

INSTALLATION SECTION

INSTALLATION

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1 Subsystem Configuration Outline

1.1 General Information

1.1.1 Model List

Table 1.1.1-1 shows the model list of DKC465I.

Table 1.1.1-1 Model List of DKC465I

No	Model Number	Model Name	Major Part	Remarks
1	DKC465I-5 DKC465I-5F	Disk Control Frame Disk Control Frame without doors	• LR012-A (PS-PL) • SH302-A(DKC-PANEL) • Special PCB • 3VPS × 4 • 5/3VPS × 4 • SUBPS × 2 • FAN ASSY × 8 • LR010-A (L/G-PL) • CACHE × 2 • CSW × 2 • HDU Box × 4 • LR011-A (HDD PL) × 4 • FSW-A × 8 • JMP × 16 • FAN ASSY × 4 • 5/12V PS × 8	DKC465I Disk Subsystem doesn't contain DKAs, channel adapters, cache memory modules, shared memory modules, AC Box Kit, AC Power cables and HDD canisters. It is necessary to attach the following options according to the configuration. • Channel Adapters DKC-F460I-8S/8GS/4HSE/8HSE/8HLE/8MS/8ML • Cache Memory Modules DKC-F460I-2048 • Shared Memory Modules DKC-F460I-S512 • AC Box Kit DKC-F465I-1PS/3PS/1PSD • AC Power cables DKC-F465I-3EC/3UC/1EC/1UC DKC-F460I-1ECD/1UCD • HDD canisters DKU-F455I-18K4/18K1/36J4/36J1/36K4/36K1/72J4/72J1
2	DKC-F465I-1PS	AC Box Kit for Single Phase/50A	• AC Box × 2	
3	DKC-F465I-3PS	AC Box Kit for 3 Phase/30A	• AC Box × 2	
4	DKC-F465I-1EC	Power Cable Kit for Single Phase/50A (50Hz for Europe)	• Power Cable Unit (IE)	
5	DKC-F465I-1UC	Power Cable Kit for Single Phase/50A (60Hz for USA)	• Power Cable Unit (IU)	
6	DKC-F465I-3EC	Power Cable Kit for 3 Phase/30A (50Hz for Europe)	• Power Cable Unit (IE)	
7	DKC-F465I-3UC	Power Cable Kit for 3 Phase/30A (60Hz for USA)	• Power Cable Unit (IU)	
8	DKC-F465I-1PSD	AC Box Kit for Single Phase/30A	• AC Box × 2	Serial numbers of subsystems in which the AC Box Kit above can be installed: S#: 20121-20125, 20127-20129, 20131-20133, 20135, 20138-
9	DKC-F460I-1ECD	Power Cable Kit for Single Phase/30A (50Hz for Europe)	• Power Cable Unit (IE)	
10	DKC-F460I-1UCD	Power Cable Kit for Single Phase/30A (60Hz for USA)	• Power Cable Unit (IU)	

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No	Model Number	Model Name	Major Part	Remarks
11	DKC-F460I-2048	Additional Cache Memory Module (2048 MB)	• SH288-B (512 MB) × 4	
12	DKC-F460I-S512	Additional Shared Memory Module (512 MB)	• SH287-B (256 MB) × 2	
13	DKC-F465I-100	Additional Disk Adapter	• WP471-A × 2 SH281-B × 2	
14	DKC-F460I-200	Additional High Performance Disk Adapter	• WP471-B × 2 SH281-B × 4	
15	DKC-F460I-8S	Serial 8-port Adapter	• WP462-A × 2 SH281-C × 4 • I/F Con. Panel	
16	DKC-F460I-8GSE	Fibre 8-port Adapter for Short Wavelength (1Gbps support)	• WP461-D } × 2 SH281-A × 2 } • I/F Con. Panel	
17	DKC-F460I-4HSE	Fibre 4-port Adapter for Short Wavelength (1-2Gbps support)	• WP461-E } × 2 SH281-A × 2 } • I/F Con. Panel	
18	DKC-F460I-8HSE	Fibre 8-port Adapter for Short Wavelength (1-2Gbps support)	• WP461-B } × 2 SH281-A × 4 } • I/F Con. Panel	
19	DKC-F460I-8HLE	Fibre 8-port Adapter for Long Wavelength (1-2Gbps support)	• WP461-C } × 2 SH281-A × 4 } • I/F Con. Panel	
20	DKC-F460I-8MS	Mainframe Fibre 8-port Adapter for Short Wavelength (1Gbps support)	• WP465-A } × 2 SH281-A × 4 } • I/F Con. Panel	
21	DKC-F460I-8ML	Mainframe Fibre 8-port Adapter for Long Wavelength (1Gbps support)	• WP465-B } × 2 SH281-A × 4 } • I/F Con. Panel	
22	DKC-F460I-18	PCI I/F Connector	• PCI I/F Con.	
23	DKC-F460I-SVP	SVP High Reliability Kit	• SVP	
24	DKC-F465I-FSW	Additional Disk Port Switch	• FSW-B × 8	
25	DKC-F465I-FSW2	Disk Path Expansion Kit	• FSW-C × 8	
26	DKC-F460I-UPS	UPS Connection Kit	• DKC Panel • UPS CON	
27	DKU-F455I-36K4	4 HDD Canisters	• DKS2B-K36FC × 4	
28	DKU-F455I-36K1	1 HDD Canister	• DKS2B-K36FC × 1	
29	DKU-F455I-72J4	4 HDD Canisters	• DKR2D-J72FC × 4	
30	DKU-F455I-72J1	1 HDD Canister	• DKR2D-J72FC × 1	
31	DKC-F460I-256M	256MB Additional Memory for SVP	• Additional SVP Memory × 2	

(To be continued)

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No	Model Number	Model Name	Major Part	Remarks
32	DKC-F460I-8GSF	Fibre 8-port Adapter for Short Wavelength (1Gbps support)	- WP461-H - SH281-A × 2 - I/F Con. Panel × 2	Check data assist support
33	DKC-F460I-4HSF	Fibre 4-port Adapter for Short Wavelength (1-2Gbps support)	- WP461-J - SH281-A × 2 - I/F Con. Panel × 2	Check data assist support
34	DKC-F460I-8HSF	Fibre 8-port Adapter for Short Wavelength (1-2Gbps support)	- WP461-F - SH281-A × 4 - I/F Con. Panel × 2	Check data assist support
35	DKC-F460I-8HLF	Fibre 8-port Adapter for Long Wavelength (1-2Gbps support)	- WP461-G - SH281-A × 4 - I/F Con. Panel × 2	Check data assist support
36	DKC-F465I-DH	Door Kit for Lightning 9970V	- Front and Rear doors - Side doors	
37	DKC-F465I-DS	Door Kit for StorEdge 9970V	- Front and Rear doors - Side doors	

SVP displays each drive model as the following table.

Disk drive model	SVP screen
DKS2B-K36FC	DKS2B-K036FC
DKR2D-J72FC	DKR2D-J072FC

1.1.2 Configuration and number of necessary options

NOTICE:

The installed Shared Memory capacity with using HMRCF/HOMRCF/HRC/HORC/HHSM functions is different from ones without using these functions.

(1) Refer to the “[INST01-70] Table 1.1.2-4” in these functions use.

(Note1) When you use these functions, you need to install more Shared Memory.

(2) Refer to the “[INST01-60] Table 1.1.2-3” in these functions non-use.

1.1.2.1 Shared memory capacity and number of necessary options

Shared memory capacities and corresponding number of options required are shown in Table 1.1.2-1.

Table 1.1.2-1 Shared memory capacity and number of necessary options

Shared memory capacity	Number of options
	DKC-F460I-S512
512MB	1
1024MB	2
1536MB	3
2048MB	4
2560MB	5
3072MB	6

Note: Please note that location of shared memory module varies according to the purpose such as additional cache installation or additional LDEV installation. (Refer to table 1.1.2-3 and 1.1.2-4.)

1.1.2.2 Cache memory capacity and number of necessary options

DKC465I improves a hierarchical star net, and access time to the cache memory is sped up. Furthermore, it is improved so that two paths can access the cache memory on Cache PCB at the same time.

DKC465I is realized the data transfer speed of the maximum 5.0GB when cache memory capacity is installed 4GB or more.

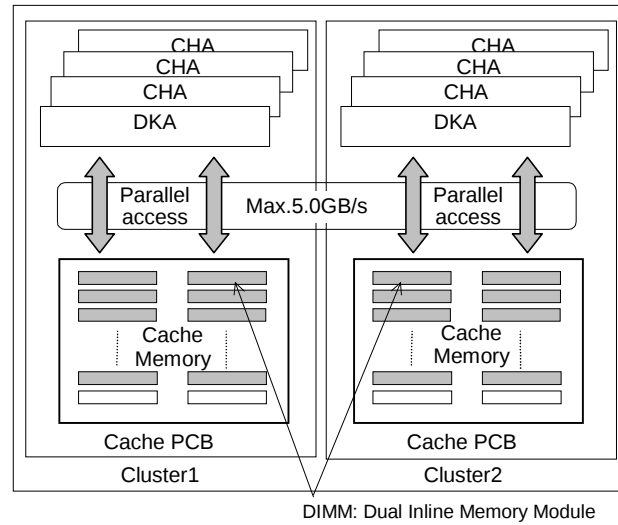


Table 1.1.2-2 Cache memory capacity and number of necessary options

Cache Memory Capacity(GB)	SH288-B only
	DKC-F460I-2048
2	1
4	2
6	3
8	4
10	5
12	6
14	7
16	8
18	9
20	10
22	11
24	12
26	13
28	14
30	15
32	16

1.1.2.3 Relation between Shared Memory and Cache Memory

The relationship between Cache Memory and Shared Memory is shown in following table.
Please note that Location of shared memory varies according to the purpose such as additional cache installation or additional LDEV installation.

Notice

The required capacity of the shared memory varies depending on whether the HRC/HORC/HMRCF/HOMRCF/HHSM function is supported or not.
Calculate the required shared memory capacity referring to Table 1.1.2-3 when none of the functions is supported (in the case of basic configuration) or Table 1.1.2-4 when at least one of the functions is supported.

Table 1.1.2-3 Size of Cache Memory and Shared Memory (BASIC)

Cache Memory Capacity (GB)	Number of CU:1-4 (to 1024LDEV)			Number of CU:5-8 (to 2048LDEV)			Number of CU:9-16 (to 4096LDEV)			Number of CU:17-32 (to 8192LDEV)		
	SM (MB)	S512	Install loc. *1	SM (MB)	S512	Install loc. *1	SM (MB)	S512	Install loc. *1	SM (MB)	S512	Install loc. *1
2	512	1	③	1536	3	③①④	1536	3	③①④	2048	4	③①②④
4	512	1	③	1536	3	③①④	1536	3	③①④	2048	4	③①②④
6	512	1	③	1536	3	③①④	1536	3	③①④	2048	4	③①②④
8	512	1	③	1536	3	③①④	1536	3	③①④	2048	4	③①②④
10	1024	2	③④	1536	3	③①④	1536	3	③①④	2048	4	③①②④
12	1024	2	③④	1536	3	③①④	1536	3	③①④	2048	4	③①②④
14	1024	2	③④	1536	3	③①④	1536	3	③①④	2048	4	③①②④
16	1024	2	③④	1536	3	③①④	1536	3	③①④	2048	4	③①②④
18	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
20	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
22	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
24	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
26	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
28	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
30	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤
32	1024	2	③④	1536	3	③①④	2048	4	③①④⑤	2560	5	③①②④⑤

Note. *1: Location ①-⑥ shows actual location of shared memory module on Cache PCB.

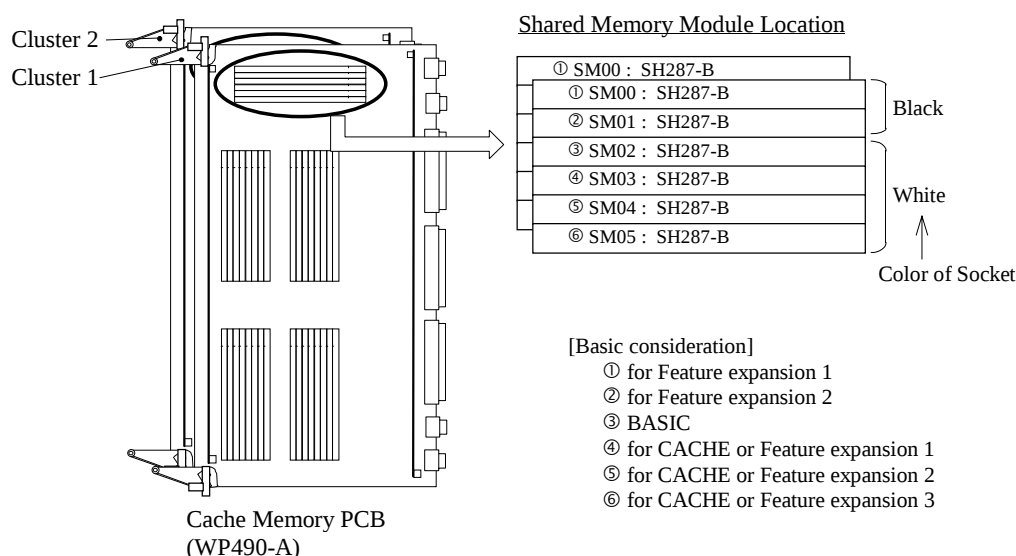
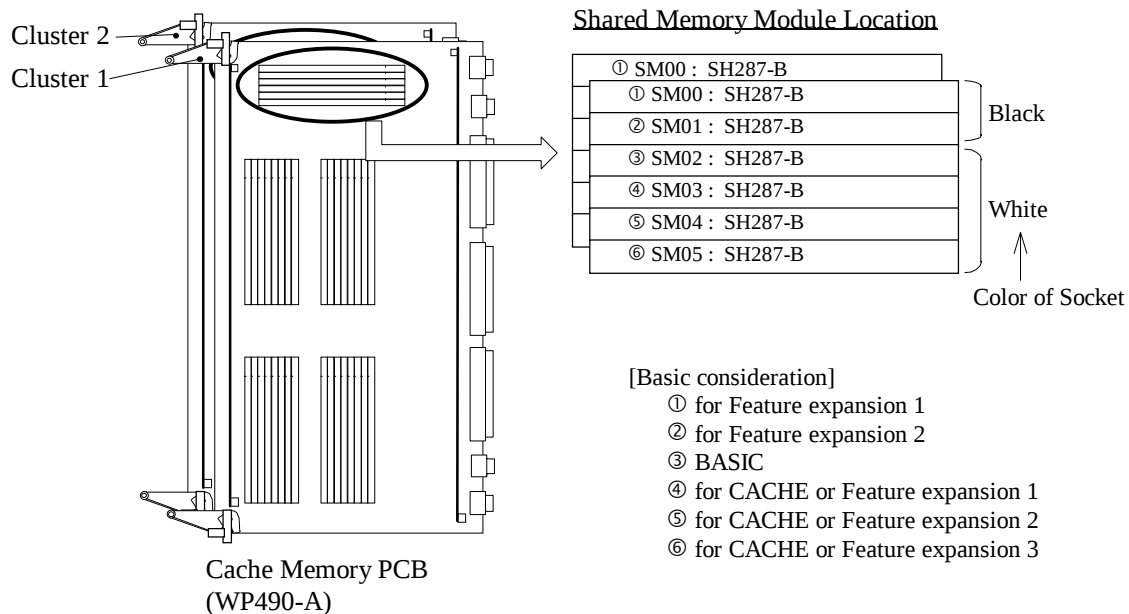


Table 1.1.2-4 Size of Cache Memory and Shared Memory
(HRC/HORC/HMRCF/HOMRCF/HHSM supported)

Cache Memory Capacity (GB)	Number of CU:1-4 (to 1024LDEV)			Number of CU:5-8 (to 2048LDEV)			Number of CU:9-16 (to 4096LDEV)			Number of CU:17-32&TPF (to 8192LDEV)		
	SM (MB)	S512	Install loc. *1	SM (MB)	S512	Install loc. *1	SM (MB)	S512	Install loc. *1	SM (MB)	S512	Install loc. *1
2	1024	2	③④	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
4	1024	2	③④	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
6	1024	2	③④	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
8	1024	2	③④	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
10	1536	3	③④⑤	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
12	1536	3	③④⑤	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
14	1536	3	③④⑤	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
16	1536	3	③④⑤	2048	4	③①④⑤	2048	4	③①④⑤	2560	5	③①②④⑤
18	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
20	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
22	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
24	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
26	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
28	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
30	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥
32	1536	3	③④⑤	2048	4	③①④⑤	2560	5	③①④⑤⑥	3072	6	③①②④⑤⑥

Note. *1: Location ①-⑥ shows actual location of shared memory module on Cache PCB.



