LOCATION SECTION

Contents

1. Overview of Disk Subsystem

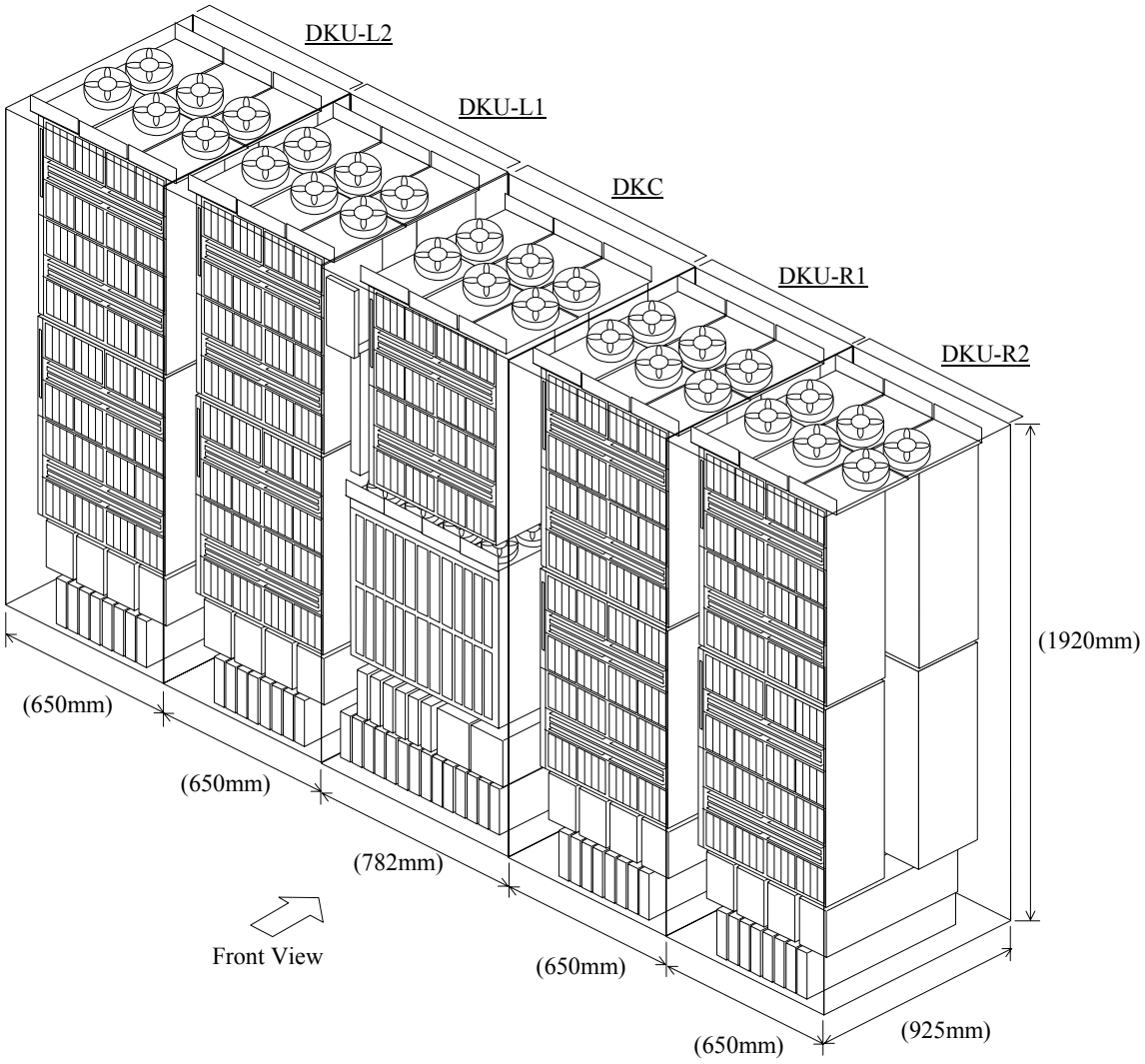
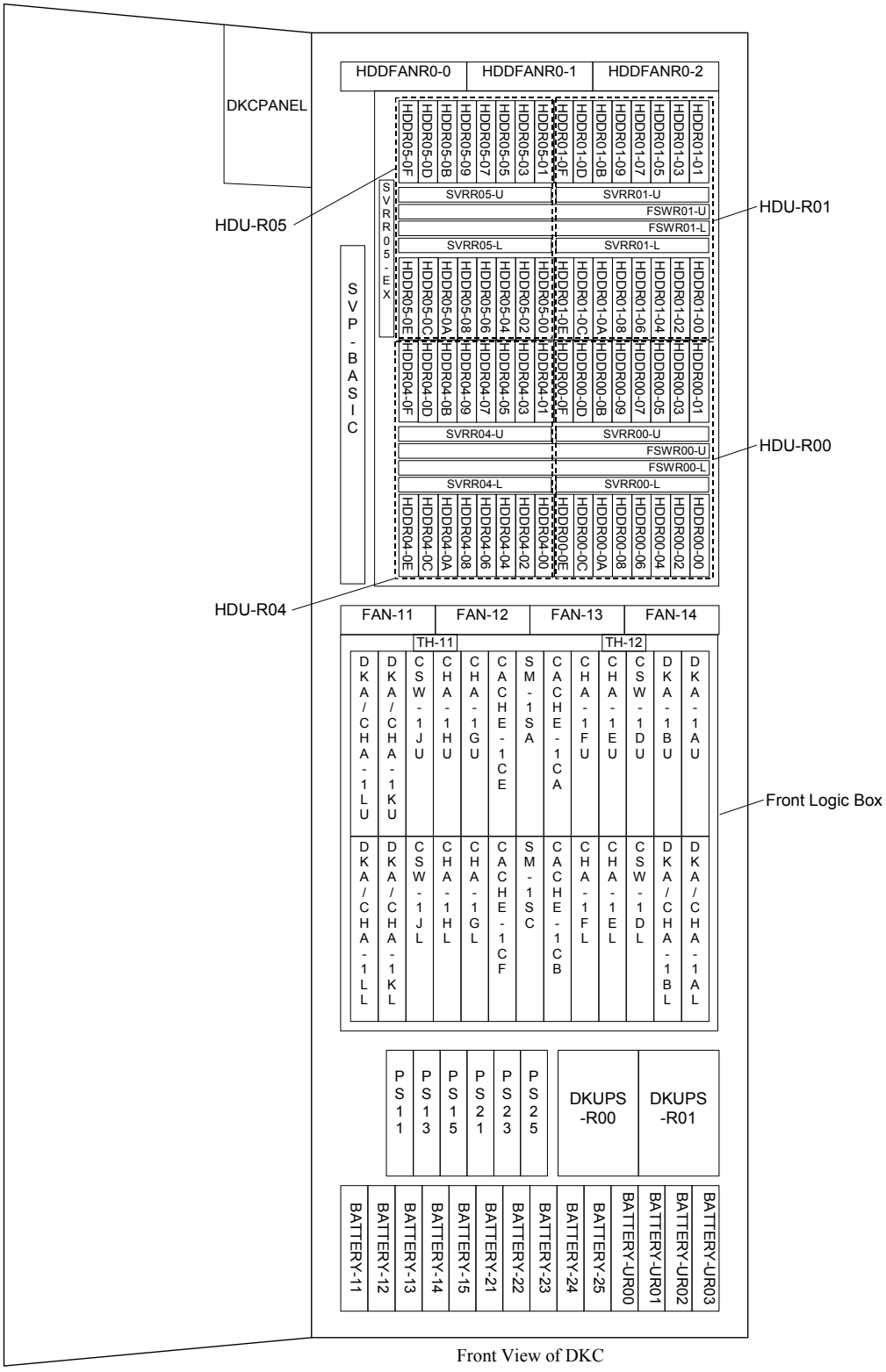


Fig. 1-1 Overview of Disk Subsystem

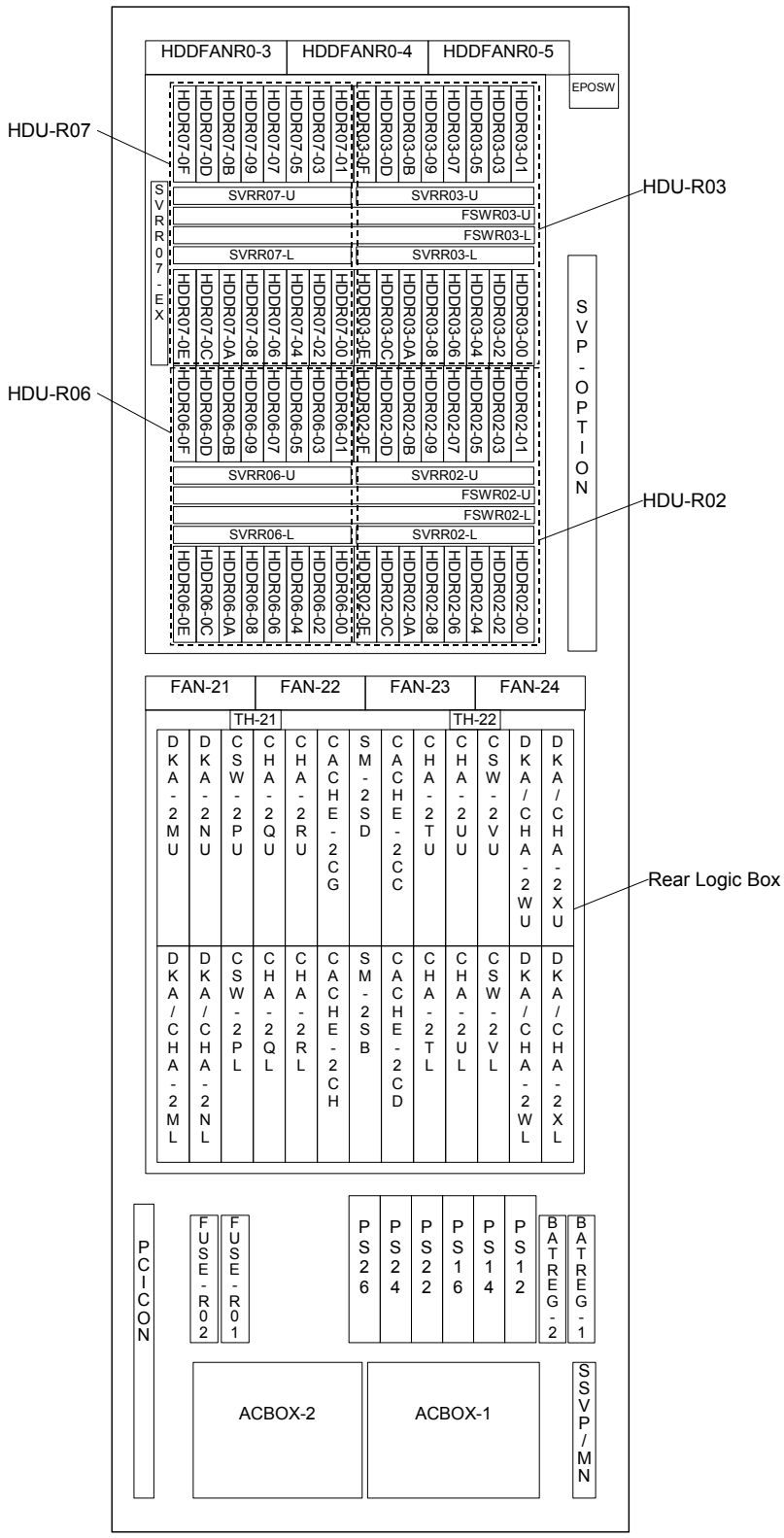
2. Parts Location

2.1 Disk Controller Unit



Front View of DKC

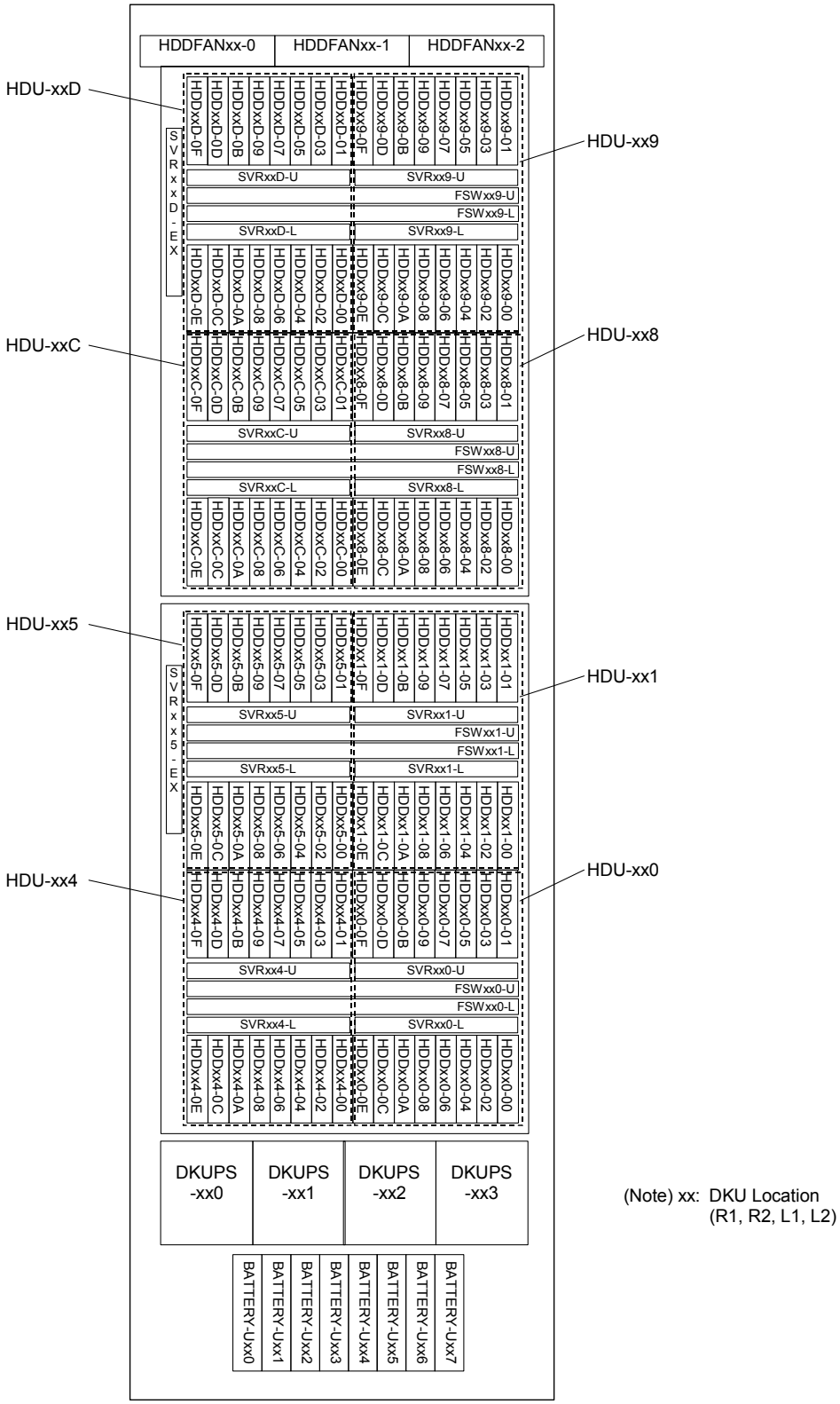
Fig. 2.1-1 Parts Location of DKC



Rear View of DKC

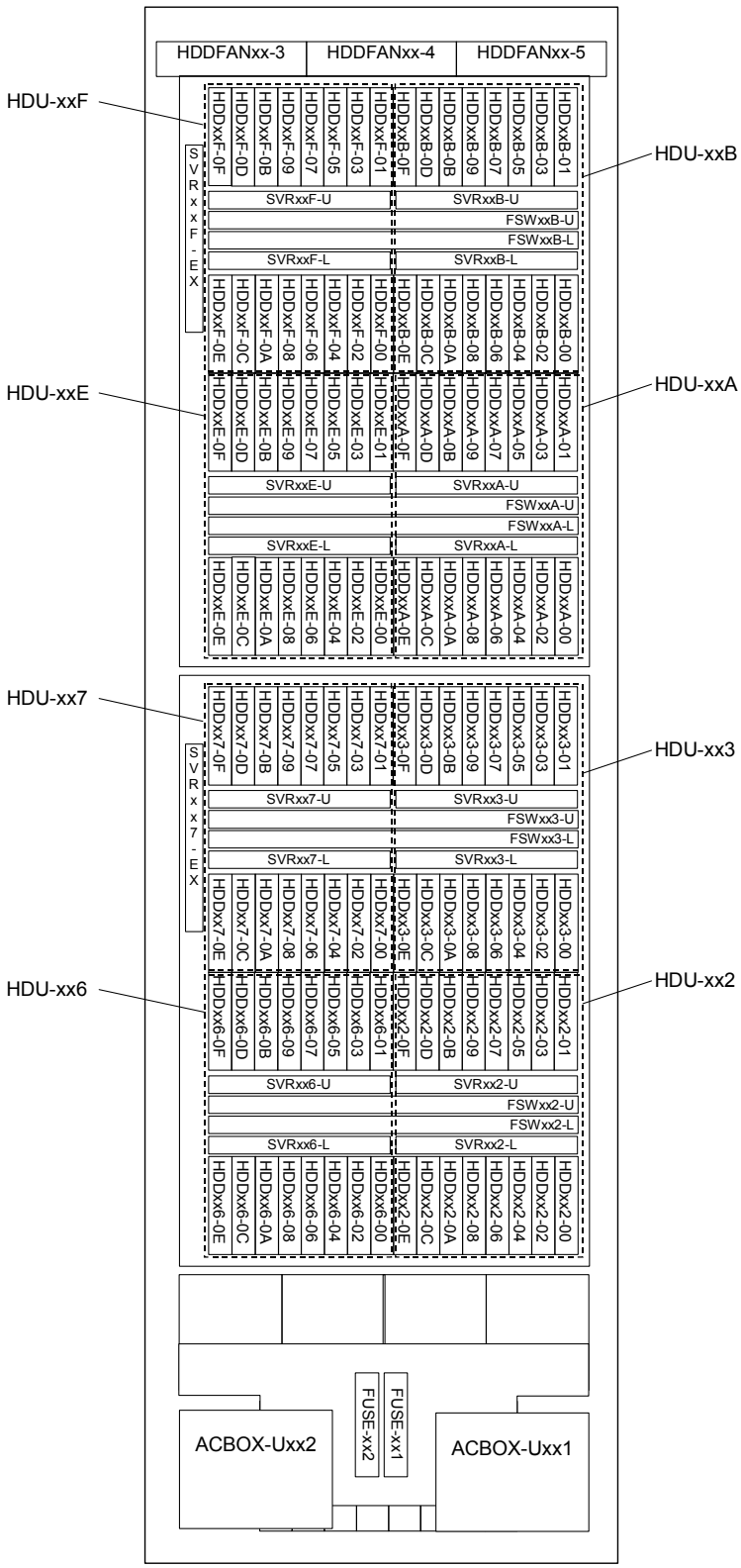
Fig. 2.1-2 Parts Location of DKC

2.2 Disk Unit



Front View of DKU

Fig. 2.2-1 Parts Location of DKU



Rear View of DKU

Fig. 2.2-2 Parts Location of DKU

2.3 PCB and Power Supply Location

1. Logic Box PCB Location

FRONT LOGIC BOX PCB LOCATION

CL1															
1LU		1KU		1JU	1HU	1GU	1CE	1SA	1CA	1FU	1EU	1DU	1BU		1AU
5th DKA *L	12th CHA *K	6th DKA *L	11th CHA *K	WP630-A *B	6th CHA *K	5th CHA *K	WP641-A *H	WP651-A *D	WP641-A *F	2nd CHA *K	1st CHA *K	WP630-A	2nd DKA *L		1st DKA *L
DKA-1LU	CHA-1LU	DKA-1KU	CHA-1KU	CSW-1JU	CHA-1HU	CHA-1GU	CACHE-1CE	SM-1SA	CACHE-1CA	CHA-1FU	CHA-1EU	CSW-1DU	DKA-1BU		DKA-1AU
Option 4	Option 11	Option 5	Option 10	Option 2	Option 5	Option 4	Option 2	Basic	Basic	Option 1	Basic	Basic	Option 1		Basic
1LL		1KL		1JL	1HL	1GL	1CF	1SC	1CB	1FL	1EL	1DL	1BL		1AL
7th DKA *L	10th CHA *K	8th DKA *L	9th CHA *K	WP630-A *C	8th CHA *K	7th CHA *K	WP641-A *J	WP652-A *E	WP641-A *G	4th CHA *K	3rd CHA *K	WP630-A *A	4th DKA *L	13th CHA *K	3rd DKA *L	14th CHA *K
DKA-1LL	CHA-1LL	DKA-1KL	CHA-1KL	CSW-1JL	CHA-1HL	CHA-1GL	CACHE-1CF	SM-1SC	CACHE-1CB	CHA-1FL	CHA-1EL	CSW-1DL	DKA-1BL	CHA-1BL	DKA-1AL	CHA-1AL
Option 6	Option 9	Option 7	Option 8	Option 3	Option 7	Option 6	Option 3	Option 1	Option 1	Option 3	Option 2	Option 1	Option 3	Option 12	Option 2	Option 13

*A: DKC-F610I-CSW × 1 set
*B: DKC-F610I-CSW × 2 sets
*C: DKC-F610I-CSW × 3 sets
*D: DKC-F610I-SX × 1 set
*E: DKC-F610I-SX × 2 sets
*F: DKC-F610I-CX × 1 set
*G: DKC-F610I-CX × 2 sets
*H: DKC-F610I-CX × 3 sets
*J: DKC-F610I-CX × 4 sets

*K: Description of CHA PCBs

CL1 (1EU, 1FU, 1GU, 1HU, 1KU, 1LU, 1AL, 1BL, 1EL, 1FL, 1GL, 1HL, 1KL or 1LL)											
WP610-A×1	SH44-A×2	WP610-A×1	SH44-A×2	WP612-A×1	SH43-C×2	WP611-A×1	SH44-A×2	WP611-B×1	SH44-A×2	WP614-B×1	SH44-B×2
*1		*2		*3		*4		*5		*6	

*1: DKC-F610I-8FS
*2: DKC-F610I-16FS
*3: DKC-F610I-8S
*4: DKC-F610I-8MFS
*5: DKC-F610I-8MFL
*6: DKC-F610I-8US

*L: Description of DKA PCBs

CL1 (1AU, 1BU, 1KU, 1LU, 1AL, 1BL, 1KL or 1LL)			
WP620-A×1	SH44-A×2	WP620-B×1	SH44-A×2
*1		*2	

*1: DKC-F610I-DKA
*2: DKC-F610I-EDKA

Fig. 2.3-1 PCB Location

REAR LOGIC BOX PCB LOCATION

CL2														
2MU	2NU	2PU	2QU	2RU	2CG	2SD	2CC	2TU	2UU	2VU	2WU		2XU	
1st DKA *L	2nd DKA *L	WP63 0-A	1st CHA *K	2nd CHA *K	WP64 1-A *H	WP65 1-A *E	WP64 1-A *F	5th CHA *K	6th CHA *K	WP63 0-A *B	6th DKA *L	11th CHA *K	5st DKA *L	12th CHA *K
DKA-2MU	DKA-2NU	CSW-2PU	CHA-2QU	CHA-2RU	CACHE-2CG	SM-2SD	CACHE-2CC	CHA-2TU	CHA-2UU	CSW-2VU	DKA-2WU	CHA-2WU	DKA-2XU	CHA-2XU
Basic	Option 1	Basic	Basic	Option 1	Option 2	Option 1	Basic	Option 4	Option 5	Option 2	Option 5	Option 10	Option 4	Option 11
2ML		2NL		2PL	2QL	2RL	2CH	2SB	2CD	2TL	2UL	2VL	2WL		2XL	
3rd DKA *L	14th CHA *K	4th DKA *L	13th CHA *K	WP63 0-A *A	3rd CHA *K	4th CHA *K	WP64 1-A *J	WP65 2-A *D	WP64 1-A *G	7th CHA *K	8th CHA *K	WP63 0-A *C	8th DKA *L	9th CHA *K	7th DKA *L	10th CHA *K
DKA-2ML	CHA-2ML	DKA-2NL	CHA-2NL	CSW-2PL	CHA-2QL	CHA-2RL	CACHE-2CH	SM-2SB	CACHE-2CD	CHA-2TL	CHA-2UL	CSW-2VL	DKA-2WL	CHA-2WL	DKA-2XL	CHA-2XL
Option 2	Option 13	Option 3	Option 12	Option 1	Option 2	Option 3	Option 3	Basic	Option 1	Option 6	Option 7	Option 3	Option 7	Option 8	Option 6	Option 9

*A: DKC-F610I-CSW × 1 set
*B: DKC-F610I-CSW × 2 sets
*C: DKC-F610I-CSW × 3 sets
*D: DKC-F610I-SX × 1 set
*E: DKC-F610I-SX × 2 sets
*F: DKC-F610I-CX × 1 set
*G: DKC-F610I-CX × 2 sets
*H: DKC-F610I-CX × 3 sets
*J: DKC-F610I-CX × 4 sets

*K: Description of CHA PCBs

CL2 (2QU, 2RU, 2TU, 2UU, 2WU, 2XU, 2ML, 2NL, 2QL, 2RL, 2TL, 2UL, 2WL or 2XL)											
WP610|B×1	SH44|A×2	WP610|A×1	SH44|A×2	WP612|A×1	SH43|C×2	WP611|A×1	SH44|A×2	WP611|B×1	SH44|A×2	WP614|B×1	SH44|B×2
*1		*2		*3		*4		*5		*6	

*1: DKC-F610I-8FS
*2: DKC-F610I-16FS
*3: DKC-F610I-8S
*4: DKC-F610I-8MFS
*5: DKC-F610I-8MFL
*6: DKC-F610I-8US

*L: Description of DKA PCBs

CL2 (2MU, 2NU, 2WU, 2XU, 2ML, 2NL, 2WL or 2XL)			
WP62|A×1	SH44|A×2	WP62|B×1	SH44|A×2
*1		*2	

*1: DKC-F610I-DKA
*2: DKC-F610I-EDKA

Fig. 2.3-2 PCB Location

2. Power Supply and Battery Location in the DKC

FRONT PS AND BATTERY LOCATION

		CL1			CL2			—			—		
		PS11	PS13 *A	PS15 *B	PS21	PS23 *A	PS25 *B	DKUPS-R00			DKUPS-R01		
BATTERY 11	BATTERY 12	BATTERY 13 *C	BATTERY 14 *D	BATTERY 15 *E	BATTERY 21	BATTERY 22	BATTERY 23 *C	BATTERY 24 *D	BATTERY 25 *E	BATTERY-UR00 *F	BATTERY-UR01 *F	BATTERY-UR02 *F	BATTERY-UR03 *F
CL1					CL2					—	—	—	—

REAR PS LOCATION

CL2	CL1	CL2			CL1			CL2	CL1
FUSE-R02 *H	FUSE-R01 *H	PS26 *B	PS24 *A	PS22	PS16 *B	PS14 *A	PS12	BATREG-2 *G	BATREG-1 *G
ACBOX-2					ACBOX-1			SSVP/MN	
—					—			CL1/CL2	

*A: DKC-F610I-APC × 1 set
*B: DKC-F610I-APC × 2 sets
*C: DKC-F610I-AB × 1 set
*D: DKC-F610I-AB × 2 sets
*E: DKC-F610I-AB × 3 sets
*F: DKC-F610I-ABX
*G: DKC-F610I-CBEX
*H: DKC-F610I-DBEX

Fig. 2.3-3 PS and Battery Location

3. Power Supply and Battery Location in the DKU

FRONT PS AND BATTERY LOCATION

DKUPS-xx0	DKUPS-xx1	DKUPS-xx2 *A	DKUPS-xx3 *A

BATTERY-Uxx0 *B	BATTERY-Uxx1 *B	BATTERY-Uxx2 *B	BATTERY-Uxx3 *B	BATTERY-Uxx4 *C	BATTERY-Uxx5 *C	BATTERY-Uxx6 *C	BATTERY-Uxx7 *C

*A: DKC-F605I-AKT
*B: DKC-F610I-ABX × 1 set
*C: DKC-F610I-ABX × 2 sets

(Note) xx: DKU Location (R1, R2, L1, L2)

