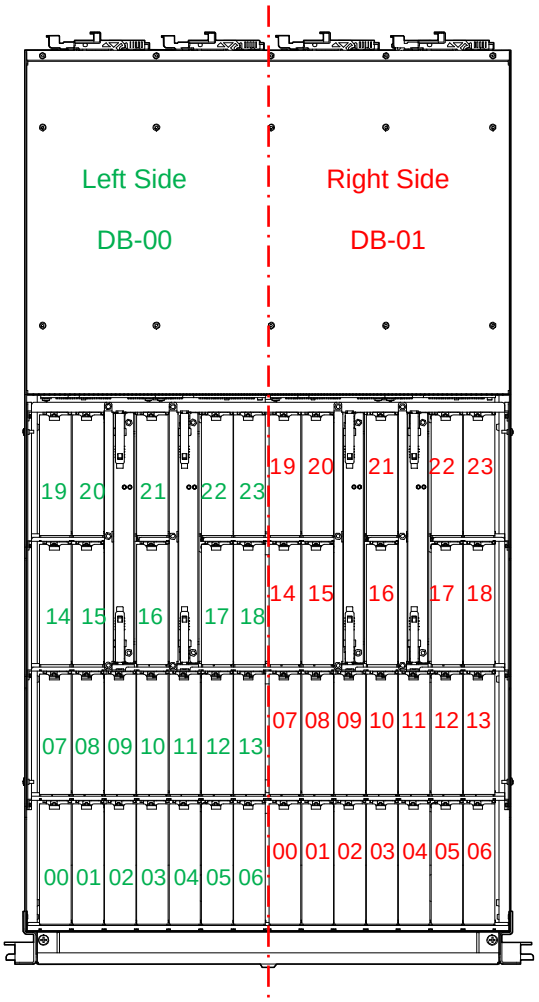


Fig. 1.1.2.3-3 Drive Location of Drive Box (DBX)

4. In Case of Drive Box (DBF)
   Drives are installed in 00 to 11 in order.

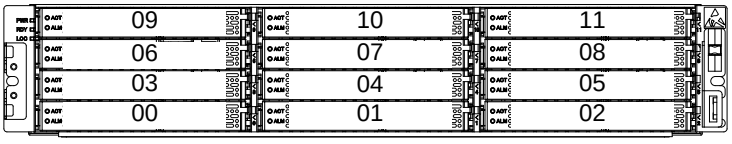


Fig. 1.1.2.3-3A Drive Location of Drive Box (DBF)

5. Connection of DKB to Drive Box
   The DKB and the Drive Box connections are shown below.

DKB-1E/2E port 0 → DB-00 → DB-04 → DB-08 → → → DB-36 → DB-40 → DB-44
DKB-1E/2E port 1 → DB-01 → DB-05 → DB-09 → → → DB-37 → DB-41 → DB-45
DKB-1F/2F port 0 → DB-02 → DB-06 → DB-10 → → → DB-38 → DB-42 → DB-46
DKB-1F/2F port 1 → DB-03 → DB-07 → DB-11 → → → DB-39 → DB-43 → DB-47

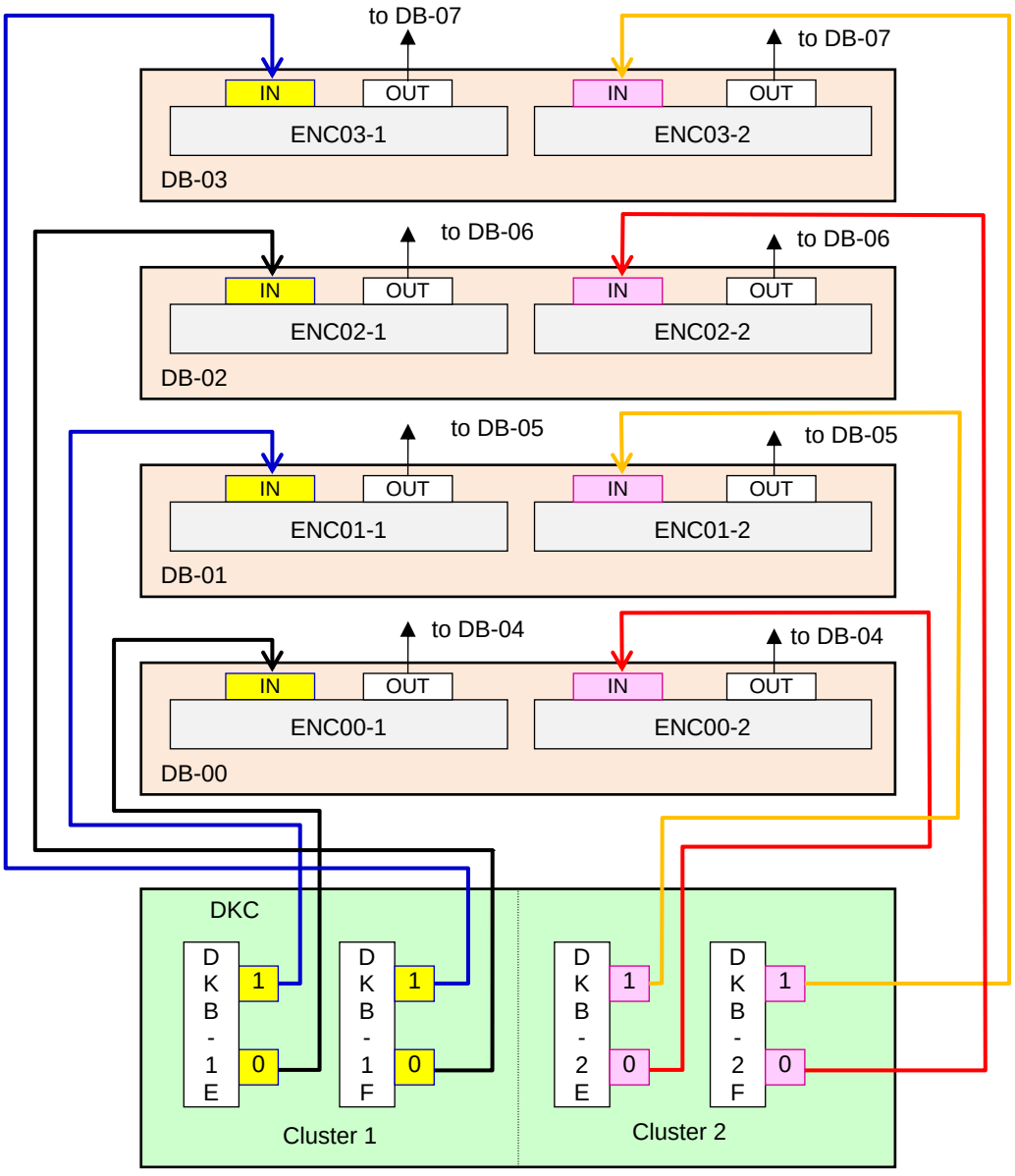


Fig. 1.1.2.3-4 Connection outlines of DKB to Drive Box (DBL/DBS/DBF)

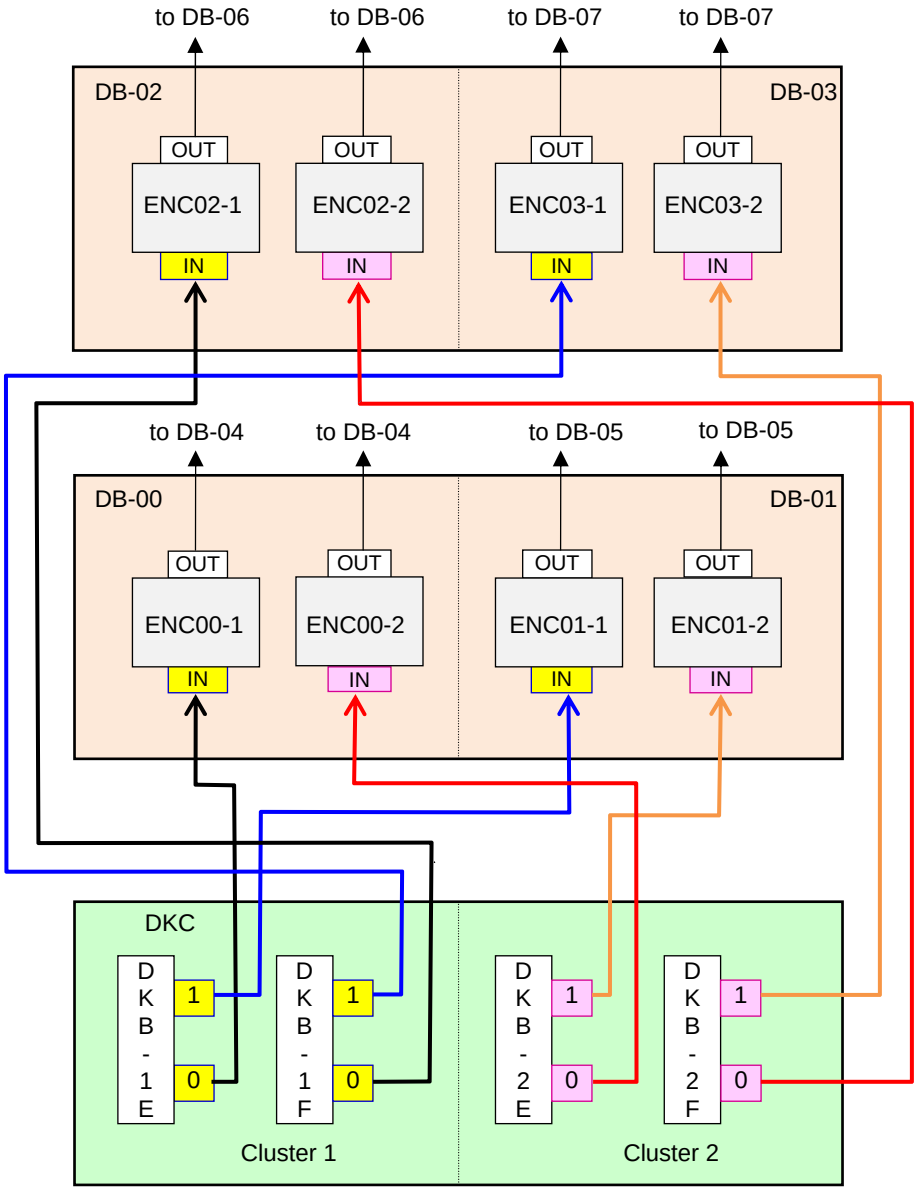


Fig. 1.1.2.3-5 Connection outlines of DKB to Drive Box (DBX)

1.1.2.4 Rough time of installation

Rough time of RAID Group installation becomes addition of the following A, B, C, D, and E.

