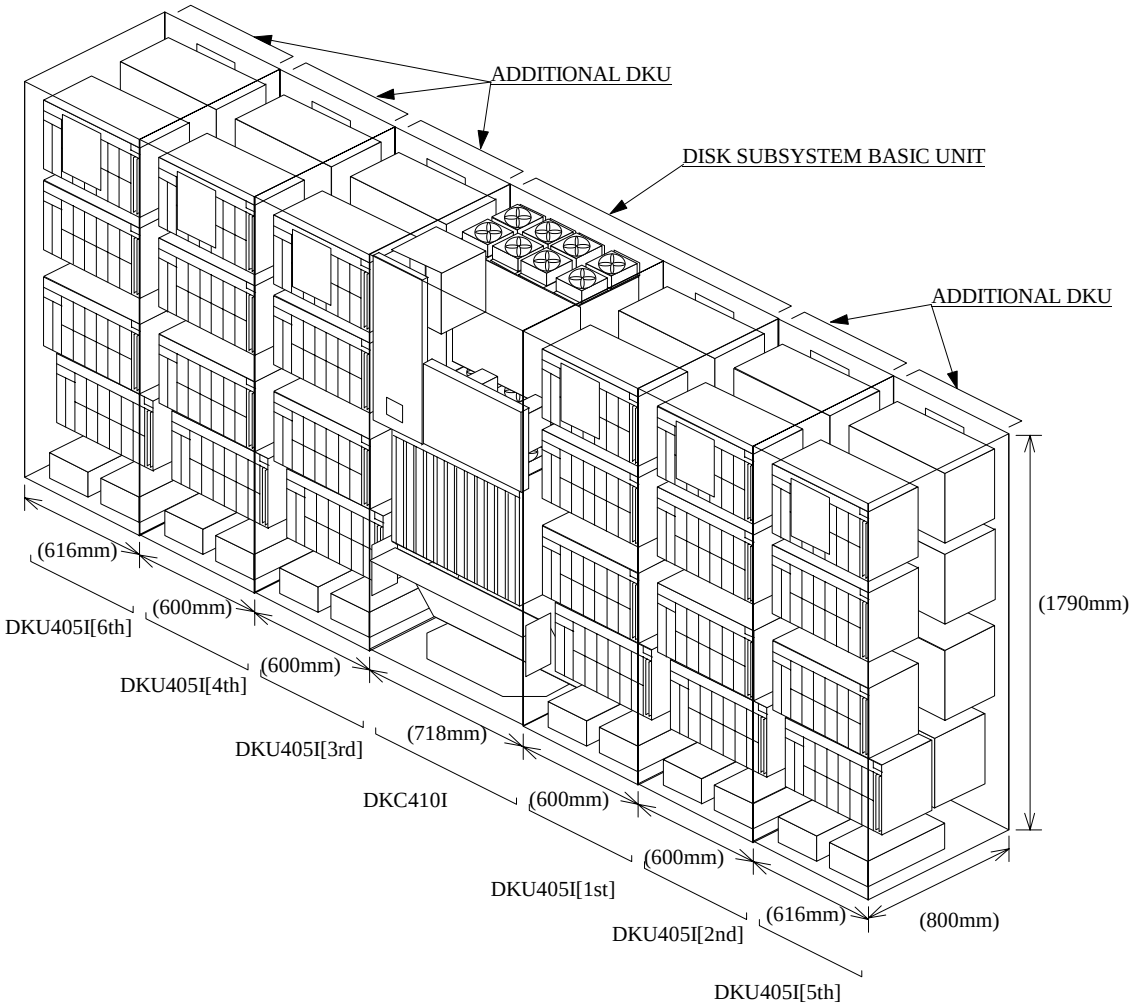
LOCATION SECTION

Contents

LOCATION

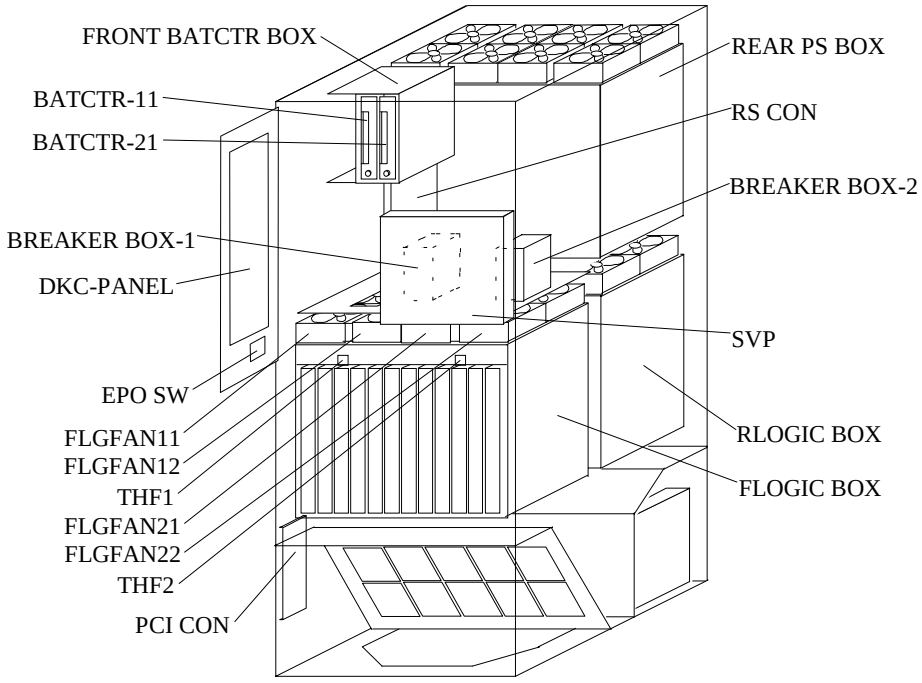
1 Overview of Disk Subsystem



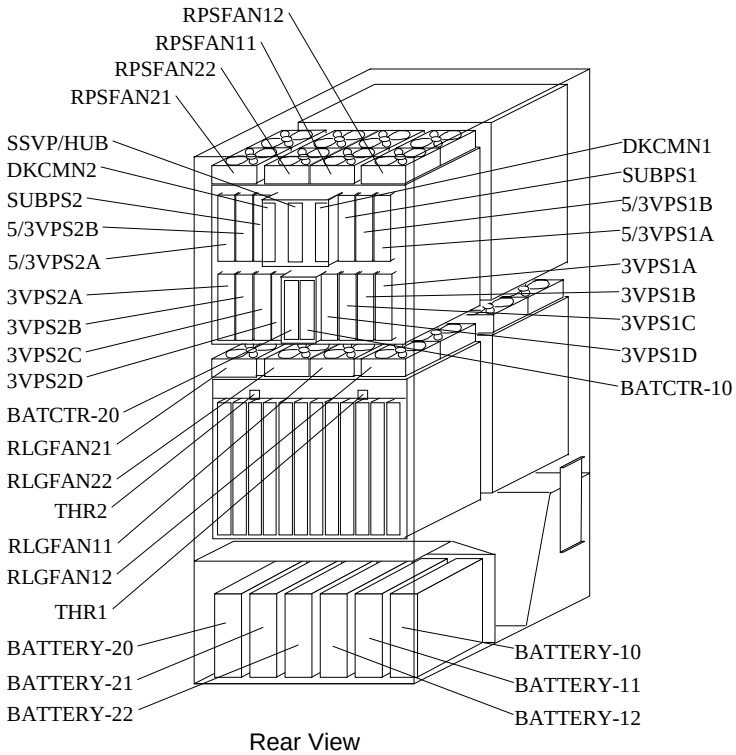
2 Parts Location

2.1 Disk Controller Unit

2.1.1 3 Phase Model

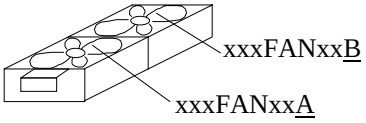


Front View



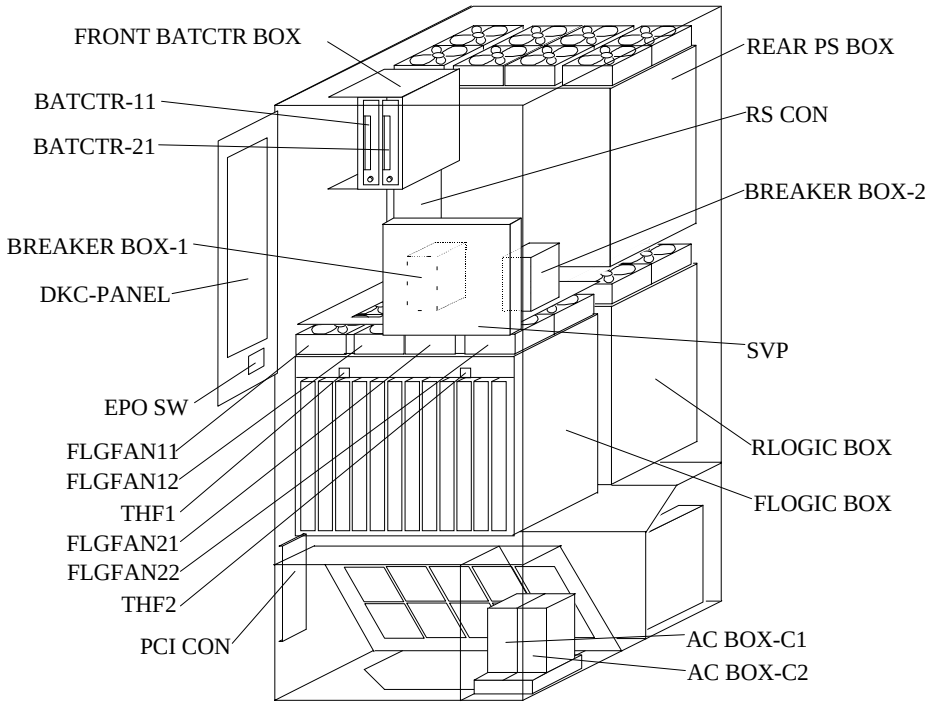
Rear View

FAN ASSY

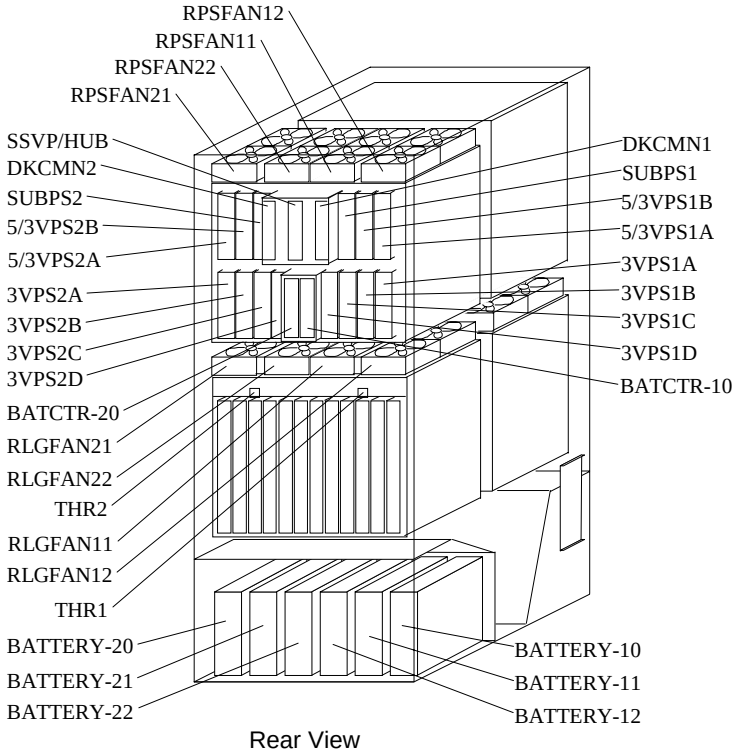


(Note)
xxxFANxx : FAN ASSY Location

2.1.2 Single Phase Model

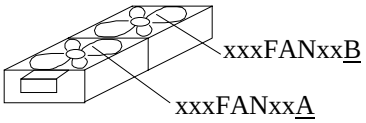


Front View



Rear View

FAN ASSY



(Note)
xxxFANxx : FAN ASSY Location

2.2 PCB and Power Supply Location

FRONT LOGIC BOX PCB LOCATION

CL1							CL2				
N	P	Q	R	S	T	U	V	W	X	Y	Z
WP4300|A	1st CHA *B	2nd CHA *B	3rd CHA *B	4th CHA *B	WP4400|A	WP4400|B *A	1st CHA *B	2nd CHA *B	3rd CHA *B	4th CHA *B	WP4300|B
CSW-1N	CHA-1P	CHA-1Q	CHA-1R	CHA-1S	CACHE-1T	CACHE-1U	CHA-2V	CHA-2W	CHA-2X	CHA-2Y	CSW-2Z
	Basic	Add.1	Add.2	Add.3	Basic (SM)	Add.	Basic	Add.1	Add.2	Add.3	

*A: DKC-F410I-20

*B: Description of CHA PCBs

CL1											
P, Q, R or S											
WP4112|B	WP4112|A	SH2144|A	WP4111|A	SH2112|A	WP4111|A	SH2112|B	WP4111|A	SH2112|C	WP4111|A	SH2112|D	WP4111|B	SH2112|E	WP4111|B	SH2112|G	WP4111|C	SH2611|A	WP4155|A	SH2977|A	WP4155|B	SH2977|A
*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*11										

CL2											
V, W, X or Y											
WP4112|B	WP4112|A	SH2144|A	WP4111|A	SH2112|A	WP4111|A	SH2112|B	WP4111|A	SH2112|C	WP4111|A	SH2112|D	WP4111|B	SH2112|E	WP4111|B	SH2112|G	WP4111|C	SH2611|A	WP4155|A	SH2977|A	WP4155|B	SH2977|A
*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*11										

*1: DKC-F410I-4S
*2: DKC-F410I-8S
*3: DKC-F410I-8GS
*4: DKC-F410I-4GS
*5: DKC-F410I-8GL
*6: DKC-F410I-4GL
*7: DKC-F410I-8GSE
*8: DKC-F410I-8GLE
*9: DKC-F410I-8HSE
*10: DKC-F410I-4MS
*11: DKC-F410I-4ML

REAR LOGIC BOX PCB LOCATION

CL2									CL1				
M	L		K		J		H	G	F	E	D	C	B	A
WP430|A	WP425|A *C	SH189|A×4 *C	WP425|A *B	SH189|A×4 *B	WP425|A *A	SH189|A×4 *A	WP425|A	SH189|A×4	WP440|A	WP440|B *E	WP425|A *C	SH189|A×4 *C	WP425|A *B	SH189|A×4 *B	WP425|A *A	SH189|A×4 *A	WP425|A	SH189|A×4	WP430|B
CSW-2M	DKA-2L		DKA-2K		DKA-2J		DKA-2H	CACHE-2G	CACHE-2F	DKA-1E	DKA-1D	DKA-1C	DKA-1B	CSW-1A
	Add.3		Add.2		Add.1		Basic	Basic (SM)	Add.	Add.3	Add.2	Add.1	Basic	

*A: DKC-F410I-100×1 set
*B: DKC-F410I-100×2 sets
*C: DKC-F410I-100×3 sets
*E: DKC-F410I-20 or DKC-F410I-21

FRONT BATCTR BOX PCB LOCATION

BATCTR-11	BATCTR-21
SH1999|A *A	SH1999|A *A

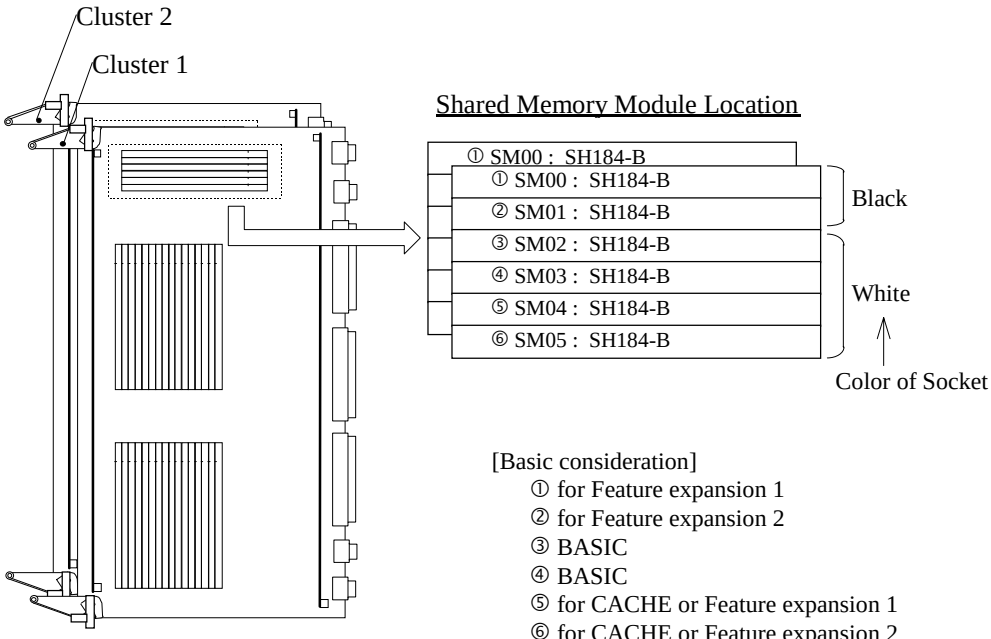
*A: DKC-F410I-20 or DKC-F410I-22

REAR PS BOX PS LOCATION

CL2				CL1/CL2	CL1				
—	—	—	CU	BU	AU	—	—	—	
5/3VPS2A	5/3VPS2B	SUBPS2	DKCMN	SSVP/HUB	DKCMN	SUBPS1	5/3VPS1B	5/3VPS1A	
LGMPS	LGMPS	SUBMPS	SH223-A	SH222-A	SH223-A	SUBMPS	LGMPS	LGMPS	
3VPS	3VPS	3VPS *A	3VPS *A	SH2000-A	SH2000-A	3VPS *A	3VPS *A	3VPS	3VPS
3VPS2A	3VPS2B	3VPS2C	3VPS2D	BATCTR-20	BATCTR-10	3VPS1D	3VPS1C	3VPS1B	3VPS1A
—	—	—	—	BL	AL	—	—	—	—
CL2					CL1				

*A: DKC-F410I-80

2.3 Shared Memory Module Location

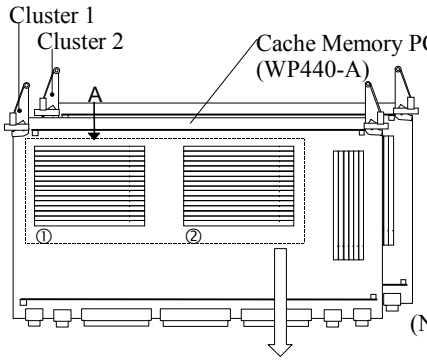


[Basic consideration]

① for Feature expansion 1
② for Feature expansion 2
③ BASIC
④ BASIC
⑤ for CACHE or Feature expansion 1
⑥ for CACHE or Feature expansion 2

2.4 Cache Memory Module Location

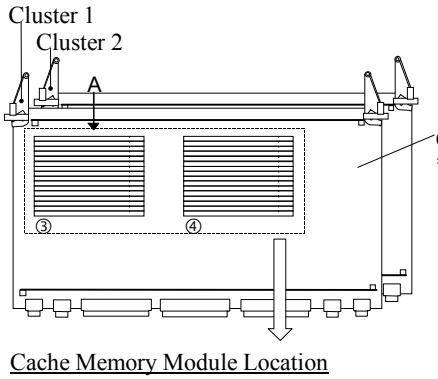
1. Standard Cache Memory PCB



(Note) The Cache Memory Module location *1 through *Y correcpond to the CM Location listed in Table2.4-1 or 2.4-2.