1.1.2.4 RAID Group Installation Order

RAID group installation order shown in the following figure.

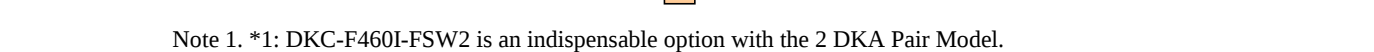
(1) Entry Model and Full-specification Model(1 DKA Pair Model)



Note *1: Entry Model install the DKC-F465I-100.

Full-specification Model(1 DKA Pair Model) install the DKC-F460I-200.

*2: DKC-F465I-FSW is necessary when the RAID group is installed 16 or more.



1.1.3 Specifications

The DKC465I disk subsystem physical specifications are shown in the following table:

Table 1.1.3-1 DKC465I Disk Subsystem Physical Specifications

No	Model number	Weight (kg)	Heat Output (kW)	Power Consumption (kVA)	Dimension (mm)			Air Flow (m ³ /min.)
					Width	Depth	Height	
1	DKC465I-5	586.0	0.52	0.55	782 *3	800	1,860	25
	DKC465I-5F	515.0	0.52	0.55	782 *3	800	1,860	25
2	DKC-F465I-1PS	15.0	—	—	—	—	—	—
3	DKC-F465I-1EC	7.5	—	—	—	—	—	—
4	DKC-F465I-1UC	10.5	—	—	—	—	—	—
5	DKC-F465I-3PS	12.0	—	—	—	—	—	—
6	DKC-F465I-3EC	6.0	—	—	—	—	—	—
7	DKC-F465I-3UC	10.0	—	—	—	—	—	—
8	DKC-F465I-FSW	2.0	0.20	0.21	—	—	—	—
9	DKC-F465I-FSW2	2.0	0.22	0.23	—	—	—	—
10	DKC-F465I-100	3.4	0.13	0.13	—	—	—	—
11	DKC-F460I-200 *1	3.6	0.21	0.22	—	—	—	—
12	DKC-F460I-2048 *1	0.2	0.007	0.008	—	—	—	—
13	DKC-F460I-S512 *1	0.05	0.004	0.004	—	—	—	—
14	DKC-F460I-SVP *1	14.5	0.07	0.07	—	—	—	—
15	DKC-F460I-UPS *1	1.2	0.01	0.01	—	—	—	—
16	DKC-F460I-8S *1	4.2	0.28	0.29	—	—	—	—
17	DKC-F460I-8MS *1	4.2	0.31	0.33	—	—	—	—
18	DKC-F460I-8ML *1	4.2	0.31	0.33	—	—	—	—
19	DKC-F460I-8GSE *1	4.0	0.15	0.15	—	—	—	—
20	DKC-F460I-4HSE *1	4.2	0.12	0.13	—	—	—	—
21	DKC-F460I-8HSE *1	4.2	0.21	0.22	—	—	—	—
22	DKC-F460I-8HLE *1	4.2	0.21	0.22	—	—	—	—
23	DKC-F460I-18 *1	0.6	0.002	0.003	—	—	—	—
24	DKU-F455I-36K1 *2	1.0	0.022	0.024	—	—	—	—
25	DKU-F455I-36K4 *2	4.0	0.088	0.096	—	—	—	—
26	DKU-F455I-72J1 *2	1.0	0.023	0.025	—	—	—	—
27	DKU-F455I-72J4 *2	4.0	0.092	0.100	—	—	—	—
28	DKC-F460I-256M	0.04	0.003	0.003	—	—	—	—
29	DKC-F465I-1PSD	13.0	—	—	—	—	—	—
30	DKC-F460I-1ECD	8.0	—	—	—	—	—	—
31	DKC-F460I-1UCD	10.0	—	—	—	—	—	—
32	DKC-F460I-8GSF	4.0	0.15	0.15	—	—	—	—
33	DKC-F460I-4HSF	4.2	0.12	0.13	—	—	—	—
34	DKC-F460I-8HSF	4.2	0.21	0.22	—	—	—	—
35	DKC-F460I-8HLF	4.2	0.21	0.22	—	—	—	—
36	DKC-F465I-DH	71.0	—	—	—	—	—	—
37	DKC-F465I-DS	71.0	—	—	—	—	—	—

Note. *1: They are common to the options installed in DKC460I-5.

Note. *2: They are common to the options installed in DKU455I-18.

Note. *3: This includes the thickness of side covers (16mm × 2).

1.1.4 Environmental Specifications

The environmental specifications are shown in the following table.

Item	Condition		
	Note 1 Operating	Note 2 Non-operation	Note 3 Shipping & Storage
Temperature (°C)	16 ~ 32	-10 ~ 43	-25 ~ 60
Note 4 Relative Humidity (%)	20 ~ 80	8 ~ 90	5 ~ 95
Max. Wet Bulb (°C)	26	27	29
Temperature Deviation (°C/hour)	10	10	20
Note 5 Vibration	5~ 10Hz: 0.25mm 10~300Hz:0.05G	5~ 10Hz: 2.5mm 10~ 70Hz: 0.5G 70~ 99Hz: 0.05mm 99~300Hz: 1.0G	0.5G, 15min. At four most severe resonance between 5~200Hz Note 6
Shock	—	8G, 15ms	Horizontal: Incline Impact 1.22m/s Note 7 Vertical: Rotational Edge 0.1m Note 8
Note 9 Acoustic Level	65 dB	—	—

Note: 1. Environmental specification for operating condition should be satisfied before the disk subsystem is powered on. Maximum temperature of 32°C should be strictly satisfied at air inlet portion. Recommended temperature range is 21~24°C.

2. Non-operating condition includes both packing and unpacking conditions unless otherwise specified.
3. On shipping/storage condition, the product should be packed with factory packing.
4. No condensation in and around the drive should be observed under any conditions.
5. The above specifications of vibration apply to all three axes.
6. See ASTM D999-91 Standard Methods for Vibration Testing of Shipping Containers.
7. See ASTM D5277-92 Standard Test Methods For Performing Programmed Horizontal Impacts Using an Inclined Impact Tester.
8. See ASTM D1083-91 Standard Test Methods for Mechanical Handling of Unitized Loads and Large Shipping Cases and Creates.
9. Measurement Condition: The point 1m far from floor and surface of the product.

1.1.5 Power requirement

The input voltage and input frequency are as follows:

1. 3 phase AC input

Frequency	Input Voltages (AC)	Conditions	Tolerance (%)	Remarks
60Hz ± 0.5 Hz	200V, 208V or 230V	3 Phase 3 Wire + Ground	+6% or -8%	for North America 200V : for Japan
50Hz ± 0.5 Hz	200V, 220V, 230V or 240V	3 Phase 3 Wire + Ground	+6% or -8%	for Europe 200V : for Japan
50Hz ± 0.5 Hz	380V, 400V or 415V	3 Phase 4 Wire + Ground	+6% or -8%	for Europe

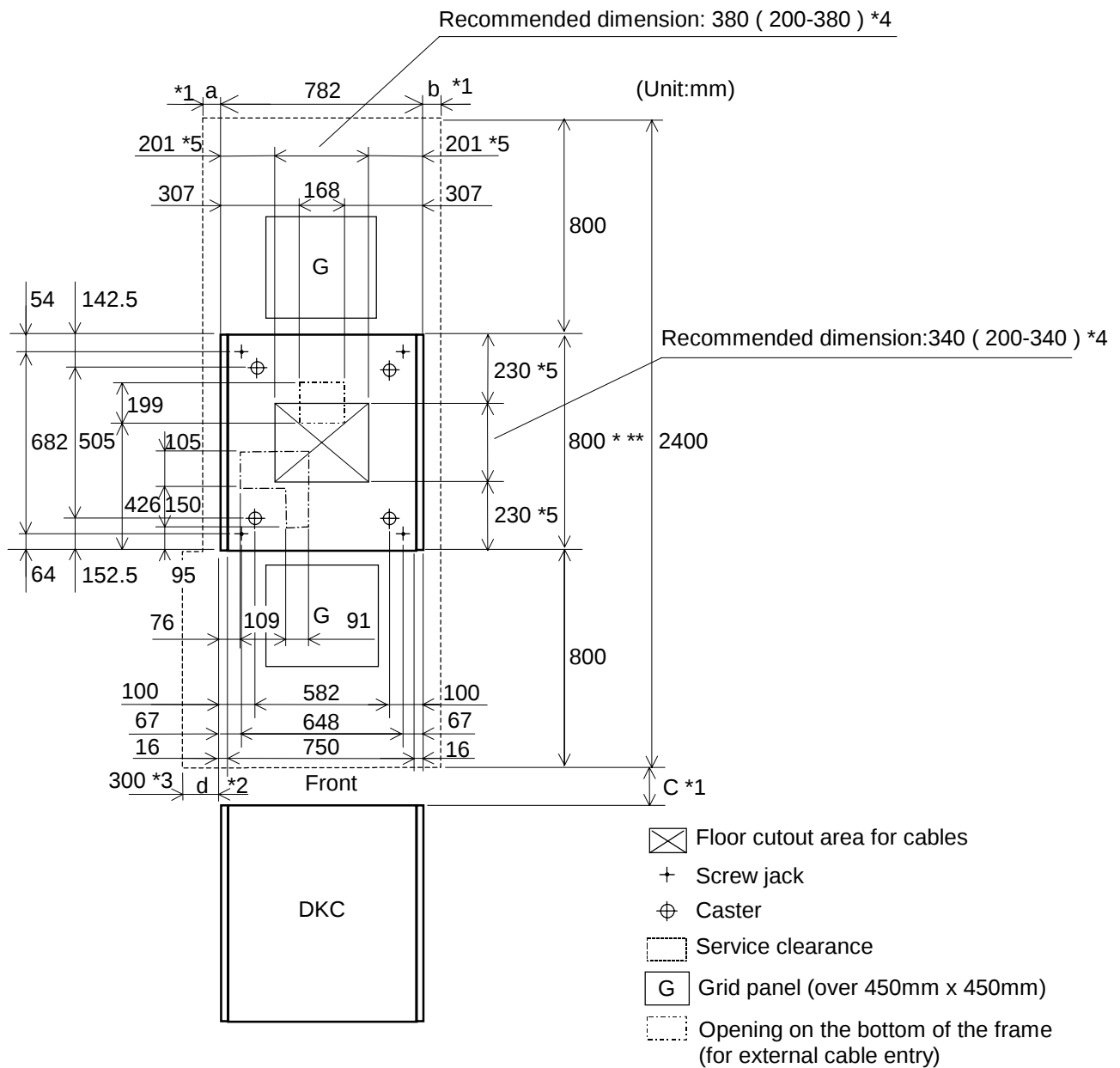
Note: This unit dose not apply to IT power system.

2. Single phase AC input

Frequency	Input Voltages (AC)	Conditions	Tolerance (%)	Remarks
60Hz ± 0.5 Hz	200V, 208V or 230V	1 Phase 2 Wire + Ground	+6% or -8%	for North America 200V : for Japan
50Hz ± 0.5 Hz	200V, 220V, 230V or 240V	1 Phase 2 Wire + Ground	+6% or -8%	for Europe 200V : for Japan

1.1.6 Service Clearance and Floor Cutout

The service clearance is the space for CE work. Never use this space for storage of any article to prevent damage.



*: The thickness of the door is different in the FRONT(35mm) from the REAR(25mm).

**: Overhang of the MOSAIC(LOUVER) of the FRONT DOOR(7mm) is not included.

- *1: Clearance (a+b) depended on the floor load rating and clearance c.
Floor load rating and required clearances are shown below.

Floor Load Rating for Service Clearances

Floor load rating (kg/m ²)	Required clearance (a+b)m				
	Clearance (c)m				
	C=0	C=0.2	C=0.4	C=0.6	C=1.0
500	0.4	0.3	0.2	0.1	0
450	0.6	0.4	0.3	0.2	0.1
400	0.8	0.6	0.5	0.4	0.2
350	1.2	1.0	0.8	0.6	0.4
300	1.7	1.4	1.2	1.0	0.8

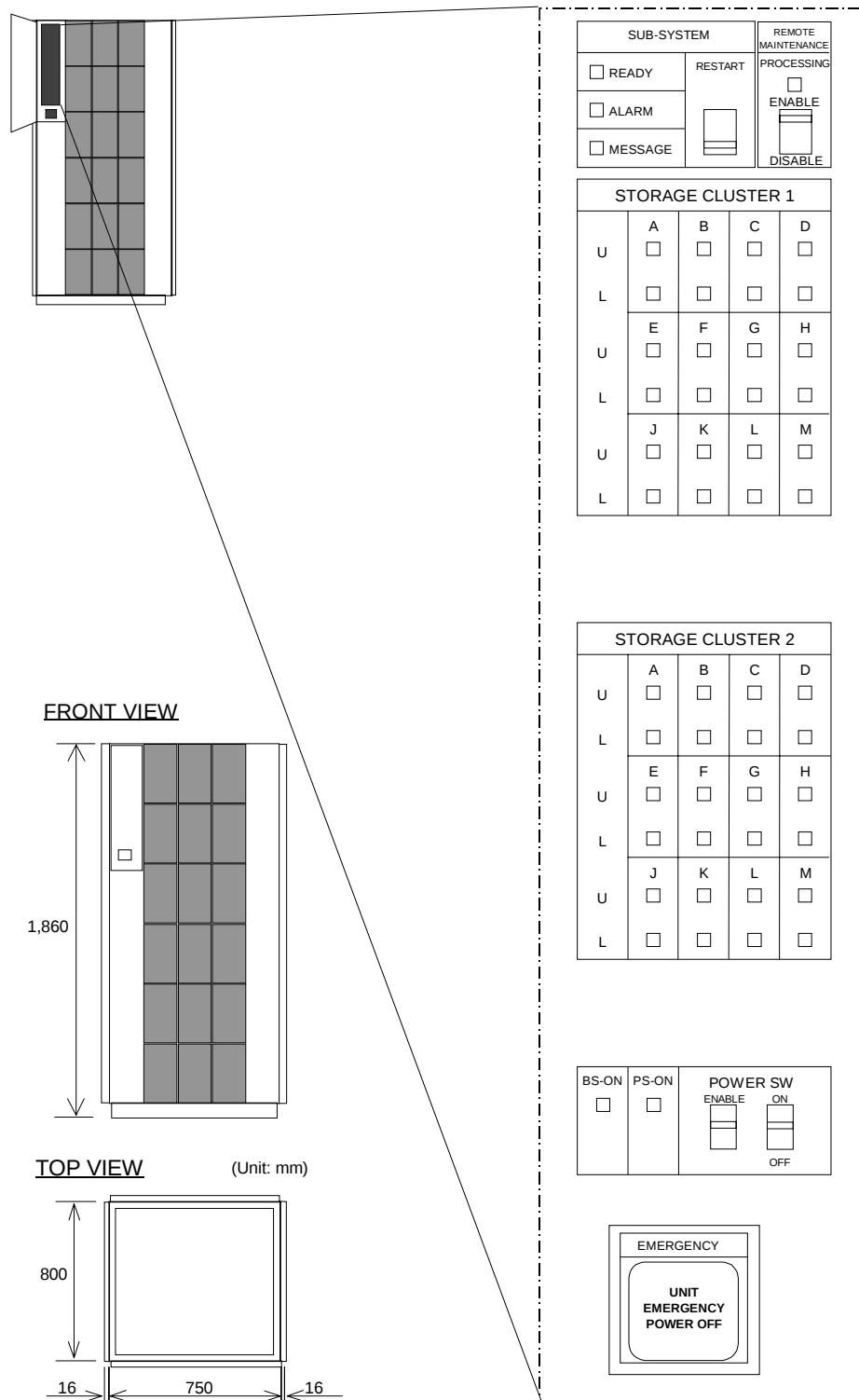
Give clearance of 100 mm on both sides of the subsystem when the kick plates are to be attached after the subsystem is installed. However, when the subsystems of the same type are to be installed adjacently to each other, a clearance between the subsystem may be 100 mm.