Table 1.1.2.4-1 Rough time of installation

	process	time	note
A	Chassis setting time	90min / 1chassis	
B	HDD setting time	5min / 1ECC	
C	Micro code overhead for Path initialization	90sec × (The number of of existing chassis + number of increase chassis)	
D	Micro code over head for HDD spin up	20sec × (number of increase HDD)	
E	LDEV Formatting time	Refer to Theory3.9	

1.1.2.5 Notes for Installing Flash Drives

The flash drive that can be controlled with the storage system is 128 drives or less. (exclusive of the spare drive)
However, the flash drive that can be controlled with one port of the disk blade (DKB) is 32 drives or less.

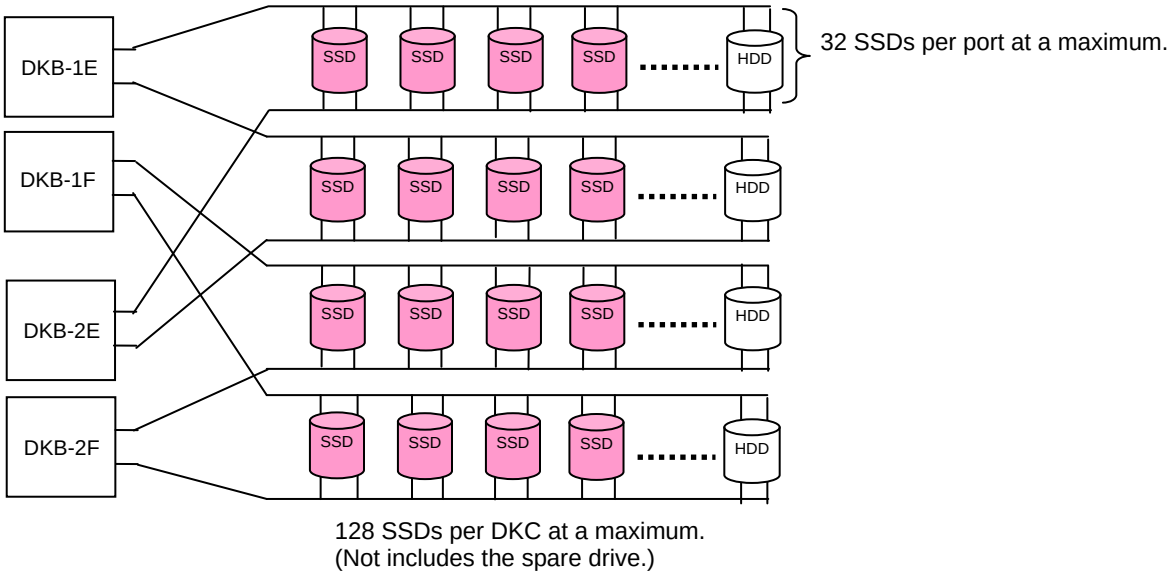


Fig. 1.1.2.5-1 Flash Drive Install Specifications

1.1.2.6 Notes for Installing Flash Module Drive Box

Up to two DW-F700-DBF (Flash Module Drive Box) can be connected to the DKC.

Table 1.1.2.6-1 Maximum Number of Installable DW-F700-DBF and FMD

DKC type	Maximum number of connectable DW-F700-DBF	Maximum number of installable FMD (including spare drives)
DKC (CBX)	8	96

1.1.3 Specifications

(1) Physical Specifications

The DW700 physical specifications are shown in the following table:

Table 1.1.3-1 DW700 Physical Specifications

No.	Model Number	Weight (kg)	Heat Output (W)	Power Consumption (VA)	Dimension (mm)			Air Flow (m^3/min)
					Width	Depth	Height	
1	DW700-CBX	62.4	440 (*1)	464 (*1)	480	838	217	3.7
2	DW-F700-DBS	20	148 (*1)	156 (*1)	481	538	87	2.2
3	DW-F700-DBL	20	134 (*1)	142 (*1)	481	538	87	2.2
4	DW-F700-DBX	52	586 (*1)	617 (*1)	478	845	176	5.8
5	DW-F700-DBF	19.3	150 (*1)	160 (*1)	483	720	87	1.6
6	DW-F700-RRCBR	4.8	—	—	—	—	—	—
7	DW-F700-RRDB	2.0	—	—	—	—	—	—
8	DW-F700-SC1	0.2	—	—	—	—	—	—
9	DW-F700-BS6G	0.5	20	21	—	—	—	—
10	DW-F700-BS6GE	0.5	20	21	—	—	—	—
11	DW-F700-BM160	0.32	5 (*2)	5 (*2)	—	—	—	—
12	DW-F700-BM256	0.32	5 (*2)	5 (*2)	—	—	—	—
13	DW-F700-1UL	0.02	—	—	—	—	—	—
14	DW-F700-1US	0.02	—	—	—	—	—	—
15	DF-F850-SC3	0.4	—	—	—	—	—	—
16	DF-F850-SC5	0.8	—	—	—	—	—	—
17	DF-F850-HF8GR	0.6	10	11	—	—	—	—
18	DF-F850-4GB	0.02	3	3	—	—	—	—
19	DF-F850-8GB	0.02	4	4	—	—	—	—
20	DW-F700-16GB	0.02	4	4	—	—	—	—
21	DF-F850-3HGSSH	0.3	7.9 (*3)	7.9 (*3)	—	—	—	—
22	DF-F850-6HGSS	0.3	7.8 (*3)	7.8 (*3)	—	—	—	—
23	DF-F850-9HGSS	0.3	8.1 (*3)	8.1 (*3)	—	—	—	—
24	DF-F850-12HGSS	0.3	8.1 (*3)	8.1 (*3)	—	—	—	—
25	DF-F850-2HGDM	0.25	5.5 (*3)	5.5 (*3)	—	—	—	—
26	DF-F850-4HGDM	0.25	5.8 (*3)	5.8 (*3)	—	—	—	—
27	DF-F850-8HGDM	0.13	6.7 (*3)	7.1 (*3)	—	—	—	—
28	DF-F850-3TNL	0.8	13.4 (*3)	13.4 (*3)	—	—	—	—
29	DF-F850-4TNL	0.8	14.0 (*3)	14.0 (*3)	—	—	—	—
30	DF-F850-3TNX	0.9	13.4 (*3)	13.4 (*3)	—	—	—	—
31	DF-F850-4TNX	0.9	14.0 (*3)	14.0 (*3)	—	—	—	—
32	DKC-F710I-1R6FM	1.4	17 (*3)	18 (*3)	—	—	—	—
33	DKC-F710I-3R2FM	1.4	18 (*3)	19 (*3)	—	—	—	—

*1: Maximum values in case all the fans rotate at maximum.
*2: Power is consumed during the battery backup time only.
*3: Actual values at a typical I/O condition.
• Random Read and Write: 50 IOPSs for HDD, 2500 IOPSs for SSD/FMD.
• Data Length: 8 K bytes.
These values may increase for future compatible drives.

1.1.4 Environmental Specifications

The environmental specifications are shown in the following table.

Table 1.1.4-1 Environmental Specifications

Item	Condition		
	Operation (*1)	Non-operation (*2)	Transportation, storage (*3)
Temperature range (ºC)	10 to 40 (*5) 10 to 35 (*6)	-10 to 50 -10 to 35 (*7)	-30 to 60 -10 to 35 (*7)
Relative humidity (%) (*4)	8 to 80	8 to 80	5 to 95
Maximum wet-bulb temperature (ºC)	29	29	29
Temperature gradient (ºC/hour)	10	10	10
Dust	Below 0.15mg/m^3	—	—
Altitude	-60m to 3,000m	-60m to 12,000m	-60m to 12,000m

*1: Environmental conditions of operation should be completed before switch on a system.
*2: “Non-operation” includes conditions of both packing and unpacking.
*3: Transportation and storage should be conducted in the packing of initial shipping.
*4: No dew condensation.
*5: For Controller Chassis and Drive Box (SFF/LFF).
*6: For Drive Box (DENSE) and Flash Module Drive Box.
*7: For Flash Module Drive (for DBF).

Table 1.1.4-2 Mechanical Environmental Specifications

Item	In operation	In non-operation
Guaranteed value to vibration	Below 2.45m/s^2 (0.25G)	Below 3.9m/s^2 (0.4G) : No critical damage for product function. (Normal operating with part replacement)
		Below 9.8m/s^2 (1.0G) : Ensure own safety with fall prevention.
Guaranteed value to impact	No impact	78.4m/s^2 (8.0G), 15ms
Guaranteed value to seismic wave	Below 2.45m/s^2 (0.25G) (250gal approx.)	Below 3.9m/s^2 (0.4G) (400gal) : No critical damage for product function. (Normal operating with part replacement) Below 9.8m/s^2 (1.0G) (1000gal) : Ensure own safety with fall prevention.

1.1.5 Power requirement

Specifications of the power facilities necessary to supply power to the storage system are shown below.

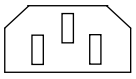
1. Input Voltage and Input Frequency Requirements
   The input voltage and input frequency are as follows.

Table 1.1.5-1 Requirements for Input Voltage and Input Frequency

Frequency	Input Voltages (AC)	Conditions	Tolerance (%)
60Hz ± 2Hz	200V - 240V	1 Phase 2 Wire + Ground	+6% or -8%
50Hz ± 3Hz	200V - 240V	1 Phase 2 Wire + Ground	+6% or -8%

2. Circuit Breaker and Plug
   Select a circuit breaker and a plug for the system configuration according to the specification of following table.

Table 1.1.5-2 Input Power Specifications

Item	Input Power	Input Current (*1)	Steady Current (*2)	Leakage Current	Inrush Current			Power Cord Plug Type
					1st (0-p)	2nd (0-p)	1st (0-p) Time (-25%)	
DKC PS	1-phase, AC200V to AC240V	3.81A	1.91A	0.28mA	25A	20A	150ms	IEC60320 C14 
DBL PS		2.07A	1.04A	1.75mA	25A	20A	150ms	
DBS PS		2.61A	1.31A	1.75mA	25A	20A	150ms	
DBX PS		4.03A	2.02A	0.87mA	30A	30A	150ms	
DBF PS		2.6A	1.3A	0.28mA	20A	15A	80ms	

*1: The maximum current in case AC input is not a redundant configuration (in case of 184V [200V -8%]).

*2: The maximum current in case AC input is a redundant configuration (in case of 184V [200V -8%]).

3. Choice of PDU
   Use the PDU with the circuit breaker.
   When using the PDU without a circuit breaker, the current specification of the PDU must be the same as the circuit breaker rating of PDP.