Cache Memory Module Location

①		②	
CM000 : SH185-A or SH185-B	*1	CM100 : SH185-A or SH185-B	*1
CM001 : SH185-A or SH185-B	*2	CM101 : SH185-A or SH185-B	*2
CM002 : SH185-A or SH185-B	*3	CM102 : SH185-A or SH185-B	*3
CM003 : SH185-A or SH185-B	*4	CM103 : SH185-A or SH185-B	*4
CM004 : SH185-A or SH185-B	*5	CM104 : SH185-A or SH185-B	*5
CM005 : SH185-A or SH185-B	*6	CM105 : SH185-A or SH185-B	*6
CM006 : SH185-A or SH185-B	*7	CM106 : SH185-A or SH185-B	*7
CM007 : SH185-A or SH185-B	*8	CM107 : SH185-A or SH185-B	*8
CM010 : SH185-A or SH185-B	*9	CM110 : SH185-A or SH185-B	*9
CM011 : SH185-A or SH185-B	*A	CM111 : SH185-A or SH185-B	*A
CM012 : SH185-A or SH185-B	*B	CM112 : SH185-A or SH185-B	*B
CM013 : SH185-A or SH185-B	*C	CM113 : SH185-A or SH185-B	*C
CM014 : SH185-A or SH185-B	*D	CM114 : SH185-A or SH185-B	*D
CM015 : SH185-A or SH185-B	*E	CM115 : SH185-A or SH185-B	*E
CM016 : SH185-A or SH185-B	*F	CM116 : SH185-A or SH185-B	*F
CM017 : SH185-A or SH185-B	*G	CM117 : SH185-A or SH185-B	*G



Cache Memory Module Location

③		④	
CM000 : SH185-A or SH185-B	*H	CM100 : SH185-A or SH185-B	*H
CM001 : SH185-A or SH185-B	*J	CM101 : SH185-A or SH185-B	*J
CM002 : SH185-A or SH185-B	*K	CM102 : SH185-A or SH185-B	*K
CM003 : SH185-A or SH185-B	*L	CM103 : SH185-A or SH185-B	*L
CM004 : SH185-A or SH185-B	*M	CM104 : SH185-A or SH185-B	*M
CM005 : SH185-A or SH185-B	*N	CM105 : SH185-A or SH185-B	*N
CM006 : SH185-A or SH185-B	*P	CM106 : SH185-A or SH185-B	*P
CM007 : SH185-A or SH185-B	*Q	CM107 : SH185-A or SH185-B	*Q
CM010 : SH185-A or SH185-B	*R	CM110 : SH185-A or SH185-B	*R
CM011 : SH185-A or SH185-B	*S	CM111 : SH185-A or SH185-B	*S
CM012 : SH185-A or SH185-B	*T	CM112 : SH185-A or SH185-B	*T
CM013 : SH185-A or SH185-B	*U	CM113 : SH185-A or SH185-B	*U
CM014 : SH185-A or SH185-B	*V	CM114 : SH185-A or SH185-B	*V
CM015 : SH185-A or SH185-B	*W	CM115 : SH185-A or SH185-B	*W
CM016 : SH185-A or SH185-B	*X	CM116 : SH185-A or SH185-B	*X
CM017 : SH185-A or SH185-B	*Y	CM117 : SH185-A or SH185-B	*Y

Fig. 2.4-1 Cache Memory Module Location

Table2.4-1 Cache memory upgrade table of Standard Model installation

Cache Memory Capacity (MB)	SH185-A only		SH185-B only		SH185-A/SH185-B mixture		
	DKC-F410I-512	CM Location (Note 1)	DKC-F410I-1024	CM Location (Note 1)	DKC-F410I-512	DKC-F410I-1024	CM Location (Note 1)
512	1 set	*1	—	—	1 set	—	*1
1,024	2 sets	*2	1 set	*1	2 sets	—	*2
1,536	3 sets	*3	—	—	3 sets	—	*3
2,048	4 sets	*4	2 sets	*2	4 sets	—	*4
2,560	5 sets	*5	—	—	5 sets	—	*5
3,072	6 sets	*6	3 sets	*3	6 sets	—	*6
3,584	7 sets	*7	—	—	7 sets	—	*7
4,096	8 sets	*8	4 sets	*4	8 sets	—	*8
5,120	10 sets	*9,*A	5 sets	*5	10 sets	—	*9,*A
6,144	12 sets	*B,*C	6 sets	*6	12 sets	—	*B,*C
7,168	14 sets	*D,*E	7 sets	*7	14 sets	—	*D,*E
8,192	16 sets	*F,*G	8 sets	*8	16 sets	—	*F,*G
9,216	18 sets	*H,*J	9 sets	*9	16 sets	1 set	*H
10GB	20 sets	*K,*L	10 sets	*A	16 sets	2 sets	*J
11GB	22 sets	*M,*N	11 sets	*B	16 sets	3 sets	*K
12GB	24 sets	*P,*Q	12 sets	*C	16 sets	4 sets	*L
13GB	26 sets	*R,*S	13 sets	*D	16 sets	5 sets	*M
14GB	28 sets	*T,*U	14 sets	*E	16 sets	6 sets	*N
15GB	30 sets	*V,*W	15 sets	*F	16 sets	7 sets	*P
16GB	32 sets	*X,*Y	16 sets	*G	16 sets	8 sets	*Q
17GB	—	—	17 sets	*H	16 sets	9 sets	*R
18GB	—	—	18 sets	*J	16 sets	10 sets	*S
19GB	—	—	19 sets	*K	16 sets	11 sets	*T
20GB	—	—	20 sets	*L	16 sets	12 sets	*U
21GB	—	—	21 sets	*M	16 sets	13 sets	*V
22GB	—	—	22 sets	*N	16 sets	14 sets	*W
23GB	—	—	23 sets	*P	16 sets	15 sets	*X
24GB	—	—	24 sets	*Q	16 sets	16 sets	*Y
25GB	—	—	25 sets	*R	—	—	—
26GB	—	—	26 sets	*S	—	—	—
27GB	—	—	27 sets	*T	—	—	—
28GB	—	—	28 sets	*U	—	—	—
29GB	—	—	29 sets	*V	—	—	—
30GB	—	—	30 sets	*W	—	—	—
31GB	—	—	31 sets	*X	—	—	—
32GB	—	—	32 sets	*Y	—	—	—

Note1: The above numbers represent the Cache Memory Module locations shown in Fig. 2.4-1.
Note2: DKC-F410I-512(SH185-A) and DKC-F410I-1024(SH185-B) mixed mounting in the same PCB is inhibited.

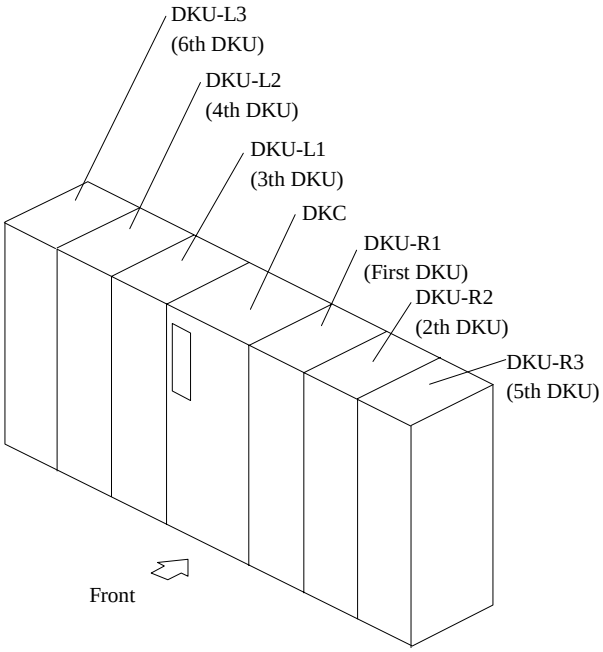
Table2.4-2 Cache memory upgrade table of High Performance Model installation

Cache Memory Capacity (MB)	DKC-F410I -20/21 (Add.PCB)	DKC-F410I -22 (Add.BAT)	DKC-F410I-512			DKC-F410I-1024			DKC-F410I-512/1024mixture		
			Install PCB		CM Location (Note 1)	Install PCB		CM Location (Note 1)	Install PCB		CM Location (Note 1)
			Basic PCB	Add. PCB		Basic PCB	Add. PCB		Basic PCB	Add. PCB	
512	0	0	—	—	—	—	—	—			
1,024	1	0	1	1	*1,*H	—	—	—			
1,536	1	0	—	—	—	—	—	—			
2,048	1	0	2	2	*2,*J	1	1	*1,*H			
2,560	1	0	—	—	—	—	—	—			
3,072	1	0	3	3	*3,*K	—	—	—			
3,584	1	0	—	—	—	—	—	—			
4,096	1	0	4	4	*4,*L	2	2	*2,*J			
5,120	1	0	5	5	*5,*M	—	—	—			
6,144	1	0	6	6	*6,*N	3	3	*3,*K			
7,168	1	0	7	7	*7,*P	—	—	—			
8,192	1	0	8	8	*8,*Q	4	4	*4,*L			
9,216	1	0	9	9	*9,*R	—	—	—			
10GB	1	0	10	10	*A,*S	5	5	*5,*M			
11GB	1	0	11	11	*B,*T	—	—	—			
12GB	1	0	12	12	*C,*U	6	6	*6,*N			
13GB	1	0	13	13	*D,*V	—	—	—			
14GB	1	0	14	14	*E,*W	7	7	*7,*P			
15GB	1	0	15	15	*F,*X	—	—	—			
16GB	1	0	16	16	*G,*Y	8	8	*8,*Q			
17GB	1	1	—	—	—	—	—	—			
18GB	1	1	—	—	—	9	9	*9,*R			
19GB	1	1	—	—	—	—	—	—			
20GB	1	1	—	—	—	10	10	*A,*S			
21GB	1	1	—	—	—	—	—	—			
22GB	1	1	—	—	—	11	11	*B,*T			
23GB	1	1	—	—	—	—	—	—			
24GB	1	1	—	—	—	12	12	*C,*U			
25GB	1	1	—	—	—	—	—	—			
26GB	1	1	—	—	—	13	13	*D,*V			
27GB	1	1	—	—	—	—	—	—			
28GB	1	1	—	—	—	14	14	*E,*W			
29GB	1	1	—	—	—	—	—	—			
30GB	1	1	—	—	—	15	15	*F,*X			
31GB	1	1	—	—	—	—	—	—			
32GB	1	1	—	—	—	16	16	*G,*Y			

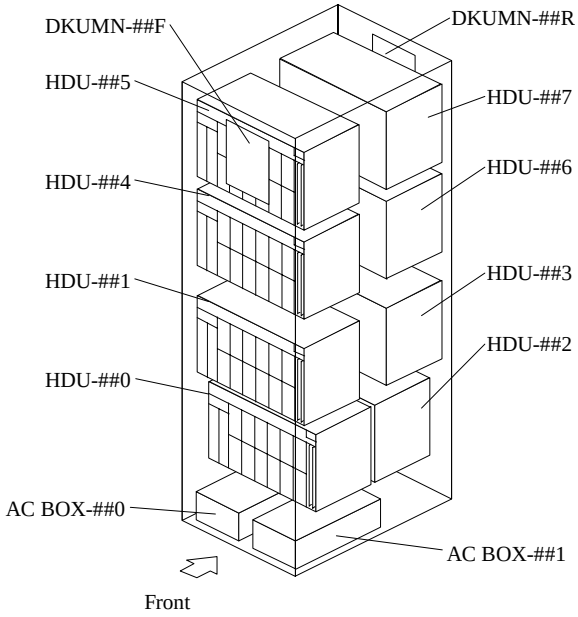
- **Mixed installation with F512 and F1024 in the same PCB is not allowed.**
- **When different type of memory option installed between at Basic PCB and Add. PCB, each memory size of PCB is recommended with same capacity.**

Note1: The above numbers represent the Cache Memory Module locations shown in Fig. 2.4-1.
Note2: DKC-F410I-512(SH185-A) and DKC-F410I-1024(SH185-B) mixed mounting in the same PCB is inhibited.
Note3: When the Additional Cache Board (DKC-F410I-20) is installed, the Additional Cache Battery (DKC-F410I-22) is unnecessary.

2.5 Disk Unit

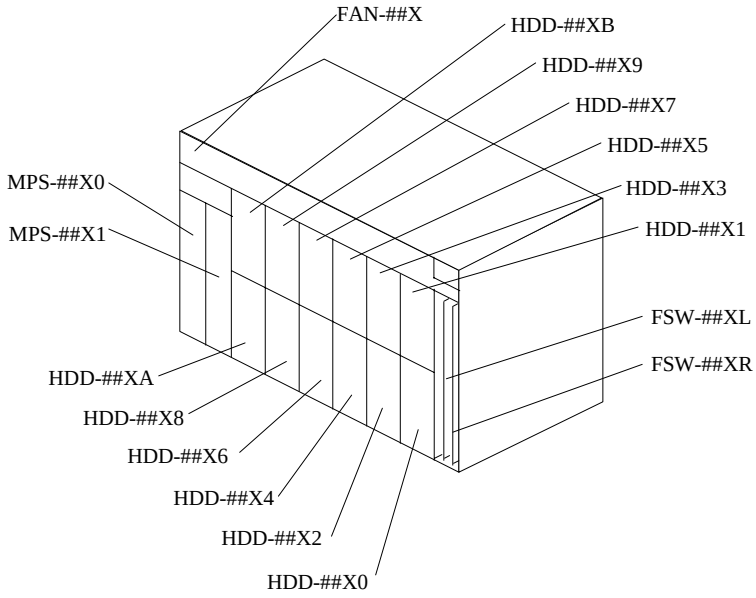


Disk Subsystem



Note: ##=Disk Unit Location
(R1, R2, R3, L1, L2, L3)

Disk Unit



Note 1: ##X=HDU Box Location(R10, R11, …, L37)

Note 2: The HDD canister location is expressed in the form "(Column/row)" in the SSB/SIM LOG.
Column No. : Last digit of the HDU Box location.
Row No. : 0, 1, 2, …, 9, A, B

HDU BOX

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.

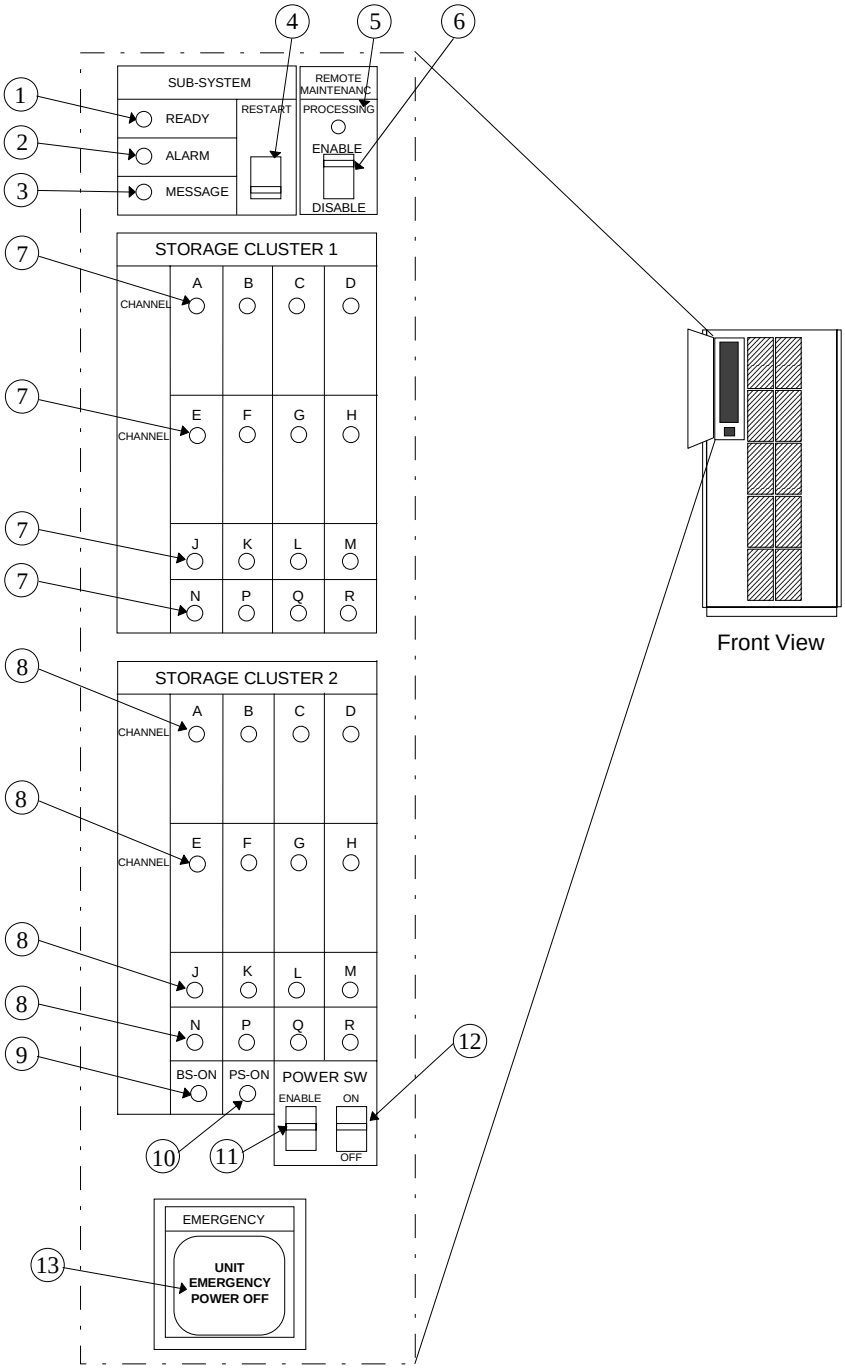


Fig. 3.1-1 Operator Panel

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)	Indicates DC under voltage, 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 “16 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	STORAGE CLUSTER 1 CHANNEL A-R ENABLE	LED (Green)	Serial Channel/Fibre Channel: (1) On : Indicates some of the logical paths are established. (2) Fast blinking : Indicates that the corresponding channel route is executing the channel command. (Only Serial Channel) (3) Slow blinking : Indicates none of the logical path is established. (4) Off : Indicates that the corresponding channel route is not enabled.
8	STORAGE CLUSTER 2 CHANNEL A-R ENABLE	LED (Green)	Serial Channel/Fibre Channel: (1) On : Indicates some of the logical paths are established. (2) Fast blinking : Indicates that the corresponding channel route is executing the channel command. (Only Serial Channel) (3) Slow blinking : Indicates none of the logical path is established. (4) Off : Indicates that the corresponding channel route is not enabled.
9	BS ON	LED (Yellow)	Indicates that the Sub-PS is on.(CL 1 or CL 2)
10	PS ON	LED (Green)	Indicates that the subsystem is powered on.
11	PWR SW ENABLE	Switch	Used to enable the PWR on/off switch. To enable the PWR on/off switch, turn the PWR SW ENABLE switch to the ENABLE position.
12	PWR ON/PWR OFF	Switch	To switch on/off the subsystem, use this switch while turning the PWR SW ENABLE switch to the ENABLE position. This switch is valid when the REMOTE/LOCAL switch is set to the LOCAL position.
13	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.

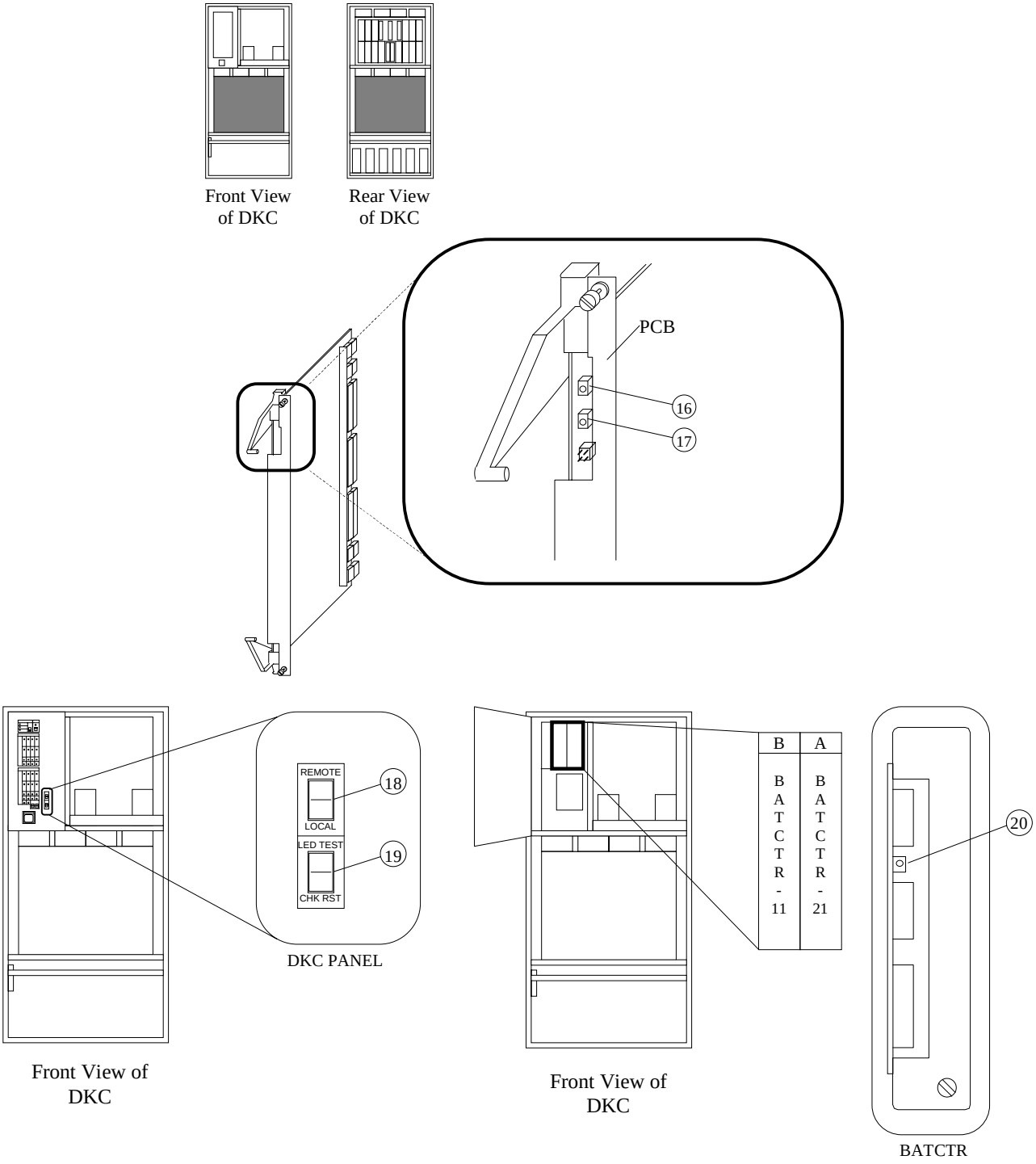


Fig 3.2-1 Other Switches and LEDs (1/3)