Fig. 2.3-4 PS and Battery Location

2.4 Shared Memory Module Location

1. Basic Location

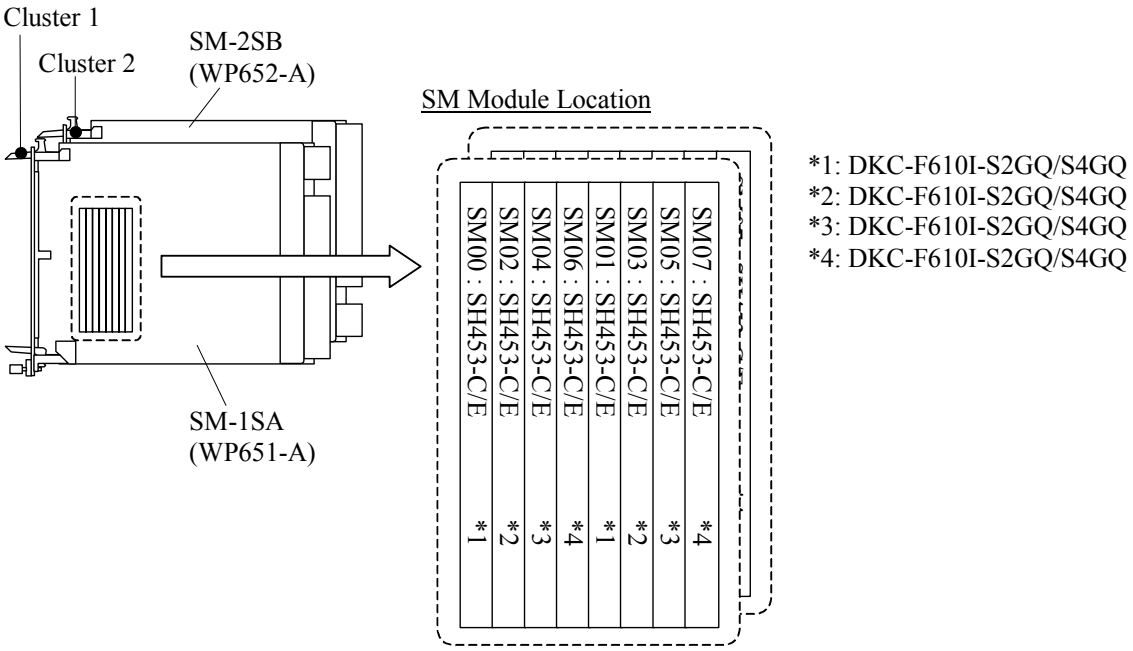


Fig. 2.4-1 Shared Memory Module Location (Basic)

2. Option 1 Location

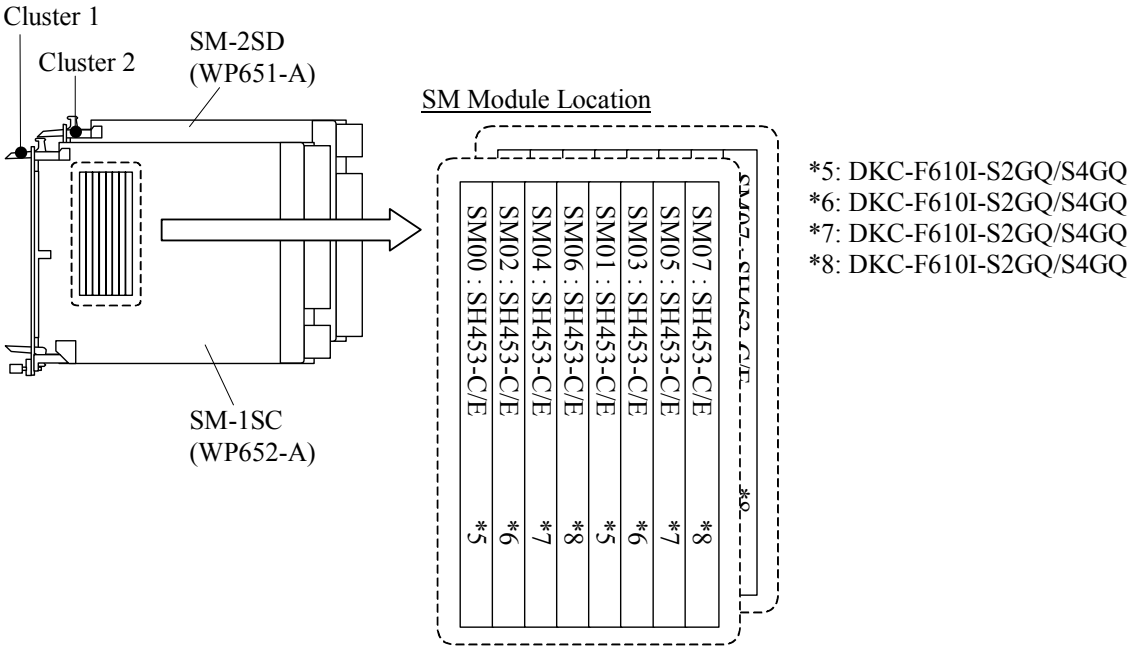


Fig. 2.4-2 Shared Memory Module Location (Option 1)

2.5 Cache Memory Module Location

1. Basic Location

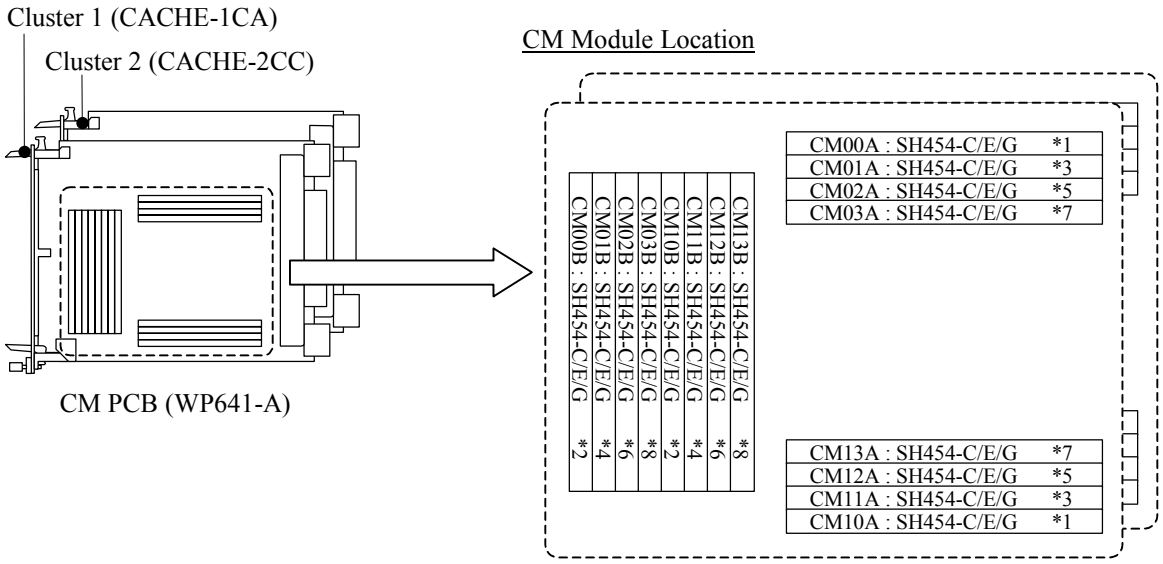


Fig. 2.5-1 Cache Memory Module Location (Basic)

2. Option 1 Location

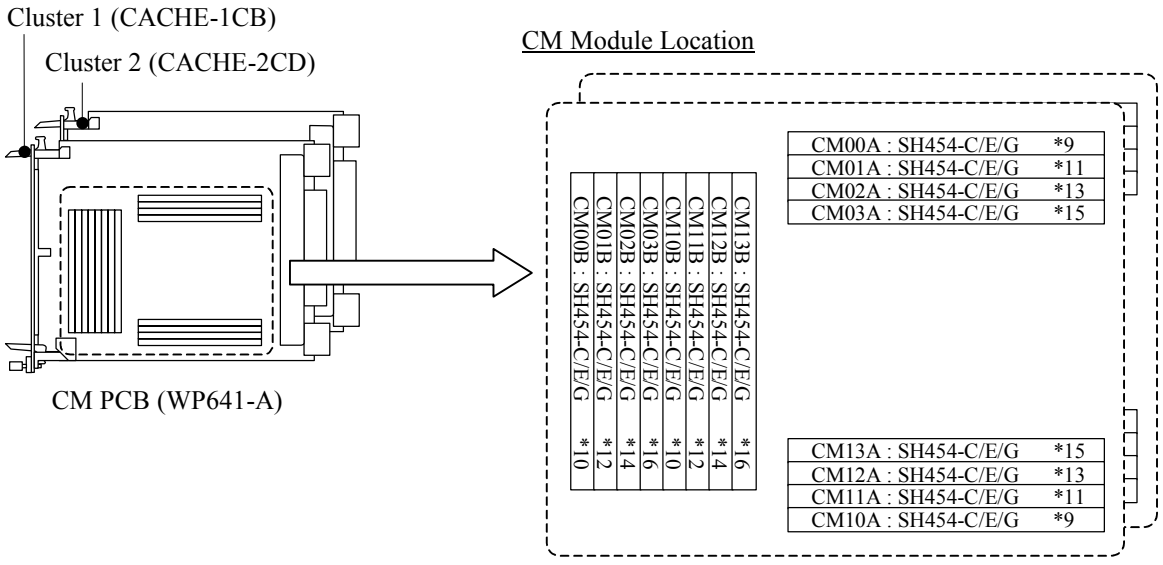


Fig. 2.5-2 Cache Memory Module Location (Option 1)

3. Option 2 Location

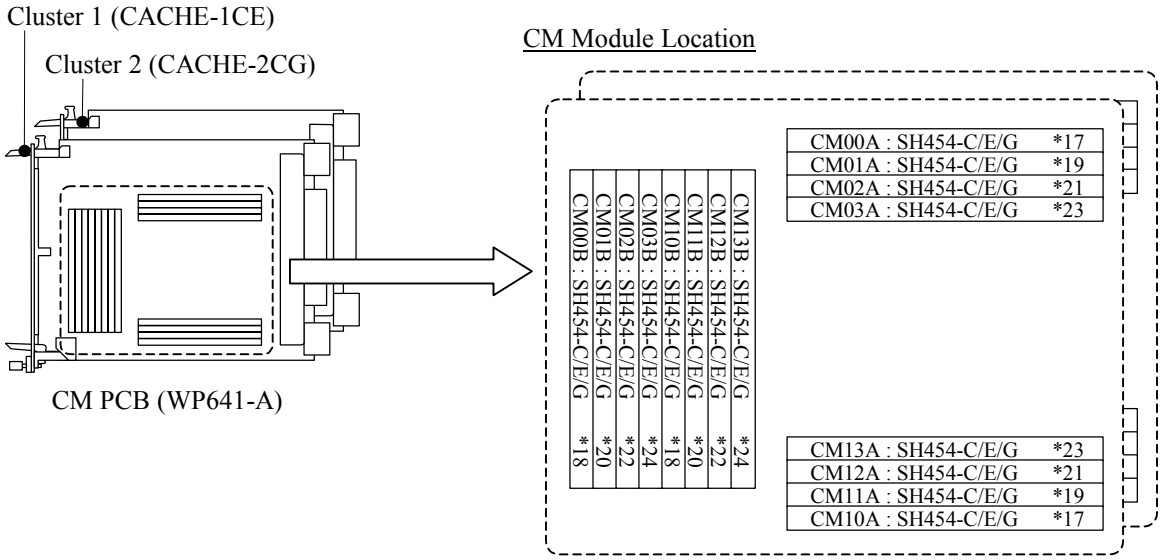


Fig. 2.5-3 Cache Memory Module Location (Option 2)

4. Option 3 Location

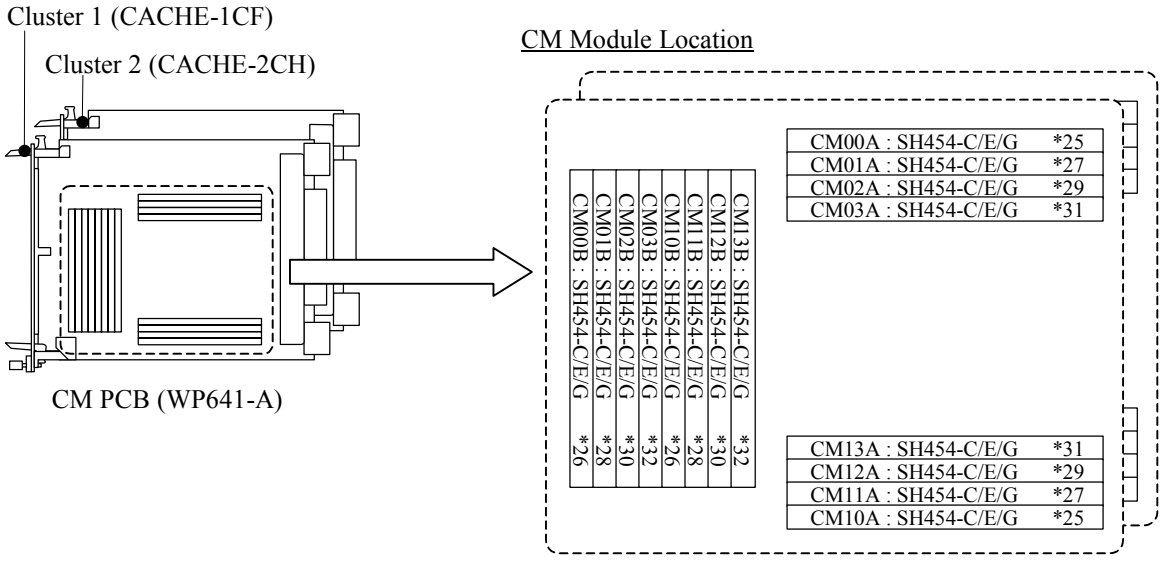


Fig. 2.5-4 Cache Memory Module Location (Option 3)

Table 2.5-1 Cache memory capacity and number of necessary options (Standard Cache Access Model ①)

Standard Cache Access Model								
Cache Memory Capacity	Number of options							
	Using DKC-F610I-C4G				Using DKC-F610I-C8G			
	DKC-F610I-C4G	DKC-F610I-CX	CM Location (Note 1)	DKC-F610I-AB	DKC-F610I-C8G	DKC-F610I-CX	CM Location (Note 1)	DKC-F610I-AB
4GB	1	1	*1	0	—	—	—	—
8GB	2	1	*2	0	1	1	*1	0
12GB	3	1	*3	0	—	—	—	—
16GB	4	1	*4	0	2	1	*2	0
20GB	5	1	*5	0	—	—	—	—
24GB	6	1	*6	0	3	1	*3	0
28GB	7	1	*7	0	—	—	—	—
32GB	8	1	*8	0	4	1	*4	0
36GB	9	2	*9	1	—	—	—	—
40GB	10	2	*10	1	5	1	*5	0
44GB	11	2	*11	1	—	—	—	—
48GB	12	2	*12	1	6	1	*6	0
52GB	13	2	*13	1	—	—	—	—
56GB	14	2	*14	1	7	1	*7	1
60GB	15	2	*15	1	—	—	—	—
64GB	16	2	*16	1	8	1	*8	1
68GB	17	3	*17	2	—	—	—	—
72GB	18	3	*18	2	9	2	*9	2
76GB	19	3	*19	2	—	—	—	—
80GB	20	3	*20	2	10	2	*10	2
84GB	21	3	*21	2	—	—	—	—
88GB	22	3	*22	2	11	2	*11	2
92GB	23	3	*23	2	—	—	—	—
96GB	24	3	*24	2	12	2	*12	2
100GB	25	4	*25	3	—	—	—	—
104GB	26	4	*26	3	13	2	*13	3
108GB	27	4	*27	3	—	—	—	—
112GB	28	4	*28	3	14	2	*14	3
116GB	29	4	*29	3	—	—	—	—
120GB	30	4	*30	3	15	2	*15	3
124GB	31	4	*31	3	—	—	—	—
128GB	32	4	*32	3	16	2	*16	3

(To be continued)

(Continued from the preceding page)

Standard Cache Access Model								
Cache Memory Capacity	Number of options							
	Using DKC-F610I-C4G				Using DKC-F610I-C8G			
	DKC-F610I-C4G	DKC-F610I-CX	CM Location (Note 1)	DKC-F610I-AB	DKC-F610I-C8G	DKC-F610I-CX	CM Location (Note 1)	DKC-F610I-AB
136GB	—	—	—	—	17	3	*17	3
144GB	—	—	—	—	18	3	*18	3
152GB	—	—	—	—	19	3	*19	3
160GB	—	—	—	—	20	3	*20	3
168GB	—	—	—	—	21	3	*21	3
176GB	—	—	—	—	22	3	*22	3
184GB	—	—	—	—	23	3	*23	3
192GB	—	—	—	—	24	3	*24	3
200GB	—	—	—	—	25	4	*25	3
208GB	—	—	—	—	26	4	*26	3
216GB	—	—	—	—	27	4	*27	3
224GB	—	—	—	—	28	4	*28	3
232GB	—	—	—	—	29	4	*29	3
240GB	—	—	—	—	30	4	*30	3
248GB	—	—	—	—	31	4	*31	3
256GB	—	—	—	—	32	4	*32	3

Note 1: The above numbers (*1 through *32) represent the CM Module locations shown in Fig. 2.5-1, Fig. 2.5-2, Fig. 2.5-3 or Fig. 2.5-4.

Table 2.5-2 Cache memory capacity and number of necessary options (Standard Cache Access Model ②)

Standard Cache Access Model							
Cache Memory Capacity	Number of options						
	Using DKC-F610I-C16G				DKC-F610I-ABX (Note 2)	DKC-F610I-CBEX (Note 2)	DKC-F610I-DBEX (Note 2)
	DKC-F610I-C16G	DKC-F610I-CX	CM Location (Note 1)	DKC-F610I-AB			
16GB	1	1	*1	0	0	0	0
32GB	2	1	*2	0	0	0	0
48GB	3	1	*3	0	0	0	0
64GB	4	1	*4	1	0	0	0
80GB	5	1	*5	2	0	0	0
96GB	6	1	*6	2	0	0	0
112GB	7	1	*7	3	0	0	0
128GB	8	1	*8	3	0	0	0
144GB	9	2	*9	3	0	0	0
160GB	10	2	*10	3	0	0	0
176GB	11	2	*11	3	0	0	0
192GB	12	2	*12	3	0	0	0
208GB	13	2	*13	3	0	0	0
224GB	14	2	*14	3	0	0	0
240GB	15	2	*15	3	0	0	0
256GB	16	2	*16	3	0	0	0
272GB	17	3	*17	3	1	1	1
288GB	18	3	*18	3	1	1	1
304GB	19	3	*19	3	1	1	1
320GB	20	3	*20	3	1	1	1
336GB	21	3	*21	3	1	1	1
352GB	22	3	*22	3	1	1	1
368GB	23	3	*23	3	3	1	2
384GB	24	3	*24	3	3	1	2
400GB	25	4	*25	3	3	1	2
416GB	26	4	*26	3	3	1	2
432GB	27	4	*27	3	3	1	2
448GB	28	4	*28	3	3	1	2
464GB	29	4	*29	3	3	1	2
480GB	30	4	*30	3	3	1	2
496GB	31	4	*31	3	3	1	2
512GB	32	4	*32	3	3	1	2

Note 1: The above numbers (*1 through *32) represent the CM Module locations shown in Fig. 2.5-1, Fig. 2.5-2, Fig. 2.5-3 or Fig. 2.5-4.

Note 2: When memory backup mode is selected.

Table 2.5-3 Cache memory capacity and number of necessary options (High Performance Cache Access Model ①)

High Performance Cache Access Model									
Cache Memory Capacity	DKC-F610I-C4G	DKC-F610I-CX			CM Location (Note 1)			DKC-F610I-AB	
		2 CMA Mode (Note 2)	3 CMA Mode (Note 2)	4 CMA Mode (Note 2)	2 CMA Mode (Note 2)	3 CMA Mode (Note 2)	4 CMA Mode (Note 2)	2 CMA Mode (Note 2)	3 or 4 CMA Mode (Note 2)
8GB	2	2	—	—	*1, *9	—	—	1	—
12GB	3	—	3	—	—	*1, *9, *17	—	—	2
16GB	4	2	—	4	*2, *10	—	*1, *9, *17, *25	1	2
24GB	6	2	3	—	*3, *11	*2, *10, *18	—	1	2
32GB	8	2	—	4	*4, *12	—	*2, *10, *18, *26	1	2
36GB	9	—	3	—	—	*3, *11, *19	—	—	2
40GB	10	2	—	—	*5, *13	—	—	1	—
48GB	12	2	3	4	*6, *14	*4, *12, *20	*3, *11, *19, *27	1	2
56GB	14	2	—	—	*7, *15	—	—	1	—
60GB	15	—	3	—	—	*5, *13, *21	—	—	2
64GB	16	2	—	4	*8, *16	—	*4, *12, *20, *28	1	2
72GB	18	—	3	—	—	*6, *14, *22	—	—	2
80GB	20	—	—	4	—	—	*5, *13, *21, *29	—	2
84GB	21	—	3	—	—	*7, *15, *23	—	—	2
96GB	24	—	3	4	—	*8, *16, *24	*6, *14, *22, *30	—	2
112GB	28	—	—	4	—	—	*7, *15, *23, *31	—	3
128GB	32	—	—	4	—	—	*8, *16, *24, *32	—	3

Note 1: The above numbers (*1 through *32) represent the CM Module locations shown in Fig. 2.5-1, Fig. 2.5-2, Fig. 2.5-3 or Fig. 2.5-4.

Note 2: 2 CMA Model becomes a configuration to install Cache Memories in two sets of DKC-F610I-CX in parallel.
3 CMA Model becomes a configuration to install Cache Memories in three sets of DKC-F610I-CX in parallel.
4 CMA Model becomes a configuration to install Cache Memories in four sets of DKC-F610I-CX in parallel.

Note 3: A cache memory can't be set up in the '—' mark.

Table 2.5-4 Cache memory capacity and number of necessary options (High Performance Cache Access Model ②)

High Performance Cache Access Model									
Cache Memory Capacity	DKC-F610I-C8G	DKC-F610I-CX			CM Location (Note 1)			DKC-F610I-AB	
		2 CMA Mode (Note 2)	3 CMA Mode (Note 2)	4 CMA Mode (Note 2)	2 CMA Mode (Note 2)	3 CMA Mode (Note 2)	4 CMA Mode (Note 2)	2 CMA Mode (Note 2)	3 or 4 CMA Mode (Note 2)
16GB	2	2	—	—	*1, *9	—	—	1	—
24GB	3	—	3	—	—	*1, *9, *17	—	—	2
32GB	4	2	—	4	*2, *10	—	*1, *9, *17, *25	1	2
48GB	6	2	3	—	*3, *11	*2, *10, *18	—	1	2
64GB	8	2	—	4	*4, *12	—	*2, *10, *18, *26	1	2
72GB	9	—	3	—	—	*3, *11, *19	—	—	2
80GB	10	2	—	—	*5, *13	—	—	2	—
96GB	12	2	3	4	*6, *14	*4, *12, *20	*3, *11, *19, *27	2	2
112GB	14	2	—	—	*7, *15	—	—	3	—
120GB	15	—	3	—	—	*5, *13, *21	—	—	3
128GB	16	2	—	4	*8, *16	—	*4, *12, *20, *28	3	3
144GB	18	—	3	—	—	*6, *14, *22	—	—	3
160GB	20	—	—	4	—	—	*5, *13, *21, *29	—	3
168GB	21	—	3	—	—	*7, *15, *23	—	—	3
192GB	24	—	3	4	—	*8, *16, *24	*6, *14, *22, *30	—	3
224GB	28	—	—	4	—	—	*7, *15, *23, *31	—	3
256GB	32	—	—	4	—	—	*8, *16, *24, *32	—	3

Note 1: The above numbers (*1 through *32) represent the CM Module locations shown in Fig. 2.5-1, Fig. 2.5-2, Fig. 2.5-3 or Fig. 2.5-4.

Note 2: 2 CMA Model becomes a configuration to install Cache Memories in two sets of DKC-F610I-CX in parallel.
3 CMA Model becomes a configuration to install Cache Memories in three sets of DKC-F610I-CX in parallel.
4 CMA Model becomes a configuration to install Cache Memories in four sets of DKC-F610I-CX in parallel.

Note 3: A cache memory can't be set up in the '—' mark.

Table 2.5-5 Cache memory capacity and number of necessary options (High Performance Cache Access Model ③)

High Performance Cache Access Model												
Cache Memory Capacity	DKC-F610I-C16G	DKC-F610I-CX			CM Location (Note 1)			DKC-F610I- (Note 3)				
								AB		ABX	CBEX	DBEX
		2 CMA Mode (Note 2)	3 CMA Mode (Note 2)	4 CMA Mode (Note 2)	2 CMA Mode (Note 2)	3 CMA Mode (Note 2)	4 CMA Mode (Note 2)	2 CMA Mode (Note 2)	3 or 4 CMA Mode (Note 2)			
32GB	2	2	—	—	*1, *9	—	—	1	—	0	0	0
48GB	3	—	3	—	—	*1, *9, *17	—	—	2	0	0	0
64GB	4	2	—	4	*2, *10	—	*1, *9, *17, *25	1	2	0	0	0
96GB	6	2	3	—	*3, *11	*2, *10, *18	—	2	2	0	0	0
128GB	8	2	—	4	*4, *12	—	*2, *10, *18, *26	3	3	0	0	0
144GB	9	—	3	—	—	*3, *11, *19	—	—	3	0	0	0
160GB	10	2	—	—	*5, *13	—	—	3	—	0	0	0
192GB	12	2	3	4	*6, *14	*4, *12, *20	*3, *11, *19, *27	3	3	0	0	0
224GB	14	2	—	—	*7, *15	—	—	3	—	0	0	0
240GB	15	—	3	—	—	*5, *13, *21	—	—	3	0	0	0
256GB	16	2	—	4	*8, *16	—	*4, *12, *20, *28	3	3	0	0	0
288GB	18	—	3	—	—	*6, *14, *22	—	—	3	1	1	1
320GB	20	—	—	4	—	—	*5, *13, *21, *29	—	3	1	1	1
336GB	21	—	3	—	—	*7, *15, *23	—	—	3	1	1	1
384GB	24	—	3	4	—	*8, *16, *24	*6, *14, *22, *30	—	3	3	1	2
448GB	28	—	—	4	—	—	*7, *15, *23, *31	—	3	3	1	2
512GB	32	—	—	4	—	—	*8, *16, *24, *32	—	3	3	1	2

Note 1: The above numbers (*1 through *32) represent the CM Module locations shown in Fig. 2.5-1, Fig. 2.5-2, Fig. 2.5-3 or Fig. 2.5-4.

Note 2: 2 CMA Model becomes a configuration to install Cache Memories in two sets of DKC-F610I-CX in parallel.
3 CMA Model becomes a configuration to install Cache Memories in three sets of DKC-F610I-CX in parallel.
4 CMA Model becomes a configuration to install Cache Memories in four sets of DKC-F610I-CX in parallel.

Note 3: When memory backup mode is selected.

Note 4: A cache memory can't be set up in the '—' mark.

3. Panel

3.1 Operator Panel

[1] Operator Panel

Fig. 3.1-1 and Table 3.1-1 show the Operator Panel and its functions respectively. Circled numbers in Fig. 3.1-1 correspond to the numbers in Table 3.1-1.