1.1.6 Facility grounding check

The storage system must meet all of the following three conditions of installation for GROUNDING.

a. An insulated grounding conductor that is identical in size and insulation material and thickness to the grounded and ungrounded branch-circuit supply conductors. It should be green, with or without yellow stripes, and is to be installed as a part of the branch circuit that supplies the unit or system.

b. The grounding conductor mentioned in item (a.), should be grounded to earth at the service equipment or other acceptable building earth ground such as the building frame in the case of a high rise steel-frame structure.

c. The attachment-plug receptacles in the vicinity of the unit or system are all to be a grounding type. The grounding conductors serving these receptacles should be connected to earth ground at the service equipment or other acceptable building earth ground such as the building frame in the case of a high-rise steel-frame structure.

2. Installation and De-installation procedure

2.1 New Installation Procedure Table

NOTE: Perform the new installation in numerical order shown in the following table. Proceed to the next work neglecting unnecessary ones.

When installing storage system for the first time, perform all hardware installation procedures before initiating the installation through SVP procedure. Neglect an unnecessary work and proceed to the next work.
If any problems arise during the following procedure, isolate failure part with analysis of SIM log or SSB log. If neither SIM log nor SSB log has been created, re-check the general procedure and see TROUBLE SHOOTING SECTION.

Precaution on New Installation

Table 2.1-1 New Installation Procedure Table

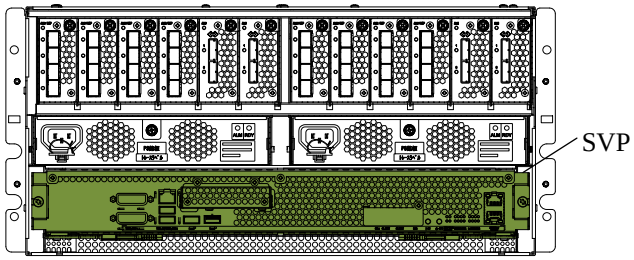
No.	Working Item	Model Number	Page
1	Unpacking and Inspection	—	INST03-02-10 through 20
2	Rack Frame Installation	—	—
3	Controller Chassis Installation (DW700-CBX)	←	INST03-03-10 through 110
4	Drive Chassis Installation (DW-F700-DBL/DBS/DBX/DBF)		INST03-04-10 through 620
5	Channel Blade Installation (DF-F850-HF8GR)	HF8GR	INST03-05-10 through 140 (Only Hardware Procedure)
6	Changing of Fibre SFP Transceiver (DW-F700-1UL/1US)	←	INST03-06-10 through 70
7	Cache Memory Installation (DF-F850-4GB/8GB, DW-F700-16GB/BM160/ BM256)	←	INST03-07-10 through 290 (Only Hardware Procedure)
8	SAS Cable, Disk Blade and Drive Installation (DW-F700-BS6G/BS6GE/SC1, DF-F850-SC3/SC5/ 3HGSSH/6HGSS/9HGSS/12HGSS/3TNL/4TNL/ 3TNX/4TNX/2HGDM/4HGDM/8HGDM, DKC-F710I-1R6FM/3R2FM)	←	INST03-08-10 through 03-08C-640 (Only Hardware Procedure)

(To be continued.)

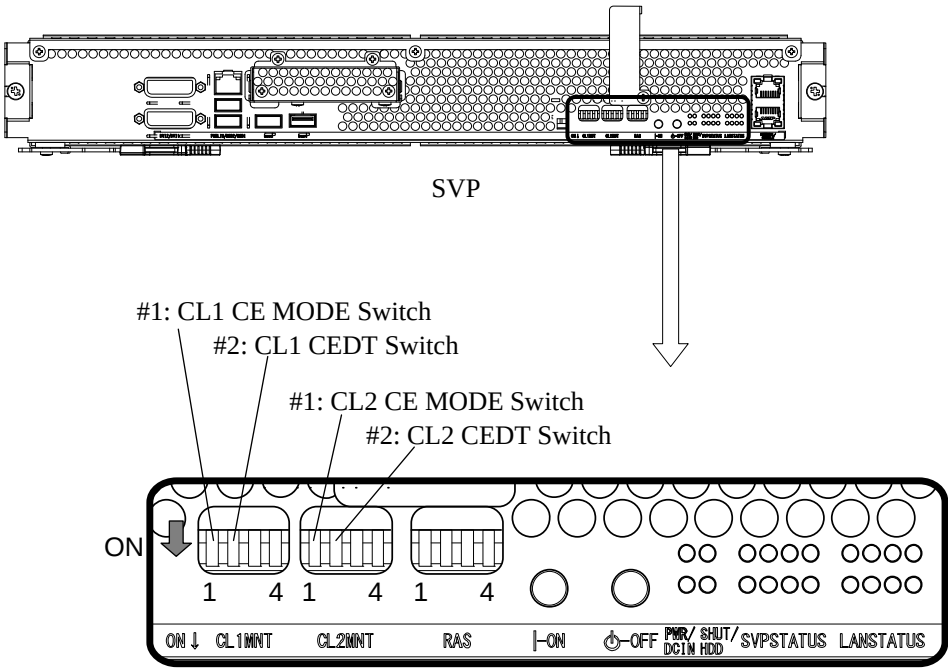
(Continued from preceding sheet.)

No.	Working Item	Model Number	Page
9	SVP “New Installation” Procedure	—	INST02-200
10	END	—	—

NOTE: The settings of the CE Mode switch (CEMD and CEDT).



Rear View of DKC



2.2 Non-Disruptive Installation Procedure Table

NOTE: A serious failure will occur if the works are not done in numerical order shown in the table.
Perform the non-disruptive addition of the options in numerical order (from No.1 to No.18) shown in the table below. Neglect an unnecessary work and proceed to the next work.

Install additional non-disruptive options according to the flow shown below. This work is completed by installing additional hardware for each option and performing SVP-controlled installation.
If a fault occurs during or after additional installation, see INST02-100 to locate a faulty unit and take action. If any other message than the list is displayed, see the SVP MESSAGE SECTION.

Precautions on Non-Disruptive Installation

- "Non-Disruptive" means that the storage system is connected to the host (OS). Non-Disruptive Installation shall be done with the storage system power ON. However, the storage system may be disconnected from the host (OS).

Table 2.2-1 Non-Disruptive Installation Procedure Table

No.	Working Item	Model Number	Page
1	Display the SVP initial screen	←	SVP01-10 through
2	Confirm the micro-version	—	OPTVER01-10
3	Rack Frame Installation	—	—
4	Controller Chassis Installation (DW700-CBX)	←	INST03-03-10 through 110
5	Cache Memory Installation (DF-F850-4GB/8GB, DW-F700-16GB/BM160/ BM256)	←	INST03-07-10 through 290
6	Installation of SM Size without adding Cache Memory (*1)	←	INST03-12-10 through 60
7	Channel Blade Installation (DF-F850-HF8GR)	HF8GR	INST03-05-10 through 140
8	Changing of Fibre SFP Transceiver (DW-F700-1UL/1US)	←	INST03-06-10 through 70

(To be continued.)

(Continued from preceding sheet.)

No.	Working Item	Model Number	Page
9	Drive Box Installation (DW-F700-DBL/DBS/DBX/DBF) Perform the installation of the Extension Rack, and connection of the power cable.		INST03-04-10 through 620
10	Turn on the PDU breaker installed in the increased RACK.	—	INST03-09-30
Note	**Caution: When performing addition of the data/spare Drive, DKB and SAS Cable that accompanies the addition of the DB, perform the works No. 3, 9, and 10 beforehand.**		
11	SAS Cable, Disk Blade and Drive Installation (DW-F700-BS6G/BS6GE/SC1, DF-F850-SC3/SC5/ 3HGSSH/6HGSS/9HGSS/12HGSS/3TNL/4TNL/ 3TNX/4TNX/2HGDM/4HGDM/8HGDM, DKC-F710I-1R6FM/3R2FM)	←	INST03-08-10 through 08C-640
12	END	—	—

*1: The function is only available when CM is in full configuration as follows.
2 sets of DF-F850-4GBs, DF-F850-8GBs or/and DW-F700-16GBs are installed.

2.3 Non-Disruptive De-installation Procedure Table

NOTE: A serious failure occurs if the works are not done in numerical order shown in the table.
Perform the non-disruptive removal of the options in numerical order (from No.1 to No.9) shown in the table below. Neglect an unnecessary work and proceed to the next work.

This work is completed by removing hardware for each option and performing SVP-controlled removal.
When De-Installation has been all done, make sure that all the removed units are displayed as "empty" and that the other units are normal. (See the SVP SECTION.)
If a fault occurs during or after removal, see INST02-150 to locate a faulty unit and take action. If any other message than the list is displayed, see the SVP MESSAGE SECTION.

Precautions on Non-Disruptive De-Installation

- "Non-Disruptive" means that the storage system is connected to the host (OS). Non-Disruptive De-Installation shall be done with the storage system power ON. However, the storage system may be disconnected from the host (OS).

Table 2.3-1 Non-Disruptive De-installation Procedure Table

No.	Working Item	Model Number	Page
1	Display the SVP initial screen	←	SVP01-10 through
2	SAS Cable, Disk Blade and Drive De-Installation (DW-F700-BS6G/BS6GE/SC1, DF-F850-SC3/SC5/ 3HGSSH/6HGSS/9HGSS/12HGSS/3TNL/4TNL/ 3TNX/4TNX/2HGDM/4HGDM/8HGDM, DKC-F710I-1R6FM/3R2FM)	←	INST04-01-10 through 01C-420
Note	**Proceed to the work No.3 after performing the work No.2. The system goes down if the power supply of the Drive Box to be removed in the work No.3 is turned off without performing an option removal work, that is, the work No.2.**		
3	Drive Box De-Installation (DW-F700-DBL/DBS/DBX/DBF)	←	INST04-02-10 through 470
4	Channel Blade De-Installation (DF-F850-HF8GR)	HF8GR	INST04-04-10 through 130
5	Changing of Fibre SFP Transceiver (DW-F700-1UL/1US)	←	INST03-06-10 through 70
6	Cache Memory De-Installation (DF-F850-4GB/8GB, DW-F700-16GB/BM160/ BM256)	←	INST04-03-10 through 300
7	De-Installation of SM Size without removing Cache Memory (*1)	←	INST04-06-10 through 60

(To be continued.)

(Continued from preceding sheet.)

No.	Working Item	Model Number	Page
8	Controller Chassis De-Installation (DW700-CBX)	←	INST04-05-10 through 80
9	Rack Frame De-Installation	—	—
10	END	—	—

*1: The function is only available when CM is in full configuration as follows.
2 sets of DF-F850-4GBs, DF-F850-8GBs or/and DW-F700-16GBs are installed.

2.4 Disruptive Installation Procedure Table

NOTE: Perform the disruptive de-installation of options in numerical order shown in the following table. Proceed to the next work neglecting unnecessary ones.