- *2: Clearance (d) is required over 0.28m so as to open the subsystem front door. In case that clearance (d) is less than clearance (a), give priority to clearance (a).
 *3: The side clearance on the front left side of the subsystem must be 300 mm or wider in order to open the DKC front door. However, priority should be given to the side clearance value "a" according to the load on the floor when the dimension "a" exceeds 300 mm.
 *4: Dimensions in parentheses show allowable range of the floor cutout dimensions. Basically, position the floor cutout in the center of the subsystem.
 However, the position may be off-center as long as the cutout allows smooth entrance of an external cable (check the relation between the positions of the cutout and the opening on the bottom plate of the subsystem) and it is within the allowable range.
 *5: This dimension varies depending on the floor cutout dimensions.

NOTE:1. Actual clearances for installation should be decided after consulting with construction specialist responsible for installation building, as they could vary depending on the size/layout of the system and building conditions.

- When various configurations of subsystems are arranged in a row, clearance values based on the largest subsystem configuration should be used.
- From the viewpoint of maintenance operations, it is suggested that clearance (c) be made as large as possible.

1.1.7 Layout



1.1.8 Power and Grounding Check

1.1.8.1 Facility power check

AC power cable plug and receptacle for 60Hz is part number of following table or an equivalent.

Model Number	Plug			Receptacle	
	Rating	Maker	Part number	Maker	Part number
DKC-F465I-1UC	50 A	Thomas & Betts	9P53U2	Thomas & Betts	9C53U2
DKC-F465I-3UC	30 A	Thomas & Betts	3760PDG	Thomas & Betts	3934
		DDK	115J-AP8508	Thomas & Betts	3934
DKC-F460I-1UCD	30 A	Thomas & Betts	3750DP	Thomas & Betts	3933

1.1.8.2 Facility grounding check

The subsystem 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.

1.2 Drive Expansion Sequence

The order in which DKU-F455I-36K4/72J4 (4 HDD canisters) units are to be installed in Fig. 1.2-1 and the order in which DKU-F455I-36K1/72J1 (spare HDD) units are to be installed in Fig. 1.2-2.

NOTICE:

(1) Specifications for the selection of the spare HDD are shown below.

A sparing of an HDD with a smaller capacity for an HDD with a larger capacity is possible. However, there are some cases in which an HDD cannot be assigned depending on the drive type as shown in the table below.

Copy source data HDD	Copy destination spare HDD	
	DKR2D-JxxFC	DKS2B-KxxFC
DKR2D-JxxFC	A spare HDD can be assigned when the following condition is satisfied. Capacity of a copy source data HDD $\leq$ Capacity of a copy destination spare HDD.	Assignment cannot be done.
DKS2B-KxxFC	Assignment cannot be done	A spare HDD can be assigned when the following condition is satisfied. Capacity of a copy source data HDD $\leq$ Capacity of a copy destination spare HDD.

No.	Model Number	Model Name	Data and Parity
1	DKU-F455I-36K4/72J4	4 HDD Canisters	Data and Parity Drive

(1) Entry Model or Full-spec Model (1 DKA Pair Model)

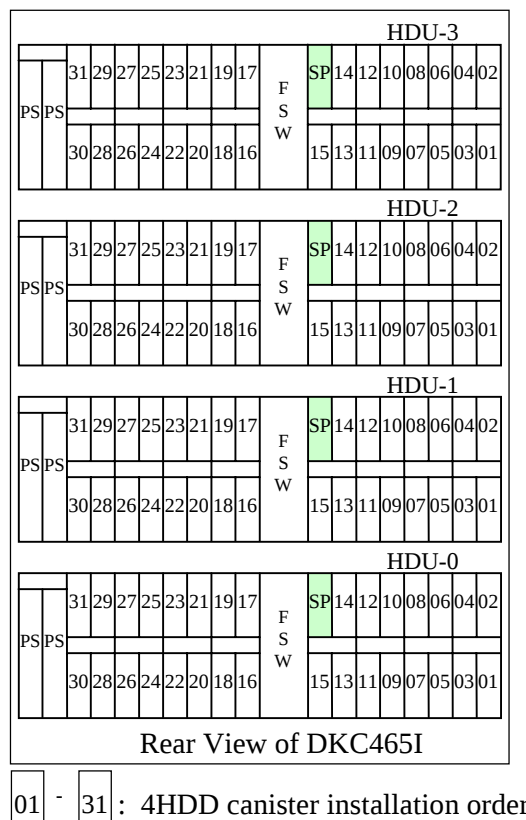


Fig. 1.2-1a Data Drive/Parity Drive Expansion Sequence (1 DKA Pair Model)

The relationship between HDDs installation order and RAID group number is shown in the following table.

Table 1.2-1a Relation between HDDs installation order and RAID group number (1 DKA Pair Model)

Group No.	Installation Order	Group No.	Installation Order	Group No.	Installation Order	Group No.	Installation Order
1-1	001	1-2	002	1-3	003	1-4	004
1-5	005	1-6	006	1-7	007	1-8	008
1-9	009	1-10	010	1-11	011	1-12	012
1-13	013	1-14	014	1-15	015	1-16	SP
1-17	016	1-18	017	1-19	018	1-20	019
1-21	020	1-22	021	1-23	022	1-24	023
1-25	024	1-26	025	1-27	026	1-28	027
1-29	028	1-30	029	1-31	030	1-32	031

(2) Full-spec Model (2 DKA Pairs Model)

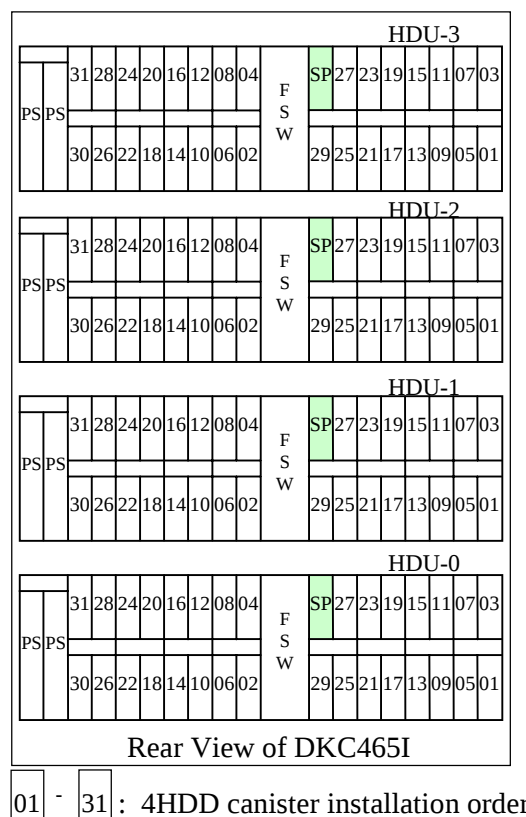


Fig. 1.2-1b Data Drive/Parity Drive Expansion Sequence (2 DKA Pairs Model)

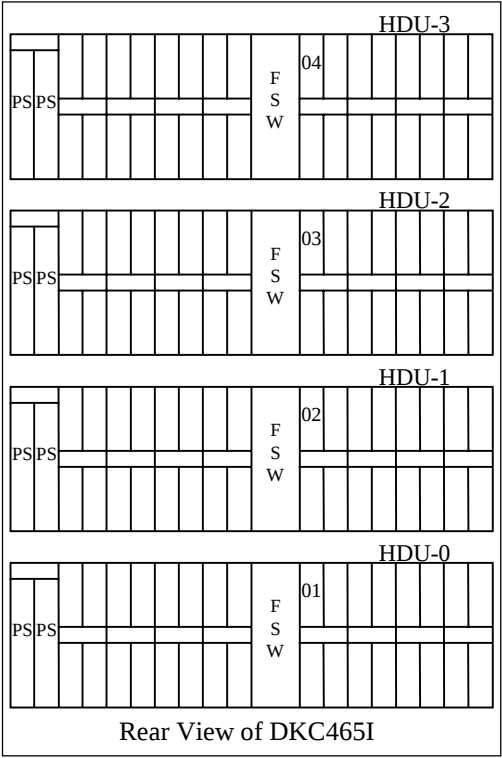
The relationship between HDDs installation order and RAID group number is shown in the following table.

Table 1.2-1b Relation between HDDs installation order and RAID group number (2 DKA Pairs Model)

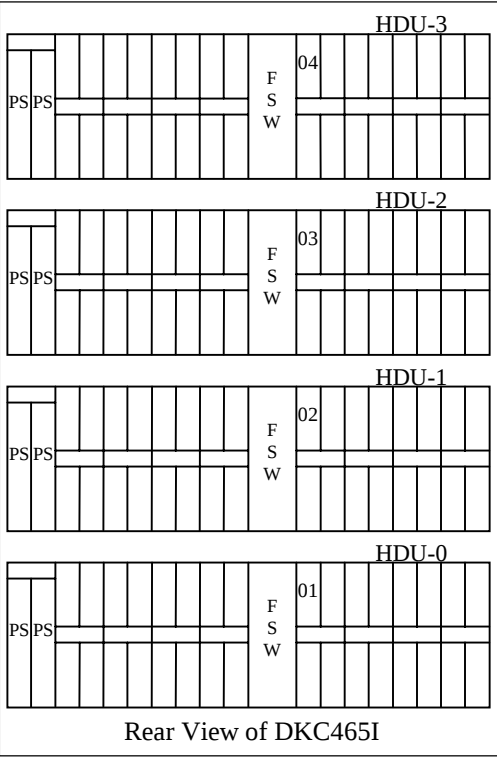
Group No.	Installation Order	Group No.	Installation Order	Group No.	Installation Order	Group No.	Installation Order
1-1	001	1-2	003	1-3	005	1-4	007
1-5	009	1-6	011	1-7	013	1-8	015
1-9	017	1-10	019	1-11	021	1-12	023
1-13	025	1-14	027	1-15	029	1-16	SP
2-1	002	2-2	004	2-3	006	2-4	008
2-5	010	2-6	012	2-7	014	2-8	016
2-9	018	2-10	020	2-11	022	2-12	024
2-13	026	2-14	028	2-15	030	2-16	031

No.	Model Number	Model Name	Data and Parity
1	DKU-F455I-36K1/72J1	1 HDD Canister	Spare Drive

Entry Model or
Full-spec Model (1DKA Pair Model)



Full-spec Model (2DKA Pairs Model)



01 - 04 : Spare HDD canister installation order

Fig. 1.2-2 Spare Drive Expansion Sequence

1.3 Explanation of Channel Option Configuration

1.3.1 List of Channel Options

Channel options which can be installed in the DKC465I are shown in Table 1.3-1. Up to 3 sets of them can be installed in the entire subsystem.

Table 1.3-1 List of Channel Options

No.	Model Number	Model Name	Major Part	Remarks
1	DKC-F460I-8S	Serial 8-port Adapter	• WP462-A } $\times 2$ - SH281-C $\times 4$ } • I/F Con. Panel	For connection to the main frame
2	DKC-F460I-8GSE	Fibre 8-port Adapter for Short Wavelength (1Gbps support)	• WP461-D } $\times 2$ - SH281-A $\times 2$ } • I/F Con. Panel	For connection to the open system
3	DKC-F460I-4HSE	Fibre 4-port Adapter for Short Wavelength (1-2Gbps support)	• WP461-E } $\times 2$ - SH281-A $\times 2$ } • I/F Con. Panel	For connection to the open system
4	DKC-F460I-8HSE	Fibre 8-port Adapter for Short Wavelength (1-2Gbps support)	• WP461-B } $\times 2$ - SH281-A $\times 4$ } • I/F Con. Panel	For connection to the open system
5	DKC-F460I-8HLE	Fibre 8-port Adapter for Long Wavelength (1-2Gbps support)	• WP461-C } $\times 2$ - SH281-A $\times 4$ } • I/F Con. Panel	For connection to the open system
6	DKC-F460I-8MS	Mainframe Fibre 8-port Adapter for Short Wavelength (1Gbps support)	• WP465-A } $\times 2$ - SH281-A $\times 4$ } • I/F Con. Panel	For connection to the main frame
7	DKC-F460I-8ML	Mainframe Fibre 8-port Adapter for Long Wavelength (1Gbps support)	• WP465-B } $\times 2$ - SH281-A $\times 4$ } • I/F Con. Panel	For connection to the main frame
8	DKC-F460I-8GSF	Fibre 8-port Adapter for Short Wavelength (1Gbps support)	• WP461-H } $\times 2$ - SH281-A $\times 2$ } • I/F Con. Panel	For connection to the open system Check data assist support
9	DKC-F460I-4HSF	Fibre 4-port Adapter for Short Wavelength (1-2Gbps support)	• WP461-J } $\times 2$ - SH281-A $\times 2$ } • I/F Con. Panel	For connection to the open system Check data assist support
10	DKC-F460I-8HSF	Fibre 8-port Adapter for Short Wavelength (1-2Gbps support)	• WP461-F } $\times 2$ - SH281-A $\times 4$ } • I/F Con. Panel	For connection to the open system Check data assist support
11	DKC-F460I-8HLF	Fibre 8-port Adapter for Long Wavelength (1-2Gbps support)	• WP461-G } $\times 2$ - SH281-A $\times 4$ } • I/F Con. Panel	For connection to the open system Check data assist support

1.3.2 Channel Specifications

Specifications for each channel option are shown in table 1.3-2.

Table 1.3-2 Channel Specifications

Item	Serial	Mainframe fibre	
	8-port	Short Wave 8-port	Long Wave 8-port
Option name	8S	8MS	8ML
Data transfer rate (MB/s)	17	100	100
Number of connected ports/option	8	8	8
Host interface	Serial	FICON	FICON
Number of installable options/subsystem	1/2/3	1/2/3	1/2/3
Cable length	3km	500m *1	10km

Item	Fibre Short Wave			Fibre Long Wavel
	1Gbps 8-port	2Gbps 4-port	2Gbps 8-port	2Gbps 8-port
Option name	8GSE/8GSF	4HSE/4HSF	8HSE/8HSF	8HLE/8HLF
Data transfer rate (MB/s)	100	100/200	100/200	100/200
Number of connected ports/option	8	4	8	8
Host interface	FCP	FCP	FCP	FCP
Number of installable options/subsystem	1/2/3	1/2/3	1/2/3	1/2/3
Cable length	500m *1	500m / 300m *2	500m / 300m *2	10km

*1 Indicates when 50/125 μ m multi-mode fiber cable is used. If 62.5/125 μ m multi-mode fibre cable is used, maximum length is decreased to 300m.

*2 Indicates when 50/125 μ m multi-mode fiber cable is used. If 62.5/125 μ m multi-mode fibre cable is used, 500m(100MB/s) and 300m(200MB/s) is decreased to 300m and 150m respectively.

Up to 3 sets of combinations of the aforementioned channel options and up to 24 ports can be connected to each subsystem.

1.3.3 Installing Location

(1) Option installing location

The channel option installing location and the interface connector installing section are shown in Fig. 1.3-1.

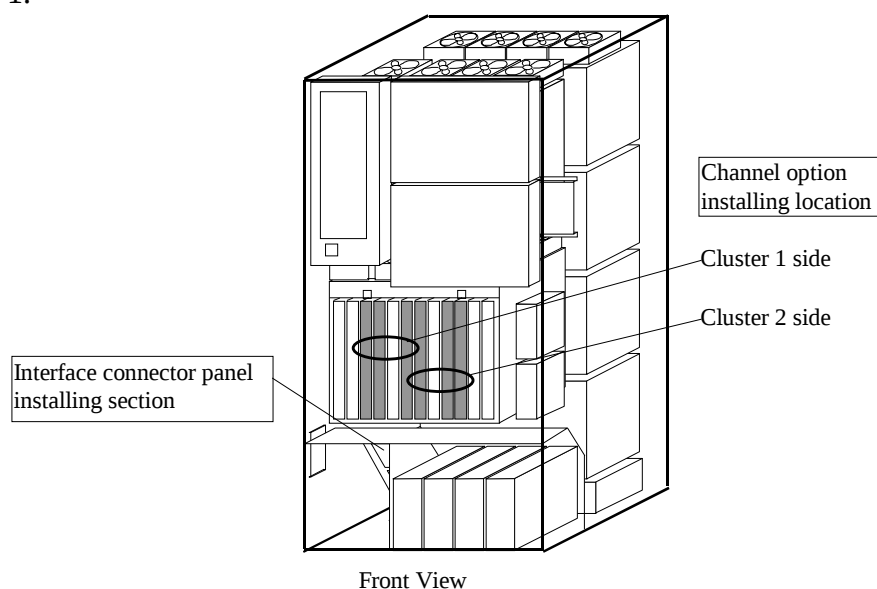


Fig. 1.3-1 Channel Option Installation

(2) PCB location diagram

Location of channel option PCBs are shown in Table 1.3-3.