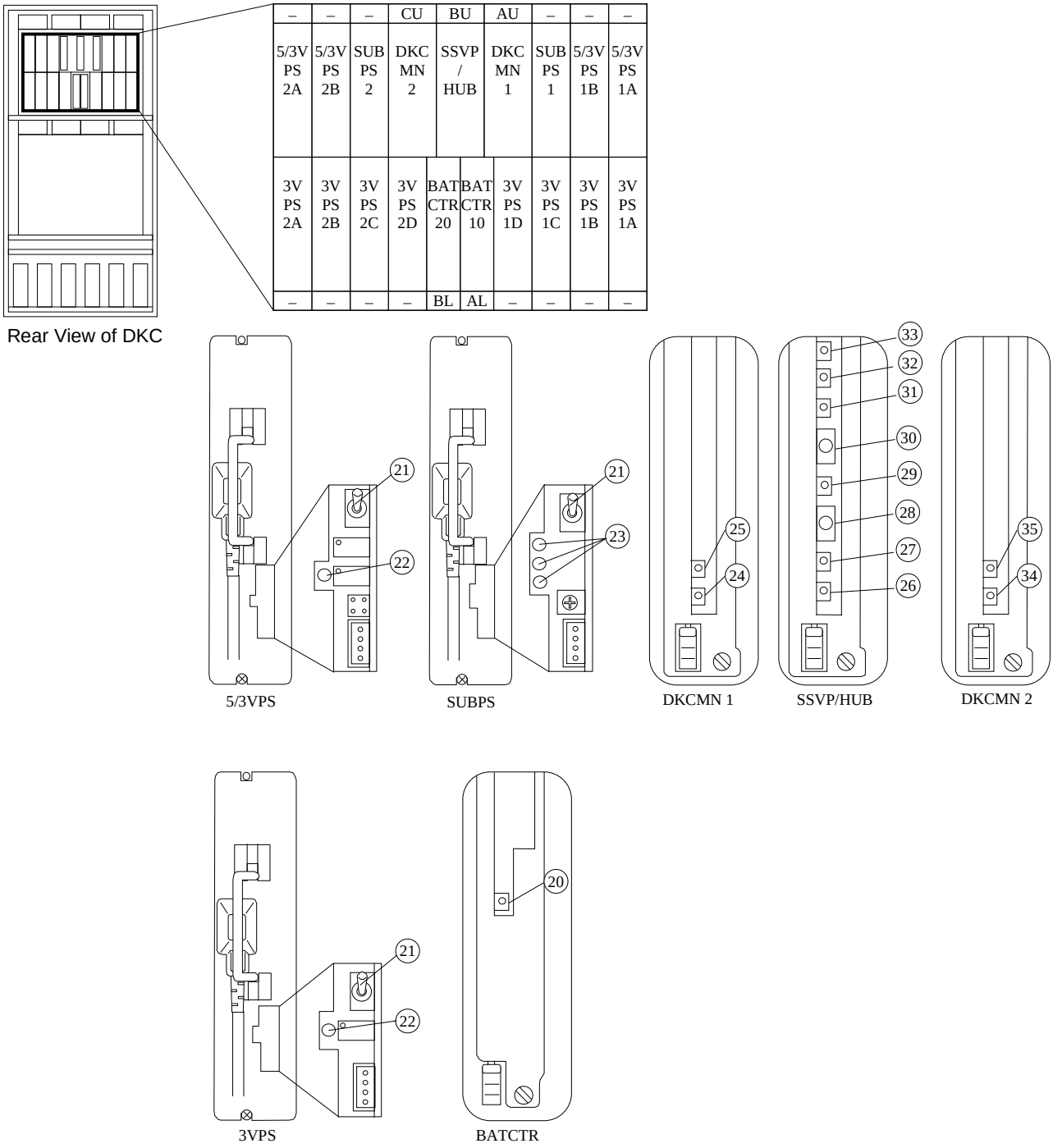


Fig 3.2-1 Other Switches and LEDs (2/3)

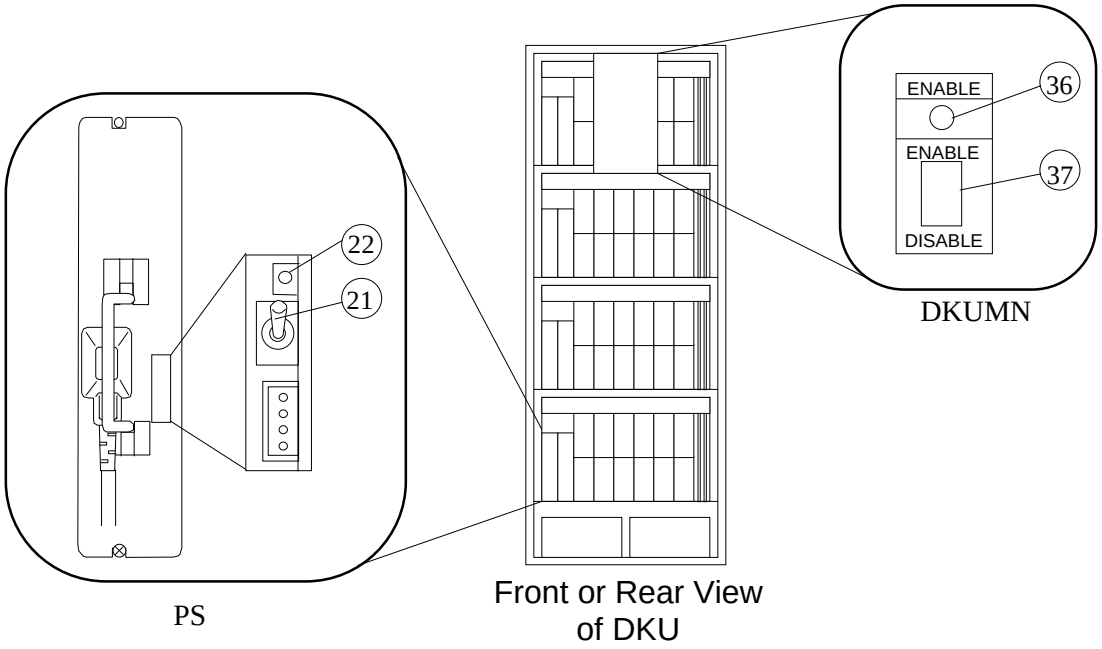


Fig 3.2-1 Other Switches and LEDs (3/3)

Table 3.2-1 Function of Other Switches and LEDs (1/2)

No.	Parts Name	Class	Function
16	Shut Down LED	LED (Red)	See Table 3.2-2 PCB LED's Light List.
17	PS Failure LED	LED (Amber)	
18	PWR ON/PWR OFF REMOTE/LOCAL	Switch	REMOTE position : Subsystem is powered on/off by the instructions from the CPU. LOCAL position : Subsystem is powered on/off by PWR ON/PWR OFF switch.
19	LED TEST/CHK RESET	Switch	LED TEST position : The LEDs on DKC panel go on. CHK RESET position : The PS ALARM and TH ALARM is reset.
20	BATCTR Shut Down LED	LED (Red)	Indicates that the removal of the BATCTR is possible when the subsystem is powered on.
21	PS Enable/Disable	Switch	Used to power on/off the PS.
22	PS Enable	LED (Green)	Indicates that the PS is providing output voltage.
23	PS Enable	LED (Green)	Indicates that the PS is providing output voltage. The three LEDs are 5V, 12V, and 16V respectively from the top.
24	DKCMN-1 ENABLE	LED (Green)	Indicates that the DKCMN-1 is powered on.
25	DKCMN-1 Shut Down LED	LED (Red)	Indicates that the removal of the DKCMN-1 is possible when the subsystem is powered on.
26	SSVP/HUB ENABLE	LED (Green)	Indicates that the SSVP/HUB is powered on.
27	SSVP/HUB Shut Down LED	LED (Red)	Indicates that the removal of the SSVP/HUB is possible when the subsystem is powered on.
28	SSVP DUMP	Switch	The data in SVP memory is written to the HDD.
29	SSVP ALARM	LED (Red)	This LED shows the state of SSVP. Lighting.....BOOT detected abnormality of hardware. Slow blinking..The dump acquisition of SSVP ended. Fast blinking....Micro Code of SSVP ended abnormally.
30	SSVP ALARM RESET	Switch	The SSVP detection alarm is reset. Then IMPL of the SVP is executed.
31	—	LED (Red)	Not used
32	—	LED (Red)	Not used
33	—	LED (Red)	Not used

Table 3.2-1 Function of Other Switches and LEDs (2/2)

No.	Parts Name	Class	Function
34	DKCMN-2 ENABLE	LED (Green)	Indicates that the DKCMN-2 is powered on.
35	DKCMN-2 Shut Down LED	LED (Red)	Indicates that the removal of the DKCMN-2 is possible when the subsystem is powered on.
36	DKUMN ENABLE	LED (Green)	Indicates that each DKUMN is powered on.
37	DKUMN ENABLE/DISABLE	Switch	Used to power on/off each DKUMN.

Table 3.2-2 PCB LED's Light List

Function	PCB TYPE	Shut Down LED (Red)	PS Failure LED (Amber)
Shut Down LED set or Micro Shut Down set	Channel Adapter Disk Adapter Cache	○	○
	CSW	○	○
Power Supply Control Failure on the PCB	Channel Adapter Disk Adapter Cache	○	○
	CSW	—	○

○ : Turn on — : Turn off

3.3 Circuit Breakers

3.3.1 3 Phase Model

Fig. 3.3.1-1 show the locations of Circuit Breakers.
Fig. 3.3.1-2, Fig. 3.3.1-3, Fig. 3.3.1-4 and Fig. 3.3.1-5 show the connection of power supplies.

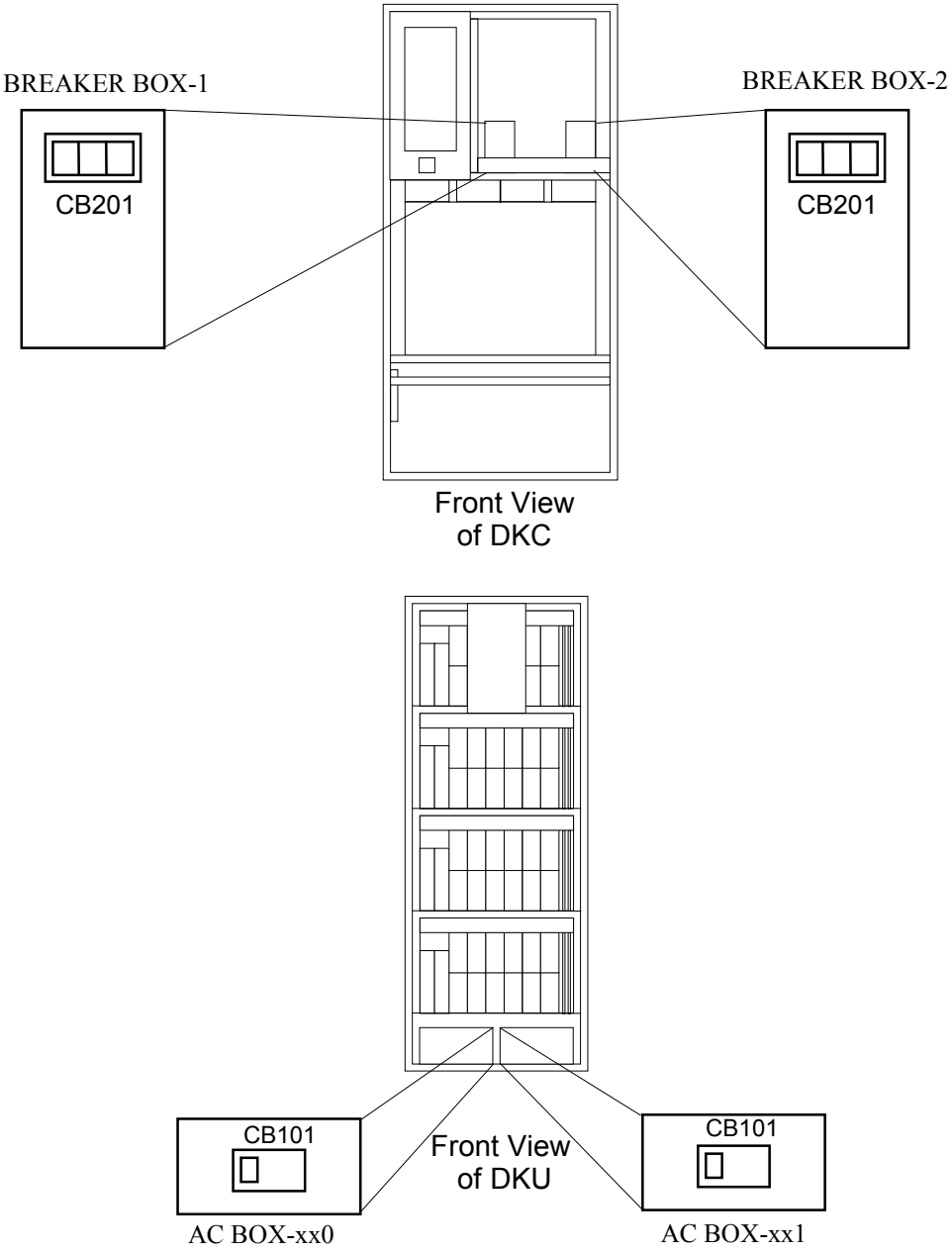


Fig. 3.3.1-1 Locations of Circuit Breakers

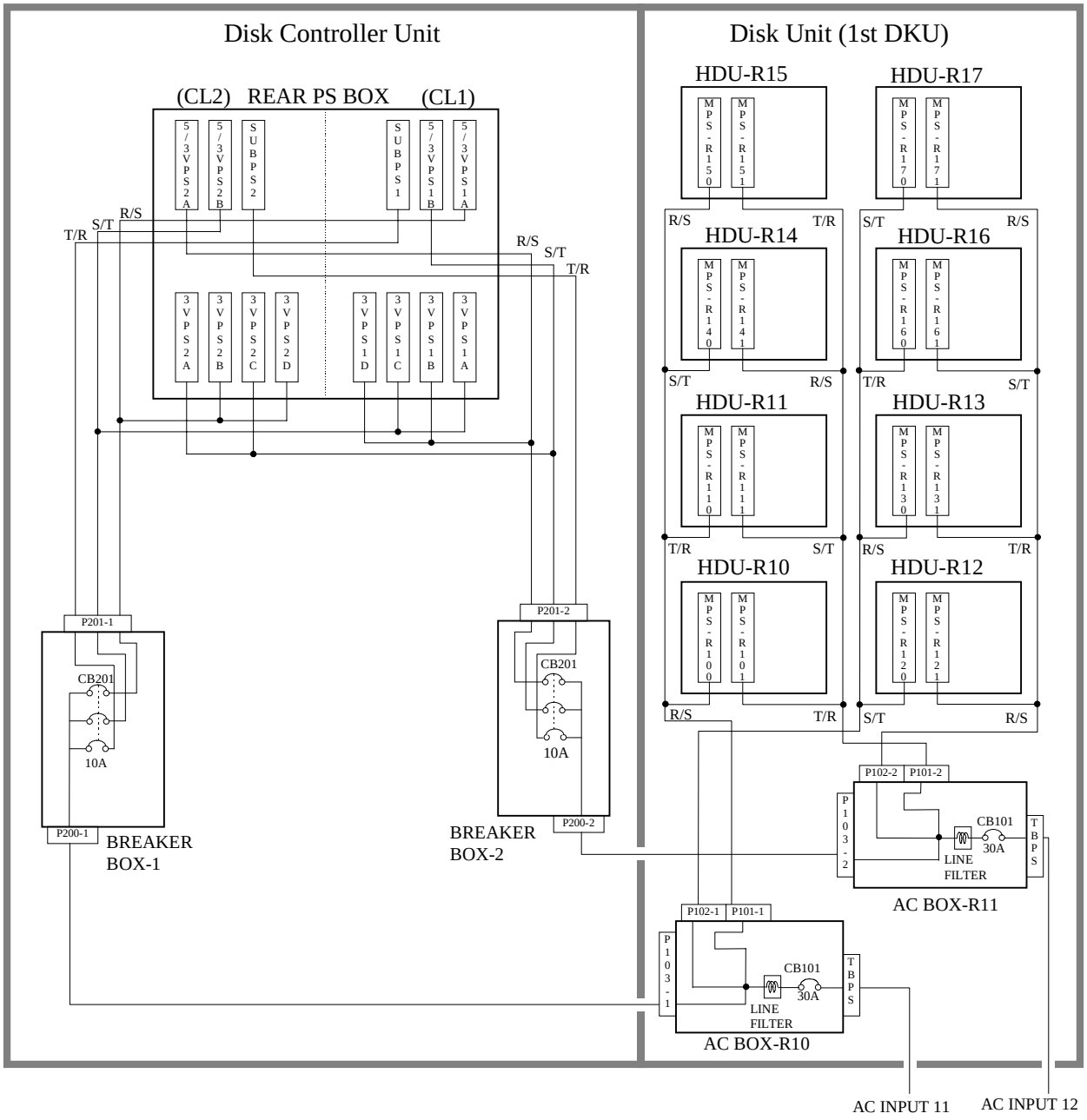


Fig. 3.3.1-2 Connection of POWER SUPPLIES (1/4)

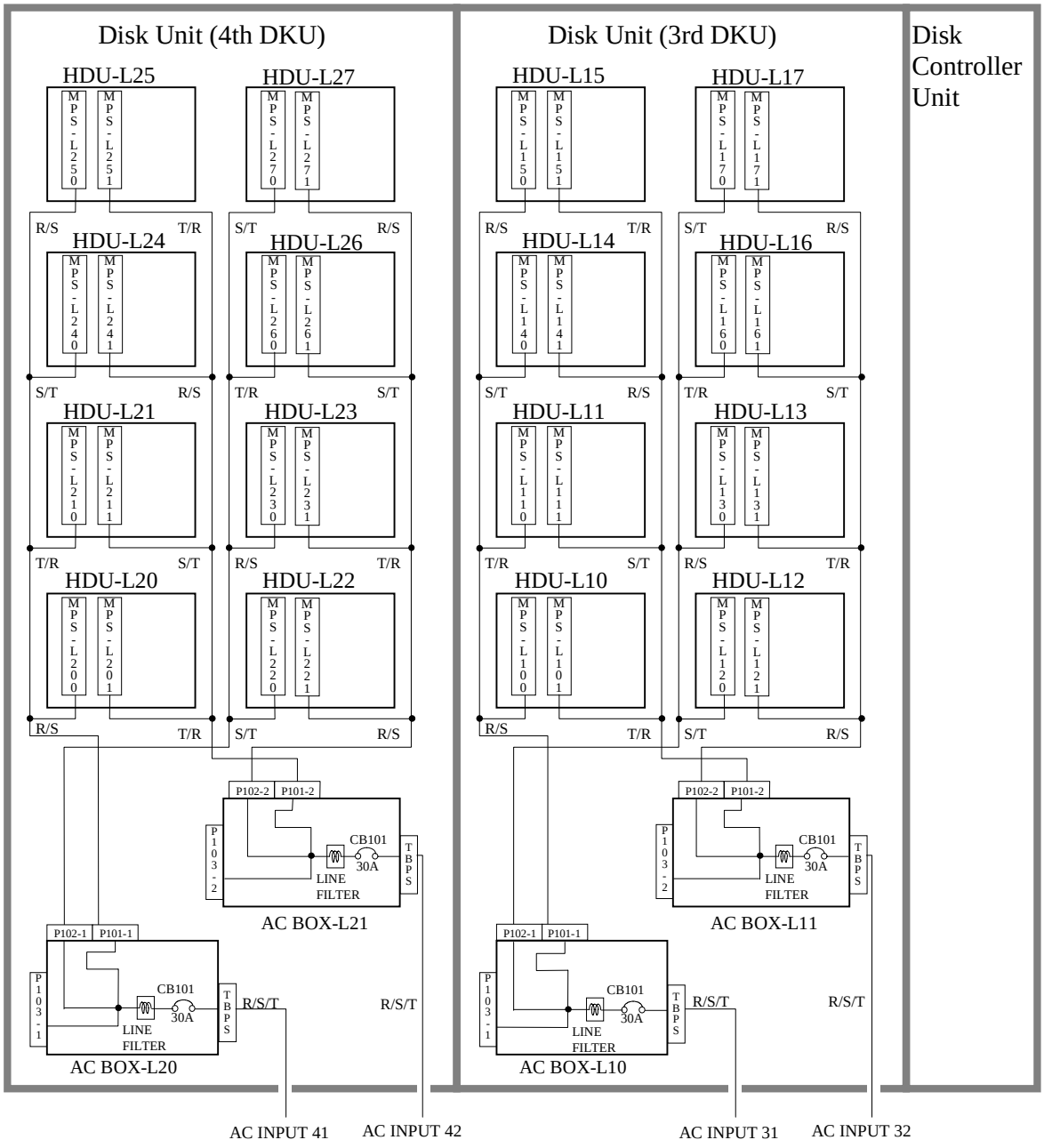


Fig. 3.3.1-3 Connection of POWER SUPPLIES (2/4)

