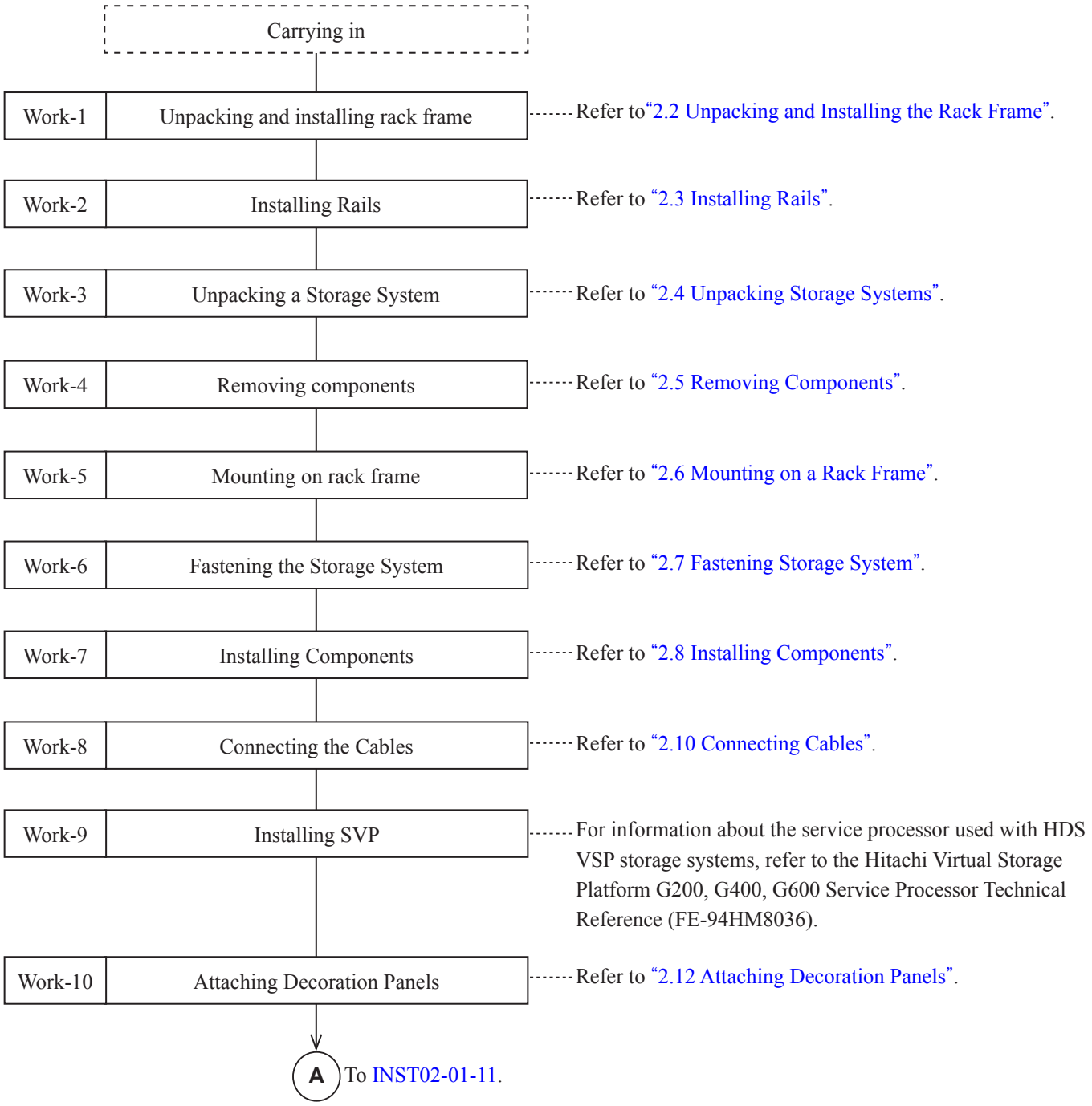
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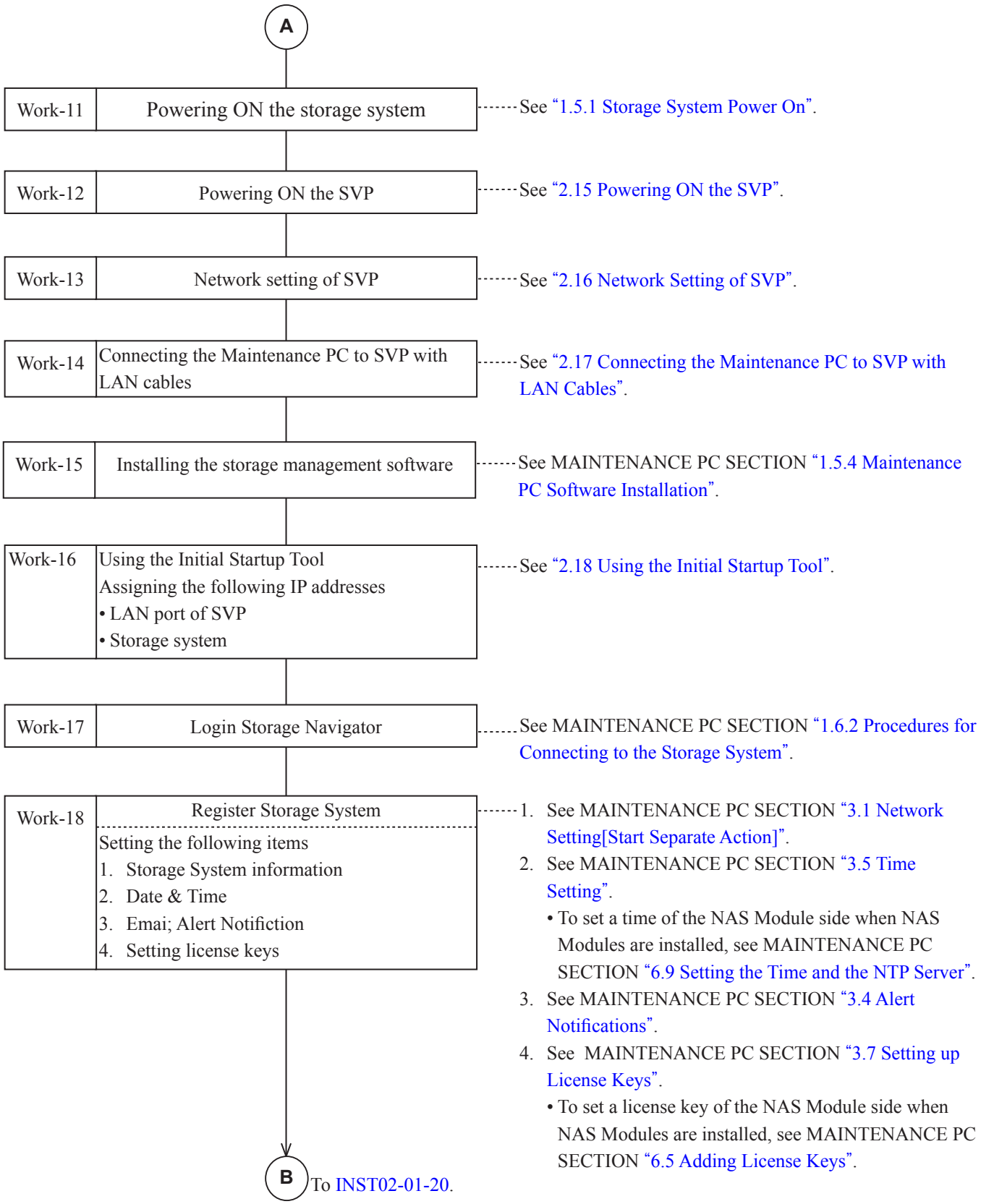
2. Installation

2.1 Procedures for Installing Storage System

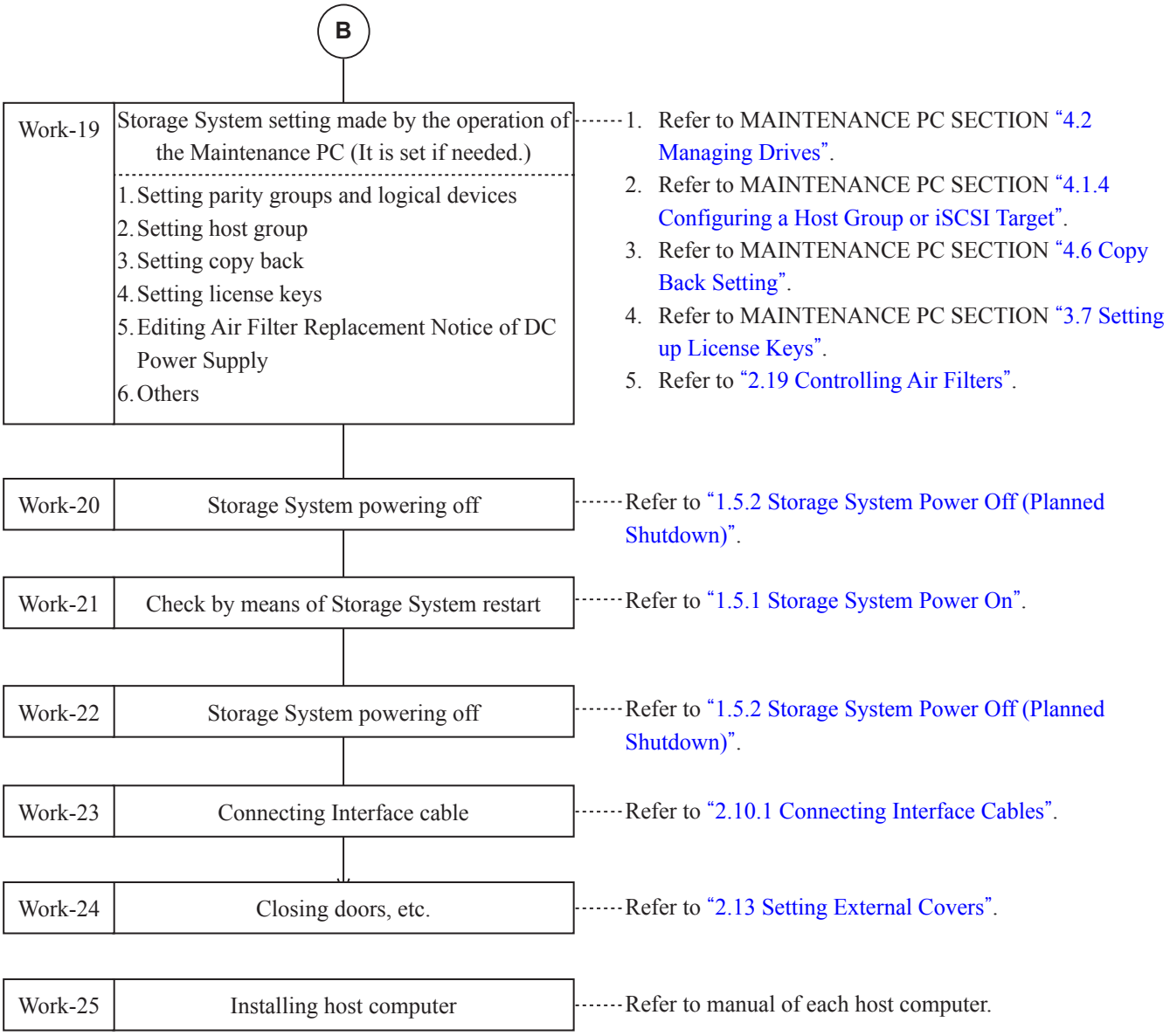
1. Procedures for installation on the rack frame
   In case of a new introduction or moving the Storage System, perform the installation after making sure of the following necessary works.



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2. Tools required
   The following tools are required for the installation.

Table 2-1 Tools Required

Division	Tool name	Specification	Usage
Tool	Phillips screwdriver	No.2	Installation of skirts and fixing the Storage System
	Allen wrench	No.3	Fixing of cable cramps
	Allen wrench	No.4	Fixing of rail, connection of power cable
	Spanner	No.22	Adjustment of leveling bolts
	M8 socket wrench	No.13	Installing a stabilizer
Tool of other	Wrist strap	−	Band for protecting the Storage System from the static electricity
	LAN cross cable	Category 5	For connecting a Maintenance PC and the Storage System
	PC for Maintenance PC	−	More than 50 Gbytes of free space on the hard disk

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2.2 Unpacking and Installing the Rack Frame

NOTE : When installing the rails in the rack frame that has already been in use, perform the installation works in "2.3 Installing Rails" and the following steps.

2.2.1 Unpacking and Installing the RKU Rack Frame

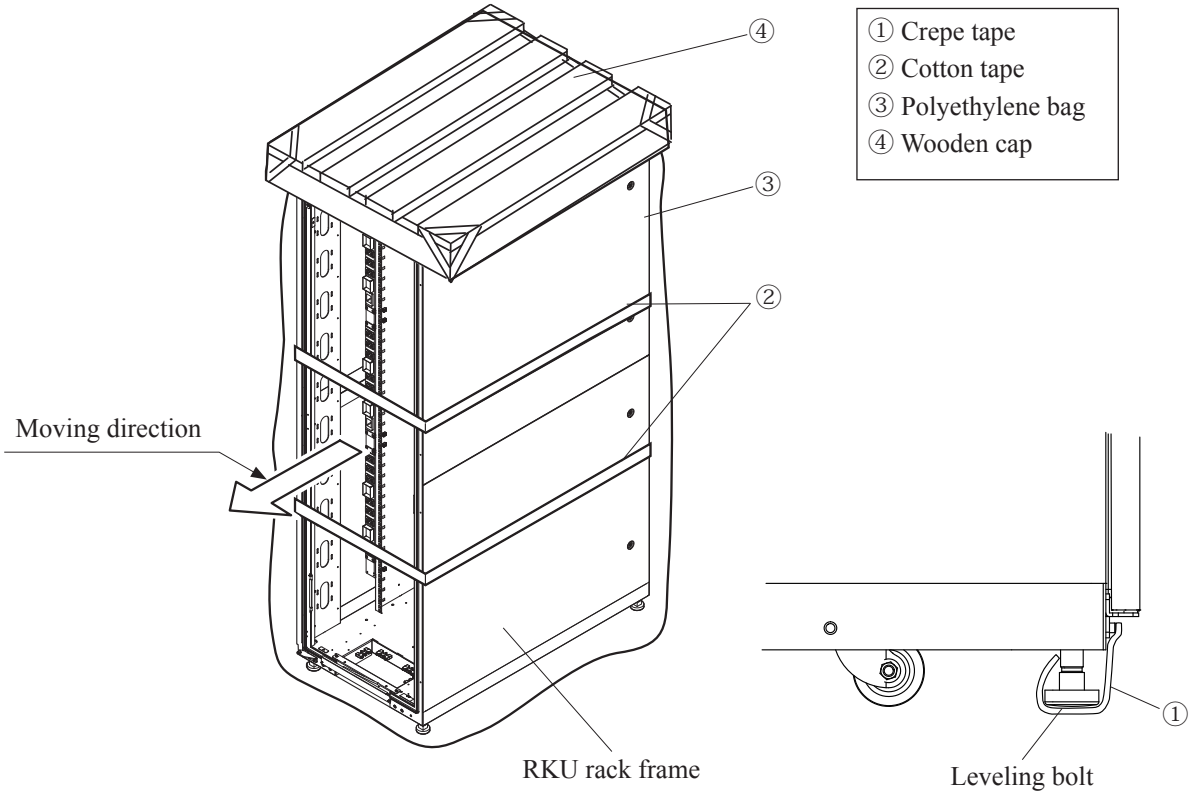
For information about the Hitachi Universal V2 rack used with HDS VSP storage systems, refer to the Hitachi Universal V2 Rack Reference Guide (MK-94HM8035).
Figure 2-1 shows the packed status of the RKU Rack Frame.

1. Unpacking

NOTE :
- Unpack it indoors.
  Especially, do not unpack it in such places with the outdoor dust, the direct sunlight, and the infiltration of rainwater.
- Work on the unpacking in the place where a rapid difference of temperature does not occur.
  It may have dew condensation when it is unpacked in the place where a difference of temperature is extreme.
- Do not push the side of the RKU rack frame.
  For moving the RKU rack frame, push it from the front.

(1) Remove a wooden cap ④ and polyethylene bag ③ from the RKU Rack Frame.
(2) Remove two cotton tapes ② which fasten the rear door.
(3) Remove four crepe tapes ① which fix the leveling bolt.

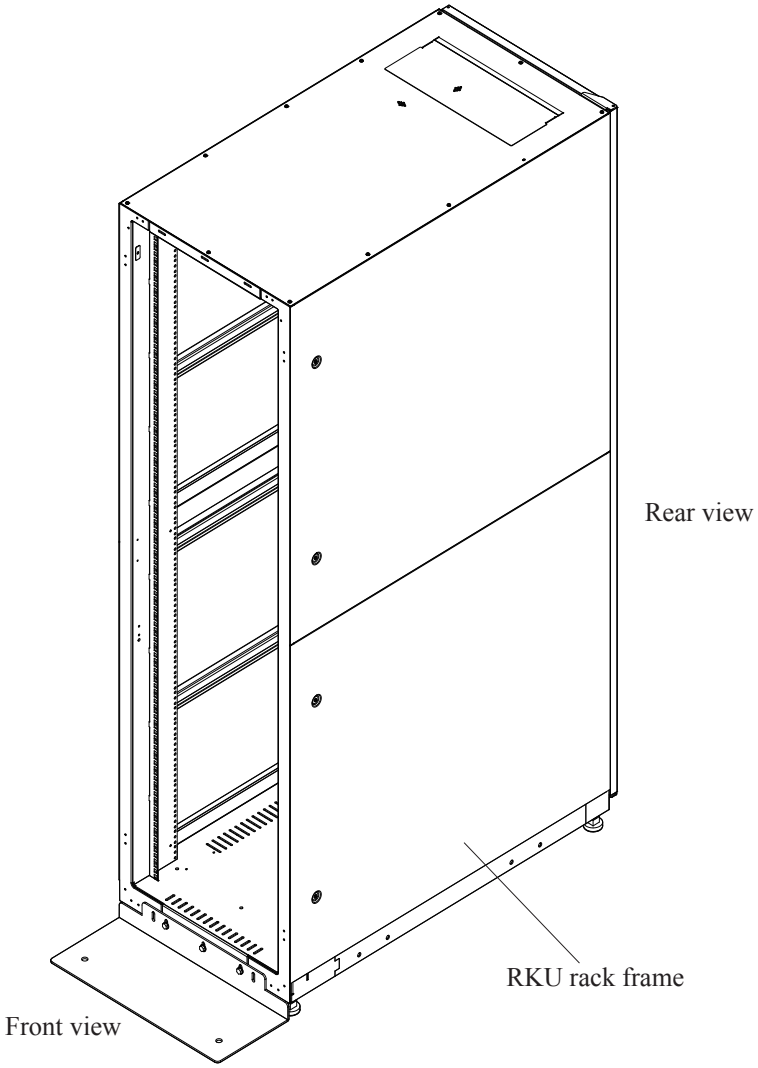
Figure 2-1 RKU Rack Frame Packed Status



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2. Checking external appearance of the Storage System
   Check the external appearance of the rack frame for distortion or damage owing to the transport.

Figure 2-2 External Appearance of Rack Frame



3. Checking the Storage System configuration and supplements
   Check if the components of the Storage System (their model names, product serial numbers and quantities) agree with those in the packing list shipped.

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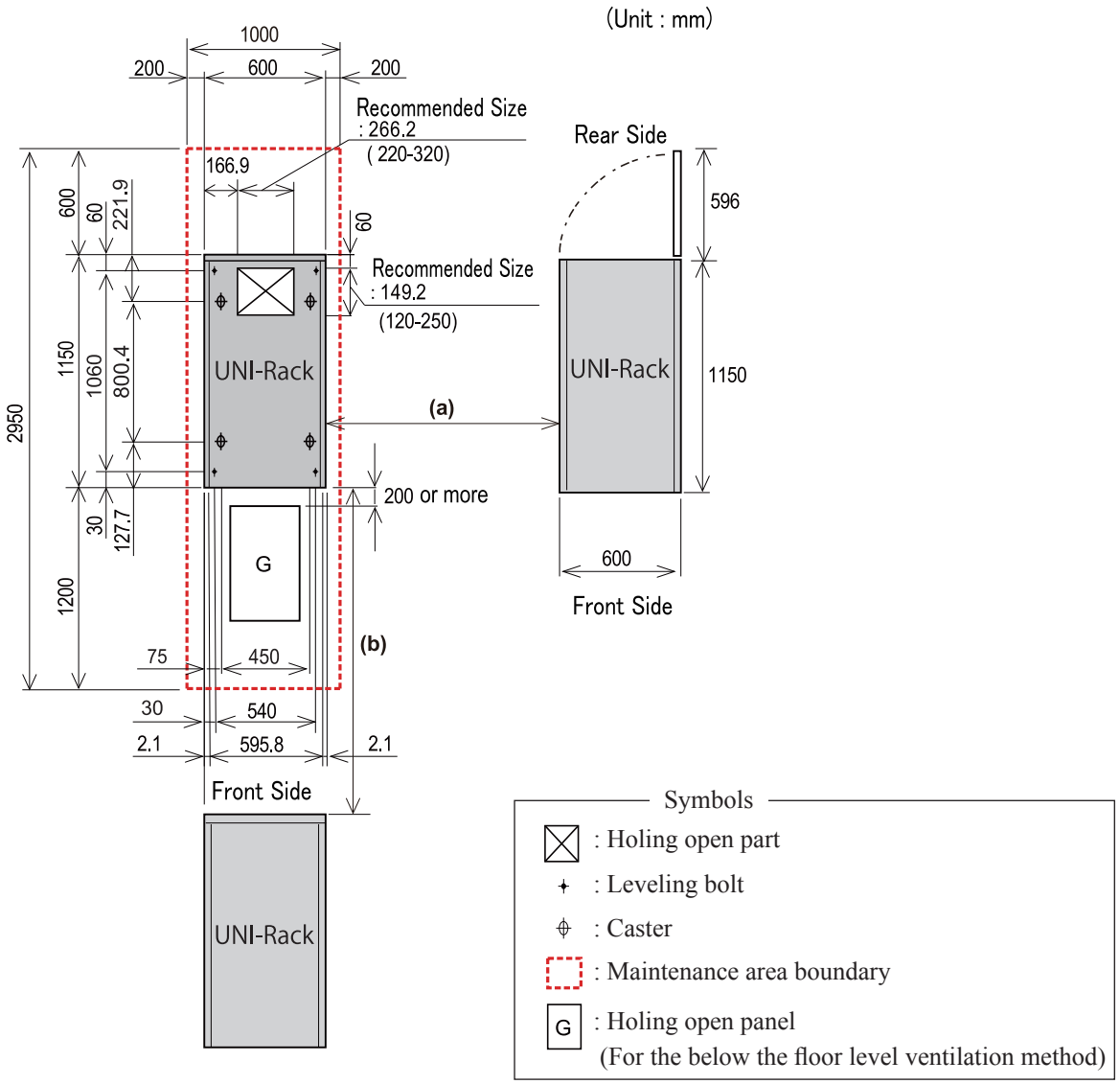
4. Installation Area/Maintenance Area and Earthquake-resistant Plan

(1) Installation and maintenance areas

Figure 2-3 shows installation and maintenance areas for the A-6516-RKU rack frame and a cut-out figure using a free access floor.

NOTE : Since installation areas vary depending on the size of systems, layout, and conditions of buildings, it is required to contact a construction professional of carry-in buildings.

Figure 2-3 Installation and Maintenance Areas of Rack Frame



*1: When installing the RKU racks in parallel, make a space of 10 mm or more for (a). The distance between (a) and (b) varies depending on the Storage System to be installed.
Refer to Table 2-2 through Table 2-7.

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Table 2-2 Distance between the RKU Racks (VSP G200)-1

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBSS and 7 DBSs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		10	10	10	10	10	10
	4,410 (450)		50	20	10	10	10	10
	3,920 (400)		130	100	50	10	10	10
	3,430 (350)		240	210	140	90	40	10
	2,940 (300)		380	340	270	210	150	100
	2,450 (250)		590	540	450	370	310	250
	1,960 (200)		900	840	720	630	550	470
Connecting CBSS and 7 DBLs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		10	10	10	10	10	10
	4,410 (450)		50	20	10	10	10	10
	3,920 (400)		130	100	50	10	10	10
	3,430 (350)		240	200	140	90	40	10
	2,940 (300)		380	340	270	200	150	100
	2,450 (250)		580	530	450	370	300	250
	1,960 (200)		890	830	720	620	540	470
Connecting CBSS and 4 DB60s	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		120	90	30	10	10	10
	4,410 (450)		200	160	100	50	10	10
	3,920 (400)		300	260	190	140	90	40
	3,430 (350)		430	390	310	240	190	140
	2,940 (300)		610	550	460	390	320	260
	2,450 (250)		860	790	690	590	510	440
	1,960 (200)		1,240	1,160	1,020	900	800	710

(To be continued)

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBSS and 7 DBSs (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 565 kg, the maintenance materials, etc. are 75 kg, and the cables on a free access floor are 10 kg/m².
  For connecting CBSS and 7 DBLs (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 562 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBSS and 4 DB60s (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 709 kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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(Continued from preceding sheet)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBSS and 7 DBFs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		40	10	10	10	10	10
	4,410 (450)		110	80	30	10	10	10
	3,920 (400)		200	170	110	60	10	10
	3,430 (350)		320	280	210	150	100	60
	2,940 (300)		470	430	350	280	220	170
	2,450 (250)		700	640	540	460	390	330
	1,960 (200)		1,040	970	840	740	650	570

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBSS and 7 DBFs (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 623 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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Table 2-3 Distance between the RKU Racks (VSP G200)-2

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBSL and 7 DBSs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		10	10	10	10	10	10
	4,410 (450)		50	20	10	10	10	10
	3,920 (400)		130	100	50	10	10	10
	3,430 (350)		240	200	140	90	40	10
	2,940 (300)		380	340	270	200	150	100
	2,450 (250)		590	540	450	370	310	250
	1,960 (200)		900	840	720	630	540	470
Connecting CBSL and 7 DBLs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		10	10	10	10	10	10
	4,410 (450)		50	20	10	10	10	10
	3,920 (400)		130	100	50	10	10	10
	3,430 (350)		240	200	140	90	40	10
	2,940 (300)		380	340	270	210	150	100
	2,450 (250)		590	540	450	370	310	250
	1,960 (200)		900	840	720	630	540	470
Connecting CBSL and 4 DB60s	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		120	90	30	10	10	10
	4,410 (450)		200	170	110	50	10	10
	3,920 (400)		300	260	200	140	90	40
	3,430 (350)		430	390	310	250	190	140
	2,940 (300)		610	560	470	390	320	270
	2,450 (250)		860	800	690	600	510	440
	1,960 (200)		1,240	1,170	1,030	910	810	720

(To be continued)

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBSL and 7 DBSs (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 567 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBSL and 7 DBLs (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 564 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBSL and 4 DB60s (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 711 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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(Continued from preceding sheet)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBSL and 7 DBFs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		40	10	10	10	10	10
	4,410 (450)		110	80	30	10	10	10
	3,920 (400)		200	170	110	60	10	10
	3,430 (350)		320	280	210	150	100	60
	2,940 (300)		480	430	350	280	220	170
	2,450 (250)		700	650	550	470	390	330
	1,960 (200)		1,040	970	850	740	650	570

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBSL and 7 DBFs (VSP G200), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 625 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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Table 2-4 Distance between the RKU Racks (VSP G400, VSP F400)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLM and 16 DBSs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		260	220	160	100	60	20
	4,410 (450)		360	320	240	180	130	80
	3,920 (400)		480	430	350	280	220	170
	3,430 (350)		640	580	490	410	340	280
	2,940 (300)		850	790	680	590	510	440
	2,450 (250)		1,150	1,080	940	830	740	650
	1,960 (200)		1,610	1,520	1,350	1,210	1,090	980
Connecting CBLM and 16 DBLs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		250	220	150	100	50	10
	4,410 (450)		350	310	240	180	130	80
	3,920 (400)		470	430	350	280	220	170
	3,430 (350)		630	580	490	410	340	280
	2,940 (300)		840	780	670	580	500	430
	2,450 (250)		1,140	1,070	940	820	730	640
	1,960 (200)		1,600	1,500	1,340	1,200	1,080	970
Connecting with CBLM + 8 DB60s	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		250	220	150	100	50	10
	4,410 (450)		350	310	240	180	120	80
	3,920 (400)		470	420	340	280	220	160
	3,430 (350)		630	570	480	400	340	280
	2,940 (300)		840	770	670	580	500	430
	2,450 (250)		1,130	1,060	930	820	720	640
	1,960 (200)		1,590	1,500	1,330	1,190	1,070	960

(To be continued)

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLM and 16 DBSs (VSP G400), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,178 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBLM and 16 DBLs (VSP G400), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,171 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBLM and 8 DB60s (VSP G400), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,395 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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(Continued from preceding sheet)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLM and 16 DBFs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		260	220	160	100	60	10
	4,410 (450)		360	320	240	180	130	80
	3,920 (400)		480	430	350	280	220	170
	3,430 (350)		640	580	490	410	340	280
	2,940 (300)		850	790	680	590	510	440
	2,450 (250)		1,150	1,070	940	830	730	650
	1,960 (200)		1,610	1,510	1,350	1,210	1,080	980

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLM and 16 DBFs (VSP G400), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,334 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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Table 2-5 Distance between the RKU Racks (VSP G600, VSP F600)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLM and 24 DBSs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		20	10	10	10	10	10
	4,900 (500)		140	110	50	10	10	10
	4,410 (450)		220	190	130	70	30	10
	3,920 (400)		330	290	220	160	110	60
	3,430 (350)		460	420	340	270	210	160
	2,940 (300)		650	590	500	420	350	290
	2,450 (250)		910	840	730	630	550	480
	1,960 (200)		1,300	1,220	1,080	960	850	760
Connecting CBLM and 24 DBLs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		10	10	10	10	10	10
	4,900 (500)		140	100	50	10	10	10
	4,410 (450)		220	180	120	70	30	10
	3,920 (400)		320	280	220	160	110	60
	3,430 (350)		460	410	330	270	210	160
	2,940 (300)		640	590	490	420	350	290
	2,450 (250)		900	830	720	630	540	470
	1,960 (200)		1,290	1,210	1,070	950	840	750
Connecting with CBLM + 12 DB60s	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		250	220	150	100	50	10
	4,410 (450)		350	310	240	180	120	80
	3,920 (400)		470	420	340	280	220	160
	3,430 (350)		630	570	480	400	340	280
	2,940 (300)		840	770	670	580	500	430
	2,450 (250)		1,130	1,060	930	820	720	640
	1,960 (200)		1,590	1,500	1,330	1,190	1,070	960

(To be continued)

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLM and 24 DBSs (VSP G600), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,471 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBLM and 24 DBLs (VSP G600), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,462 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBLM and 12 DB60s (VSP G600), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 2,048 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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(Continued from preceding sheet)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLM and 24 DBFs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		260	220	160	100	60	10
	4,410 (450)		360	320	240	180	130	80
	3,920 (400)		480	430	350	280	220	170
	3,430 (350)		640	580	490	410	340	280
	2,940 (300)		850	790	680	590	510	440
	2,450 (250)		1,150	1,070	940	830	730	650
	1,960 (200)		1,610	1,510	1,350	1,210	1,080	980

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLM and 24 DBFs (VSP G600), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 1,694 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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Table 2-6 Distance between the RKU Racks (VSP G800, VSP F800)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLH and 48 DBSs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		260	220	160	100	60	20
	4,410 (450)		360	320	240	180	130	80
	3,920 (400)		480	430	350	280	220	170
	3,430 (350)		640	580	490	410	340	280
	2,940 (300)		850	790	680	590	510	440
	2,450 (250)		1,150	1,080	940	830	740	650
	1,960 (200)		1,610	1,510	1,350	1,210	1,090	980
Connecting CBLH and 48 DBLs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		250	220	150	100	50	10
	4,410 (450)		350	310	240	180	130	80
	3,920 (400)		470	430	350	280	220	170
	3,430 (350)		630	580	490	410	340	280
	2,940 (300)		840	780	670	580	500	430
	2,450 (250)		1,140	1,070	940	820	730	640
	1,960 (200)		1,600	1,500	1,340	1,200	1,080	970
Connecting CBLH and 24 DB60s	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		250	220	150	100	50	10
	4,410 (450)		350	310	240	180	120	80
	3,920 (400)		470	420	340	280	220	160
	3,430 (350)		630	570	480	400	340	280
	2,940 (300)		840	770	670	580	500	430
	2,450 (250)		1,130	1,060	930	820	720	640
	1,960 (200)		1,590	1,500	1,330	1,190	1,070	960

(To be continued)

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLH and 48 DBSs (VSP G800), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 2,829 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBLH and 48 DBLs (VSP G800), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 2,810 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
  For connecting CBLH and 24 DB60s (VSP G800), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 3,717 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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(Continued from preceding sheet)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLH and 48 DBFs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		110	80	30	10	10	10
	4,900 (500)		260	220	160	100	60	10
	4,410 (450)		360	320	240	180	130	80
	3,920 (400)		480	430	350	280	220	170
	3,430 (350)		640	580	490	410	340	280
	2,940 (300)		850	790	680	590	510	440
	2,450 (250)		1,150	1,070	940	830	730	650
	1,960 (200)		1,610	1,510	1,350	1,210	1,080	980

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLH and 48 DBFs (VSP G800), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 3,251 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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Table 2-7 Distance between the RKU Racks (VSP G800+CHBB, VSP F800+CHBB)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLH+CHBB and 48 DBSs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		80	50	10	10	10	10
	4,900 (500)		220	180	120	70	30	10
	4,410 (450)		310	270	200	150	100	50
	3,920 (400)		430	380	310	240	180	140
	3,430 (350)		580	530	440	360	300	240
	2,940 (300)		780	720	620	530	450	390
	2,450 (250)		1,070	1,000	870	760	670	590
	1,960 (200)		1,500	1,410	1,260	1,120	1,010	900
Connecting CBLH+CHBB and 48 DBLs	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		100	70	20	10	10	10
	4,900 (500)		240	210	140	90	40	10
	4,410 (450)		340	300	230	170	110	70
	3,920 (400)		460	410	330	260	210	160
	3,430 (350)		610	560	470	390	320	270
	2,940 (300)		820	760	650	560	480	410
	2,450 (250)		1,110	1,040	910	800	710	620
	1,960 (200)		1,560	1,470	1,310	1,170	1,050	940
Connecting CBLH+CHBB and 24 DB60s	6,860 (700)	(a) (*1) mm	10	10	10	10	10	10
	5,880 (600)		80	50	10	10	10	10
	4,900 (500)		220	180	120	70	20	10
	4,410 (450)		310	270	200	140	90	50
	3,920 (400)		430	380	310	240	180	130
	3,430 (350)		580	530	440	360	300	240
	2,940 (300)		780	720	620	530	450	380
	2,450 (250)		1,060	990	870	760	670	590
	1,960 (200)		1,500	1,410	1,250	1,120	1,000	900

(To be continued)

*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLH+CHBB and 48 DBSs (VSP G800+CHBB), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 2,450 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m2.
  For connecting CBLH+CHBB and 48 DBLs (VSP G800+CHBB), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 2,822 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m2.
  For connecting CBLH+CHBB and 24 DB60s (VSP G800+CHBB), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 3,950 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m2.
- We recommend you to keep the size of (b) large for the maintenance workability.