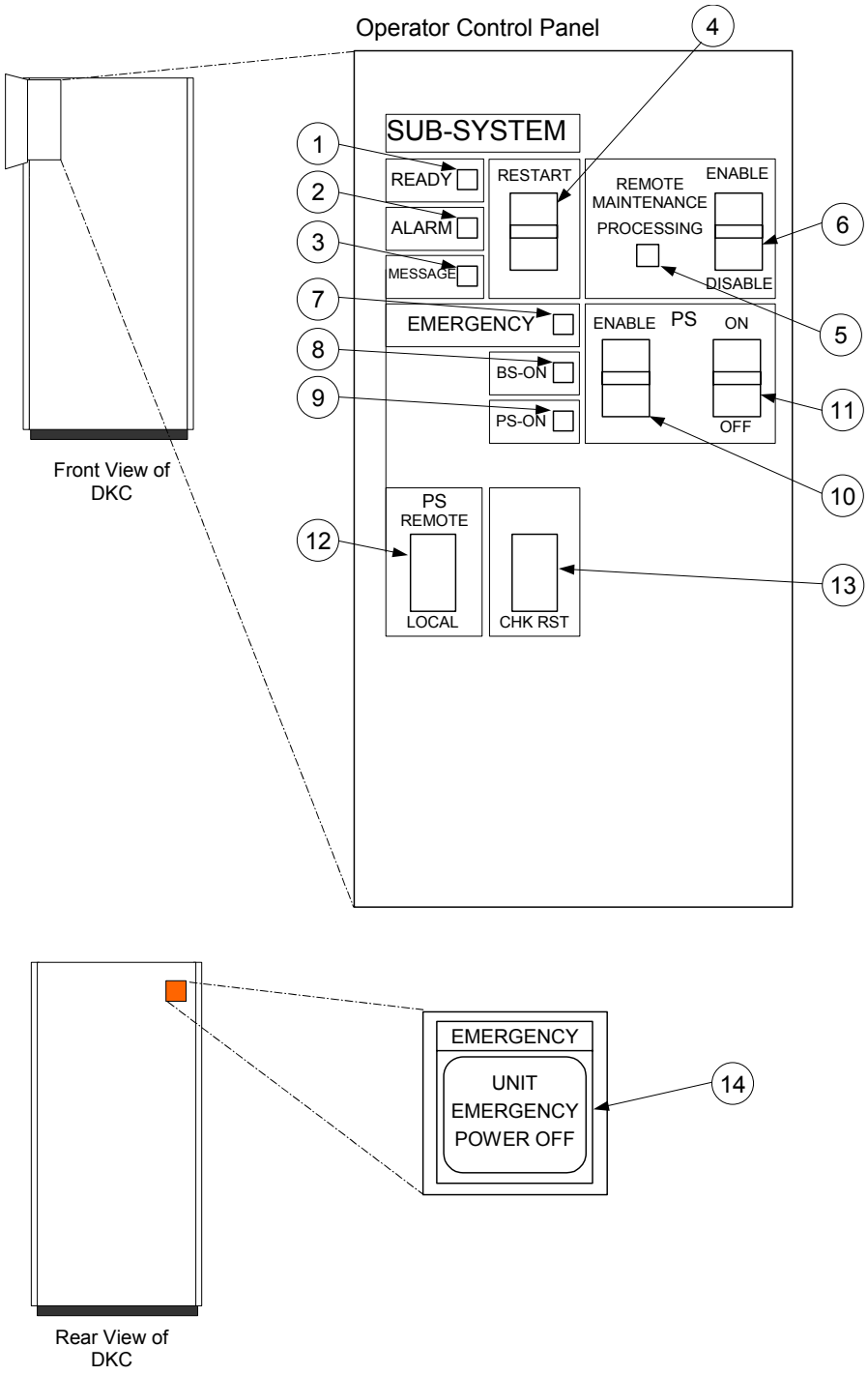


Fig. 3.1-1 Operator Panel

Table 3.1-1 Part Function on Operator Panel

No.	Parts Name	Class	Function
①	SUBSYSTEM READY	LED (Green)	Indicates that input/output operation on the channel interface is enabled.
②	SUBSYSTEM ALARM	LED (Red)	ON: Indicates DC under voltage of DKC part, DC over current, abnormally high temperature, or an unrecoverable failure occurred.
③	SUBSYSTEM MESSAGE	LED (Amber)	ON: Indicates that a SIM (Message) was generated from either of the clusters. Applied to both storage clusters. Blinking: Indicates that the SVP failure has occurred.
④	SUBSYSTEM RESTART	Switch	Used to recover a FICON/ESCON port failure. (See "19. Mainframe Port Error Recovery")
⑤	REMOTE MAINTENANCE PROCESSING	LED (Amber)	Indicates that remote maintenance is being processed.
⑥	REMOTE MAINTENANCE ENABLE/DISABLE	Switch	Used to permit remote maintenance.
⑦	EMERGENCY	LED (Red)	This LED shows status of EPOSW on the rear door. OFF: Indicates that the EPOSW is off. ON: Indicates that the EPOSW is on.
⑧	BS ON	LED (Amber)	Indicates that the Sub-PS is on. (CL 1 or CL 2)
⑨	PS ON	LED (Green)	Indicates that the subsystem is powered on.
⑩	PS SW ENABLE	Switch	Used to enable the PS ON/PS OFF switch. To enable the PS ON/PS OFF switch, turn the PS SW ENABLE switch to the ENABLE position.
⑪	PS ON/PS OFF	Switch	To switch on/off the subsystem, use this switch while turning the PS SW ENABLE switch to the ENABLE position.
⑫	PS REMOTE/LOCAL	Switch	REMOTE position: Subsystem is powered on/off by the instructions from the CPU. LOCAL position: Subsystem is powered on/off by PS ON/PS OFF switch.
⑬	CHK RESET	Switch	The PS ALARM and TH ALARM is reset.
⑭	EMERGENCY POWER OFF	Switch	Used to power off the storage subsystem in an emergency situation.

3.2 Other Switches and LEDs

Fig. 3.2-1 and Table 3.2-1 show the other switches and LEDs and their functions respectively. Circled numbers in Fig. 3.2-1 correspond to the numbers in Table 3.2-1.

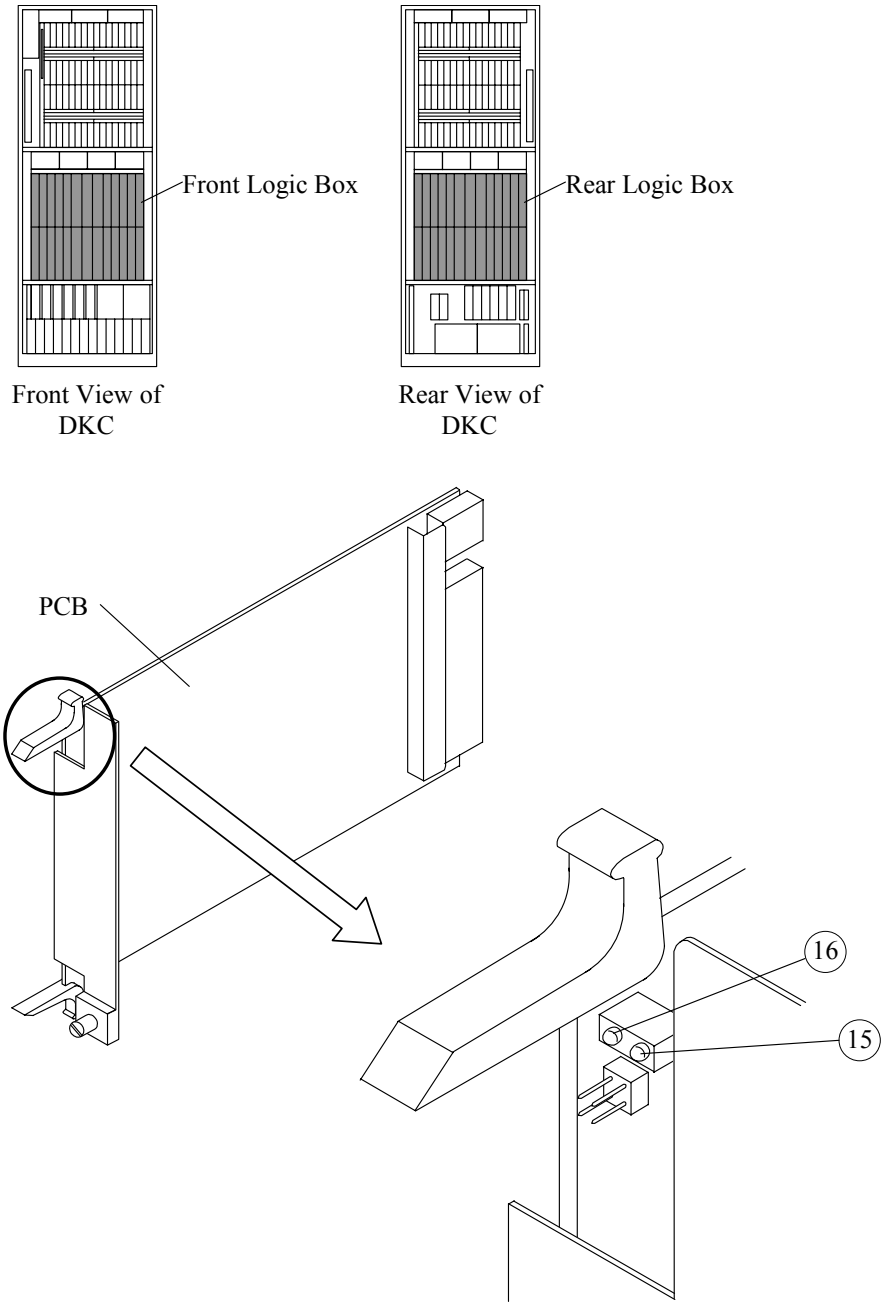


Fig 3.2-1 Other Switches and LEDs (1/4)

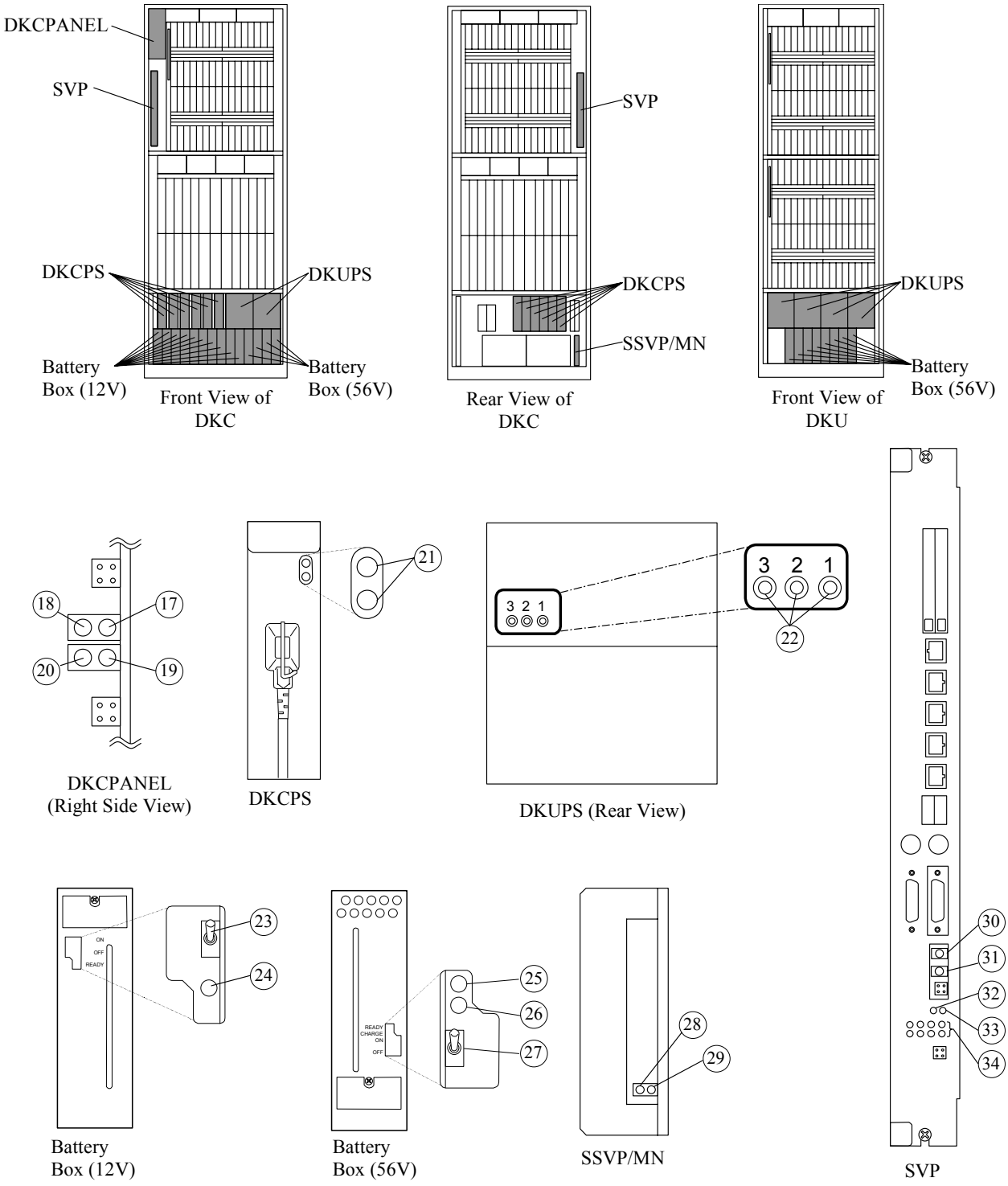
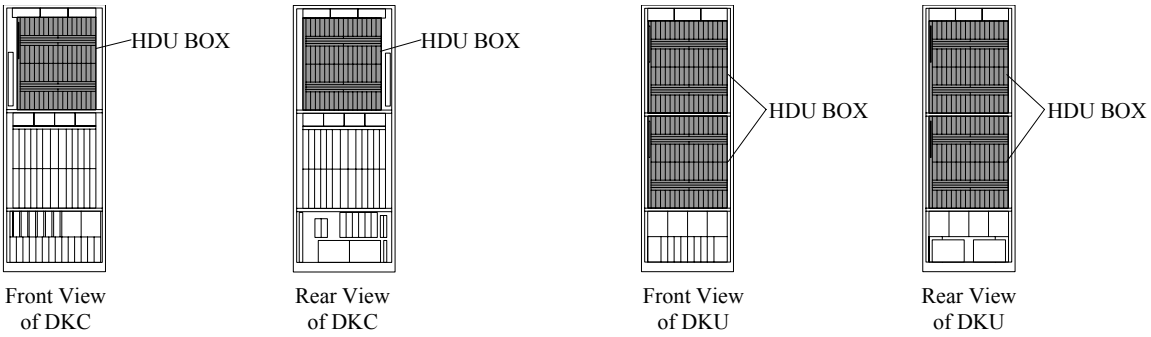
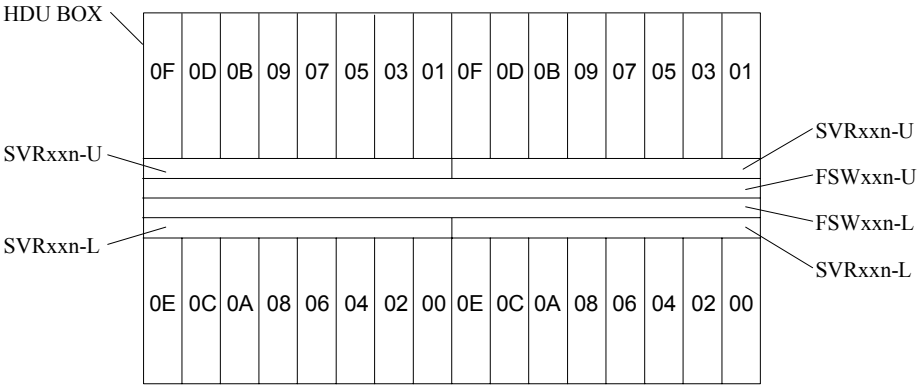
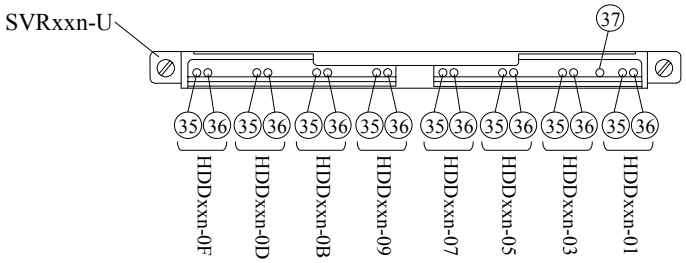
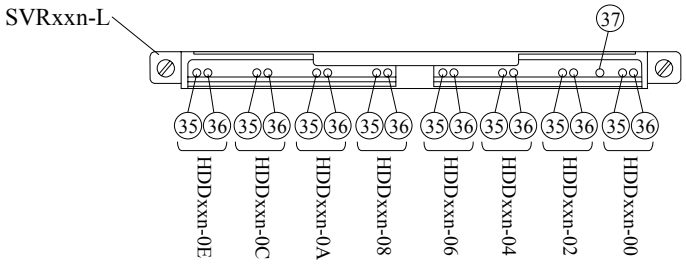


Fig 3.2-1 Other Switches and LEDs (2/4)









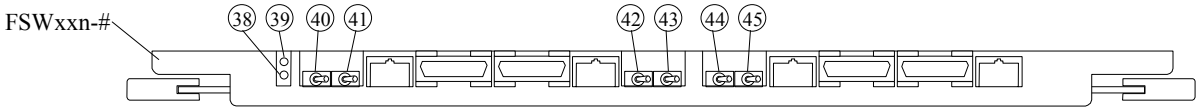
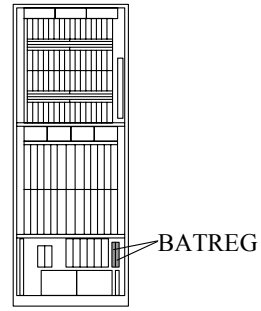
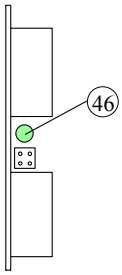


Fig 3.2-1 Other Switches and LEDs (3/4)



Rear View of DKC



BATREG

Fig 3.2-1 Other Switches and LEDs (4/4)

Table 3.2-1 Function of Other Switches and LEDs

No.	Parts Name	Class	Function
⑮	Shut Down LED	LED (Red)	Indicates that the removal of the PCB is possible when the subsystem is powered on.
⑯	PS Failure LED	LED (Amber)	Indicates that the voltage in the PCB is abnormal.
⑰ ⑱ ⑲ ⑳	SSVP ALARM SSVP LED SSVP LED SSVP LED	LED (Red)	Indicates the status of SSVP by the combination of ⑰, ⑱, ⑲ and ⑳. The LED indicates the following statuses. ○: Indicates that the light is off. ●: Indicates that the light is on. ◘: Indicates that the light is blinking. ⑰ ⑱ ⑲ ⑳ ○ ○ ○ ○ Normal status ○ ○ ○ ● Self-contradiction of SSVP microprogram or hardware abnormality is detected. ● ● ● ○ During the memory test ● ● ● ● Memory system hardware error ○ ● ● ○ During the DUMP collection ○ ● ● ● DUMP terminated abnormally. ○ ○ ○ ◘ DUMP collection is completed ○ ○ ● ○ During microprogram replacement ○ ○ ● ● Microprogram replacement error
㉑	PS Enable	LED (Green)	Indicates that the PS is providing output voltage.
㉒	PS Enable	LED (Green)	Indicates that the PS is providing output voltage.
㉓	BATTERY ON/OFF	Switch	Used to power on/off the BATTERY.
㉔	BATTERY CHARGE LED	LED (Green)	This LED shows the state of BATTERY. Lighting ----------The battery charge is completed. Fast Blinking (Lighting about one second, Going out about one second) ----------The battery is charging. Slow Blinking (Lighting about one second, Going out about five seconds)----------The battery is discharging. Going out ----------• Power off • The state that the discharge of BATTERY is completed • Trouble of BATTERY After the power is turned on, the Battery Box is started to be charged and the LED blinks. Though the LED becomes kept on after the charge is completed, it repeats the operation that indicates the refilling charge (blink) and completion of the refilling charge (being kept on) after that.

(To be continued)

(Continued from preceding page)

No.	Parts Name	Class	Function
㉕	BATTERY READY LED	LED (Green)	Lighting ----------The BATTERY is powered on. Going out ----------• Power off • The state that BATTERY is discharging or the discharge is completed • Trouble of BATTERY
㉖	BATTERY CHARGE LED	LED (Amber)	This LED shows the state of BATTERY. Lighting ----------The battery charge is completed. Blinking (Lighting about one second, Going out about one second) ----------The battery is charging. Going out ----------• Power off • The state that BATTERY is discharging or the discharge is completed • Trouble of BATTERY After the power is turned on, the Battery Box is started to be charged and the LED blinks. Though the LED becomes kept on after the charge is completed, it repeats the operation that indicates the refilling charge (blink) and completion of the refilling charge (being kept on) after that.
㉗	BATTERY ON/OFF	Switch	Used to power on/off the BATTERY.
㉘	SSVP/MN Shut Down LED	LED (Red)	Indicates that the removal of the SSVP/MN is possible when the subsystem is powered on.
㉙	SSVP/MN ENABLE	LED (Green)	Indicates that the SSVP/MN is powered on.
㉚	SVP PS OFF	Switch	A pressing of this switch quits Windows and then turns off the power of the PC in the SVP. When this switch is pressed with the SVP PS ON switch (No. 31) at the same time, Windows is quit forcibly and then the power of the PC in the SVP is turned off.
㉛	SVP PS ON	Switch	A pressing of this switch turns on the power of the PC in the SVP.
㉜	SVP POWER	LED (Green)	Indicates that the power of the SVP is has been turned on. • Power of the built-in Hub in the SVP has been turned on. • Power of the PC in the SVP is turned on.
㉝	SVP DCIN	LED (Green)	Indicates that the DC power is supplied to the SVP. • Power of the built-in Hub in the SVP is turned on. • Power of the PC in the SVP is kept off.

(To be continued)

(Continued from preceding page)

No.	Parts Name	Class	Function
㉞	SVP STATUS	LED (Green)	Indicates a status of the SVP using the SVP microprogram. The LED indicates the following status usually. ○: Indicates that the light is off. ●: Indicates that the light is on. ◘: Indicates that the light is blinking. ● ○ ○ ○ } The LED status at the time of ○ ○ ○ ◘ } Master SVP. ○ ● ○ ○ } The LED status at the time of ○ ○ ○ ◘ } Standby SVP For the other LED display, see " 1.11 SVP LED display specification" (SVP01-200 ~ 210).
㉟	HDD Shut Down LED	LED (Red)	Indicates that the removal of the HDD/SSD is possible when the subsystem is powered on.
㊱	HDD ENABLE	LED (Green)	Lighting or Blinking: Indicates that the HDD/SSD is active. Note: The interval of blinking may be different in HDD and SSD, however it is not abnormal.
㊲	SVR Shut Down LED	LED (Amber)	Indicates that the removal of the SVR is possible when the subsystem is powered on.
㊳	FSW ENABLE	LED (Green)	Indicates that the FSW is powered on.
㊴	FSW Shut Down LED	LED (Red)	Indicates that the removal of the FSW is possible when the subsystem is powered on.
㊵	HBC ID Switch (SW6)	Switch	The HBC ID (HBC bus address) is set up.
㊶	HBC ID Switch (SW5)	Switch	
㊷	ALPA2 Switch (SW4)	Switch	The address in FC-AL is set about 16 HDDs/SSDs in the left of HDU BOX.
㊸	ALPA2 Switch (SW3)	Switch	
㊹	ALPA1 Switch (SW2)	Switch	The address in FC-AL is set about 16 HDDs/SSDs in the right of HDU BOX.
㊺	ALPA1 Switch (SW1)	Switch	
㊻	BATREG ENABLE	LED (Green)	Indicates that the BATREG is powered on.

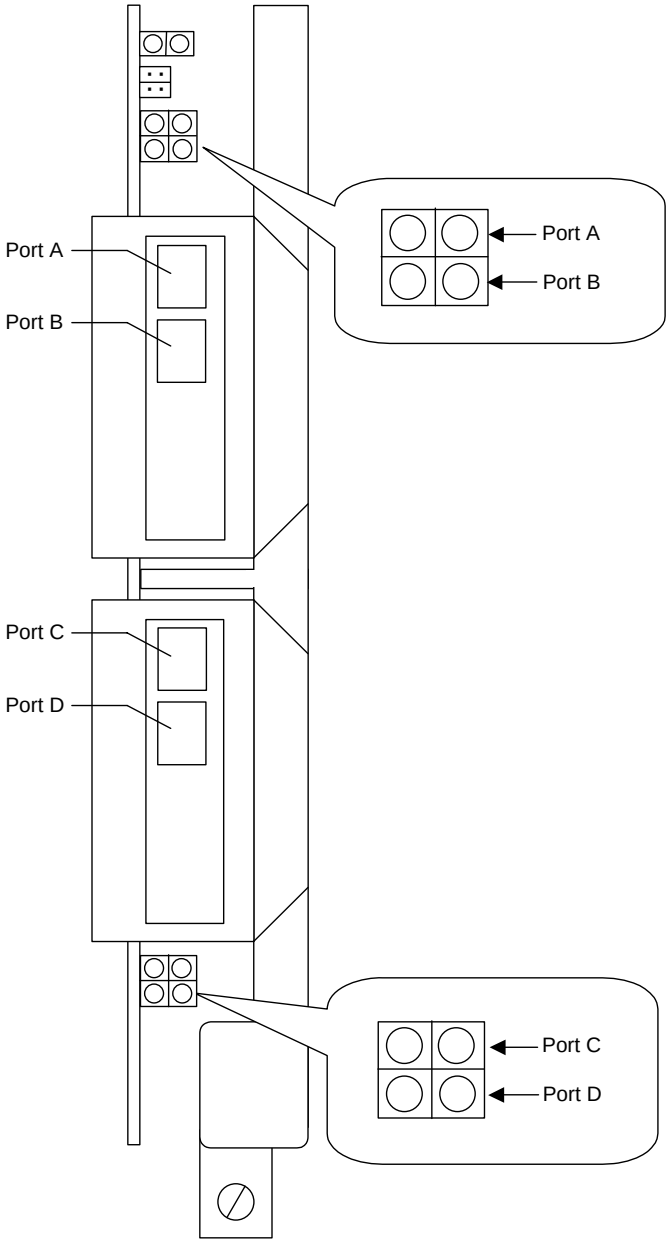


Fig 3.2-2 Channel Port LED Indication : 8FS/8US

Table 3.2-2 Channel Port LED Indication : 8FS/8US

LED Condition			State	Description
○	○	OFF + OFF	Not Ready	Link activity is unavailable, due to power-down or initialization not completed.
●	○	ON + OFF	Ready	Link is available by initialization completion, but connection to the host has not been established.
●	●	ON + ON	Link Up	Interface operation with the host is available by the connection establishment.
●	●	ON + ON (Same as Link Up)	Active	Interface operation is active between the hosts.

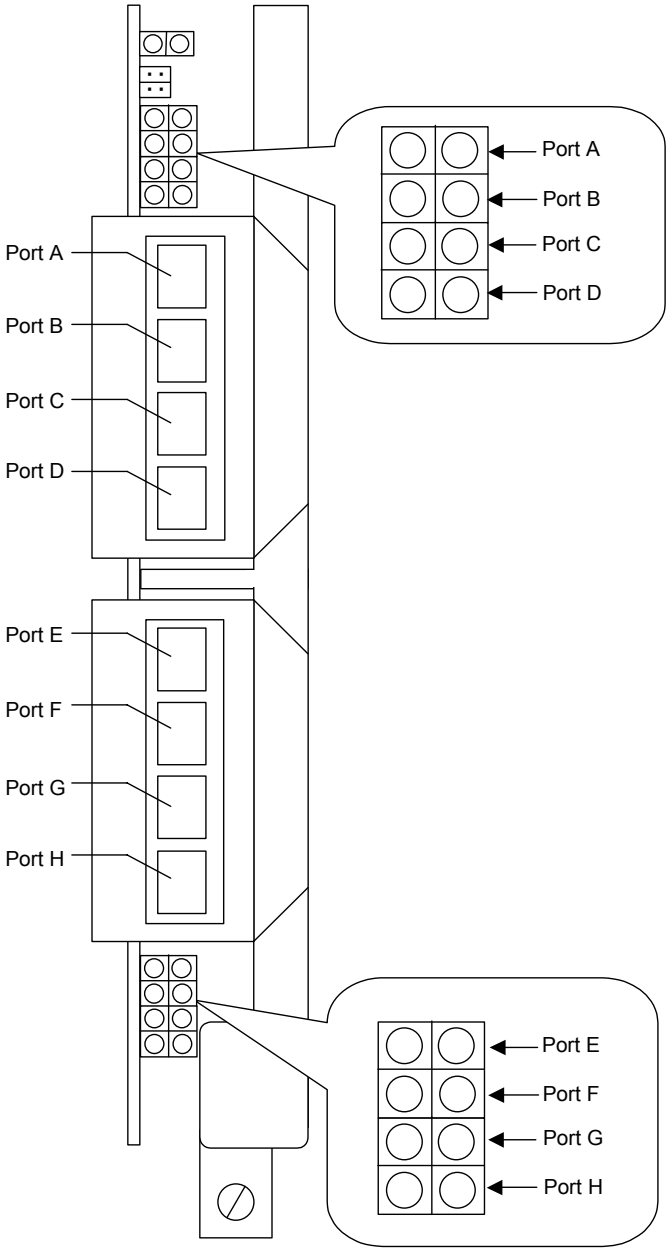


Fig 3.2-3 Channel Port LED Indication : 16FS

Table 3.2-3 Channel Port LED Indication : 16FS

LED Condition			State	Description
○	○	OFF + OFF	Not Ready	Link activity is unavailable, due to power-down or initialization not completed.
●	○	ON + OFF	Ready	Link is available by initialization completion, but connection to the host has not been established.
●	●	ON + ON	Link Up	Interface operation with the host is available by the connection establishment.
●	●	ON + ON (Same as Link Up)	Active	Interface operation is active between the hosts.

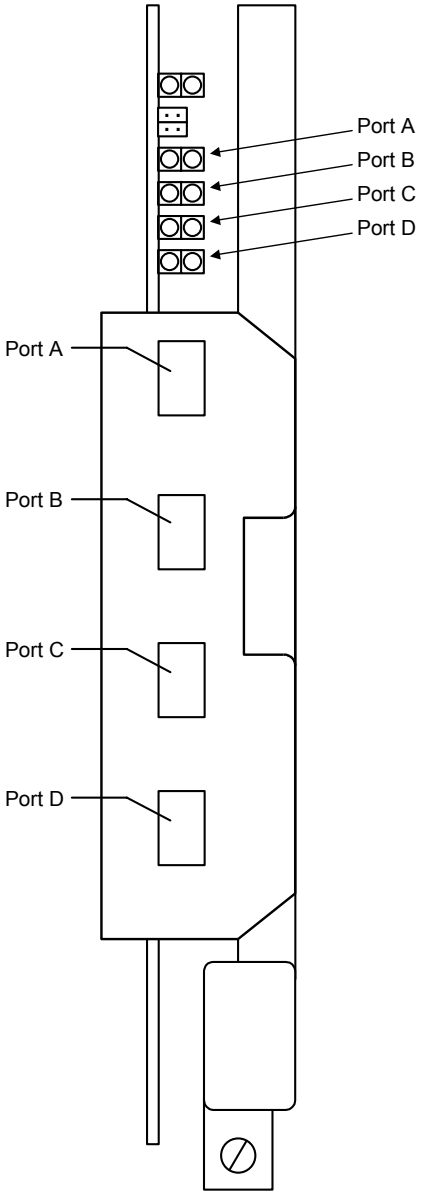


Fig 3.2-4 Channel Port LED Indication : 8S

Table 3.2-4 Channel Port LED Indication : 8S

LED Condition			State	Description
○	○	OFF + OFF	Not Ready	Link activity is unavailable, due to power-down or initialization not completed.
◘	○	Blink + OFF (Slow)	Ready	Link is available by initialization completion, but connection to the host has not been established.
●	○	ON + OFF	Link Up	Interface operation with the host is available by the connection establishment.
◘	○	Blink + OFF (Fast)	Active	Interface operation is active between the hosts.