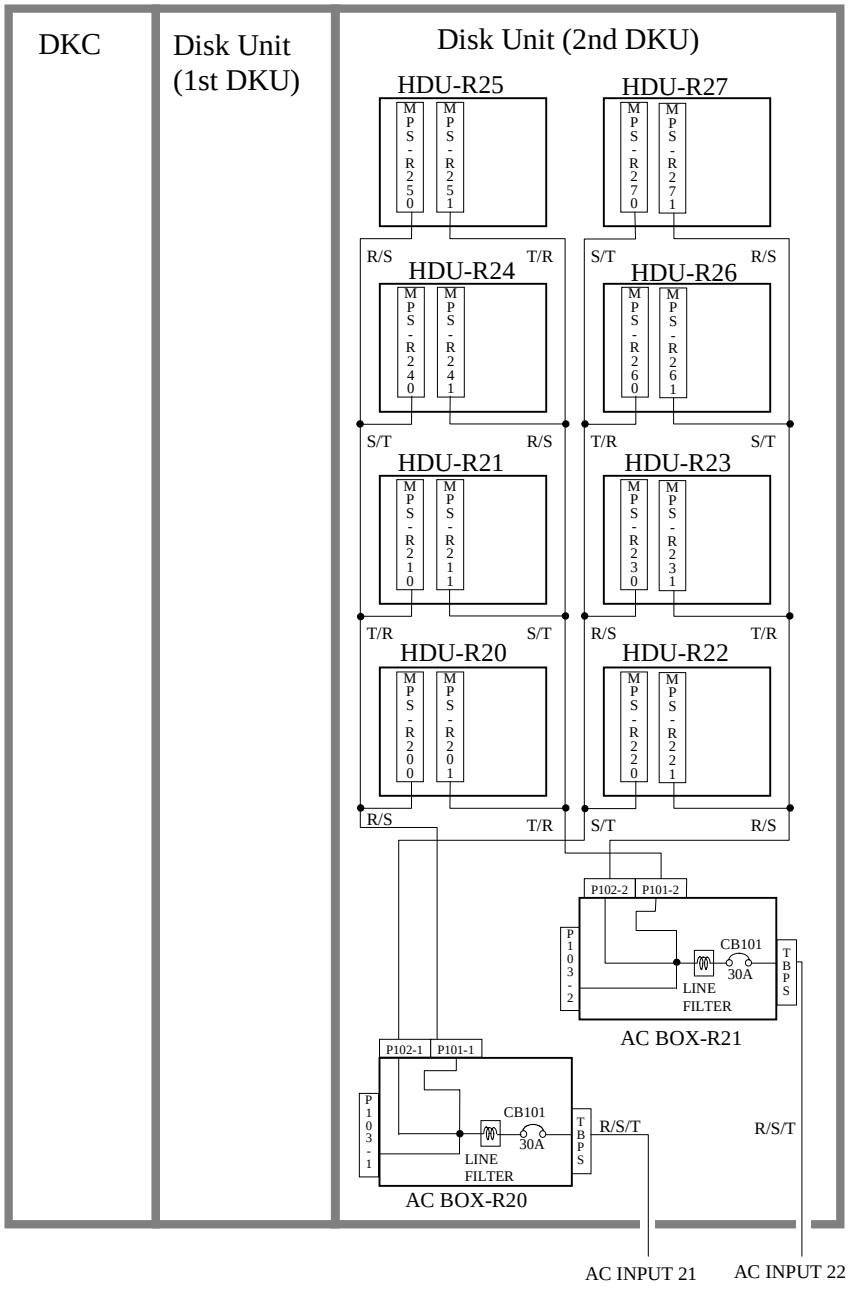


Fig. 3.3.1-4 Connection of POWER SUPPLIES (3/4)

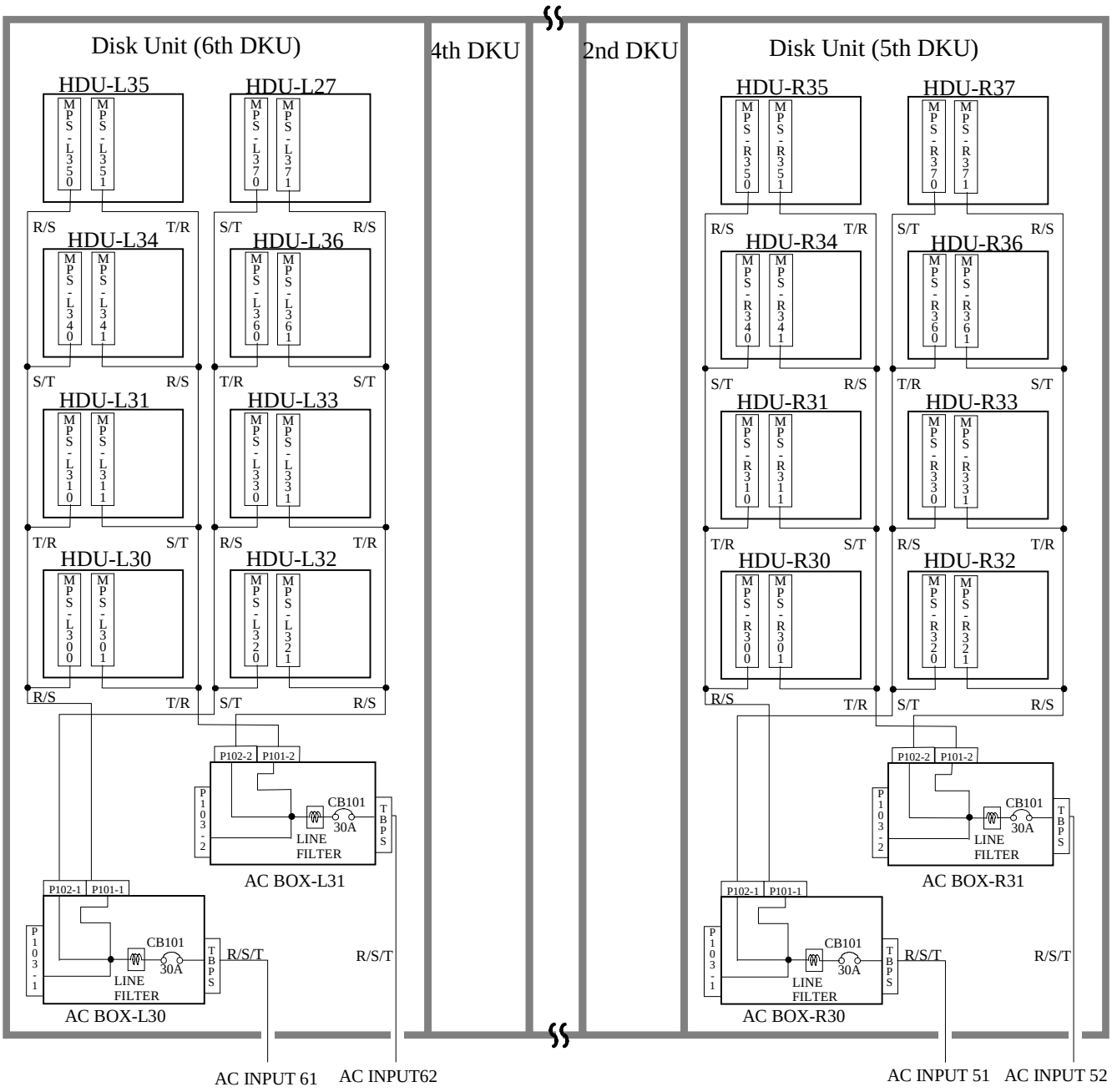
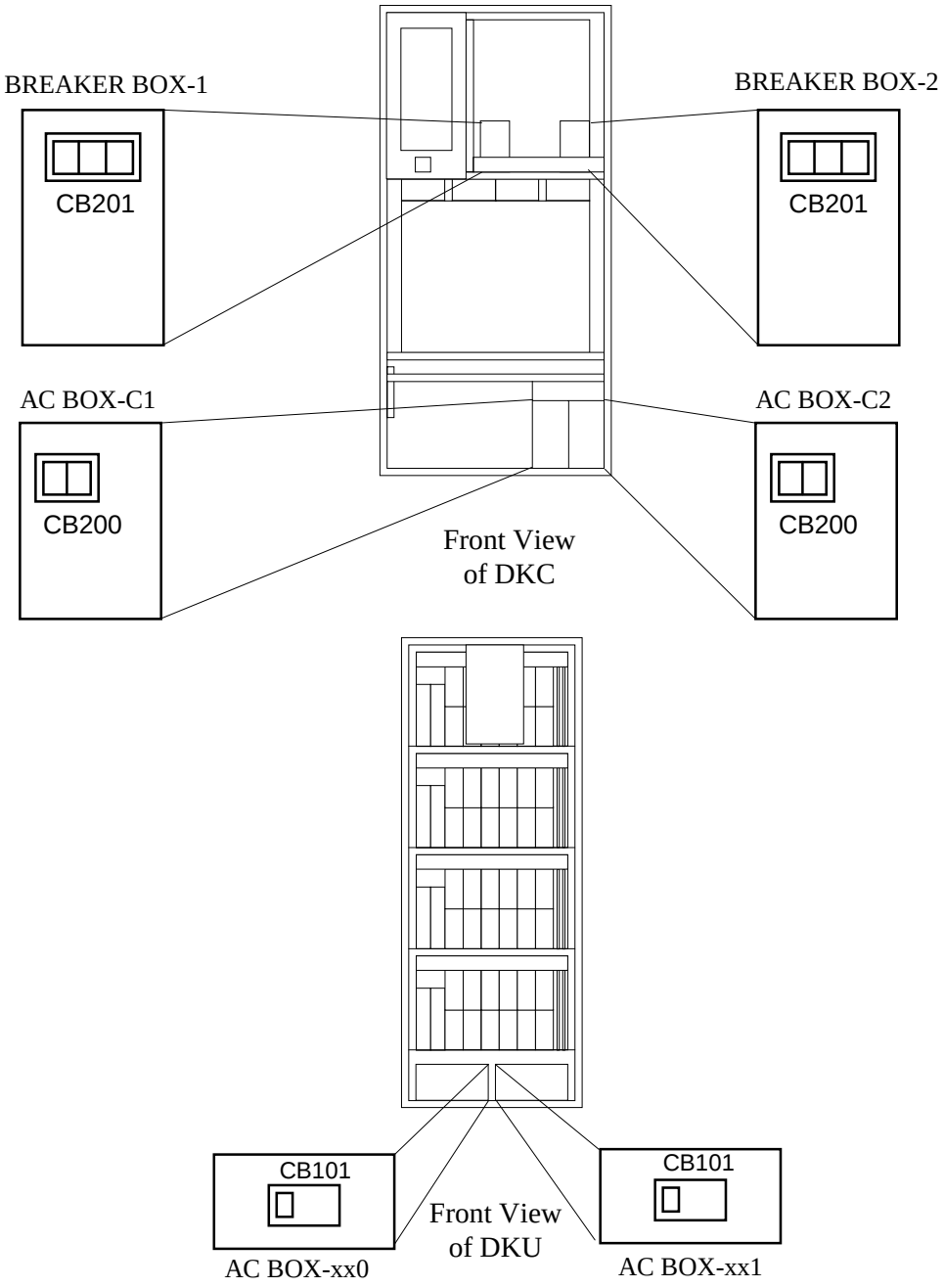


Fig. 3.3.1-5 Connection DKU of POWER SUPPLIES (4/4)

3.3.2 Single Phase Model

Fig. 3.3.2-1 show the locations of Circuit Breakers.
Fig. 3.3.2-2, Fig. 3.3.2-3, Fig. 3.3.2-4 and Fig. 3.3.2-5 show the connection of power supplies.



xx : DKU Location (R1,R2,R3,L1,L2,L3)

Fig. 3.3.2-1 Locations of Circuit Breakers

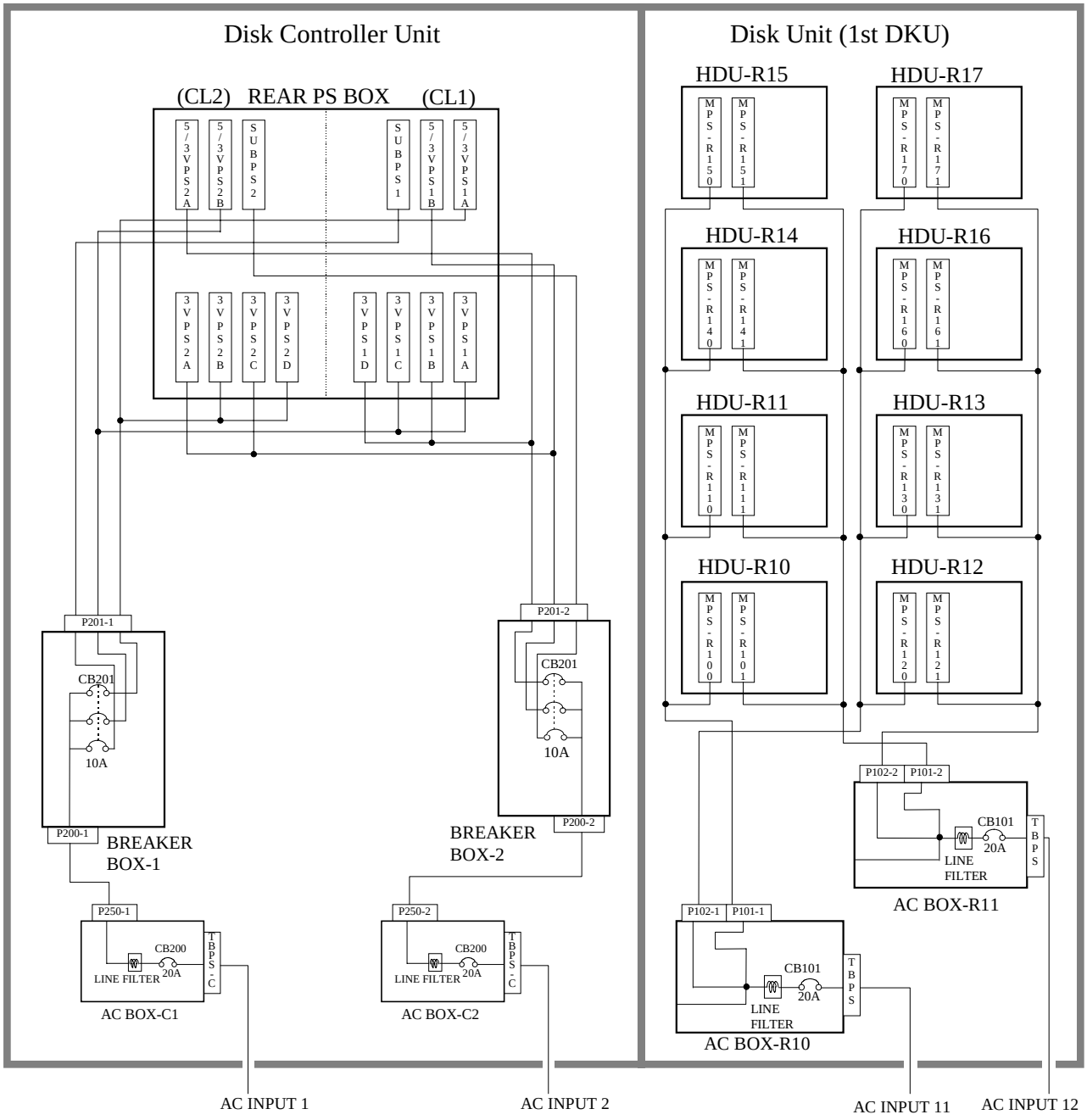


Fig. 3.3.2-2 Connection of POWER SUPPLIES (1/4)

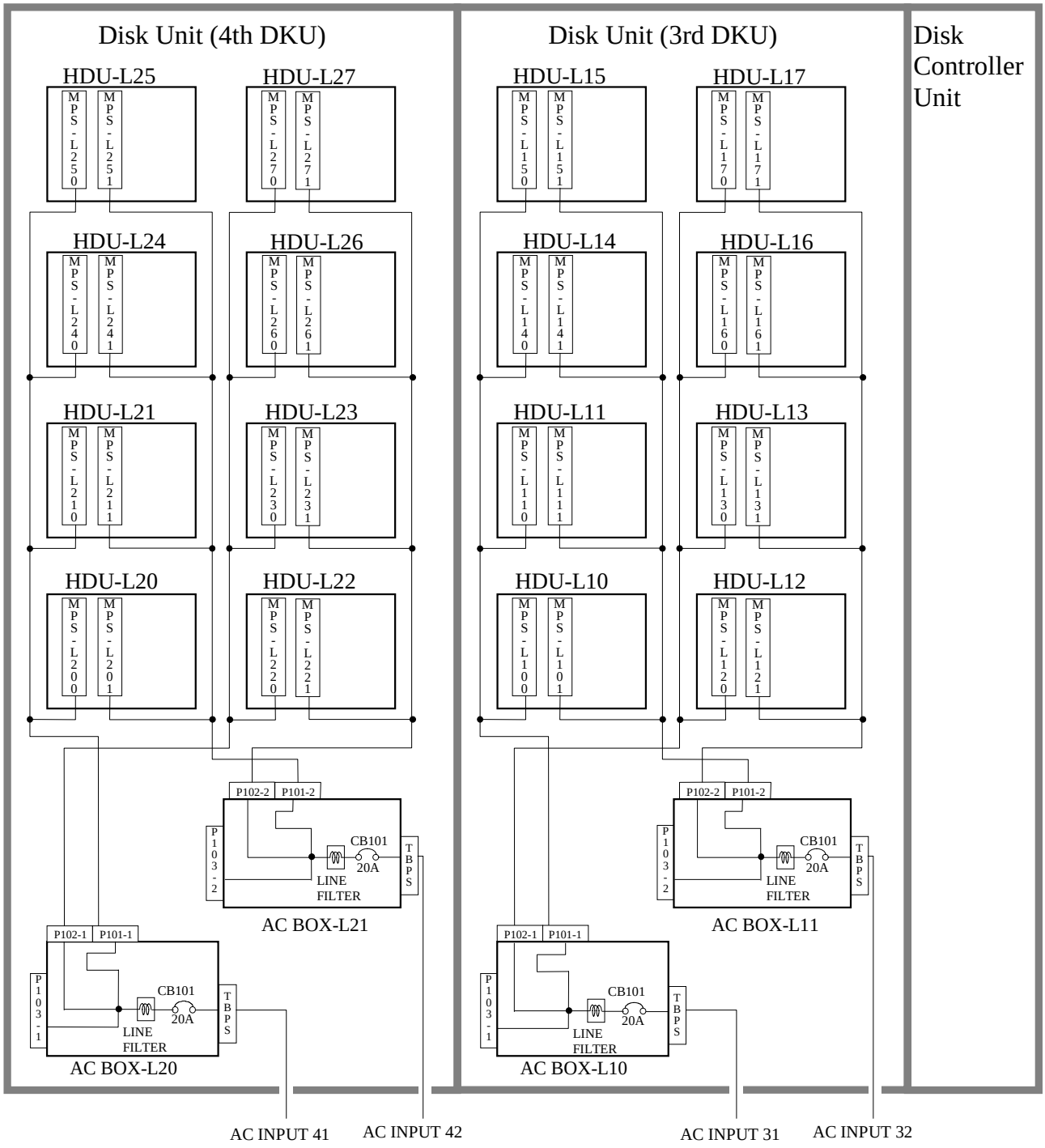


Fig. 3.3.2-3 Connection of POWER SUPPLIES (2/4)

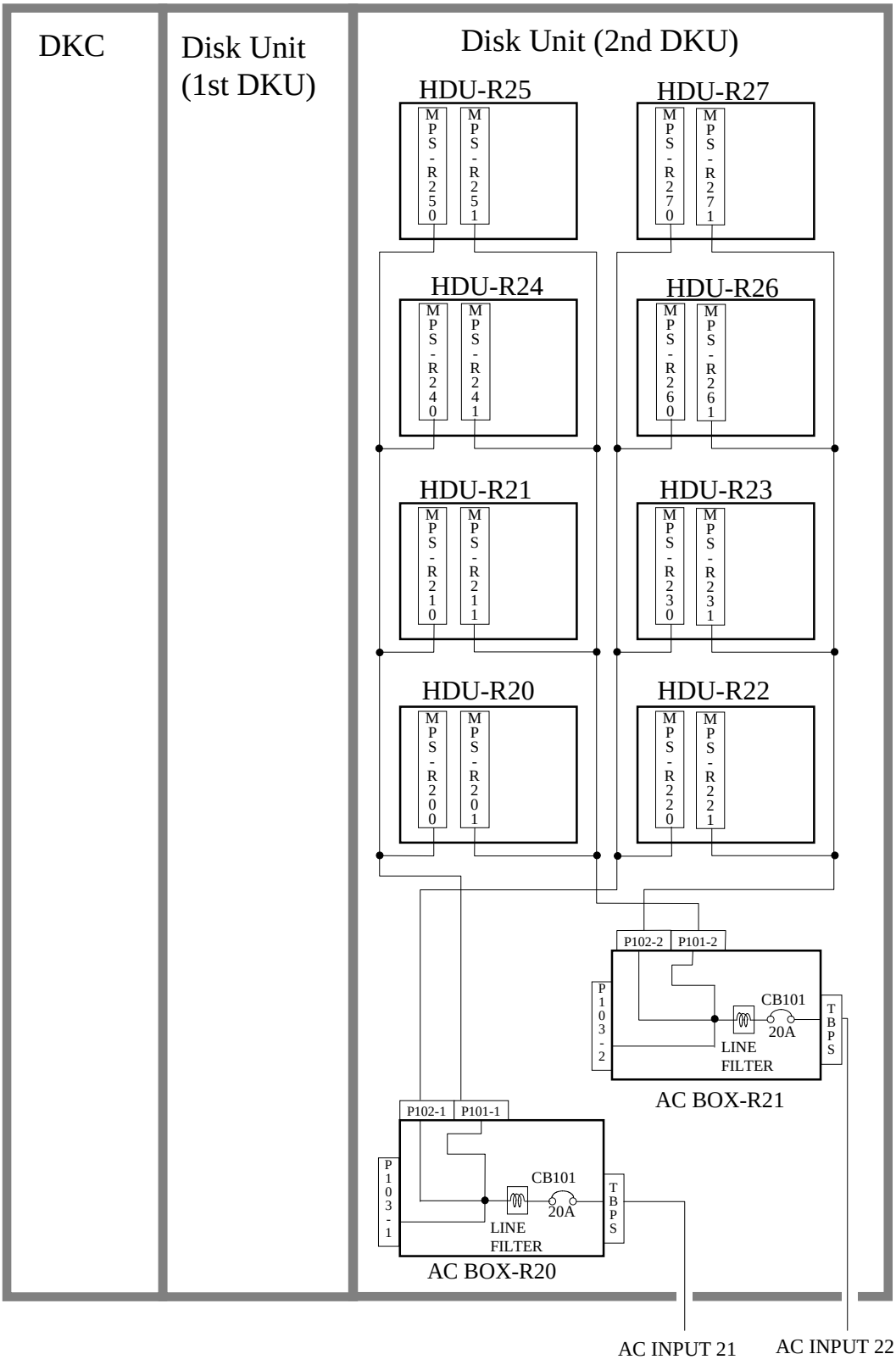


Fig. 3.3.2-4 Connection of POWER SUPPLIES (3/4)