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(Continued from preceding sheet)

Configuration	Floor Load Bearing Pa (kg f/m²)	Minimum Right and Left Clearance	Minimum Back and Forth Clearance (b) (*1) mm					
			1,100	1,200	1,400	1,600	1,800	2,000
Connecting CBLH+CHBB and 48 DBFs	6,860 (700)	(a) (*1) mm	20	10	10	10	10	10
	5,880 (600)		120	90	40	10	10	10
	4,900 (500)		270	230	160	110	60	20
	4,410 (450)		360	320	250	190	140	90
	3,920 (400)		490	440	360	290	230	180
	3,430 (350)		640	590	500	420	350	290
	2,940 (300)		860	800	690	590	510	440
	2,450 (250)		1,160	1,090	950	840	740	660
	1,960 (200)		1,620	1,530	1,360	1,220	1,100	990

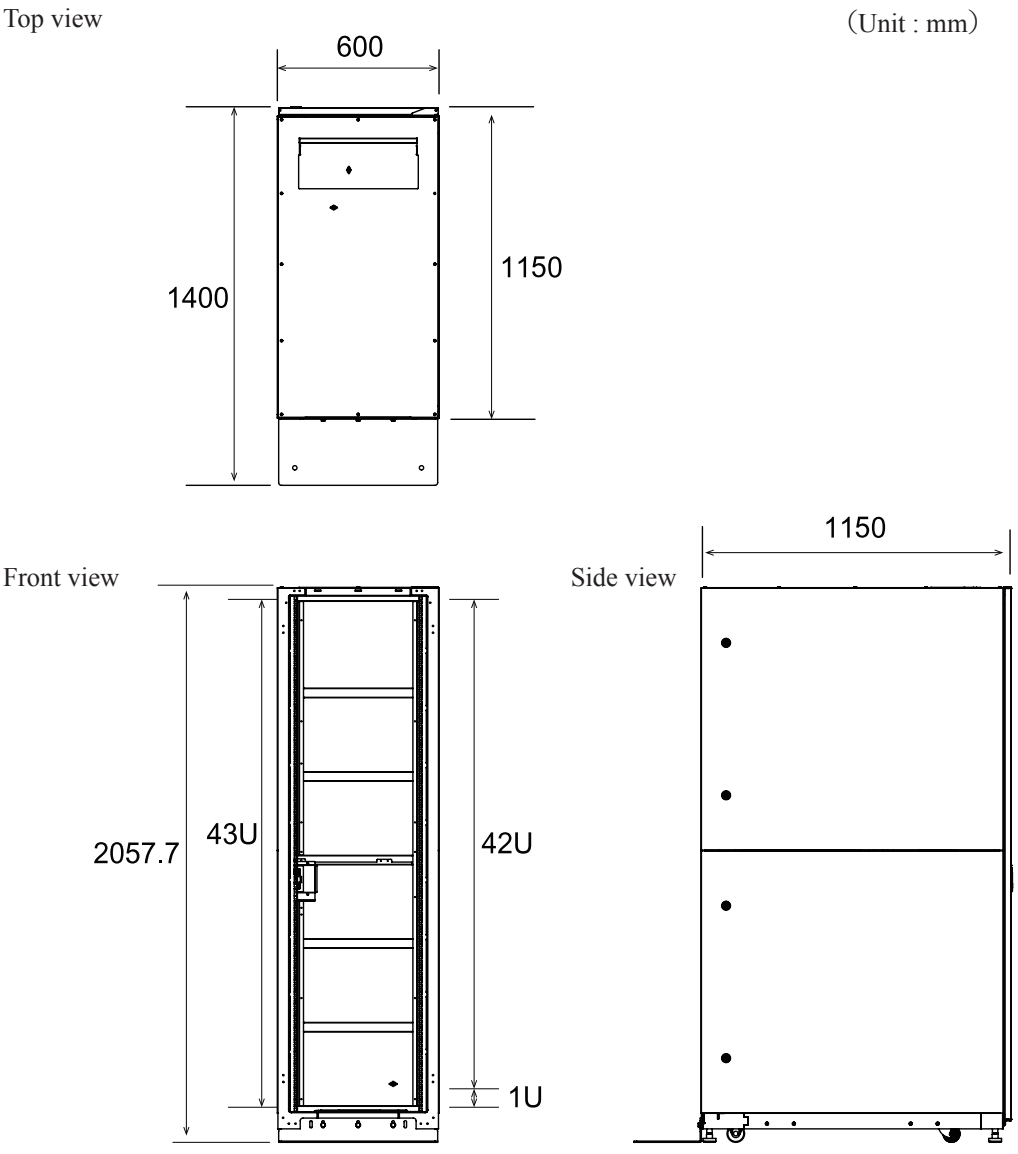
*1:
- (a) is the (a) of Figure 2-3, and it indicates the right and left distance between the RKU racks.
- (b) is the (b) of Figure 2-3, and it indicates the back and forth distance between the RKU racks.
- Set the same distance to left and right of the RKU racks for (a) and to back and forth of the RKU racks for (b).
- For connecting CBLH+CHBB and 48 DBFs (VSP G800+CHBB), it is calculated with the condition that total amount of the RKU rack (including the Storage System to be installed) is 3,284 kg, the maintenance materials, etc. are 75 kg, and the cables on free access are 10 kg/m².
- We recommend you to keep the size of (b) large for the maintenance workability.

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2.2.1.1 Size

1. Rack frame

Figure 2-4 Rack Size

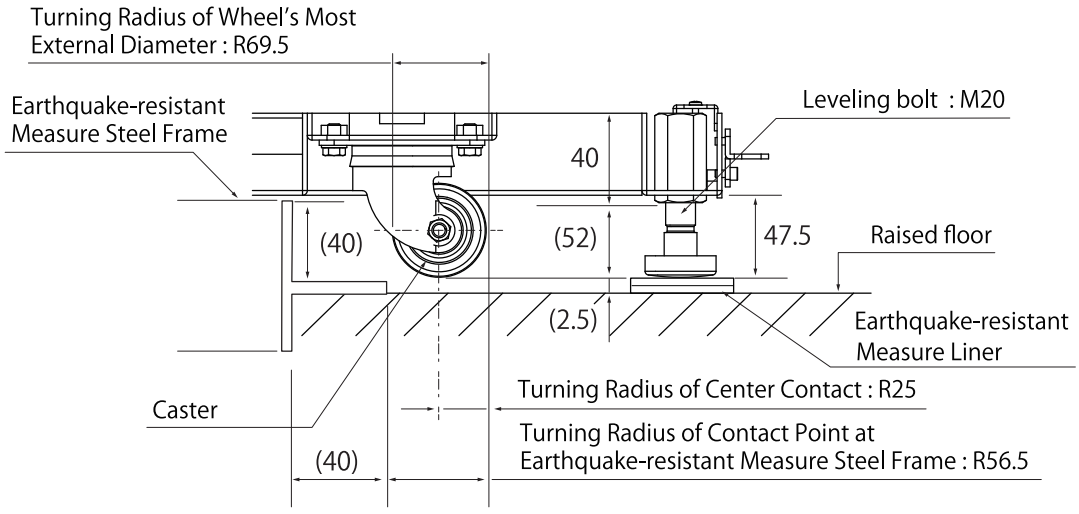


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2.2.1.2 Installation

1. Earthquake-resistant Plan
   Figure 2-5 shows a cross-sectional diagram of the floor of the A-6516-RKU rack frame.
   Refer to it for the earthquake-resistant plan.

Figure 2-5 Cross-sectional View of Floor of A-6516-RKU Rack Frame

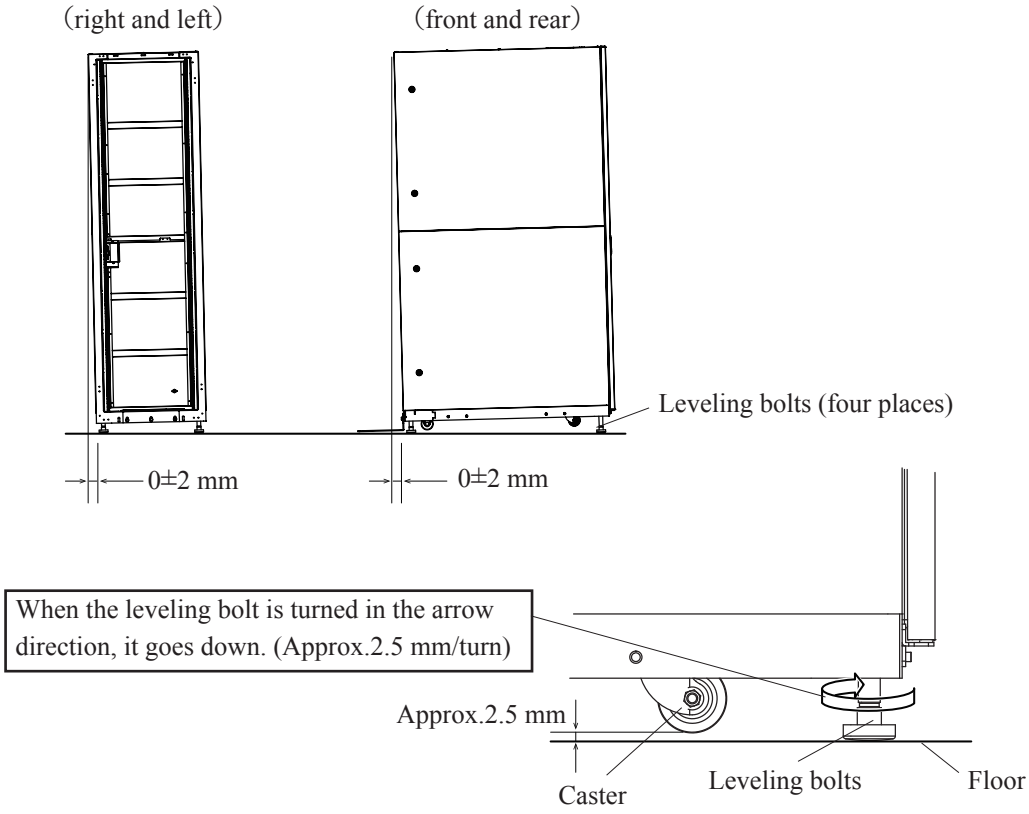


2. Move the unpacked RKU rack frame to the site where it is to be installed.

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3. Fixing the rack frame
   Fix the rack frame in the installation site by adjusting the leveling bolts.
   (1) Turn each leveling bolt in the direction shown by the arrow so that the clearance between the caster and the floor becomes about 2.5 mm.
   (2) Adjust the leveling bolts so that the tilts of the Storage System to the front or rear and left or right become 0 ± 2 mm.

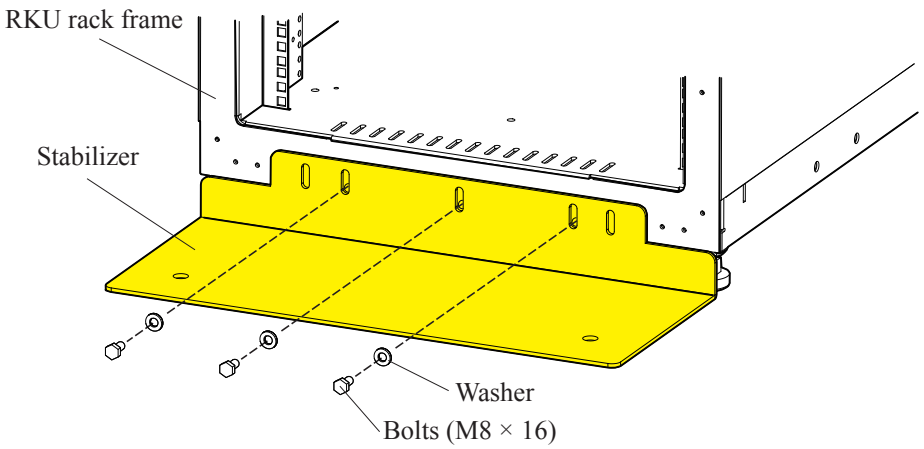
Figure 2-6 Adjusting Leveling Bolts



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4. Installing the stabilizer
   The stabilizer (A-F6516-STBL) is an optional part.
   When installing DB60, attach the stabilizer to the bottom of the front side on the rack and fix it with the bolts (three places).

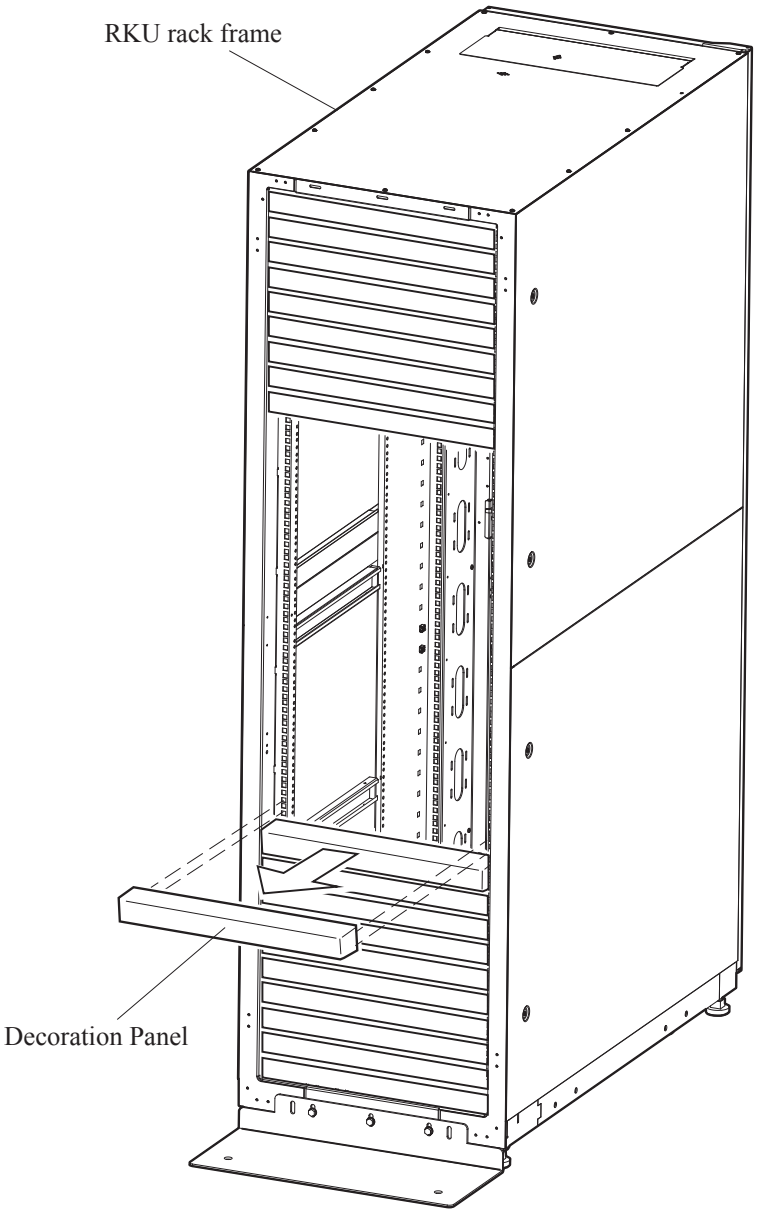
Figure 2-7 Installing the Stabilizer



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5. Removing the decoration panels (1 U)
   When the decoration panels have been attached, it is necessary to remove the decoration panel of installation position.
   (1) Pull the decorative panel toward you.
   (2) The decorative panel is removed.

Figure 2-8 Removing Decoration Panels



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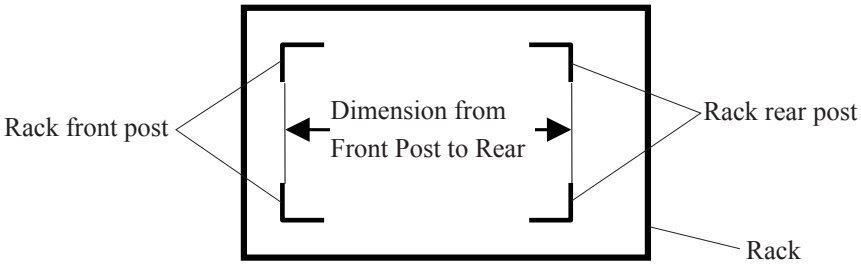
2.3 Installing Rails

NOTE: Use the mounting holes of the rack that are level front to back and side to side when installing the rails so that installed equipment and options are horizontally positioned.

Check the dimension from the inside of the front post to the outside of the rear post in the rack before installing rails.
The length can be adjusted within an adjustment range of the rail kit.

- DW-F800-RRCB is 660 mm - 920 mm
- DW-F800-RRDB is 650 mm - 890 mm
- DW-F800-RRDB60 is 700 mm - 970 mm
- DW-F800-RRDBF is 600 mm - 900 mm

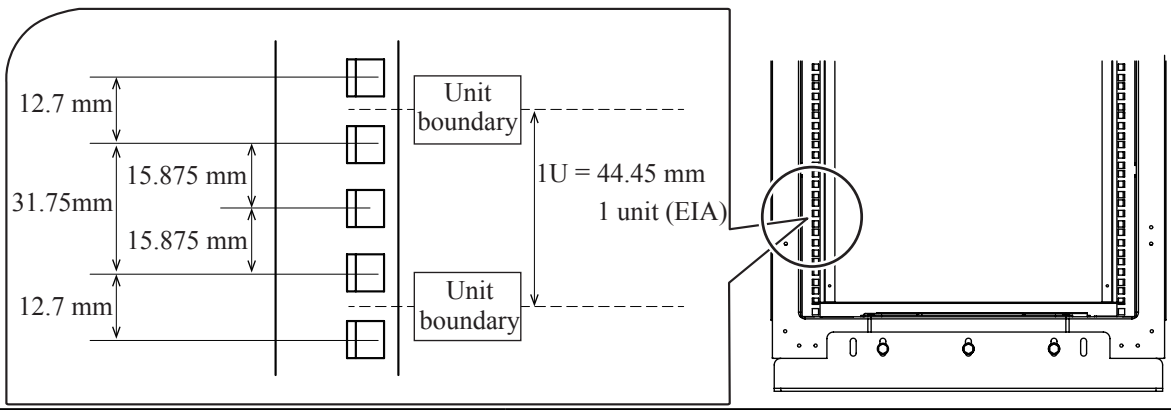
Figure 2-9 Dimension from Front Post to Rear Post



EIA units and intervals of mounting holes of RKU rack frame conforming to EIA standard

- A unit (U) space conforming to EIA standard is 44.5 mm as shown in the figure below.
- The boundary of the unit falls on the middle of the interval of 12.7 mm.
  The boundary of the unit (1 U/1 EIA) is from the center of the interval of 12.7 mm to the center of the next interval of 12.7 mm.
- For rack, hole size for rack installation is determined based on the EIA standard.
  Hole size for rack installation :
  Universal intervals: Repeat of 44.45 mm (15.875 mm + 15.875 mm + 12.7 mm)
  Maximum number of mountable unit spaces: 40

Figure 2-10 Attachment Hole Size of Rack



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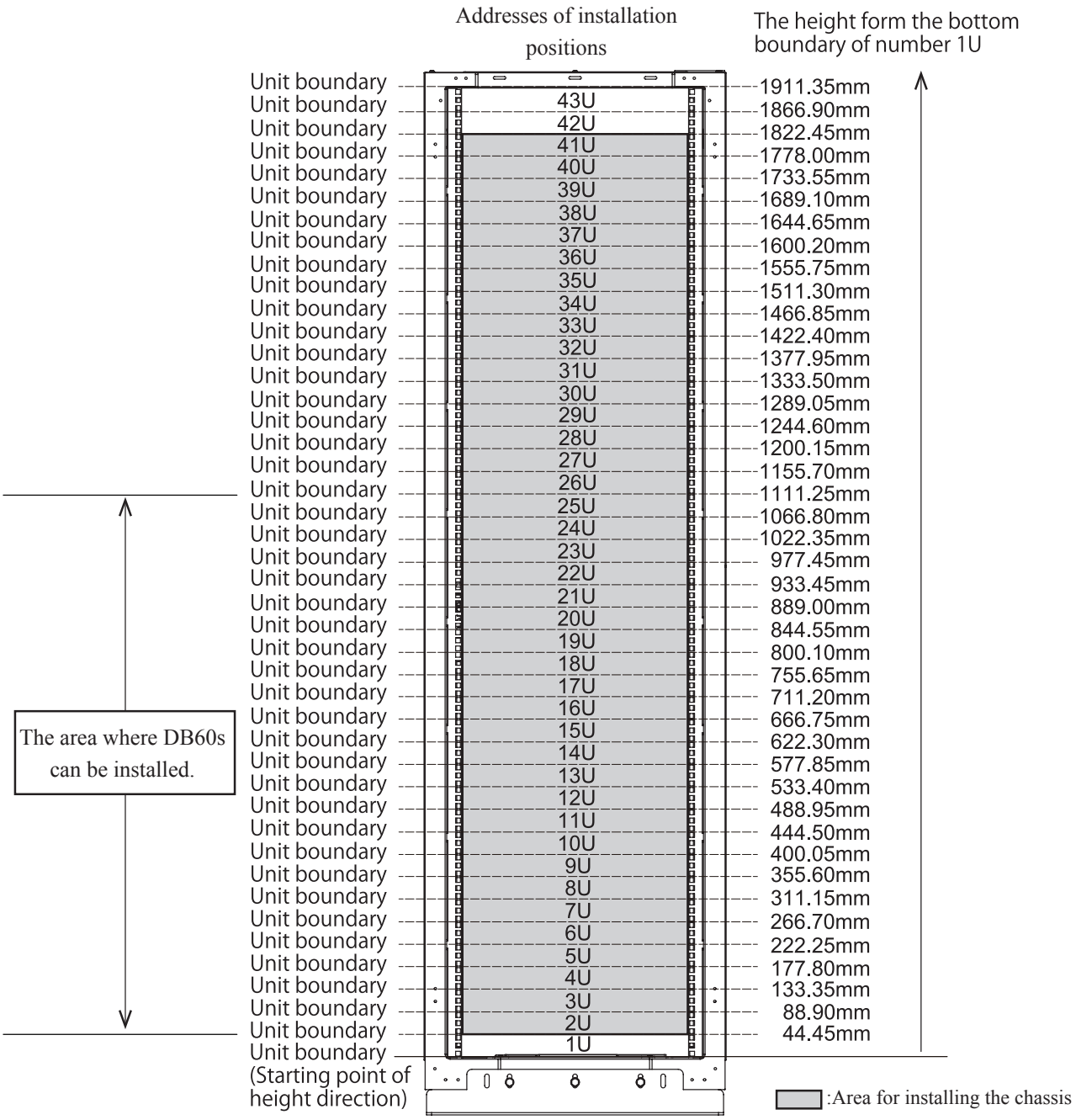
Addresses within the rack frame are called (EIA) unit numbers.
The addresses are given as 1, 2, 3, and so on counted from the bottom of the rack frame.

NOTE :
- For the RKU rack, the frame has the unit boundary line for every 1U and the U number is marked for every 5U. Count the address from the marked U number according to the installation.
- When installing DB60 in the lowest row, do not use the space for 1U from the lower row to secure the area of cable routing.
- Up to 6 DB60s can be installed in one rack.
  Install them below 1,300mm (in the range of 2U to 25U).
- When installing DB60, be sure to install the stabilizer on the front of the rack.
- The total weight of Storage Systems that can be installed in the RKU rack is 600 kg.
  Do not install Storage Systems that are heavier than described above.

Figure 2-11 shows the whole layout of installing position addresses in the RKU rack frame.
Total of the installation addresses is 43U (units) counted in the vertical direction starting from the lower boundary of the 1U (the lowest unit).

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Figure 2-11 Whole Layout of Diagram



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1. Installing rails for Controller Chassis
   This rail is common to CBSS/CBSL and CBLM/CBLH.
   The rail install procedure is different depending on the hole shape (square or circular hole) on the rack.
   Check the holes on the rack before the installation work.
   Table 2-8 shows the components for the rails for Controller Chassis.

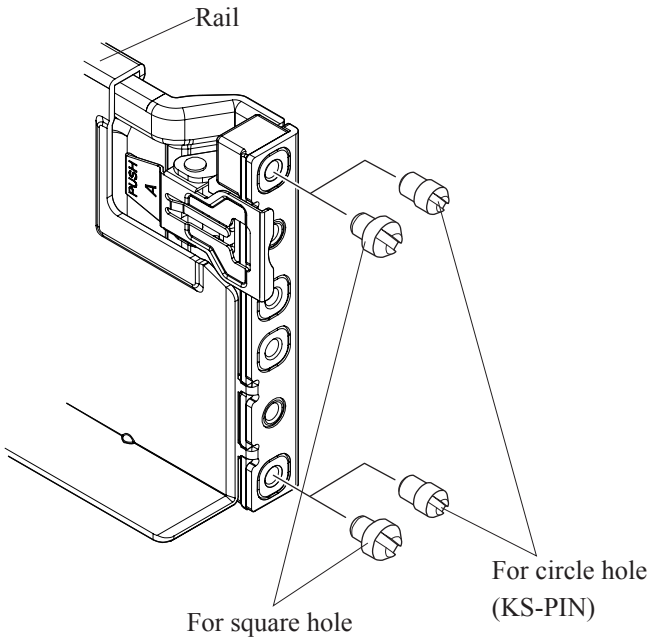
Table 2-8 Components for Rail (DW-F800-RRCB) (Per Unit)

Item No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Rail	2855180-A	1 set	Rail (R) and Rail (L)	—
2	Screw etc	—	1	—	—
3	Rack nut	5510146-1	4(*1)	For fixing Storage System and rail	(*2)
4	Cage nut	5528564-1	4(*1)	For fixing Storage System and rail	(*2)
5	KS-PIN	5557433-1	8(*1)	Pin for circular hole	(*2)
6	Binding screw (M5 × 10)	SB510N	8(*1)	For fixing rail and Storage System	(*2)
7	LL washer (M5)	5513553-513	4(*1)	For fixing rail (for square hole)	(*2)

*1 : 2 spares are included.
*2: These parts are included in Item No. 2 Screw etc.

When installing the rails to a rack with circle holes, replace the right and left pins (total of eight places) on the front and rear sides with the supplied circular hole pins (KS-PINs).

Figure 2-12 Replacing Square Hole Pins



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NOTE : • Front rails have two types; (R) and (L). Check that with the marking on the rail.
• These rails extend or shorten back and forth.