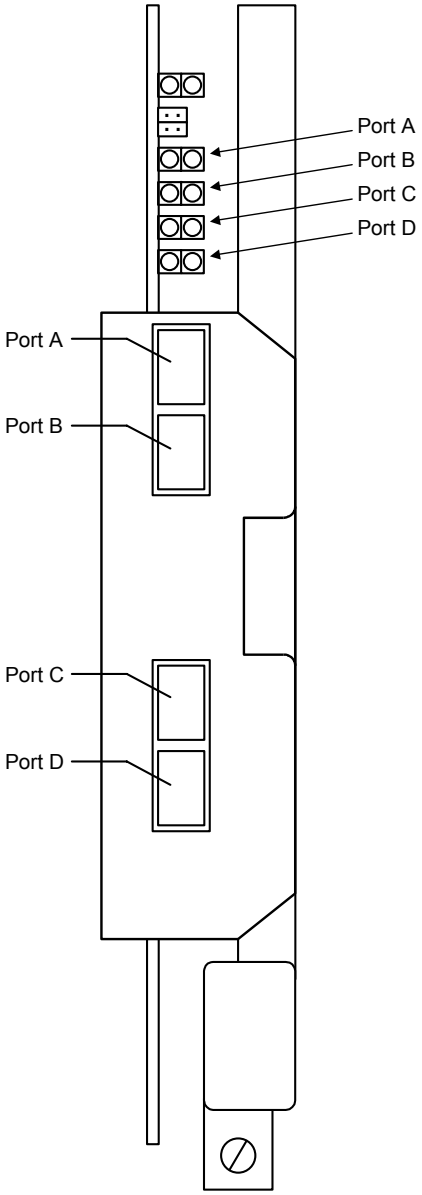


Fig 3.2-5 Channel Port LED Indication : 8MFS/8MFL

Table 3.2-5 Channel Port LED Indication : 8MFS/8MFL

LED Condition			State	Description
○	○	OFF + OFF	Not Ready	Link activity is unavailable, due to power-down or initialization not completed.
○	◘	OFF + Blink (Slow)	Ready	Link is available by initialization completion, but connection to the host has not been established.
○	●	OFF + ON	Link Up	Interface operation with the host is available by the connection establishment.
○	◘	OFF + Blink (Fast)	Active	Interface operation is active between the hosts.

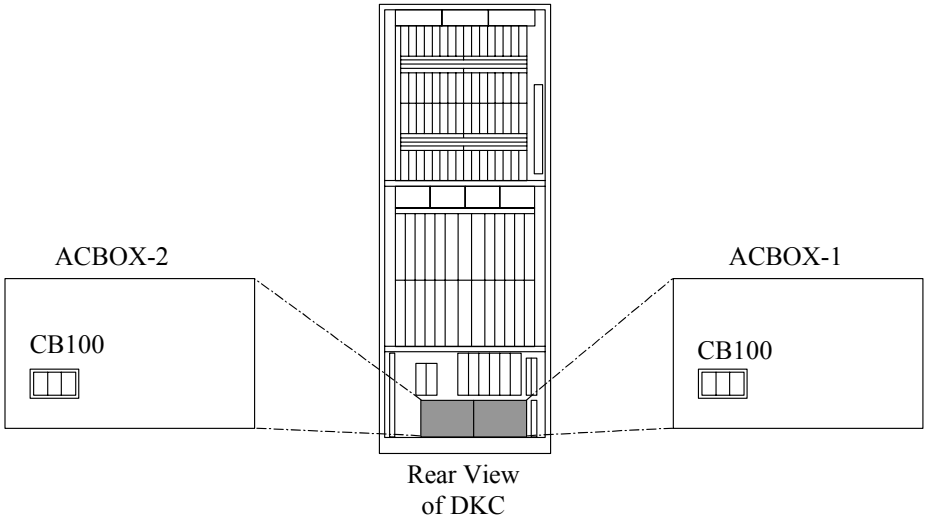
Note: The left side LED is for maintenance purpose. Regarding failure content, please refer to SIM log.

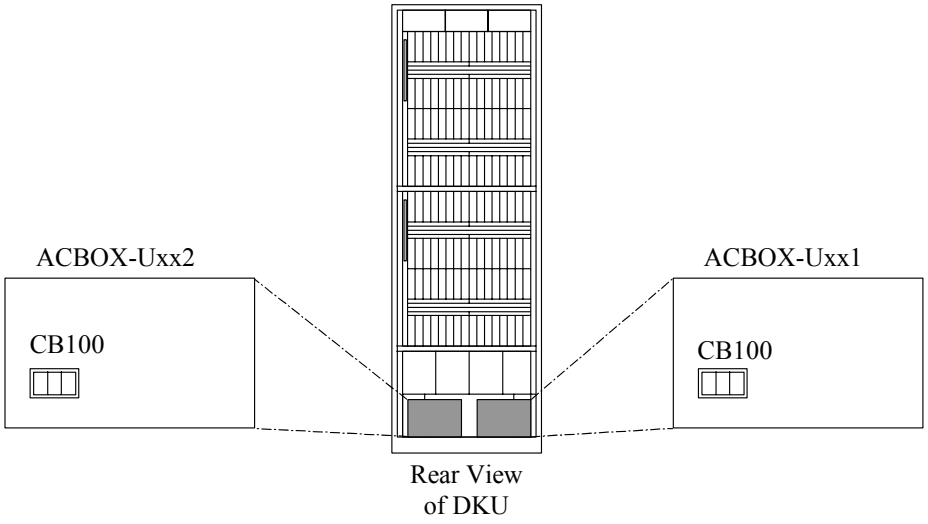
Blank Sheet

3.3 Circuit Breakers

3.3.1 3 Phase/30A Model

Fig. 3.3.1-1 show the location of Circuit Breakers.





(Note) xx: DKU Location
(R1, R2, L1, L2)

Fig. 3.3.1-1 Location of Circuit Breakers

Fig. 3.3.1-2 and Fig. 3.3.1-3 show the connection of power supplies.

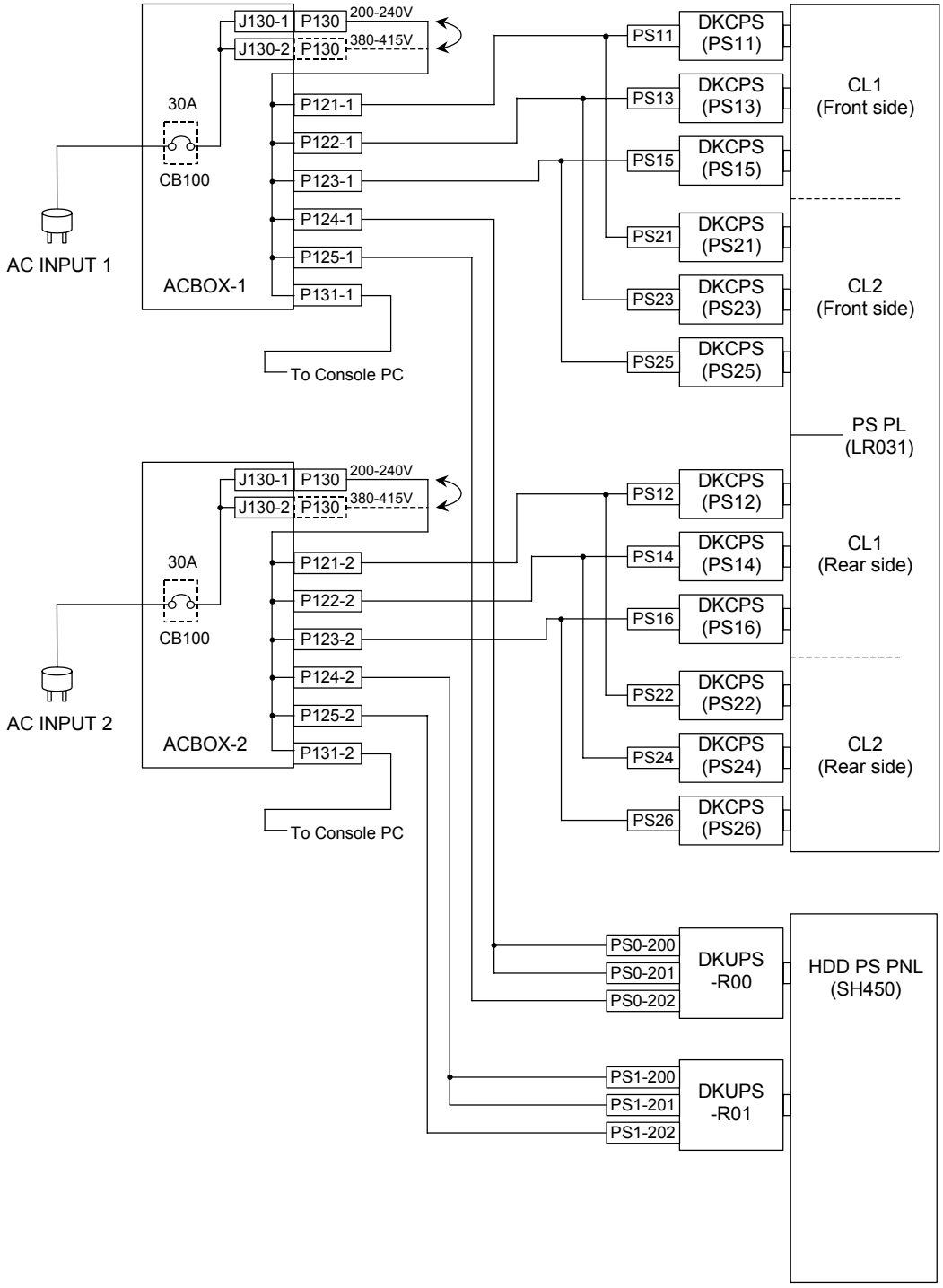


Fig. 3.3.1-2 Connection of Power Supplies (DKC 3 Phase/30A)

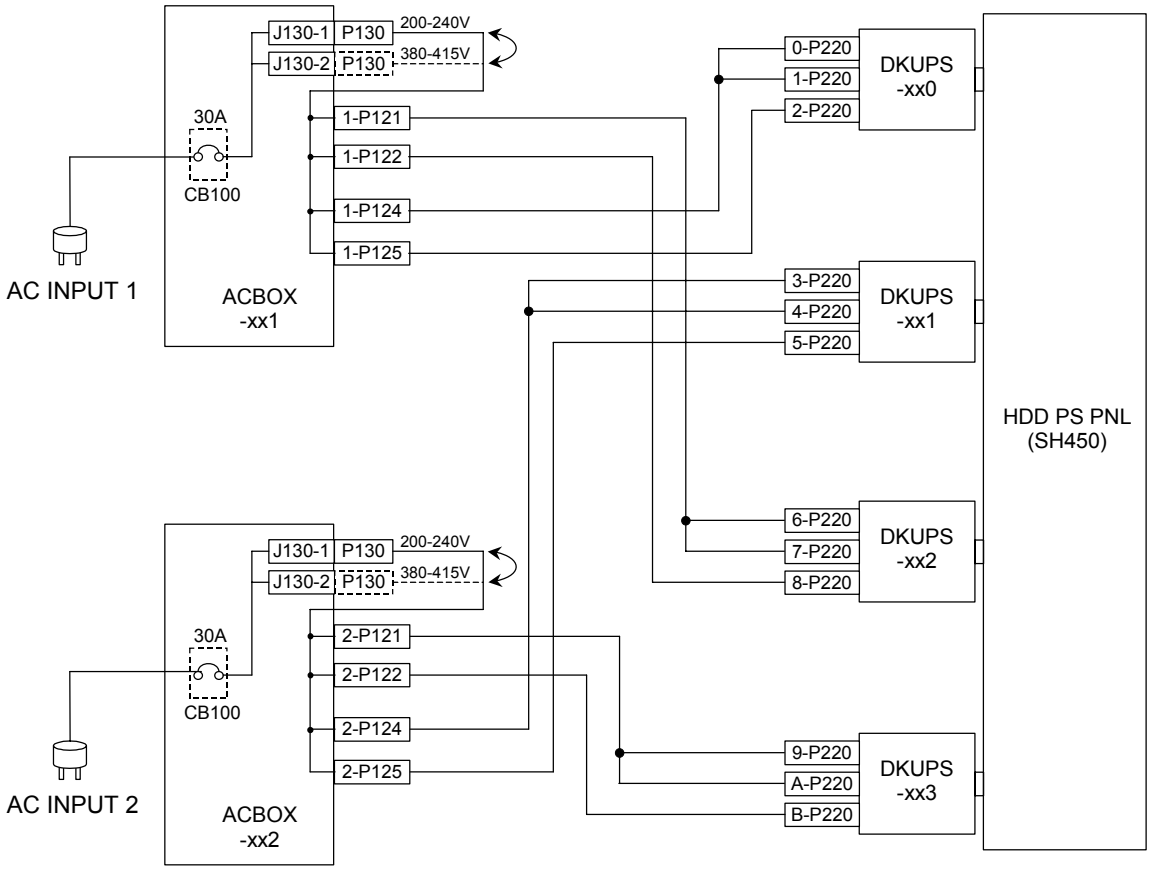
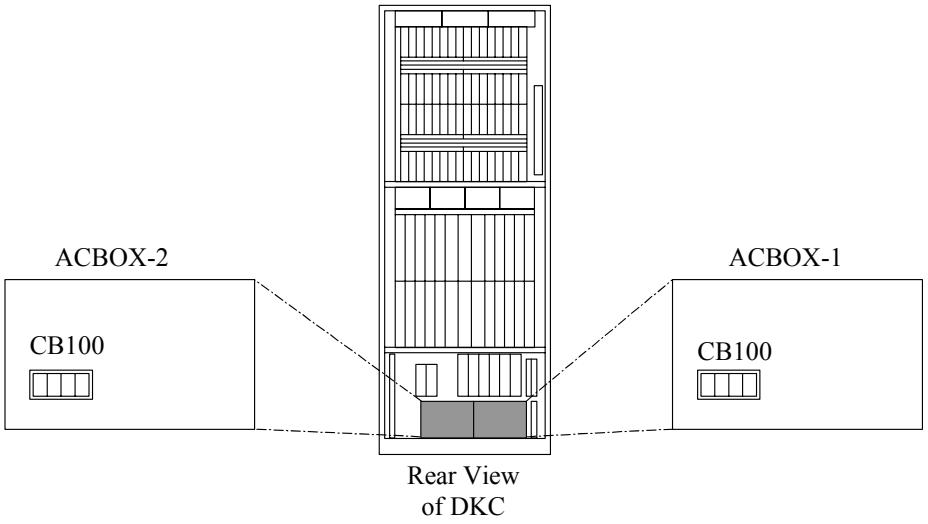
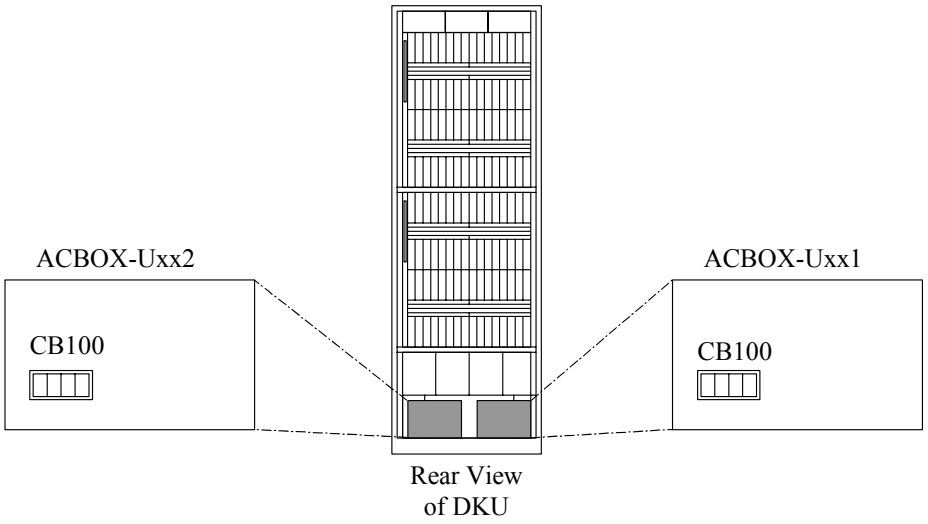


Fig. 3.3.1-3 Connection of Power Supplies (DKU 3 Phase/30A)

3.3.2 Single Phase/30A Model

Fig. 3.3.2-1 show the location of Circuit Breakers.





(Note) xx: DKU Location
(R1, R2, L1, L2)

Fig. 3.3.2-1 Location of Circuit Breakers

Fig. 3.3.2-2 and Fig. 3.3.2-3 show the connection of power supplies.

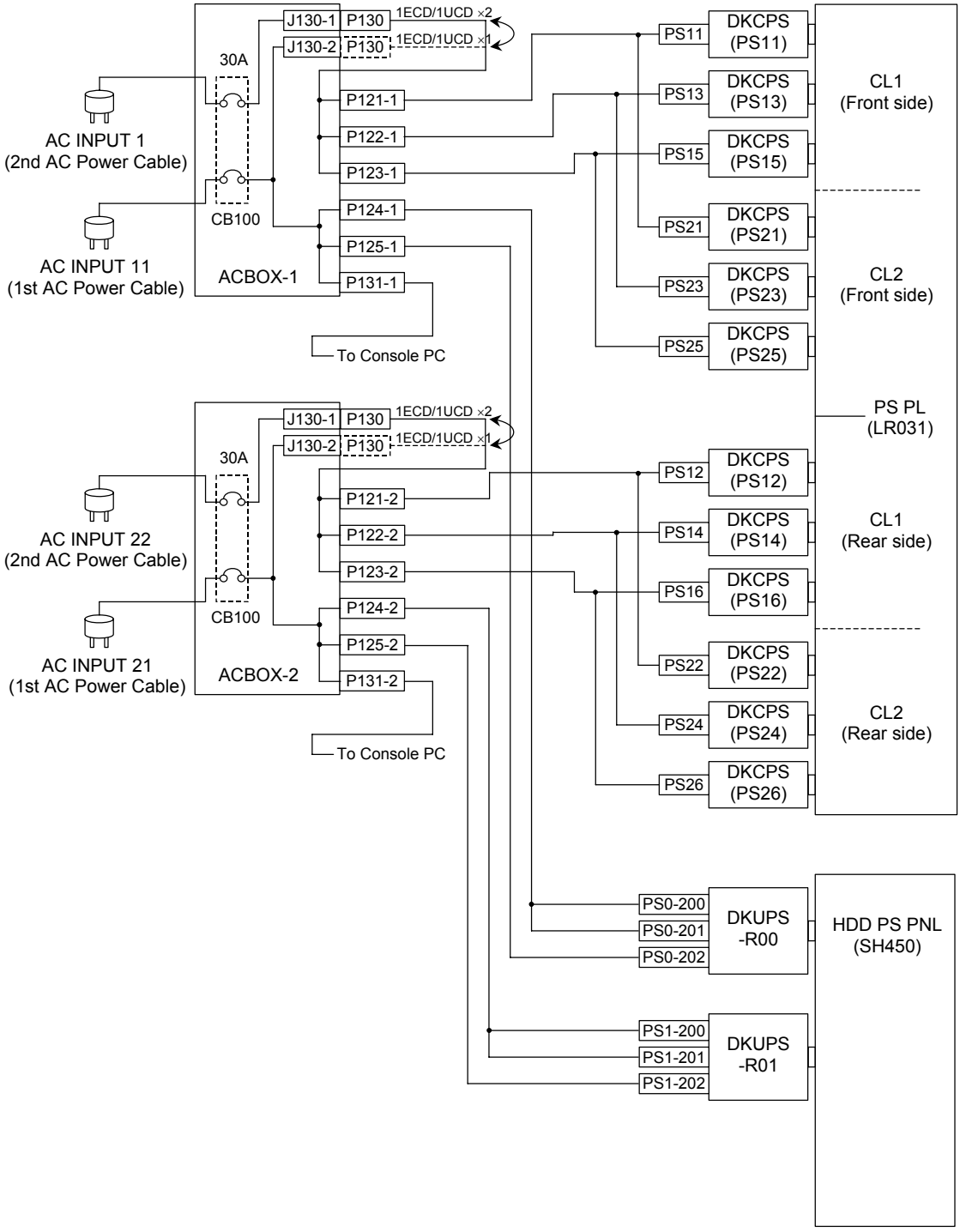


Fig. 3.3.2-2 Connection of Power Supplies (DKC Single Phase/30A)

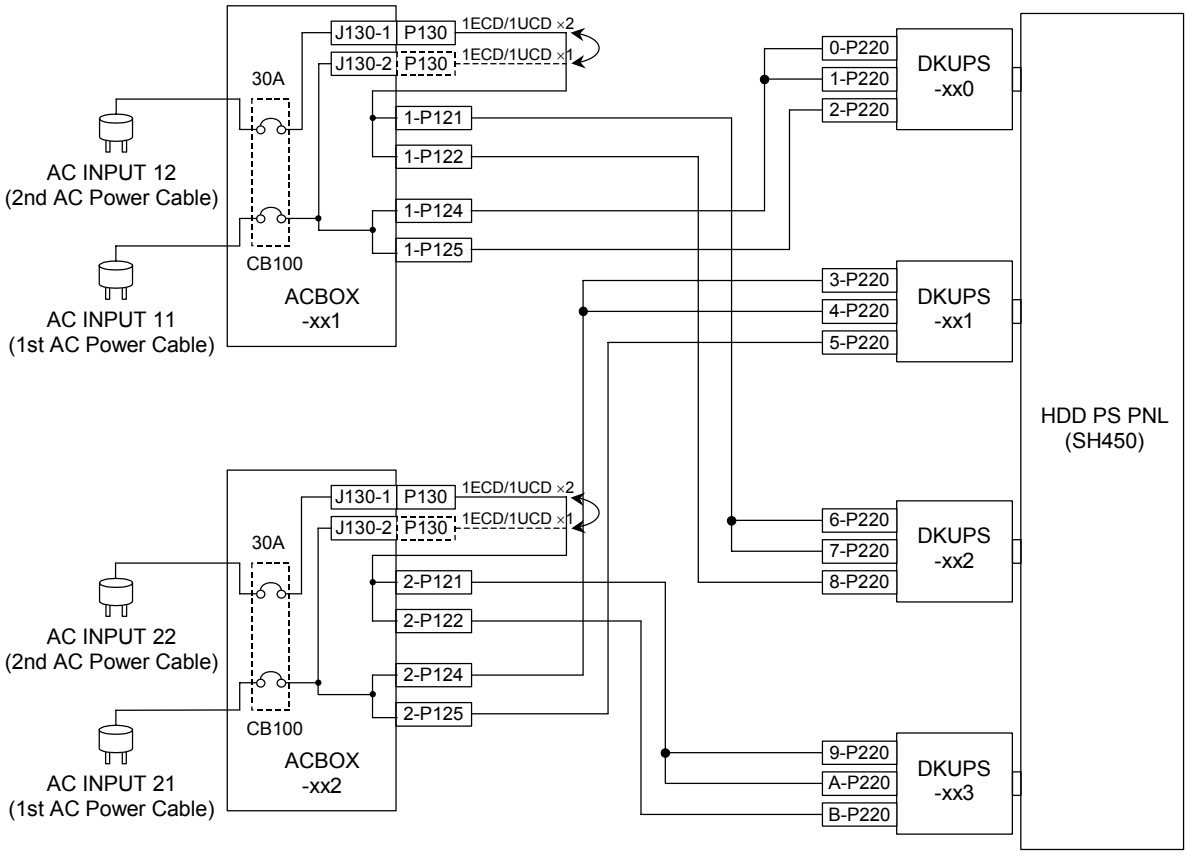
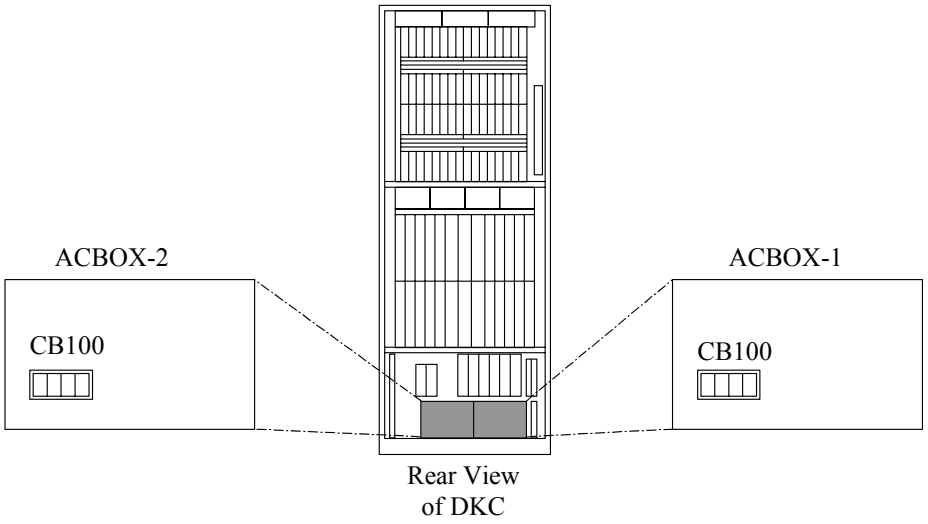
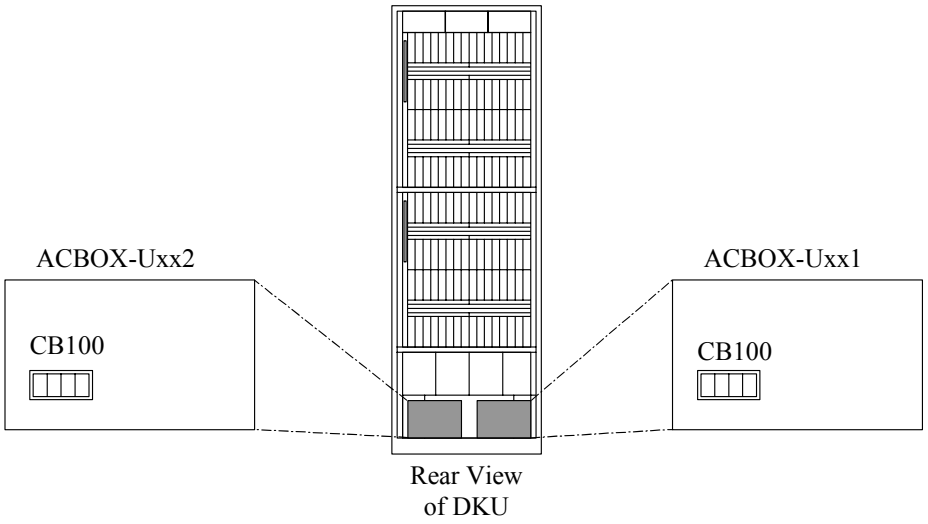


Fig. 3.3.2-3 Connection of Power Supplies (DKU Single Phase/30A)

3.3.3 Single Phase/50A Model

Fig. 3.3.3-1 show the location of Circuit Breakers.





(Note) xx: DKU Location
(R1, R2, L1, L2)

Fig. 3.3.3-1 Location of Circuit Breakers

Fig. 3.3.3-2 and Fig. 3.3.3-3 show the connection of power supplies.