Table 1.3-3 PCB Location Diagram

CL1						CL2					
A	B	C	D	E	F *1	G	H	J	K *1	L	M
W	D	8S	8S	W	8S	8S	W	8S	8S	D	W
P	K	8GSE/F	8GSE/F	P	8GSE/F	8GSE/F	P	8GSE/F	8GSE/F	K	P
4	A	4HSE/F	4HSE/F	4	4HSE/F	4HSE/F	4	4HSE/F	4HSE/F	A	4
8		8HSE/F	8HSE/F	9	8HSE/F	8HSE/F	9	8HSE/F	8HSE/F		8
1		8HLE/F	8HLE/F	0	8HLE/F	8HLE/F	0	8HLE/F	8HLE/F		1
-		8MS	8MS	-	8MS	8MS	-	8MS	8MS		-
C		8ML	8ML	A	8ML	8ML	A	8ML	8ML		C
CSW-1A	DKA-1B	CHA-1C (Basic)	CHA-1D (Add.1)	CACHE-1E	CHA-1F (Add.2)	CHA-2G (Basic)	CACHE-2H	CHA-2J (Add.1)	CHA-2K (Add.2)	DKA-2L	CSW-2M

8S: PCB for DKC-F460I-8S

8GSE/F: PCB for DKC-F460I-8GSE/8GSF

4HSE/F: PCB for DKC-F460I-4HSE/4HSF

8HSE/F: PCB for DKC-F460I-8HSE/8HSF

8HLE/F: PCB for DKC-F460I-8HLE/8HLF

8MS: PCB for DKC-F460I-8MS

8ML: PCB for DKC-F460I-8ML

Note. For the configuration of each PCB, see Table 1.3-1.

*1: When a subsystem is a 2 DKA Pairs Model, the CHA option can't be installed in the PCB location of F and K. In this case, the DKA option (DKC-F460I-200) is installed in these locations.

(3) Interface connector panel installing section

The interface connector panel installing section is shown in Fig. 1.3-2. (For the installing location, see Fig. 1.3-1)

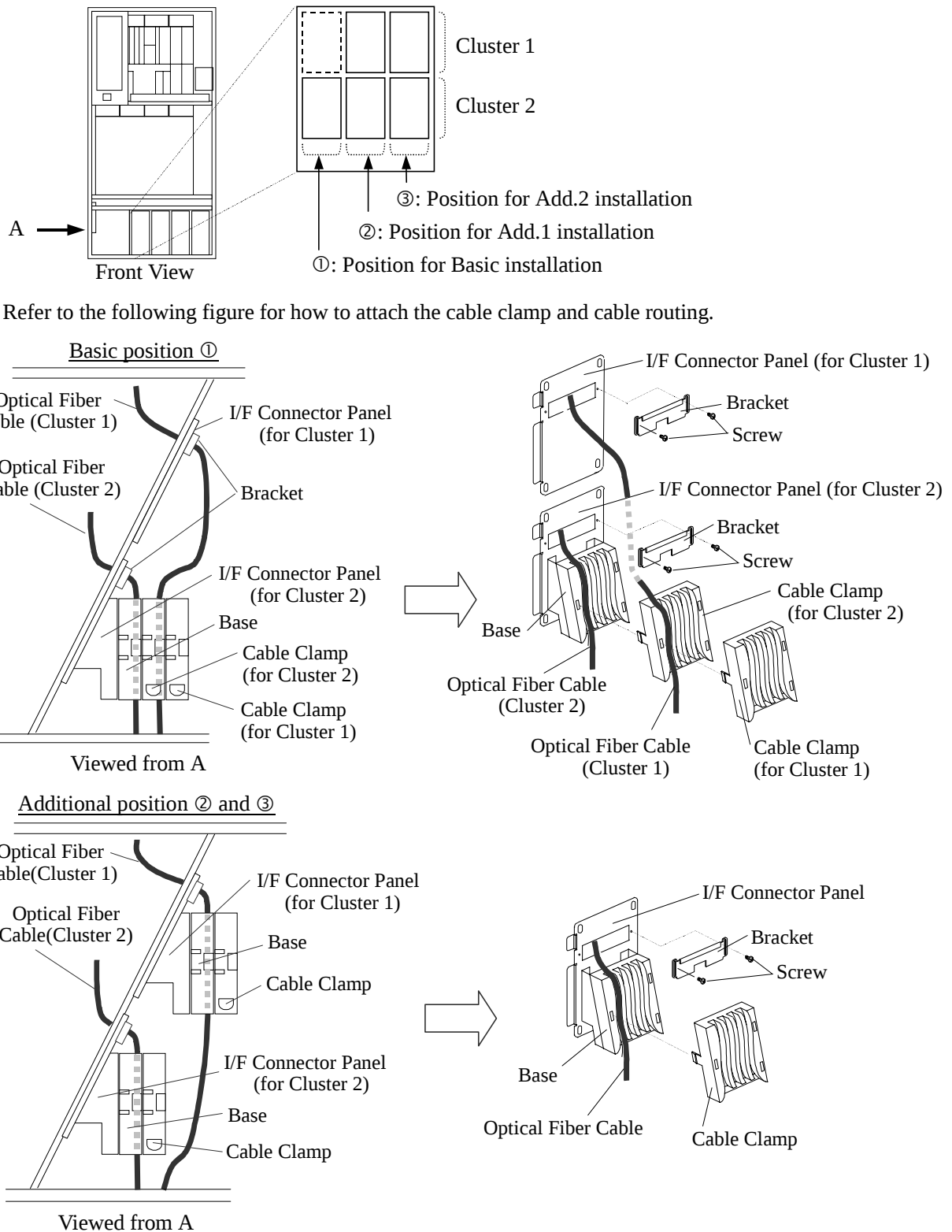


Fig. 1.3-2 Interface connector panel installing section

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 Subsystem for the first time, perform all hardware installation procedures before initiating the installation through SVP procedure.

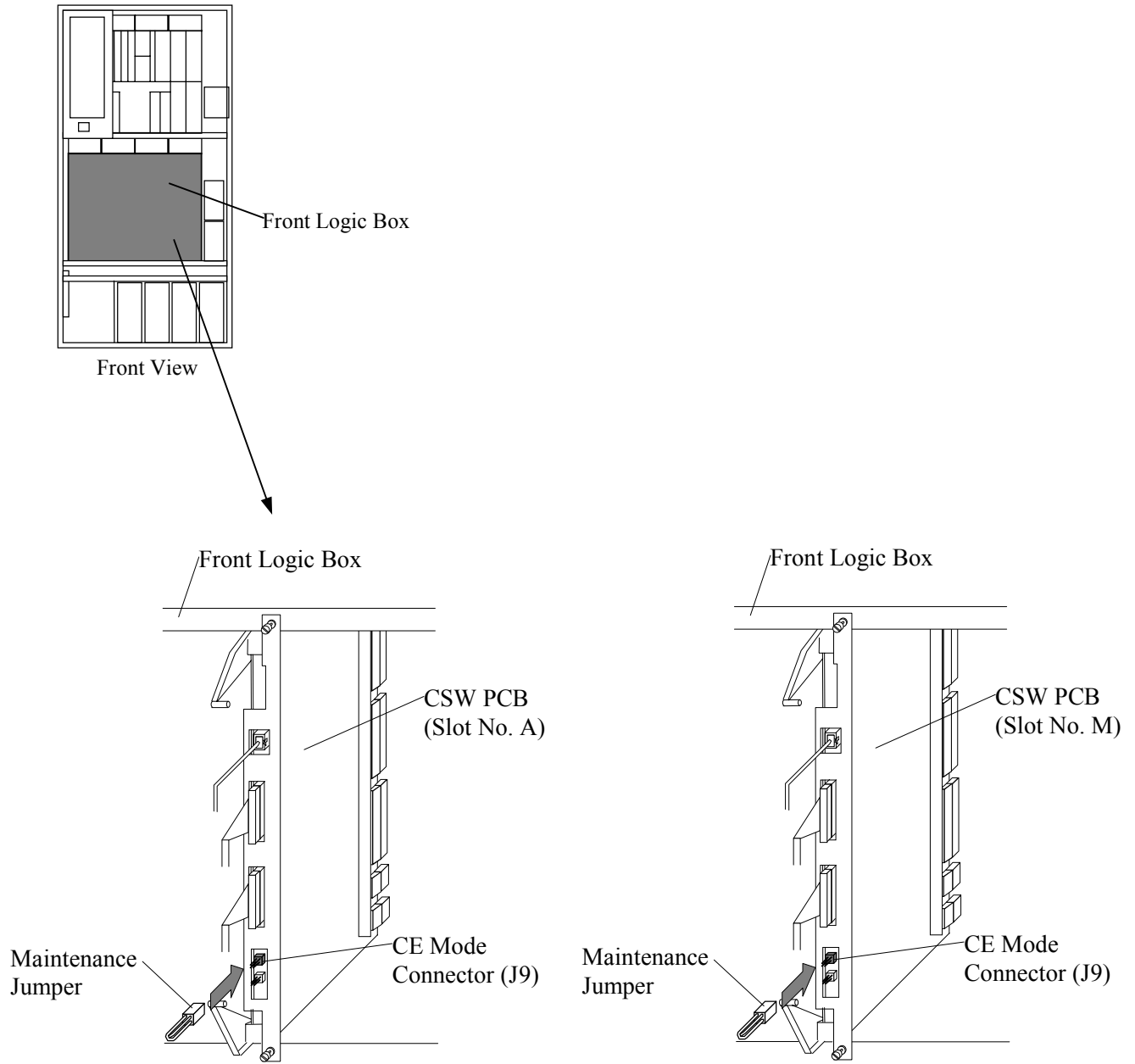
Skip the next procedure when the procedure is not necessary. When the SVP High Reliability Kit is installed, however, it is not required to connect the following cables since they are to be connected in the SVP Procedure: Cable (P41) and LAN Cable (LSVP-2) (See [INST03-SVP-70](#).)

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.

Table 2.1-1 New Installation Procedure Table

No.	Working Item	Model Number	Page
1	Unpacking and Inspection	—	INST03-INS-10 through 50
2	Subsystem Installation (DKC-F465I)	←	INST03-SUB-10 through 60
3	AC Box Installation (DKC-F465I-1PS/3PS/1PSD)	←	INST03-ACB-10 through 100
4	AC Power Cable Installation (DKC-F465I-1EC/1UC/3EC/3UC, DKC-F460I-1ECD/1UCD)	←	INST03-PWC-10 through 110
5	PCI I/F Connector Installation (DKC-F460I-18)	←	INST03-PCI-10 through 50
6	Channel Adapter Installation (DKC-F460I-8S/8MS/8ML/8GSE/4HSE/ 8HSE/8HLE/8HSF/4HSF/8HSF/8HLF)	8S	INST03-8S-10 through 100 (Only hardware procedure)
		8GSE/8GSF 4HSE/4HSF 8HSE/8HSF 8HLE/8HLF	INST03-FIB-10 through 90 (Only hardware procedure)
		8MS 8ML	INST03-MF-10 through 100 (Only hardware procedure)
7	Cache memory and Shared memory Installation (DKC-F460I-S512/2048)	S512	INST03-SM-10 through 160 (Only hardware procedure)
		2048	INST03-CM-10 through 170 (Only hardware procedure)
8	Additional Disk Adapter, Additional Disk Port Switch, Disk Path Expansion Kit and HDD Canister Installation (DKC-F465I-FSW/FSW2/100, DKC-F460I-200, DKU-F455I-36K1/36K4/72J1/72J4)	←	INST03-DKA-10 through 610 (Only hardware procedure)
9	SVP High Reliability Kit Installation (DKC-F460I-SVP)	←	INST03-SVP-10 through 250 (Only hardware procedure)
10	UPS Connection Kit Installation (DKC-F460I-UPS)	←	INST03-UPS-10 through 130
11	256MB Additional Memory for SVP Installation (DKC-F460I-256M)	←	INST03-SVM-10 through 110
12	SVP "New Installation" Procedure	—	INST02-520
13	END		

Note *1 : The Maintenance Jumper of the CE Mode Connector (J9).



2.2 Non-Disruptive Installation Procedure Table

Note:

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

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 [INST02-420](#) 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 subsystem is connected to the host (OS). Non-Disruptive Installation shall be done with the subsystem power ON. However, the subsystem may be disconnected from the host (OS).
- Install additional Cache Memory and Shared Memory (DKC-F460I-S512/2048) on one side first without affecting subsystem operation according to the SVP guidance.
- When the type of the CHAs is changed (e.g. from fibre to serial channel), de-install the old CHAs temporarily before installing new CHAs.

Table 2.2-1 Non-Disruptive Installation Procedure Table

No.	Working Item	Model Number	Page
1	Start UP the Install	—	—
2	Unpacking and Inspection	—	INST03-INS-10 through 50
3	Channel Adapter Installation (DKC-F460I-8S/8MS/8ML/8GSE/4HSE/ 8HSE/8HLE/8GSF/4HSF/8HSF/8HLF)	8S	INST03-8S-10 through 100
		8GSE/8GSF 4HSE/4HSF 8HSE/8HSF 8HLE/8HLF	INST03-FIB-10 through 90
		8MS 8ML	INST03-MF-10 through 100
4	Cache memory and Shared memory Installation (DKC-F460I-S512/2048)	S512	INST03-SM-10 through 160
		2048	INST03-CM-10 through 170
5	Additional Disk Adapter, Additional Disk Port Switch, Disk Path Expansion Kit and HDD Canister Installation (DKC-F465I-FSW/FSW2/100, DKC-F460I-200, DKU-F455I-36K1/36K4/72J1/72J4)	←	INST03-DKA-10 through 610
6	SVP High Reliability Kit Installation (DKC-F460I-SVP)	←	INST03-SVP-10 through 250
7	PCI I/F Connector Installation (DKC-F460I-18)	←	INST03-PCI-10 through 50
8	256MB Additional Memory for SVP Installation (DKC-F460I-256M)	←	INST03-SVM-10 through 110
9	END		

2.3 Non-Disruptive De-installation Procedure Table

Note:

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

Remove additional non-disruptive options according to the flow shown below. 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 STATUS Section).

If a fault occurs during or after removal, see [INST02-440](#) 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 subsystem is connected to the host (OS). Non-Disruptive De-Installation shall be done with the subsystem power ON. However, the subsystem may be disconnected from the host (OS).
- Remove additional Cache Memory and Shared Memory (DKC-F460I-S512/2048) on one side first without affecting subsystem operation according to the SVP guidance.

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

No.	Working Item	Model Number	Page
1	Start UP the Install	—	—
2	Additional Disk Adapter, Additional Disk Port Switch, Disk Path Expansion Kit and HDD Canister De-installation (DKC-F465I-FSW/FSW2/100, DKC-F460I-200, DKU-F455I-36K1/36K4/72J1/72J4)	←	INST04-DKA-10 through 470
3	Cache memory and Shared memory De-installation (DKC-F460I-S512/2048)	S512	INST04-SM-10 through 170
		2048	INST04-CM-10 through 190
4	Channel Adapter De-installation (DKC-F460I-8S/8MS/8ML/8GSE/4HSE/8HSE/8HLE/8GSF/4HSF/8HSF/8HLF)	8S	INST04-8S-10 through 100
		8GSE/8GSF 4HSE/4HSF 8HSE/8HSF 8HLE/8HLF	INST04-FIB-10 through 100
		8MS 8ML	INST04-MF-10 through 100
5	SVP High Reliability Kit De-installation (DKC-F460I-SVP)	←	INST04-SVP-10 through 120
6	PCI Connector De-installation (DKC-F460I-18)	←	INST04-PCI-10 through 40
7	256MB Additional Memory for SVP De-installation (DKC-F460I-256M)	←	INST04-SVM-10 through 110
8	END		

2.4 Disruptive Installation Procedure Table

Note:

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

Install additional disruptive options according to the flow shown below.