If a fault occurs during or after additional installation, see INST02-100 to locate a faulty unit and take action. If any other message than the list is displayed, see the SVP MESSAGE SECTION.

Precautions on Disruptive Installation

- "Disruptive" means that the storage system is disconnected from the host (OS). Disruptive Installation shall be done with the storage system power OFF.

Table 2.4-1 Disruptive Installation Procedure Table

No.	Working Item	Model Number	Page
1	Display the SVP initial screen	←	SVP01-10 through
2	Confirm the micro-version	—	OPTVER01-10
3	POWER OFF of Storage system	—	INST03-09-50 through 60
4	POWER ON of Storage system	—	INST03-09-10 through 20
5	END	—	—

2.5 Disruptive De-installation Procedure Table

NOTE: Perform the disruptive de-installation of options in numerical order shown in the following table. Proceed to the next work neglecting unnecessary ones.
Remove additional disruptive options according to the flow shown below.

When De-Installation has been all done, make sure that all the removed units are displayed as "empty" and that the other units are normal. (See the SVP SECTION.)
If a fault occurs during or after removal, see INST02-150 to locate a faulty unit and take action. If any other message than the list is displayed, see the SVP MESSAGE SECTION.

Precautions on Disruptive De-Installation

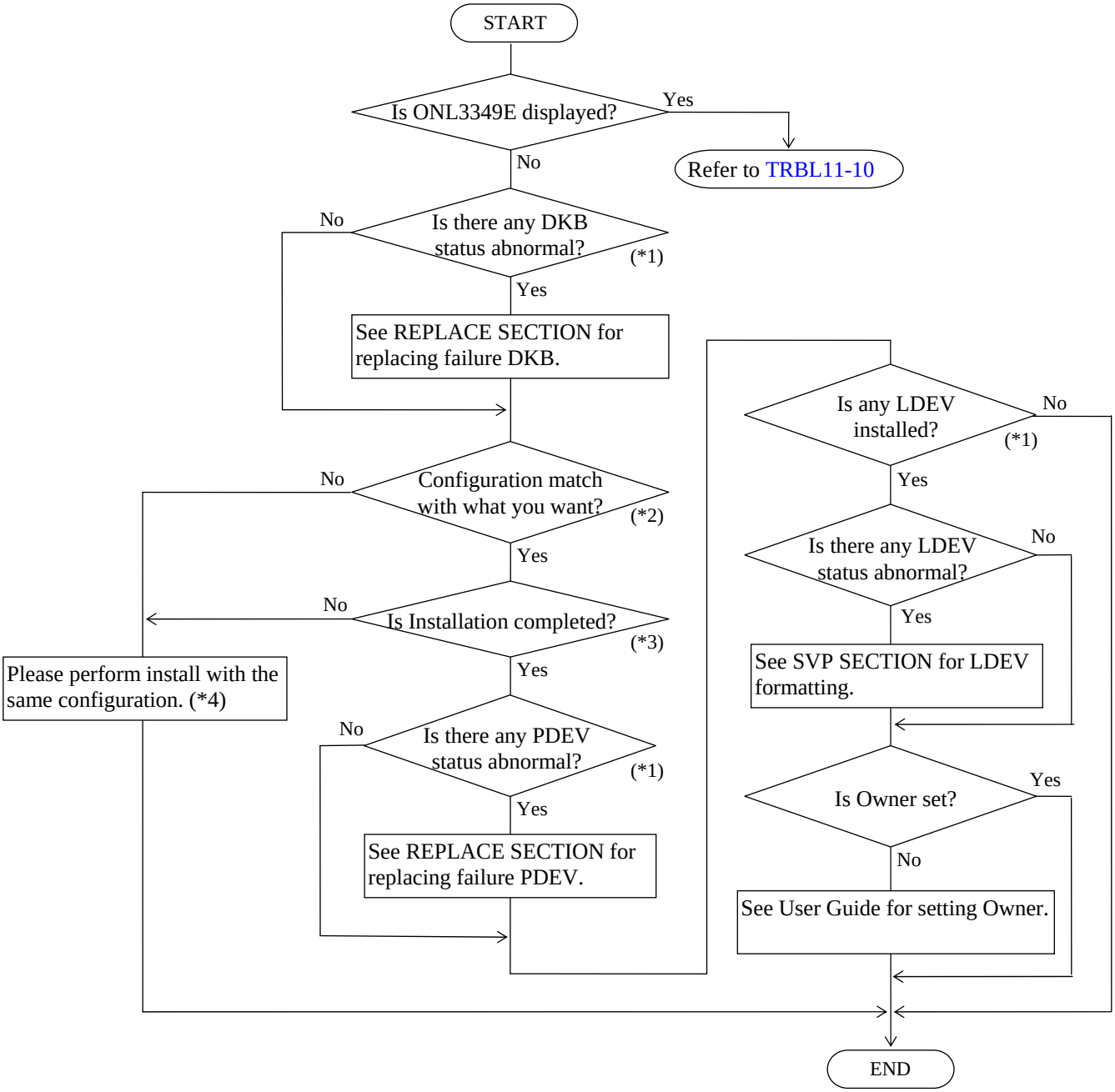
- "Disruptive" means that the storage system is disconnected from the host (OS). Disruptive De-installation shall be done with the storage system power OFF.

Table 2.5-1 Disruptive De-installation Procedure Table

No.	Working Item	Model Number	Page
1	Display the SVP initial screen	←	SVP01-10 through
2	POWER OFF of Storage system	—	INST03-09-50 through 60
3	POWER ON of Storage system	—	INST03-09-10 through 20
4	END	—	—

2.6 Trouble shooting for errors in install SVP procedure

2.6.1 DKB + ECC group + LDEV

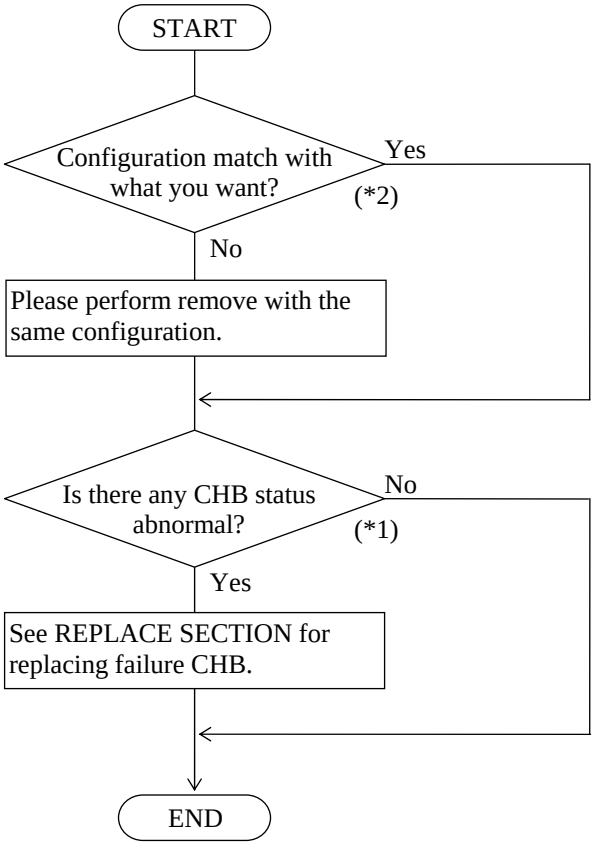


*1: Select (CL) [Maintenance] in the 'SVP' Window.
*2: Select (CL) [Install] – [Refer Configuration] in the 'SVP' Window.
*3: Wasn't INS2450E displayed when select (CL) [Install] – [Change Configuration] in the 'SVP' Window?

*4: There is a case where you cannot change the type of spare drive.
In that case, please install again with the same configuration except for the spare drive.
After this operation is complete, please uninstall the spare drive and install the spare drive again.

*5: Select (CL) [Components] in the ‘Storage Navigator’ Window.

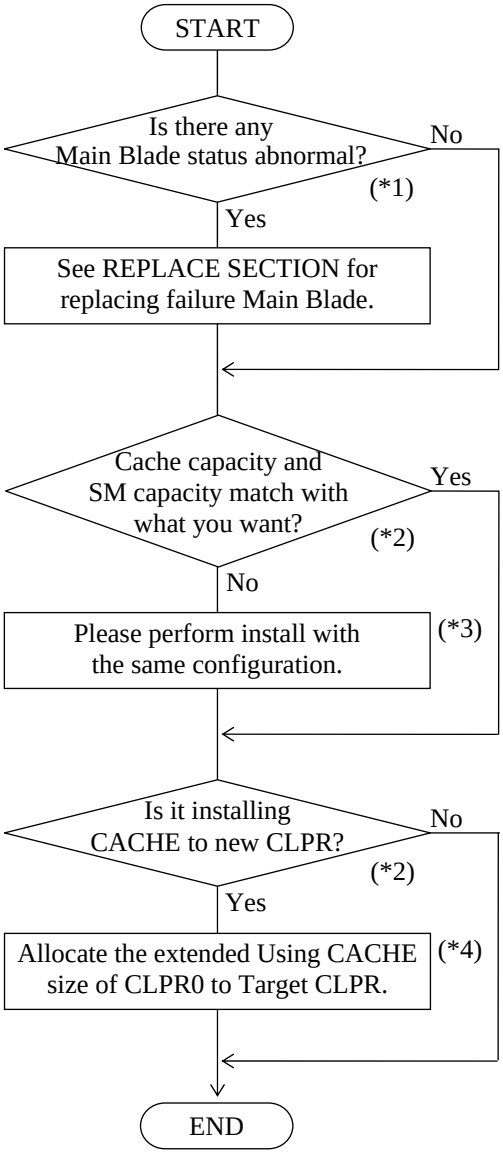
2.6.2 Number of Channel



*1: Select (CL) [Maintenance] in the 'SVP' Window.

*2: Select (CL) [Install] – [Refer Configuration] in the 'SVP' Window.

2.6.3 Cache Capacity



*1: Select (CL) [Maintenance] in the 'SVP' Window.