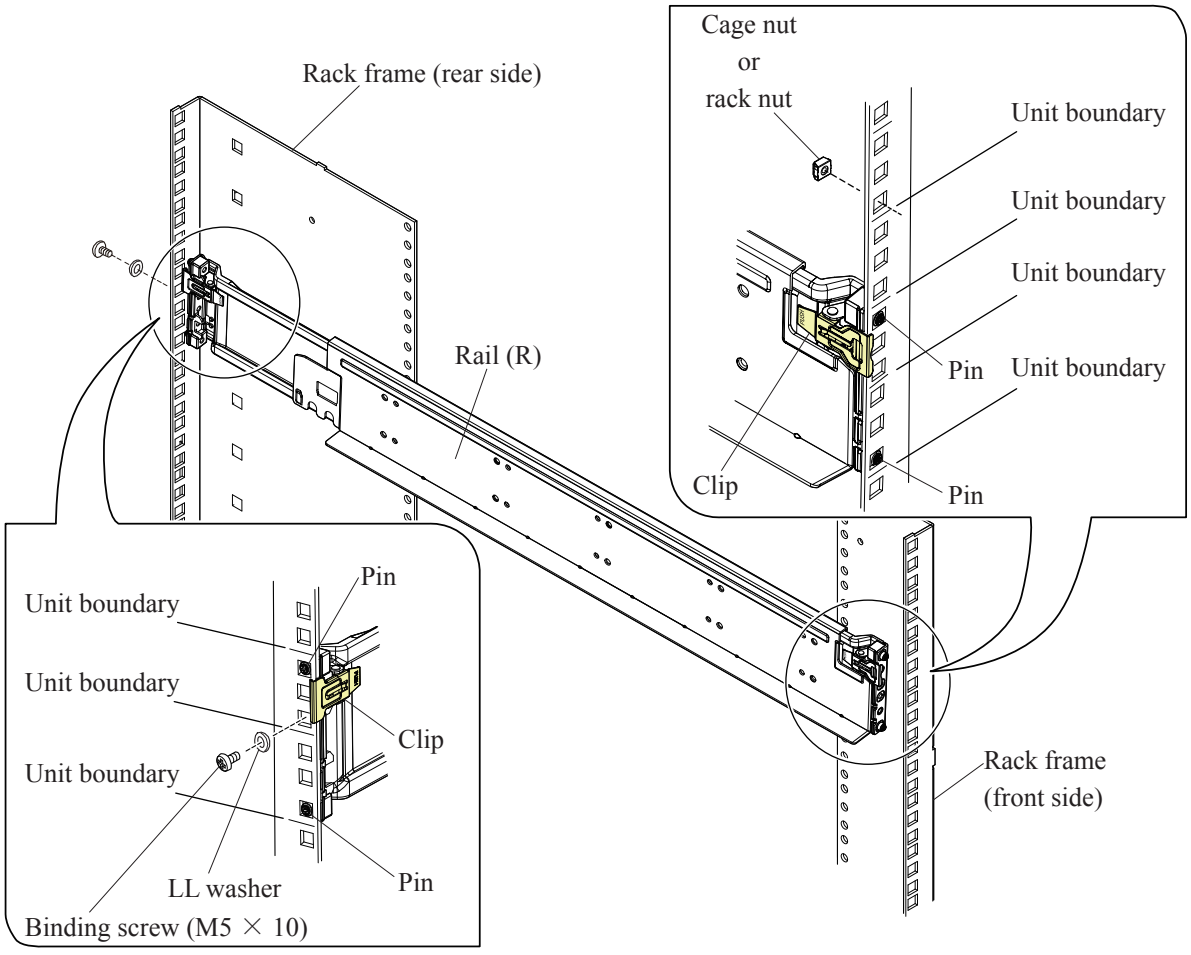
(1) Insert the pins on the front and back of the rail (R) into the holes on the front and back of the rack and clip them with rail clips to fix.
The pin positions are the first and sixth holes from the bottom of the unit boundary line on the rack for both front and back.

(2) Fix the rear side of the rail (R) with LL washer and binding screw (M5 × 10).
The fixing position is the fourth hole from the bottom of the unit boundary line.

(3) When installing a Controller Chassis (CBLM/CBLH), attach rack nuts for circular holes and cage nuts for square holes.
The installation position is the tenth hole from the bottom of the unit boundary line.

(4) Install the rail (L) into the rack in a similar method.

Figure 2-13 Installing Rails for Controller Chassis



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2. Installing rails for Drive Box (DBS/DBL)
   The rail install procedure is different depending on the hole shape (square or circular hole) on the rack. Check the holes on the rack before the installation work.
   Table 2-9 shows the components for the rails for Drive Box (DBS/DBL).

Table 2-9 Components for Rail (DW-F800-RRDB) (Per Unit)

Item No.	Part Name	Part No.	Quantity	Comment	Remarks
1	Slide Rail	2853847-C	1 set	Rail × 2	−
2	Screw (SBB-RAIL)	−	4	−	(*1)
3	Pin Screw	−	4	Pin for circular hole	(*1)
4	Repeat Binder	5409042-3	4	For fixing the cable	−

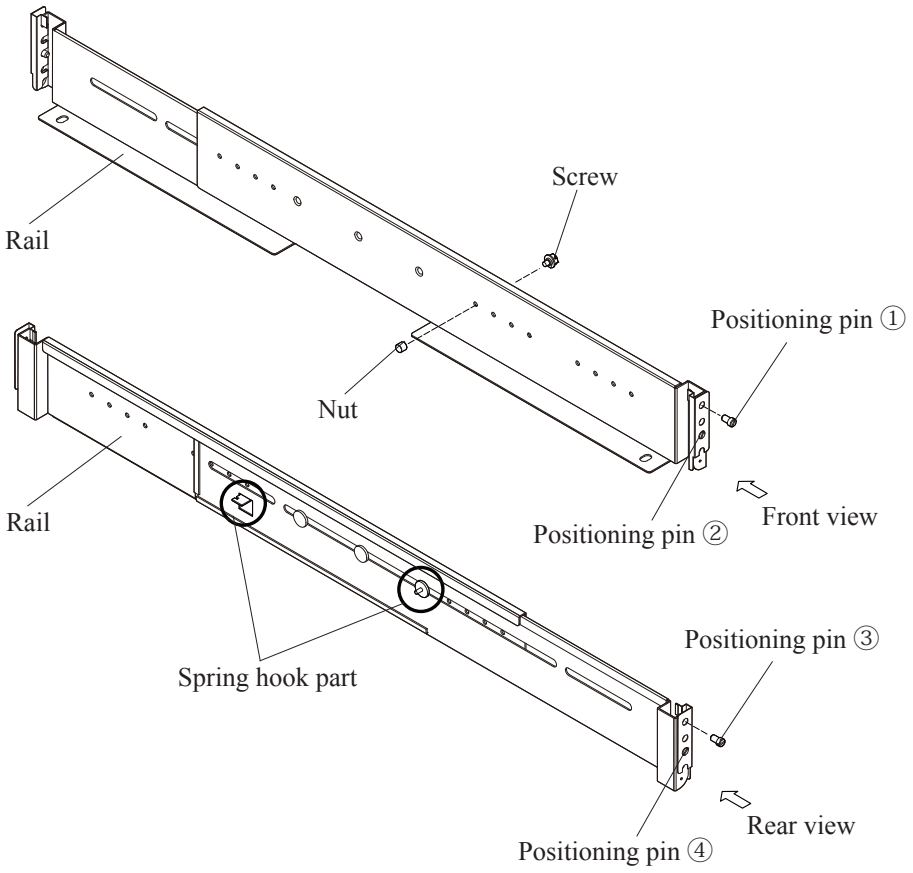
*1 : These parts are included in Slide Rail (Item No.1).

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NOTE: • The right and left rails are identical.
• These rails extend or shorten back and forth.

(1) Remove positioning pin ① from the front of the rail (only when it is installed).
(2) When the length of the rail needs to be adjusted to fit a rack to be used, remove the screw and nut, adjust the rail length, and then install them again.
When the length of the rail does not need to be adjusted or when the rail is installed in the RKU rack, leave the screw and nut as they are and go to Step (3).
(3) When the rack installation hole is circular, replace positioning pin ② with the supplied pin screw (ϕ 6.8 head screw).
When the rack installation hole is rectangular, go to Step (4) (remain the guide screw (ϕ 9.2 head screw) as is).
(4) Remove positioning pin ③ from the rear of the rail (only when it is installed).
(5) When the rack installation hole is circular, replace positioning pin ④ with the supplied pin screw (ϕ 6.8 head screw).
When the rack installation hole is rectangular, go to Step (6) (remain the guide screw (ϕ 9.2 head screw) as is).
(6) Hook the supplied spring on the spring hook part on the rear of the rail (the direction is not required).
(7) Work on the left rail in the similar procedure.

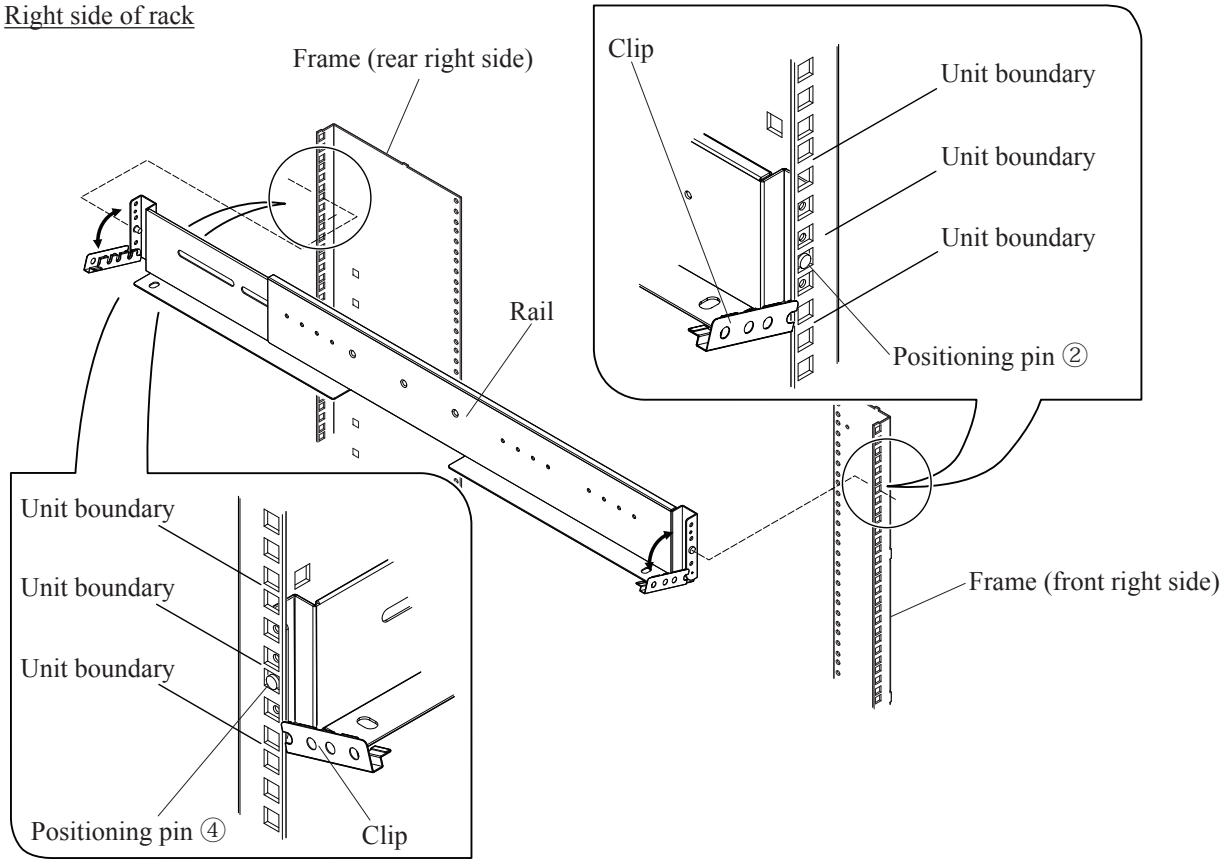
Figure 2-14 Work before Installing Rails



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(8) Bring down two Clips on the front and rear edge of the rail.
(9) Fit Positioning Pins ② and ④ of the rail (two pins in total on the front and back edge) into holes on the right side of the rack at the position where you want to install the Drive Box.
(10) Raise the Clips of the rail to fix the rail to the rack.

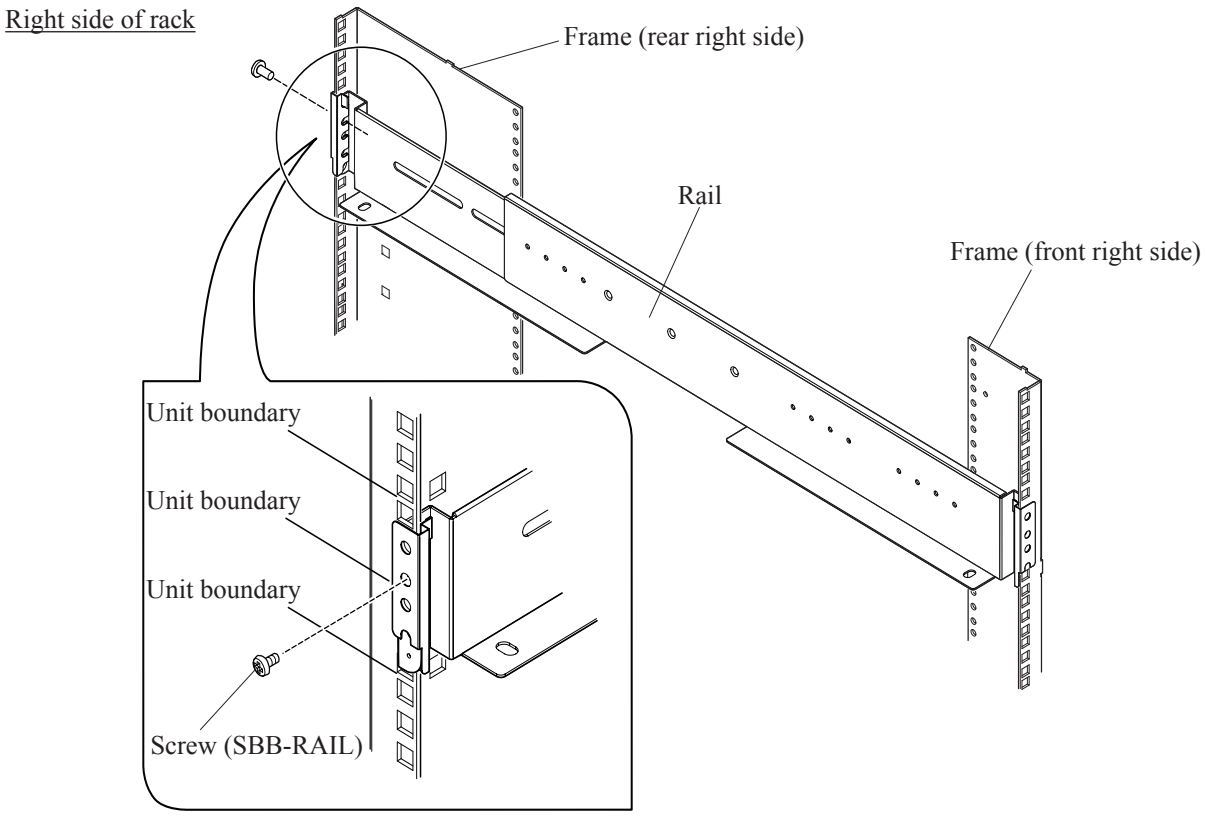
Figure 2-15 Installing Rails



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(11) Tighten the screw (SBB-RAIL) on the rear edge of the rail to fit the rail to the rack.
The fixing position is the fourth hole from the bottom of the unit boundary line.

Figure 2-16 Fixing the Rails



(12) Install the rail into the left side of the rack in the same way as procedures Step (8) to Step (11).
The right and left rails are same in shape. Horizontally turn the left rail in the opposite direction of the right rail (180 degree turn).

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3. Installing rails for Drive Box (DB60)
   The rail install procedure is different depending on the hole shape (square or circular hole) on the rack. Check the holes on the rack before the installation work.
   Table 2-10 shows the components for the rails for Drive Box (DB60).

Table 2-10 Components of Rail (DW-F800-RRDB60) (Per Unit)

Item No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Slide Rail	3289061-A	1 set	Rail × 2	−
2	Accessory Set	−	1	−	−
3	Bracket	−	2	−	(*1)
4	Cage Nut	−	4	For fixing Storage System and rail	(*1)
5	Rack Nut	−	4	For fixing Storage System and rail	(*1)
6	Hex Head Flange Screw	−	4	−	(*1)
7	Screw	−	4	−	(*1)

*1: These parts are included in Item No. 2 Accessory Set.

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(1) Remove the inner rails

Remove the inner rails of two rails respectively.

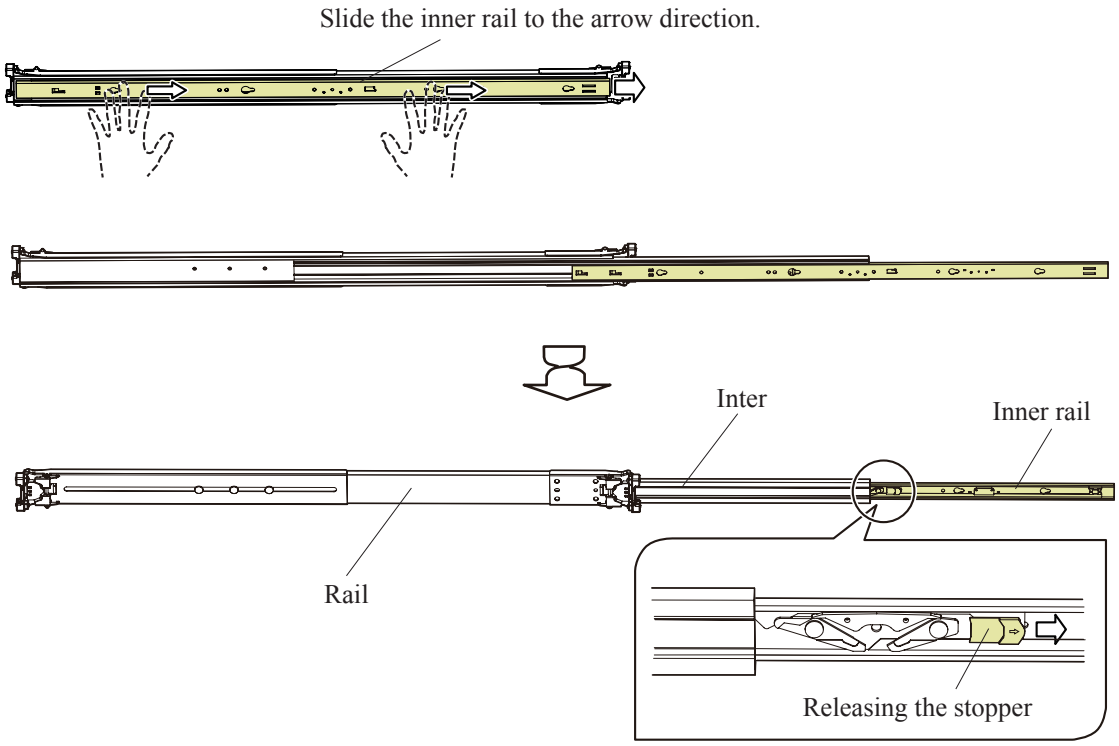
(a) Slide the inner rail to the front side until it stops while pressing the portions indicated by arrows in the figure below.

(b) Turn over the rail and release the stopper of the inner rail.

(c) Remove the inner rail.

(d) Remove the inner rail from the other rail in the same manner.

Figure 2-17 Removing the Inner Rails



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(2) Install the inner rails

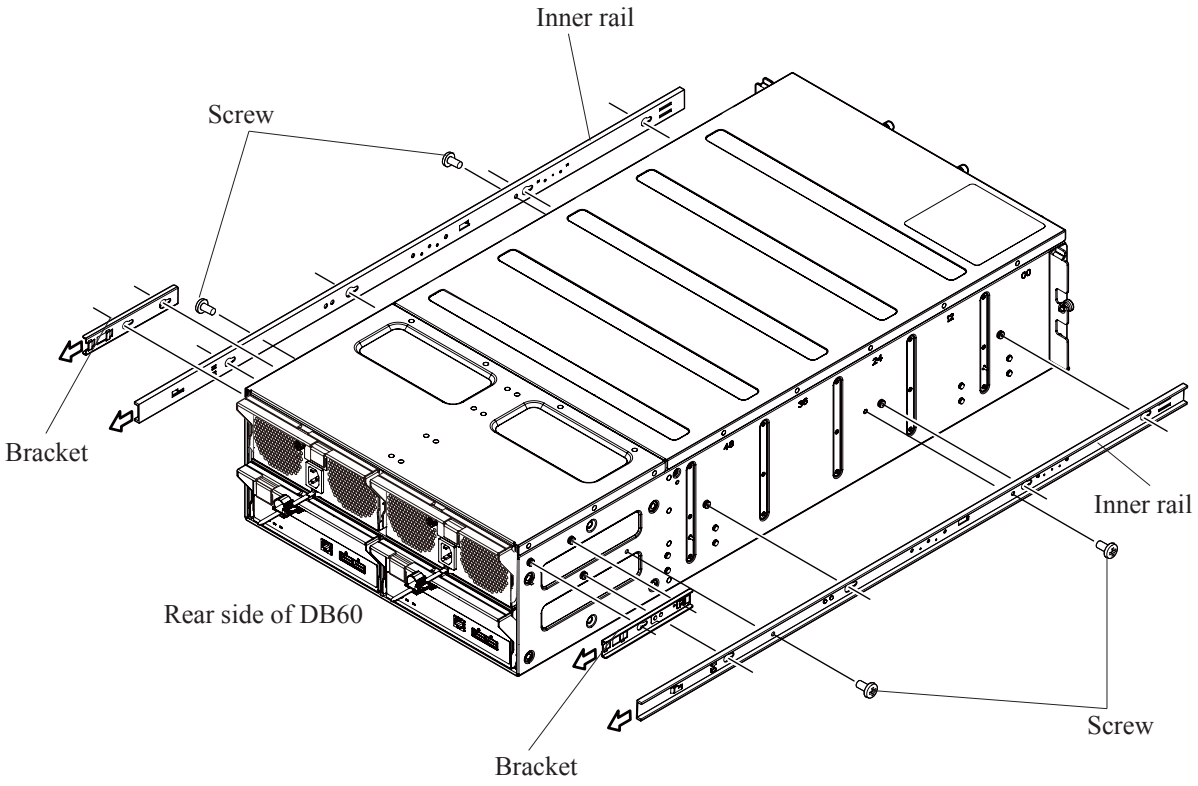
(a) Fit the projections (four places) on the sides of the DB60 in the holes of the inner rail and slide the rail backward to fix.

(b) Fit the projections (two places) on the sides of the DB60 in the holes of the bracket and slide the rail backward to fix.

(c) Fix the inner rail with screws (two places).

NOTE : • Check that the inner rails and brackets are surely installed.
• Install the inner rails and brackets in the right and left of the DB60.

Figure 2-18 Installing the Inner Rails



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(3) Installing the rails in the rack.

NOTE: • The right and left rails are identical.
• These rails extend or shorten back and forth.

(a) Install rack nuts for a rack with circular holes or cage nuts for a rack with rectangular holes in the sixth holes from the bottom unit boundary line on the front side of the rack to install the rails.

(b) Install rack nuts for a rack with circular holes or cage nuts for a rack with rectangular holes in the seventh holes from the bottom unit boundary line on the rear side of the rack to install the rails.

(c) Fit the positioning pins (two places each) on the front and rear sides of the rails to the fourth and ninth holes from the bottom unit boundary line on the rack to install the pins with the stopper.

NOTE : When the rails are installed normally, the stopper on the rear of the positioning pins clicks and locks.
Check that the rails are surely fixed.

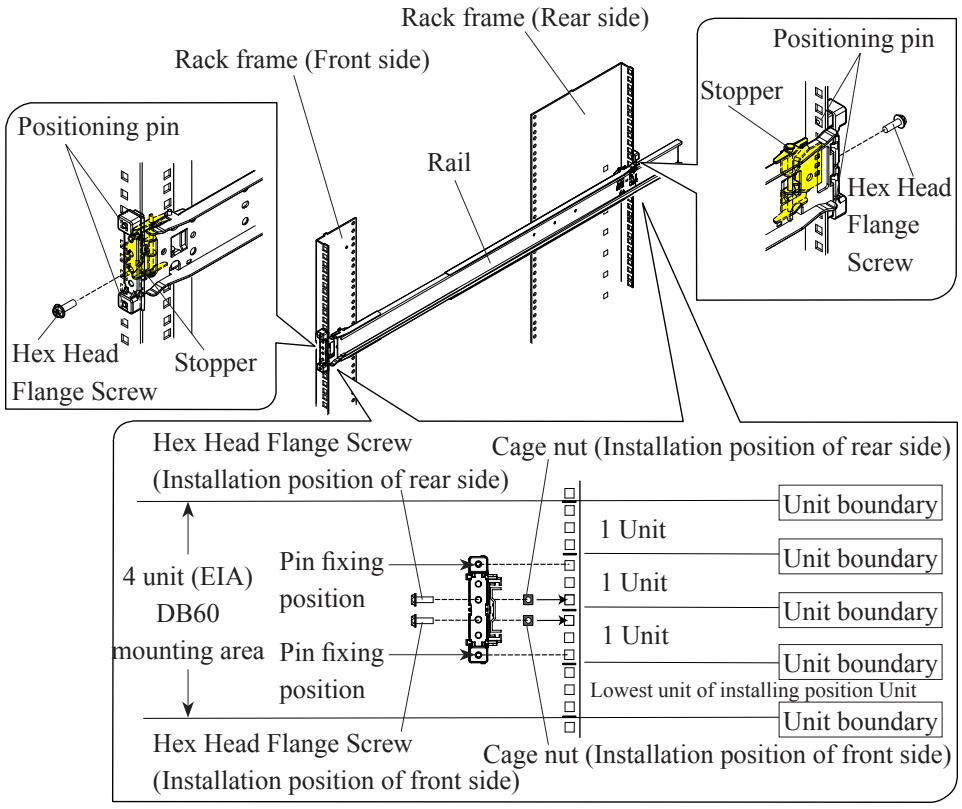
(d) Fix the front side with Hex Head Flange Screws. The fixing position is the sixth hole from the bottom of the unit boundary line.

(e) Fix the rear side with Hex Head Flange Screws. The fixing position is the seventh hole from the bottom of the unit boundary line.

(f) Install the rails in the right and left.

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Figure 2-19 Fixing the Rails to the Rack Frame



*1 : One EIA unit is approximately 44.45 mm.
*2 : This figure shows the rail is installed in the left side of the rack frame.

4. Installing rails for Drive Box (DBF)
The rail install procedure is different depending on the hole shape (square or circular hole) on the rack. Check the holes on the rack before the installation work.
Table 2-11 shows the components for the rails for Drive Box (DBF).

Table 2-11 Components for Rail (DW-F800-RRDBF) (Per Unit)

Item No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Slide Rail	2854551-A	1 set	Rail(R) and Rail(L)	—
2	Accessory Set	—	1	—	—
3	Screw	3261898-512	4	For fixing Storage System and rail	(*2)
4	Screw (M4_FLAT)	5550657-A	6	Pin for rectangular hole	(*2)
5	Repeat Binder	5409042-3	4(*1)	For fixing the cable	(*2)

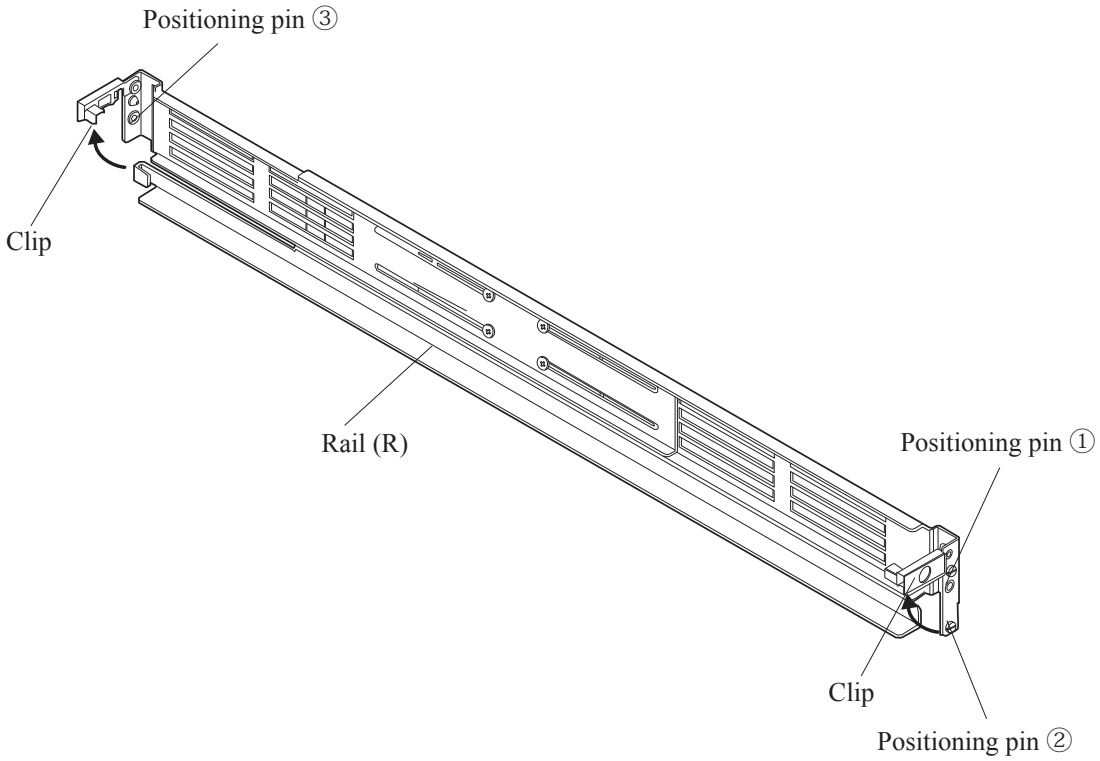
*1 : 2 spares are included.
*2: These parts are included in Item No. 2 Accessory Set.

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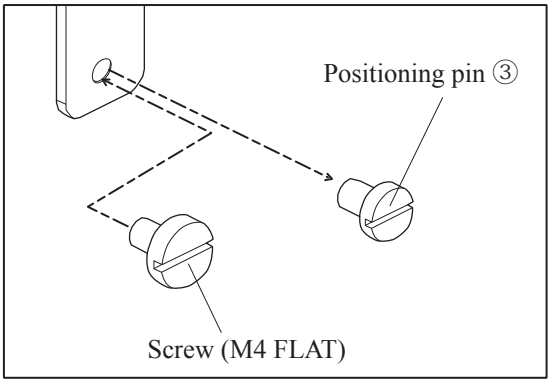
NOTE: • Front rails have two types; (R) and (L). Check that with the marking on the rail.
• These rails extend or shorten back and forth.

(1) Open two clips on the front and back of the rail (R).
(2) When the rack installation hole is rectangular, replace positioning pins ① , ② and ③ with the supplied screws (M4 FLAT) (ϕ 9.2 head screw).