If a fault occurs during or after additional installation, see [INST02-420](#) 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 subsystem is disconnected from the host (OS). Disruptive Installation shall be done with the subsystem power OFF.

Table 2.4-1 Disruptive Installation Procedure Table

No.	Working Item	Model Number	Page
1	Disk Subsystem Power OFF	—	INST03-PWR-50 through 60
2	UPS Connection Kit Installation (DKC-F460I-UPS)	←	INST03-UPS-10 through 90 (Only hardware procedure)
3	PCI I/F Connector Installation (DKC-F460I-18)	←	INST03-PCI-10 through 50 (Only hardware procedure)
4	256MB Additional Memory for SVP Installation (DKC-F460I-256M)	←	INST03-SVM-10 through 110
5	AC Box Installation (DKC-F465I-1PS/3PS/1PSD)	←	INST03-ACB-10 through 100
6	AC Power Cable Installation (DKC-F465I-1EC/1UC/3EC/3UC, DKC-F460I-1ECD/1UCD)	←	INST03-PWC-10 through 110
7	Disk Subsystem Power on	—	INST03-PWR-10 through 50
8	Change Configuration Information for UPS Connection Kit	←	INST03-UPS-100 through 130
9	END		

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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 STATUS Section).

If a fault occurs during or after removal, see [INST02-440](#) 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 subsystem is disconnected from the host (OS). Disruptive De-installation shall be done with the subsystem power OFF.

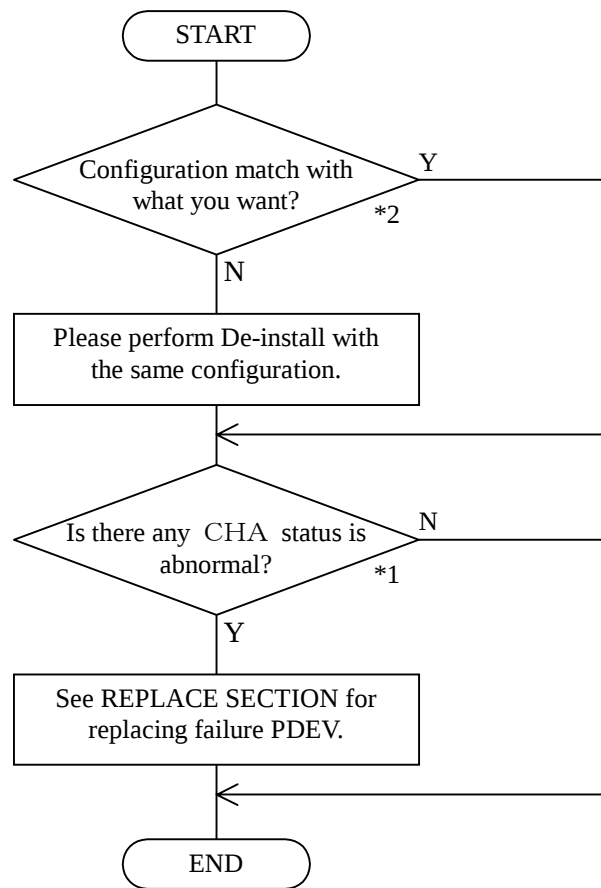
Table 2.5-1 Disruptive De-installation Procedure Table

No.	Working Item	Model Number	Page
1	Disk Subsystem Power OFF	←	INST03-PWR-50 through 60
2	UPS Connection Kit De-Installation (DKC-F460I-UPS)	←	INST04-UPS-10 through 130 (Only Hardware procedure)
3	PCI Connector De-Installation (DKC-F460I-18)	←	INST04-PCI-10 through 40 (Only Hardware procedure)
4	256MB Additional Memory for SVP Installation (DKC-F460I-256M)	←	INST04-SVM-10 through 110
5	AC Power Cable De-Installation (DKC-F465I-1EC/1UC/3EC/3UC, DKC-F460I-1ECD/1UCD)	←	INST04-PWC-10 through 80
6	AC Box De-Installation (DKC-F465I-1PS/3PS/1PSD)	←	INST04-ACB-10 through 90
7	Disk Subsystem Power ON		INST03-PWR-10 through 50
8	END		

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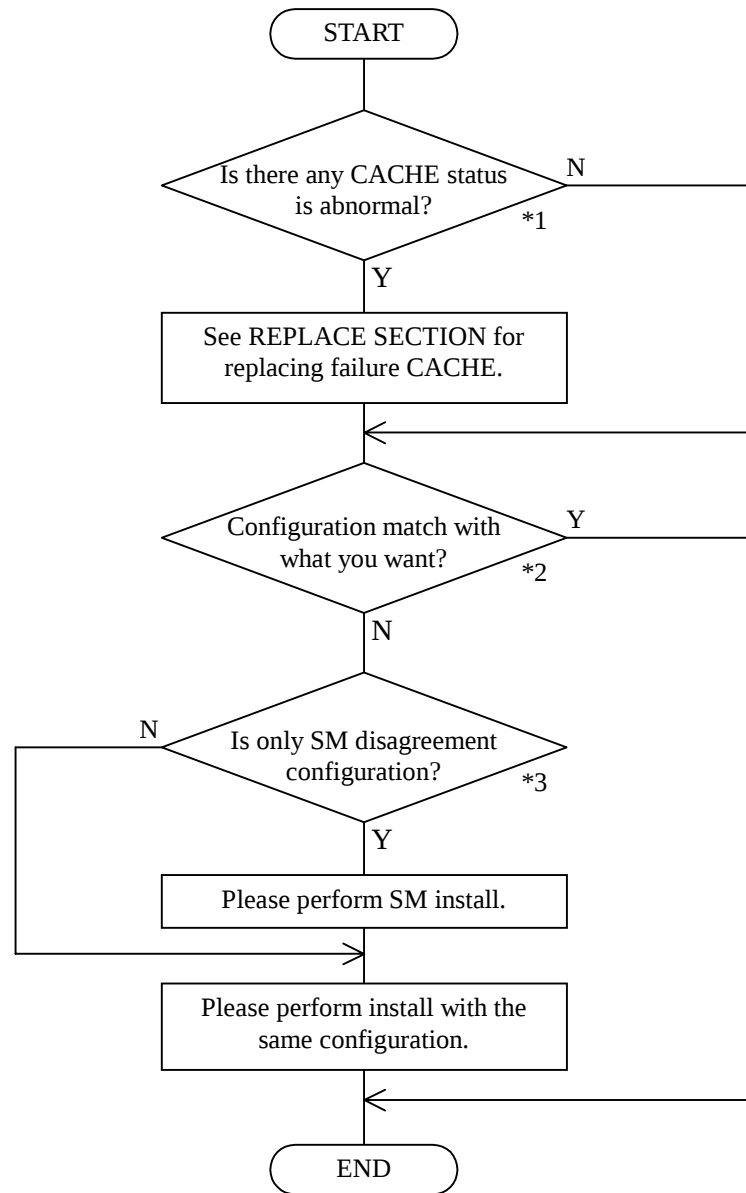
2.6.2 Number of Channel



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

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

2.6.3 Cache Capacity

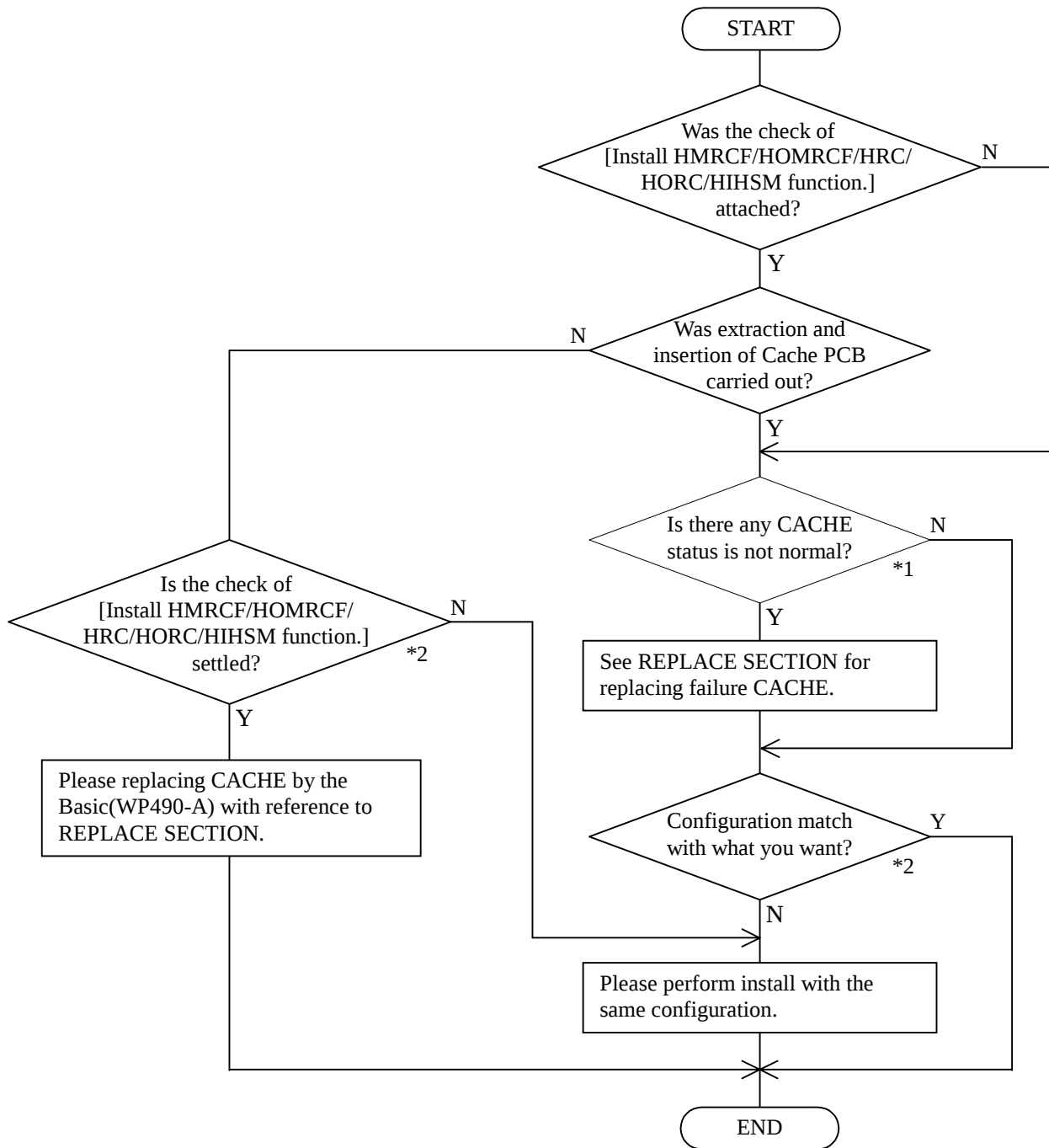


*1 Select (CL) [Maintenance] in the 'SVP' Window.

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

*3 Was INS2566I displayed when select (CL) [Install] – [Change Configuration] in the 'SVP' Window?