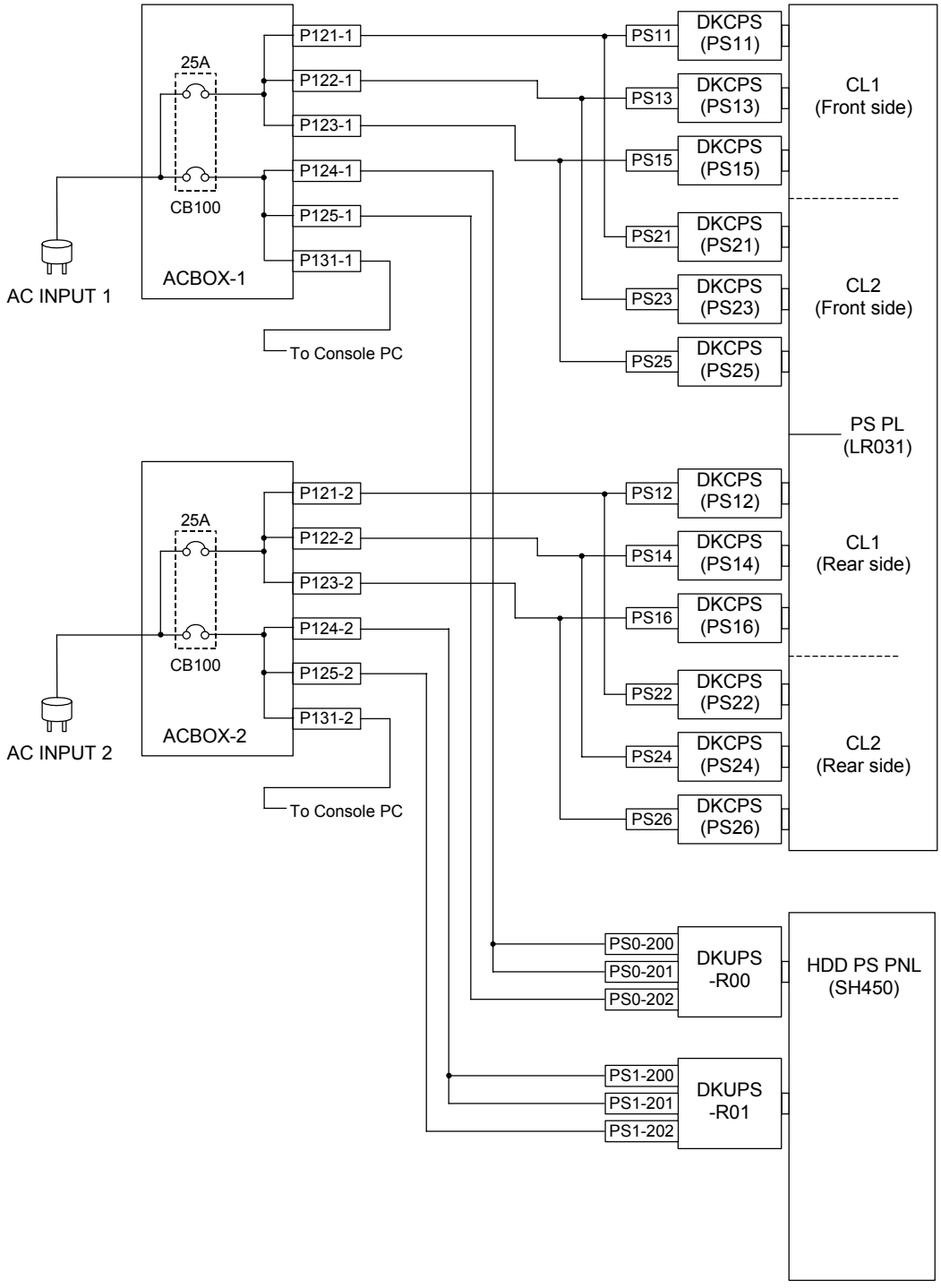


Fig. 3.3.3-2 Connection of Power Supplies (DKC Single Phase/50A)

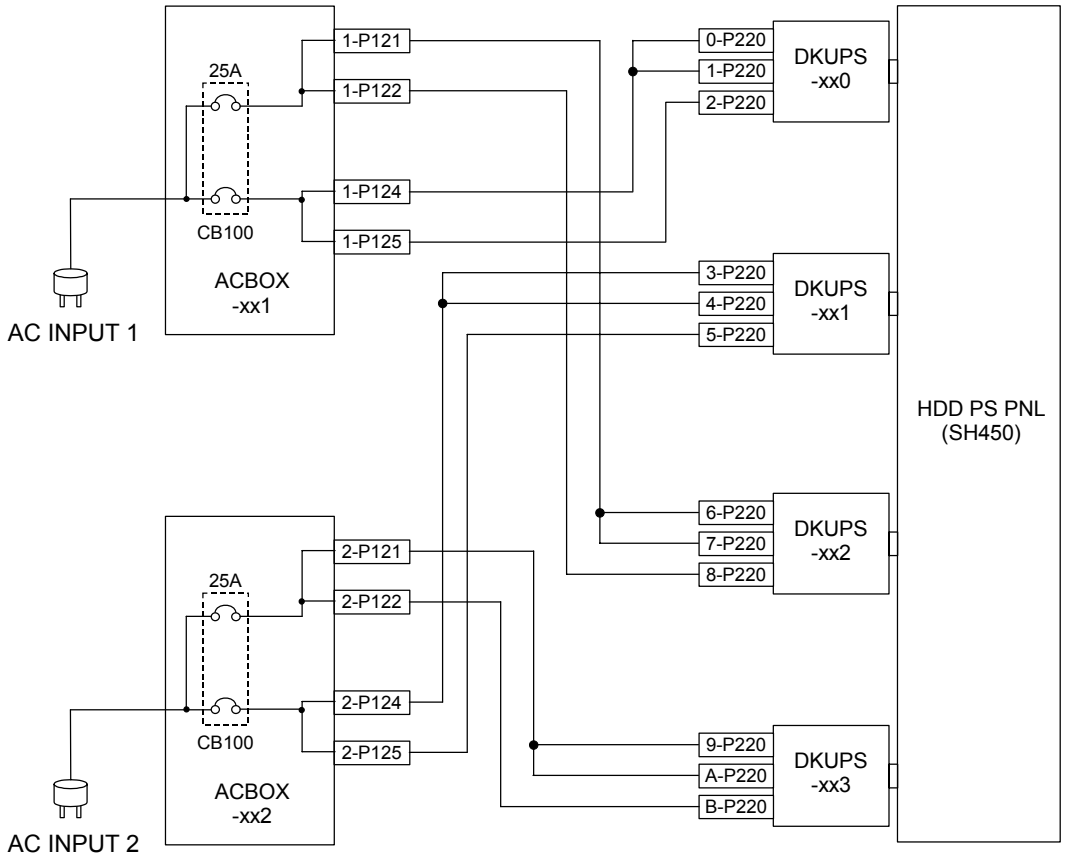


Fig. 3.3.3-3 Connection of Power Supplies (DKU Single Phase/50A)

4. Connection of External Cable

4.1 Channel Interface

1. 4-port CHA PCB (DKC-F610I-8FS/8US)

Caution: Wear a wrist strap until the work is finished. (Refer to INST03-01-30 for how to wear the wrist strap.)

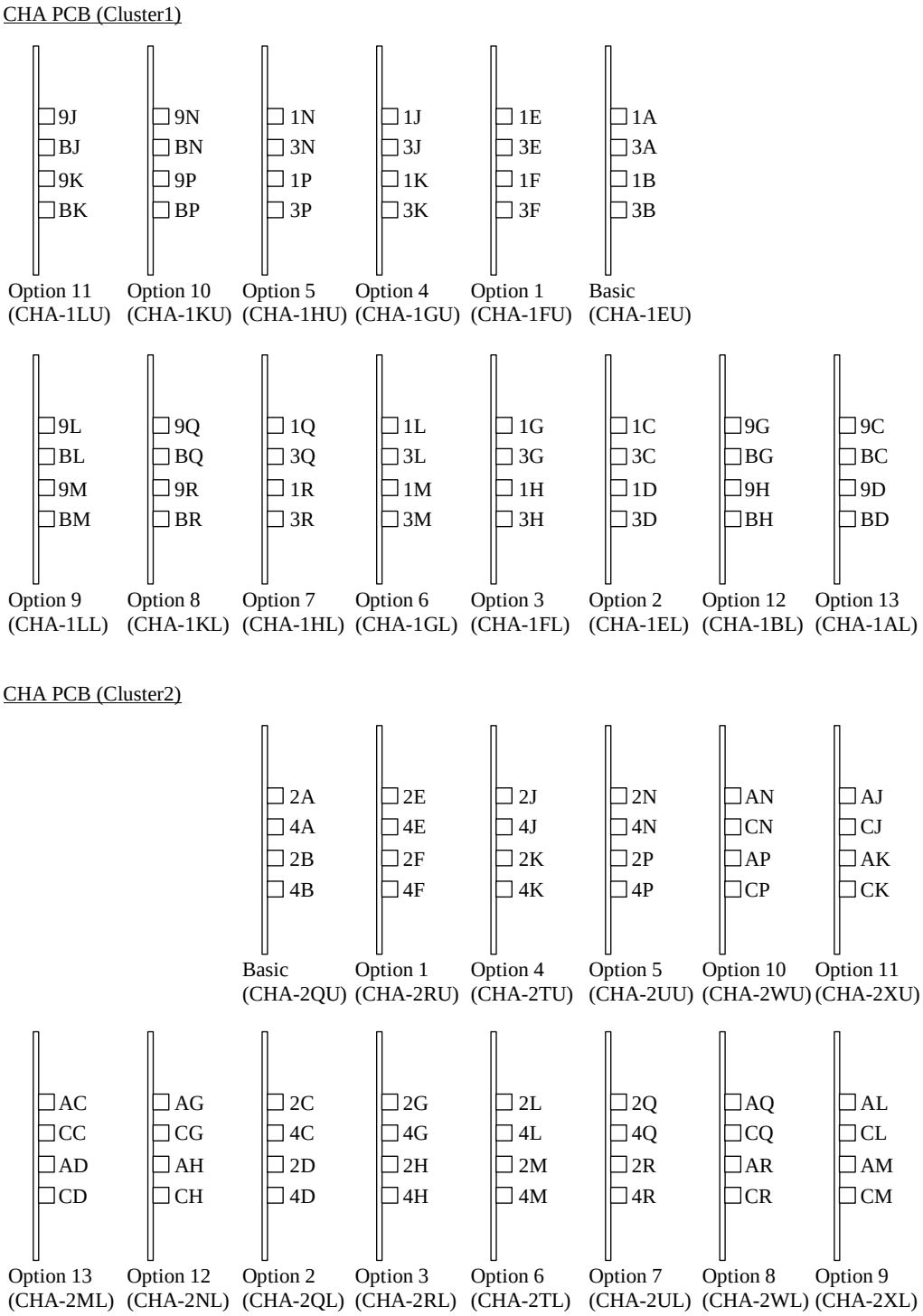
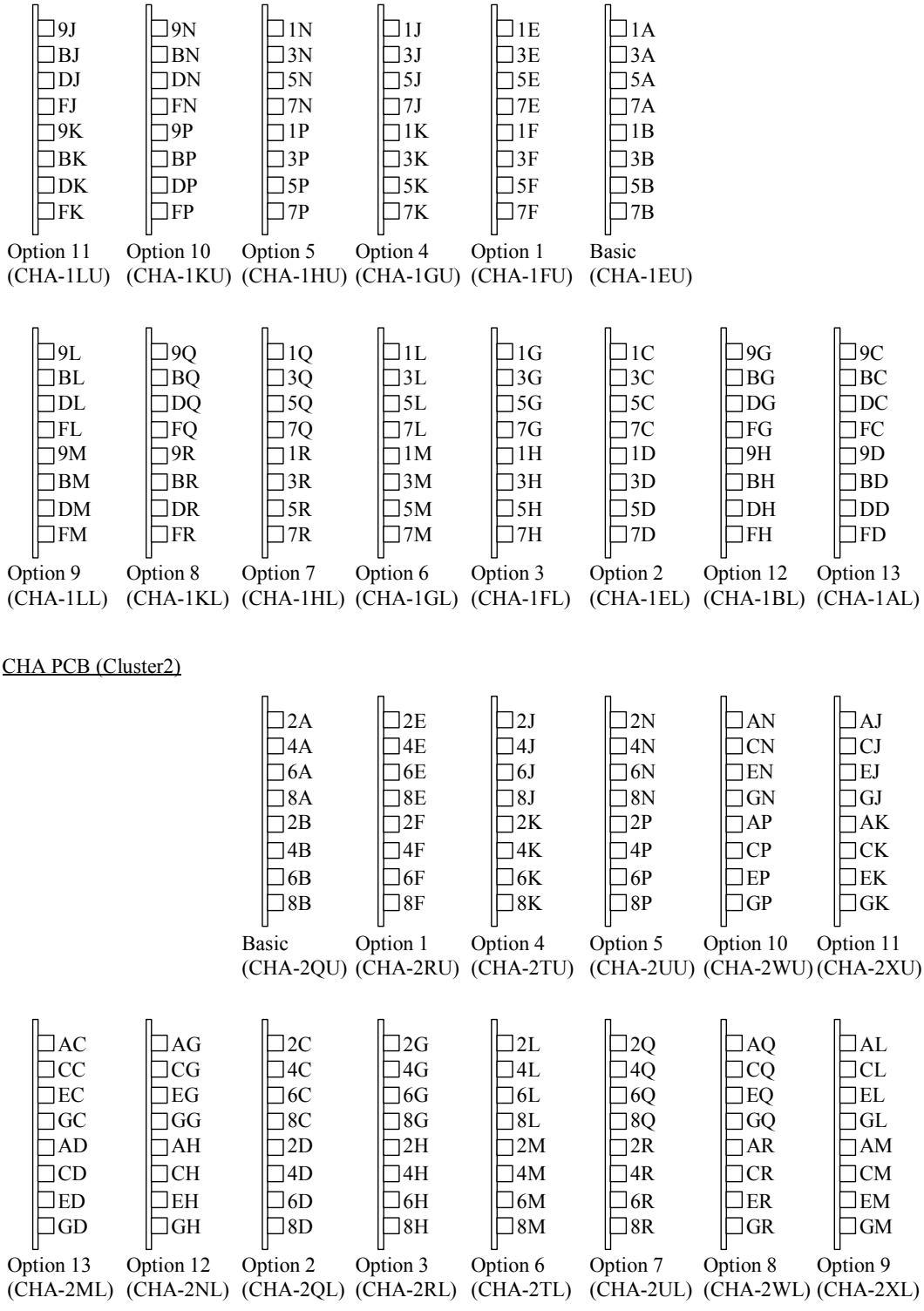


Fig.4.1-1 Port Number of 4-port CHA PCB

2. 8-port CHA PCB (DKC-F610I-16FS)

Caution: Wear a wrist strap until the work is finished. (Refer to INST03-01-30 for how to wear the wrist strap.)

CHA PCB (Cluster1)



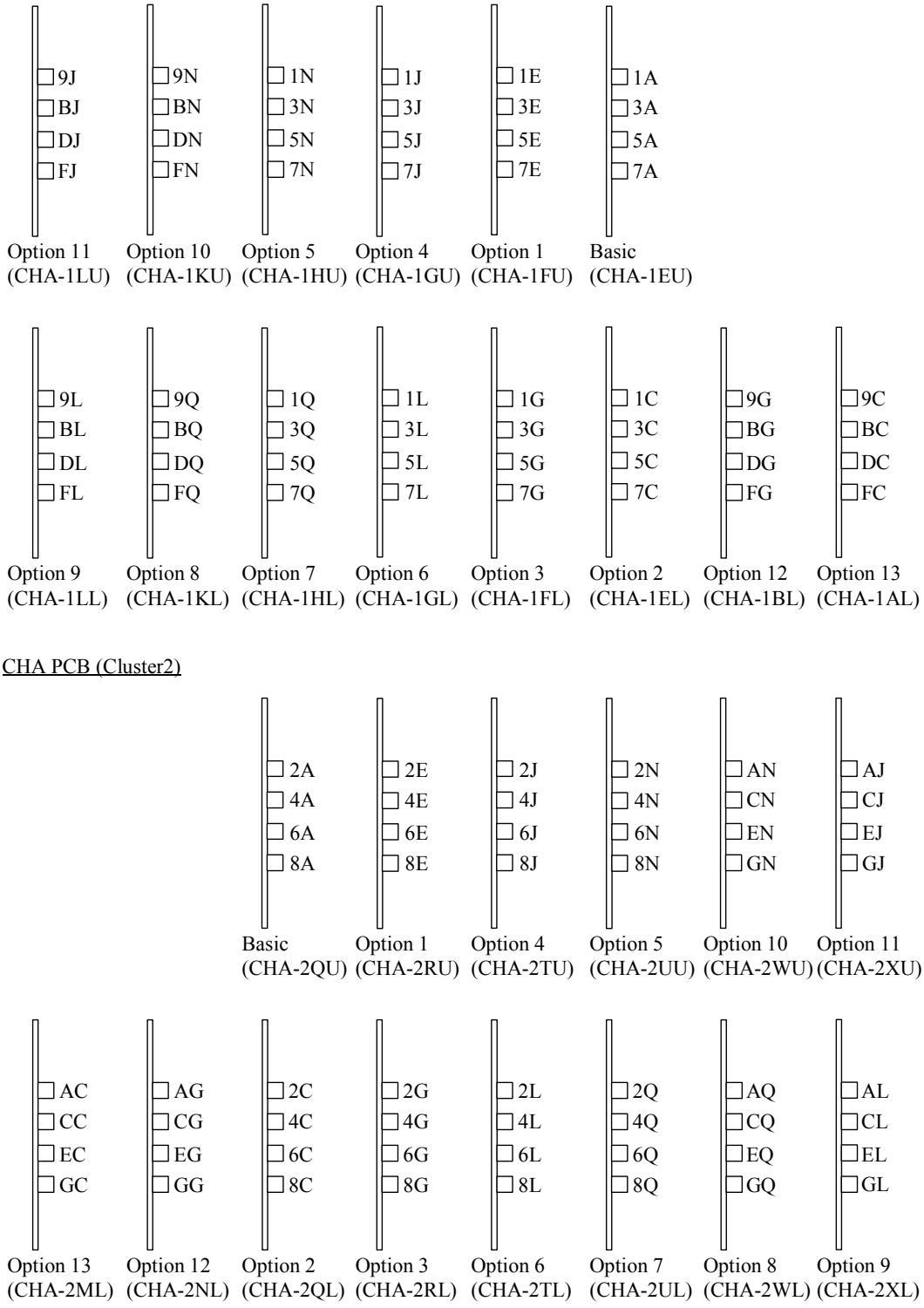
CHA PCB (Cluster2)

Fig.4.1-2 Port Number of 8-port CHA PCB

3. 4-port CHA PCB (DKC-F610I-8S)

Caution: Wear a wrist strap until the work is finished. (Refer to INST03-01-30 for how to wear the wrist strap.)

CHA PCB (Cluster1)



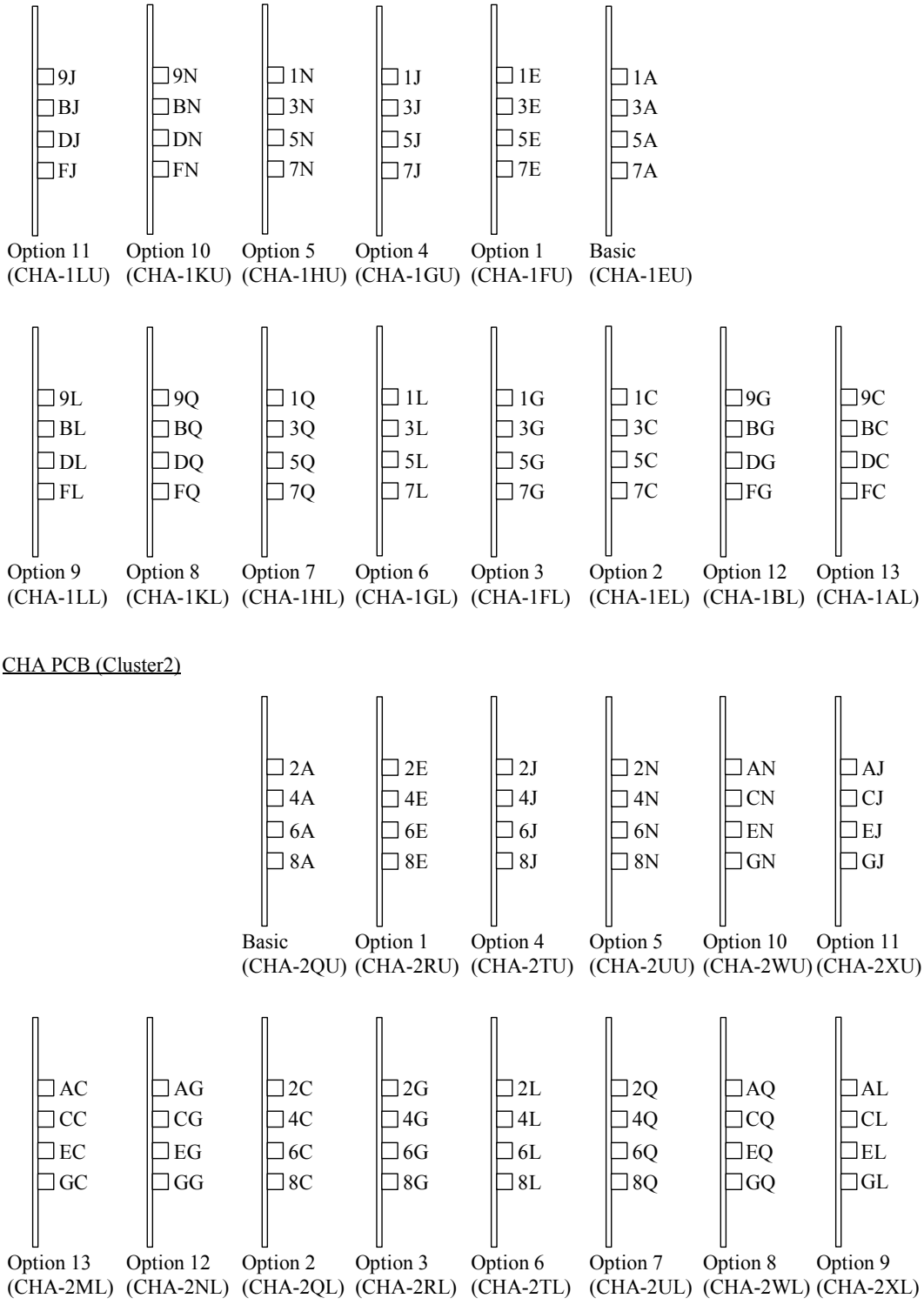
CHA PCB (Cluster2)

Fig.4.1-3 Port Number of 4-port CHA PCB

4. 4-port CHA PCB (DKC-F610I-8MFL/8MFS)

Caution: Wear a wrist strap until the work is finished. (Refer to INST03-01-30 for how to wear the wrist strap.)

CHA PCB (Cluster1)



CHA PCB (Cluster2)

Fig.4.1-4 Port Number of 4-port CHA PCB

Blank Sheet

4.2 PCI Cabling

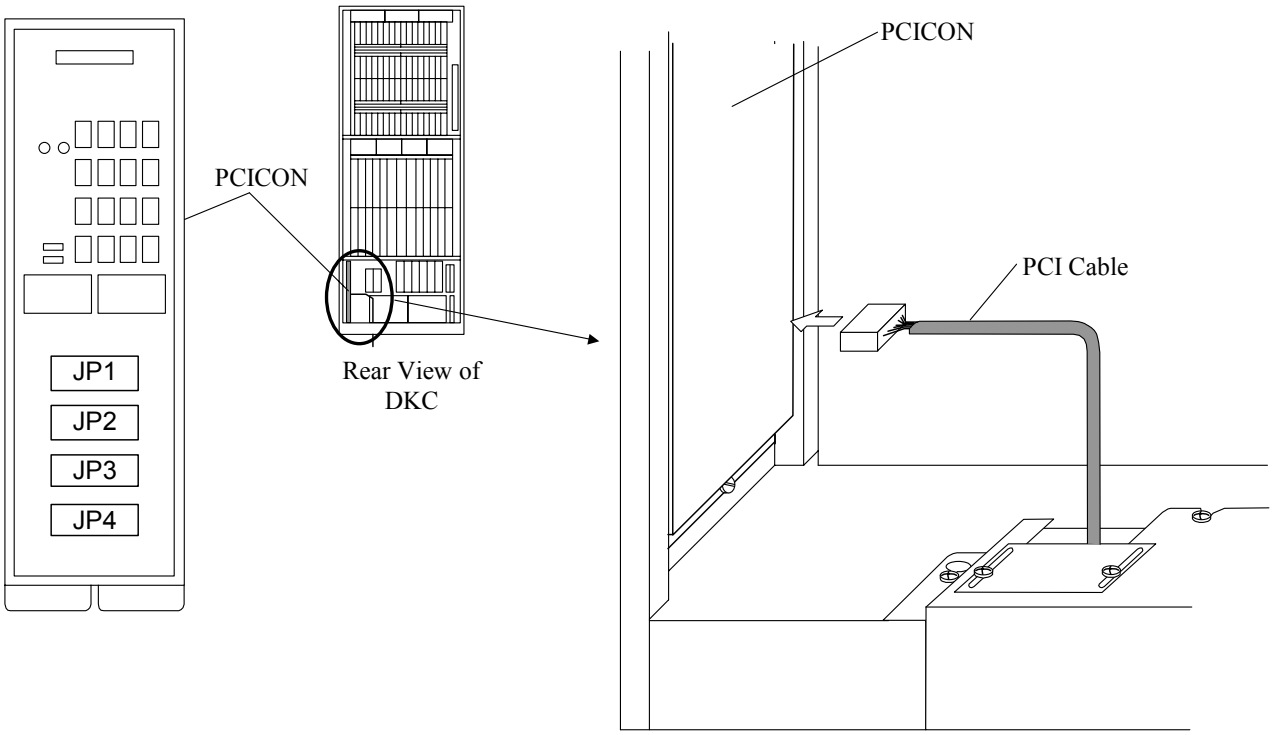
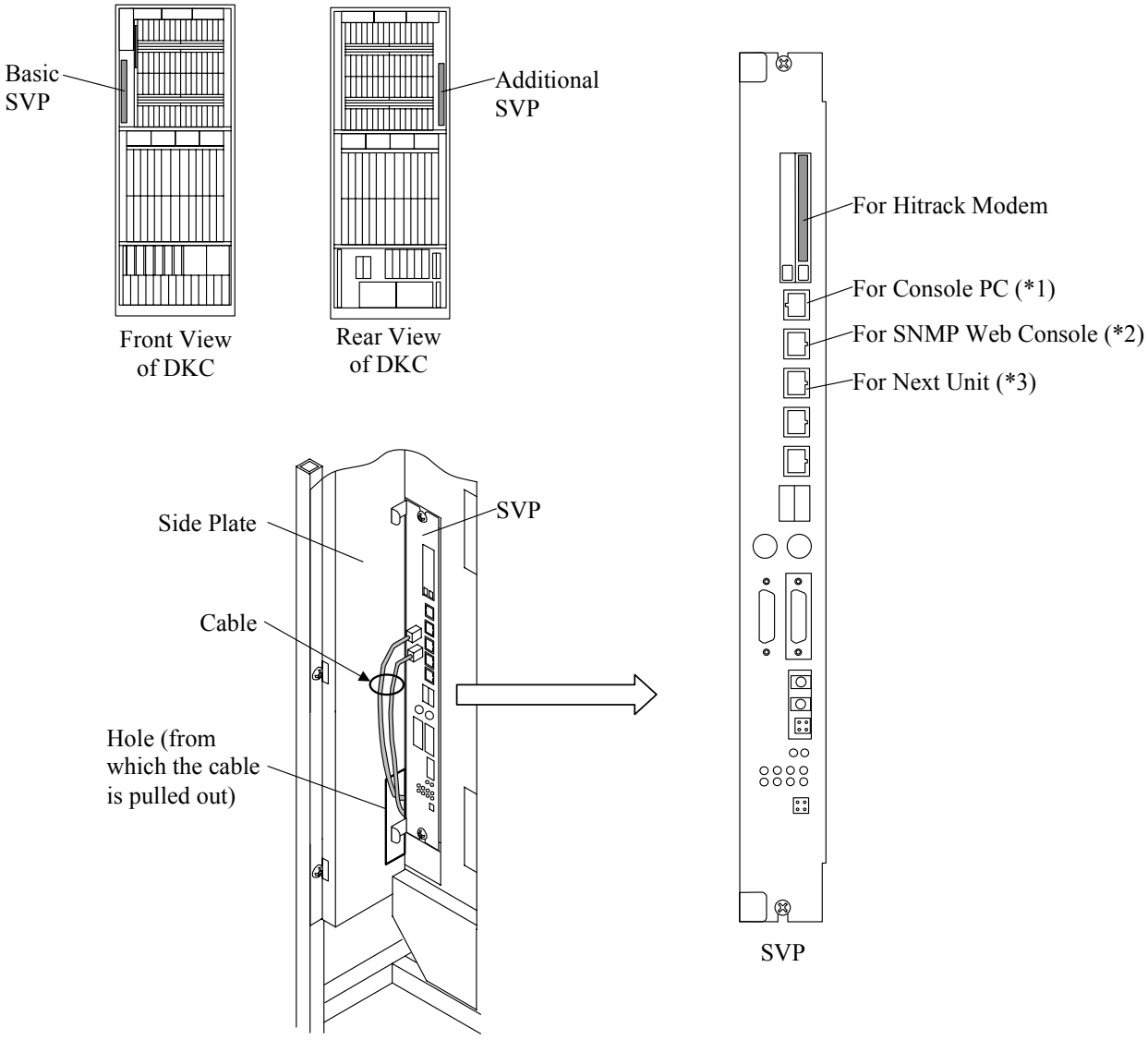


Fig.4.2-1 PCI Interface

4.3 SVP Interface

When the cables (CONSOLE, PUBLIC, INT, and MODEM) are connected to SVP, pull out the cables from the hole of Side Plate. If the cable isn't pulled out from the hole of Side Plate, the Side Plate cannot be removed, which may interfere with maintenance work.
For detail, refer to "3.18 Cable wiring to SVP" (INST03-18-10).