Figure 2-20 Work before Installing Rails

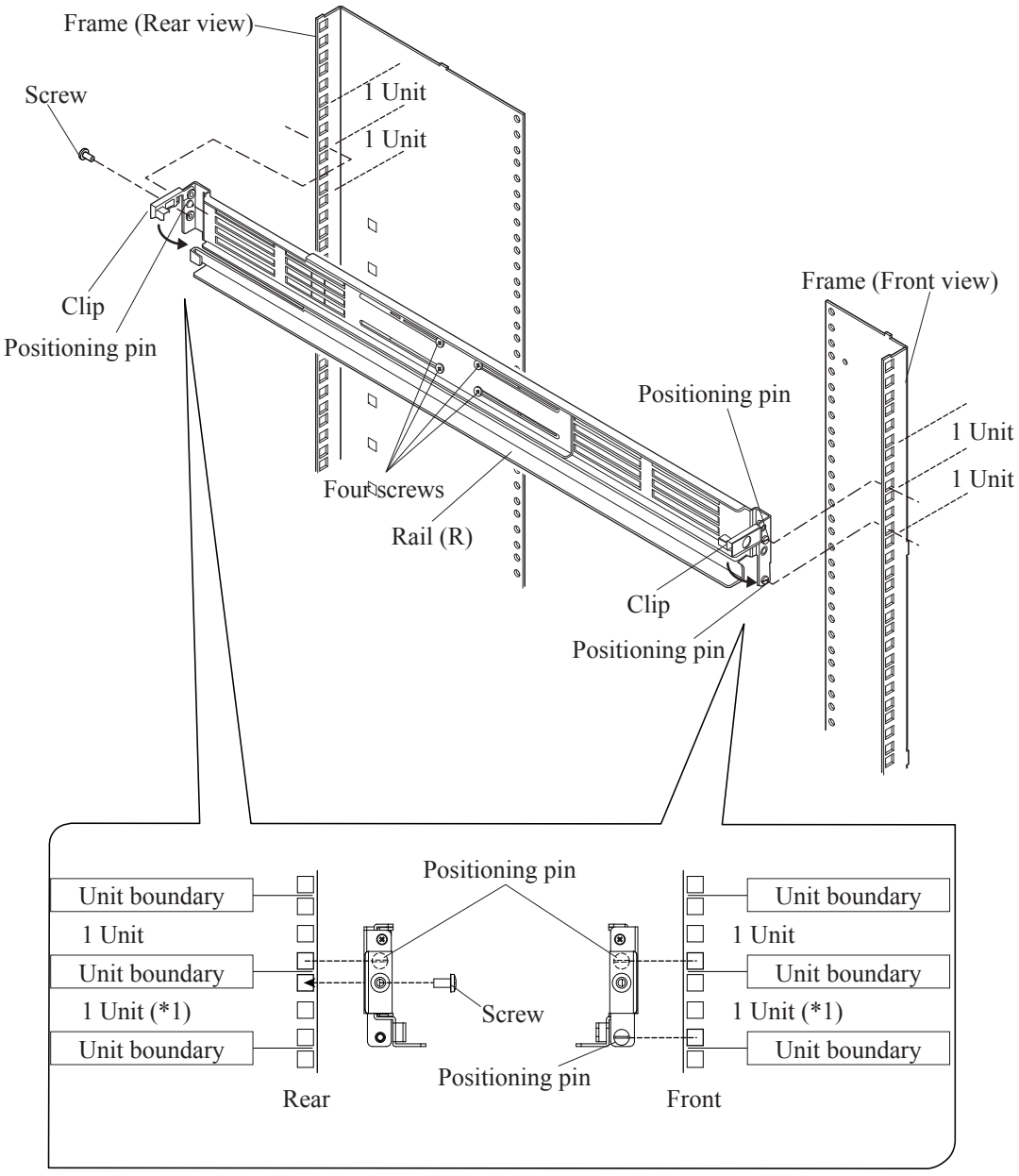


In case of square hole



(3) Loosen the four screws on the side of the rail (R) and adjust the rail (R) length.
When the rack frame and the rail width do not match even if loosening the screws, remove the four screws, adjust the length, and then fix the rail with four screws again.
(4) Fit the positioning pins (at three places in front and rear) in the holes in the position to be installed on the right side of the rack.
(5) Close the clips on the rail (R) and install the rail (R) in the rack.
(6) Tighten the four screws on the side of the rail (R).
(7) Fix the rear side of rail (R) with screw. The fixing position is the third hole from the bottom of the unit boundary line.
(8) Install a rail (L) on the left side of the rack in the similar procedure.

Figure 2-21 Installing Rails



*1: Lowest unit of installing position Unit

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5. Installing rails for Channel Board Box
   Install this rail immediately above the CBLH.
   The rail install procedure is different depending on the hole shape (square or circular hole) on the rack.
   Check the holes on the rack before the installation work.
   Table 2-12 shows the components for the rails for Channel Board Box.

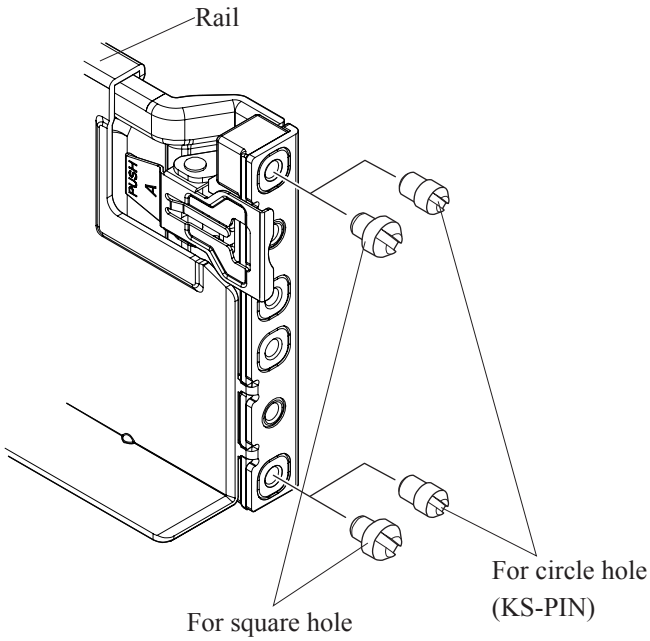
Table 2-12 Components for Rail (DW-F800-RRCB) (Per Unit)

Item No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Rail	2855180-A	1 set	Rail (R) and Rail (L)	—
2	Screw etc	—	1	—	—
3	Rack nut	5510146-1	4(*1)	For fixing Storage System and rail	(*2)
4	Cage nut	5528564-1	4(*1)	For fixing Storage System and rail	(*2)
5	KS-PIN	5557433-1	8(*1)	Pin for circular hole	(*2)
6	Binding screw (M5 × 10)	SB510N	8(*1)	For fixing rail and Storage System	(*2)
7	LL washer (M5)	5513553-513	4(*1)	For fixing rail (for square hole)	(*2)

*1 : 2 spares are included.
*2: These parts are included in Item No. 2 Screw etc.

When installing the rails to a rack with circle holes, replace the right and left pins (total of eight places) on the front and rear sides with the supplied circular hole pins (KS-PIN).

Figure 2-22 Replacing Square Hole Pins



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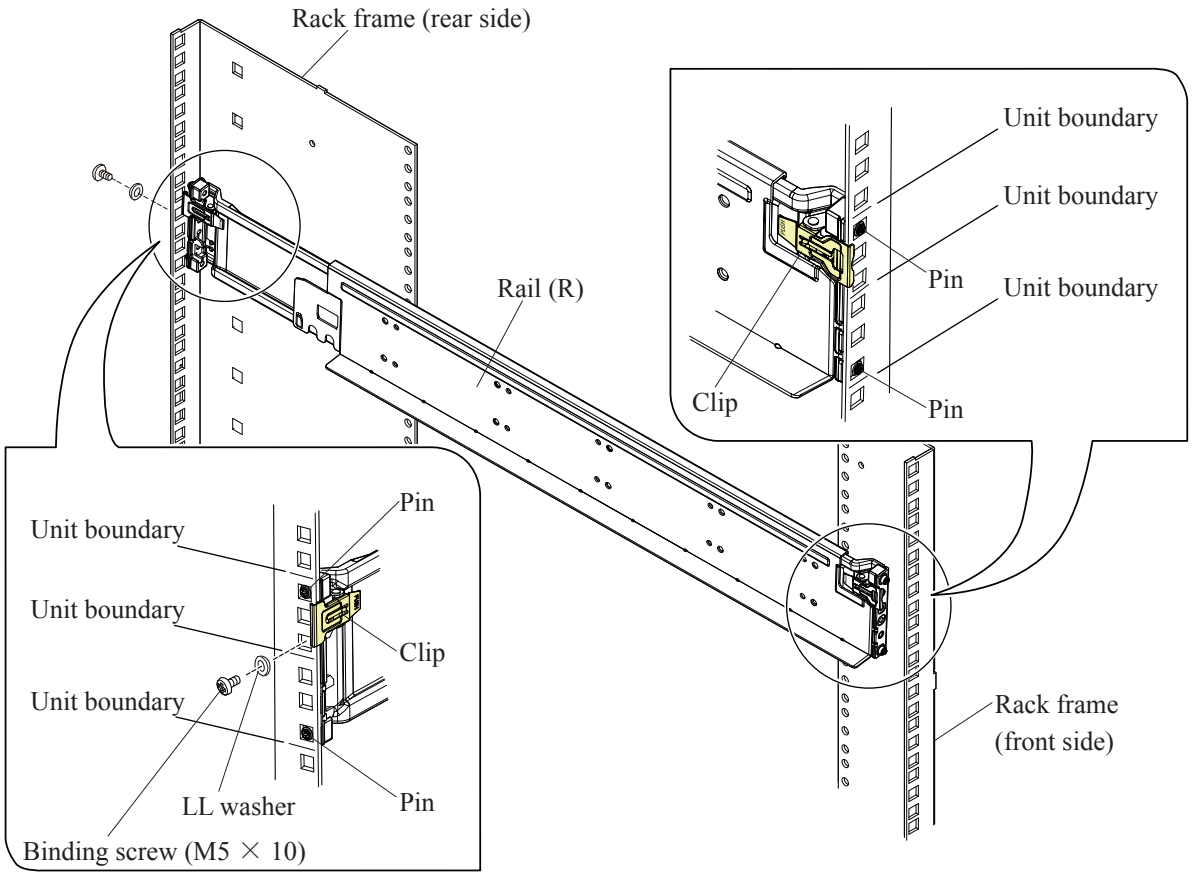
NOTE : • Front rails have two types; (R) and (L). Check that with the marking on the rail.
• These rails extend or shorten back and forth.

(1) Insert the pins on the front and back of the rail (R) into the holes on the front and back of the rack and clip them with rail clips to fix.
The pin positions are the first and sixth holes from the bottom of the unit boundary line on the rack for both front and back.

(2) Fix the rear side of the rail (R) with LL washer and binding screw (M5 × 10).
The fixing position is the fourth hole from the bottom of the unit boundary line.

(3) Install the rail (L) into the rack in a similar method.

Figure 2-23 Installing Rails for Channel Board Box



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2.4 Unpacking Storage Systems

⚠ CAUTION

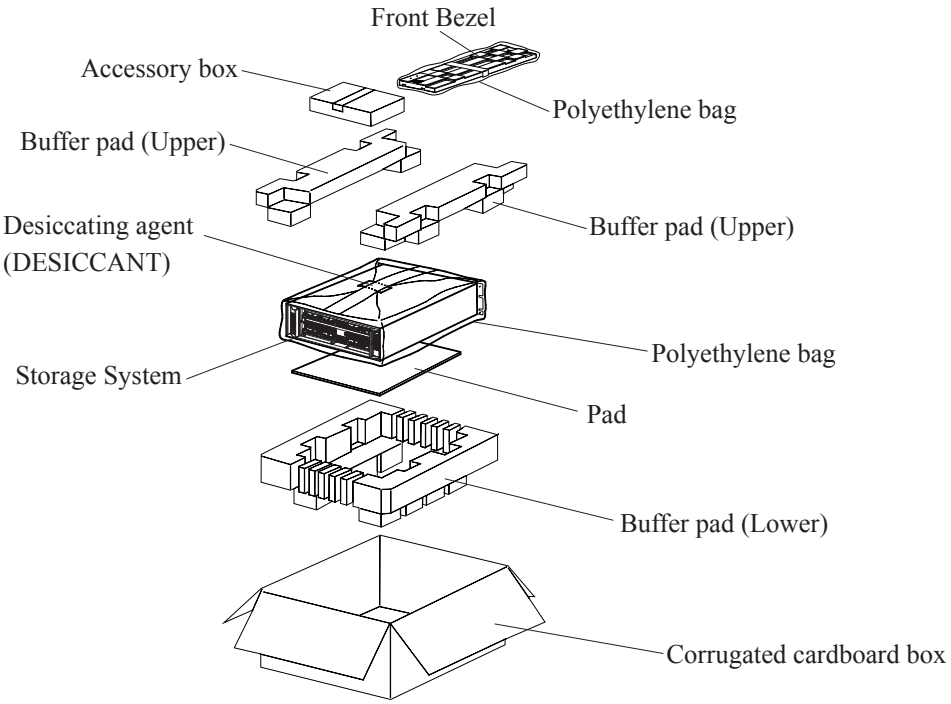
- The unpacking should be done by two or more workers to prevent turning over of the Storage System or being caught under the Storage System.
- Work carefully because the mass of the single CBSS is about 44 kg, CBSL is about 46 kg, CBLM/CBLH is about 85 kg, DBS is about 23 kg, DBL is about 27 kg, DB60 is about 90 kg, DBF is about 38 kg, and CHBB is about 40 kg.

1. Unpacking

NOTE : • Unpack it indoors.
Especially, do not unpack it in such places with the outdoor dust, the direct sunlight, and the infiltration of rainwater.
• Work on the unpacking in the place where a rapid difference of temperature does not occur. It may have dew condensation when it is unpacked in the place where a difference of temperature is extreme.
Figure 2-24 shows the packed Storage System status.

(1) Remove the outer package and packing materials.
(2) Take the Storage System out of the polyethylene bag.
(3) Remove tapes, etc. applied to the Storage System.
(4) Remove desiccating agent from the lower of the Storage System.
(5) Check that the Storage System has no distortion or damage owing to the transport.

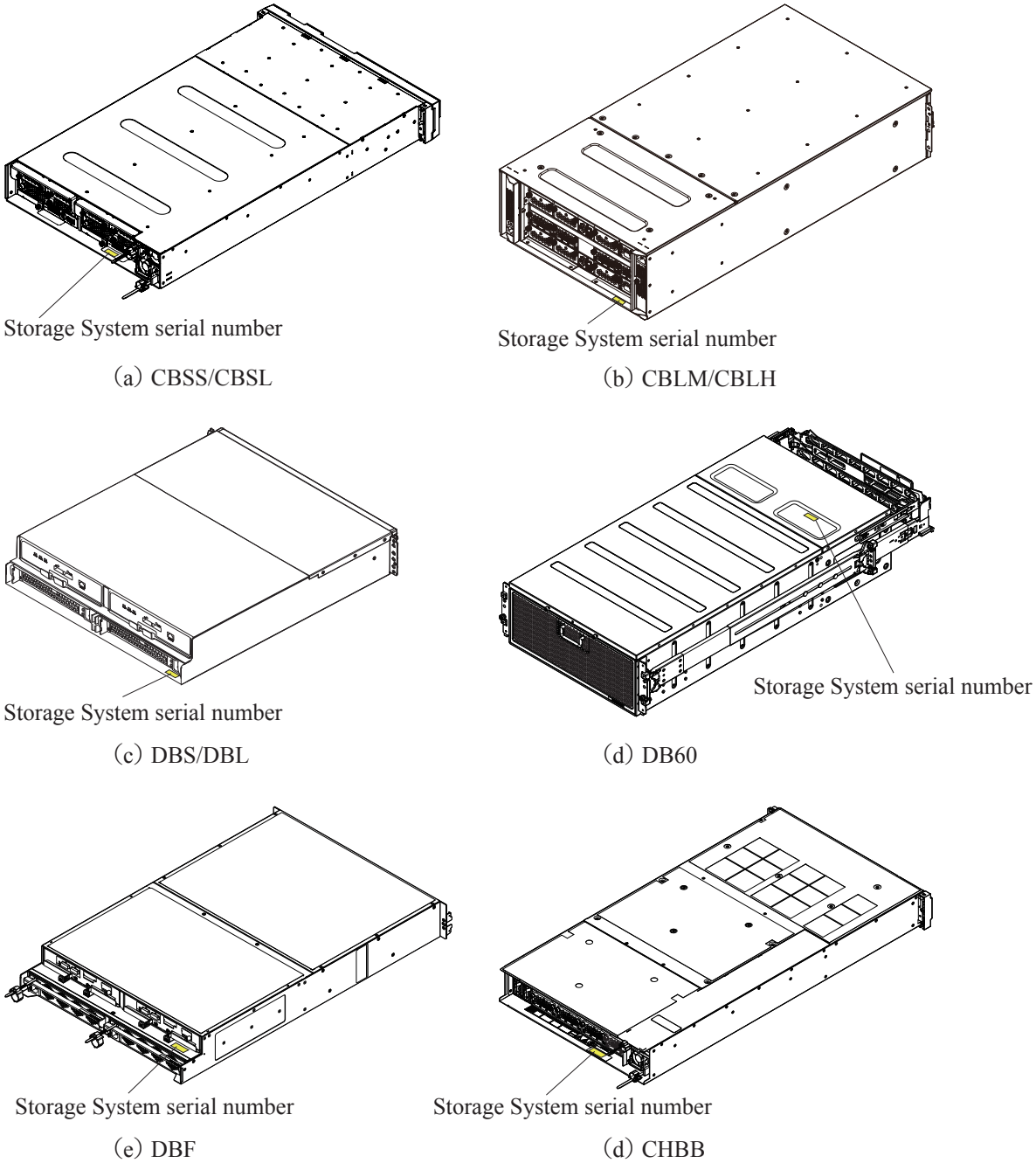
Figure 2-24 Packed Storage System



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2. Checking the Storage System configuration and supplements
   (1) Check if the components of the Storage System (their model names, product serial numbers, and quantities) agree with those in the packing list shipped.
   (2) The key supplied with the Storage System must be kept by service personnel in order to prevent users from maintaining the Storage System.
   The key for Front Bezel is used to mount and dismount Front Bezel for Storage System.
   The key for front lock is used to lock and unlock the front of the DB60. Keep the key carefully.

Figure 2-25 Position of Storage System Serial Numbers Markings



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2.5 Removing Components

1. Work Procedure before Installing the Rack Mounting
   When installing the rack by the special lifter, install it in the rack frame with each part installed. (Work on "2.6 Mounting on a Rack Frame".)
   When the special lifter is not used, you can install the rack in the rack frame with each part installed if the height of the installation position is one meter or lower except for DB60.
   Install DB60 in the rack frame after removing each part regardless of the installation position.
   When installing the parts, hold it in the way that fingertips of the hand putting the wrist strap on touches the metallic portion of the side.

NOTICE:
- To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the Storage System before starting and do not take it off until you finish. Refer to "1.1.2 Note when Installing and Removing Parts".
- Be sure to wear a wrist strap connected to the Storage System whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.

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2.5.1 Removing Drives

The procedure for removing a Drive is different among the CBSL/DBL/DBF, CBSS/DBS and DB60.

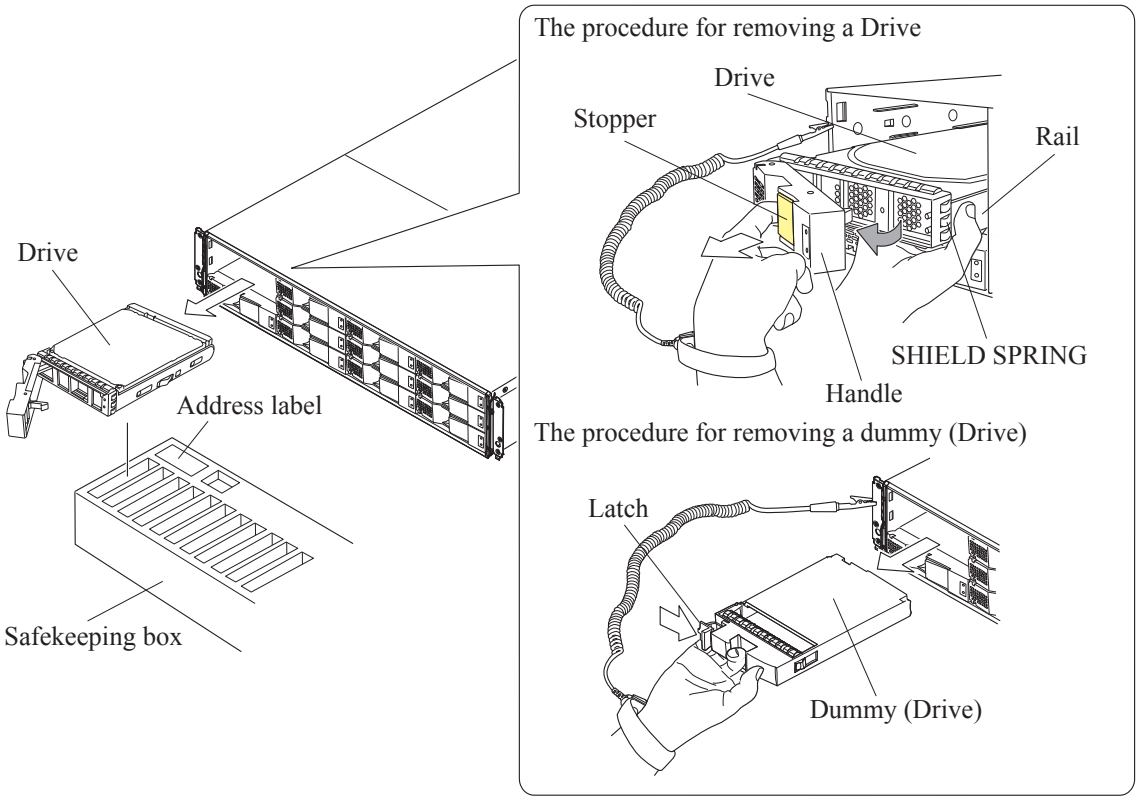
2.5.1.1 Removing Drives for CBSL/DBL/DBF

NOTICE: Be sure to read "1.1.9 Notes when Handling the Flash Module Drive (FMD)" before handling the FMD and perform the procedure following the notes.

1. Remove the Front Bezel. (See "1.4.1.1 In Case of CBSS/CBSL/DBS/DBL/DBF/CHBB".)
2. Remove the Drive or a dummy (Drive).
   Pull the stopper of the handle toward you to have the lock off, open the handle, and then remove the Drive by pulling it out taking care not to apply a shock to it.
   Pressing the latch on the left side of the dummy (Drive) to the direction of the arrow, hold the right side of the dummy (Drive) and pull it out, and then remove it.

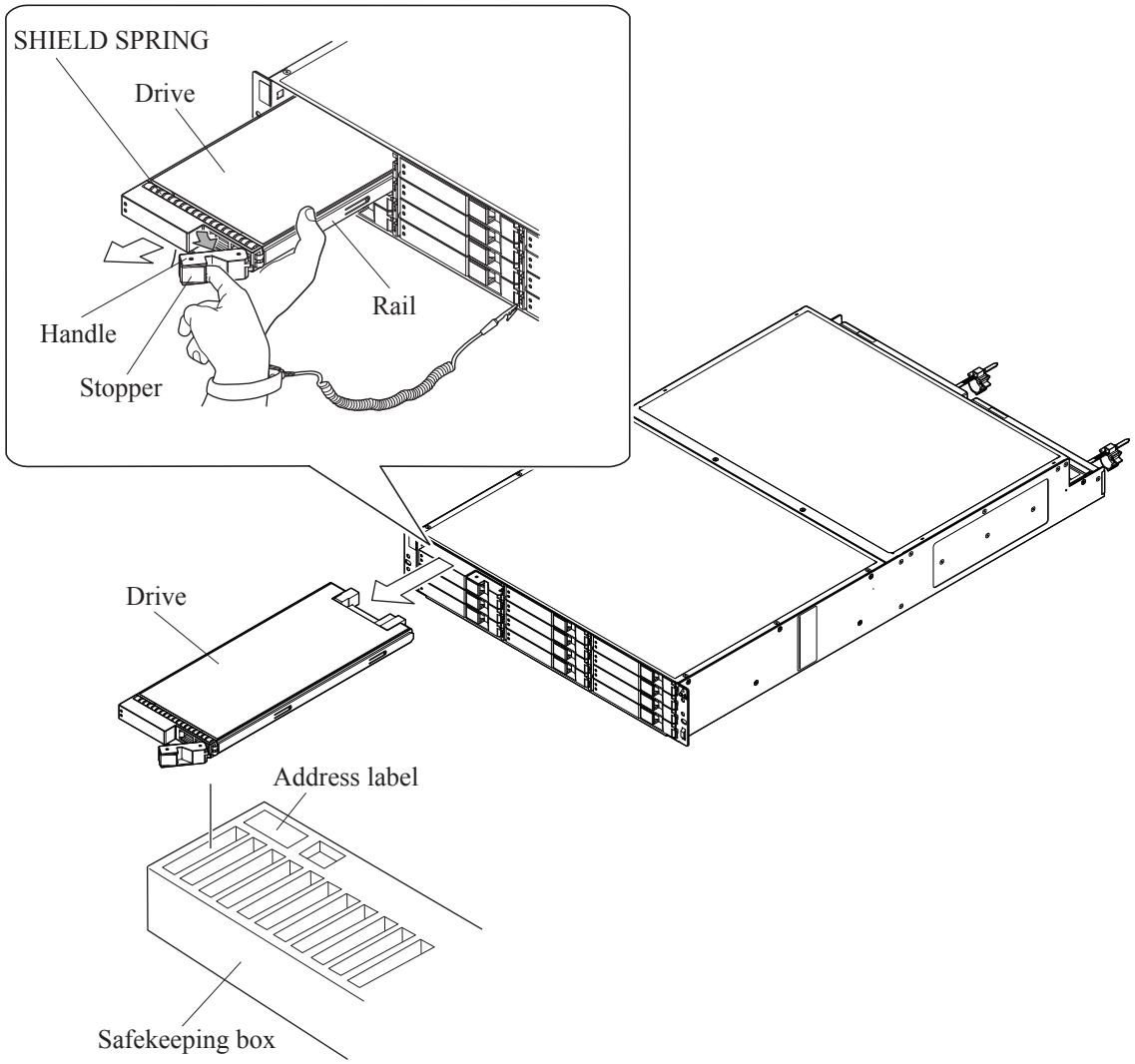
   NOTE : When handling the Drive, hold the RAIL side because the SHIELD SPRING is subject to breakage.
3. Keep the Drive of dummy (Drive) that has been removed temporarily in the component safekeeping container at the location shown on the address label with its handle returned to its original state (locked by the stopper). It is to be installed in the Storage System unit after the unit is mounted on the rack frame.

Figure 2-26 Removing Drive (CBSL/DBL)



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Figure 2-27 Removing Drive (DBF)

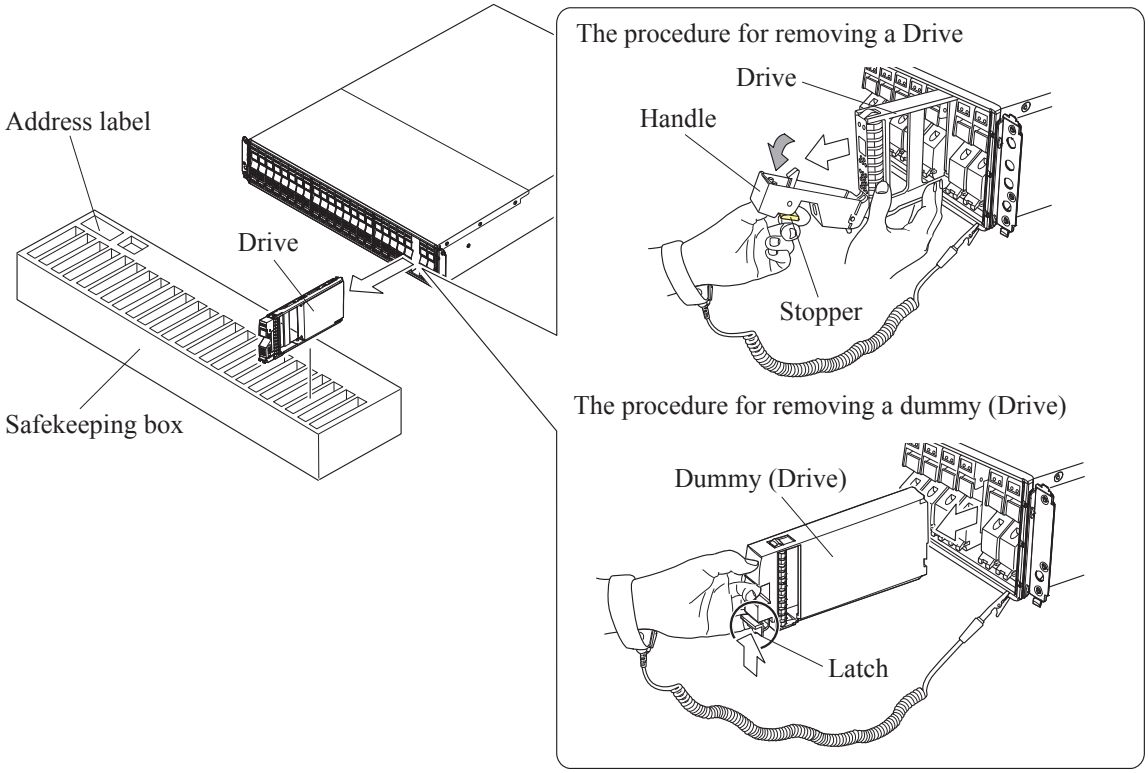


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2.5.1.2 Removing Drives for CBSS/DBS

1. Remove the Front Bezel. (See "1.4.1.1 In Case of CBSS/CBSL/DBS/DBL/DBF/CHBB".)
2. Remove the Drive or a dummy (Drive).
   Pull the stopper of the handle toward you to have the lock off, tilt the handle toward you, and then remove the Drive by pulling it out taking care not to apply a shock to it.
   Pressing the latch at the lower part of the dummy (Drive) to the direction of the arrow, hold the upper part and pull it out, and then remove it.
3. Keep the Drive of dummy (Drive) that has been removed temporarily in the component safekeeping container at the location shown on the address label with its handle returned to its original state (locked by the stopper). It is to be installed in the Storage System after the Drive is mounted on the rack frame.

Figure 2-28 Removing Drive (CBSS/DBS)



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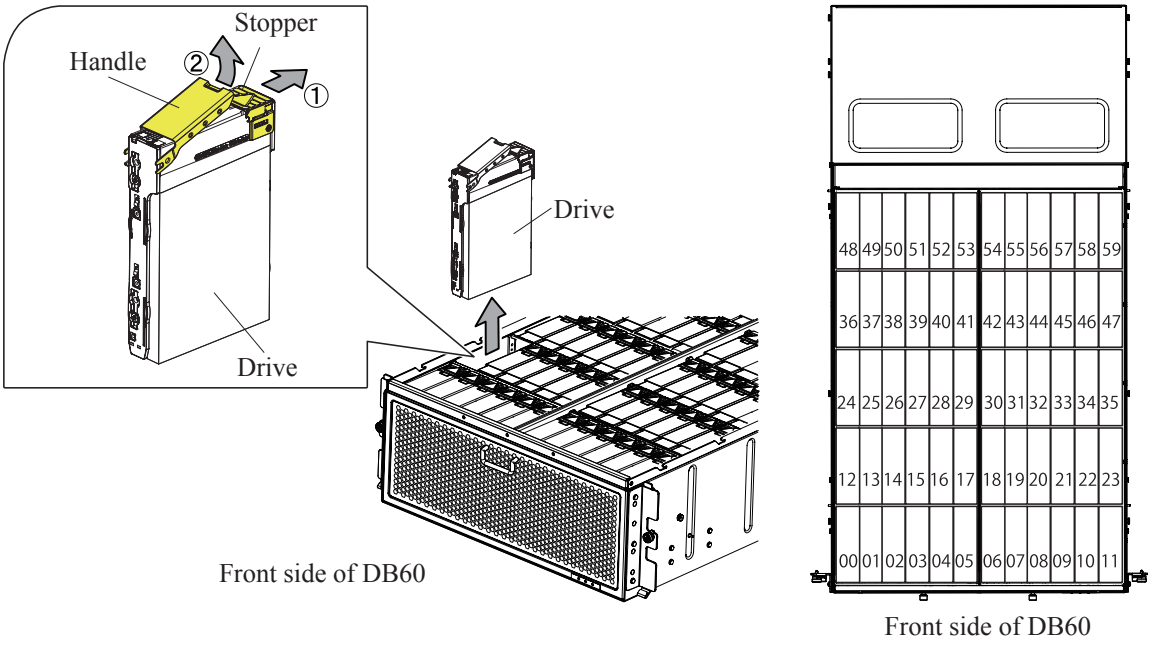
2.5.1.3 Removing Drives for DB60

1. Remove the top cover of the DB60. (Refer to "1.4.1.3 In Case of DB60".)
2. Remove the Drive or a dummy (Drive).
   Only remove the dummy (Drive) from the DB60.
   (1) Slide (①) the stopper of the drive handle and release the lock.
   (2) Open the handle (②), and then pull out and remove the Drive to be replaced taking care not to apply a shock to it.

   NOTE : When handling the Drive, hold the RAIL side because the SHIELD SPRING is subject to breakage.
3. Temporarily store the removed Drive with its handle returned to the original status. It is to be installed in the DB60 after the DB60 is mounted on the rack frame.
   Dummy (Drive) does not have a handle.
4. Attach the top cover of the DB60. (Refer to "1.4.1.3 In Case of DB60".)