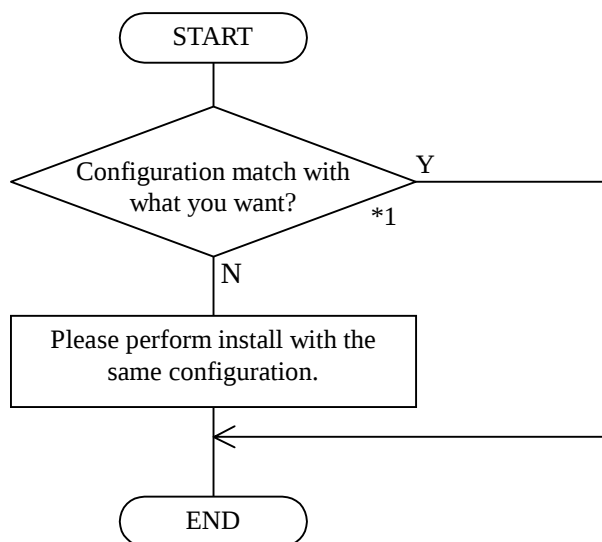
2.6.4 SM Capacity



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

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

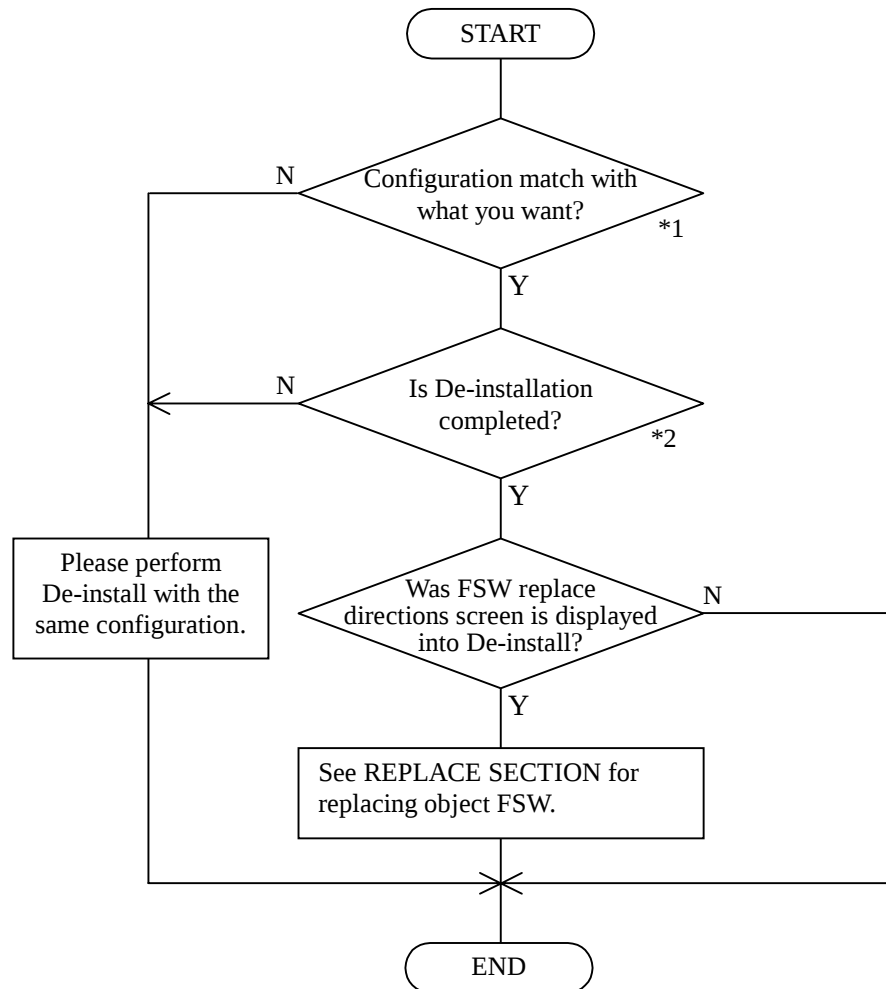
2.6.5 Power Supply



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

2.7 Trouble shooting for errors in de-install SVP procedure

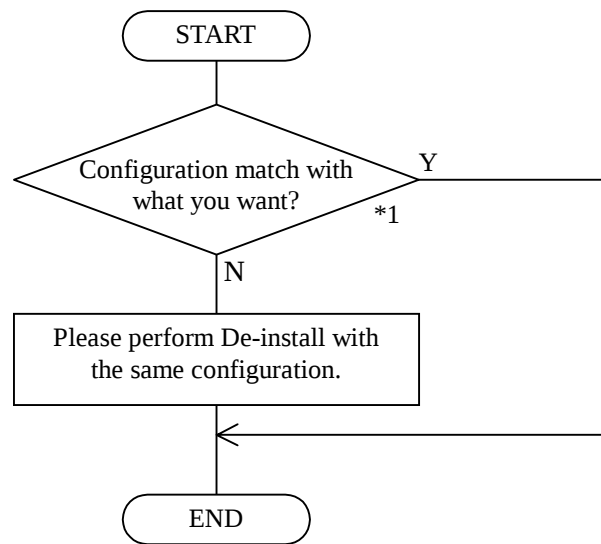
2.7.1 DKA + ECC group + LDEV



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

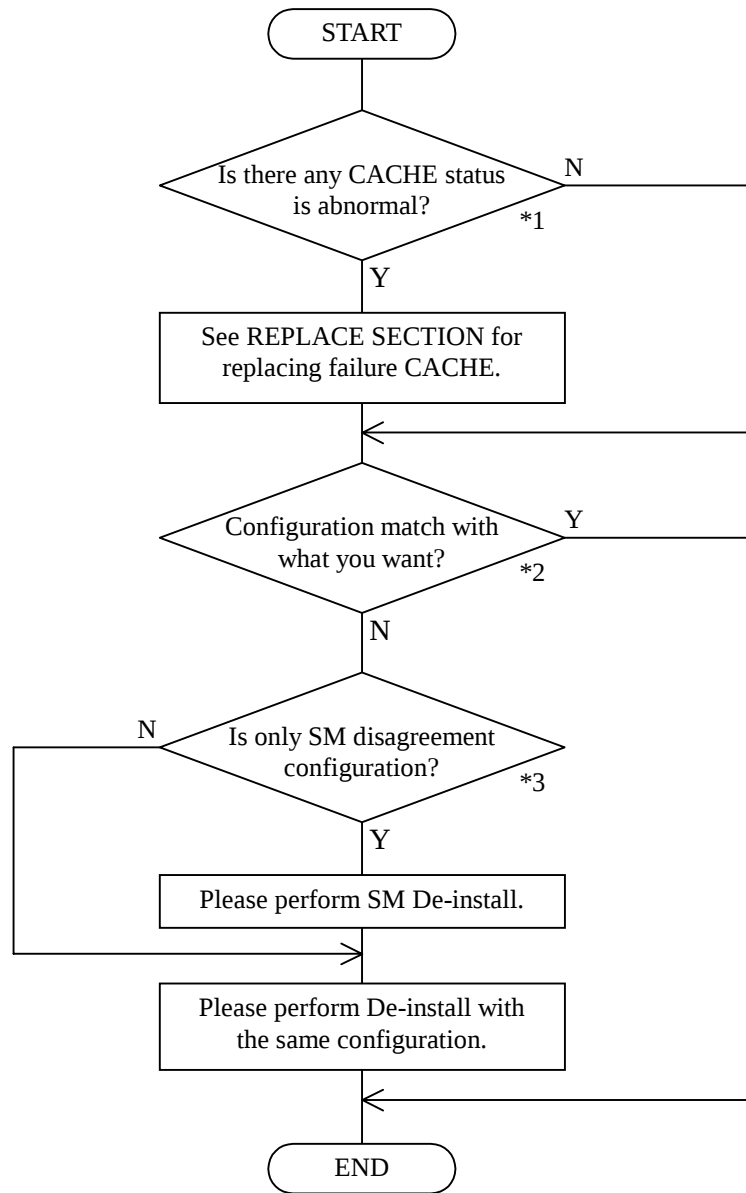
*2 Wasn’t INS2450I displayed when select (CL) [Install] – [Change Configuration] in the ‘SVP’ Window?

2.7.2 Number of Channel



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

2.7.3 Cache Capacity

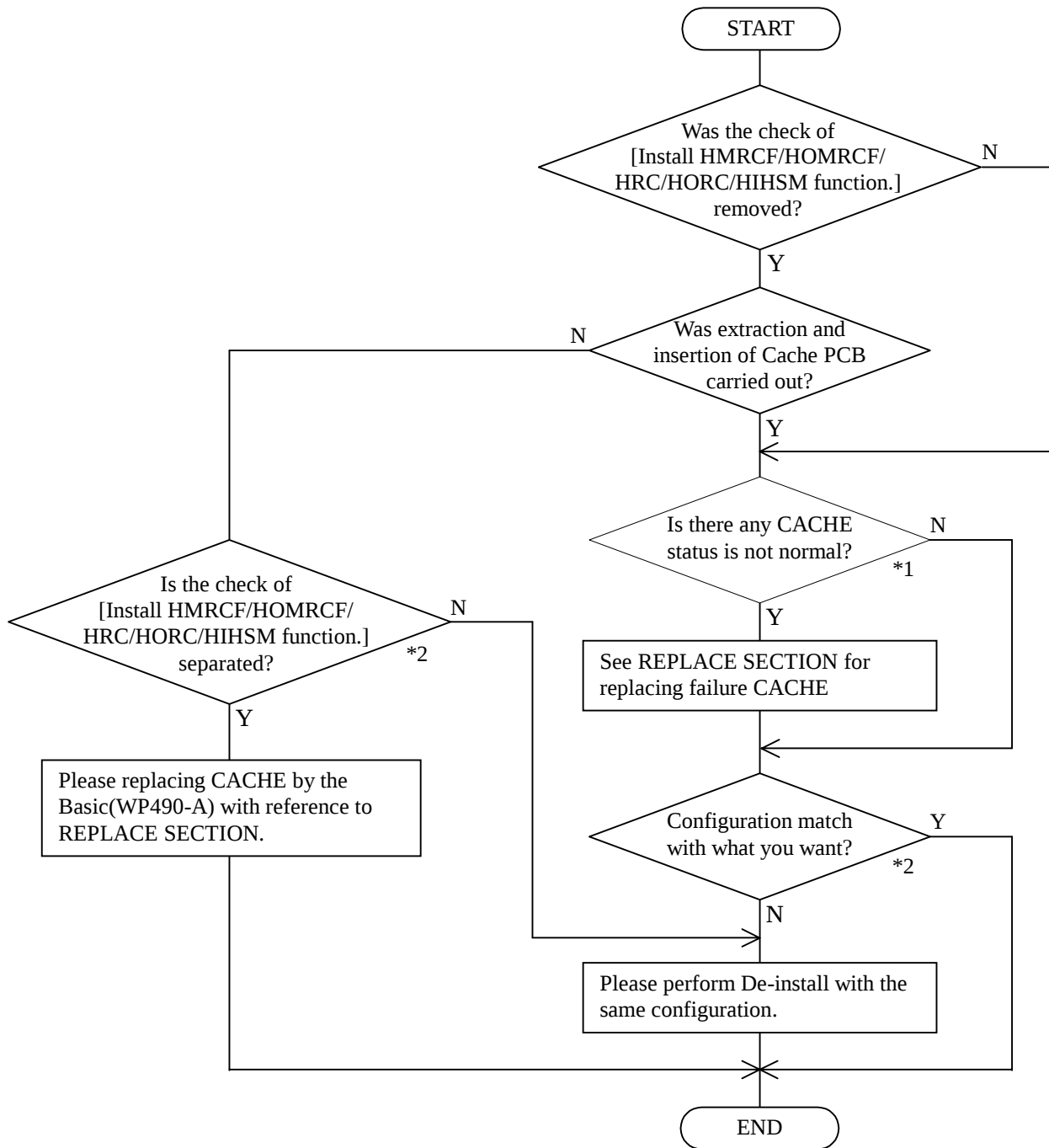


*1 Select (CL) [Maintenance] in the 'SVP' Window.

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

*3 'Was INS2566I displayed when select (CL) [Install] – [Change Configuration] in the 'SVP' Window?

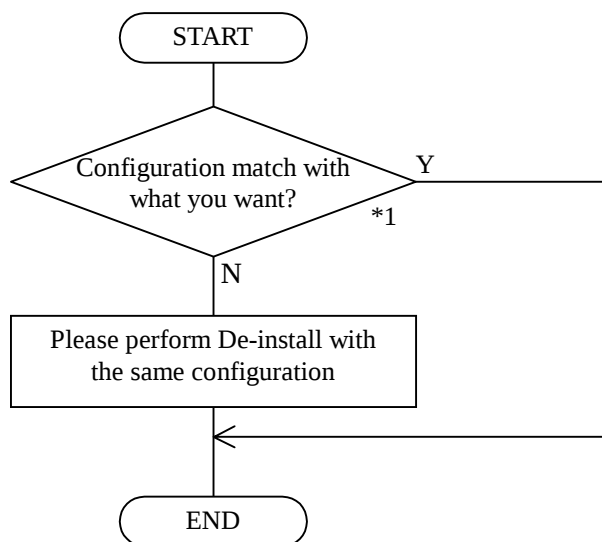
2.7.4 SM Capacity



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

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

2.7.5 Power Supply



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

2.8 Change Configuration

When Changing Configuration Information such as subsystem ID, DKC Emulation Type, Control Devices, Device Address, and Channel Speed, perform the following General flow chart.

Above Configuration Information can not change while subsystem is running.

After changing Configuration Information, PS off/on required.

System tuning

1) Device Structure Set Up

2) Channel Configuration

3) System Option

2.9 Availability of Installation and De-installation

(1) Availability of the Installation and De-installation when HRC/HORC is used

Component	Maintenance Type	Condition	HRC path established		During initial copy		After completing initial copy		Suspend	
			MCU	RCU	MCU	RCU	MCU	RCU	MCU	RCU
HDD canister	Installation	—	×	×	×	×	×	×	×	×
	De-installation	—	×	×	SVP2031W (*)	SVP2034W (*)	SVP2031W (*)	SVP2034W (*)	SVP2031W (*)	SVP2034W (*)
Cache PCB	Installation	—	×	×	SVP2059W	SVP2079W	×	×	×	×
	De-installation	—	×	×	SVP2059W	SVP2079W	×	×	×	×
CHE or CHF	Installation	With Alternate path.	×	×	×	×	×	×	×	×
		Without Alternate path.	×	×	×	×	×	×	×	×
	De-installation	With Alternate path.	×	×	×	SVP2038W	×	SVP2038W	×	SVP2038W
		Without Alternate path.	×	×	SVP2073W	SVP2038W	SVP2074W	SVP2038W	SVP2075W	SVP2038W
DKA	Installation	—	×	×	×	×	×	×	×	×
	De-Installation	—	×	×	×	×	×	×	×	×

(To be continued)

(Continued from preceding sheet)

Component	Maintenance Type	Condition	Suspending		Deleting	
			MCU	RCU	MCU	RCU
HDD canister	Installation	—	×	×	×	×
	De-Installation	—	SVP2031W (*)	SVP2034W	SVP2031W (*)	SVP2034W
CACHE	Installation	—	×	×	×	×
	De-Installation	—	(**)	(**)	(**)	(**)
CHE or CHF	Installation	With Alternate path.	×	×	×	×
		Without Alternate path.	(***)	(***)	(***)	(***)
	De-Installation	With Alternate path.	×	SVP2038W	×	SVP2038W
		Without Alternate path.	SVP2075W	SVP2038W	SVP2075W	SVP2038W
DKA	Installation	—	×	×	×	×
	De-Installation	—	×	×	×	×

× : Maintenance is available.

SVPXXXXW : Maintenance is not available based on the specification. Refer to SVP-MSG SECTION.

The pair can be suspended if the ESTPAIR or paircreate (pairesync) command is issued during the HDD Canister or the Cache PCB installation/de-installation. Please ask your customer before the online maintenance operation.

- * : If CU which all HDEV's are deleted from by this operation exists and there is registration of RCU in this CU, SVP will display a warning message with SVP2466W.
- ** : For HRC ASYNC Pairs, a maintenance with the cache blockage is recommended to operate with capacities of Side file and Write Pending Data being 20% below. If the above maintenance is Performed with high capacities of side file and Write Pending Data, the operation will take long and way cause impact such as MIH occurrence on the host operation. Refer to "Monitoring" in the SVP SECTION for the side file monitor.
- *** : When the different 'DKC – Emuration –Type' of CHE is installed, SVP displays a warning message with SVP 3289W.

(2) Availability of the Installation and De-installation when HODM is used

Component	Maintenance Type	Condition	HODM path established		During initial copy		Waiting to be erased	
			MCU	RCU	MCU	RCU	MCU	RCU
HDD canister	Installation	—	×		×		×	
	De-installation	—	×		SVP2031W (*)		SVP2031W (*)	
Cache PCB	Installation	—	×		SVP2059W		×	
	De-installation	—	×		SVP2059W		×	
CHE	Installation	With Alternate path.	×		×		×	
		Without Alternate path.	×		×		×	
	De-installation	With Alternate path.	×		×		×	
		Without Alternate path.	×		SVP2076W		SVP2078W	
CHF	Installation	—	×		×		×	
	De-installation	—	×		×		×	
DKA	Installation	—	×		×		×	
	De-Installation	—	×		×		×	

Component	Maintenance Type	Condition	Suspend		During for R-Vol Erasing		Erasing Error	
			MCU	RCU	MCU	RCU	MCU	RCU
HDD canister	Installation	—	×		×		×	
	De-installation	—	SVP2031W (*)		SVP2031W (*)		SVP2031W (*)	
Cache PCB	Installation	—	×		×		×	
	De-installation	—	×		×		×	
CHE	Installation	With Alternate path.	×		×		×	
		Without Alternate path.	×		×		×	
	De-installation	With Alternate path.	×		×		×	
		Without Alternate path.	SVP2077W		SVP2078W		SVP2078W	
CHF	Installation	—	×		×		×	
	De-installation	—	×		×		×	
DKA	Installation	—	×		×		×	
	De-Installation	—	×		×		×	

× : Maintenance is available

SVPXXXXW : Maintenance is not available based on the specification. Refer to SVP-MSG SECTION.

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

(3) Availability of the System tuning when HRC/HODM/HORC is used.

It is impossible to change the DKCNo ,SSID ,or DKC Emulation type by system tuning when HRC, HODM or HORC is used.

(4) Availability of the online maintenance when HMRCF is used

Component	Maintenance Type	Condition	HMRCF Reserve Volume	Pending/Resync /SP-Pend		Duplex		Split		Suspend	
				S-VOL	T-VOL	S-VOL	T-VOL	S-VOL	T-VOL	S-VOL	T-VOL
HDD canister (DATA)	Installation	—	×	×		×		×		×	
	De-installation	—	SVP2485W	SVP2485W		SVP2485W		SVP2485W		SVP2485W	
HDD canister (SPARE)	Installation	—	×	×		×		×		×	
	De-installation	—	×	×		×		×		×	
Cache PCB	Installation	—	×	SVP2486W		×		×		×	
	De-installation	—	×	SVP2486W		×		×		×	
CHA	Installation	—	×	×		×		×		×	
	De- installation	—	×	×		×		×		×	
DKA	Installation	—	×	×		×		×		×	
	De-Installation	—	×	×		×		×		×	

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

2.10.1 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 subsystem. 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.

2.10.2 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](#)) of Maintenance Manual.)
However, when the SVP High Reliability Kit is installed, the cables, Cable (P41) and LAN Cable (LSVP-2), have not been connected. (See [INST03-SVP-70](#).)
- ② The PC (SVP) is installed and can be used. (For the SVP installation, refer to “[REP04-460](#) ~ [REP04-560](#)” of Maintenance Manual.)