*1: Connect Console PC only to SVP-BASIC. Connect Console PC to SVP-OPTION only when a trouble occurs on SVP-BASIC.
*2: The cables are connected to both SVP-BASIC and SVP-OPTION.
*3: Connect cable only to SVP-BASIC. It is unnecessary to connect to SVP-OPTION.

Fig.4.3-1 SVP Interface

5. Internal Cabling Block Diagram

5.1 Internal Cable Connection of DKC

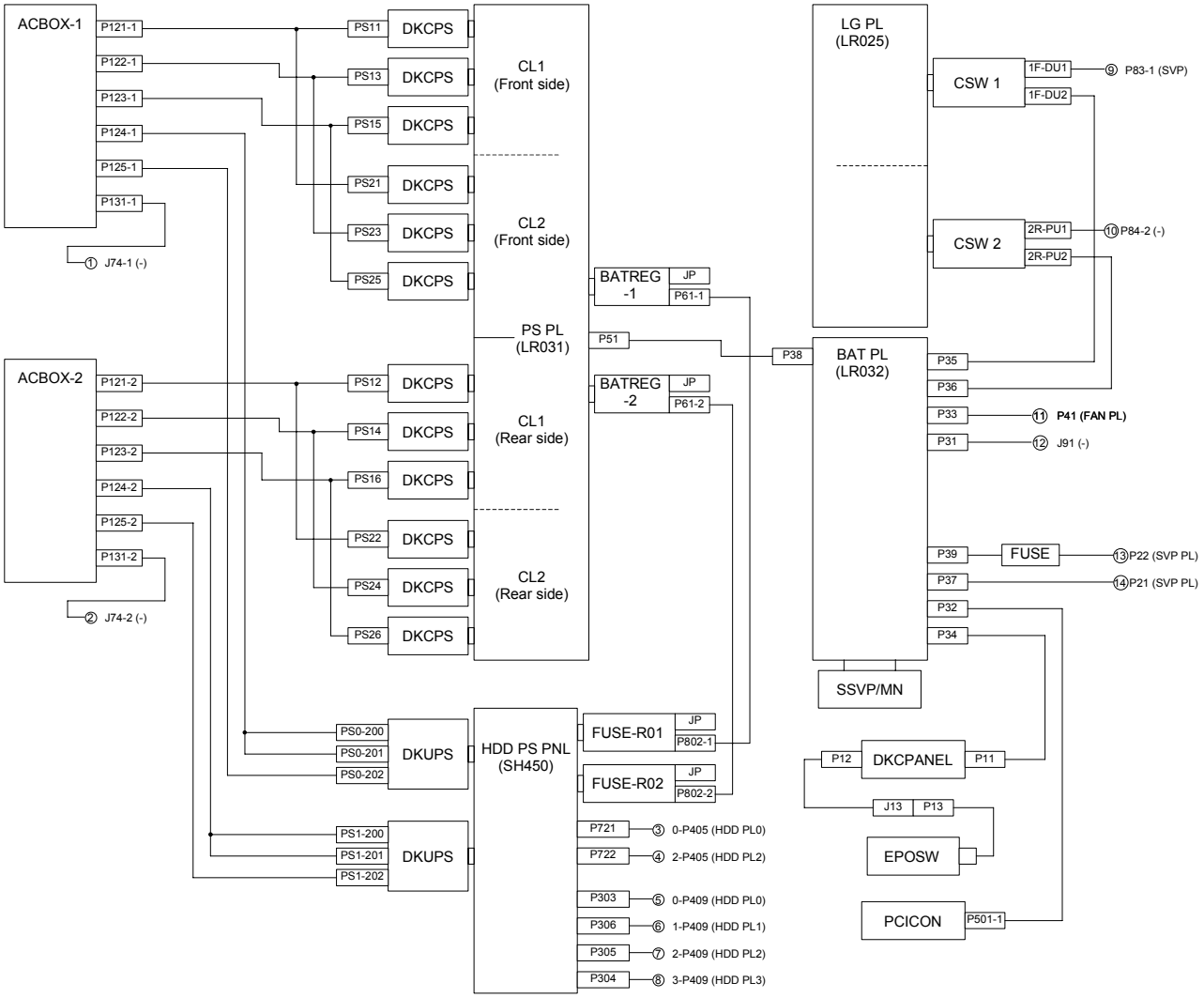


Fig. 5.1-1 DKC Internal Cabling Diagram (1/2)

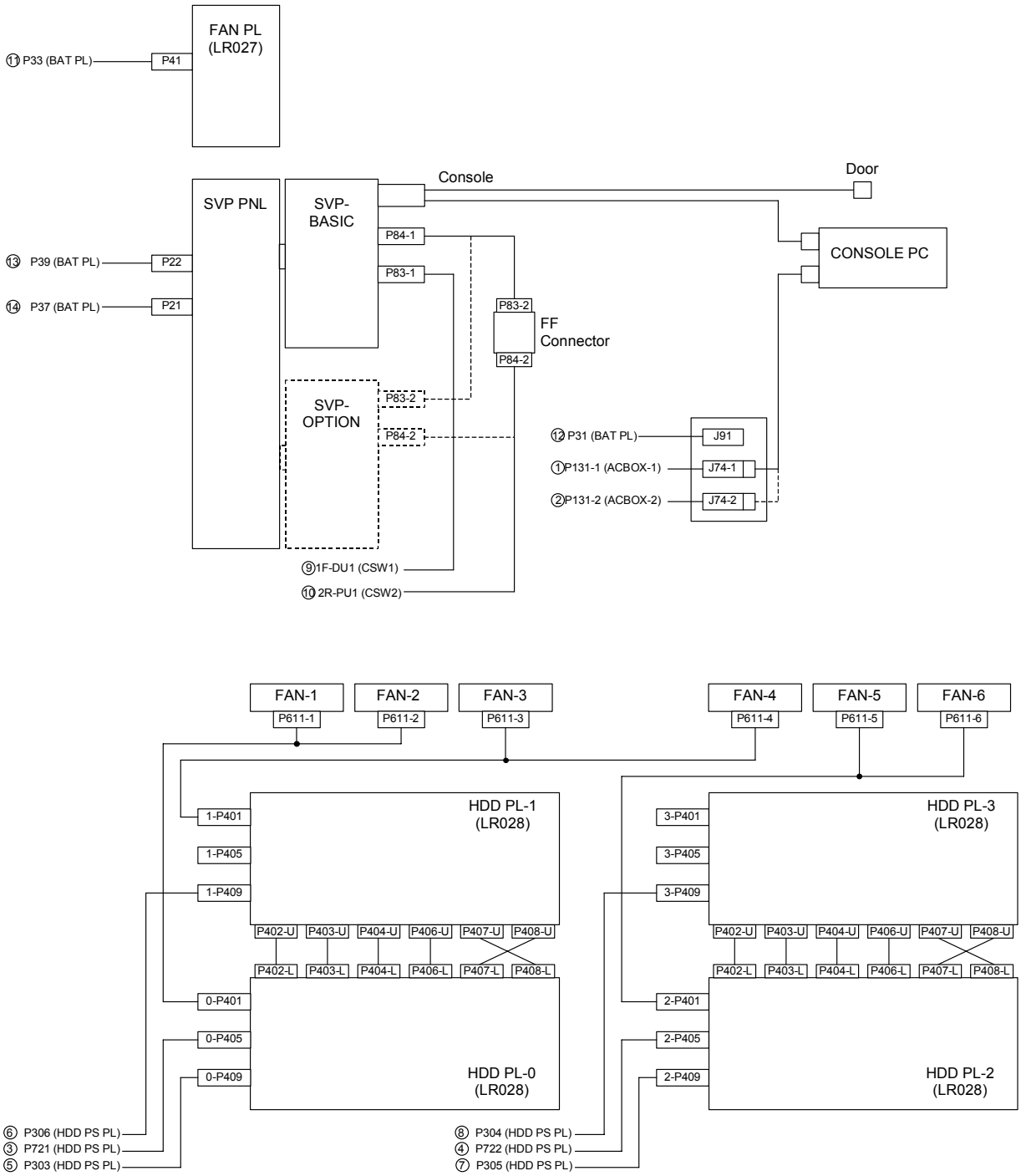


Fig. 5.1-1 DKC Internal Cabling Diagram (2/2)

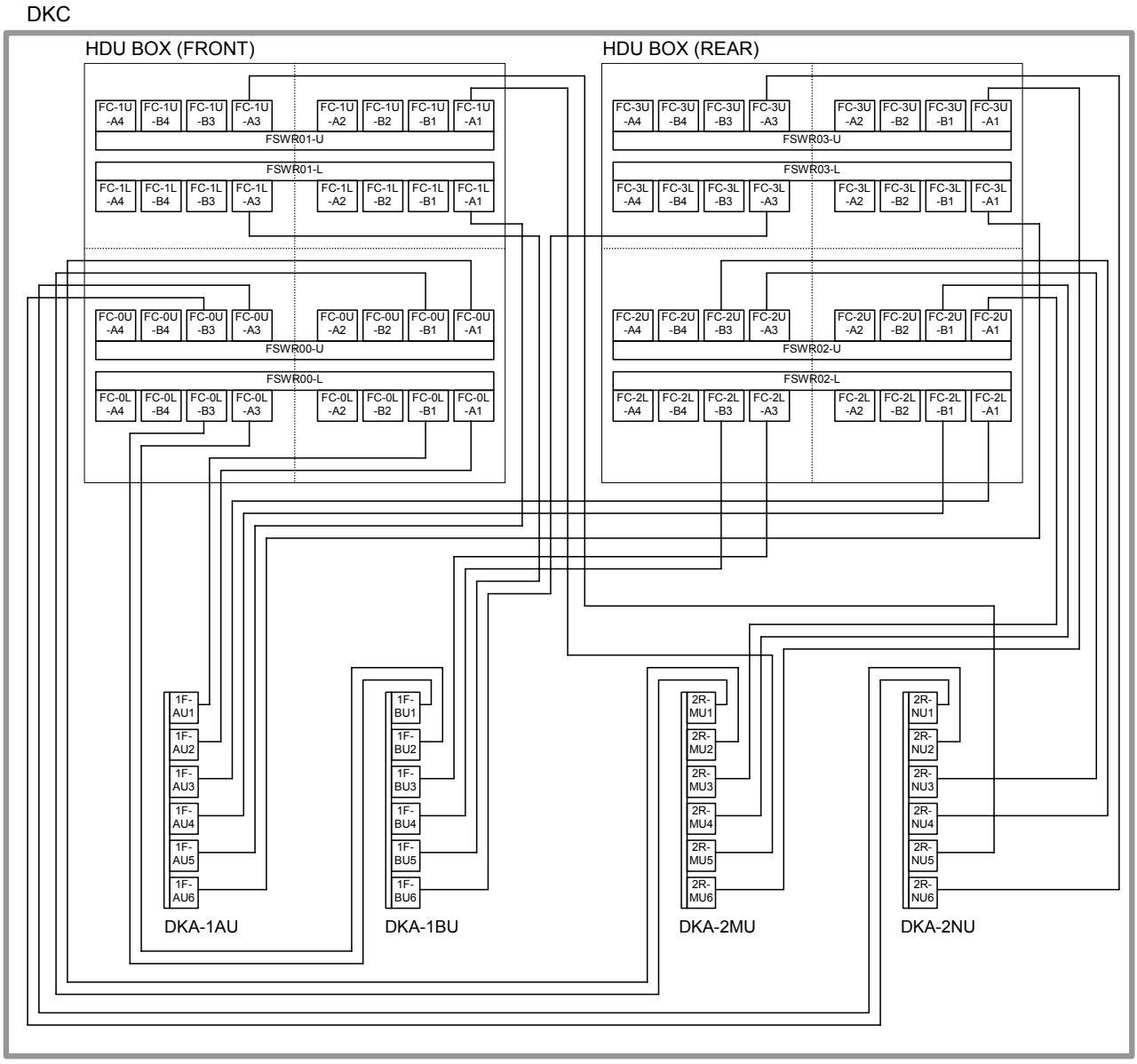


Fig. 5.1-2 DKC Internal Cabling Diagram

5.2 Cable Connection between DKC and DKU

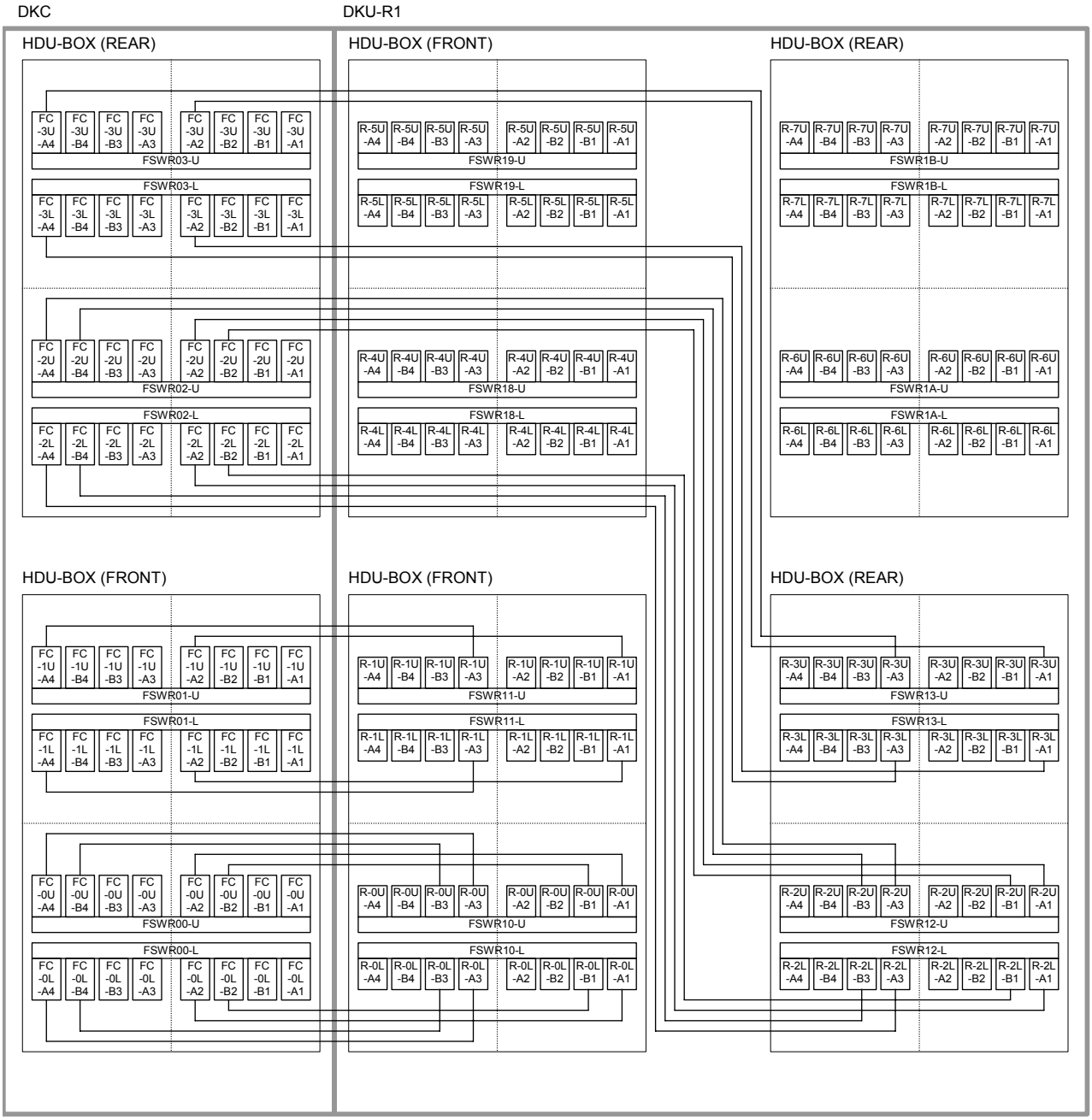


Fig. 5.2-1 Subsystem Internal Cabling Diagram (R1DC)

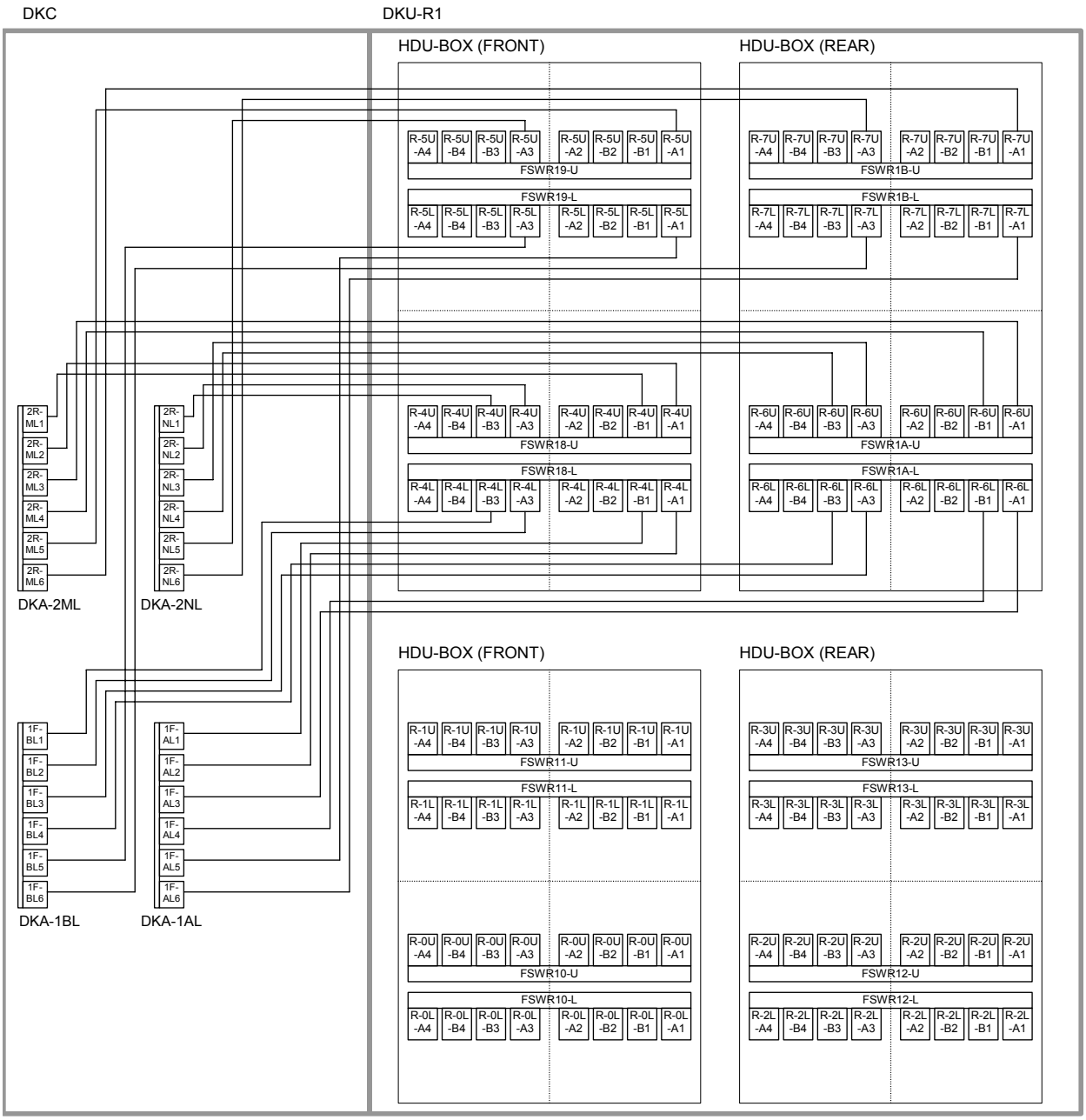


Fig. 5.2-2 Subsystem Internal Cabling Diagram (R1UC)

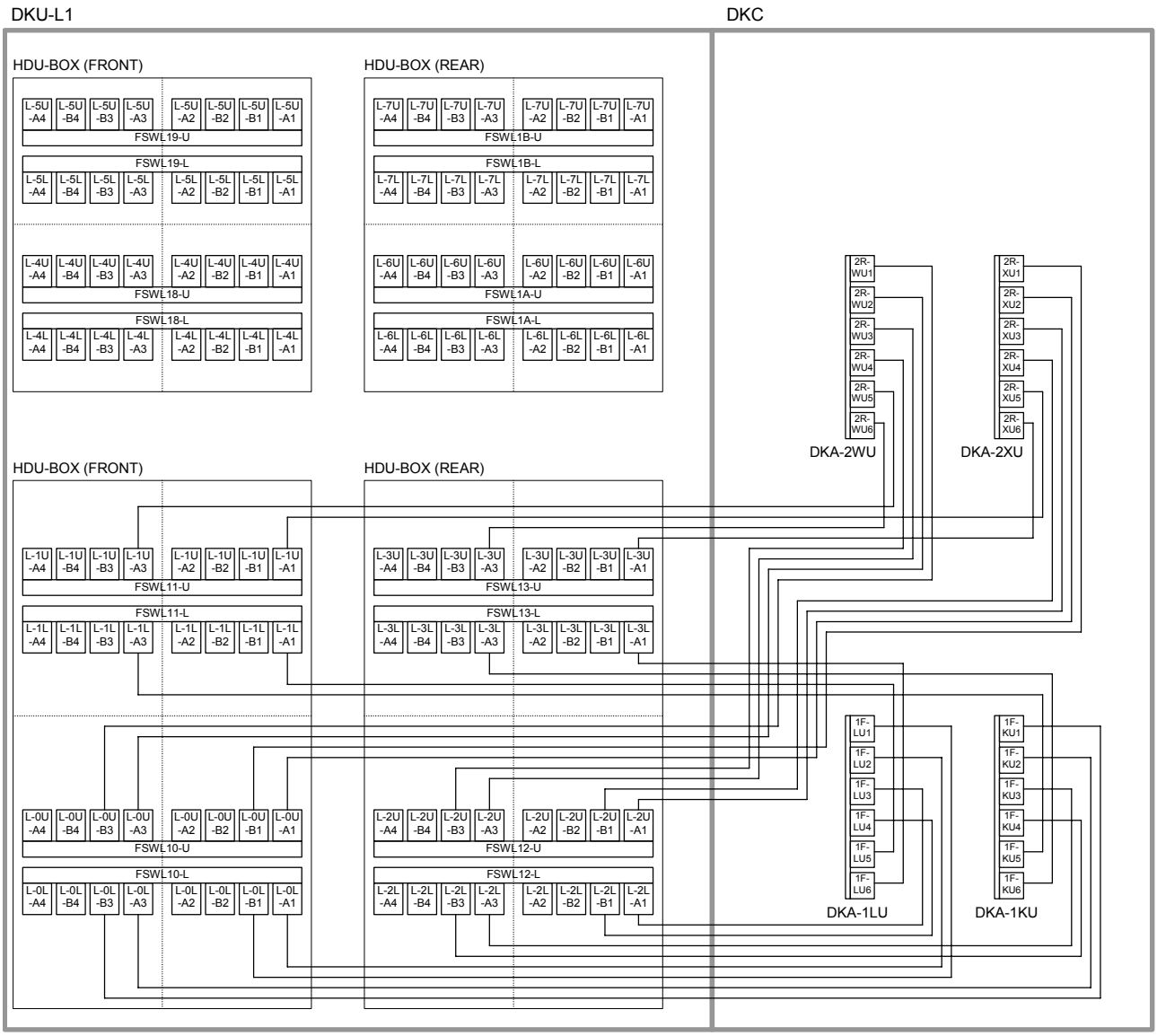


Fig. 5.2-3 Subsystem Internal Cabling Diagram (L1DC)