   NOTE: Do not drop a screw and such in the DB60.
   If you dropped it, remove it immediately.
   If you leave it, the parts will short out and cause a fire or a failure.

Figure 2-29 Removing Drive (DB60)

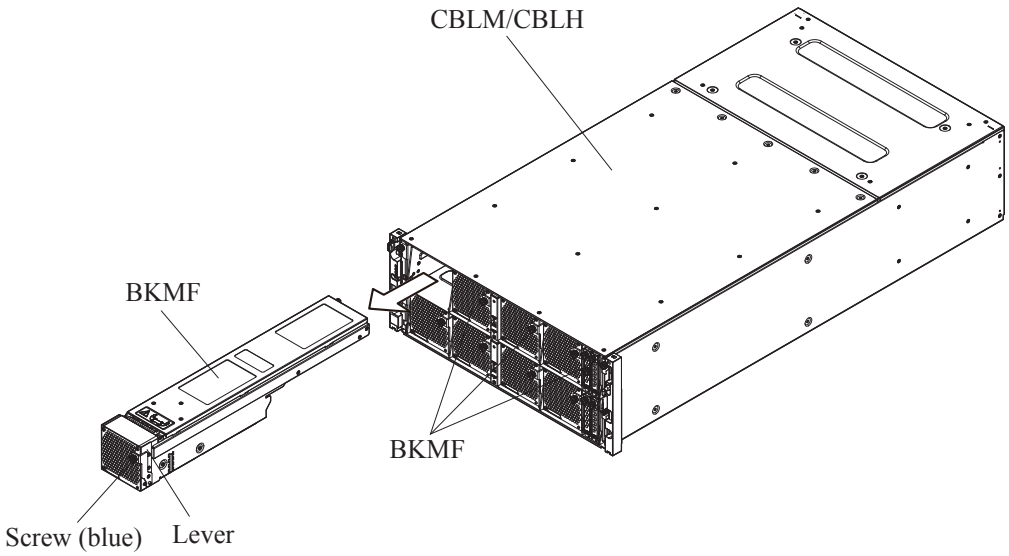


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2.5.2 Removing BKMF (CBLM/CBLH)

1. Loosen the screw (blue) fixing the BKMF.
2. Open the lever and pull out the BKMF to remove.

Figure 2-30 Removing BKMF (CBSS/CBSL)



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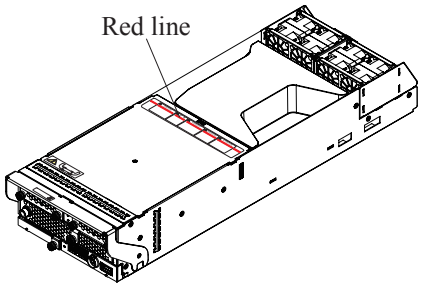
2.5.3 Removing Controller Board and the Built-in Parts

The built-in parts of the Controller Board include a Channel Board and a Disk Board.

2.5.3.1 Removing Controller Board for CBSS/CBSL

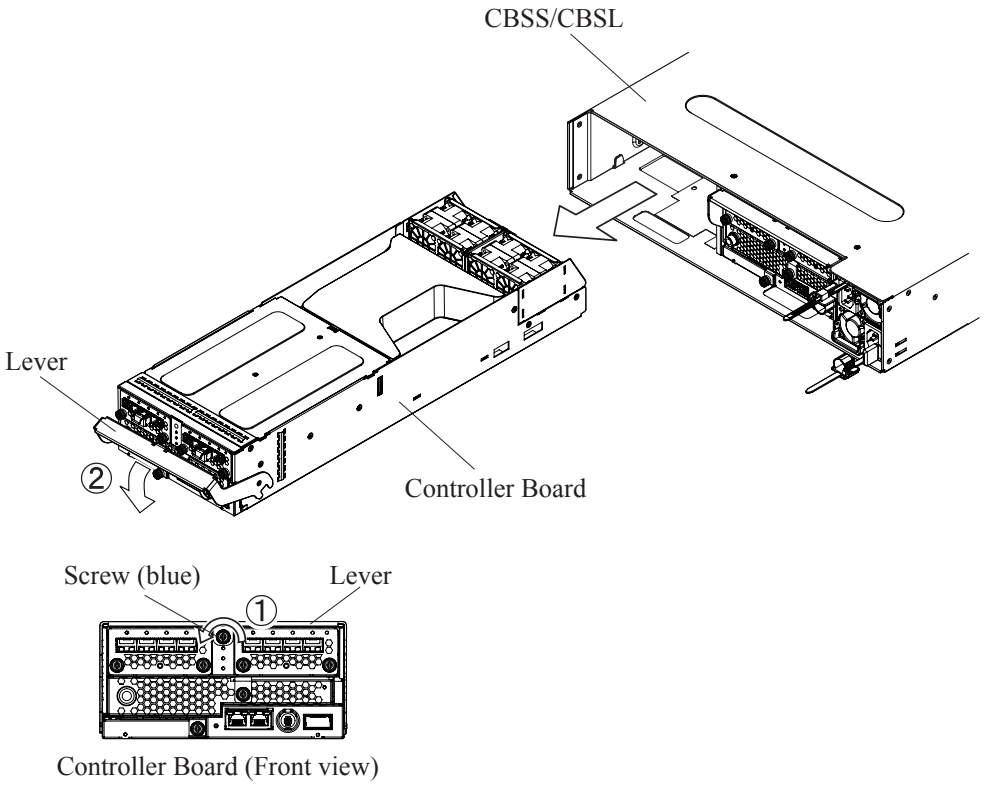
⚠ CAUTION

Dropping the Controller Board may cause injury. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the array past this mark, keep a firm hold on the Controller Board.



1. Loosen the screw (blue) fixing the Controller Board (①) and open the lever (②).
2. Hold the Controller Board with both hands and pull out it to remove.

Figure 2-31 Removing Controller Board (CBSS/CBSL)



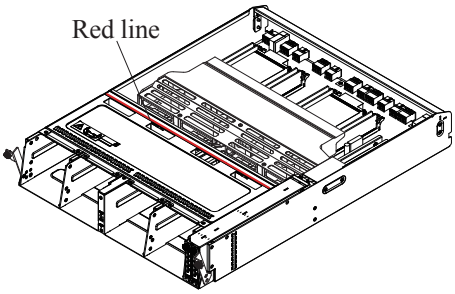
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2.5.3.2 Removing Controller Board for CBLM/CBLH and Built-in Parts

1. Remove the Controller Board.

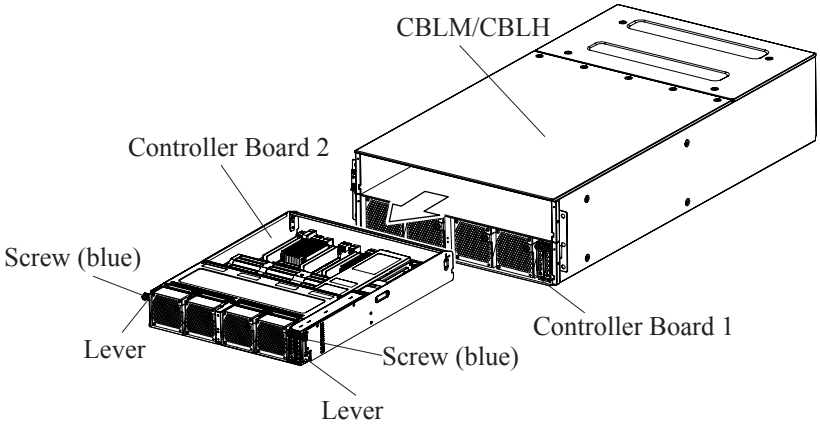
⚠ CAUTION

Dropping the Controller Board may cause injury. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the array past this mark, keep a firm hold on the Controller Board.



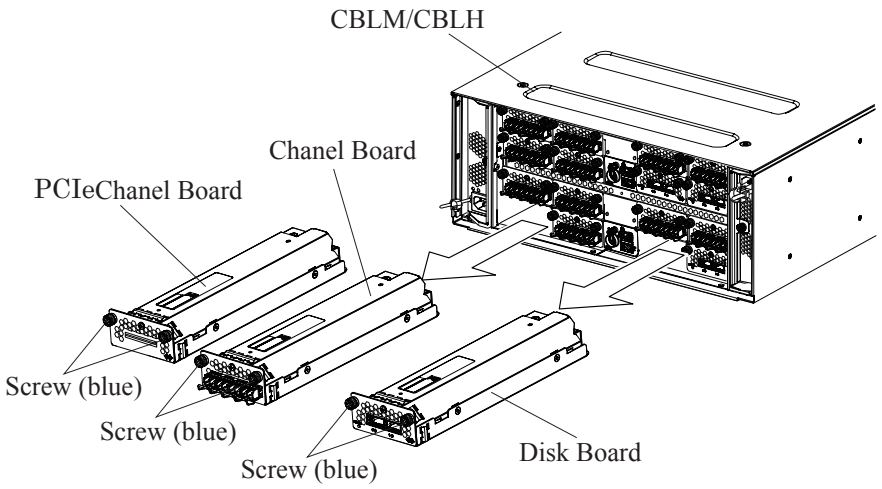
(1) Loosen the right and left screws (blue) and open the lever.
(2) Open the lever completely and pull out the Controller Board toward you to remove.

Figure 2-32 Removing Controller Board (CBLM/CBLH)



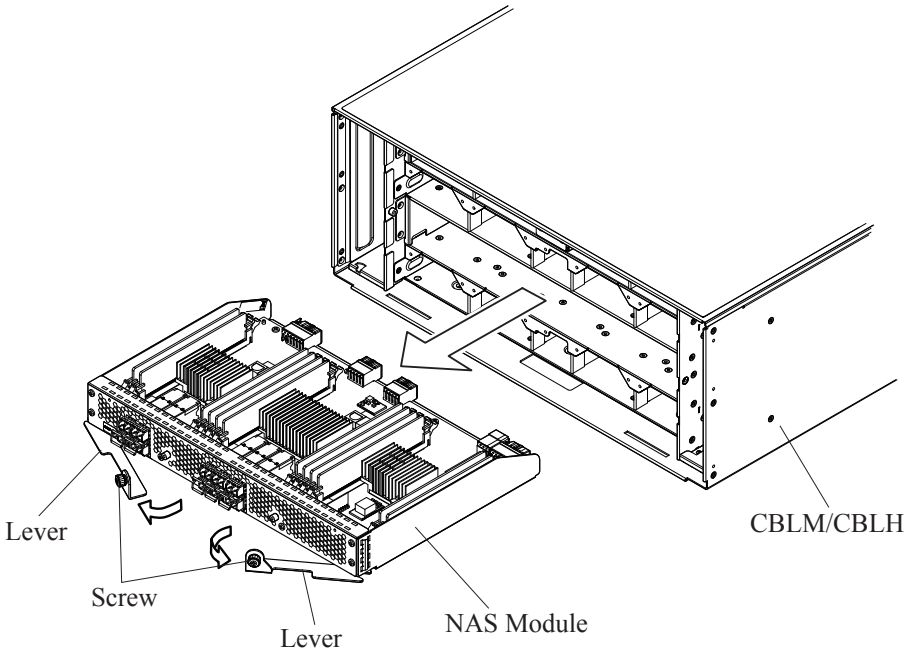
2. Remove the Channel Board, PCIe Channel Board, or Disk Board.
   The PCIe Channel Boards can be mounted on the CBLH only.
   (1) Loosen two screws (blue) fixing the Board.
   (2) Hold the screws (blue) and pull out the Chanel Board, PCIe Channel Board, or the Disk Board to remove.

Figure 2-33 Removing Channel Board, PCIe Channel Board, or Disk Board



3. When the NAS Module was installed, remove it.
   (1) Loosen the screws (two places).
   (2) Open the lever of the NAS Module.
   (3) Remove the NAS Module from the slot.

Figure 2-34 Removing the NAS Module

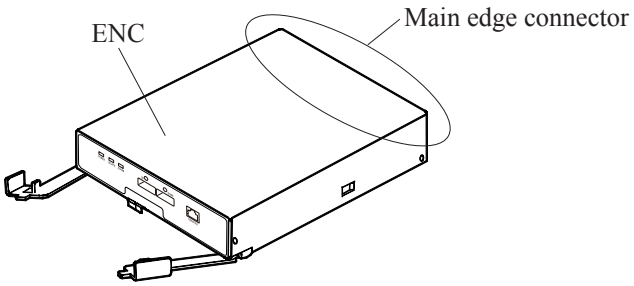


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2.5.4 Removing ENC

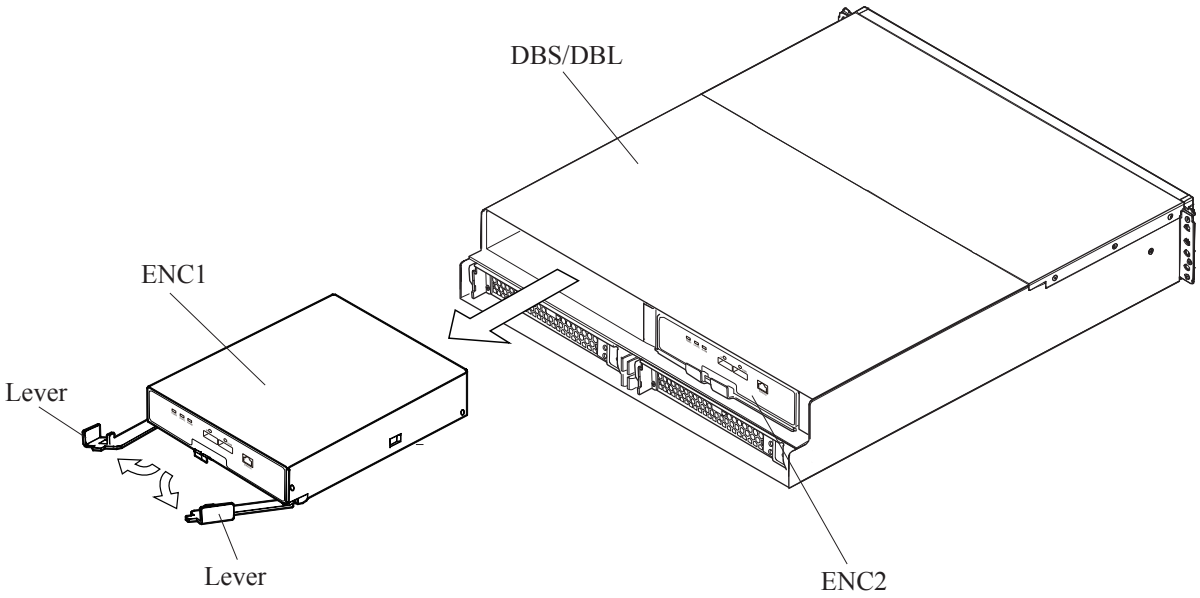
2.5.4.1 Removing ENC for DBS/DBL/DBF

NOTICE:
- Do not touch the main edge connector of the ENC directly because it is breakable.
- Be careful not to hit the connector when placing the ENC temporarily.



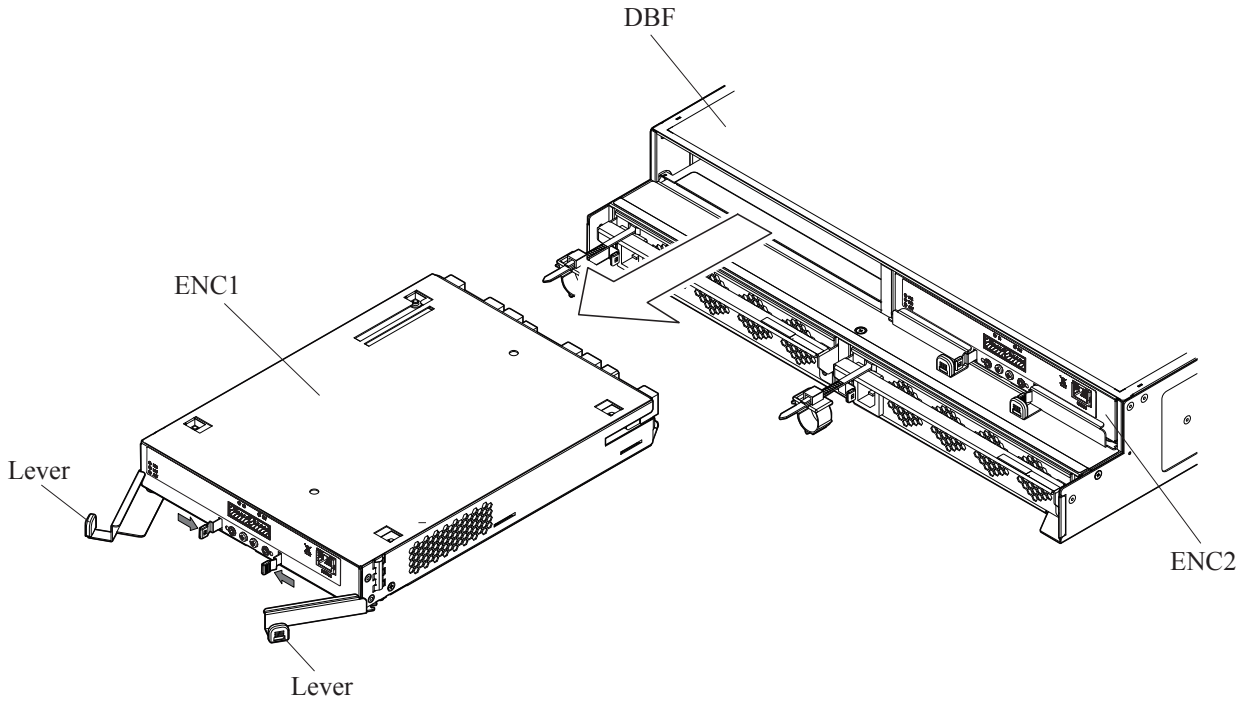
1. Raise the right and left levers fixing the ENC toward you.
   When the lever is completely opened, the ENC comes out forward.
2. Hold the ENC with both hands and pull it out to remove.

Figure 2-35 Removing ENC (DBS/DBL)



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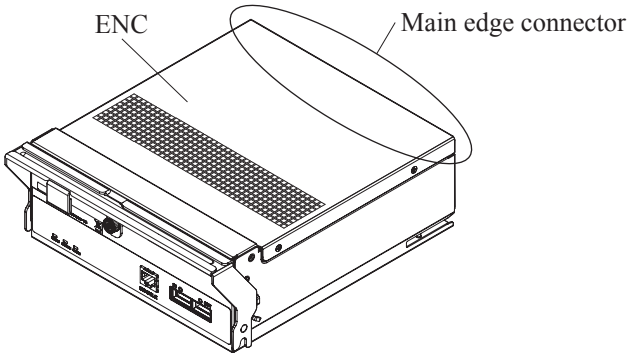
Figure 2-36 Removing ENC (DBF)



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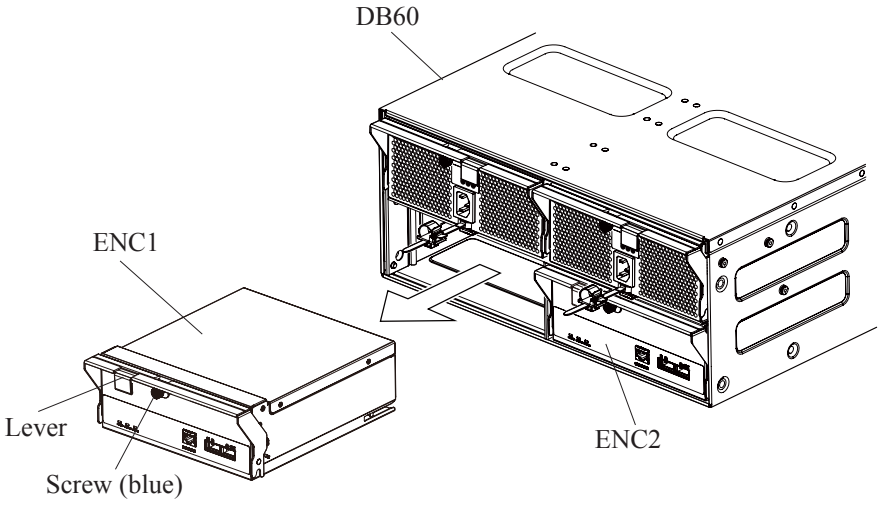
2.5.4.2 Removing ENC for DB60

NOTICE:
- Do not touch the main edge connector of the ENC directly because it is breakable.
- Be careful not to hit the connector when placing the ENC temporarily.



1. Loosen the screw (blue) fixing the ENC and open the lever.
2. Hold the ENC with both hands and pull it out to remove.

Figure 2-37 Removing ENC (DB60)



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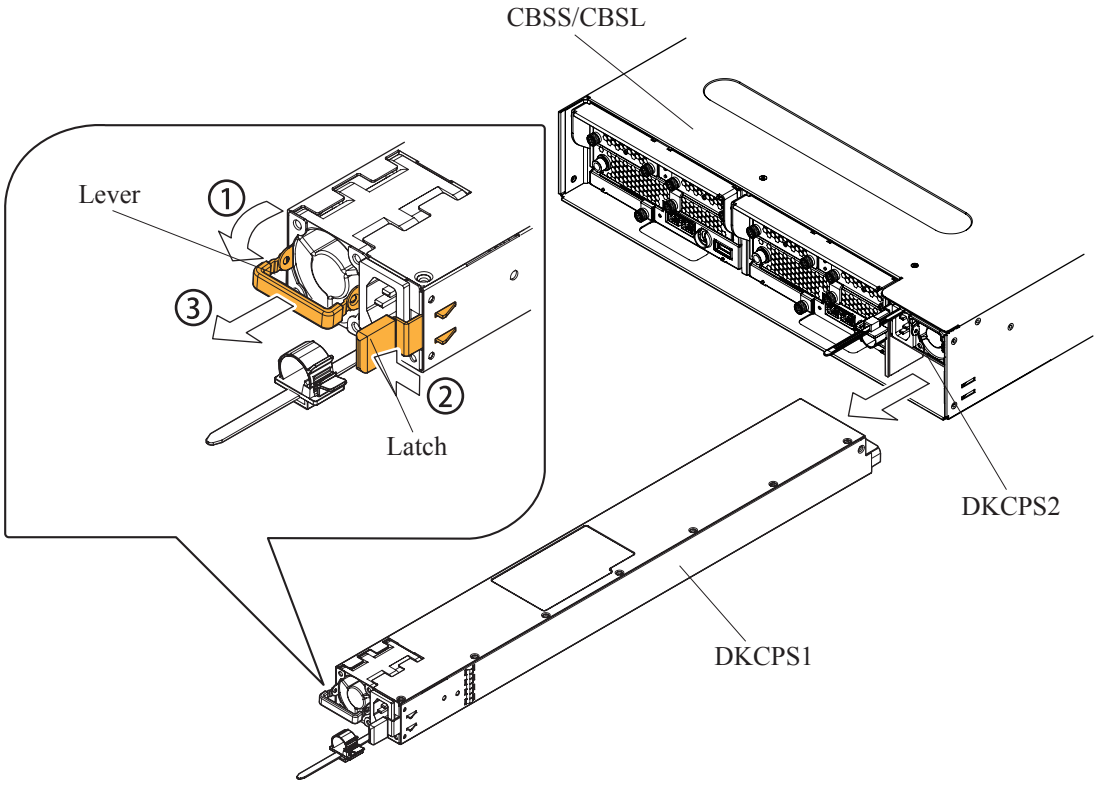
2.5.5 Removing Power Supply

The shapes and installation methods of the Power Supply differ depending on each type. Do not make a mistake to mount the Power Supply in the specified position.

2.5.5.1 Removing Power Supply (DKCPS) for CBSS/CBSL

1. Pull the lever open (①).
2. Pull the lever (③) while pressing the latch on the DKCPS inward (②).
3. Pull out and remove the DKCPS while holding its body with both hands.

Figure 2-38 Removing the Power Supply (DKCPS) (CBSS/CBSL)

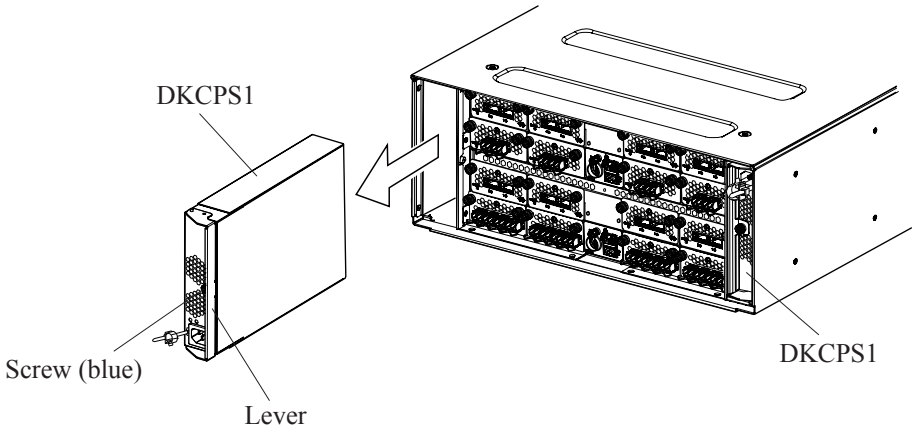


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2.5.5.2 Removing Power Supply (DKCPS) for CBLM/CBLH

1. Loosen the screw (blue) fixing the Power Supply (DKCPS).
2. Open the lever completely, and pull out to remove it.
   When the lever is completely opened, the Power Supply (DKCPS) comes out forward.
3. Pull out and remove the Power Supply (DKCPS) while holding the body with both hands.

Figure 2-39 Removing Power Supply (DKCPS) (CBLM/CBLH)

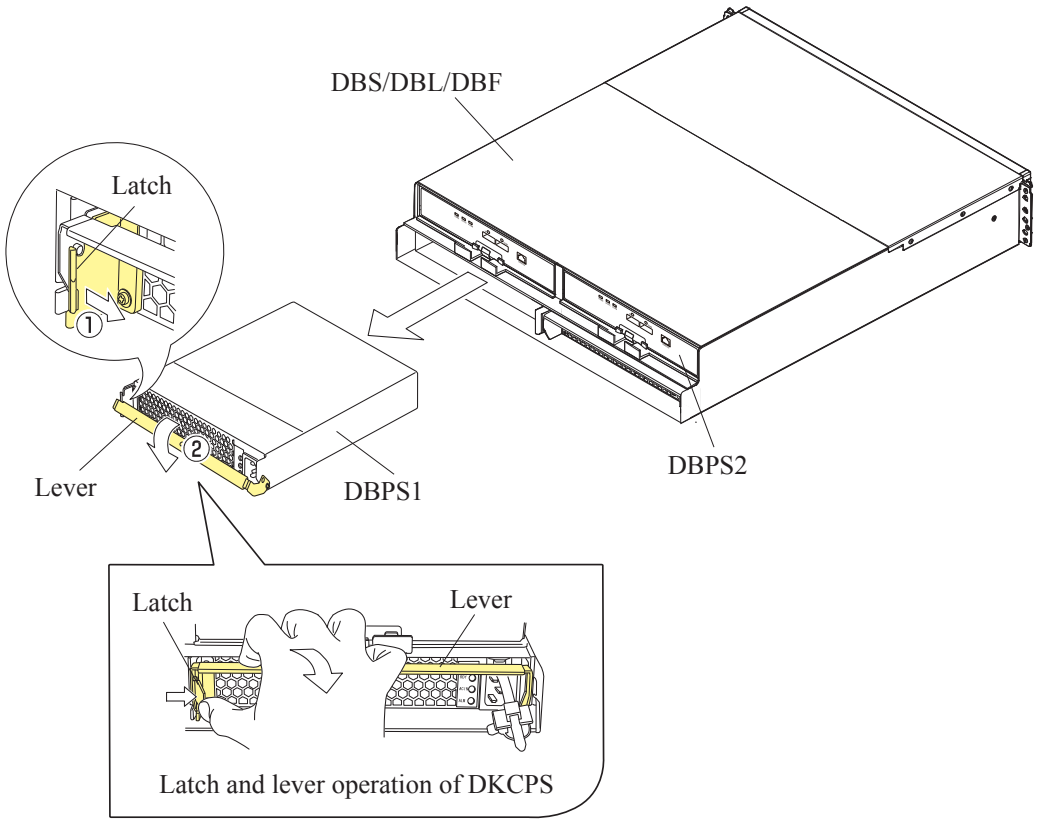


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2.5.5.3 Removing Power Supply (DBPS) for DBS/DBL/DBF

1. Pull the lever open (②) while pressing the latch on the Power Supply (DBPS) inward with right thumb (①).
   When the lever is completely opened, the Power Supply (DBPS) comes out forward.
2. Pull out and remove it while holding the body of the Power Supply (DBPS) with both hands.

Figure 2-40 Removing Power Supply (DBPS) (DBS/DBL/DBF)

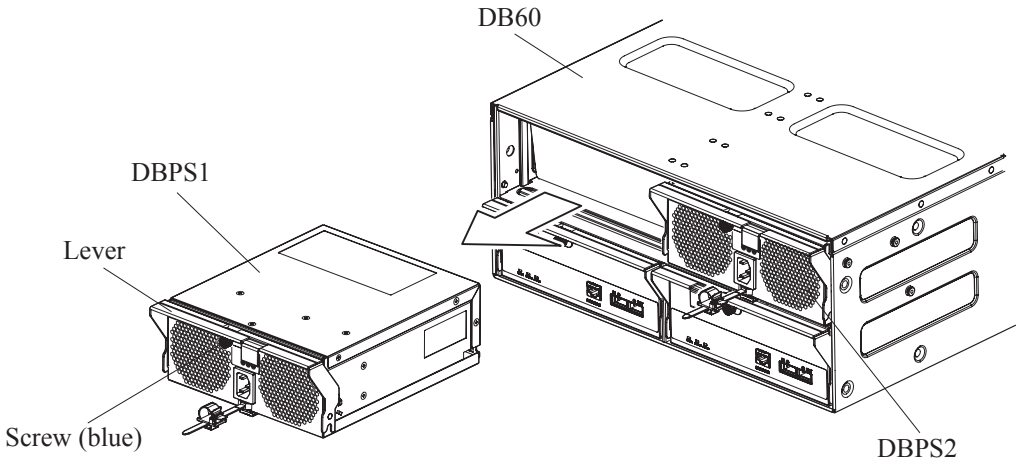


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2.5.5.4 Removing Power Supply (DBPS) for DB60

1. Loosen the screw (blue) fixing the Power Supply (DBPS).
2. Open the lever.
3. Hold the Power Supply (DBPS) with both hands and pull out it to remove.