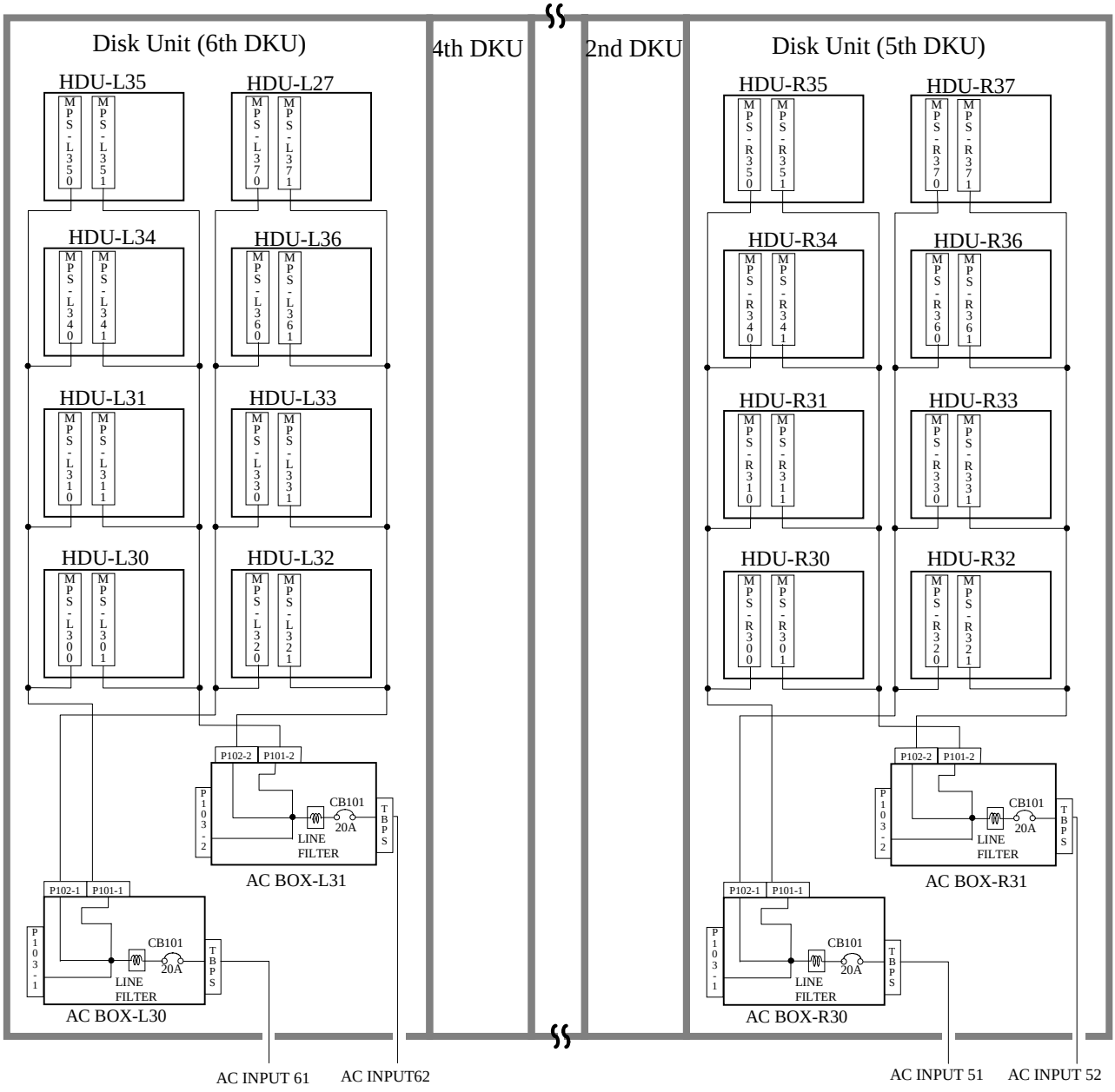


Fig. 3.3.2-5 Connection of POWER SUPPLIES (4/4)

4 Connection of External Cable

4.1 AC Cabling

4.1.1 3 Phase Model for USA

⚠ DANGER

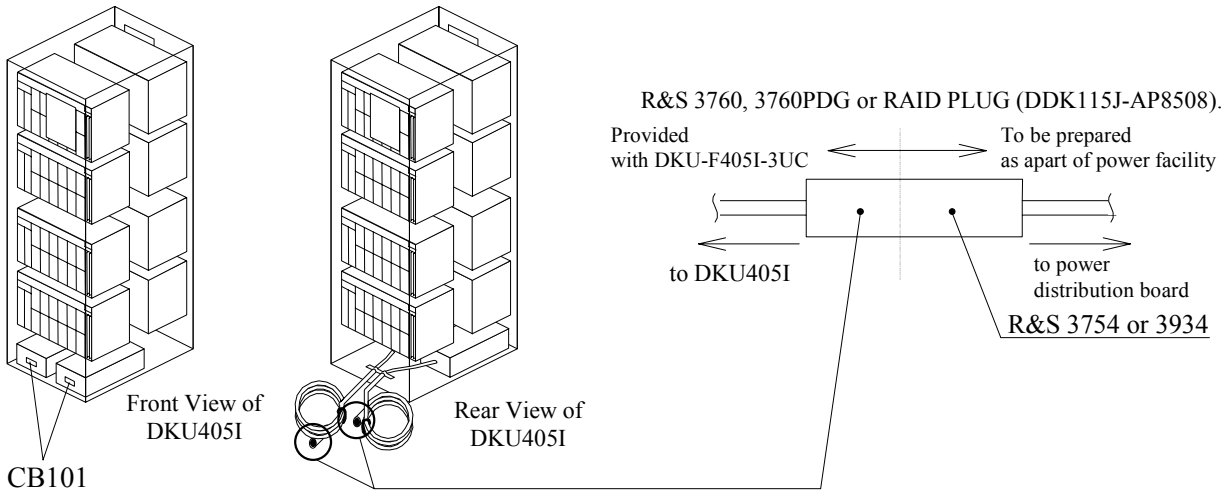
The DKC and the basic DKU commonly have Two Main Disconnect Devices (Two Main Breaker CB101s for Dual Power Lines) so that AC Power of the unit can be supplied from the separate power distribution board with Two Power Supply Cords. Similarly, each of the 2nd DKU, the 3rd DKU, the 4th DKU, the 5th DKU, and the 6th DKU also has Two Main Disconnect Devices. Refer to LOCATION03-80 "Circuit Breakers".
Observe all instructions described in this manual before connecting the equipment to the power source and before servicing.

A. Connection of Power Supply Cord
The unit has two power supply cords with attachment plug type R&S 3760, 3760PDG or RAID PLUG (DDK115J-AP8508). Be sure to prepare the following socket receptacles and power cords between the power distribution board of the building and the attachment plugs for the unit.

Socket Receptacle : R&S 3754 or 3934
Power Cord : Type ST or equivalent, shielded type, with four min. #8 AWG conductors. Terminated at one end with an assembled on above socket receptacle cap.

B. Requirements to Branch Circuit
This unit relies on the building installation for protection of the internal components of the equipment. Each line (R/S/T line) should be protected by a short circuit protective device and by an overcurrent protective device rated 30 amp on building installation.
The protective device on building installation shall comply with the NEC requirements (or CEC requirements when installed in Canada), and if a protective device interrupts a conductor, it shall also interrupt all other supply conductors.
This protection is not required for the neutral line of this unit.

C. Disconnection from Power Supply
Each unit has Two Main Disconnect Device(Two Main Breaker CB101s for Dual Power Lines). To remove all utility power from the unit, turn off both main disconnect device CB101s at the same time.



4.1.2 3 Phase Model for Europe

⚠ DANGER

The DKC and the basic DKU commonly have Two Main Disconnect Devices (Two Main Breaker CB101s for Dual Power Lines) so that AC Power of the unit can be supplied from the separate power distribution board with Two Power Supply Cords. Similarly, each of the 2nd DKU, the 3rd DKU, the 4th DKU, the 5th DKU, and the 6th DKU also has Two Main Disconnect Devices. Refer to LOCATION03-80 "Circuit Breakers".
Observe all instructions described in this manual before connecting the equipment to the power source and before servicing.

A. Connection of Power Supply Cord

The unit has two power supply cords. Be sure to prepare the following socket receptacles and power cords between the power distribution board of the building and the power cords for the unit.

Socket Receptacle : As shown in the following figure.
Power Cord : Type H07RN-F or equivalent, with five 6.0 mm^2 conductors.

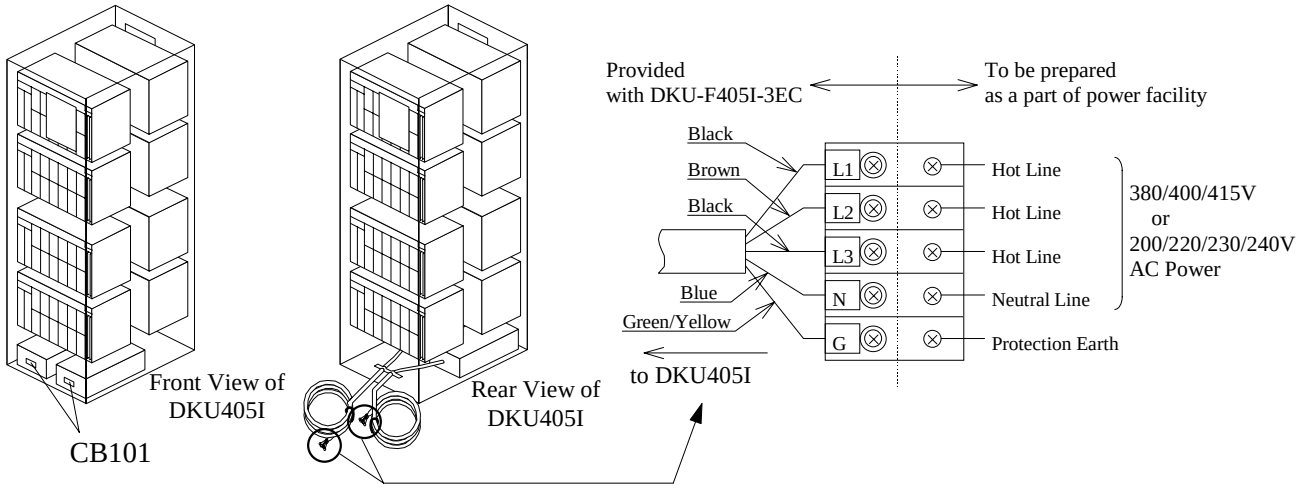
Be sure to connect a power cord to the distribution box as illustrated in the following figure. The wrong connection of neutral line may cause damages or fire of the equipment.
To reduce the risk of wrong connection, you should use approved type attachment plug and socket for power cord connection.
High leakage current may be caused between the power supply and this unit. To avoid an electric shock by high leakage current, perform the protective earthing connection before the supply connections and disconnect it after the supply connections.

B. Requirements to Branch Circuit

This unit relies on the building installation for protection of the internal components of the equipment. Each line (R/S/T line) should be protected by a short circuit protective device and by an overcurrent protective device rated 30 amp on building installation.
The protective device on building installation shall be comply with National Standards of the country where the units shall be installed, and if a protective device interrupts a conductor, it shall also interrupt all other supply conductors.
This protection is also required for the neutral line of this unit.

C. Disconnection from Power Supply

Each unit has Two Main Disconnect Device (Two Main Breaker CB101s for Dual Power Lines). To remove all utility power from the unit, turn off both main disconnect device CB101s at the same time.



4.1.3 Single Phase Model for USA

⚠ DANGER

The DKC has Two Main Disconnect Devices (Two Main Breaker CB200s for Dual Power Lines) so that AC Power of the unit can be supplied from the separate power distribution board with Two Power Supply Cords. Similarly, each of the 1st DKU, the 2nd DKU, the 3rd DKU, the 4th DKU, the 5th DKU, and the 6th DKU also has Two Main Disconnect Devices (Two Main Breaker CB101s for Dual Power Lines). Refer to LOCATION03-130 "Circuit Breakers".
Observe all instructions described in this manual before connecting the equipment to the power source and before servicing.

A. Connection of Power Supply Cord

The unit has two power supply cords with attachment plug type 3720DP. Be sure to prepare the following socket receptacles and power cords between the power distribution board of the building and the attachment plugs for the unit.

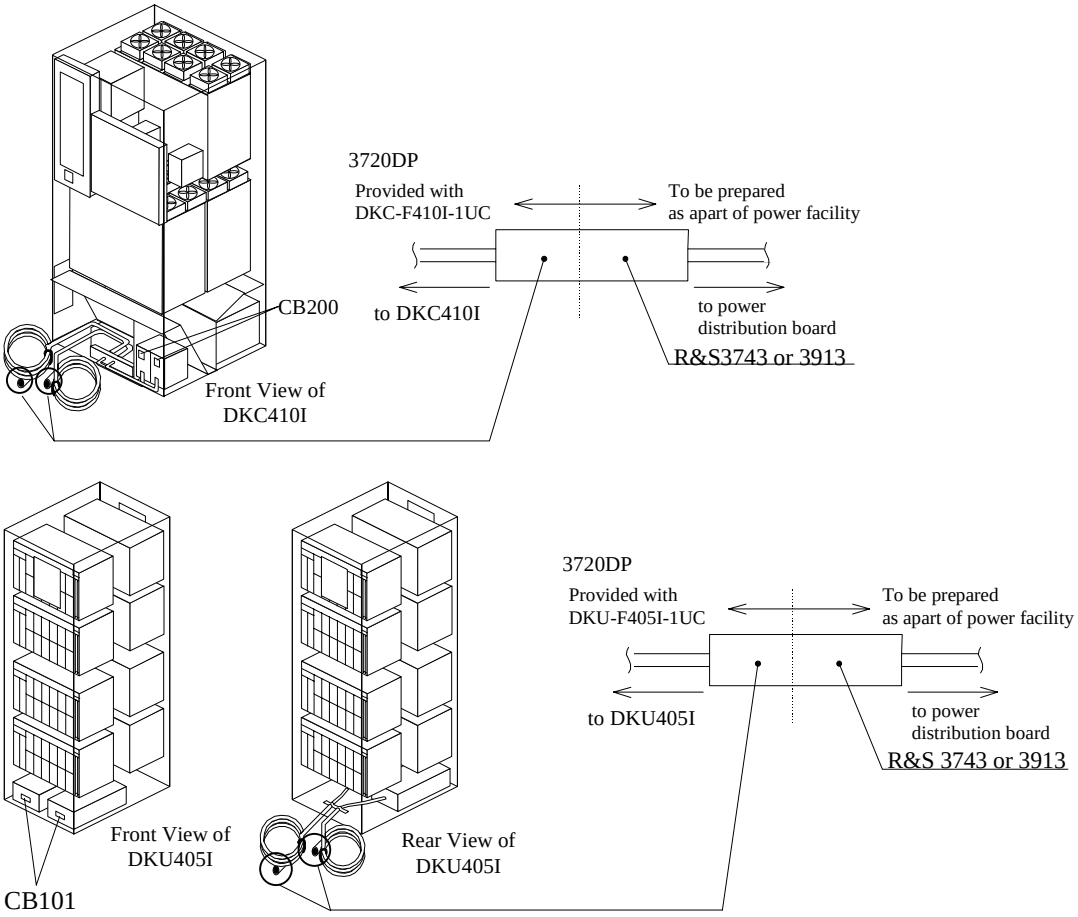
Socket Receptacle : R&S 3743 or 3913
Power Cord : Type SJT or equivalent, non-shielded type, with three min. #10 AWG conductors. Terminated at one end with an assembled on above socket receptacle cap.

B. Requirements to Branch Circuit

This unit relies on the building installation for protection of the internal components of the equipment. Each line (U/L1, V/L2 line) should be protected by a short circuit protective device and by an overcurrent protective device rated 20 amp on building installation.
The protective device on building installation shall comply with the NEC requirements (or CEC requirements when installed in Canada), and if a protective device interrupts a conductor, it shall also interrupt all other supply conductors.
This protection is not required for the neutral line of this unit.

C. Disconnection from Power Supply

DKC has Two Main Disconnect Device (Two Main Breaker CB200s for Dual Power Lines). Each DKU has Two Main Disconnect Device (Two Main Breaker CB200s for Dual Power Lines). To remove all utility power from the unit, turn off both main disconnect device CB200s and CB101s at the same time.



4.1.4 Single Phase Model for Europe

⚠ DANGER

The DKC has Two Main Disconnect Devices (Two Main Breaker CB200s for Dual Power Lines) so that AC Power of the unit can be supplied from the separate power distribution board with Two Power Supply Cords. Similarly, each of the 1st DKU, the 2nd DKU, the 3rd DKU, the 4th DKU, the 5th DKU, and the 6th DKU also has Two Main Disconnect Devices (Two Main Breaker CB101s for Dual Power Lines). Refer to LOCATION03-130 "Circuit Breakers".
Observe all instructions described in this manual before connecting the equipment to the power source and before servicing.

A. Connection of Power Supply Cord

The unit has two power supply cords. Be sure to prepare the following socket receptacles and power cords between the power distribution board of the building and the power cords for the unit.

Socket Receptacle : As shown in the following figure.
Power Cord : Type H07RN-F or equivalent, with five 2.5 mm^2 conductors.

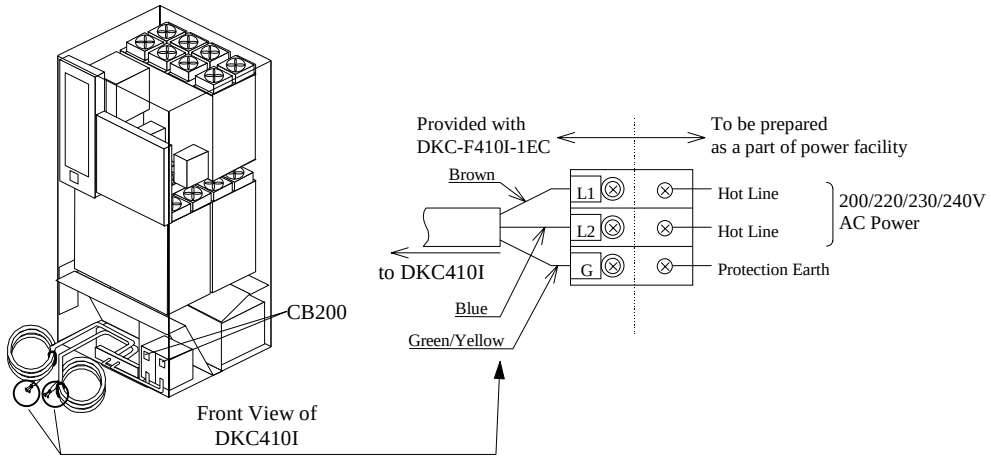
Be sure to connect a power cord to the distribution box as illustrated in the following figure. The wrong connection of neutral line may cause damages or fire of the equipment.
To reduce the risk of wrong connection, you should use approved type attachment plug and socket for power cord connection.
High leakage current may be caused between the power supply and this unit. To avoid an electric shock by high leakage current, perform the protective earthing connection before the supply connections and disconnect it after the supply connections.

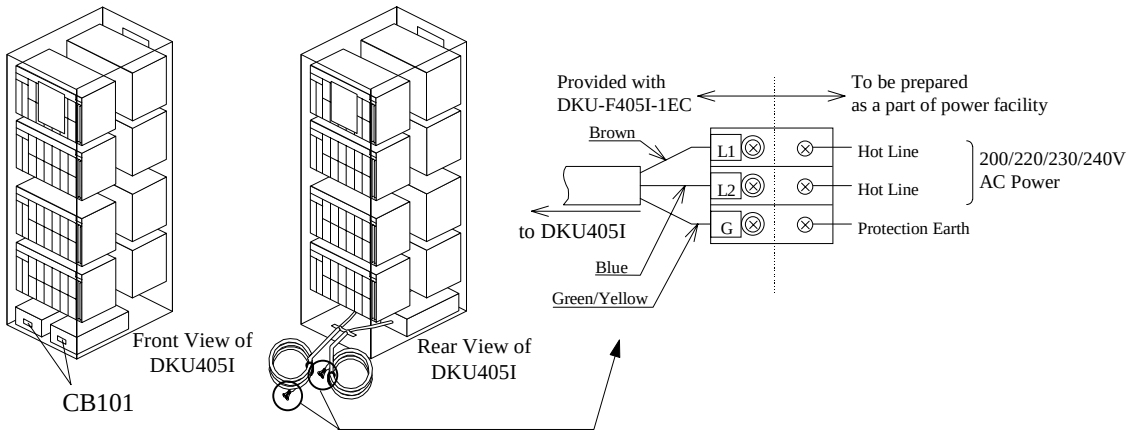
B. Requirements to Branch Circuit

This unit relies on the building installation for protection of the internal components of the equipment. Each line (U/L1, V/L2 line) should be protected by a short circuit protective device and by an overcurrent protective device rated 20 amp on building installation.
The protective device on building installation shall be comply with National Standards of the country where the units shall be installed, and if a protective device interrupts a conductor, it shall also interrupt all other supply conductors.
This protection is also required for the neutral line of this unit.

C. Disconnection from Power Supply

DKC has Two Main Disconnect Device (Two Main Breaker CB200s for Dual Power Lines).
Each unit has Two Main Disconnect Device (Two Main Breaker CB101s for Dual Power Lines).
To remove all utility power from the unit, turn off both main disconnect device CB200s and CB101s at the same time.





4.2 Channel Interface

Table 4.2-1 shows the interface connector panel locations.