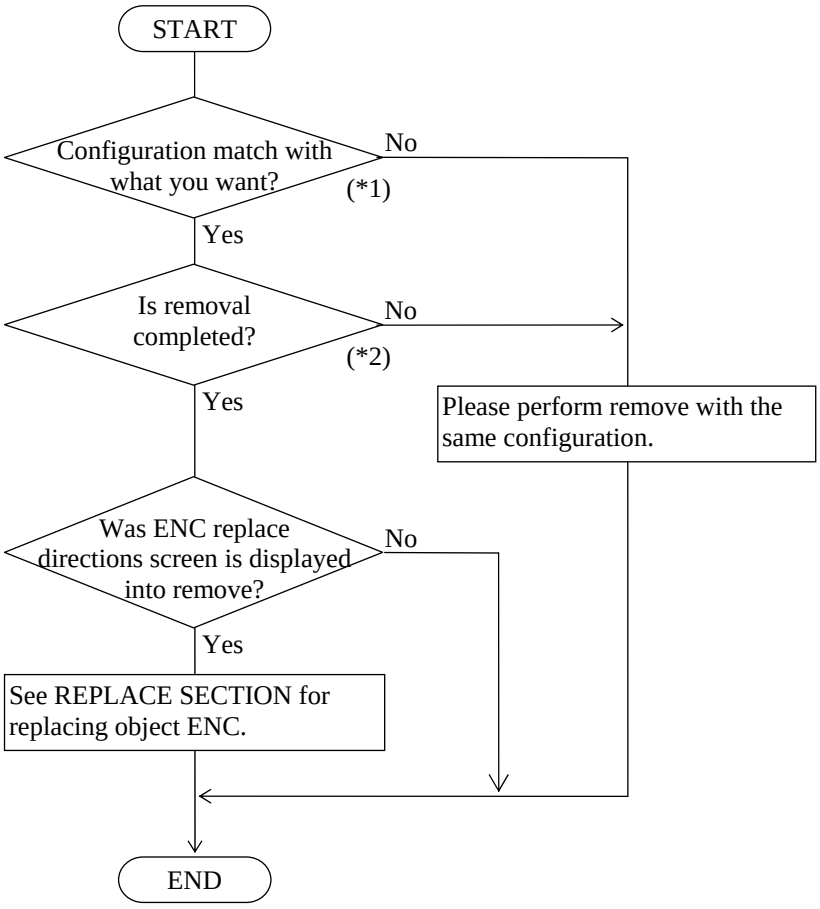
*2: Select (CL) [Install]-[Refer Configuration] in the 'SVP' Window.

*3: The installation of the cluster 1 may be completed depending on the contents of the installation failure. In this case, if the installation is performed again, processing will begin from the cluster 2.

*4: Select (CL) [Settings]-[Environmental Setting]-[Partition Definition...] in the 'Storage Navigator' Window. Extend Cache memory reference to "Performance Guide" - "Creating a CLPR".

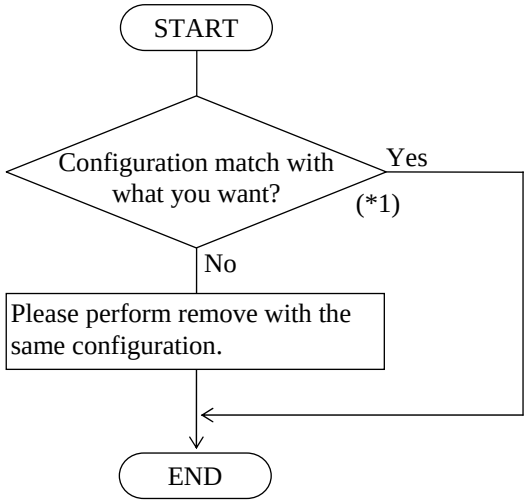
2.7 Trouble shooting for errors in remove SVP procedure

2.7.1 DKB + ECC group + LDEV



*1: Select (CL) [Install] – [Refer Configuration] in the 'SVP' Window.
*2: Wasn't INS2450E displayed when select (CL) [Install] – [Change Configuration] in the 'SVP' Window?
*3: Select (CL) [Maintenance] in the 'SVP' Window.

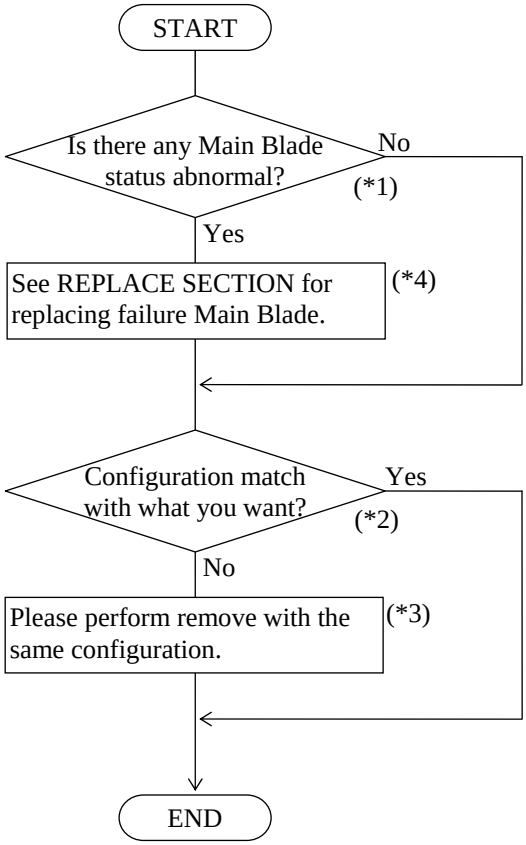
2.7.2 Number of Channel



*1: Select (CL) [Install] – [Refer Configuration] in the ‘SVP’ Window.

*2: Select (CL) [Maintenance] in the ‘SVP’ Window.

2.7.3 Cache Capacity



*1: Select (CL) [Maintenance] in the 'SVP' Window.
*2: Select (CL) [Install] – [Refer Configuration] in the 'SVP' Window.
*3: The removal of the cluster 1 may be completed depending on the contents of the de-installation failure. In this case, if the de-installation is performed again, processing will begin from the cluster 2.
*4: When work stops it by SVP reboot, please perform self-replacement both Main Blade.

2.8 Availability of Installation and De-installation

When you install or de-install parts while TrueCopy or UR is running, the warning messages in the following table may appear.
The pair can be suspended if the ESTPAIR or paircreate (pairesync) command is issued during the HDD Canister or the Cache (DIMM), SM installation/de-installation. Please ask your customer before the online maintenance operation.

P.P.	Status		HDD Canister			Cache (DIMM)/ SM	CHB		DKB
			DATA		SPARE				
			Installation	De-installation	Installation/ De-installation	Installation/ De-installation	Installation	De-installation	Installation/ De-installation
TC (*3)	Path established (*2)	MCU	×	× (*1)	×	×	×	SVP4280E (*5)	×
		RCU	×	×	×	×	×	×	×
	COPY	MCU	×	SVP2031W (*1)	×	SVP2059W (*4)	×	SVP4280E (*5)	×
		RCU	×	SVP2034W	×	SVP2079W (*4)	×	SVP2038W	×
	PAIR	MCU	×	SVP2031W (*1)	×	× (*4)	×	SVP4280E (*5)	×
		RCU	×	SVP2034W	×	× (*4)	×	SVP2038W	×
	PSUS/ PSUE	MCU	×	SVP2031W (*1)	×	× (*4)	×	SVP4280E (*5)	×
		RCU	×	SVP2034W	×	× (*4)	×	SVP2038W	×

(To be continued)

(Continued from preceding sheet)

P.P.	Status		HDD Canister			Cache (DIMM)/ SM	CHB		DKB
			DATA		SPARE				
			Installation	De-installation	Installation/ De-installation	Installation/ De-installation	Installation	De-installation	Installation/ De-installation
UR (JNL-GROUP)	Path established (*2)	MCU	×	×	×	×	×	SVP4280E (*5)	×
		RCU	×	SVP3825W	×	×	×	SVP4280E (*5)	×
	Initial	MCU	×	SVP3825W	×	×	×	×	×
		RCU	×	SVP3825W	×	×	×	×	×
	Active	MCU	×	SVP3825W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP3825W	×	× (*4)	×	SVP4280E (*5)	×
	Halting	MCU	×	SVP3825W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP3825W	×	× (*4)	×	SVP4280E (*5)	×
	Stop	MCU	×	SVP3825W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP3825W	×	× (*4)	×	SVP4280E (*5)	×
	Stopping	MCU	×	SVP3825W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP3825W	×	× (*4)	×	SVP4280E (*5)	×

(To be continued)

(Continued from preceding sheet)

P.P.	Status		HDD Canister			Cache (DIMM)/ SM	CHB		DKB
			DATA		SPARE				
			Installation	De-installation	Installation/ De-installation	Installation/ De-installation	Installation	De-installation	Installation/ De-installation
UR (DATA-VOL)	Path established (*2)	MCU	×	×	×	×	×	SVP4280E (*5)	×
		RCU	×	×	×	×	×	SVP4280E (*5)	×
	COPY	MCU	×	SVP2031W	×	SVP2059W (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP2034W	×	SVP2079W (*4)	×	SVP4280E (*5)	×
	PAIR	MCU	×	SVP2031W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP2034W	×	× (*4)	×	SVP4280E (*5)	×
	PSUS/ PSUE	MCU	×	SVP2031W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP2034W	×	× (*4)	×	SVP4280E (*5)	×
	Suspending	MCU	×	SVP2031W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP2034W	×	× (*4)	×	SVP4280E (*5)	×
	Deleting	MCU	×	SVP2031W	×	× (*4)	×	SVP3848W (*6) SVP4280E (*5)	×
		RCU	×	SVP2034W	×	× (*4)	×	SVP4280E (*5)	×

× : Maintenance is available.

SVPXXXXW/E : Maintenance is not available based on the specification. Refer to SVP MESSAGE SECTION.

*1: If CU which all HDEVs are deleted from by this operation exists and there is registration of RCU in this CU, SVP will display a warning message with SVP2466W.

*2: There are no pair volumes.

*3: Please do not change the DKC No. by the system tuning when TrueCopy is used.

*4: When Installation/De-installation action of CACHE (DIMM)/SM is executed, CHB on same MAIN Blade that Installation/De-installation action is executed is blocked. And the same alert message as replacing of the CHB is displayed by the state of CHB. (Refer to “1.6 Availability of the online maintenance when TrueCopy is used” (REP01-340), “1.8 Availability of the online maintenance when UR is used” (REP01-370).)

*5: When Initiator Port is contained in removal object CHB, the alert message is displayed. However, even if RCU Target Port is contained in removal object CHB, the alert message is not displayed.

*6: When RCU Target Port is contained in removal object CHB, the alert message is displayed. However, even if Initiator Port is contained in removal object CHB, the alert message is not displayed.

2.9 New Installation procedures without the pre-installation at a customer site

2.9.1 Application

These procedures are applied to a new installation without the pre-installation at a customer site or the pre-installation at the warehouse as shown below.

- Installing the micro programs into the DKC storage system. Its version must be appropriate one.
- Installing the configuration information which is appropriate to the customer.

If these procedures are used in other cases, their processes are not assured.