Figure 2-41 Removing Power Supply (DBPS) (DB60)



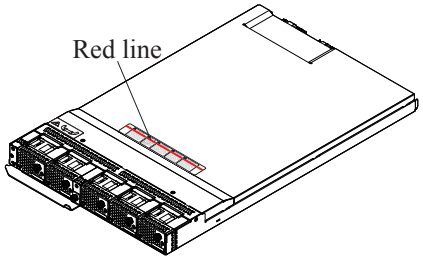
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2.5.6 Removing Built-in Parts from the Channel Board Box

2.5.6.1 Removing Switch Package (SWPK)

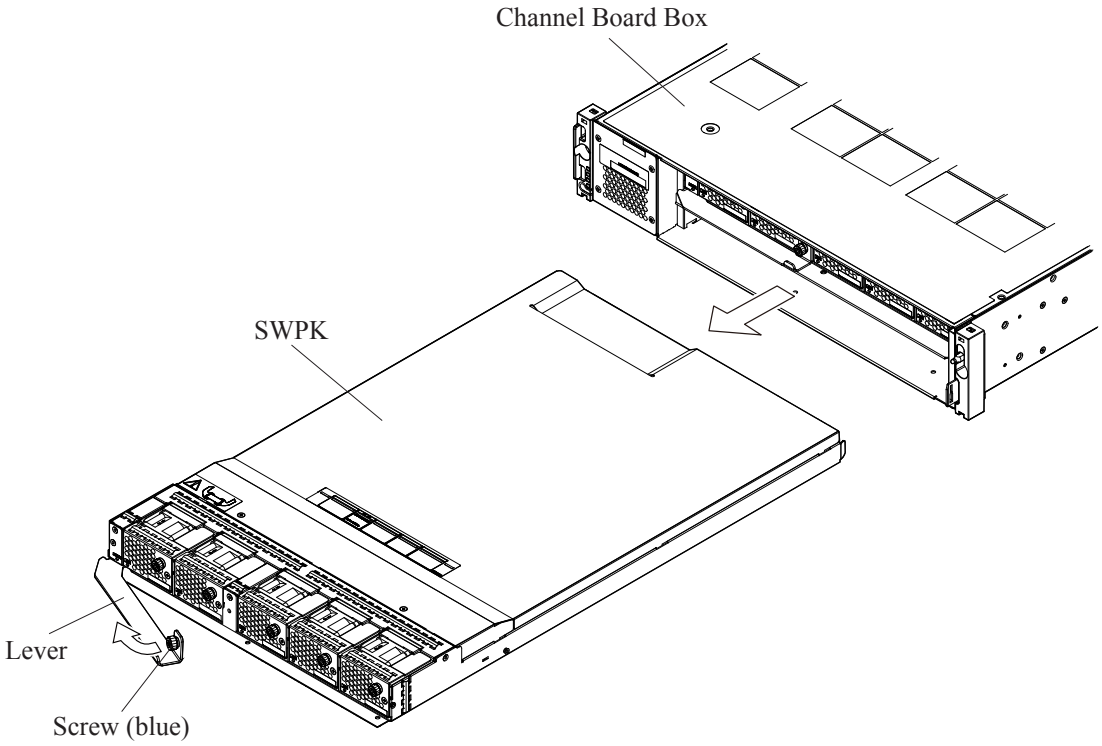
⚠ CAUTION

Dropping the Controller Board may cause injury. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the array past this mark, keep a firm hold on the Controller Board.



1. Loosen the screw (blue) which fixes the Switch Package (SWPK) and open the lever to pull out.
2. If the lever opens completely, the Switch Package (SWPK) is pulled out.
3. Pull out and remove the Switch Package (SWPK) while holding its body with both hands.

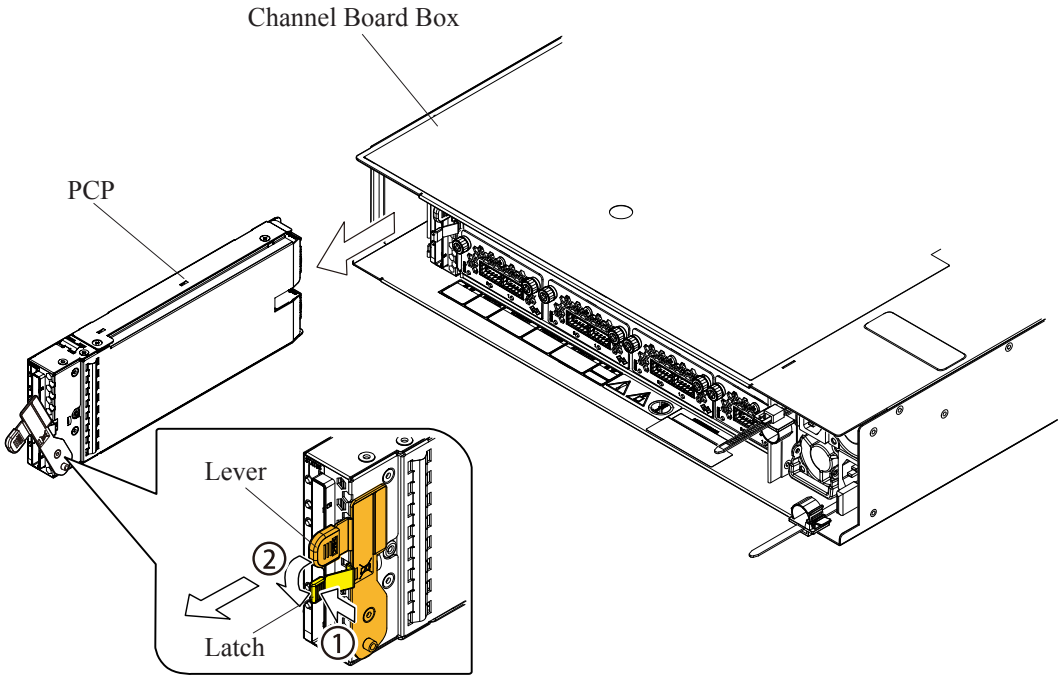
Figure 2-42 Removing Switch Package (SWPK)



2.5.6.2 Removing PCIe-cable Connecting Package (PCP)

1. Open the lever toward you (②) while pressing the latch (①).
2. Pull out and remove of the PCIe-cable Connecting Package.

Figure 2-43 Removing PCIe-cable Connecting Package (PCP)

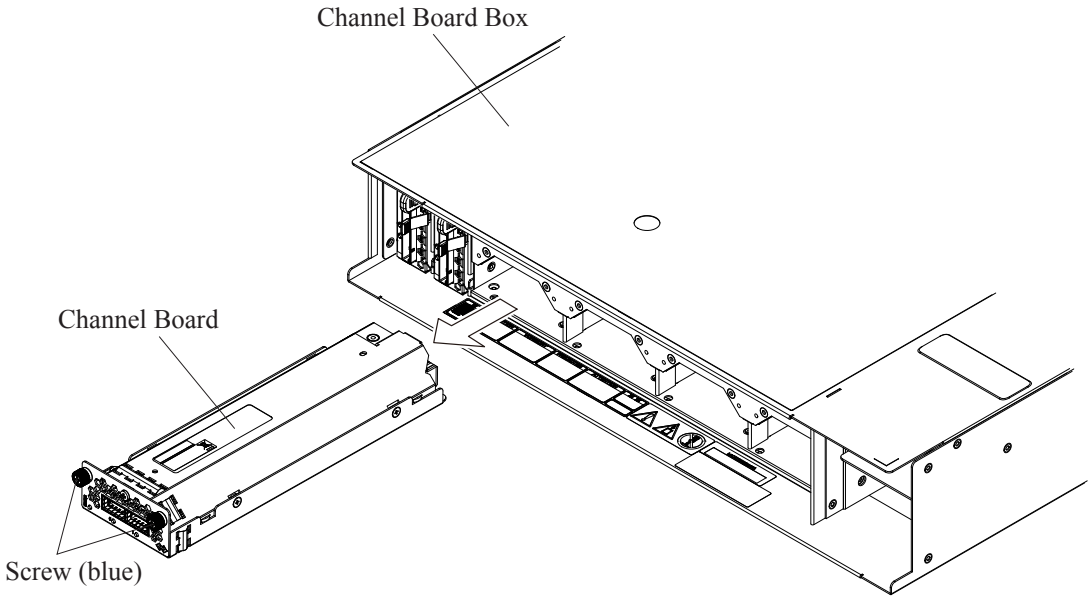


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2.5.6.3 Removing Channel Board

1. Loosen the two screws (blue) which fix the Channel Board.
2. Pull out and remove the Channel Board while holding the screws (blue).

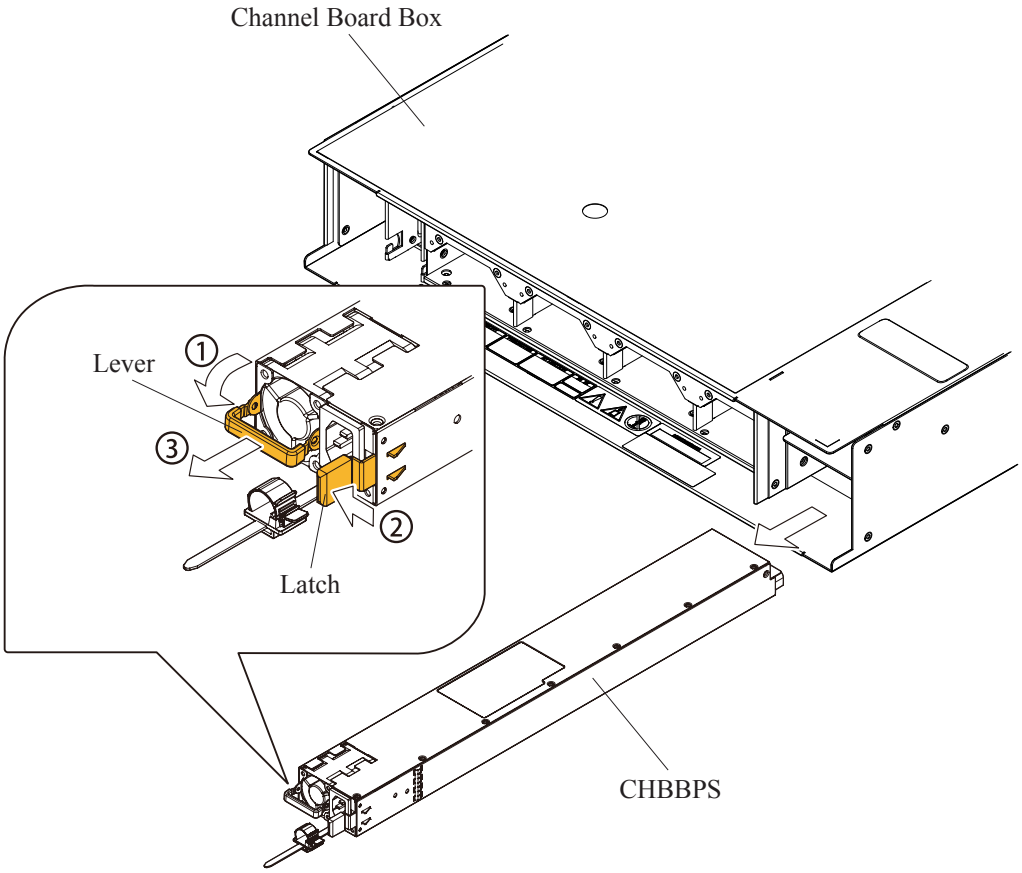
Figure 2-44 Removing Channel Board



2.5.6.4 Removing CHBBPS

1. Pull the lever open (①).
2. Pull the lever (③) while pressing the latch on the CHBBPS inward (②).
3. Pull out and remove the CHBBPS while holding its body with both hands.

Figure 2-45 Removing CHBBPS



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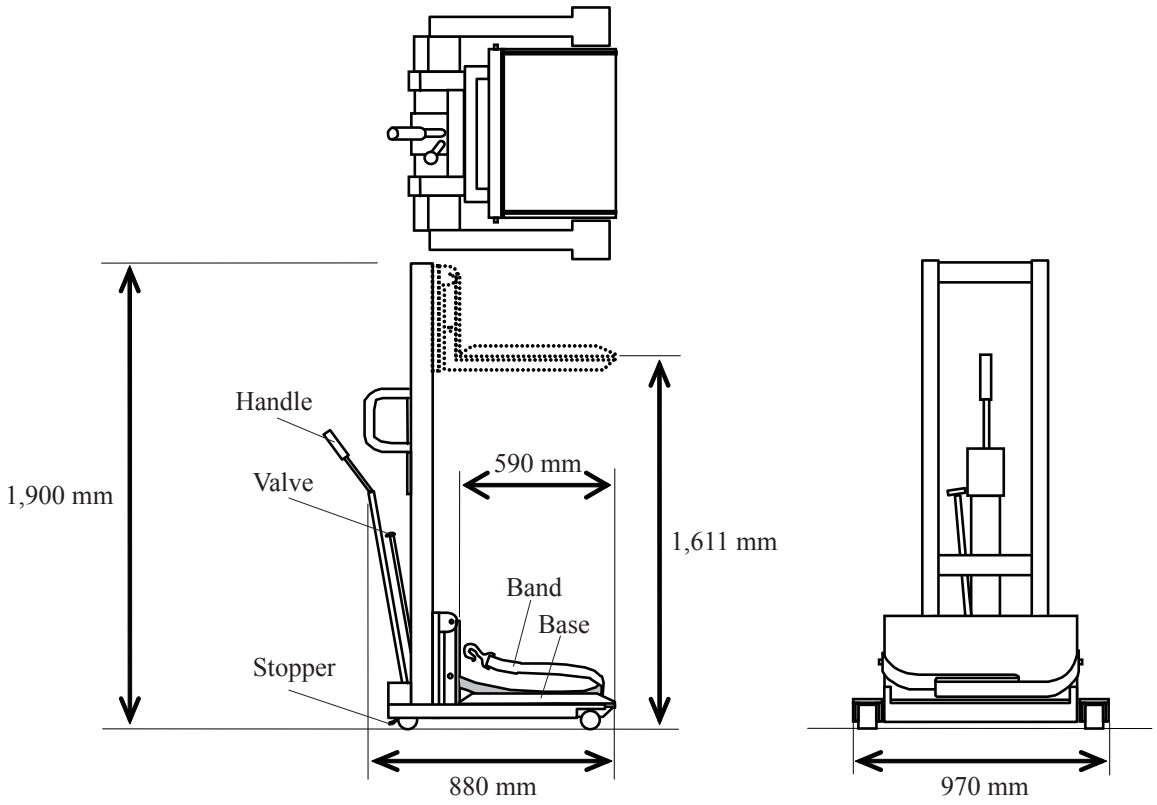
2.6 Mounting on a Rack Frame

For information about the Hitachi Universal V2 rack used with HDS VSP storage systems, refer to the Hitachi Universal V2 Rack Reference Guide (MK-94HM8035).

2.6.1 Mounting Storage System on a Special Lifter

Figure 2-46 shows the external appearance of the special lifter.

Figure 2-46 External Appearance of the Special Lifter



CAUTION

- Rack mounting and lifter operation should only be conducted by a person who has been trained and qualified since the Storage System could turn over or a worker could be caught under the Storage System.
- Be sure to perform the operation with two or more workers.
- Work carefully because the mass of the single CBSS is about 44 kg, CBSL is about 46 kg, CBLM/CBLH is about 85 kg, DBS is about 23 kg, DBL is about 27 kg, DB60 is about 90 kg, DBF is about 38 kg, and CHBB is about 40 kg.

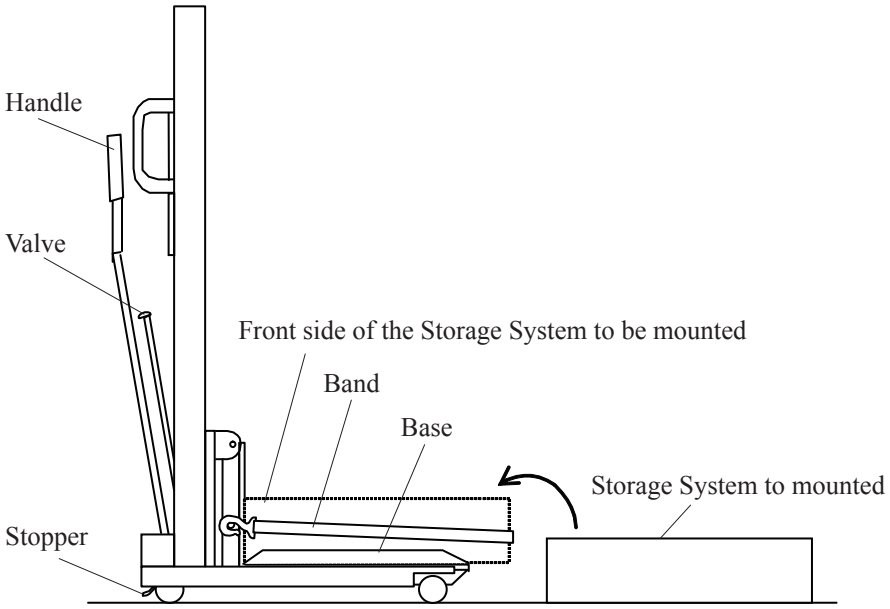
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1. Bring the special lifter close to the Storage System to be mounted and apply the stopper to the lifter.

   NOTE : When putting the Storage System on the special lifter, be sure to remove the Front Bezel beforehand.

2. Put the Storage System on the special lifter.
   Put the Storage System with its Front Bezel removed on the lifter.
3. Secure the Storage System to the lifter with a band of the lifter.
   Bind the Storage System with the band tightly by fitting the length of the belt to the Storage System.

Figure 2-47 Setting the Storage Systems on Special Lifter



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2.6.2 Mounting Storage System on Rack Frame

⚠ WARNING

If the Storage System falls when the elevator of the lifter is at a high position, a personal injury will be caused.
Perform the positioning, fastening, or other handlings very carefully.

⚠ CAUTION

- Rack mounting and lifter operation should only be conducted by a person who has been trained and qualified since the Storage System could turn over or a worker could be caught under the Storage System.
- Operate the valve slowly when opening it. If it is opened quickly, the elevator of the lifter descends rapidly and may cause personal injury.
- Be sure to perform the operation with two or more workers.
- Work carefully because the mass of the single CBSS is about 44 kg, CBSL is about 46 kg, CBLM/CBLH is about 85 kg, DBS is about 23 kg, DBL is about 27 kg, DB60 is about 90 kg, DBF is about 38 kg, and CHBB is about 40 kg.
- Be sure to install it in order from the bottom to prevent the falling of the rack when you install the Storage System on the rack.

1. Take off the stopper of the special lifter on which the Storage System has been put, and move the lifter close to the rack frame.
2. Adjust the position of the Storage System so that it is seated in the center of the rack frame.
   Be careful not to lift the elevating base too high. If you lift it too high, lower it by opening the up/down valve gently.
3. Remove the band and adjust the position of the Storage System so that the Storage System comes in the center in front of the rack frame.
   If the Storage System is positioned off-centered, a screw contacts the Front Bezel preventing the front bezel from being opened or closed.

⚠ CAUTION

Do not move the lifter away from the rack frame nor lower the elevator until the red line on the label affixed on the Storage System enters the rack frame across the end of it. Otherwise, falling of the Storage System may be caused. See ⚠ SAFETY SUMMARY "3. ⚠ Position of Safety Indications" for label.

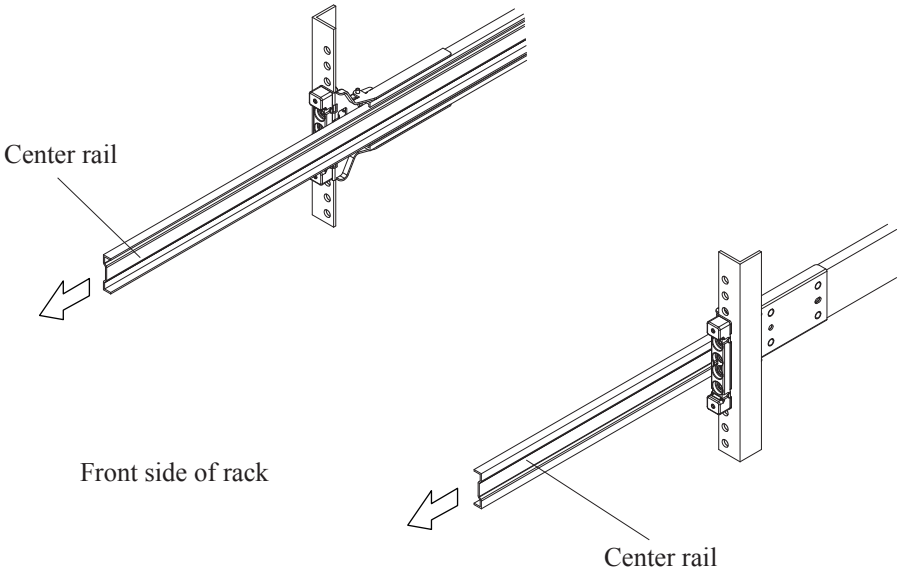
4. Shift the Storage System onto the rails in the rack frame. When shifting the Storage System, push it in to the end gently.

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(1) Installing the DB60

(a) Pull out the right and left center rails until they lock.

Figure 2-48 Pulling out the Center Rail



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⚠ CAUTION

Be careful of the mass:
Work carefully because the mass of the DB60 is about 90 kg.

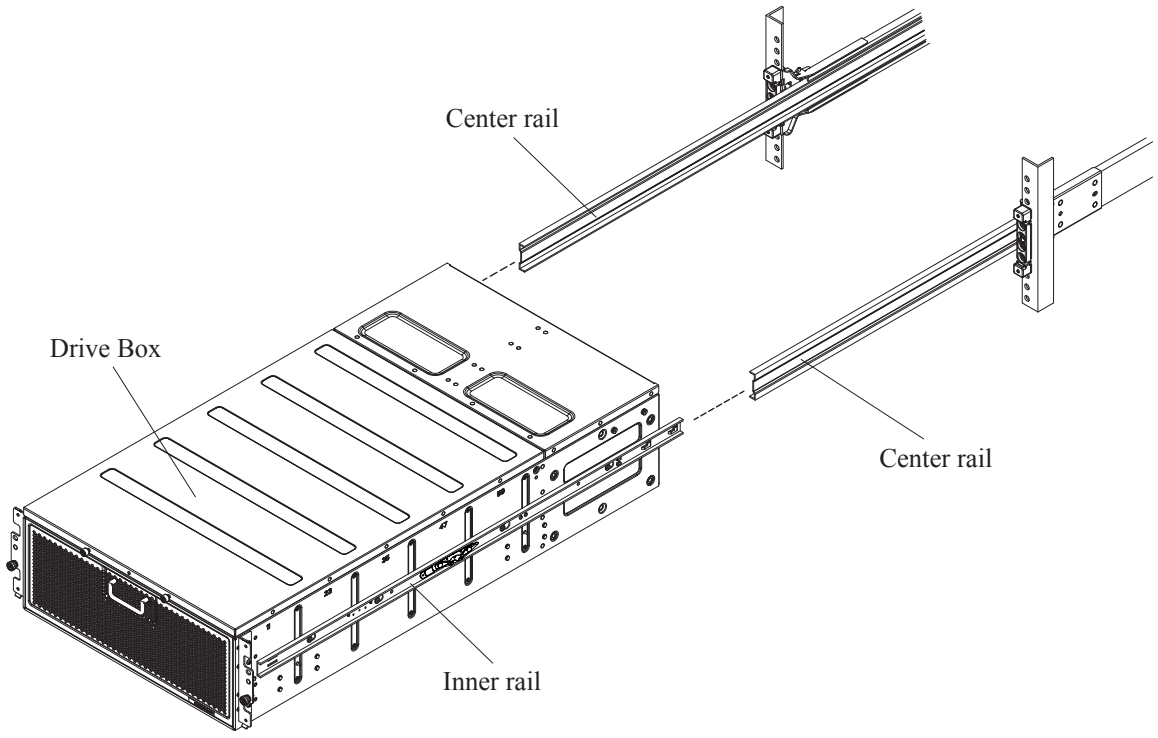
Be careful of falling over and dropping:
To prevent Drive Box from falling over and dropping, the installation work must be done by two or more personnel.

(b) Move the Drive Box to the mounting position referring to the mounting procedure ("2.6.1 Mounting Storage System on a Special Lifter") using the special lifter.

NOTE : Use the handle in front of the Drive Box to pull out the Drive Box.
Do not hold this handle when lifting the Drive Box.

(c) Adjust the position of the inner rails by pushing the right and left center rails inward by hand, and then insert the Drive Box.

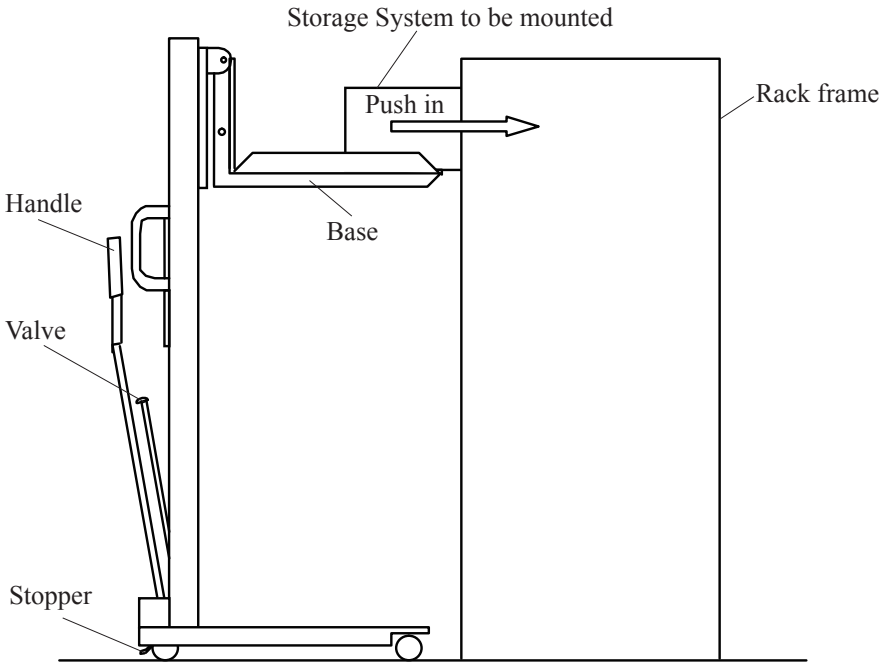
Figure 2-49 Inserting Inner Rails



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5. After mounting the Storage System on the rack frame, lower the elevating base to the lowermost position by gently opening the up/down valve of the special lifter and take off the stopper of the lifter.
6. Move the special lifter to the place where the lifter does not disturb the following works.

Figure 2-50 Mounting Storage System on Rack Frame



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2.7 Fastening Storage System

2.7.1 Fixing Controller Chassis

Table 2-13 Front Bezel Components List (Per One Unit)

Item No.	Parts name	Parts No.	Quantity	Comment
1	Front Bezel	5559125-A	1	Front Bezel (CBSS/CBSL)
		5559126-A	1	Front Bezel (CBLM/CBLH)
2	Bind Screw (M5 × 10)	SB510N	8	For fixing the Controller Chassis and the bracket

When installing CBSS/CBSL, fix each of the right and left places on the front side of CBSS/CBSL with two bind screws.
When installing CBLM/CBLH, fix each of the right and left places on the front side of CBLM/CBLH with four bind screws.

Figure 2-51 Fixing the Front Side of CBSS/CBSL

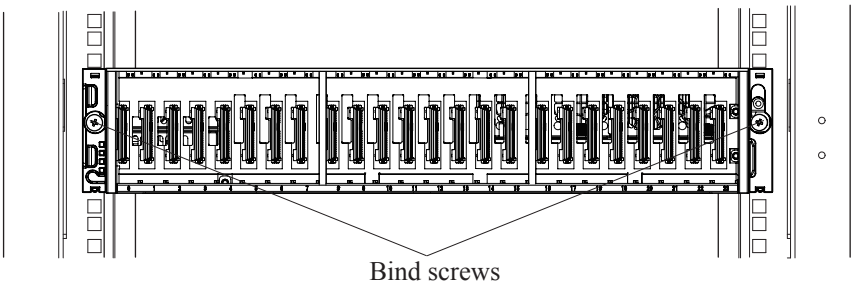
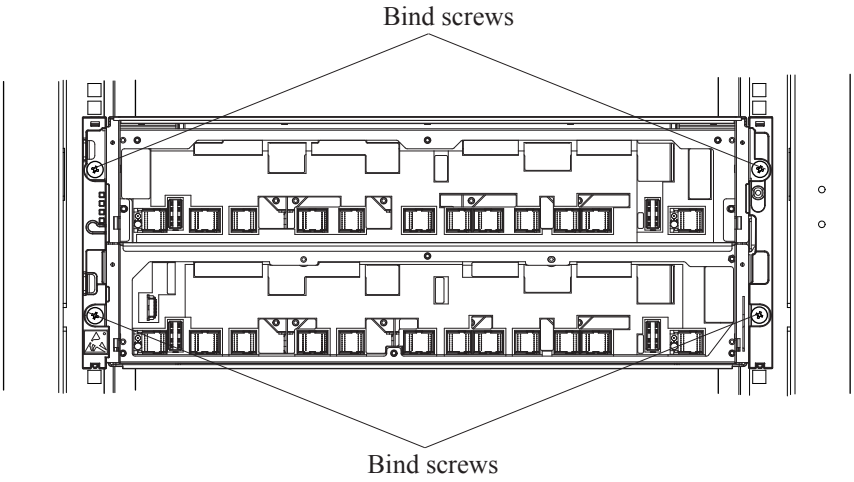


Figure 2-52 Fixing the Front Side of CBLM/CBLH



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2.7.2 Fixing Drive Box (DBS/DBL)

Fixed parts are different according to the type of the hole of the rack (circular hole/square hole). Work after confirming hole of rack.
The components for fixing the Drive Box are included in the Front Bezel. Check the table of the components list.

Table 2-14 Front Bezel Components List (Per Unit)

Item No.	Parts name	Parts No.	Quantity	Comment
1	Front Bezel	5560002-A	1	Front Bezel (DBS/DBL)
2	Side bezel (R)	2855176-001	1	For right hand side (For DBS/DBL)
3	Side bezel (L)	2855177-001	1	For left hand side (For DBS/DBL)
4	Bracket (R)	3290548-001	1	For right hand side
5	Bracket (L)	3282470-001	1	For left hand side
6	Binding Screw (M5 × 10)	SB510N	5(*1)	For fixing the Drive Box and the bracket
7	COINLOCK MINI (R) KEY	3276491-001	1(*2)	Key for Front bezel

*1 : 1 spare is included.
*2 : One pair (two keys)

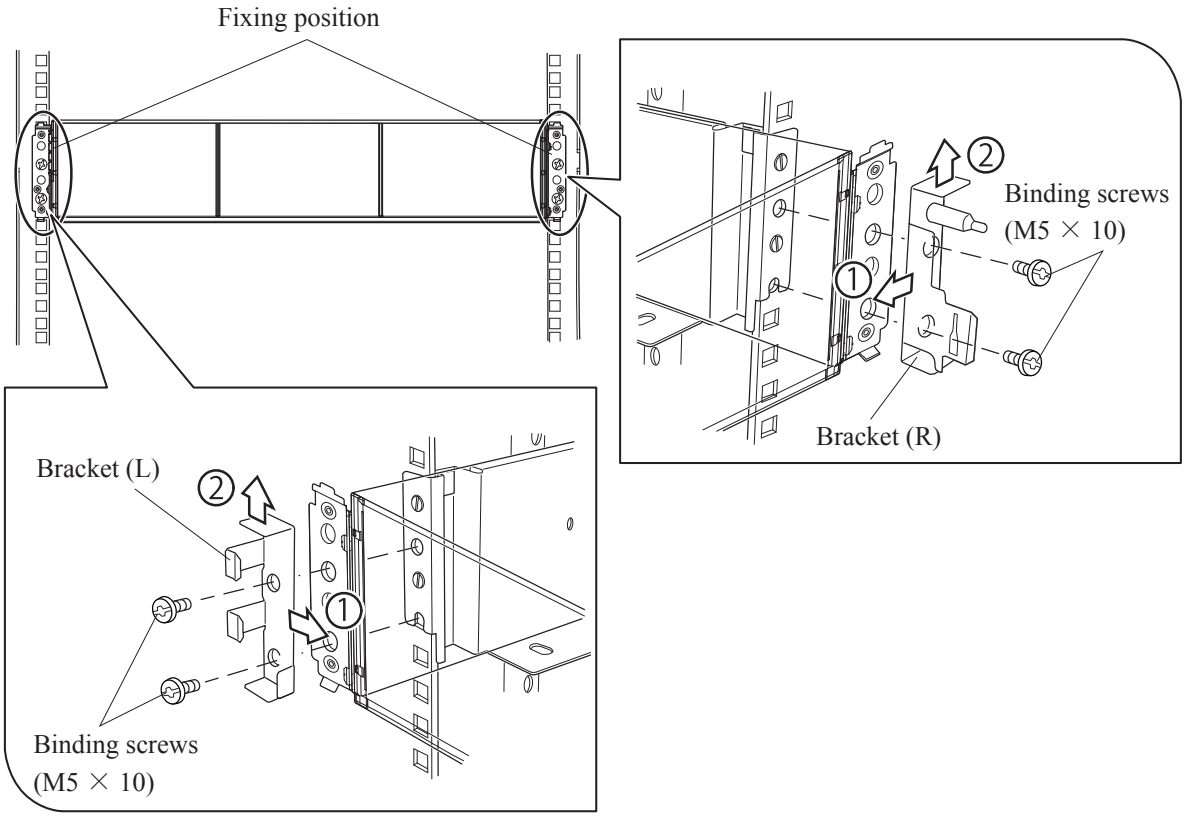
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1. Fixing the front side of the Drive Box

NOTE : Use parts of the rail for the fixing screw and other products. (Refer to "Table 2-11 Components for Rail (DW-F800-RRDBF) (Per Unit)".)