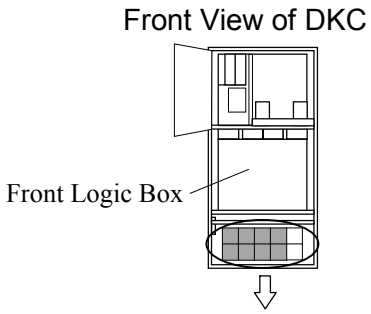
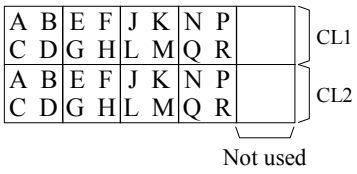
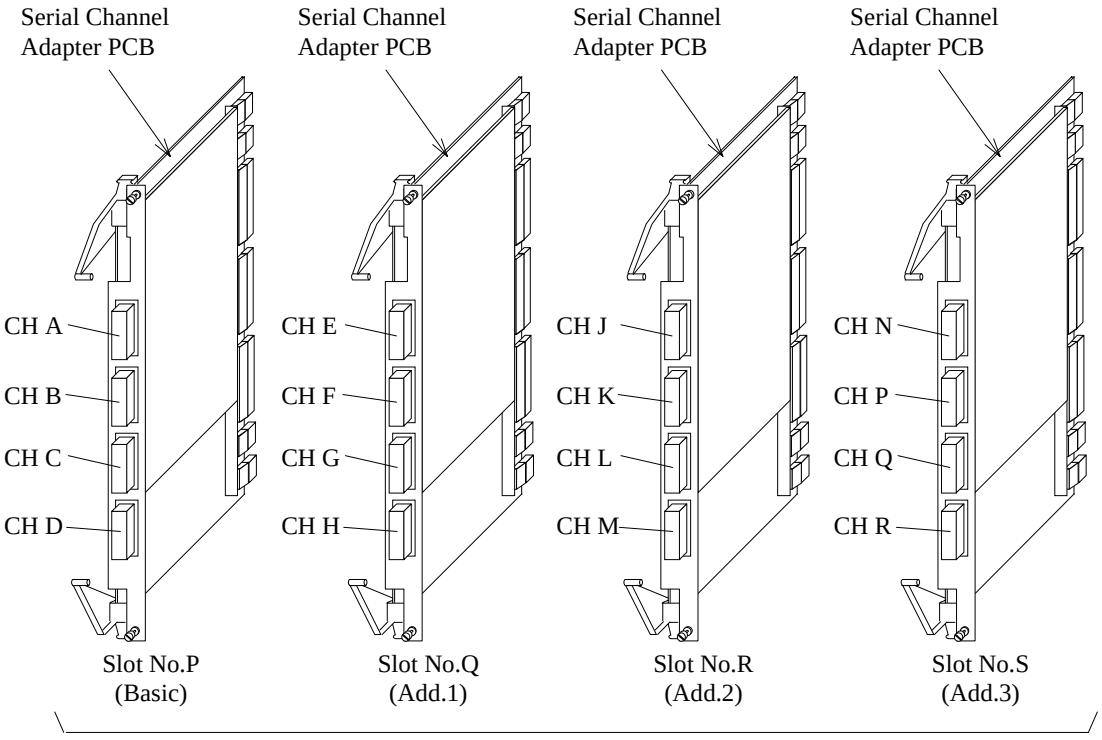


Table 4.2-1 The Mounting Location of Channel Options

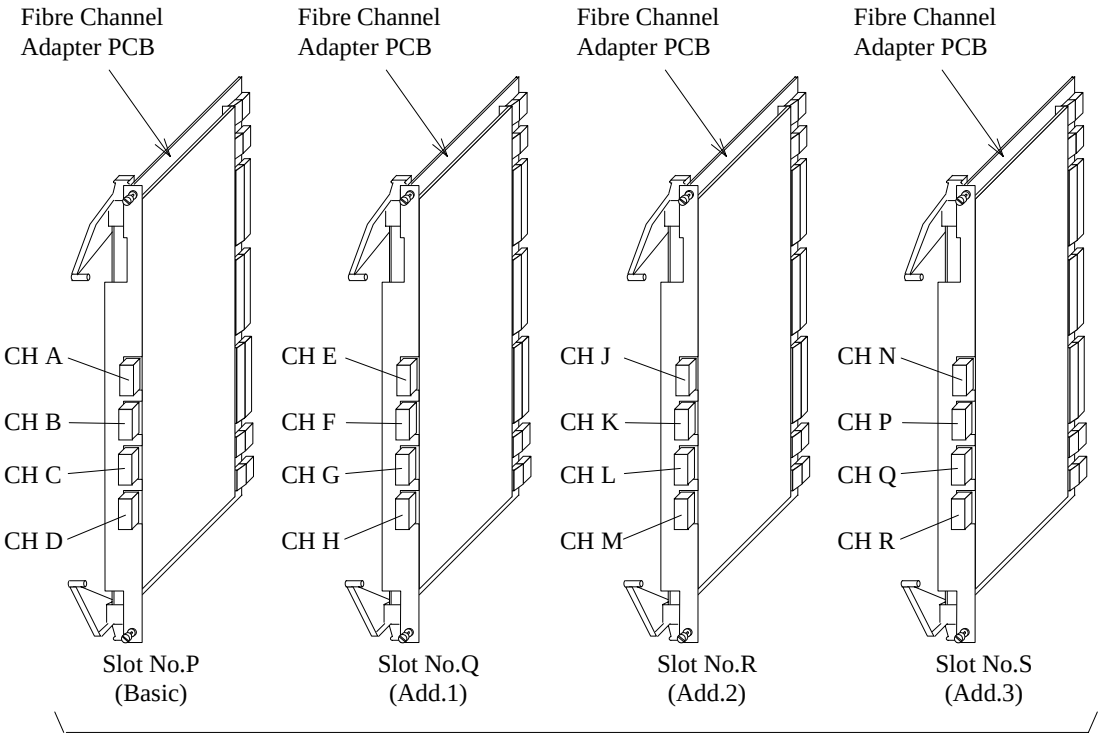
Case	Location				Number of Channel Ports	I/F Connector Panel Location and Channel No.
	Basic	Add.1	Add.2	Add.3		Front View of DKC
1	○	○	○	○	32	

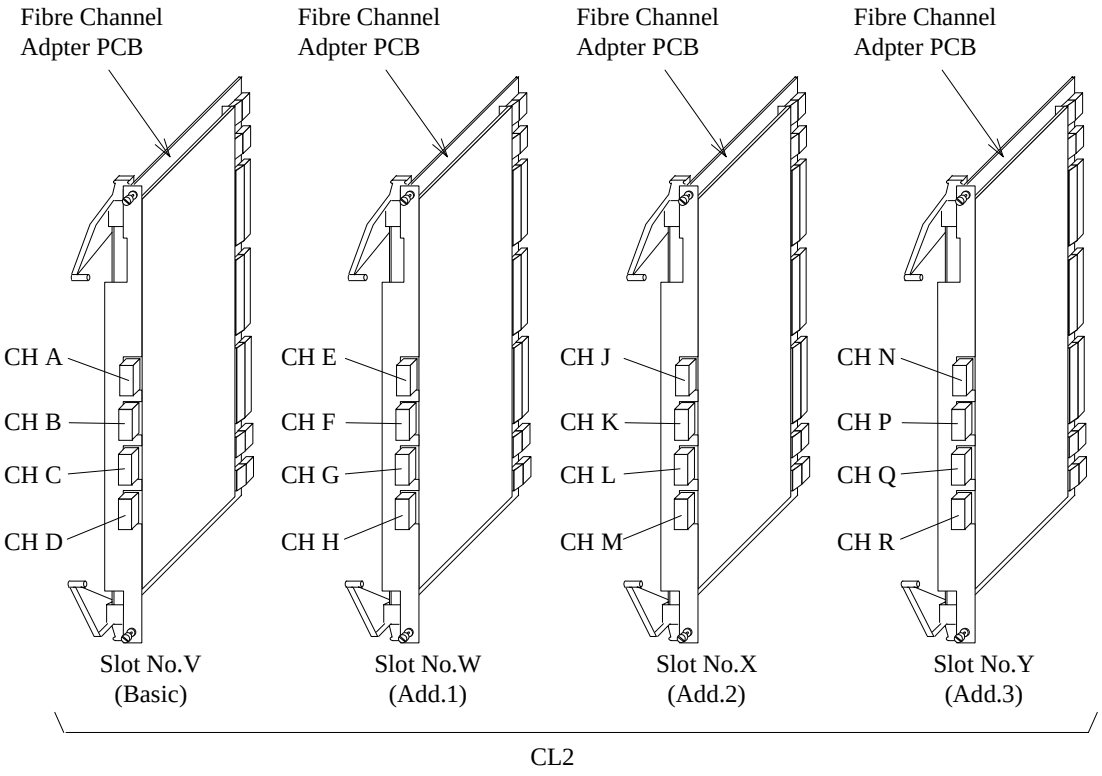
— : Uninstallable
○ : F8S/4S/4GS/8GS/4GL/8GL/8GSE/8GLE/8HSE/4MS/4ML
A-R : Channel No.