2.9.2 Conditions to use these procedures

These procedures can be used in the following conditions:

① The installation of the Hardware parts (for example, the connections of cables, power supplies and so on) have been finished. (For the Hardware installation, refer to “2.1 New Installation Procedure Table” (INST02-10 ~ INST02-20))

② The PC (SVP) is installed and can be used.
(For the SVP installation, refer to REP03-16-150 ~ REP03-16-560)

2.9.3 Procedures

(1) Summary

The procedures are divided roughly into 3 processes.

① Pre-processing (the installation of the micro-programs into the SVP HD : (1)-(8) in the following flow)

② Execution of “Define Configuration and Install” by the SVP.(By this procedure, the customer’s configurations are defined, and the micro-programs are installed.) : ((9)-(18) in the following flow)

③ Others ((19)-(39) in the following flow)

(2) Processing Flow

The processing flow of the new installation is as follow:

START

(1)-0 Back up the current Config in the ConfigFD of the same value.
(1)-1 Check the size of the Cache, CM DIMM, CU number and IP address with the DKC and remember them for later use in step (18)-1, (18)-2.
(1)-2 Turn off the “POWER ON/OFF” switch on the DKC.
(1)-3 Make sure the breakers at the PDUs are off. (If it is “on”, turn off the breakers after the SVP is shut down.).
[Breaker:INST03-09-50, SVP Shut Down:SVP01-160]
(1)-4 If the PUBLIC (SNMP Web Console) or INT (ASSIST) or MODEM cables in the SVP are connected, disconnect them. Do not disconnect other cables. [LOC04-20]

(2) Turn on the breakers at the PDUs (DB and DKC) and wait for the SVP ready to use.
(Don’t turn on the “POWER ON/OFF” switch on the DKC.)
[Power ON procedures of Storage system:INST03-09-10]

(3) Set the SVP PS ON/OFF INH switch (SVP RAS SW #1) on the SVP to ON (lower position).
[LOC03-100]

(SVP procedure)
(4) Set TOD
(At this time, “Communication Error” may occur. You can ignore the error.)
[INST05-20 ~ INST05-40]

(SVP procedure)

(5) Execute the following procedures: (*10)
[Install micro-programs and configuration to the HD to the SVP]
[REP03-16-180 ~ REP03-16-440]

step0: Connect to the SVP display from the client PC by the remote desktop.

step1: Prepare the 1st and 2nd CD-ROM. (*1)

step2: De-install any additional software installed on the SVP such as Hi-Track/C-Track and Anti-Virus client.

REP03-16-190 1. Apache (launch the uninstallation batch)
Select “start”-“programs”-“accessories”-
“cmd prompt (right click to administrator)”
and enter the following command:
\\tsclient\e\JavaAp\Apache\ApacheUnInst.bat (enter)
Remove CD-ROM from client PC’s drive.

REP03-16-200 2. Apache Tomcat uninstall from “Control panel”-“Add or Remove programs”.
During uninstall the following message is displayed:
“Remove all files in your Tomcat directory?
If you have anything you created you want to keep, click NO.”
Select Yes, press Enter.
Do NOT allow Reboot!

REP03-16-230 3. Java Dev. Kit uninstall from “Control panel”-“Add or Remove Programs”.
Do NOT allow Reboot!

4. Java Update uninstall from “Control panel”-“Add or Remove Programs”.
Do NOT allow Reboot!

REP03-16-280 5. Perl uninstall from “Control panel”-“Add or Remove Programs”.
Do NOT allow Reboot!

REP03-16-300 6. Flash uninstall from “Control panel”-“Add or Remove Programs”.
Do NOT allow Reboot!

step3: Click “START” on the task bar and select “Settings”-“Control Panel”-“Add or Remove Programs”. Uninstall JRE:Java(TM) + Java(TM) SE Development Kit, Apache, and Perl. Do not reboot after each uninstall. Stop any services that are coming out in the Warning messages.

step4: Insert the CD-ROM disk into the client PC’s drive.

step5: Enter the following command: \\tsclient\E\setup.exe (enter).
* In the case client PC's CD-ROM drive is "E:".

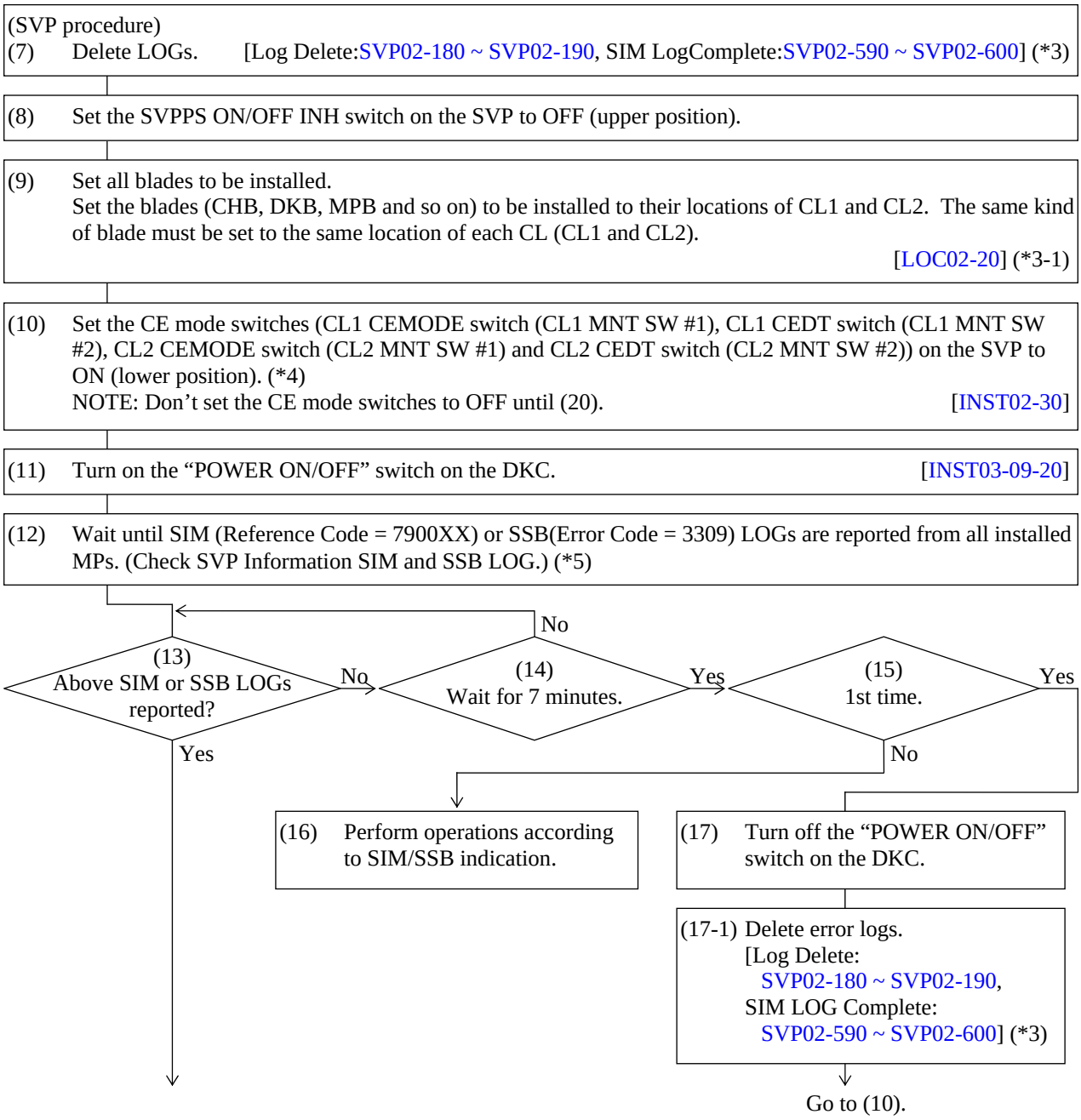
Message is displayed:
"(SVP4186W) Initializing the SVP is currently operating. Do you want to continue?"
Select Yes, press Enter.
The following message is displayed:
"SVP will be rebooted to stop the SVP, please retry the setup after the PC reboots!"
press Enter.
SVP reboots....
After reboot 2 icons are displayed (RAID ADMIN and OTHER USER) Switch to OTHER USER icon and enter "administrator" (user) and "raid-login" (password). Follow the process on the screen.

Select [CD-R] to install configuration information from CD-R, when the message CNF4061i.
Enter the key code of the configuration information when the message CNF4055i, and then click [OK]. (*12)
Insert the second CD-R (OSS), when requested and select [OK].
This operation causes the "SVP Reboot". Then wait few minutes and reconnect by the remote desktop.

Java, Perl and Apache Tomcat is being installed at this step.
Do not change any parameters during install (leave unchanged values).

step6: Remove the CD-ROM from the client PC's drive.

(SVP procedure)
(6) Set IP Address
IP Address must be 126.255.255.15 and Subnet mask must be 255.0.0.0. Also, "Target" must be "SVP".
(Don't select "SVP and DKC" as the "Target". [INST05-50 ~ INST05-80] (*2)
Besides, do not select "Use Duplex SVP" in the "External IP Address" box.
Config BackUp is accompanies.