(1) Install the Drive Box with the bracket.
(2) Fasten the Drive Box to the rack frame with the M5 × 10 binding screws temporarily (two places each at right and left).
(3) Tighten the bind screws pressing the bracket in the direction of ① and ② to fix the bracket.

Figure 2-53 Fixing the Front Side of the Drive Box (Drive Box (DBS/DBL))



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2. Attachment and removal of a side bezel

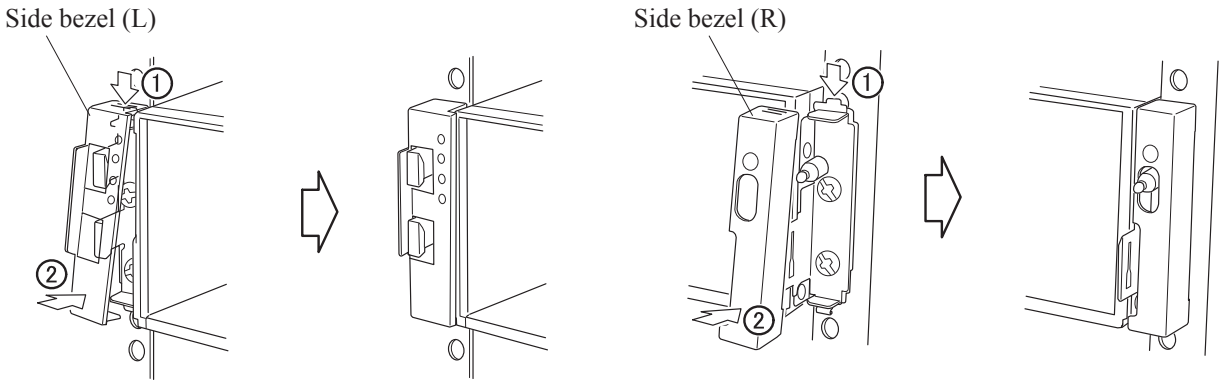
(1) Attaching the side bezel

When attaching the side bezel, perform the attaching in the following procedure.

(a) Attach the side bezel in the procedure ① and ② to cover the left side of the front side of the Drive Box with the side bezel (L) from the top.

(b) Attach the side bezel in the procedure ① and ② to cover the right side of the front side of the Drive Box with the side bezel (R) from the top.

Figure 2-54 Attaching the Side Bezels (Drive Box (DBS/DBL))



(i) Attaching the Side Bezel (L) (ii) Attaching the Side Bezel (R)

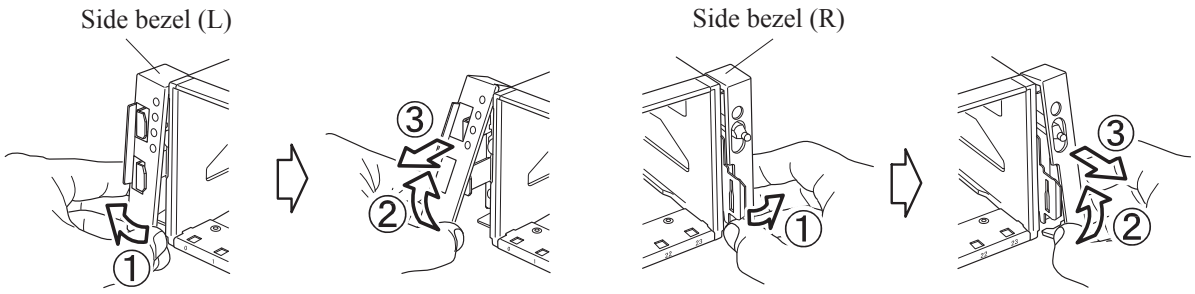
(2) Removing the side bezel

When removing the side bezel, perform the removing in the following procedure.

(a) Hold the bottom of the left side bezel (L) on the front side of the Drive Box while opening outward (①) and then tilt and remove (② , ③) the bottom of the left side bezel (L) by pulling it toward you.

(b) Hold the bottom of the right side bezel (R) on the front side of the Drive Box while opening outward (①) and then tilt and remove (② , ③) the bottom of the right side bezel (R) by pulling it toward you.

Figure 2-55 Removing the Side Bezels (Drive Box (DBS/DBL))



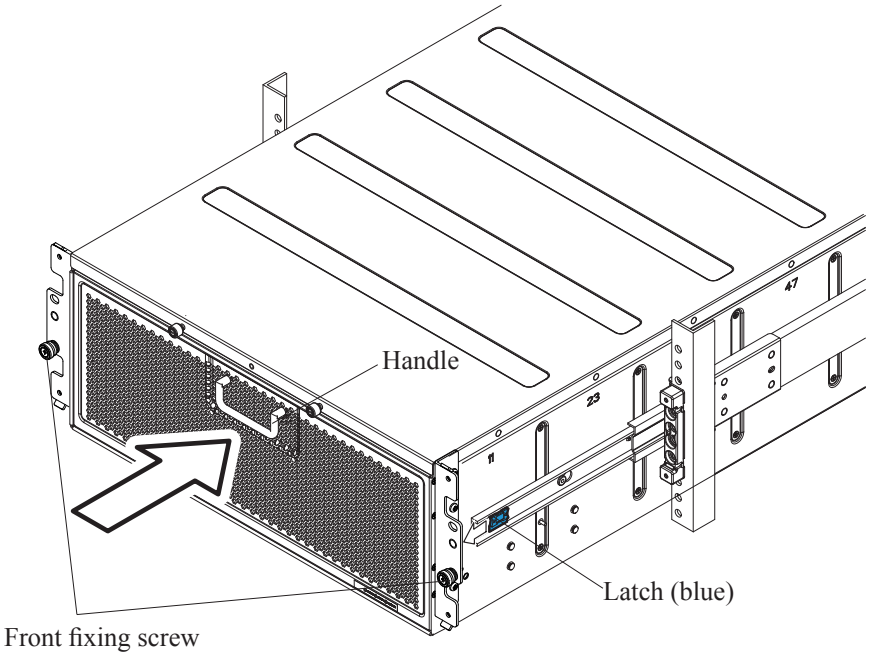
(i) Removing the Side Bezel (L) (ii) Removing the Side Bezel (L)

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2.7.3 Fixing Drive Box (DB60)

1. Storing and fixing the DB60
   (1) Slide the latches (blue) of the inner rails toward you to unlock.
   (2) Push the inner rails in about 2 cm, leave your fingers from the latches and push the Drive Box.
   (3) Tighten the front side fixing screw (one each for right and left) to fix it.

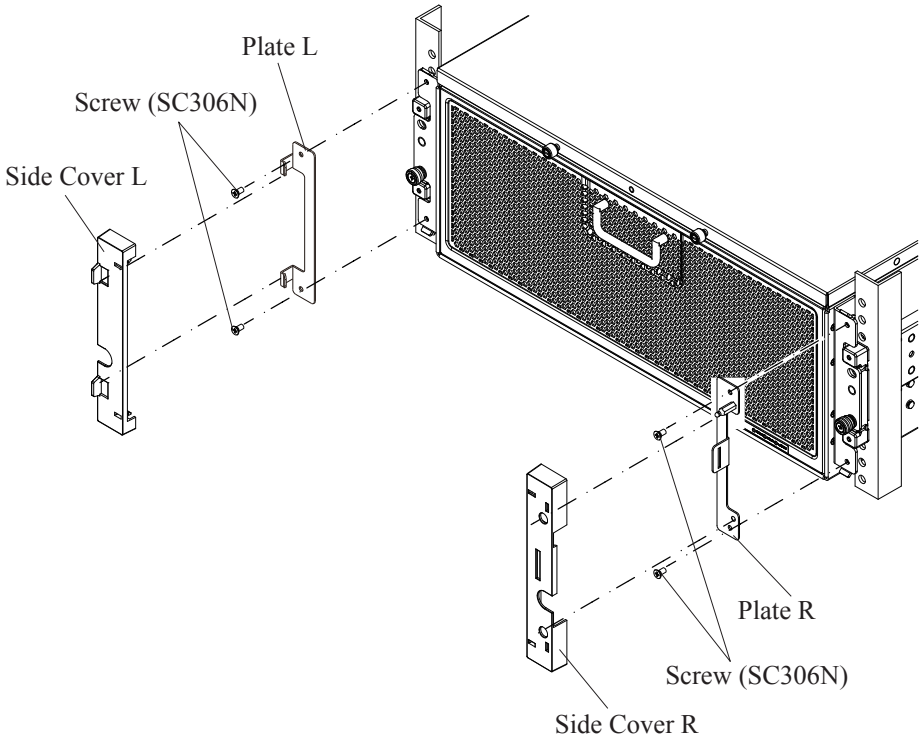
Figure 2-56 Fixing Front Side of Drive Box (Drive Box (DB60))



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2. Installing the Side Bezels
   (1) Attach the plate L to the left front side of the Drive Box and fix it with two screws.
   (2) Attach the plate R to the right front side of the Drive Box and fix it with two screws.
   (3) Attach the side cover L to the plate L.
   (4) Attach the side cover R to the plate R.

Figure 2-57 Attaching Parts for the Side Bezel

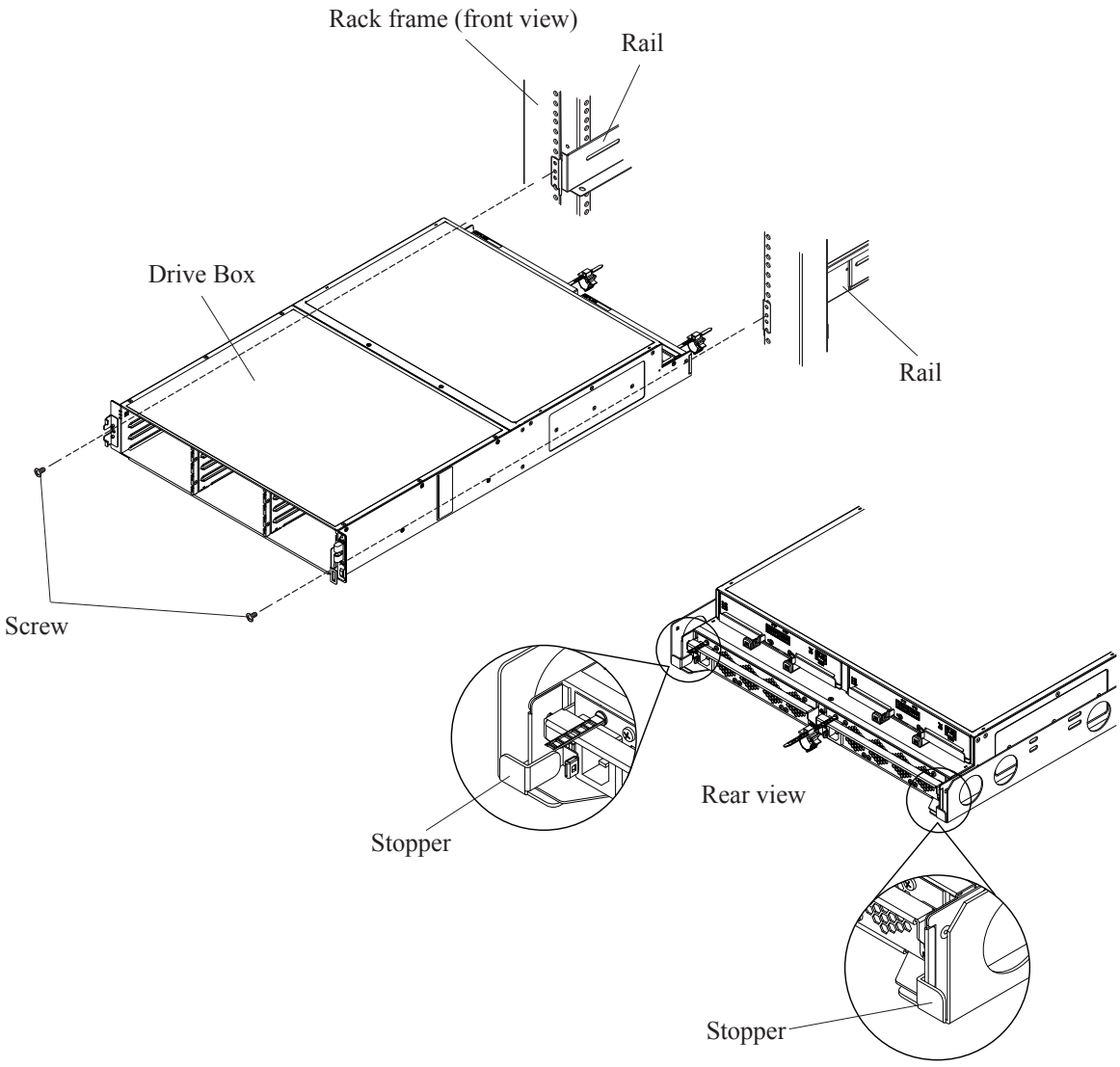


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2.7.4 Fixing Drive Box (DBF)

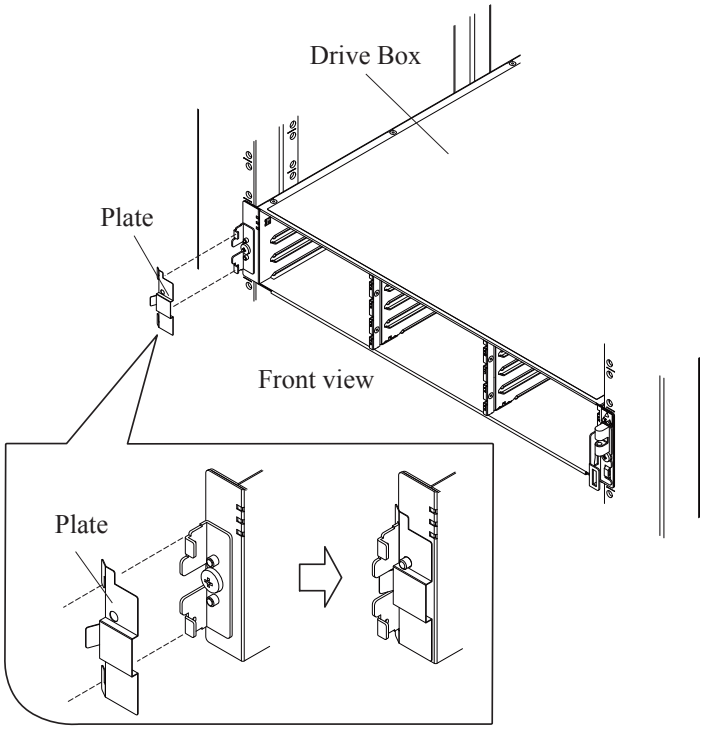
1. When installing Drive Box, fix each of the right and left places on the front side of Drive Box with two screws.

Figure 2-58 Fixing Drive Box (DBF)



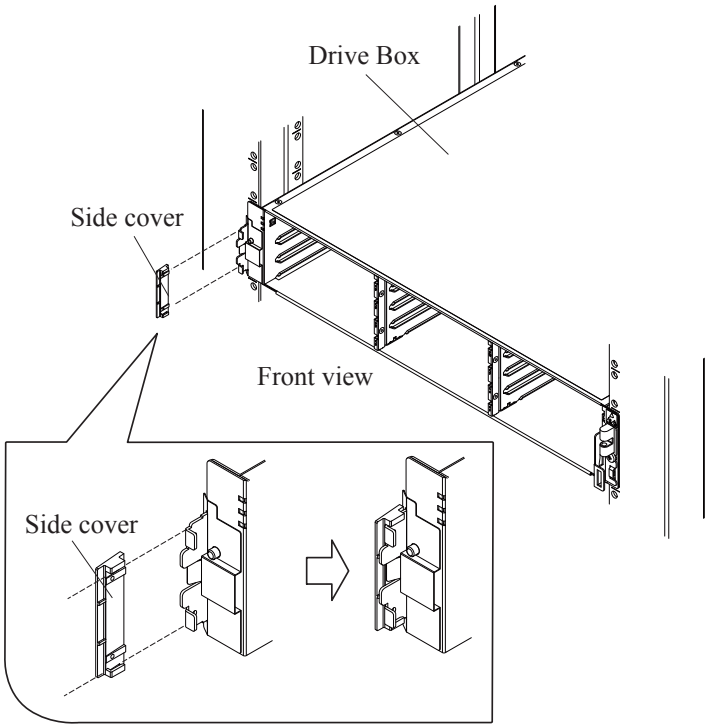
2. Attach the plate to the left side of the front of the Drive Box.

Figure 2-59 Attachment of Plate



3. Attach the side cover to the left side of the front of the Drive Box.

Figure 2-60 Attachment of Side Cover



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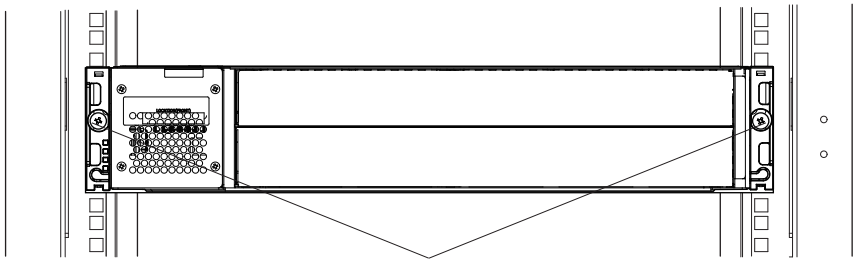
2.7.5 Fixing Channel Board Box

Table 2-15 Front Bezel Components List (Per One Unit)

Item No.	Parts name	Parts No.	Quantity	Comment
1	Front Bezel	5560931-A	1	Front Bezel
2	Bind Screw (M5 × 10)	SB510N	1	For fixing the Channel Board Box and the bracket

Fix each of the right and left places on the front side of Channel Board Box with four bind screws.

Figure 2-61 Fixing the Front Side of Channel Board Box



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2.8 Installing Components

When the components are not installed, install them.
When installed, this work is not necessary. Go to the next step.

When installing the parts, hold it in the way that fingertips of the hand putting the wrist strap on touches the metallic portion of the side.

NOTICE:
- To prevent part failures caused by static electrical charge built up on your own body, be sure to wear a wrist strap connected to the Storage System before starting and do not take it off until you finish. Refer to “1.1.2 Note when Installing and Removing Parts”.
- Be sure to wear a wrist strap connected to the Storage System whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.

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2.8.1 Installing Drive

The Drive installation method differs depending on DBS, DBL, DB60 and DBF.

2.8.1.1 Installing Drive for CBSL/DBL/DBF

NOTICE: Be sure to read "1.1.9 Notes when Handling the Flash Module Drive (FMD)" before handling the FMD and perform the procedure following the notes.

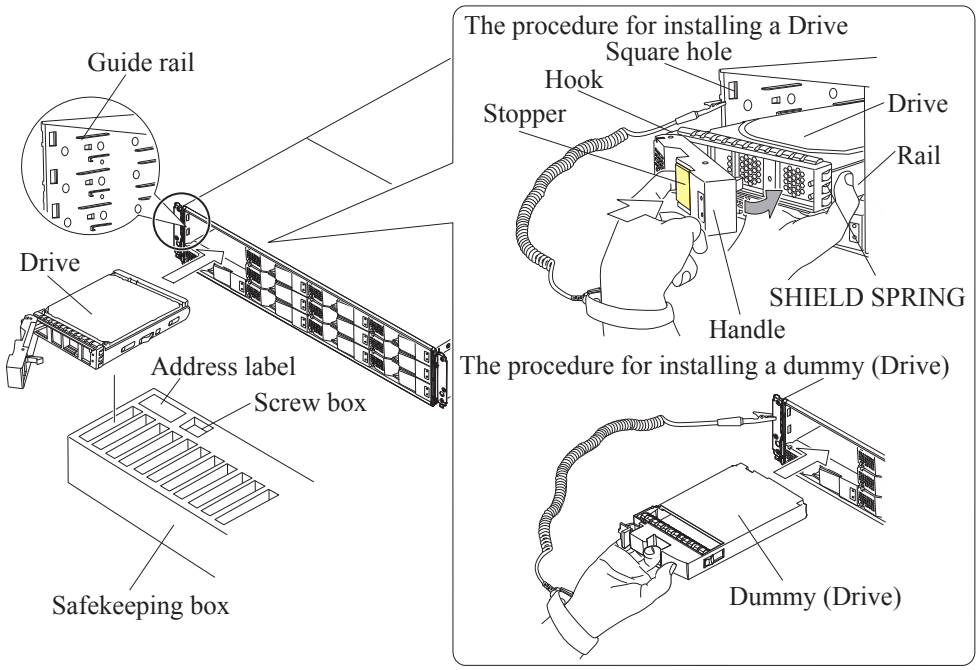
1. Pull the parts out of the Drives safekeeping of component.
   Be sure to install the removed Drive to the original bay.
2. Insert the Drive into the position (address) where it was by holding it with the handle.

   NOTE : When handling the Drive, hold the rail side because the SHIELD SPRING is subject to breakage.

   (1) Open the handle fully and fit the Drive in the guide rail and slide it in the direction shown by the arrow.
   (2) Push it in until it reaches the position where a hook of the handle can be entered into the square hole on the frame.
   (3) Pull the stopper lightly and close the handle, and then have the lock on by pressing the stopper.

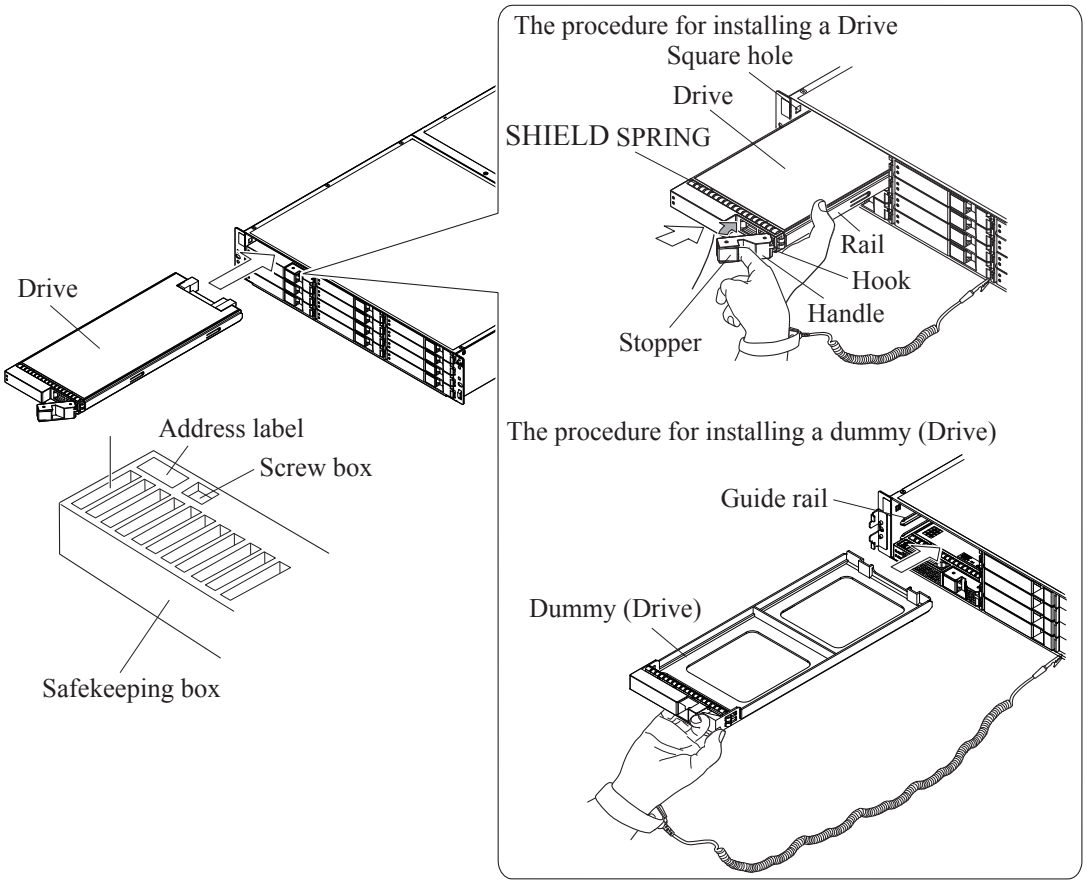
   NOTE : If the handle is closed in the state in which its hook cannot be entered into the square hole, the Drive cannot be installed correctly because it runs into the frame of the Storage System.
3. Pull the handle lightly to make sure that the Drive cannot be pulled out.
4. Attach the dummy (Drive) to the each Drive slot in which no Drive is installed.
   Insert it into the slot slowly so that the latch part of the dummy (Drive) comes to the left side.

Figure 2-62 Installing the Drive/Dummy (Drive) (CBSL/DBL)



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Figure 2-63 Installing the Drive/Dummy (Drive) (DBF)



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Figure 2-64 Drive Mounting Location (CBSL/DBL)

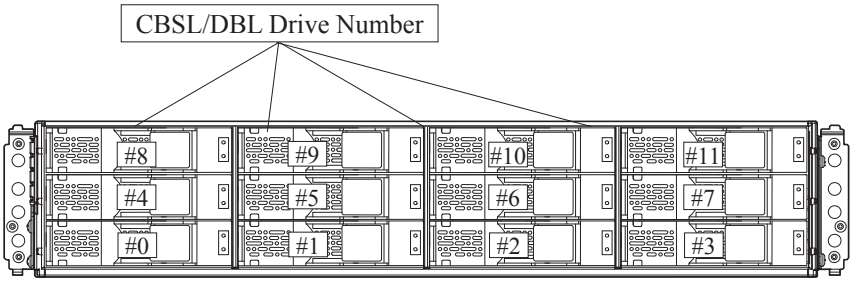
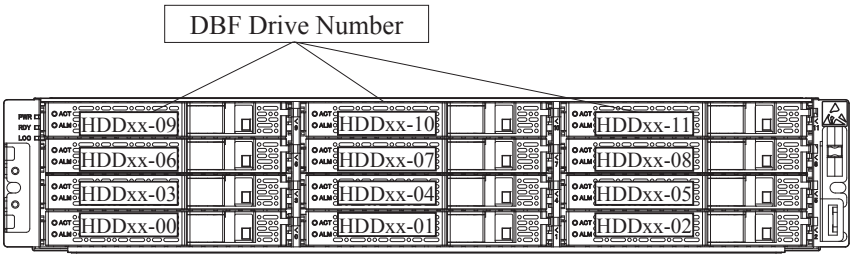


Figure 2-65 DBF Drive Number



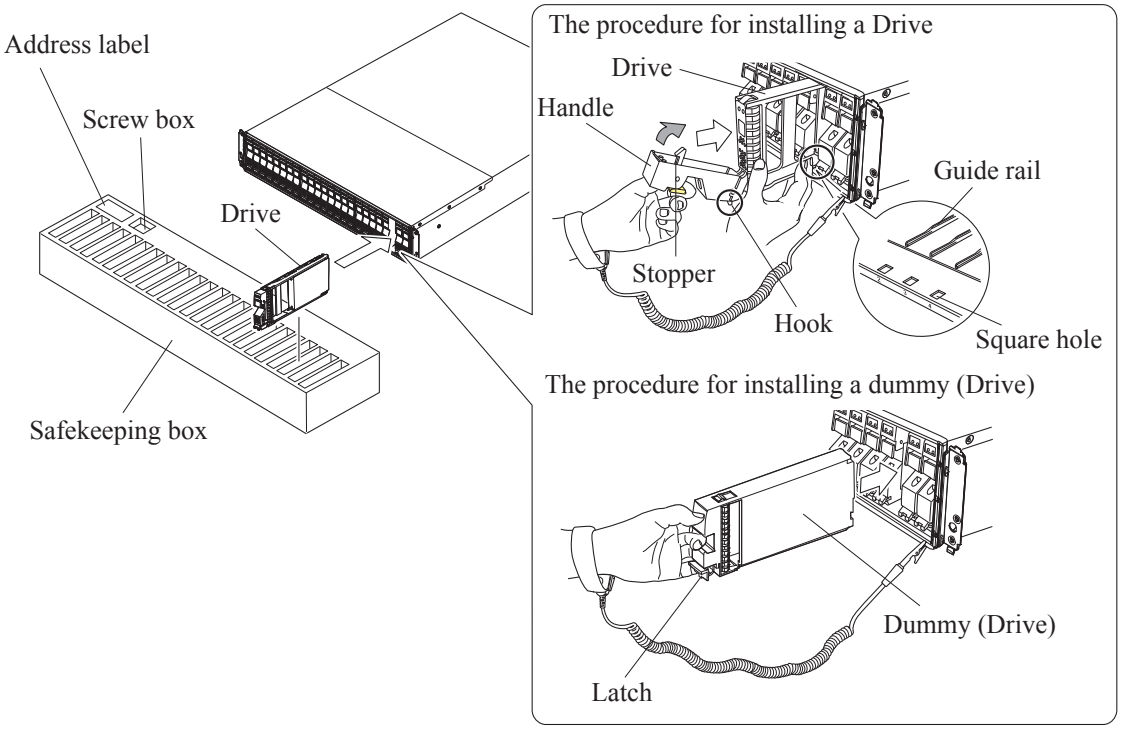
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2.8.1.2 Installing Drive for CBSS/DBS

1. Pull the parts out of the Drives safekeeping of component.
   Be sure to install the removed Drive to the original position.
2. Insert the Drive into the position (address) where it was by holding it with the handle.
   (1) Fit the Drive in the guide rail and slide it in the direction shown by the arrow.
   (2) Push it in until it reaches the position where a hook of the handle can be entered into the square hole at the lower part of a frame on the front side of the Storage System.
   (3) Close the opened stopper, and then have the lock on by pressing the stopper.

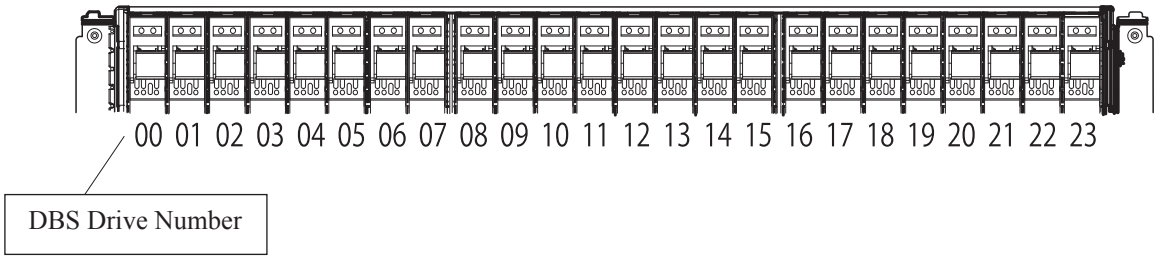
   NOTE : If the handle is closed in the state in which its hook cannot be entered into the square hole, the Drive cannot be installed correctly because it runs into the frame of the Storage System.
3. Pull the handle lightly to make sure that the Drive cannot be pulled out.
4. Attach the dummy (Drive) to the each Drive slot in which no Drive is installed.
   Insert it into the slot slowly so that the latch part of the dummy (Drive) comes to the lower side.