2.10.3 Procedures

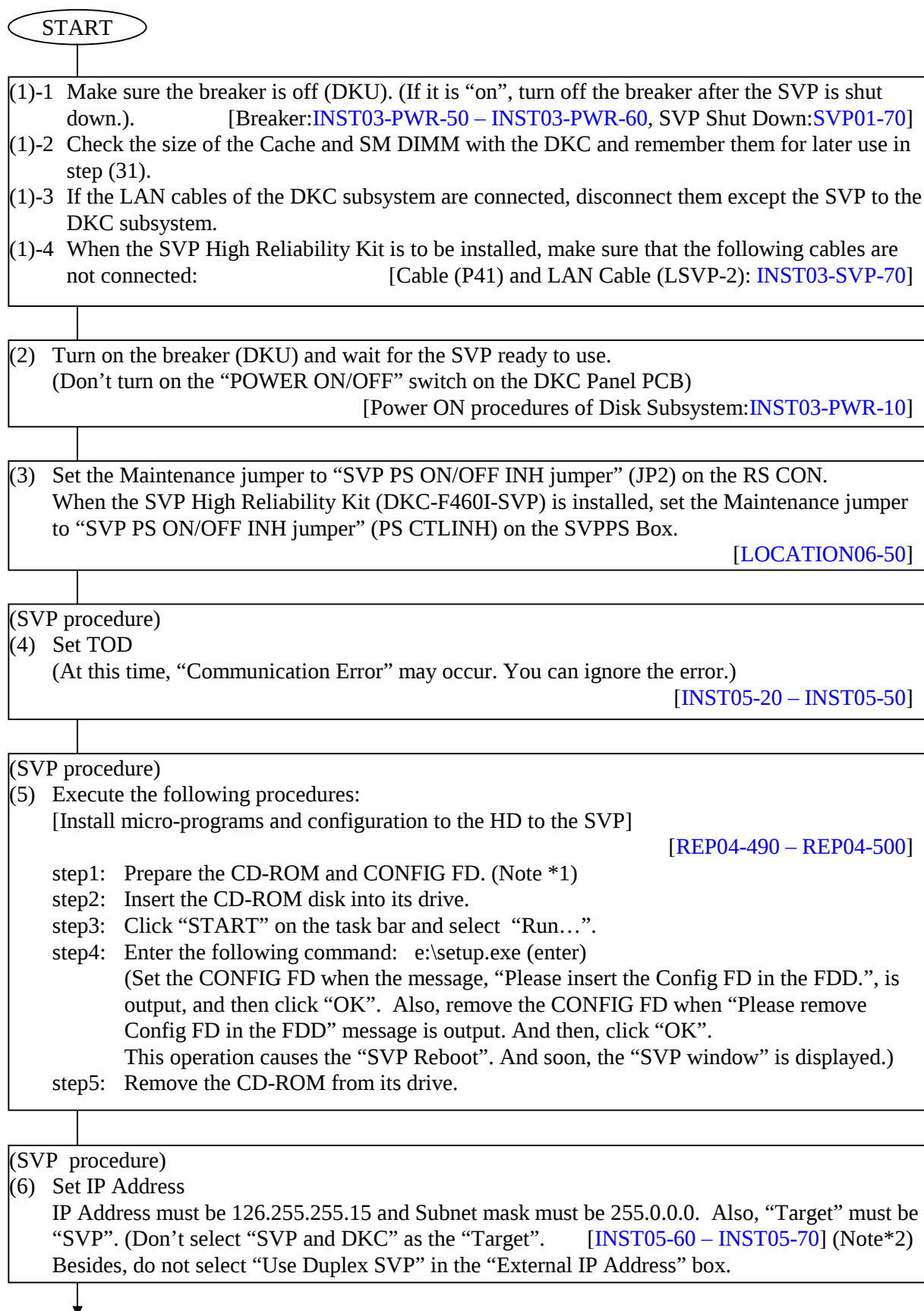
(1) Summary

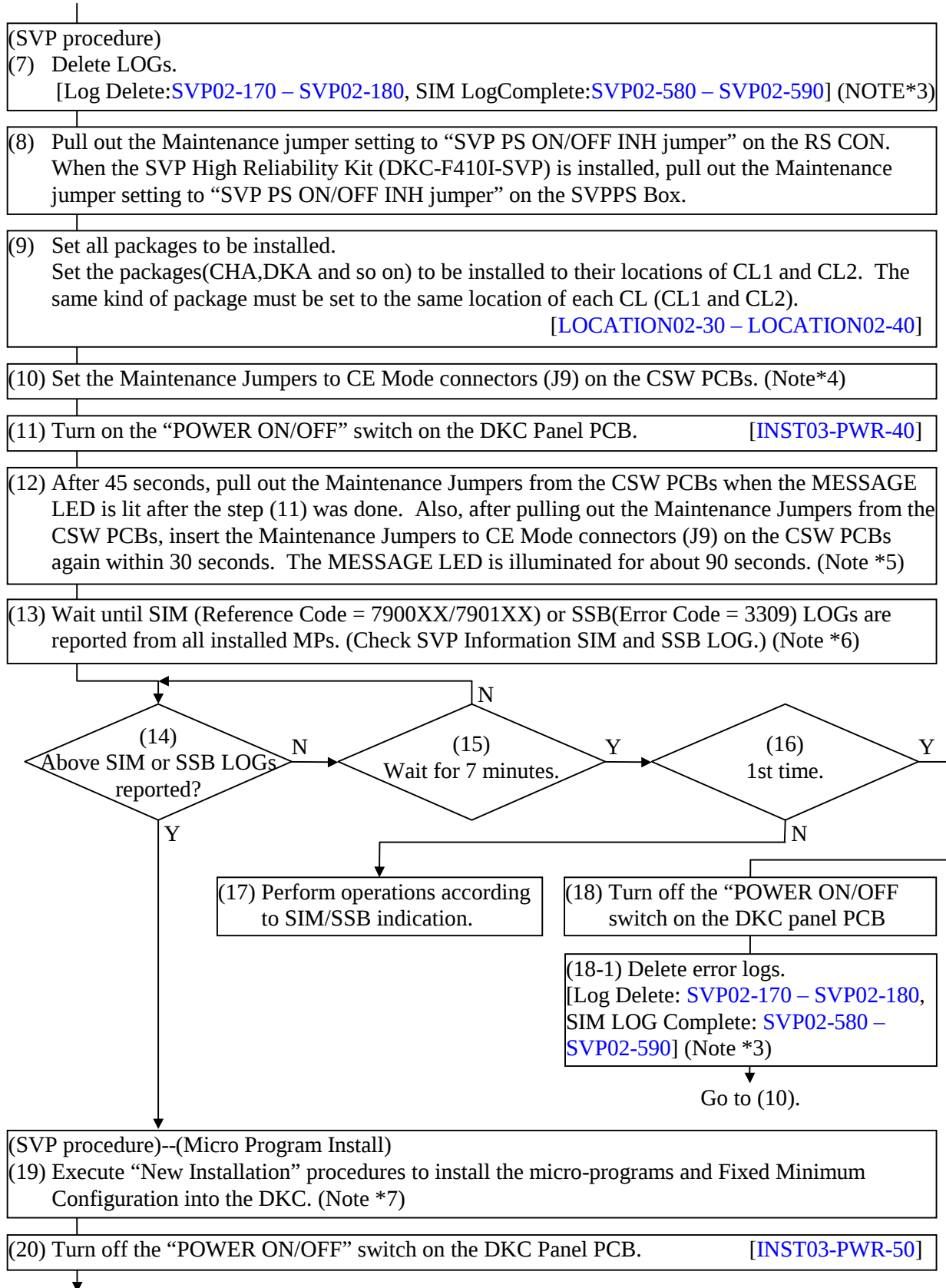
The procedures are divided roughly into 4 processes.

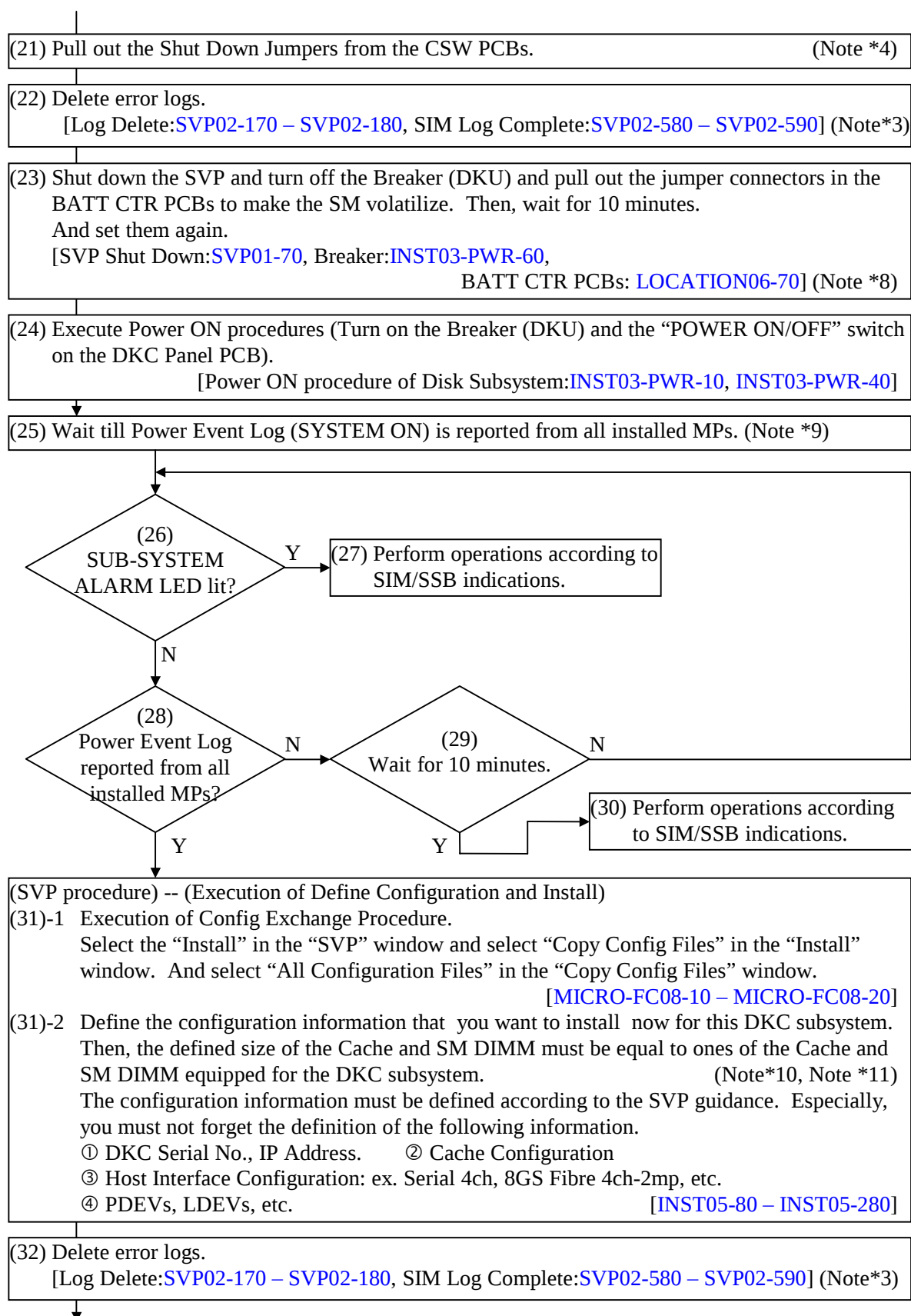
- ① Pre-processing (the installation of the micro-programs into the SVP HD : (1)-(8) in the following flow)
- ② Execution of “New Installation” by the SVP. (By this procedure, the micro-programs and Fixed Minimum configuration are installed into PCBs (packages). : (9)-(20) in the following flow)
- ③ Execution of “Define Configuration and Install” by the SVP.(By this procedure, the customer’s configurations are defined.) : ((21)-(32) in the following flow)
- ④ Others ((33)-(50) in the following flow)

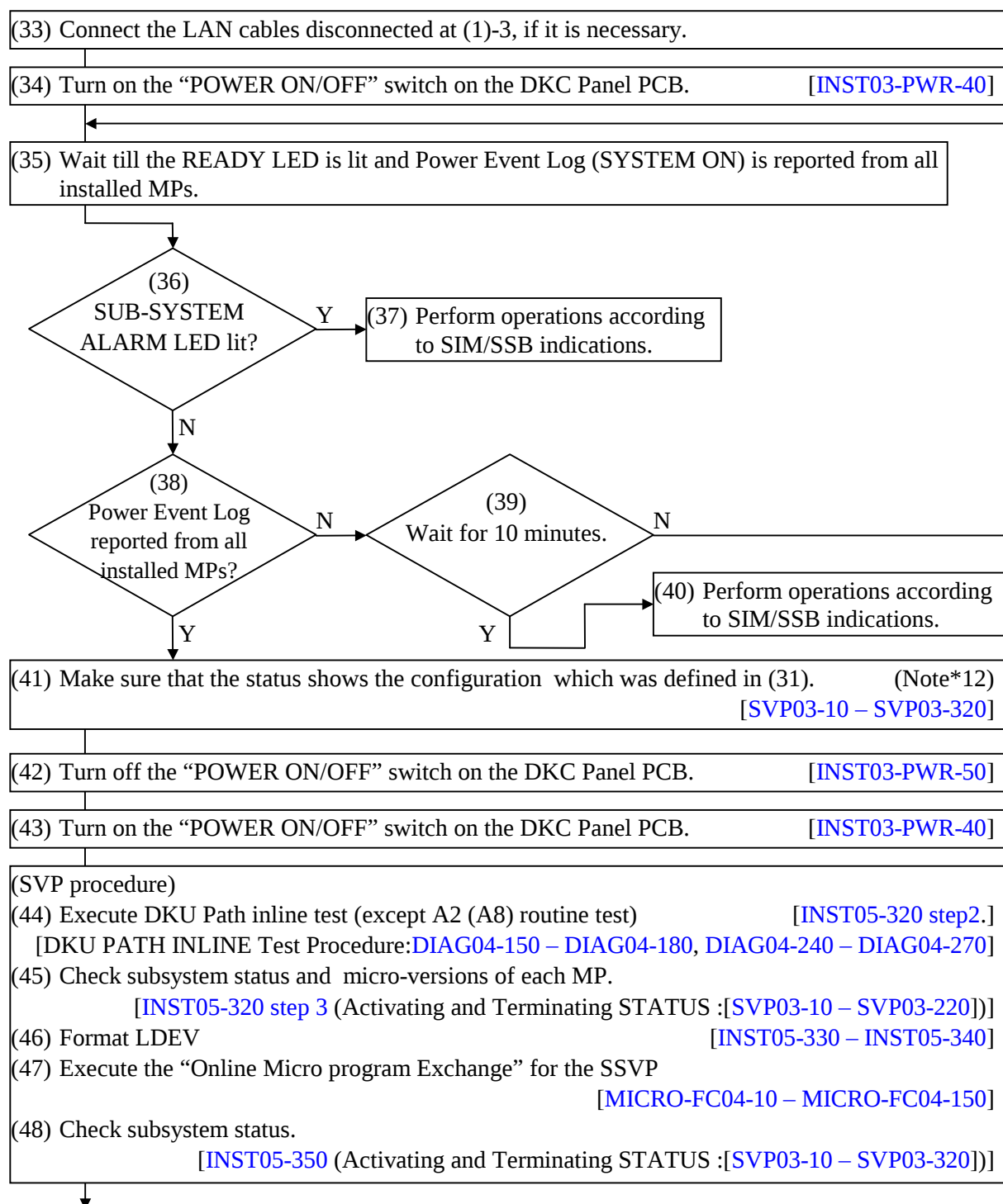
(2) Processing Flow

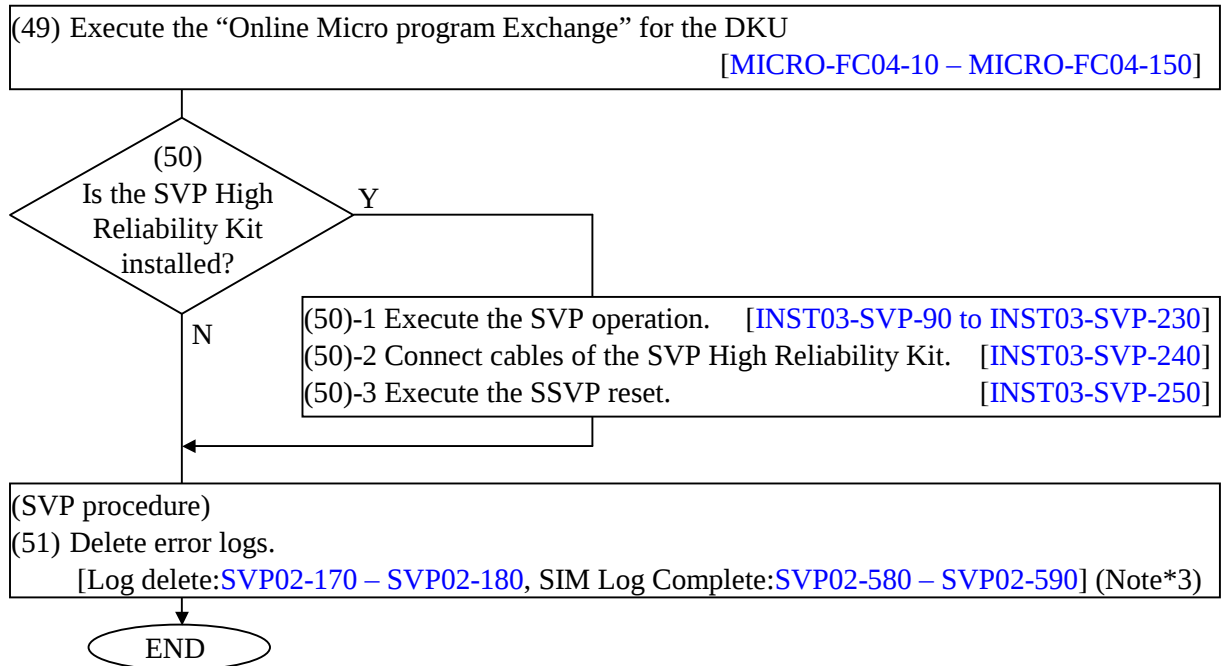
The processing flow of the new installation is as follow:











Note *1 : The CD-ROM includes the micro-programs to be installed into the DKC subsystem.