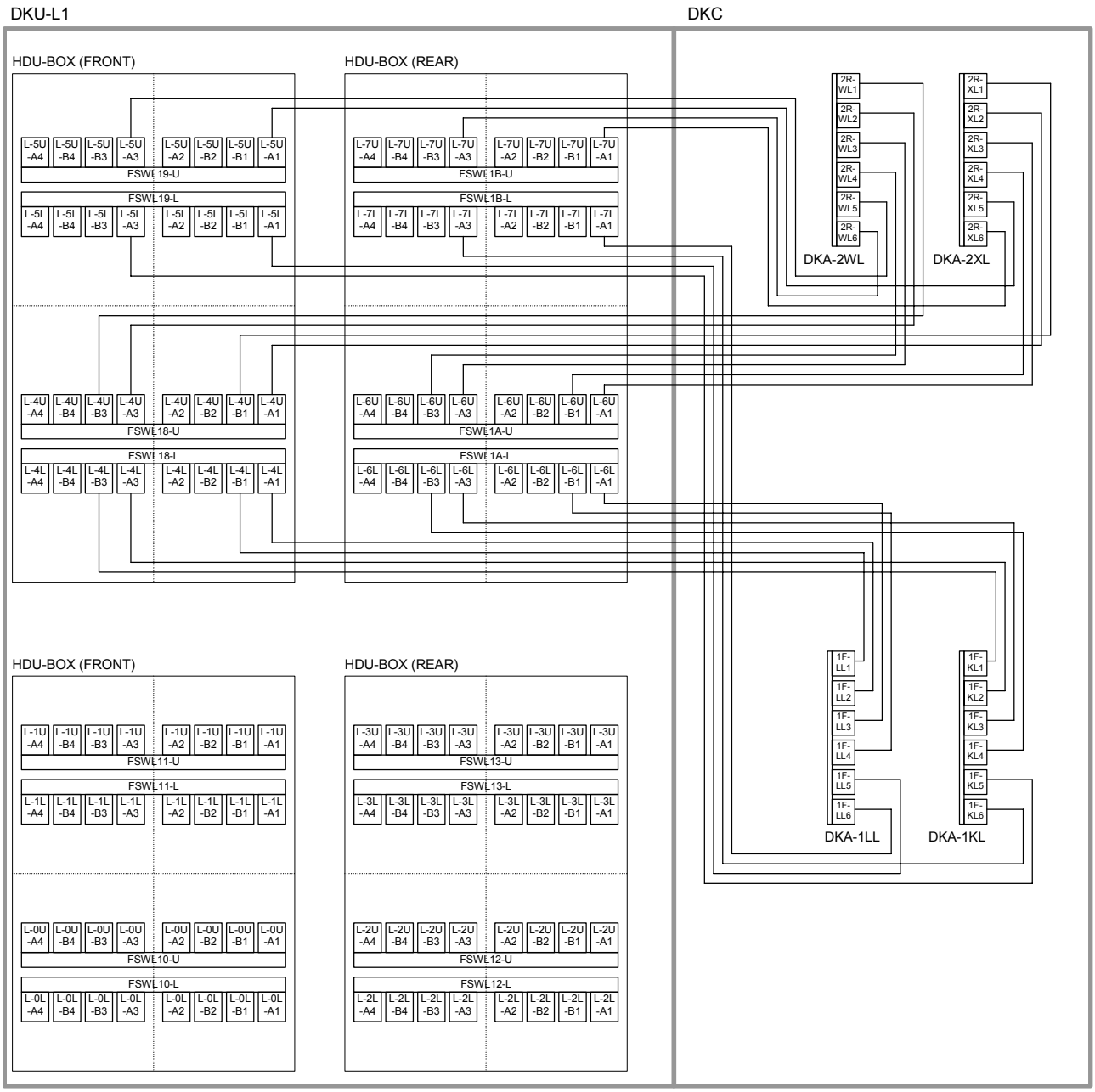
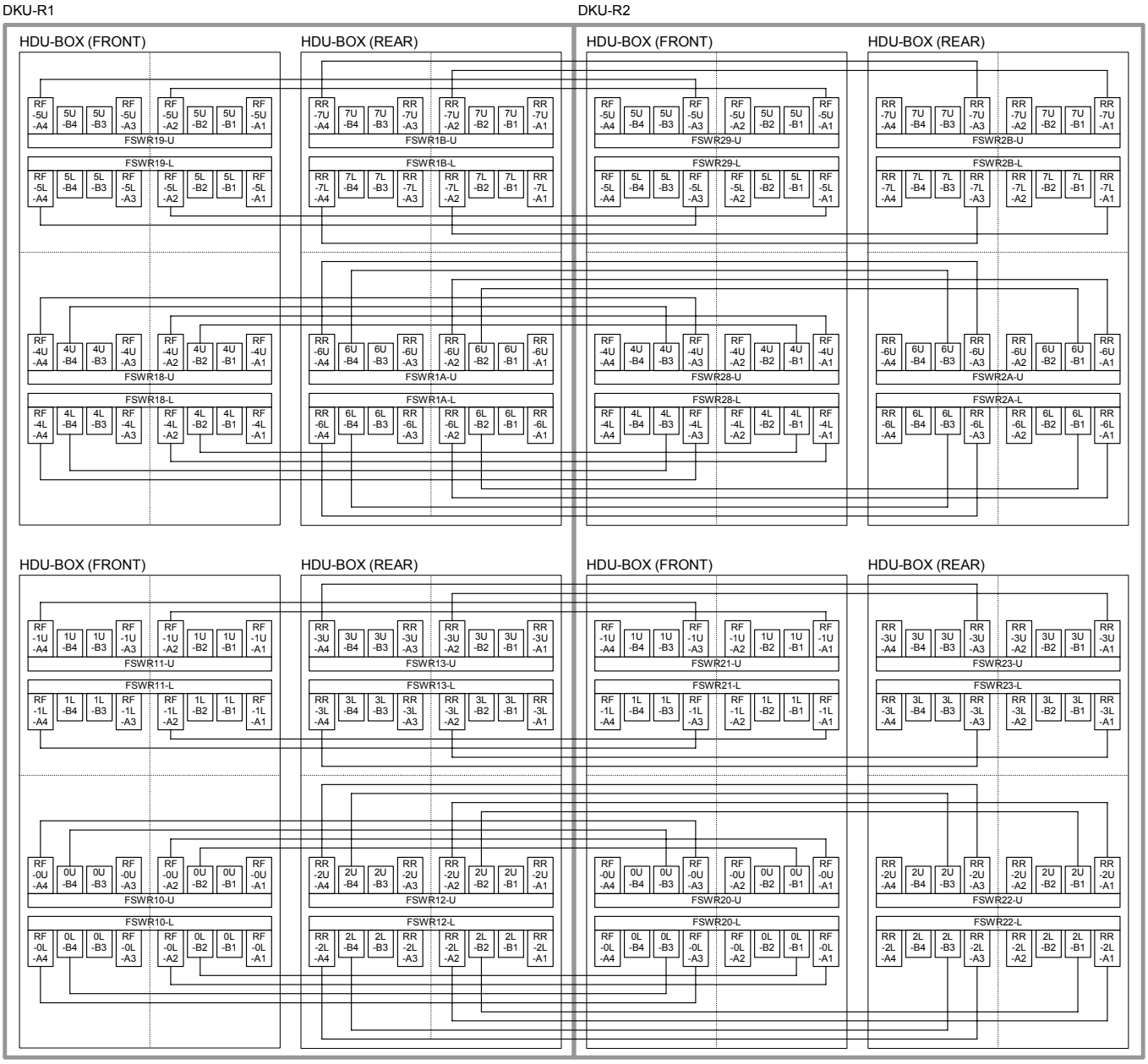
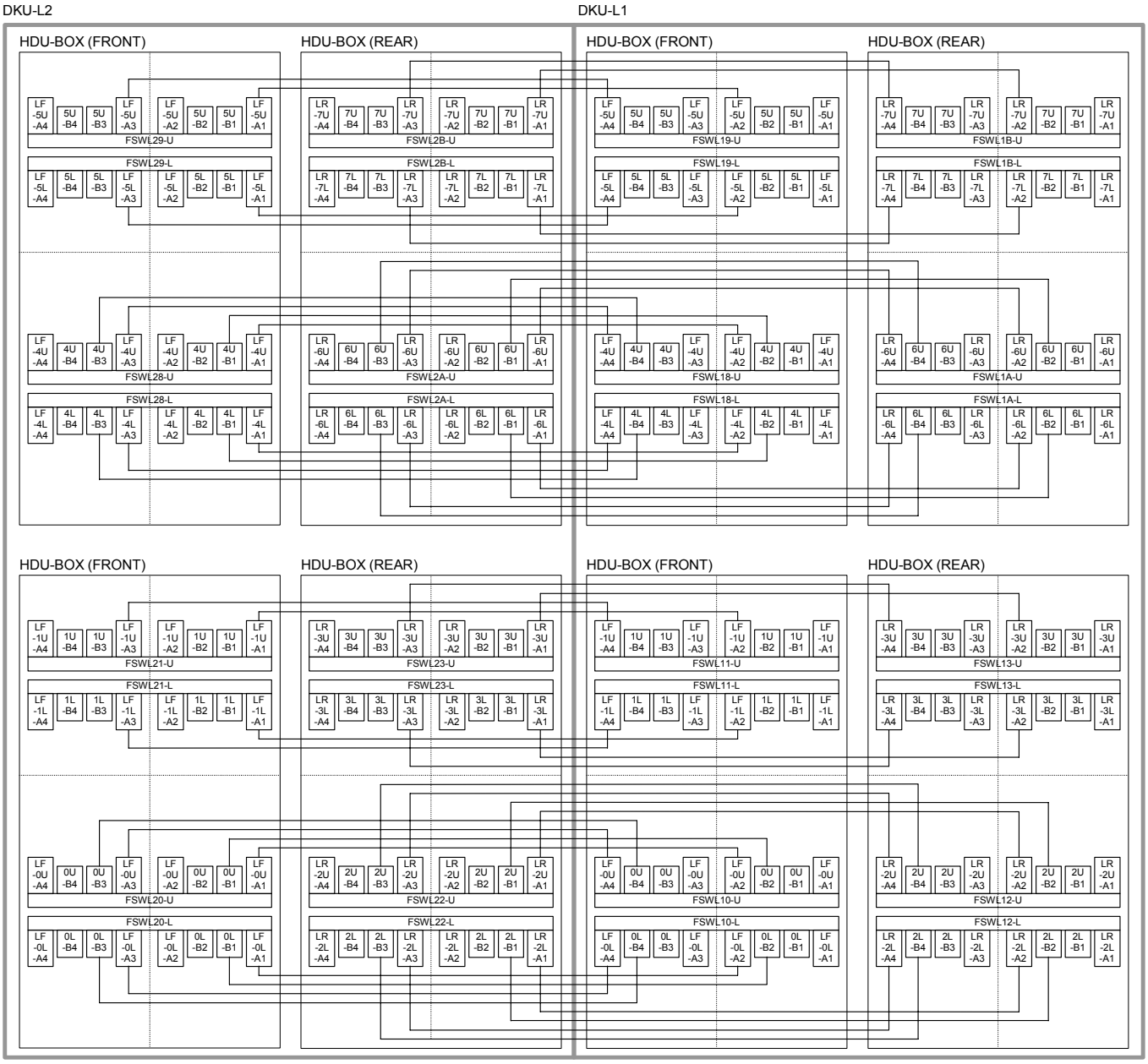


Fig. 5.2-4 Subsystem Internal Cabling Diagram (L1UC)



Note: It becomes the same position as the above-mentioned connection diagram about the cable connection (EXC) between DKU-R2 and DKU-R3, and between DKU-R3 and DKU-R4.

Fig. 5.2-5 Subsystem Internal Cabling Diagram (EXC × 2)



Note: It becomes the same position as the above-mentioned connection diagram about the cable connection (EXC) between DKU-L2 and DKU-L3, and between DKU-L3 and DKU-L4.

Fig. 5.2-6 Subsystem Internal Cabling Diagram (EXC × 2)

5.3 Internal Cable Connection of DKU

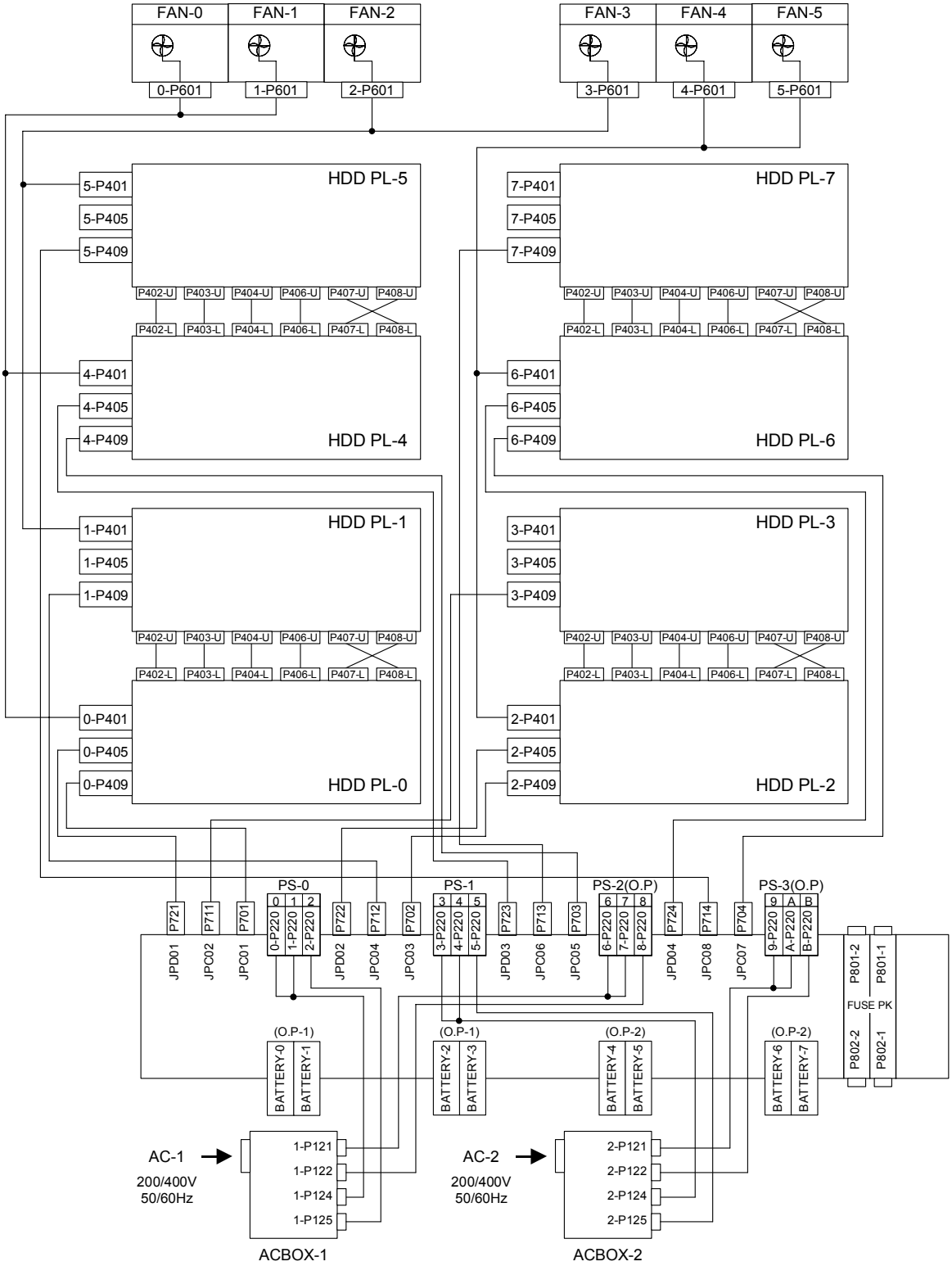
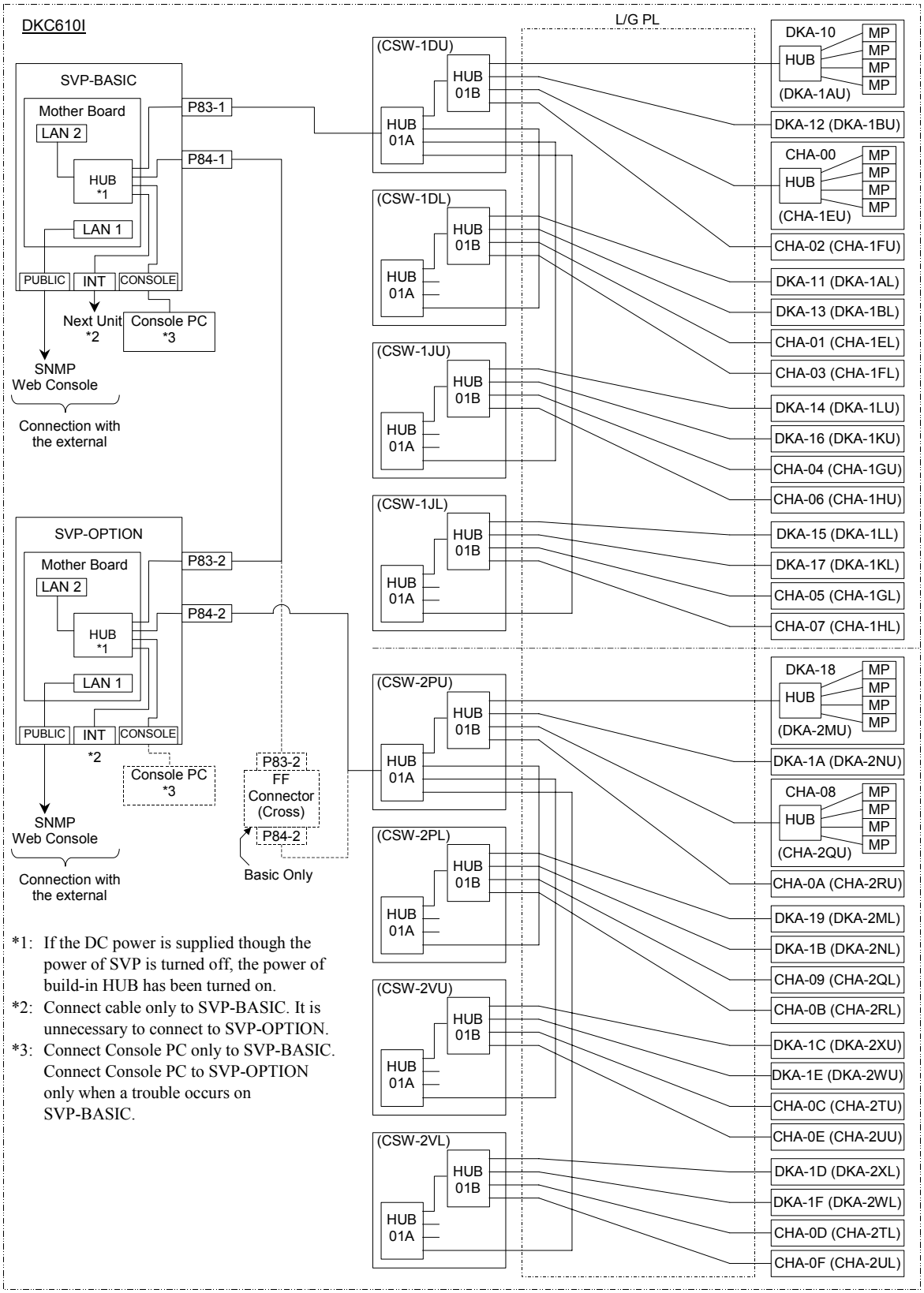


Fig. 5.3-1 DKU Internal Cabling Diagram

5.4 LAN Cabling



*1: If the DC power is supplied though the power of SVP is turned off, the power of build-in HUB has been turned on.
*2: Connect cable only to SVP-BASIC. It is unnecessary to connect to SVP-OPTION.
*3: Connect Console PC only to SVP-BASIC. Connect Console PC to SVP-OPTION only when a trouble occurs on SVP-BASIC.

Fig.5.4-1 LAN Cabling Diagram

6. Jumper Setting

6.1 Shut Down Jumpers

[1] Front or Rear Logic Box
Check that the Shut Down LED is turned on. If not, connect the Shut Down Jumper (Maintenance Jumper) to the Shut Down Connector. (Only hot replace procedure)

CAUTION

A system down may be caused if the Maintenance jumper is inserted in a PCB other than that to be replaced. Make sure that it is the PCB to be replaced.

Table 6.1-1 Shut Down Jumpers List

No.	Function Name	Function	Remarks
1	Channel Adapter	Shut down jumper	
2	Disk Adapter		
3	Cache		
4	SM		
5	CSW		(*1)

*1: When the CSW is forcibly replaced without the SVP operation by the Shut Down Jumper, a dummy replacement by the SVP operation is required to restore the paths.

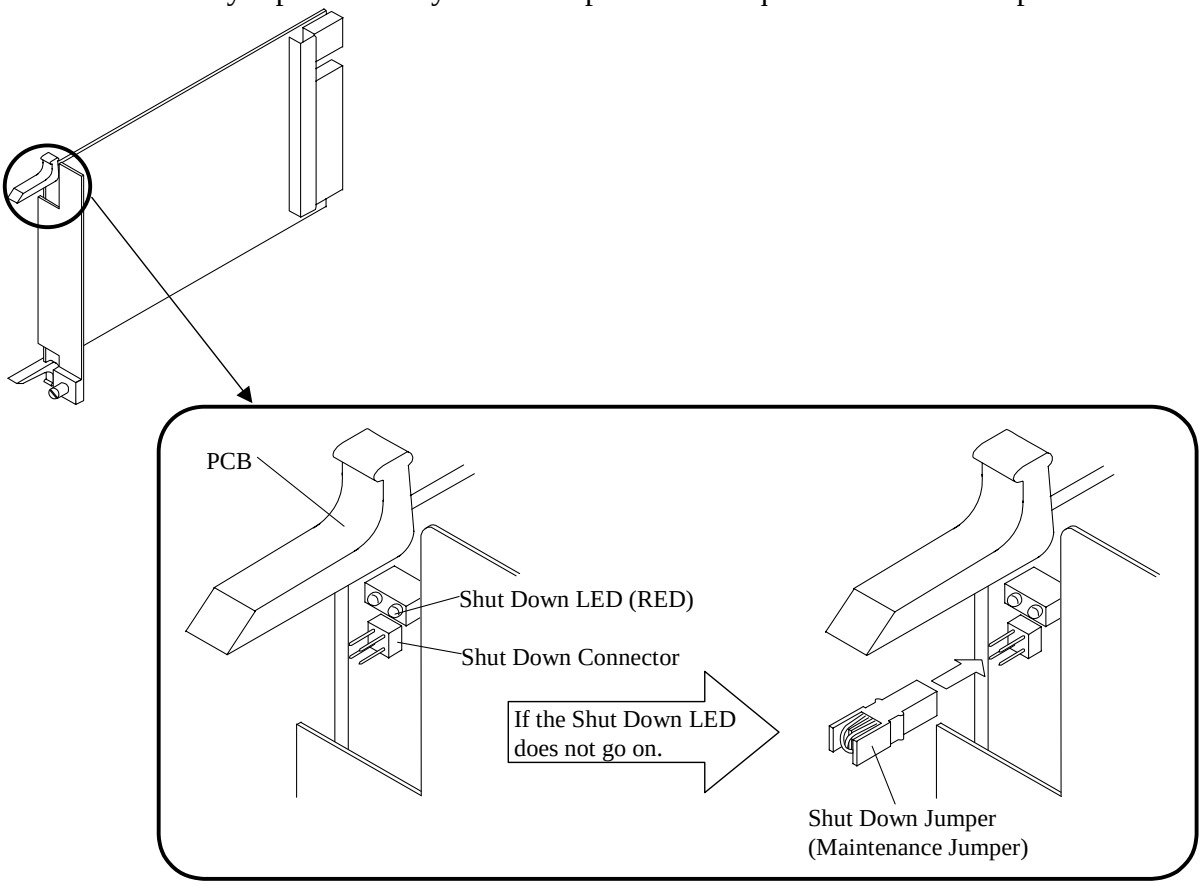


Fig. 6.1-1 Installation of Shut Down Jumper in the Front/Rear Logic Box

6.2 Other Jumpers

Table 6.2-1 Jumper Setting List

No.	Function Name	Jumper No.	Settings	Remarks
1	PCICON	J1, J2	EPO signal	
2	SVP	JP1	SVP PS Control Inhibition	
		JP3	SVP Initialization	
3	BATTERY	Switch	BATTERY PWR ON/OFF	
4	DKCPANEL	JP1	Cluster 1 PS ON	
		JP2	BATTERY MODE	
		JP3, JP7	FORCE POWER OFF	
		JP4	Cluster 2 PS ON	
		JP5	AUTO PWR ON	
		JP6	Not used	
		JP8	SSVP ALARM RESET	
		JP9	SSVP DUMP	
5	PSPNL	JP1-JP6	Specification of DKU Frame ID	
6	FSW	SW1, SW2	Specification of ALPA 1	
		SW3, SW4	Specification of ALPA 2	
		SW5, SW6	Specification of HBC ID	
7	CSW	J2, J6	Specification of CE MODE	

[1] PCICON

Table 6.2-2 Setting of Jumper Socket on the PCICON

Function Name	Settings	J1 and J2 Setting
PCICON	When power is controlled from the host (at least one PCI cable attached to JP1-JP4 on PCICON PCB), set the jumpers as shown.	J1 1 2 3 J2 1 2 3
	When power is not controlled from the host, no PCI Cable attached to JP1-JP4 PCICON PCB or to disable the EPO of host, set the jumpers as shown.	J1 1 2 3 J2 1 2 3

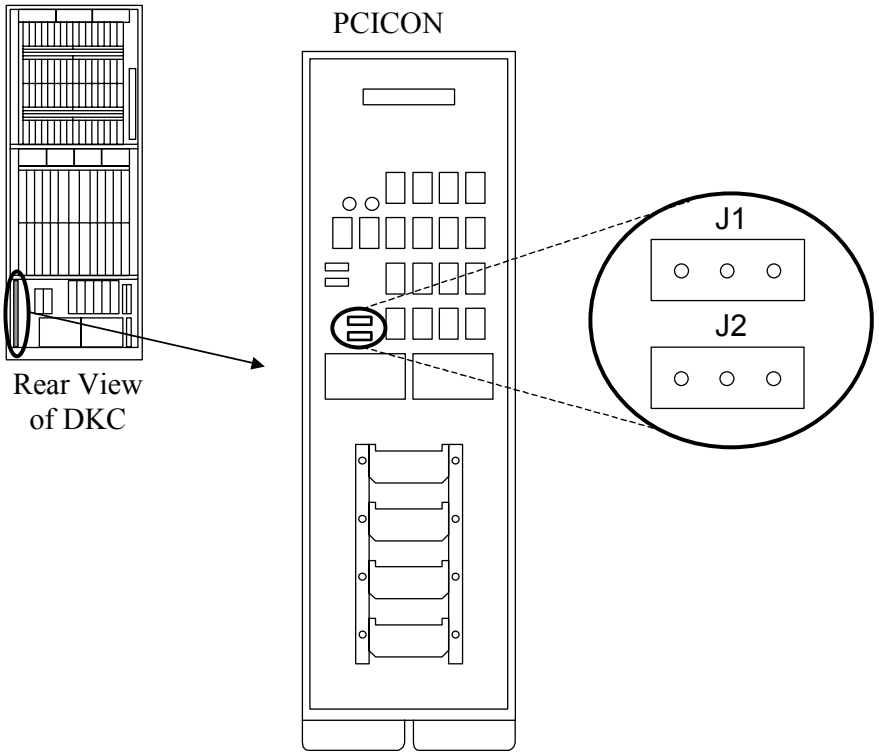


Fig. 6.2-1 Setting of Jumper Socket on the PCICON

[2] SVP

Table 6.2-3 Setting of Jumper Socket on the SVP

Function Name	Jumper No.	Settings	Remarks
SVP	JP1	The SVP Power ON/OFF Function of SSVP is inhibited by inserting Jumper.	
	JP3	The SVP setup is initialized by inserting Jumper.	

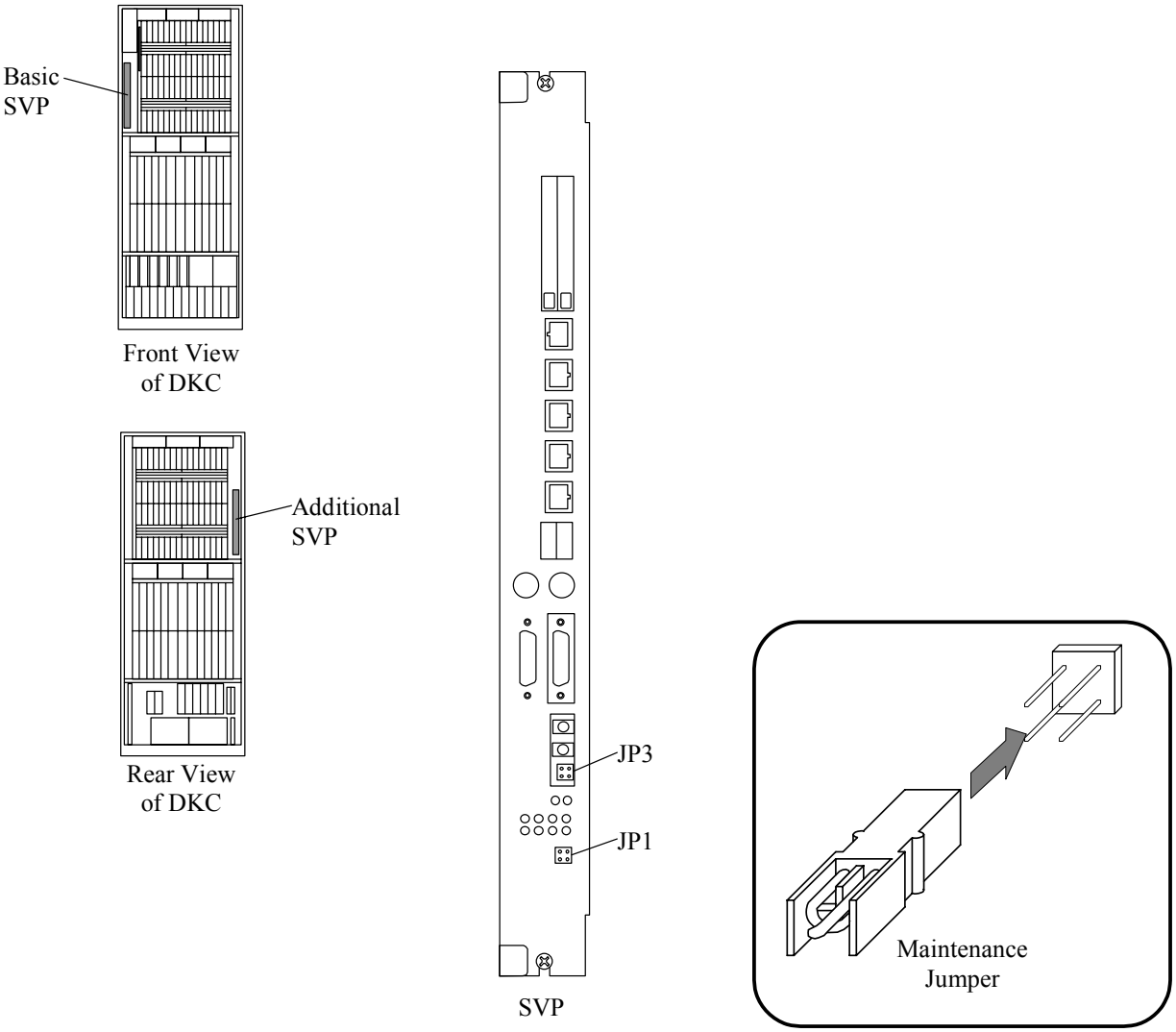


Fig. 6.2-2 Setting of Jumper on the SVP

[3] BATTERY BOX

⚠ CAUTION

When the battery switch is not set, data on the cache memory and shared memory are not assured when a power failure occurs. As a result, all the data on the cache memory and shared memory are lost causing a destruction of user data.
Be sure to set the battery switch.

When the subsystem power is to be turned off for longer than battery backup duration time, the battery switch must be turned off to protect the battery from deterioration. In this case, turn off the battery switch after making sure that the powering off process of the subsystem has been completed normally.

This jumper is set in order to validate the battery when an AC power failure occurs.