[1] Serial Channel Interface

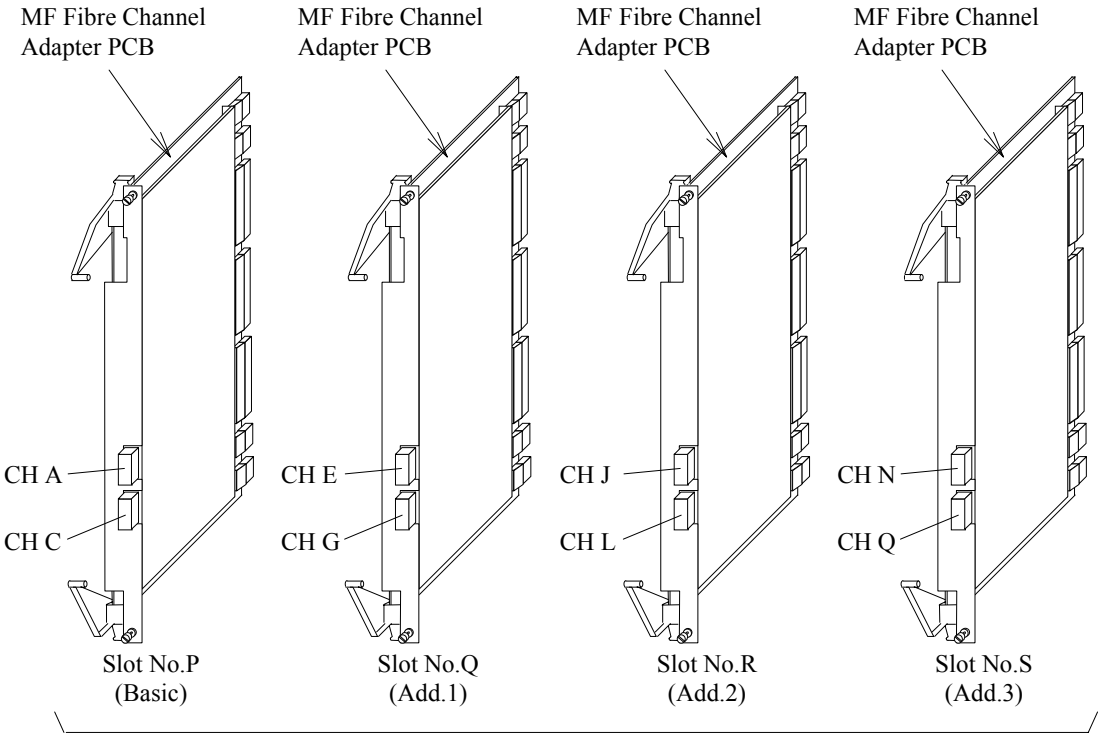


[2] Fibre Channel Interface

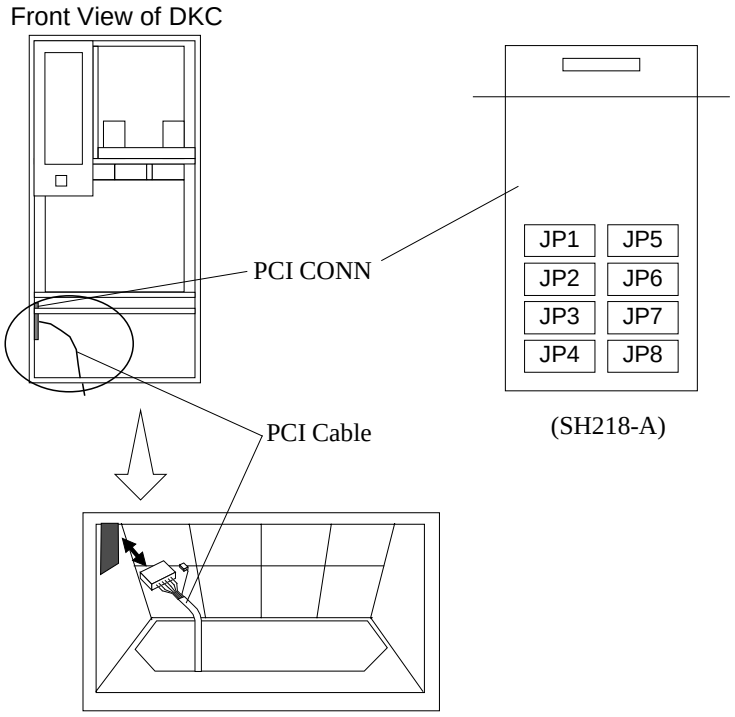




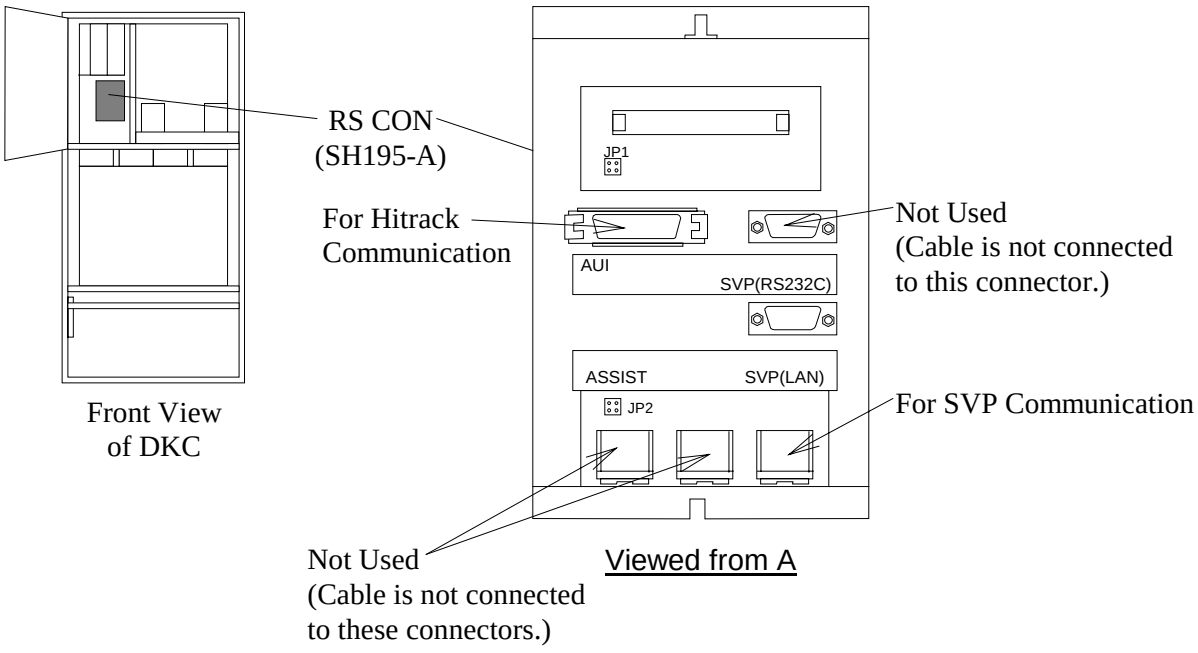
[3] Mainframe Fibre Channel Interface



4.3 PCI Cabling



4.4 RS CON Interface



5 Internal Cabling Block Diagram

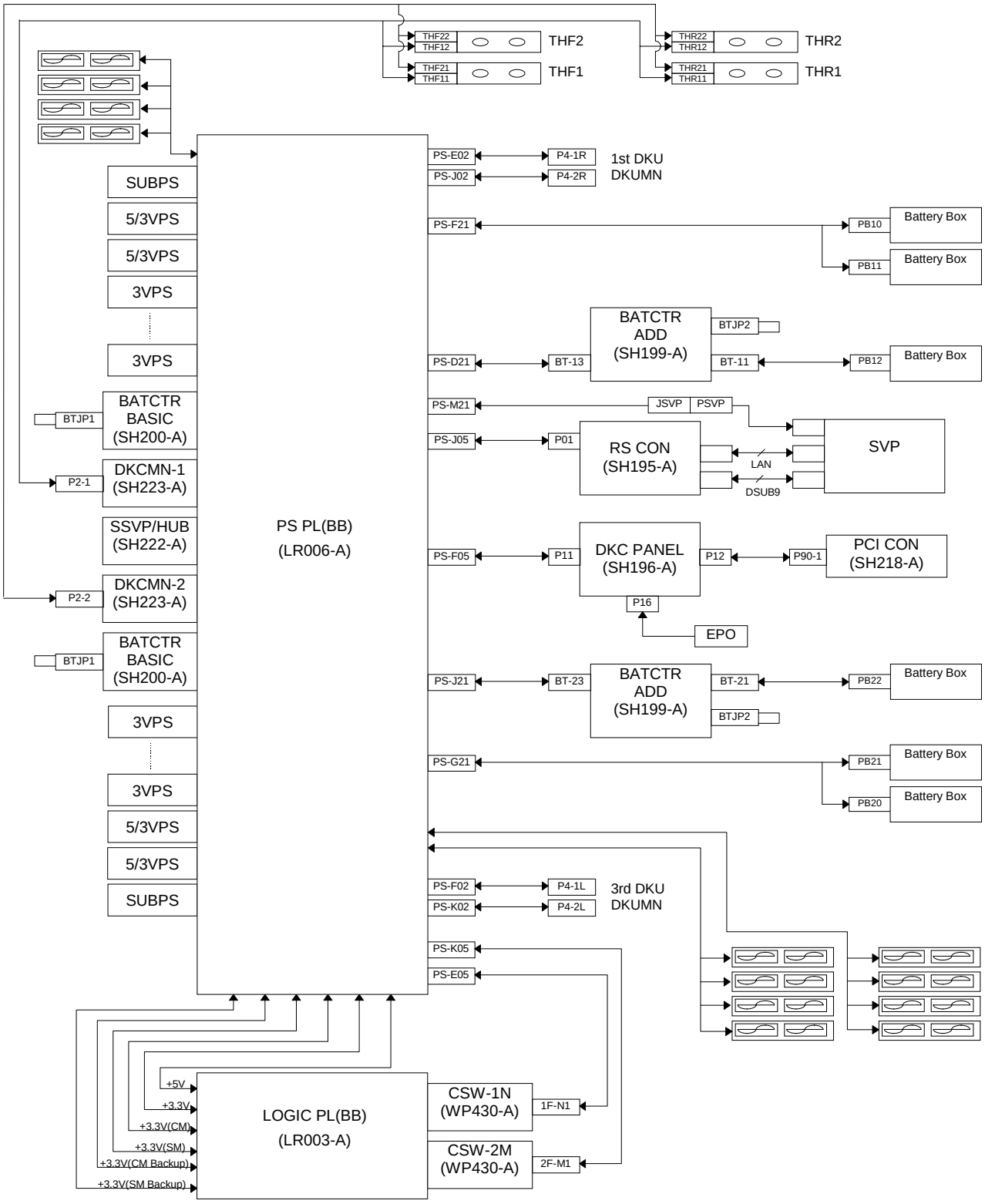


Fig. 5-1 Subsystem Internal Cabling Diagram ①

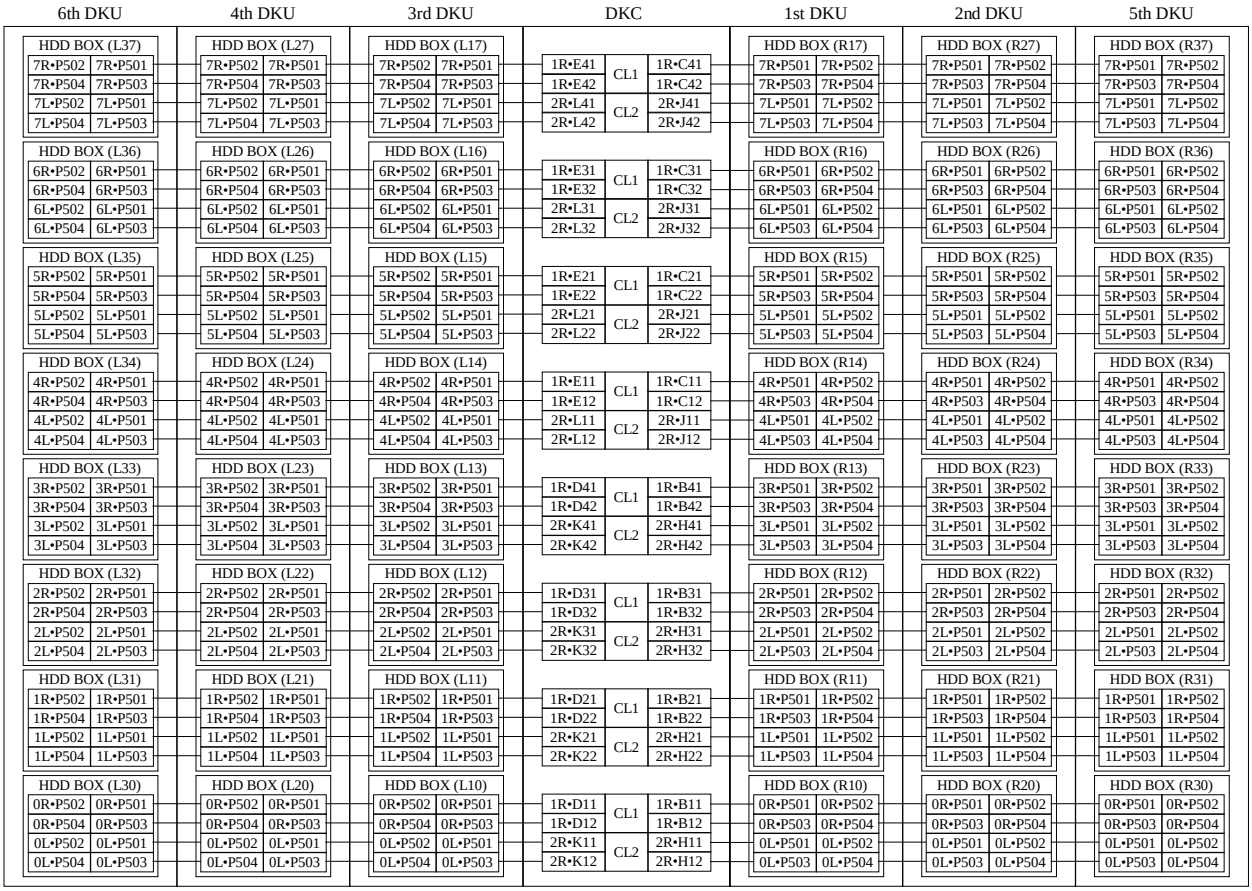


Fig. 5-2 Subsystem Internal Cabling Diagram ②

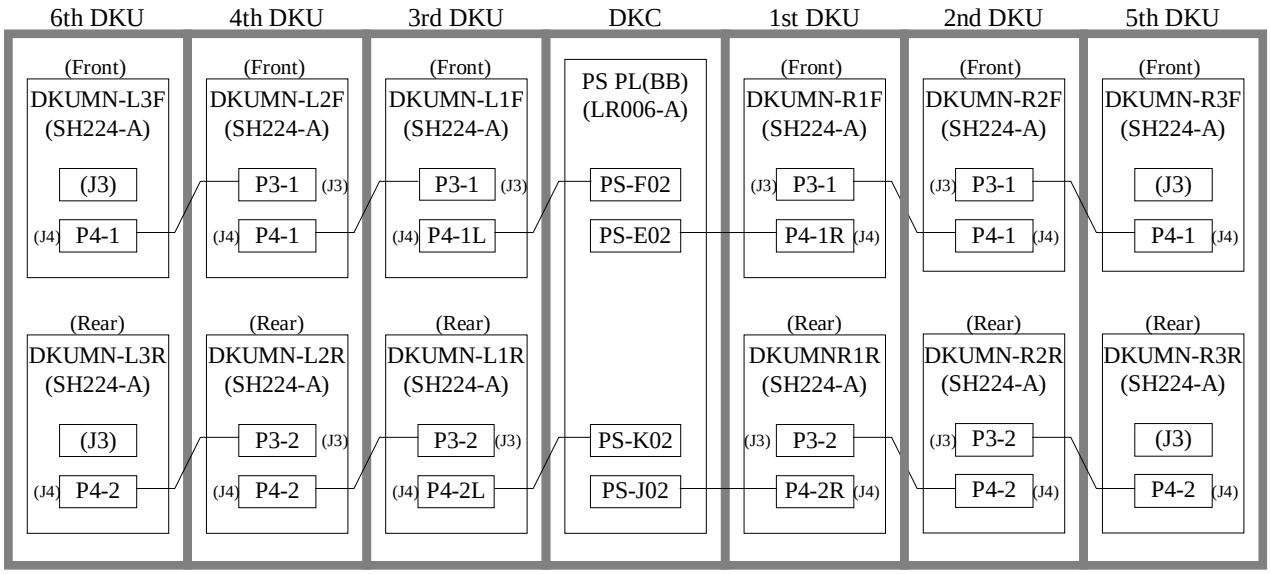


Fig. 5-3 Subsystem Internal Cabling Diagram ③

DKC-F410I-4S/8S

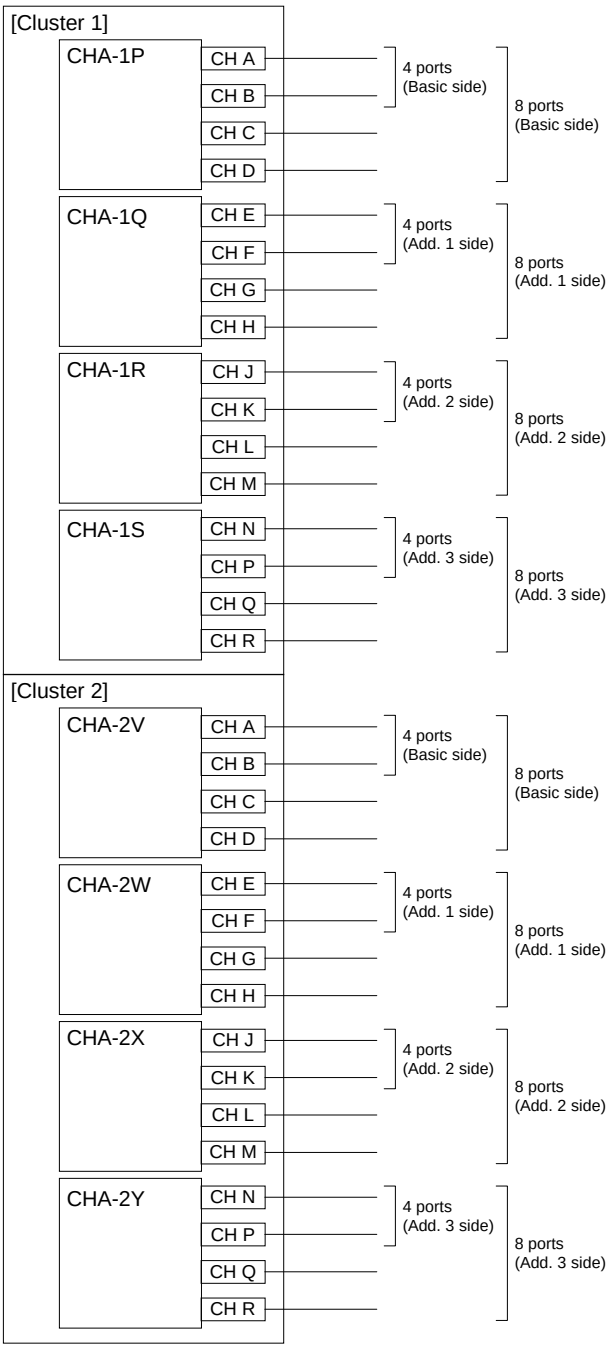


Fig. 5-4 Subsystem Internal Cabling Diagram ④

DKC-F410I-4GS/8GS/4GL/8GL/8GSE/8GLE/8HSE/4MS/4ML

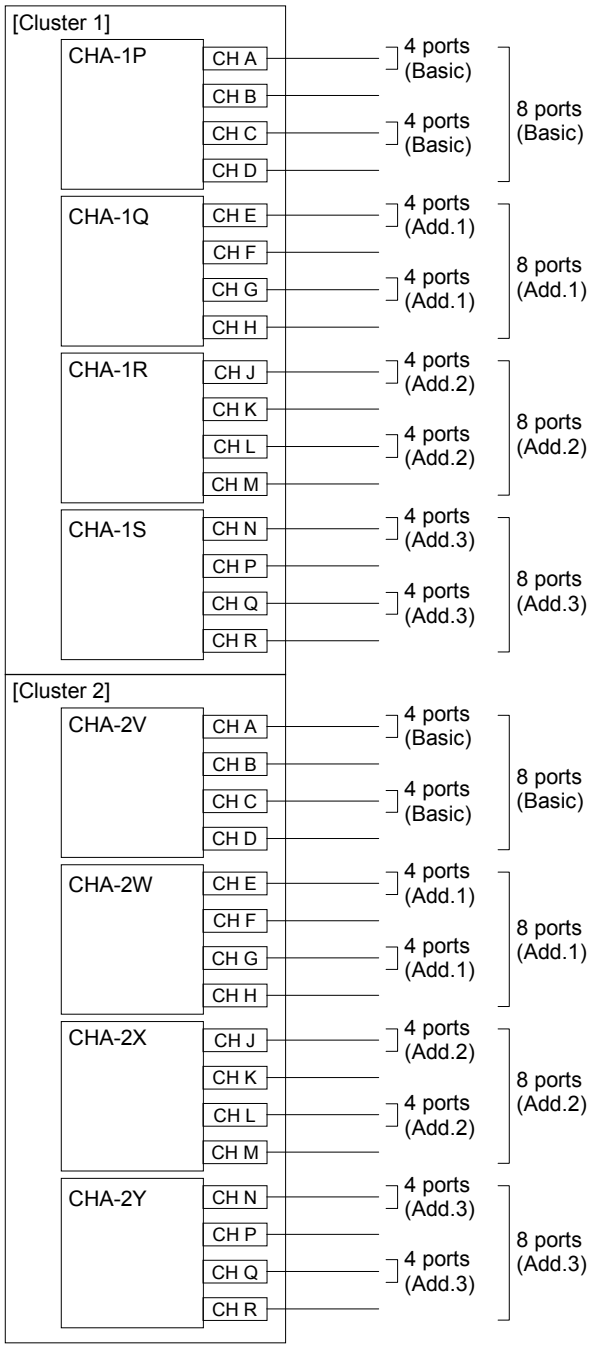


Fig. 5-5 Subsystem Internal Cabling Diagram ⑤

6 Jumper Setting

6.1 Shut Down Jumpers

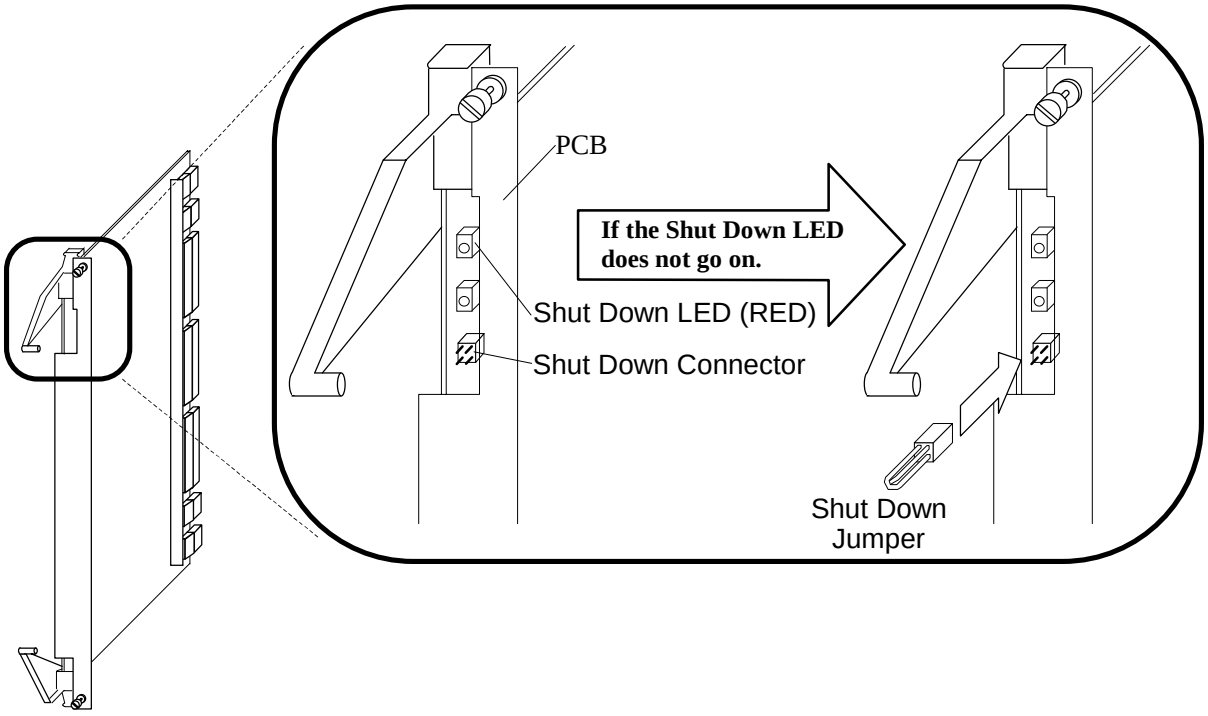
[1] Front or Rear Logic Box
Check that the Shut Down LED is turned on. If not, connect the Shut Down Jumper to the Shut Down Connector. (Only hot replace procedure)

⚠ CAUTION

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

Table 6.1 Shut Down Jumpers List

No.	Function Name	Function	Remarks
1	Channel Adapter	Shut down jumper	
2	Disk Adapter		
3	Cache		
4	CSW		

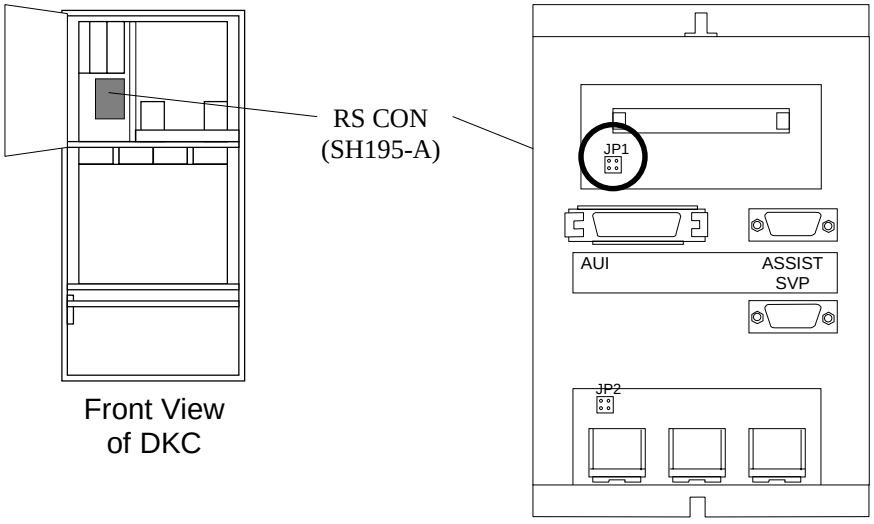


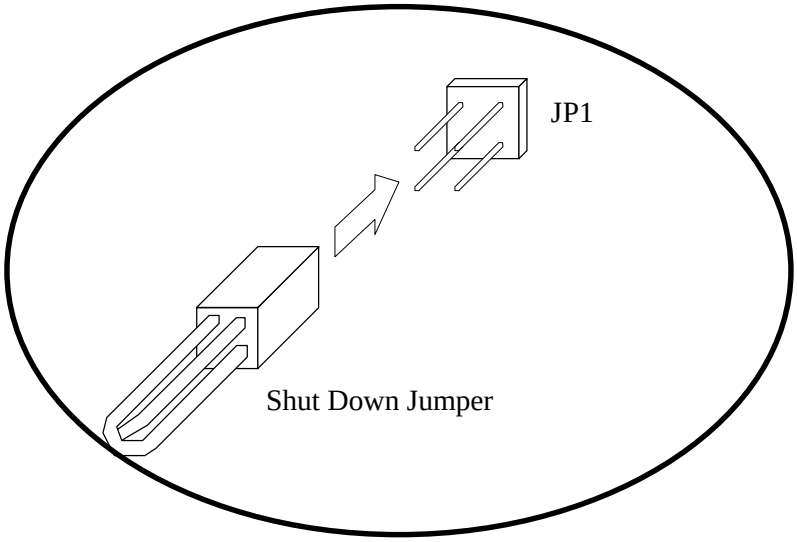
[2] RS CON

⚠ CAUTION

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

Function Name	Jumper No.	Setting	Remarks
RS CON	JP1	The SVP is powered off forcibly by inserting the Shut Down Jumper.	Label : SD



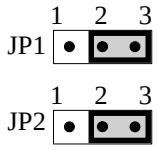
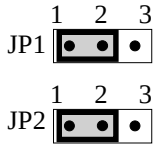


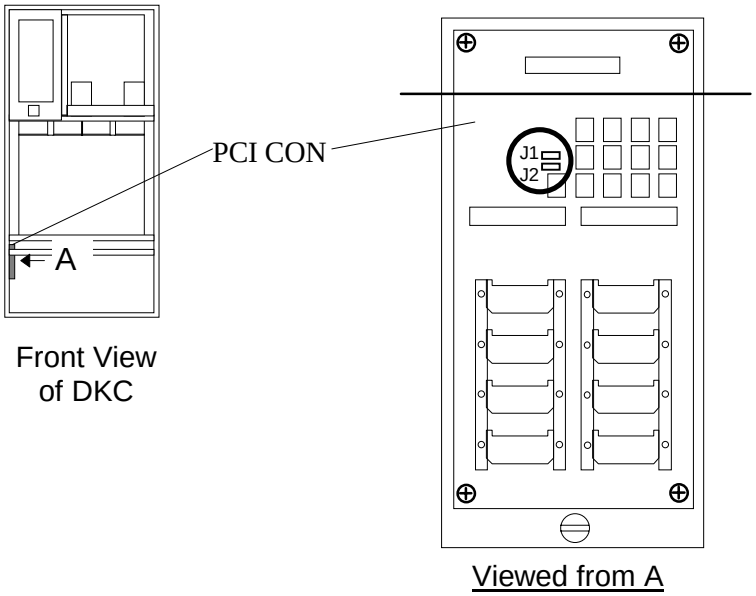
6.2 Other Jumpers

Table 6.2 Jumper Stetting List

No.	Function Name	Jumper No.	Settings	Remarks
1	PCI CON	J1	EPO signal	
		J2	EPO signal	
2	RS CON	JP1	Shut Down Jumper	Refer to page LOCATION06-20.
		JP2	SVP PS ON/OFF INH Jumper	
3	BAT CTR	–	Jumper connector (BTJP)	
4	DKC PANEL	JP1	Not used	
		JP2	Alarm INH Jumper (AI)	
		JP3	Not used	
		JP4	Not used	
5	DKCMN	JP1	DKC Panel INH Jumper	
6	SUB PS	–	Output Voltage	
7	DKUMN	JP01	Specification of address number	
		JP02	Voltage Alarm for Additional Platform	
		JP05	Path Address for FSW PCB	
8	HDU Box	JP1,JP2,JP3	Specification of PL ID	

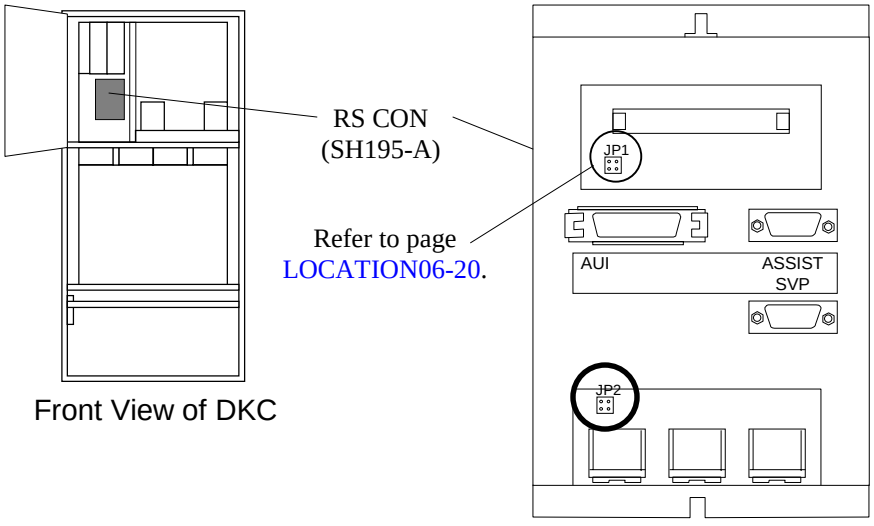
[1] PCI CON

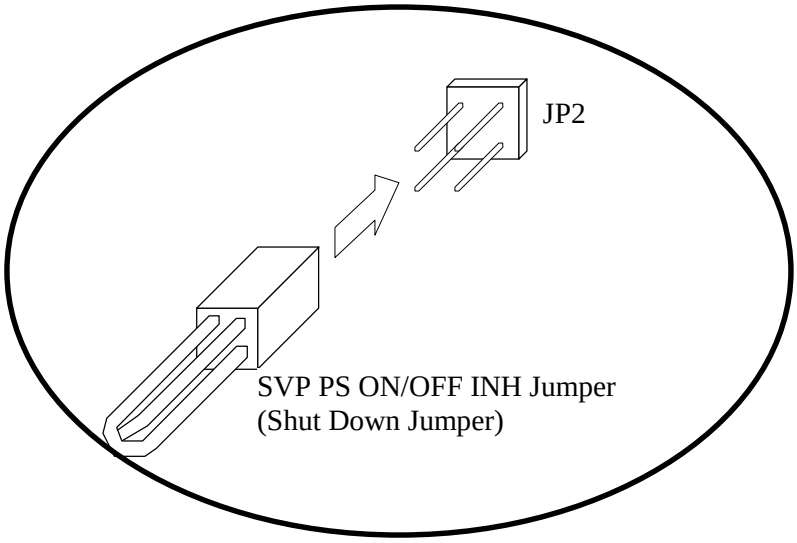
Function Name	Setting	J1 and J2 Setting
PCI CON	When power is controlled from the host (at least one PCI cable attached to JP1-JP8 on PCI CON PCB), set the jumpers as shown.	
	When power is not controlled from the host, no PCI Cable attached to JP1-JP8 PCI CON PCB or to disable the EPO of host, set the jumpers as shown.	



[2] RS CONN

Function Name	Jumper No.	Setting	Remarks
RS CON	JP2	The SVP Power ON/OFF Function of SVP/HUB is inhibited by inserting SVP PS ON/OFF INH Jumper.	Label : SD





[3] BAT CTR

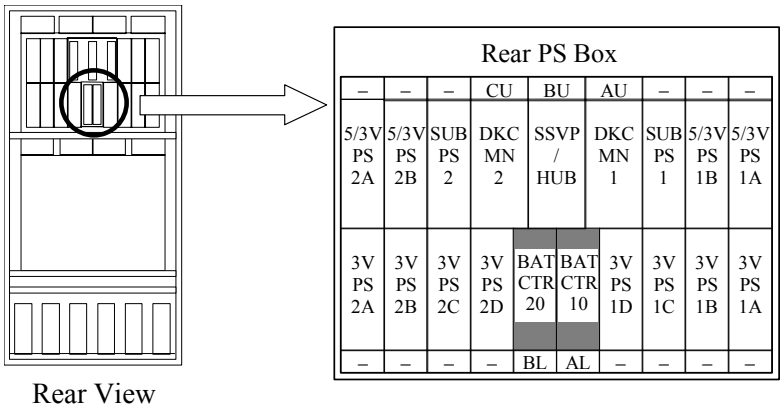
This jumper is set in order to validate the battery for backing up data on the cache memory and shared memory when an AC power failure occurs.