And the FD should correspond to the micro-program version.

Note *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.”.

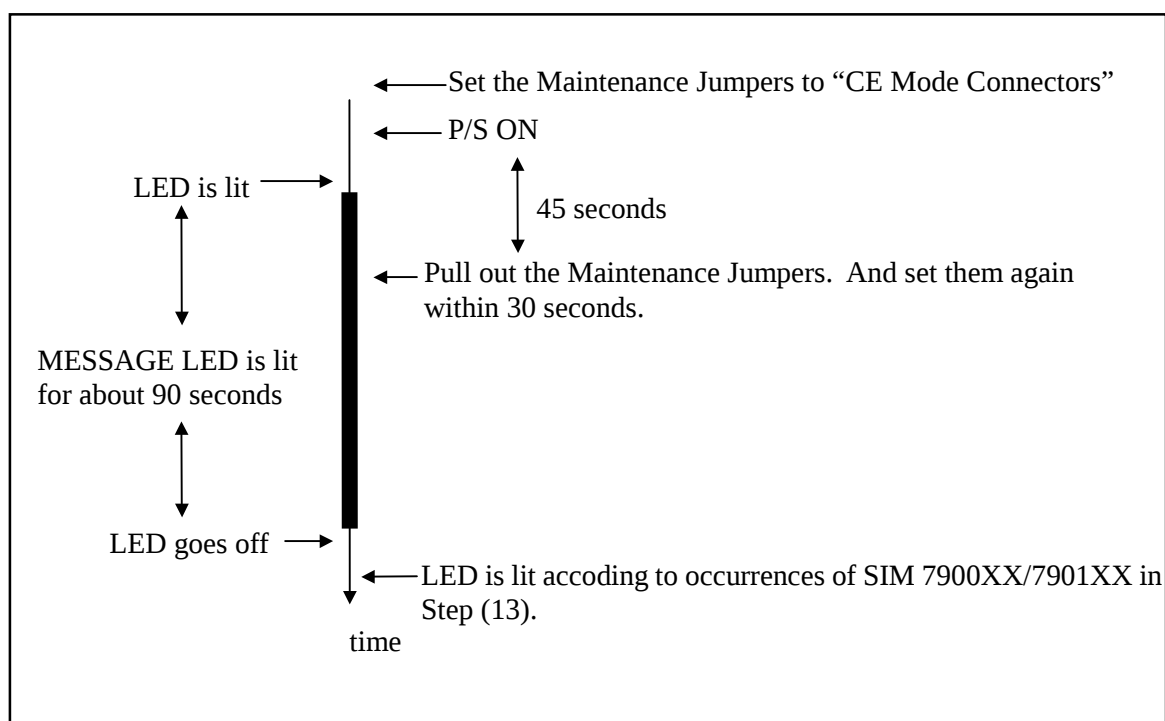
Note *3 : It’s necessary to execute the procedure of “SIM Log Complete” before deleting the SIM data.

Note *4 : Refer to the following about the Maintenance Jumpers.

- “INST02-20 Note *1”

Note *5 : The detail of the jumper operation is as follows.

- (1) Turn on the P/S ON switch.
- (2) At 45 seconds after (1), pull out the Maintenance Jumpers from the CSW PCBs. Then, MESSAGE LED illuminates. The LED is lighting for about 90 seconds.
- (3) Insert the Maintenance Jumpers to the CE Mode connectors (J9) on the CSW PCBs again quickly (within 30 seconds) after pulling out the Jumpers at (2).
Operations (2) and (3) must be executed during the Message LED is lighting.



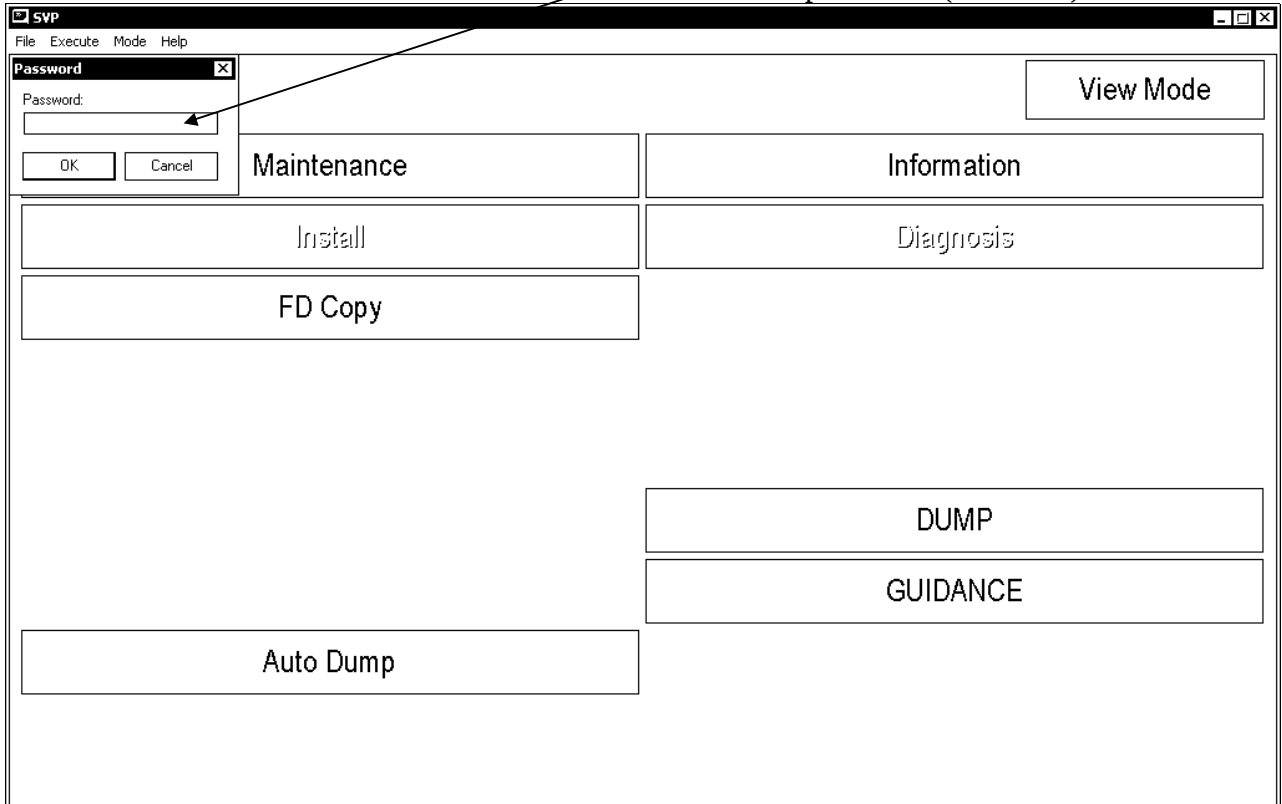
Note *6 : Count SSB Logs (Error Code = 3309). The number is same as the number of the installed MPs.

Note *7 : The procedures of “New Installation” are as follows.

- (1) Return to the SVP window.
- (2) Press the following keys at the same time to change the mode to “Initial Setting”.
[SHIFT], [CTRL], [I]
- (3) Enter the password.

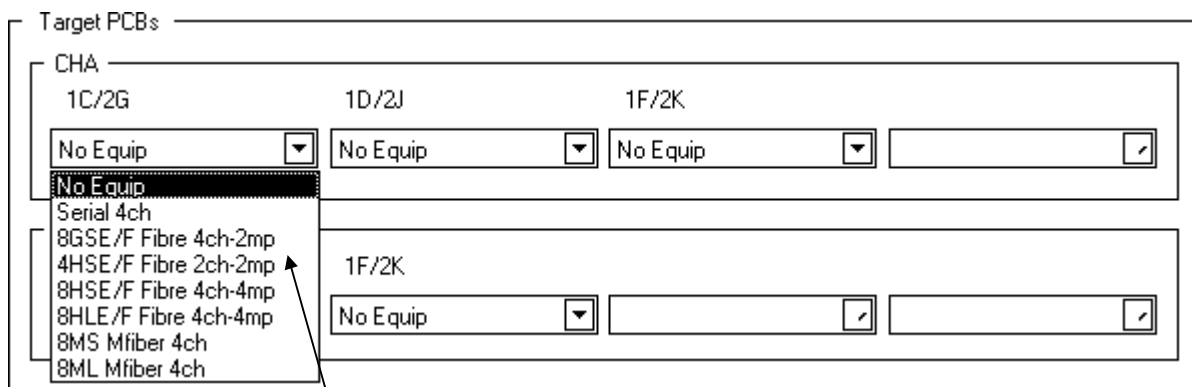
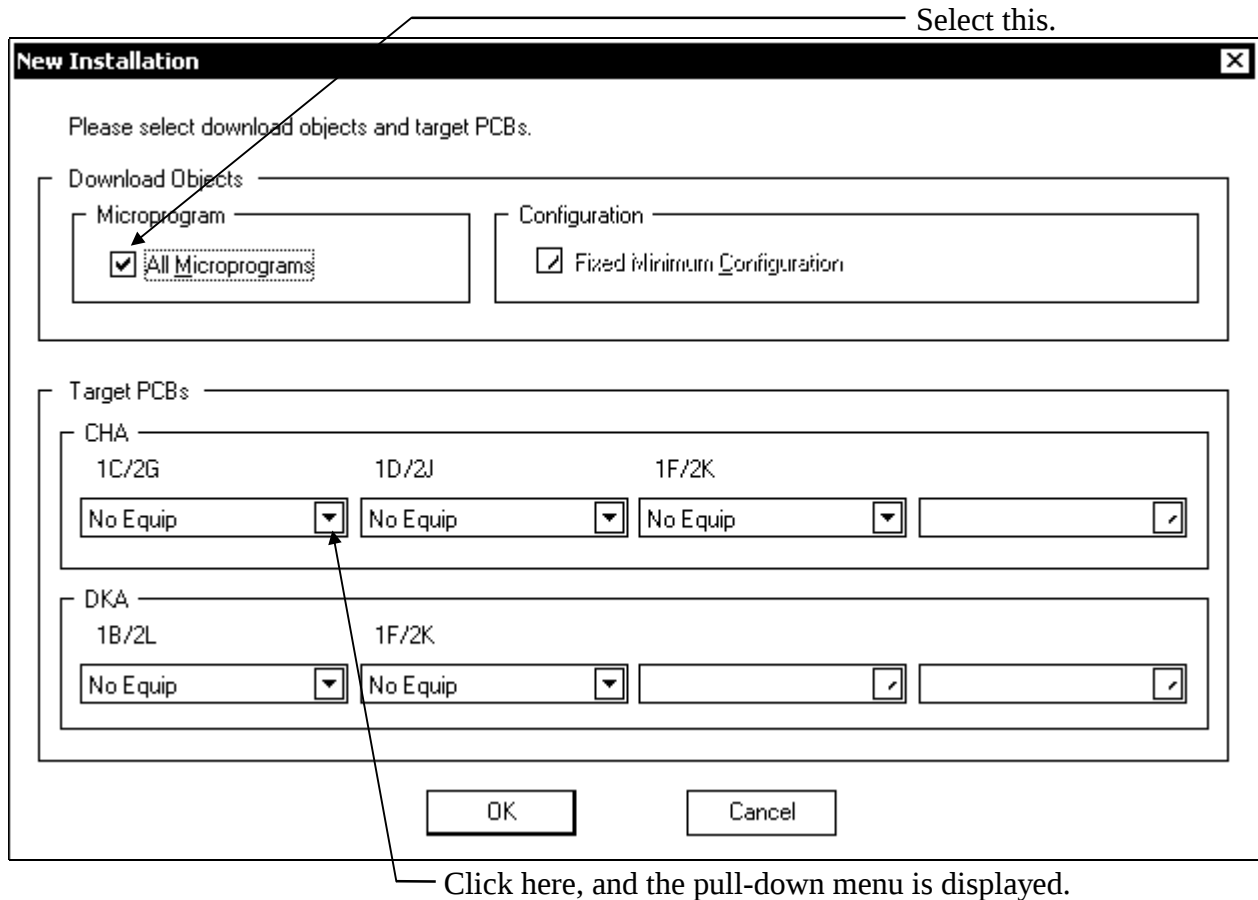
This password must be used only for this procedure. Don't use for other purposes without approval by the technical support center or the factory.

Enter the password. (Note *13)



- (4) Select “Install”.
- (5) <Install Window>
Select “Micro Program Install”.
- (6) <Menu Dialog Window>
Select “New Installation”.
- (7) Select “Yes” to the following message.
“Are you sure you want to execute new installation?”
- (8) <New Installation PCB configuration Window>
After (7), the following window is displayed. At the window, specify as follows:
 - ① Select “All microprograms”. (“Fixed Minimum Configuration” should be selected automatically.) (Note *14)
 - ② Select the package type (host interface and so on) of the current packages setting in their locations of “CHA” or “DKA”.
 - ③ Select “OK” after finishing the above specifications.

[Example of operations]



Target PCBs

CHA

1C/2G 1D/2J 1F/2K

No Equip No Equip No Equip

DKA

1B/2L 1F/2K

No Equip No Equip

Click here, and the pull-down menu is displayed.

Target PCBs

CHA

1C/2G 1D/2J 1F/2K

No Equip No Equip No Equip

DKA

1B/2L 1F/2K

No Equip No Equip

No Equip
DKF 4mp
DKF 2mp

Select one that matches the DKA type installed for each PCB location. (1B/2L and 1F/2K)
(If 1F/2K is used for the CHA, 1F/2K must not be selected.)

- (9) The message, “[INS3302i] New installation finished normally.”, is output.
Then, click “OK”, and the “Installation window” is closed.
(Till the message, “[INS3302i] New installation finished normally.”, is output, you must not select “Cancel” in the “Shell Batch Execute Status” window. If “Cancel” is selected, this process is interrupted. If “Cancel” is selected by a mistake operation, try again from (6) of [INST02-530](#).)

- Note *8 : The following SIM Logs are output by pulling out the jumper connectors in the BATCTR PCBs.
SIM Logs: bf5010, bf5210, bf5020, bf5220
But you can ignore them.
- Note *9 : At this time, the initializing processings of the DKC subsystem are performed by using the minimum configuration. The minimum configuration is the special configuration for the New Installation Procedure (Note *14). So, the READY LED is not lit. Also, the SIM Log (3073XX, 3173XX, 3390XX, 3D90XX and FFE800) may be output if the current configuration is different from the “Fixed Minimum Configuration”. But they should be ignored. And you should not select “Maintenance” in “SVP window” until the Define Configuration Procedure is performed at step (31).
- Note *10: Press the following keys at the same time to change the mode to “Initial Setting”.
[SHIFT], [CTRL], [I]
And input the password. (Note *13)
- Note *11: 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 the IP Address according to the magic number
Select “Based on Magic Number” and specify a magic number. Then, the IP Address will be assigned automatically.
 - ③ 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 SM DIMM should be equal to the value that was confirmed at (1) in the processing flow. After the configuration information is defined, P/S OFF of the DKC and the reboot of the SVP will be executed.
- Note *12: Surely, check the following status:
- (1) the condition of each PCB status.----- PCB Kind/Normal or not/etc
 - (2) the micro-program version
- Note *13: For the password, ask the technical support center. And use it with their approval.

Note *14: The “Fixed Minimum configuration” is a temporary configuration to unify the condition of the power-on processing in Step (24) and is not concerned with the current configuration. It is used only in “New Installation” procedure. The following information is defined in the “Fixed Minimum Configuration”.

- ① Basic DKC Configuration (1C/2G for “CHA”, 1B/2L for “DKA”)
IP Address = 126.255.255.xx
Serial 4ch for Host interface configuration
4mp for the DKA
- ② Option PCBs Configuration (1D/2J, 1F/2K) : None (No equip)
- ③ Cache size : 512 MB for each side.
- ④ SM size : 256 MB for each side.
(DIMM : 128 MB × 2)
- ⑤ LDEV/PDEV/LCP Configuration : None