Table 6.2-4 Battery Backup Duration Time

Mode	Battery Backup Duration Time					
	① Subsystem Operating	② Data de-stage process	③ Power off process	④ SM/CM backup duration time		
				CM Capacity 4 to 128GB	CM Capacity 132 to 256GB	CM Capacity 260 to 512GB
Memory Back-up Mode	200ms	—	—	48 hours	36 hours	36 hours
De-stage Mode	1 minute	8 minutes	5 minutes	24 hours	18 hours	—

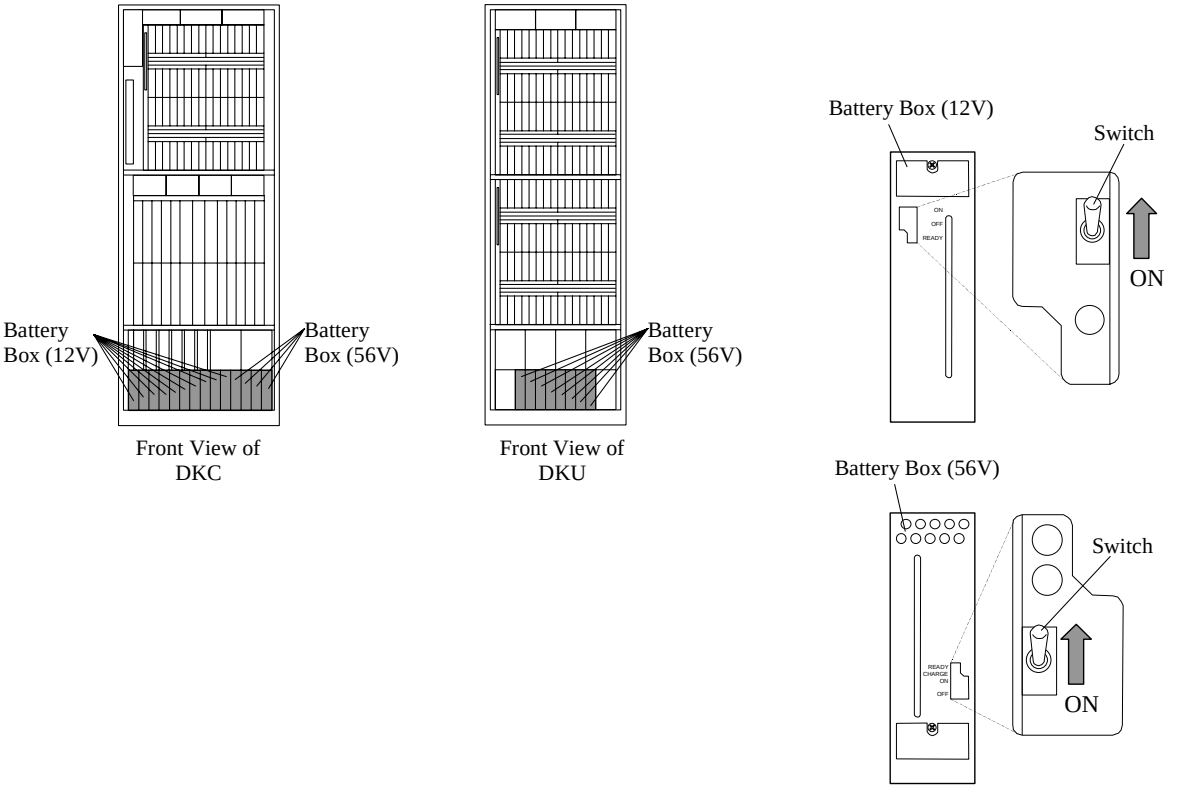
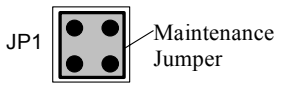
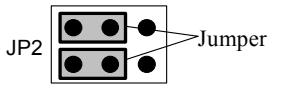
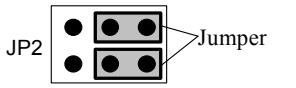
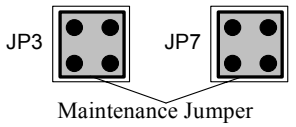
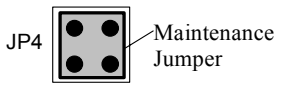
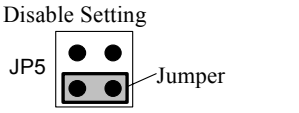
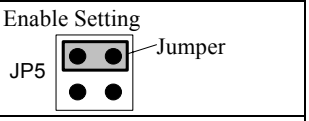
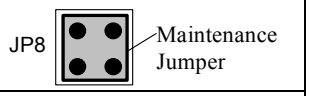
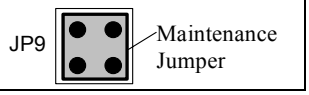


Fig. 6.2-3 Switch Setting of Battery Box

[4] DKCPANEL

Table 6.2-5 Setting of Jumper Socket on DKCPANEL PCB

Function Name	Jumper No.	Settings	Jumper Setting
DKCPANEL	JP1	The PS on the cluster 1 side is forcibly powered on when the jumpers are set up.	
	JP2 (Note)	The battery operation mode at the time of a power failure is set to the memory back-up mode. (Initial setting)	
		The battery operation mode at the time of a power failure is set to the de-stage mode.	
	JP3, JP7	This jumper is used to turn off the DKC/DKU power forcibly. It assumes a special case, so that do not use it unless otherwise instructed. (Refer to TRBL16-10 to 40 for the detailed procedure.)	
	JP4	The PS on the cluster 2 side is forcibly turned on when the jumpers are set up.	
	JP5	The subsystem is powered on through on operation of the PS ON/PS OFF switch or the PCI control after the AC power is turned on. (Initial setting)	
		The subsystem is powered on automatically after the AC power is turned on.	
	JP6	Not used	
	JP8	When the jumper is set, the SSVP detection alarm is reset. Then IMPL of the SVP is executed.	
	JP9	When the jumper is set, the data in SVP memory is written to the HDD.	

Note: The DKCPANEL JP2 jumper plugging and the SVP Power Lost Mode (SVP02-1690) checkbox must always be set to reflect the same battery operation mode setting otherwise these modes will not function properly.

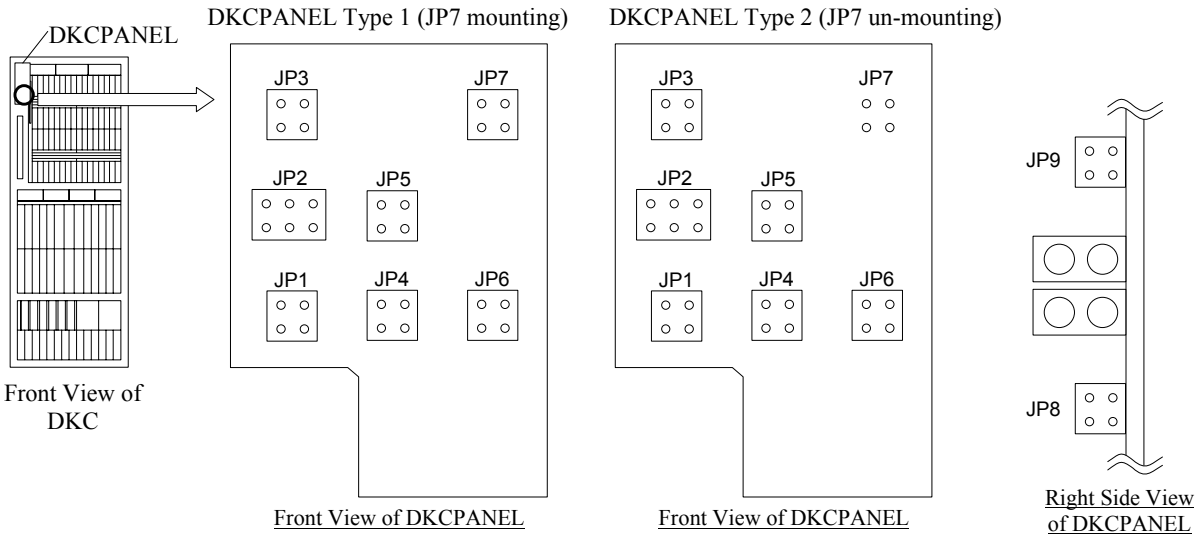


Fig. 6.2-4 Setting of Jumper Socket on DKCPANEL PCB

[5] PSPNL

Table 6.2-6 Installation of Maintenance Jumper in PSPNL

Function Name	Jumper No.	Settings	Remarks
PSPNL	JP1-JP6	DKU Frame ID is set up.	

In case of DKU-R1 or DKU-R2

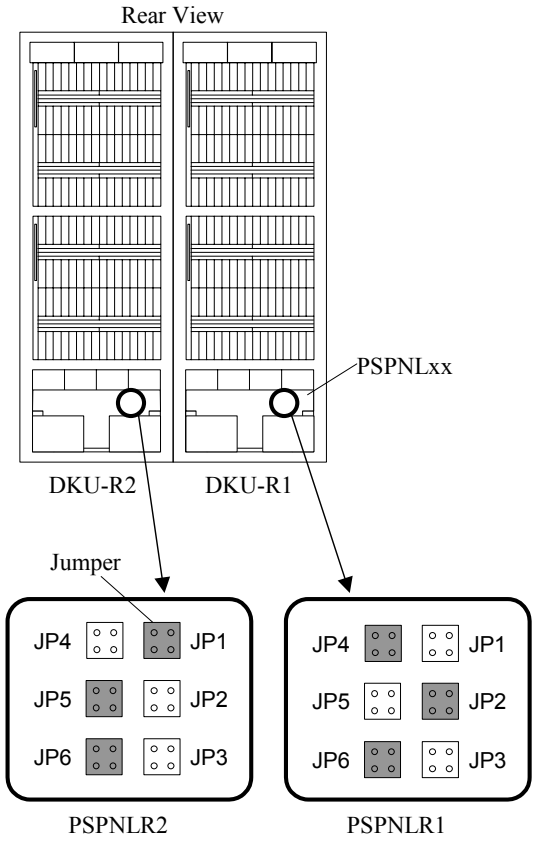


Fig. 6.2-5 Installation of Maintenance Jumper in PSPNL

In case of DKU-L1 or DKU-L2

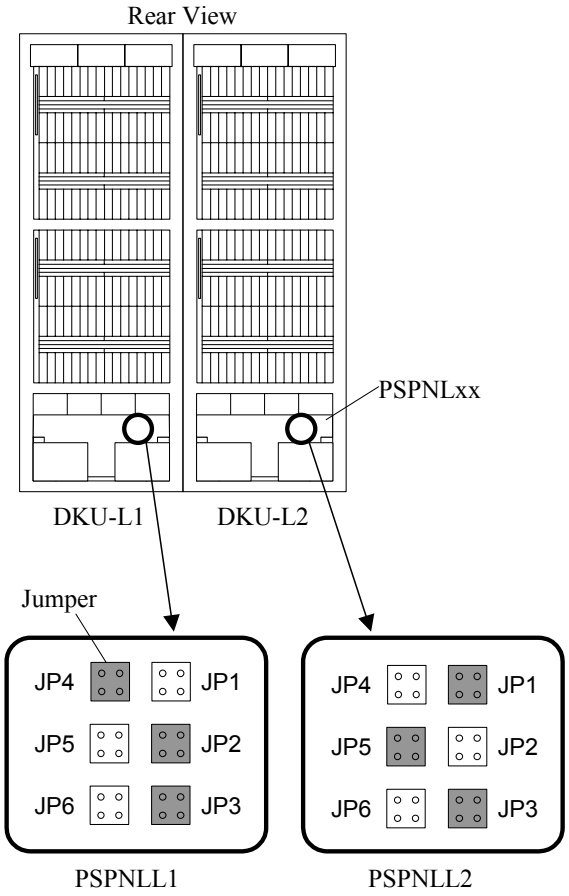


Fig. 6.2-6 Installation of Maintenance Jumper in PSPNL

[6] FSW

Table 6.2-7 Switch Setting of FSW

Function Name	Jumper No.	Settings	Remarks
FSW	SW1, SW2	The address in FC-AL is set about 16 HDDs/SSDs in the right of HDU BOX.	
	SW3, SW4	The address in FC-AL is set about 16 HDDs/SSDs in the left of HDU BOX.	
	SW5, SW6	The HBC ID (HBC bus address) is set up.	

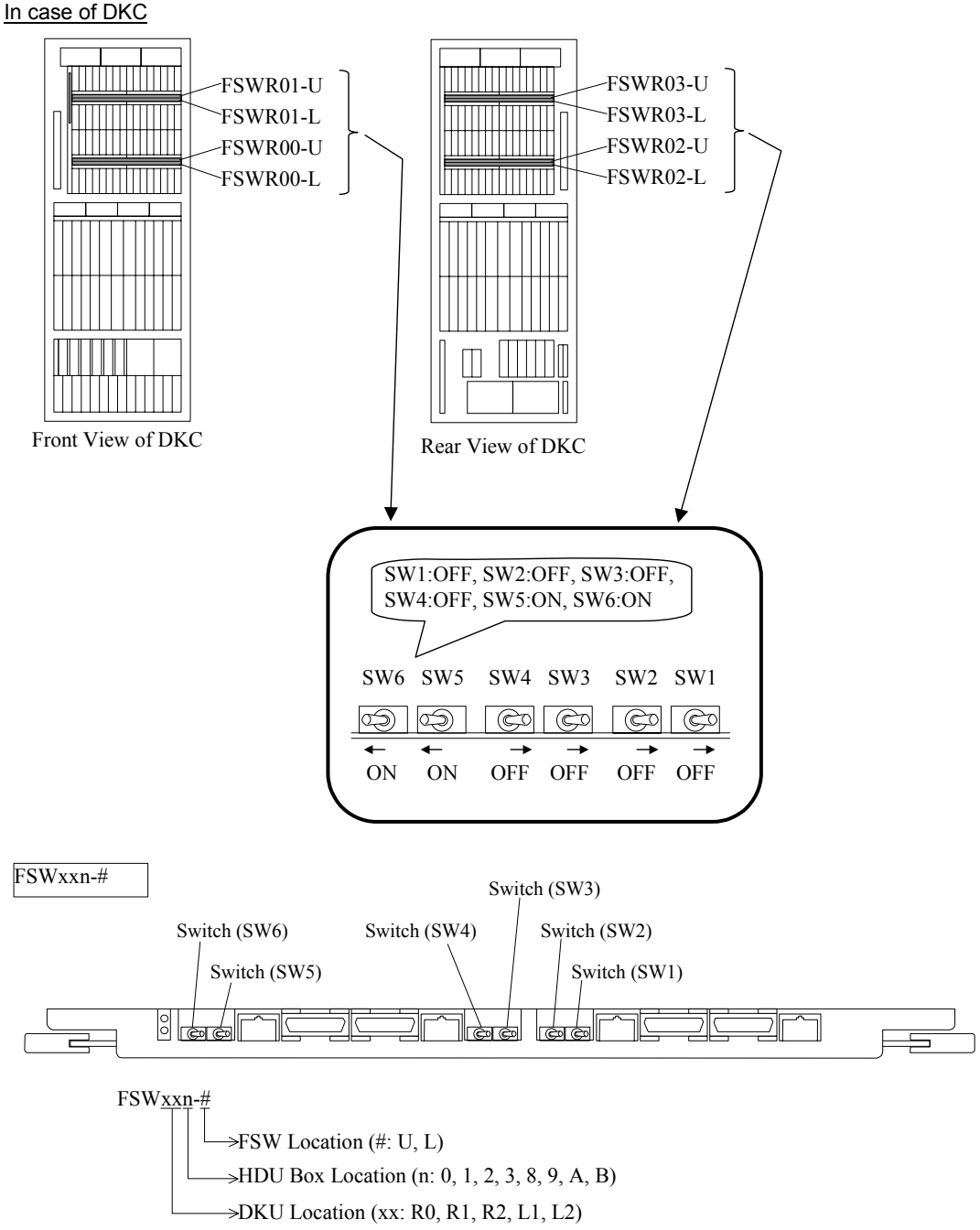


Fig. 6.2-7 Switch Setting of FSW (DKC)

In case of DKU-R1 or DKU-L1

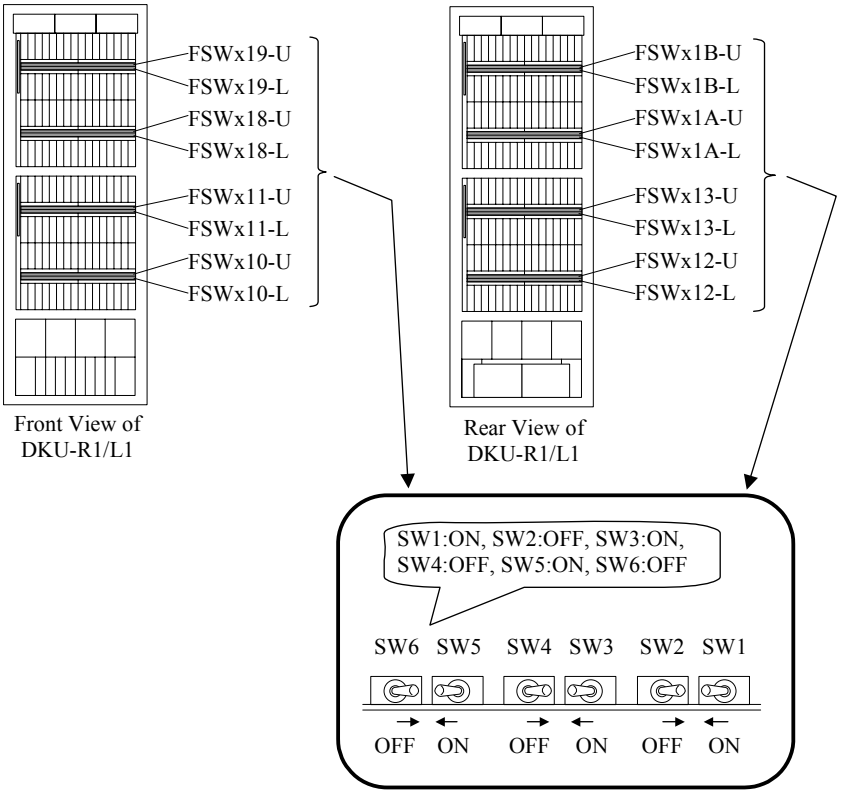


Fig. 6.2-8 Switch Setting of FSW (DKU-R1/L1)

In case of DKU-R2 or DKU-L2

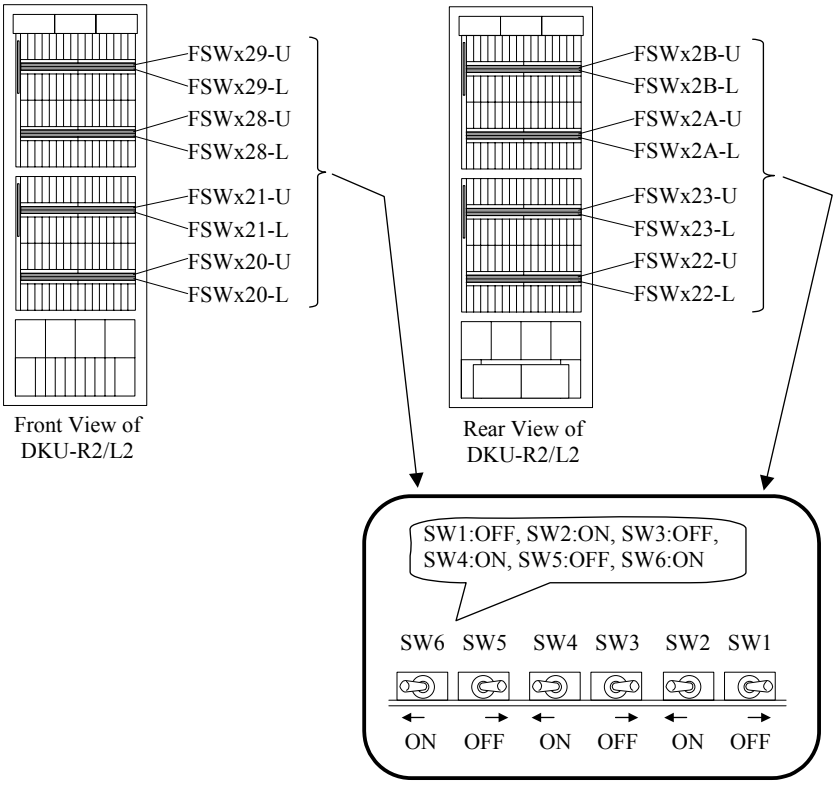


Fig. 6.2-9 Switch Setting of FSW (DKU-R2/L2)

[7] CSW

Table 6.2-8 Setting of Jumper in CSW

Function Name	Jumper No.	Settings	Remarks
CSW-1DU/2PU	JP1 (Shut Down Connector)	When the Shut Down LED of replaced PCB is not lighted, the PCB can be forcibly blocked by inserting the jumper.	Shut Down Jumper (Maintenance Jumper) (*1)
	J2/J6	All PCBs corresponding to the cluster are set to CE mode.	Maintenance Jumper (Refer to INST02-340 step (10).)

*1: When the CSW is forcibly replaced without the SVP operation by the Shut Down Jumper, a dummy replacement by the SVP operation is required to restore the paths.

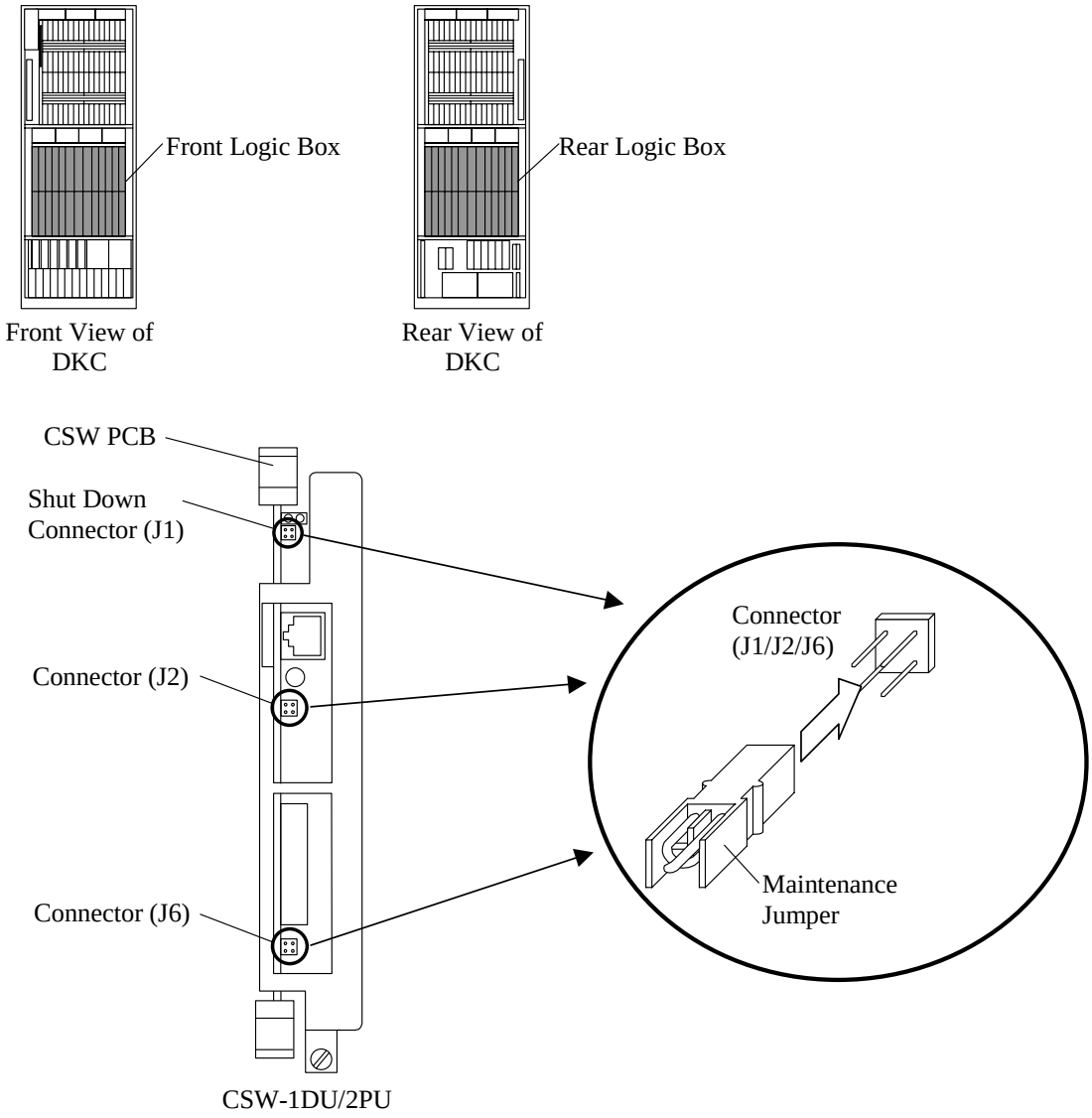
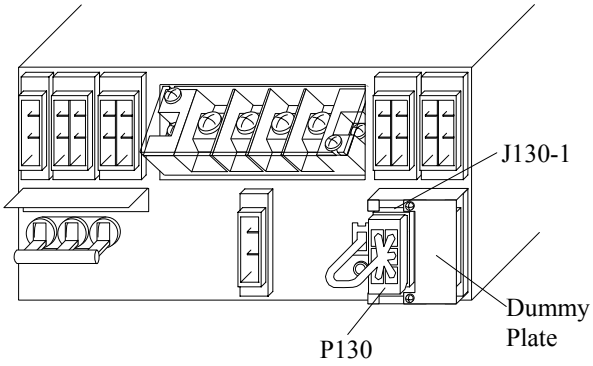
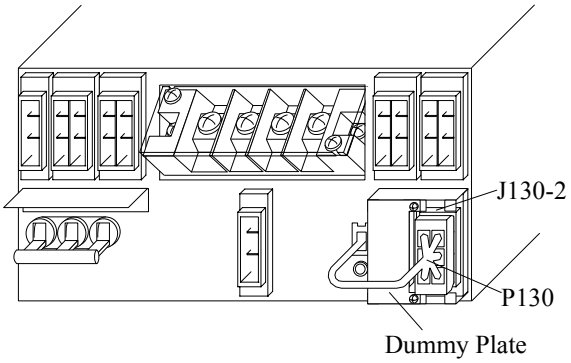


Fig. 6.2-10 Setting of Jumpers on the CSW

6.3 AC BOX Jumpers

[1] AC BOX (3Phase/30A)

Table 6.3-1 Jumper Setting of AC BOX

AC Input Voltage	Voltage Setting	Remarks
200 - 240 V		J130-2: Dummy Plate
380 - 415 V		J130-1: Dummy Plate

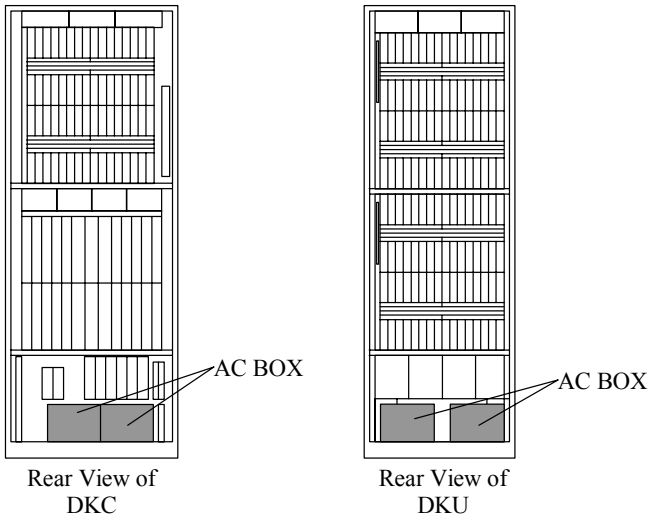
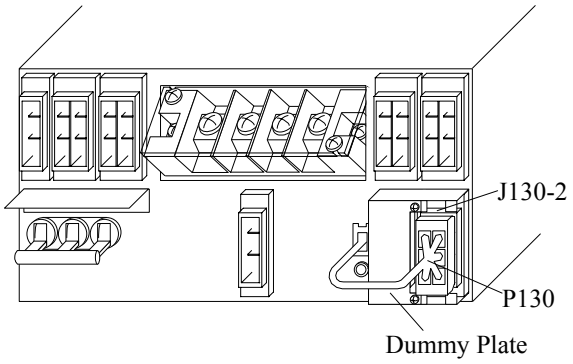
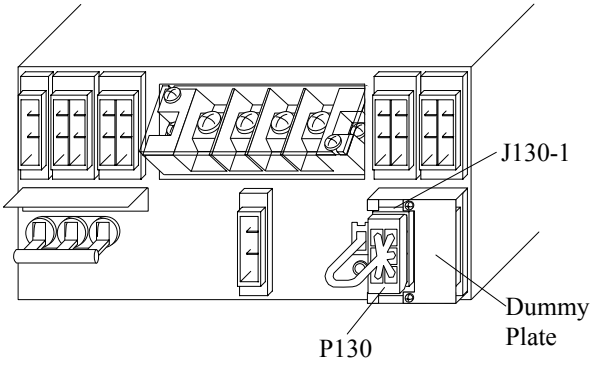


Fig. 6.3-1 Location of AC BOX

[2] AC BOX (1Phase/30A)

Table 6.3-2 Jumper Setting of AC BOX

AC Cable	Setting	Remarks
DKC-F610I- 1ECD/1UCD ×1 set		J130-1: Dummy Plate
DKC-F610I- 1ECD/1UCD ×2 sets		J130-2: Dummy Plate

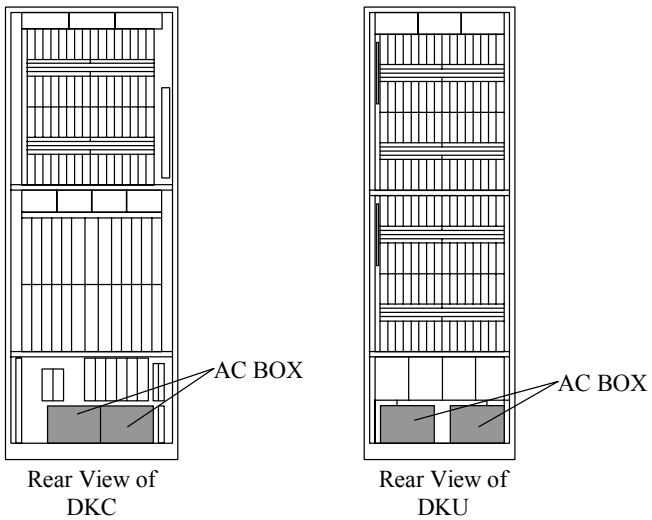


Fig. 6.3-2 Location of AC BOX