Table 6.3 Backup Duration Time for Each Memory

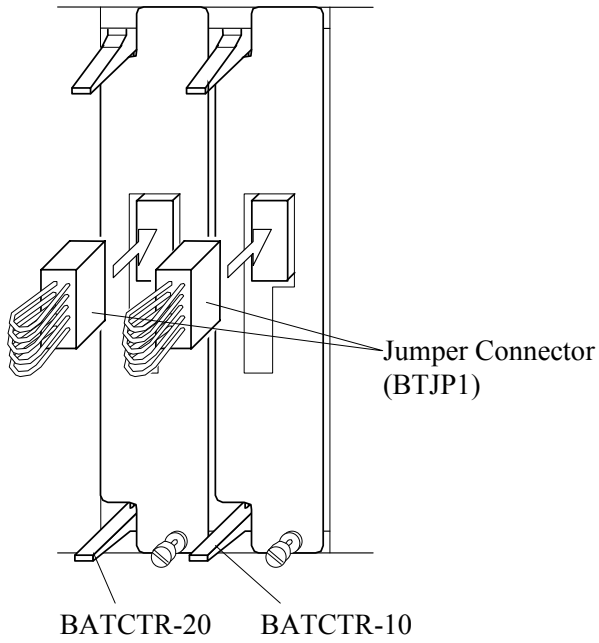
No.	Memory to be backed up	Maximum backup duration time
1	Shared Memory	168 hours (seven days)
2	Cache Memory	48 hours (two days)

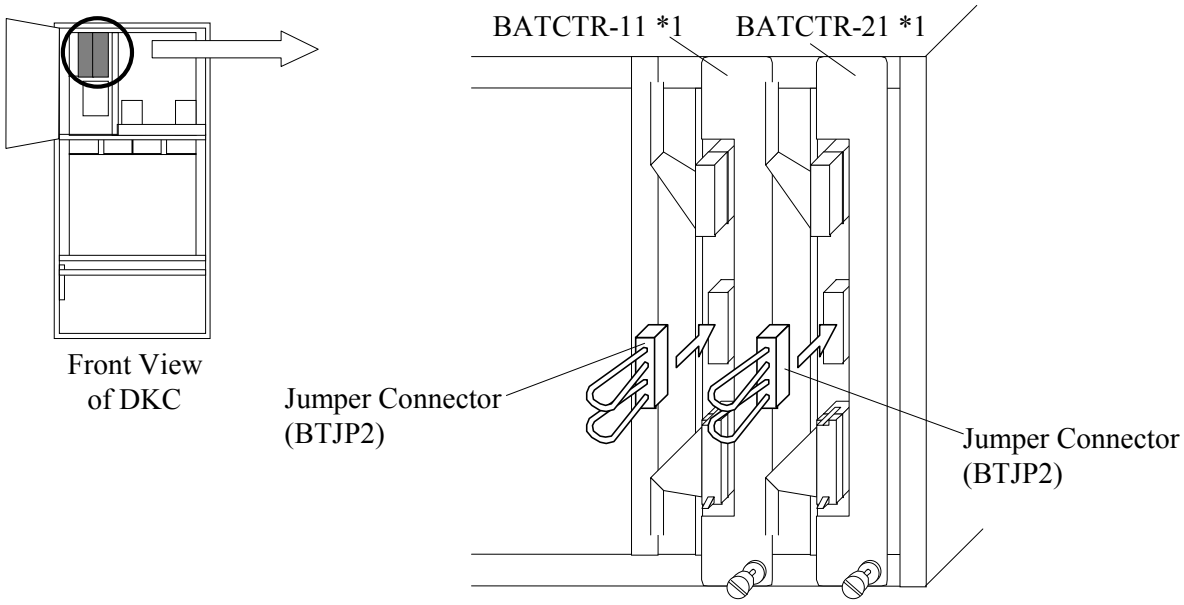
Caution: When the battery jumper is not set, data on the cache memory and shared memory are not assured when an power failure occurs. As a result, all the data on the cache memory and shared memory are lost causing a destruction of user data.
Be sure to set the battery jumper.

Notice: When the subsystem power is to be turned off for longer than 48 hours, the battery jumper must be removed to protect the battery from deterioration. In this case, remove the battery jumper after making sure that the powering off process of the subsystem has been completed normally.



Rear View of DKC

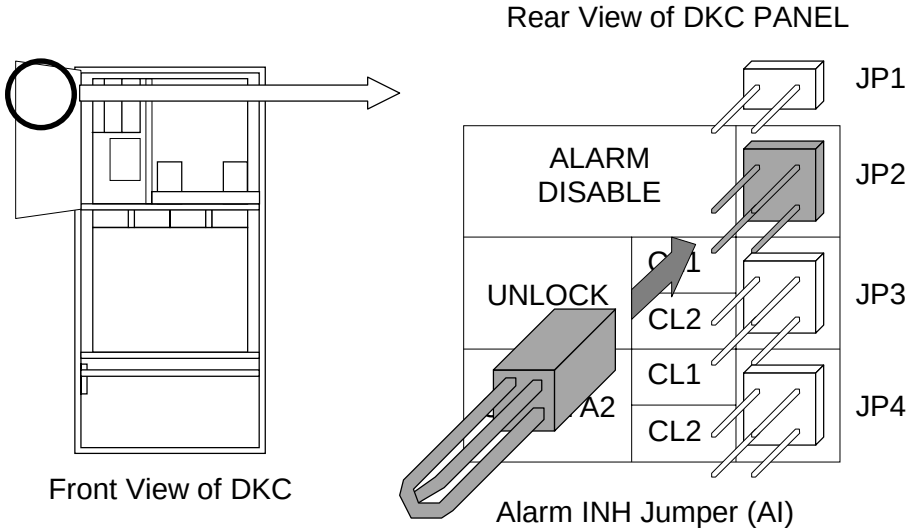




*1 DKC-F410I-20 or DKC-F410I-22

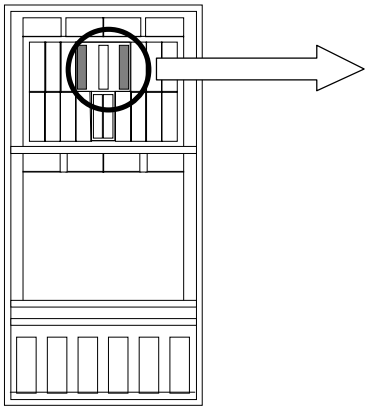
[4] DKC PANEL

Function Name	Jumper No.	Setting	Remarks
DKC PANEL	JP1	Not used	
	JP2	The voltage and thermal alarm signals are inhibited by inserting alarm INH jumper.	Label : AI
	JP3	Not used	
	JP4	Not used	

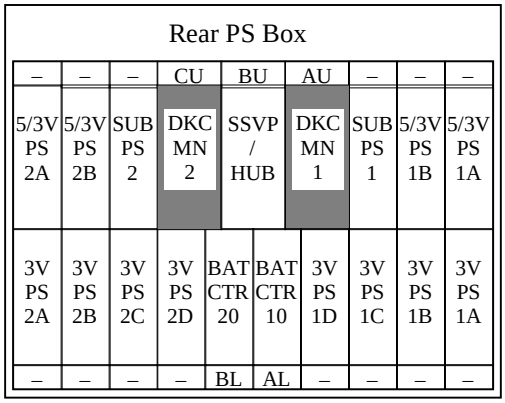


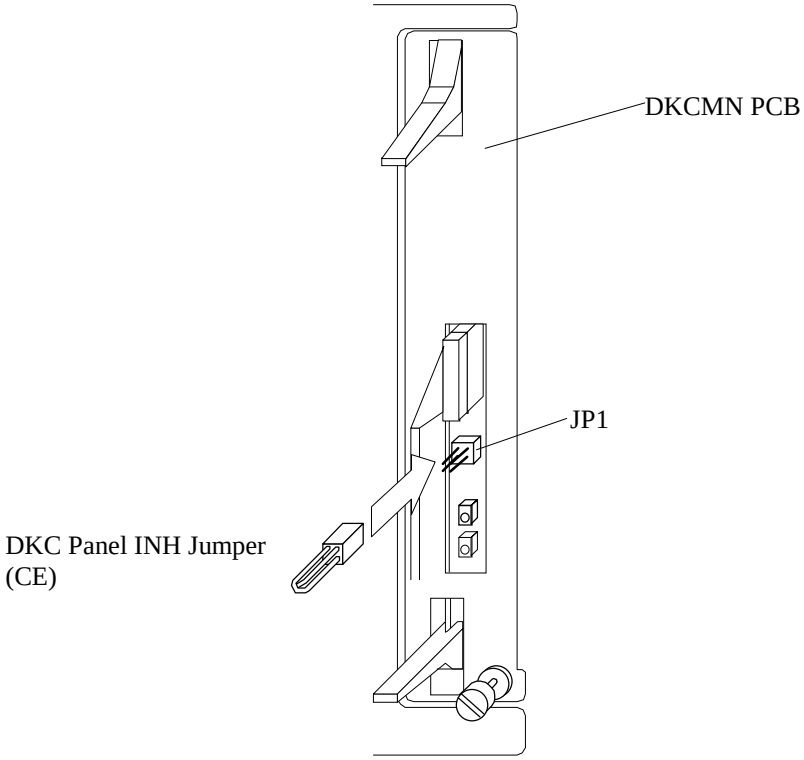
[5] DKCMN

Function Name	Jumper No.	Setting	Remarks
DKCMN1 or DKCMN2	JP1	The Power ON/OFF function is inhibited by inserting DKC panel INH jumper.	Label: CE

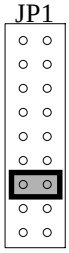


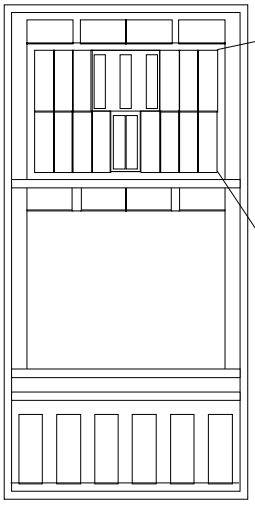
Rear View of DKC





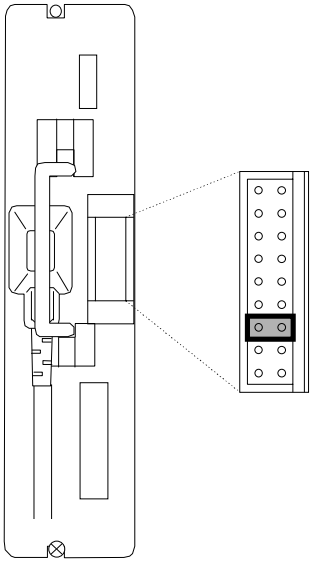
[6] SUB PS

Function Name	Jumper No.	Setting	JP1 Setting
SUBPS 1 or SUBPS 2	JP1	By setting these jumper pins output voltage of the SUB PS to be supplied to the SVP is determined.	JP1 



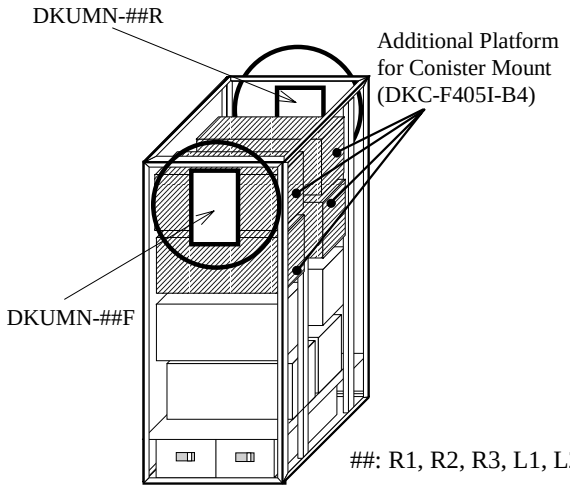
–	–	–	CU	BU		AU	–	–	–
5/3V PS 2A	5/3V PS 2B	SUB PS 2	DKC MN 2	SSVP / HUB		DKC MN 1	SUB PS 1	5/3V PS 1B	5/3V PS 1A
3V PS 2A	3V PS 2B	3V PS 2C	3V PS 2D	BAT CTR 20	BAT CTR 10	3V PS 1D	3V PS 1C	3V PS 1B	3V PS 1A
–	–	–	–	BL	AL	–	–	–	–

Rear View of DKC



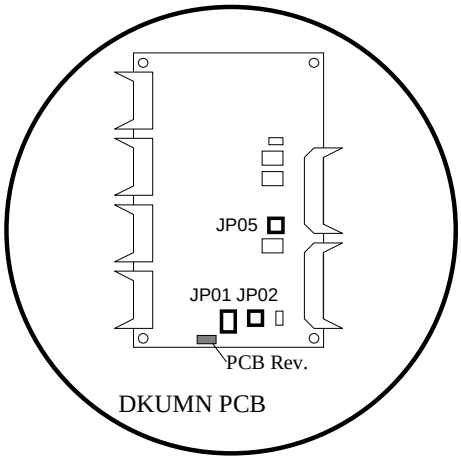
SUBPS

[7] DKUMN



Front View of DKU

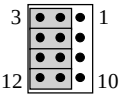
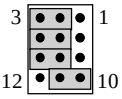
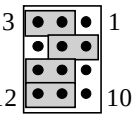
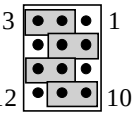
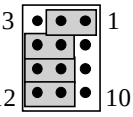
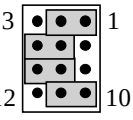
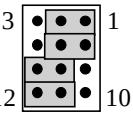
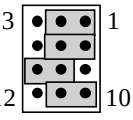
##: R1, R2, R3, L1, L2, L3



DKUMN PCB

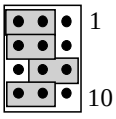
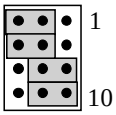
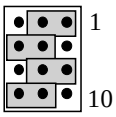
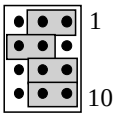
Note: In the DKUMN PCB Rev. A/E and later A/E, jumper plugs setting are not require, because jumper connector (JP05) is not located on the DKUMN PCB.

JP01: Specification of Address Number

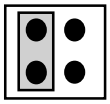
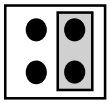
Setting	Function Name	Location	JP01 Setting
Specification of Address Number	DKUMN-R1F	Front of 1st DKU	
	DKUMN-R1R	Rear of 1st DKU	
	DKUMN-R2F	Front of 2nd DKU	
	DKUMN-R2R	Rear of 2nd DKU	
	DKUMN-L1F	Front of 3rd DKU	
	DKUMN-L1R	Rear of 3rd DKU	
	DKUMN-L2F	Front of 4th DKU	
	DKUMN-L2R	Rear of 4th DKU	

(To be continued)

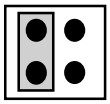
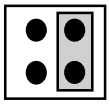
(Continued from the preceding page)

Setting	Function Name	Location	JP01 Setting
Specification of Address Number	DKUMN-R3F	Front of 5th DKU	
	DKUMN-R3R	Rear of 5th DKU	
	DKUMN-L3F	Front of 6th DKU	
	DKUMN-L3R	Rear of 6th DKU	

JP02: Voltage Alarm for Additional Platform

Function Name	Setting	Location	JP02 Setting
DKUMN-##F	No Additional Platform for Canister Mount (DKU-F405I-B4) Installed (Four HDU Boxes)	Front of DKU	
DKUMN-##R		Rear of DKU	
DKUMN-##F	Additional Platform for Canister Mount (DKU-F405I-B4) Installed (Eight HDU Boxes)	Front of DKU	
DKUMN-##R		Rear of DKU	

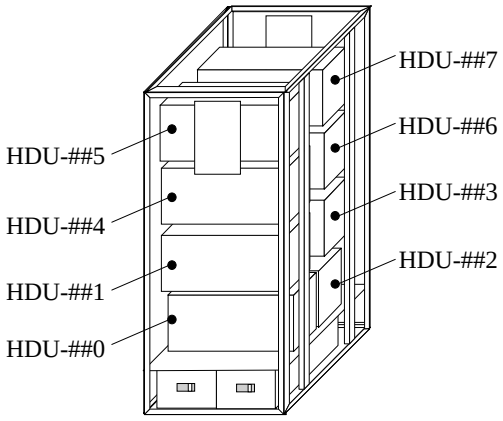
JP05: Path Address for FSW PCB

Function Name	Setting	Location	JP05 Setting
DKUMN-##F	Path Address for FSW PCB	Front of DKU	
DKUMN-##R		Rear of DKU	

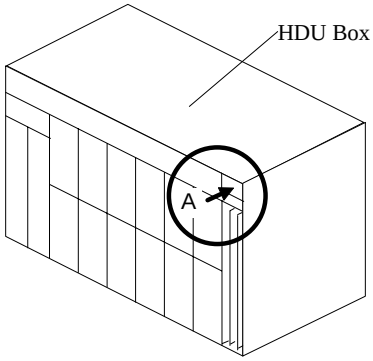
Note: In the DKUMN PCB Rev. A/E and later A/E, jumper plugs setting are not require, because jumper connector (JP05) is not located on the DKUMN PCB.

[8] HDU BOX

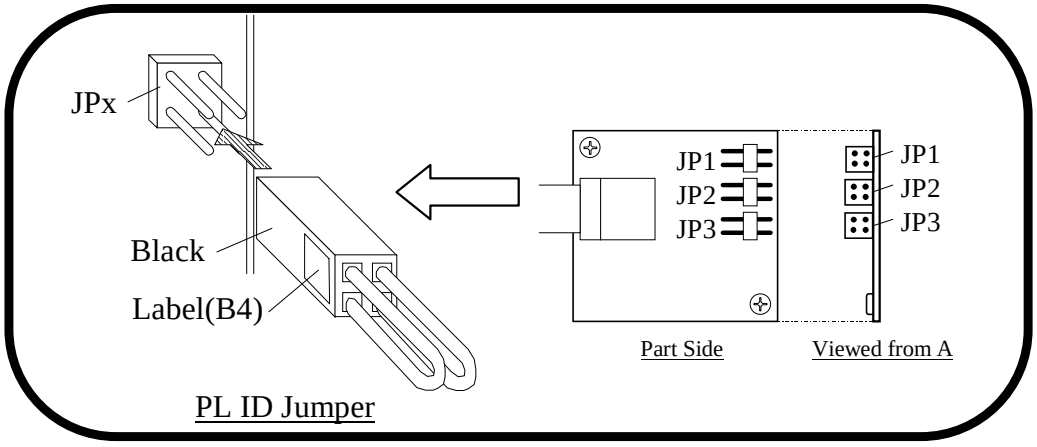
Setting	Function Name	Location	Jumper Setting	Remarks
Specification of PL ID	HDU-R10 ~ R17	1st DKU	JP1 ○○ JP2 ○○ JP3 ●●	
	HDU-L10 ~ L17	3rd DKU		
	HDU-R20 ~ R27	2nd DKU	JP1 ●● JP2 ○○ JP3 ○○	
	HDU-L20 ~ L27	4th DKU		
	HDU-R30 ~ R37	5th DKU	JP1 ○○ JP2 ●● JP3 ○○	
	HDU-L30 ~ L37	6th DKU		



Front View of DKU



##: R1, R2, R3, L1, L2, L3

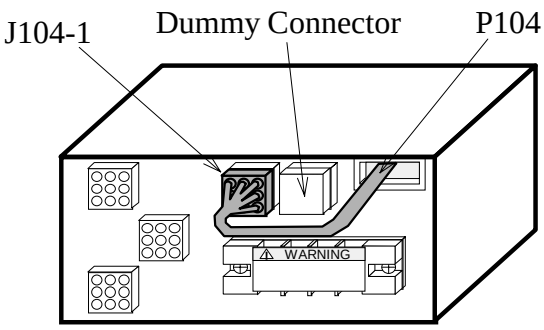
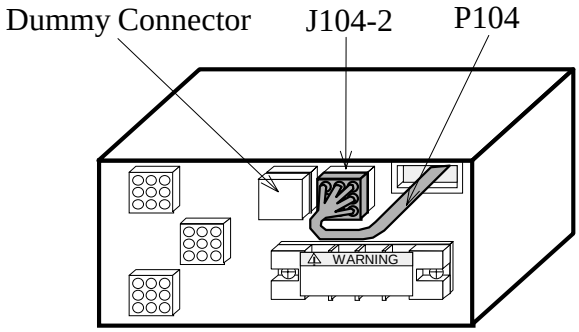


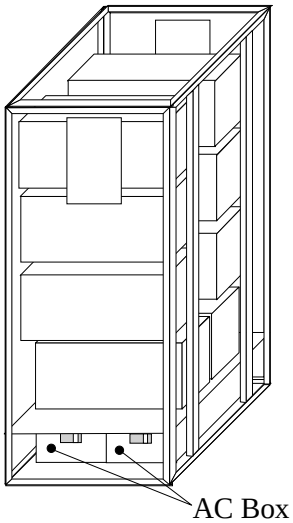
PL ID Jumper

6.3 Voltage Selector

[1] AC BOX

P104: AC Input Voltage

AC Input Voltage	200 - 240 Vac		J104-2: dummy connector
	380 - 415 Vac		J104-1: dummy connector



Rear View