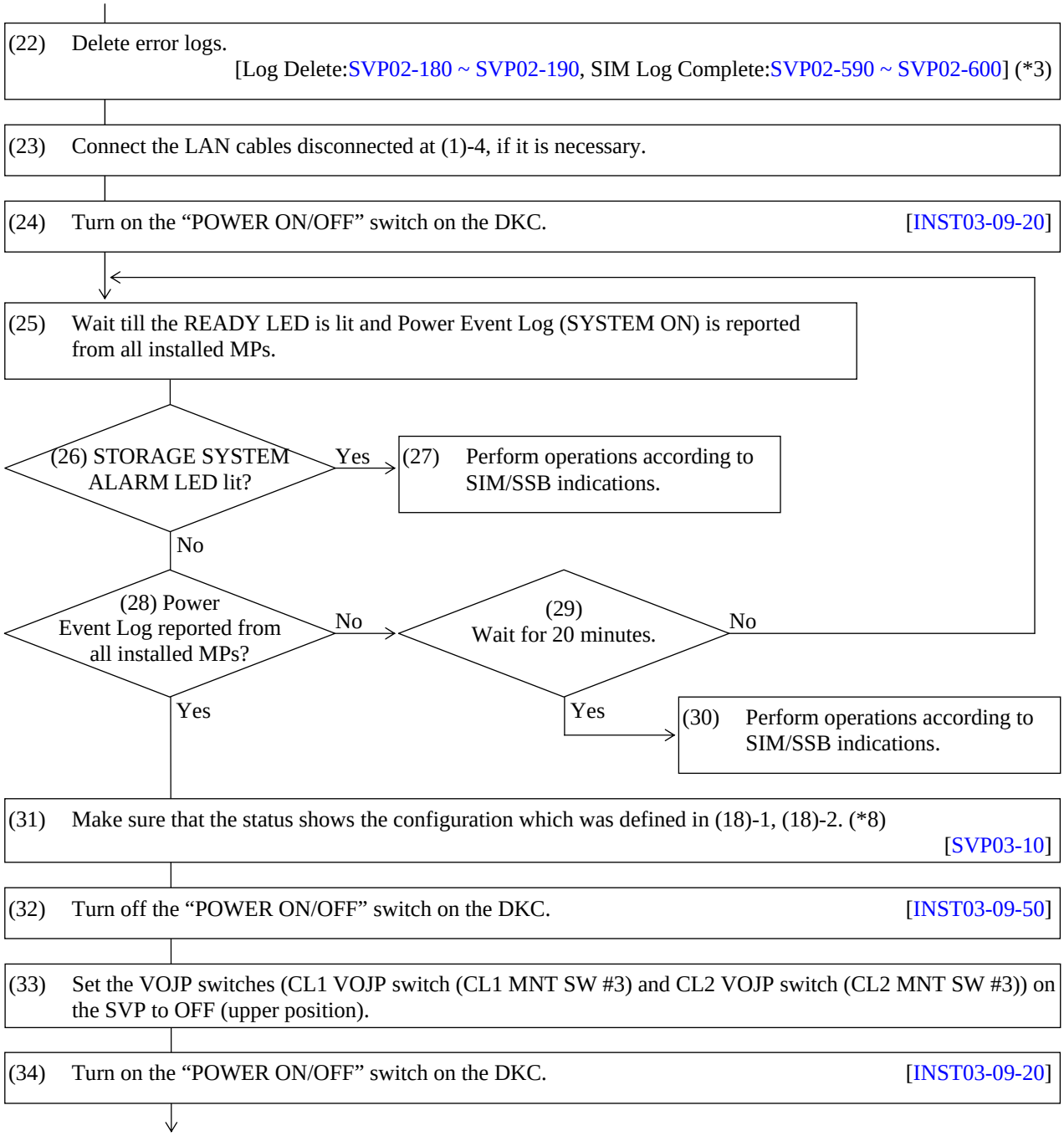


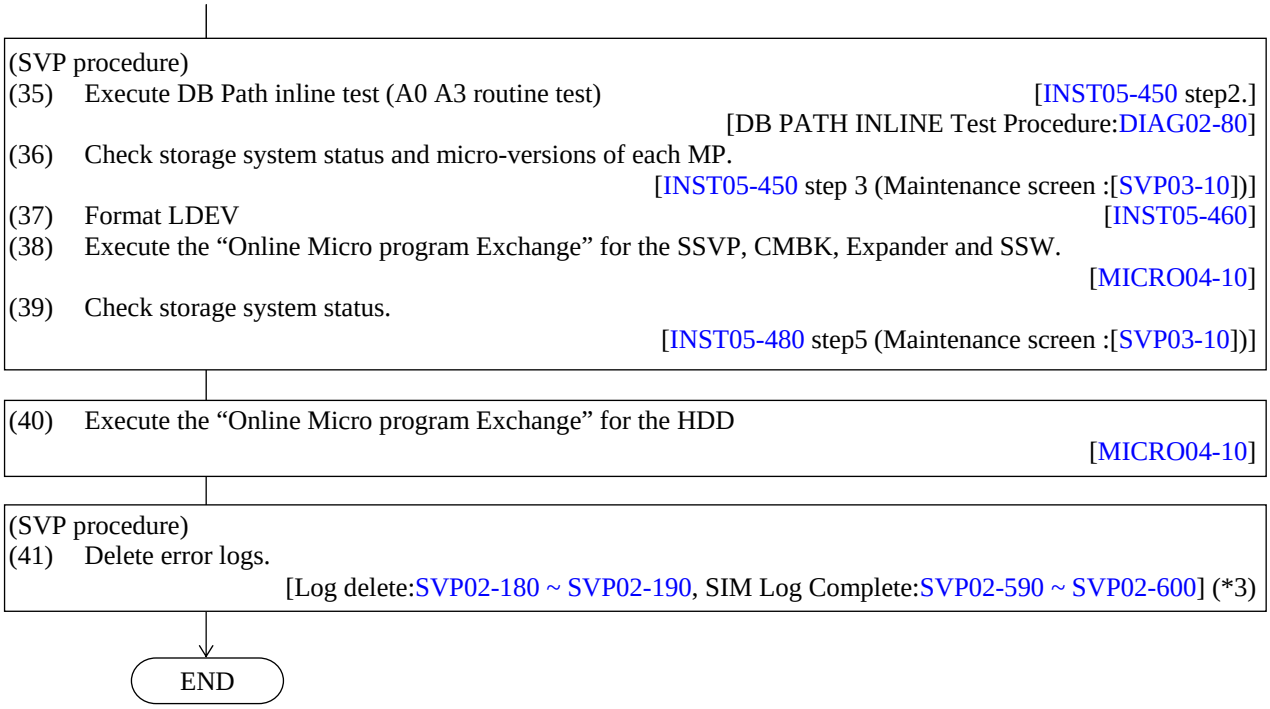
Change the SVP mode to “Initial Setting”. (*6)
(SVP procedure) -- (Execution of Define Configuration and Install)
(18)-1 Execution of Config Exchange Procedure.
Select the “Install” in the “SVP” window and select “Copy Config Files” in the “Install” window. And select “All Configuration Files” in the “Copy Config Files” window.
[MICRO07-60 ~ MICRO07-70]
(18)-2 Define the configuration information that you want to install now for this DKC storage system.
Then, the defined size of the Cache and CM DIMM must be equal to ones of the Cache and CM DIMM equipped for the DKC storage system. (*7) (*11)
The configuration information must be defined according to the SVP guidance. Especially, you must not forget the definition of the following information.
① DKC Serial No., IP Address.
② Cache Configuration
③ Host Interface Configuration:
④ PDEVs, LDEVs, etc. [INST05-90 ~ INST05-440]

(19) Turn off the “POWER ON/OFF” switch on the DKC. [INST03-09-50]

(20) Set the CE mode switches (CL1 CEMODE switch (CL1 MNT SW #1), CL1 CEDT switch (CL1 MNT SW #2), CL2 CEMODE switch (CL2 MNT SW #1) and CL2 CEDT switch (CL2 MNT SW #2)) on the SVP to OFF (upper position). (*4)

(21) Set the VOJP switches (CL1 VOJP switch (CL1 MNT SW #3) and CL2 VOJP switch (CL2 MNT SW #3)) on the SVP to ON (lower position).
NOTE: Don’t set the VOJP switches to OFF until (33).





*1 : The 1st CD-ROM includes the micro-programs and configuration information to be installed into the DKC storage system.
The 2nd CD-ROM (OSS) includes Apache, Perl, Java, Storage Navigator and Tomcat.

*2 : Even if the “IP Address” is “126.255.255.15” and the “Subnet Mask” is “255.0.0.0” on the screen of “Set IP Address”, be sure to select “OK” and reply “OK” to the message “This will reboot SVP.”.

*3 : It’s necessary to execute the procedure of “SIM Log Complete” before deleting the SIM data.

*3-1: At least, a pair of MPBs must be installed in the CL1 and CL2 PCB locations.

*4 : Refer to the following about the switches.
- INST02-30 “NOTE:”

*5 : Count SSB Logs (Error Code = 3309). The number is same as the number of the installed MPs.

*6: Press the following keys at the same time to change the mode to “Initial Setting”.
[SHIFT], [CTRL], [I]
And input the password. (*9)

*7: In this definition, specify the actual DKC Serial Number.
Also, “IP Address” should be specified as follows:

① Specifying the IP Address according to the DKC Serial Number Select “Based on Serial Number”, and the IP Address will be assigned automatically.

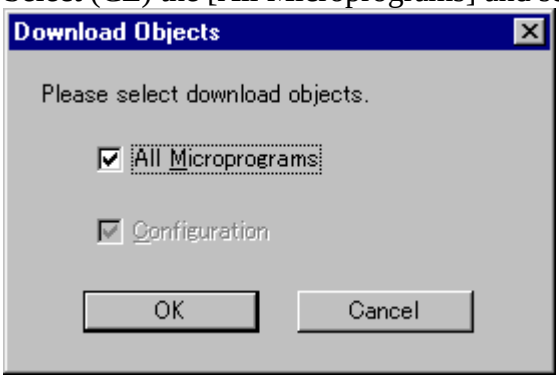
② Specifying in option
Select “Specified” and specify the optional address for the IP Address.
And, the defined value for the size of the Cache and CM DIMM should be equal to the value that was confirmed at (1) in the processing flow. After the configuration information is defined, Turn on the “POWER ON/OFF” switch of the DKC and the reboot of the SVP will be executed.

*8: Surely, check the following status:
(1) the condition of each PCB status.----- PCB Kind/Normal or not/etc
(2) the micro-program version

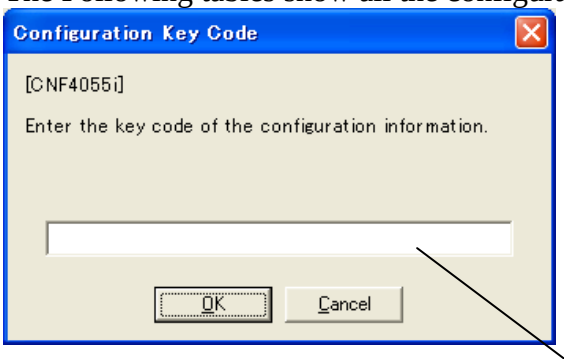
*9: For the password, ask the technical support division. And use it with their approval.

*10: The SIM BF85A3 (SVP RAS Switch#1 remains (SVP PS ON/OFF INH SW)) may be reported. But there is no problem because they occur in process of the SVP replacement.

*11: Select (CL) the [All Microprograms] and select (CL) the [OK] button. (INST05-410)



*12: The Following tables show all the configuration key codes.



Type	Configuration key code
/00	HUSVM

2.10 Obstacle part replacement procedure in install

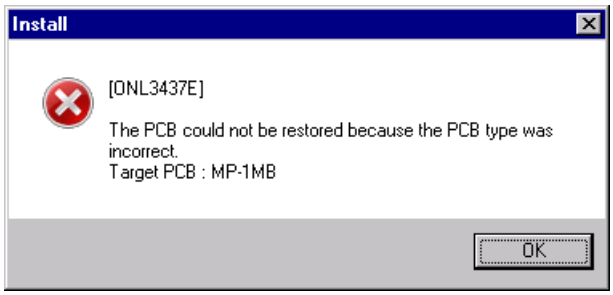
2.10.1 Replacement procedure when PCB could not be restoring

(1)

The following messages are displayed when PCB could not be restoring.

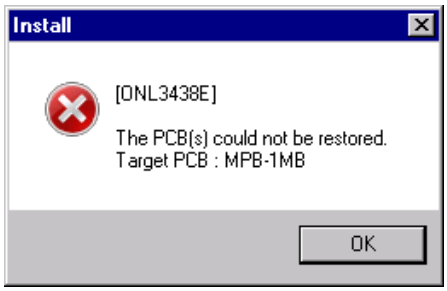
When "The PCB could not be restored because the PCB type was incorrect. Target PCB : ****" is displayed, please check the PCB type. (The target PCB location is displayed on Target PCB : ****.)

Please select(CL) [OK] after a check.



When "The PCB(s) could not be restored. Target PCB : ****" is displayed, please check the PCB. (The target PCB location is displayed on Target PCB : ****.)

Please select(CL) [OK] after a check.



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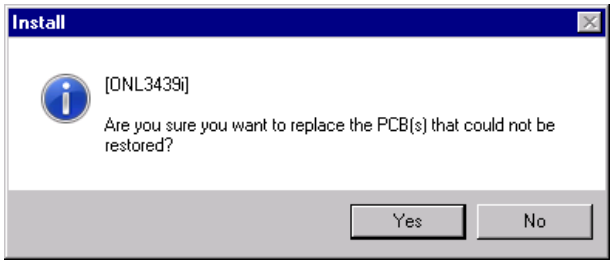
(2)

"Are you sure you want to replace the PCB(s) that could not be restored?" is displayed.

When the maintenance parts to replace exist, please select (CL) [Yes]. → Go to (3)
When the maintenance parts to replace do not exist, please select (CL) [No] and refer to trouble shooting for errors in install. (INST02-100, INST02-130)



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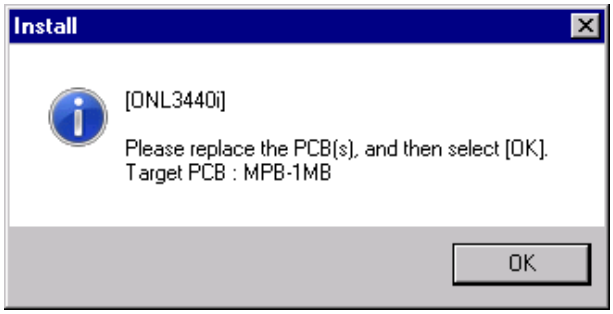
(3)

"Please replace the PCB(s), and then select [OK]. Target PCB : ****" is displayed. (The target PCB location is displayed on Target PCB : ****.)

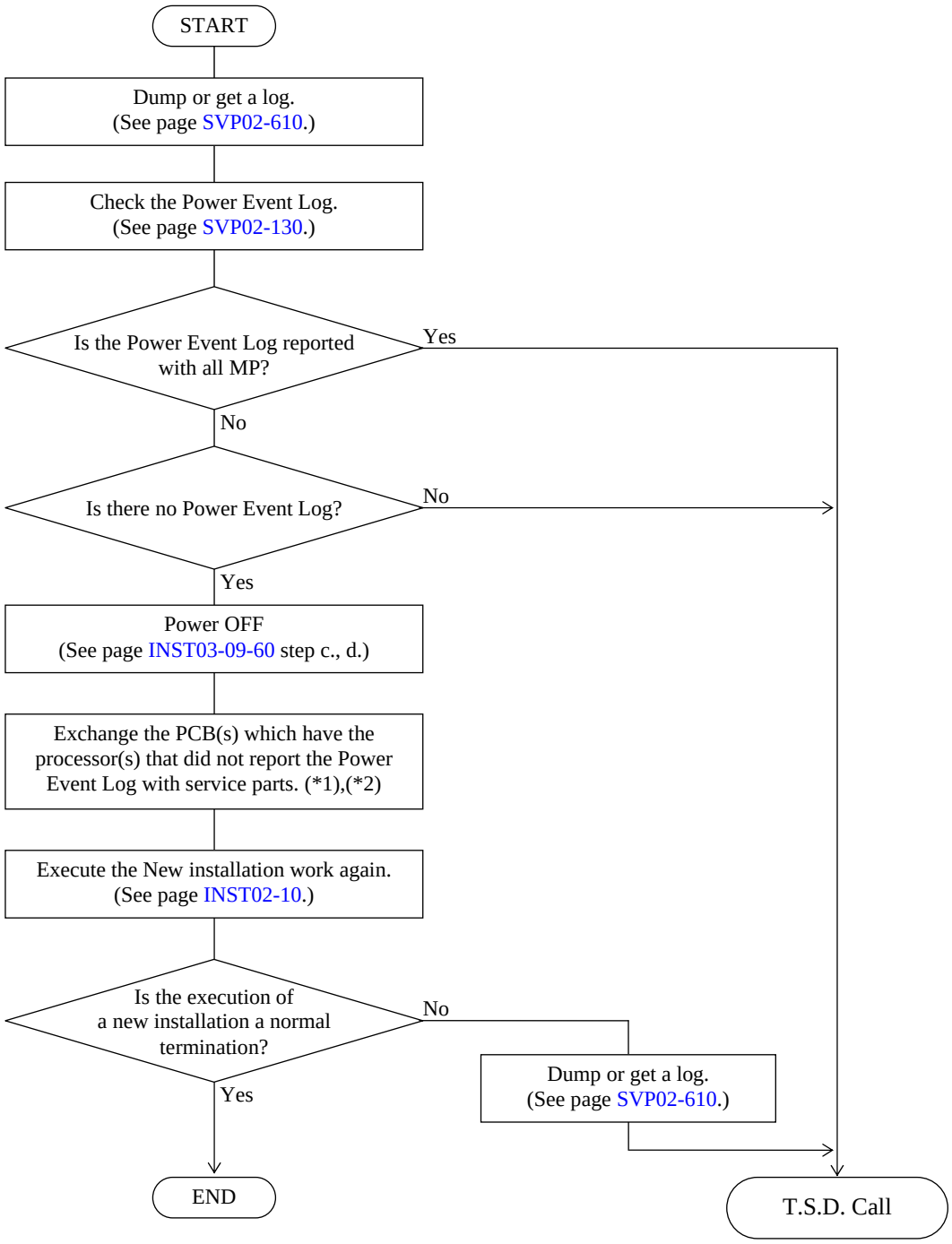
Please select (CL) [OK], after replacing the target PCB.

It returns to the former install section.



2.11 Troubleshooting at the time of new installation

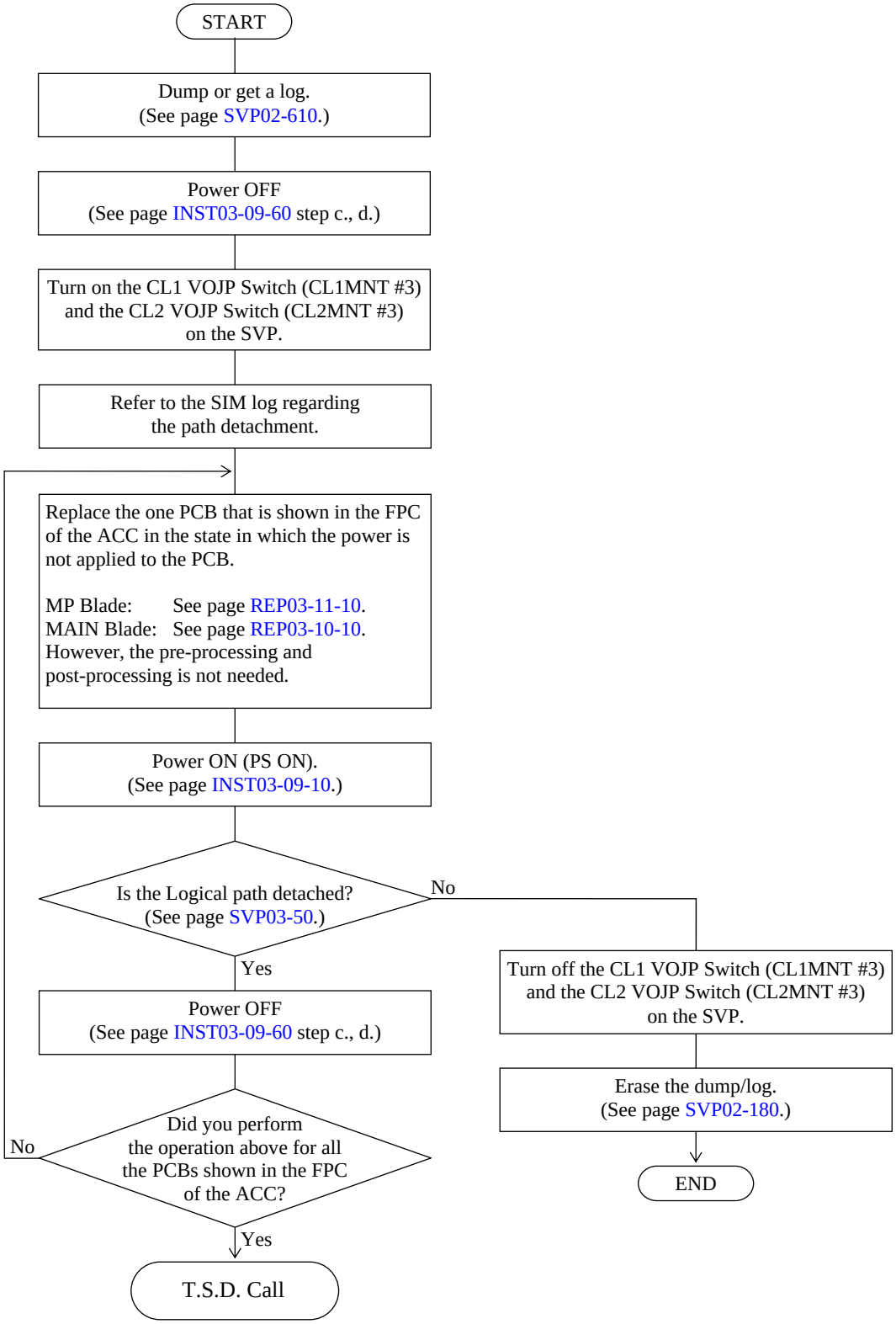
(1) When the ALARM LED comes on



*1: Pulling out of the MPB
Refer to page REP03-11-120.

*2: Insertion of the MPB
Refer to page REP03-11-180.

(2) When the Logical path is detached



(3) When SAS cable connection error occurs (SIM = EFFEXX)
Check the connection, and execute the New installation work again. (See INST02-10)