Figure 2-66 Installing the Drive/Dummy (Drive) (CBSS/DBS)



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Figure 2-67 Drive Mounting Location (CBSS/DBS)

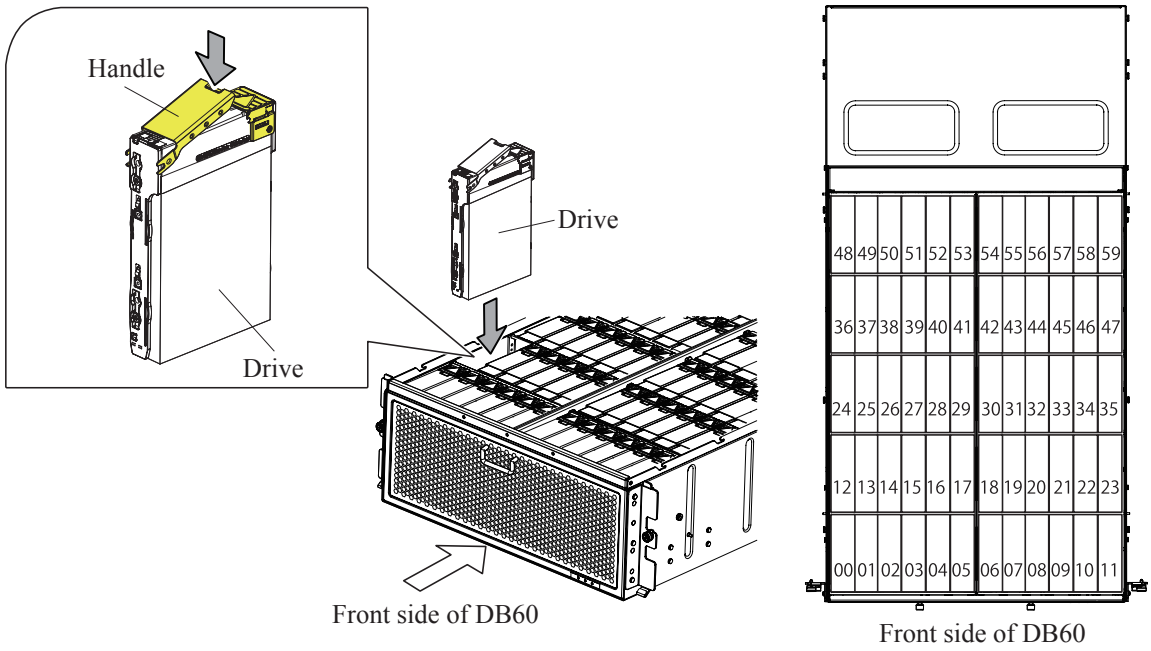


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2.8.1.3 Installing Drive for DB60

1. Pull the DB60 out of the rack, and remove the top cover. (Refer to "1.4.1.3 In Case of DB60".)
2. Remove the Drive from the Drive safekeeping container.
   Be sure to install the removed Drive from the safekeeping container to its original position.
3. Open the handle fully and slide the Drive in the direction shown by the arrow taking care not to apply a shock.
   Insert the Drive into the same address of the DB60.
4. Push the handle until it clicks and locks.
5. Pull the handle lightly to make sure that the Drive is surely installed.
6. Install the Dummy (Drive) into the slot where the Drive is not installed.
7. Return the DB60 into the rack after attaching its cover. (Refer to "1.4.1.3 In Case of DB60".)

Figure 2-68 Installing the Drive/Dummy (Drive) (DB60)



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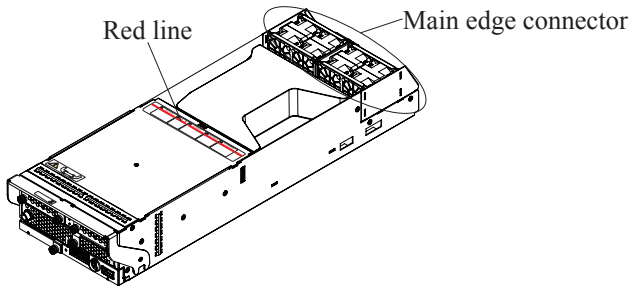
2.8.2 Installing Controller Board and the Built-in Parts

The mounting method for Controller Board of CBSS/CBSL and CBLM/CBLH is different respectively.

2.8.2.1 Installing Controller Board and Built-in Parts for CBSS/CBSL

⚠ CAUTION

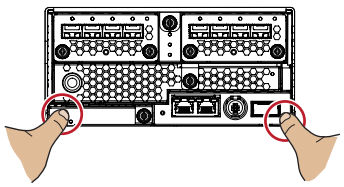
Dropping the Controller Board may cause injury. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the array past this mark, keep a firm hold on the Controller Board.



NOTICE:
- Check that the main edge connector of the Controller Board has no deformation, damage or sticking of dust before installing the Controller Board.
- When installing the Controller Board, hold it with both hands and install it straight not to apply a shock to with any components.

1. With the Controller Board lever opened completely, insert the Controller Board into the slot position of the CBSS/CBSL.
2. Push the Controller Board all the way in and close the lever completely.

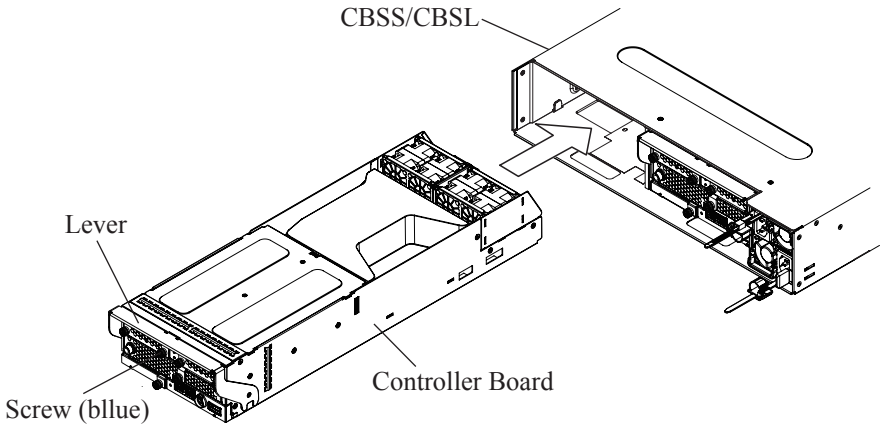
NOTICE: Push the bottom of the front side of the Controller Board all the way to insert it to the end.



3. Tighten the screw (blue) and fix the Controller Board.
4. Install Controller Board 1 and 2 in the CBSS/CBSL.

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Figure 2-69 Installing the Controller Board (CBSS/CBSL)

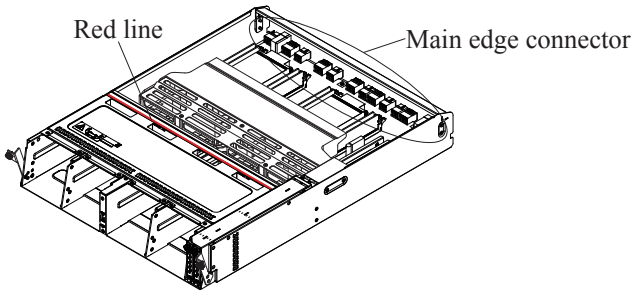


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2.8.2.2 Installing Controller Board and the Built-in Parts for CBLM/CBLH

CAUTION

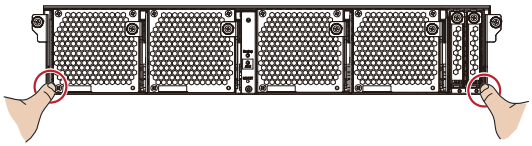
Dropping the Controller Board may cause injury. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the array past this mark, keep a firm hold on the Controller Board.



NOTICE:
- Check that the main edge connector of the Controller Board has no deformation, damage or sticking of dust before installing the Controller Board.
- When installing the Controller Board, hold it with both hands and install it straight not to apply a shock to with any components.

1. With the Controller Board lever opened completely, insert the Controller Board into the slot position of the CBSS/CBSL.
2. Push the Controller Board all the way in and close the lever completely.

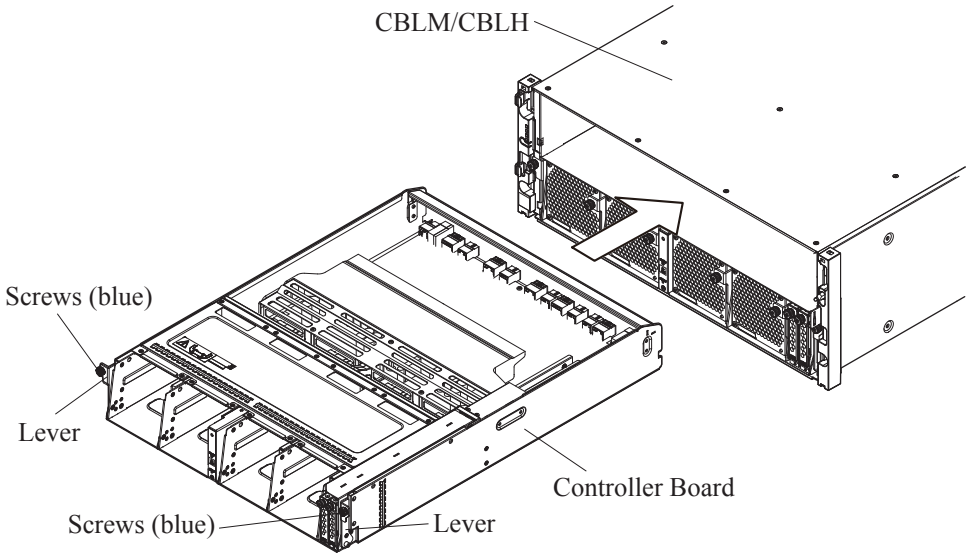
NOTICE: Push the bottom of the front side of the Controller Board all the way to insert it to the end.



3. Tighten the screws (blue) and fix the Controller Board.
4. Install Controller Board 1 and 2 in the CBLM/CBLH.

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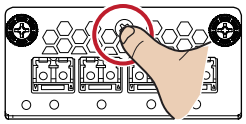
Figure 2-70 Installing the Controller Board (CBLM/CBLH)



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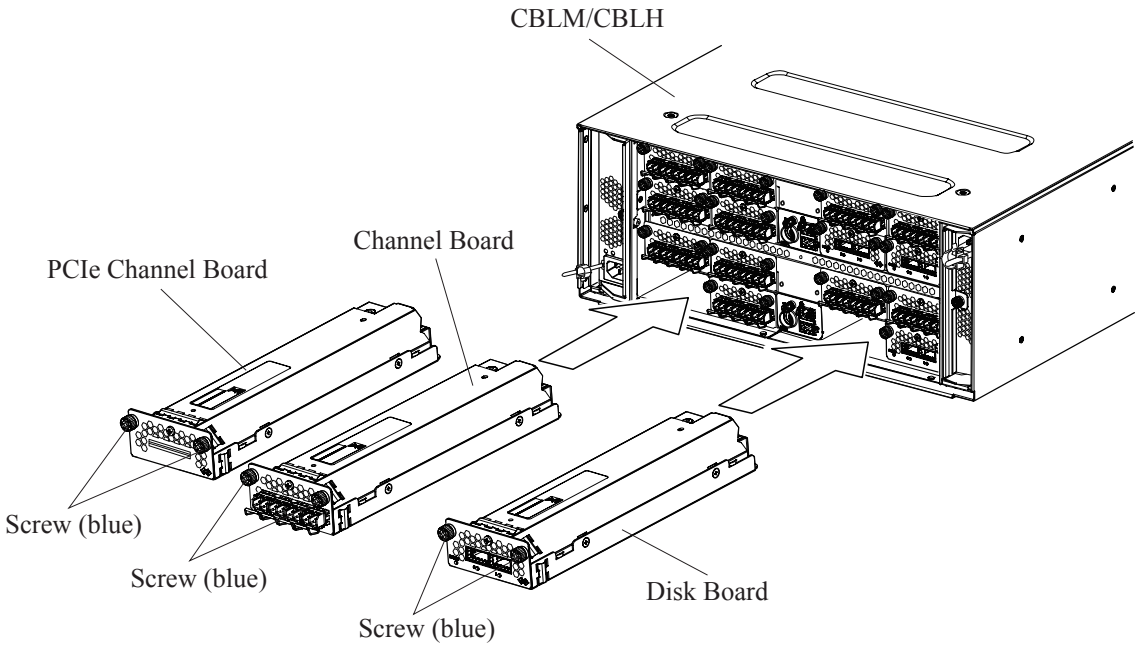
5. If you install a Channel Board, PCIe Channel Board, or Disk Board, install here.
   The PCIe Channel Boards can be mounted on the CBLH only.
   (1) Insert the FC/iSCSI Channel Board, PCIe Channel Board, or Disk Board.
   (2) Push the Channel Board, PCIe Channel Board, or Disk Board in all the way.

NOTICE: Push the front side of each board all the way to insert it to the end.



(3) Tighten the two screws (blue) to fix the Channel Board, PCIe Channel Board and Disk Board.

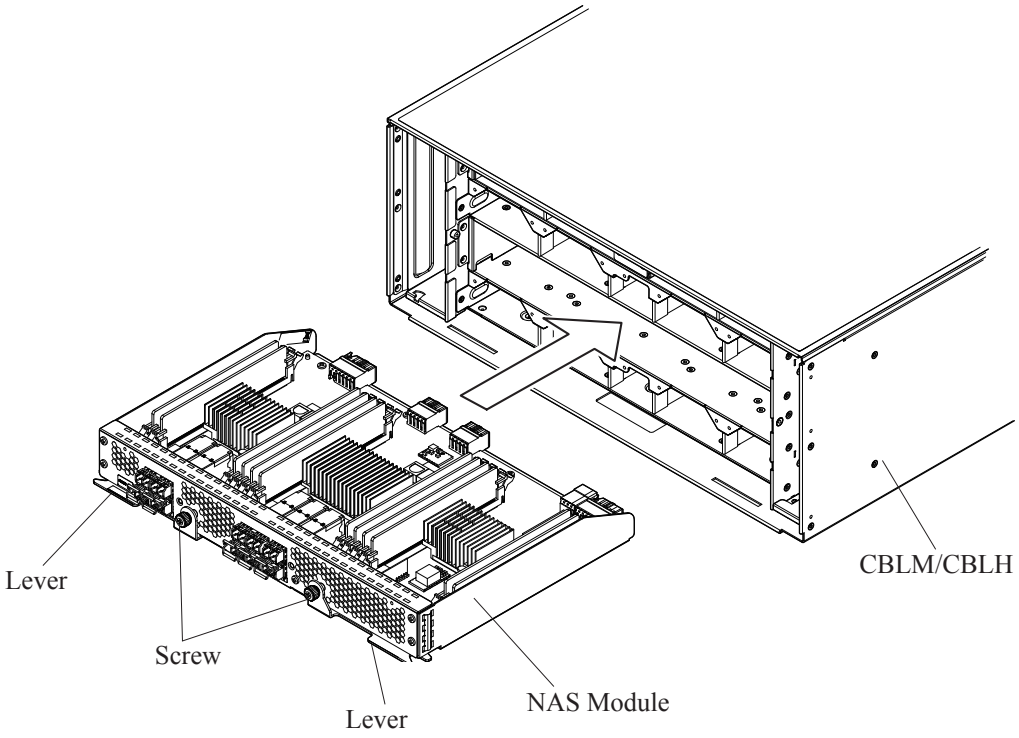
Figure 2-71 Installing the Channel Board, PCIe Channel Board, or Disk Board (CBLM/CBLH)



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6. When the NAS Module was installed, install it.
   (1) Insert the NAS Module with the lever open.
   (2) Insert the NAS Module all the way in and close the lever.
   (3) Tighten the screws (two places) to fix the NAS Module.

Figure 2-72 Installing the NAS Module

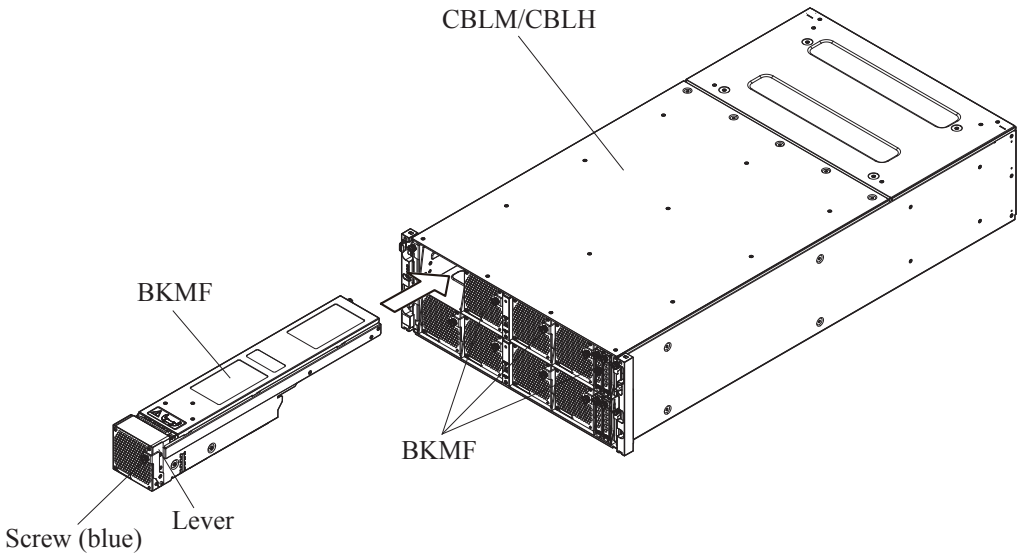


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2.8.3 Installing BKMF (CBLM/CBLH)

1. Open the BKMF lever and insert the BKMF into the slot.
2. Close the BKMF lever and tighten the screw (blue) and fix it.

Figure 2-73 Installing BKMF (CBLM/CBLH)

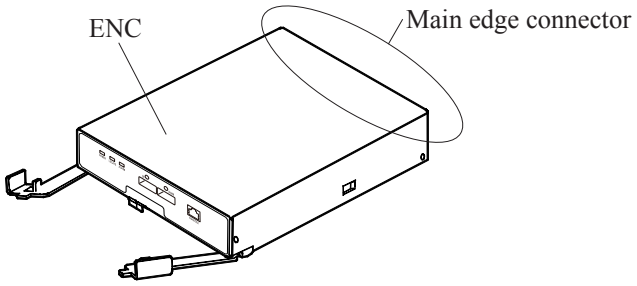


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2.8.4 Installing ENC

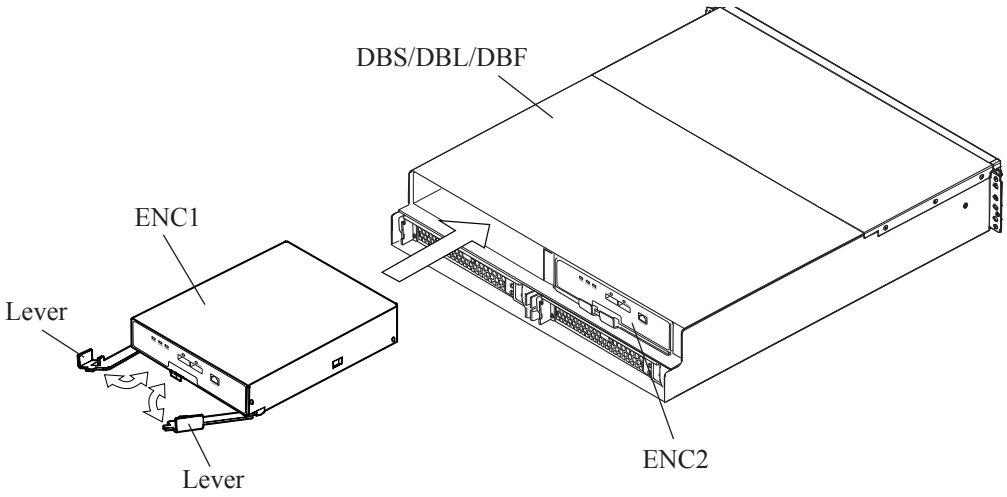
2.8.4.1 Installing ENC for DBS/DBL/DBF

NOTICE:
- Do not touch the ENC connector directly because it is breakable.
- Be careful not to hit the connector when inserting the ENC.



1. Open the right and left levers of the ENC to be installed toward you, and open them completely.
2. Install the ENC in the set position.
   Insert the ENC until its right and left levers are slightly closed, and then push the levers toward the ENC.

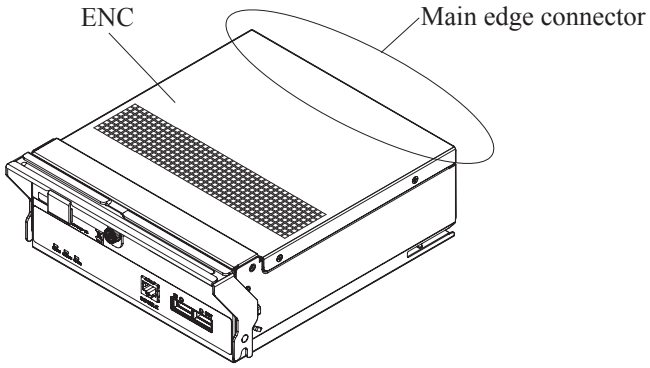
Figure 2-74 Installing ENC (DBS/DBL/DBF)



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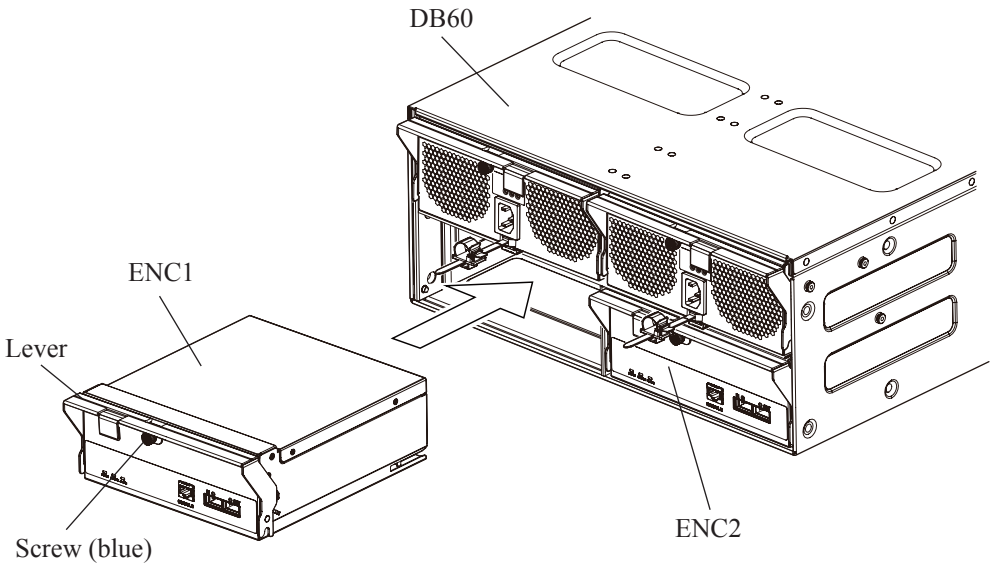
2.8.4.2 Installing ENCs for DB60

NOTICE:
- Do not touch the ENC connector directly because it is breakable.
- Be careful not to hit the connector when inserting the ENC.



1. Open the lever of the ENC to be mounted down toward you completely.
2. Install the ENC in the set position.
3. Insert the ENC and close the lever.
4. Tighten the screw (blue) to fix the ENC.

Figure 2-75 Installing ENC (DB60)



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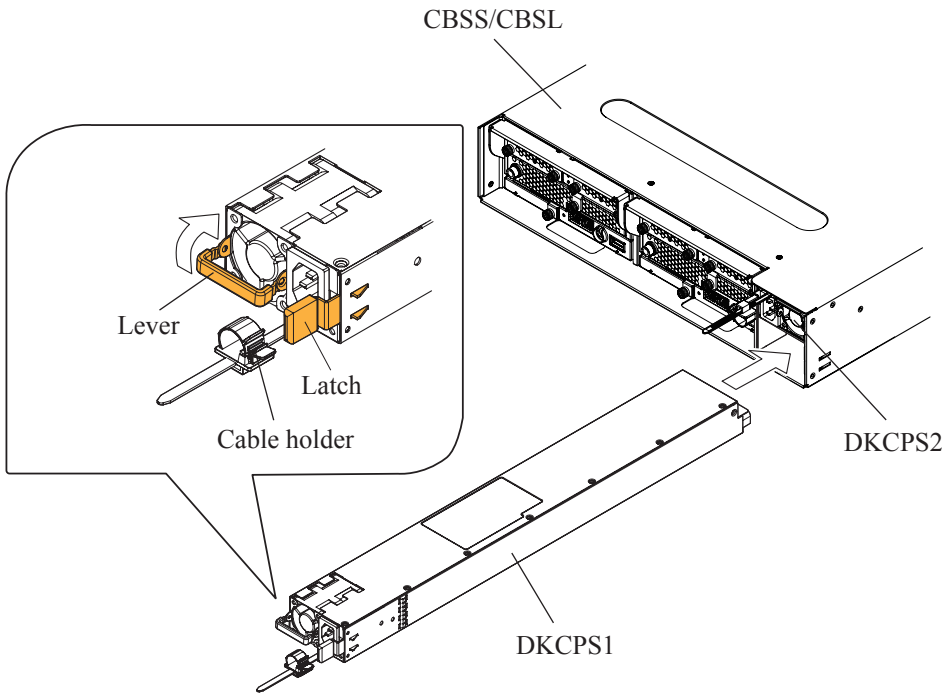
2.8.5 Installing Power Supply (DKCPS)

The shapes and installation methods of the Power Supply differ depending on each type. Do not make a mistake to mount the power supply in the specified position.

2.8.5.1 Installing Power Supply (DKCPS) for CBSS/CBSL

1. Hold up the latch on the cable holder of the Power Supply (DKCPS) to release the lock, and then slide the cable holder forward.
2. With the lever completely opened, insert the Power Supply (DKCPS) into the slot.
3. Push the Power Supply the latch of the Power Supply (DKCPS) clicks.
4. Close the lever completely to fix the Power Supply (DKCPS).

Figure 2-76 Installing Power Supply (DKCPS) (CBSS/CBSL)



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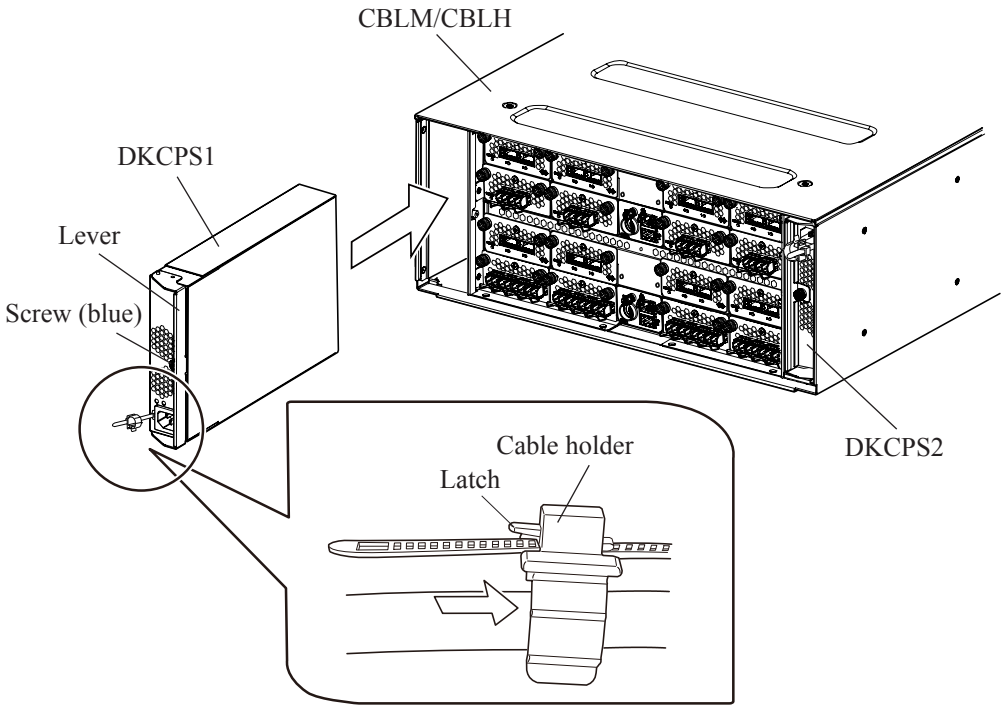
2.8.5.2 Installing Power Supply (DKCPS) for CBLM/CBLH

1. Hold up the latch on the cable holder of the Power Supply (DKCPS) to release the lock, and then slide the cable holder forward.
2. With the lever completely opened, insert the Power Supply (DKCPS) into the slot.
   If you cannot insert the Power Supply (DKCPS) into the slot easily, insert it after adjusting the position by slightly returning the lever.

   NOTE : Power Supply (DKCPS1) and Power Supply DKCPS2 have different insertion directions.

3. Push the Power Supply (DKCPS) in all the way.
4. Close the lever completely to fix the Power Supply (DKCPS).
5. Tighten the screw (blue) to fix the Power Supply (DKCPS).
6. Push the cable holder in.

Figure 2-77 Installing Power Supply (DKCPS) (CBLM/CBLH)

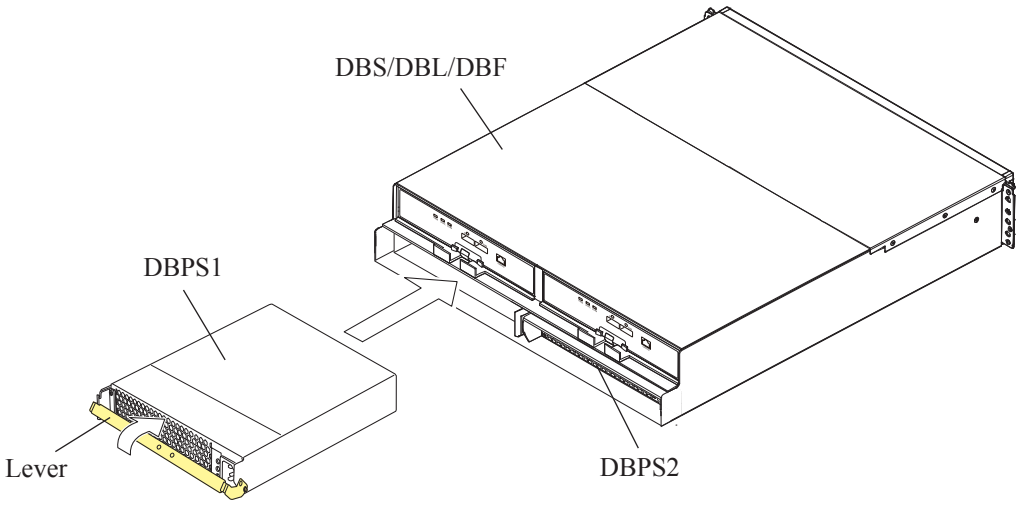


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2.8.5.3 Installing Power Supply (DBPS) for DBS/DBL/DBF

1. With the lever completely opened, insert the Power Supply (DBPS) into the slot.
   If you cannot insert the Power Supply (DBPS) into the slot easily, insert it after adjusting the position by slightly returning the lever.
2. Push the Power Supply (DBPS) in all the way.
3. Close the lever completely to fix the Power Supply (DBPS) .

Figure 2-78 Installing Power Supply (DBPS) (DBS/DBL/DBF)

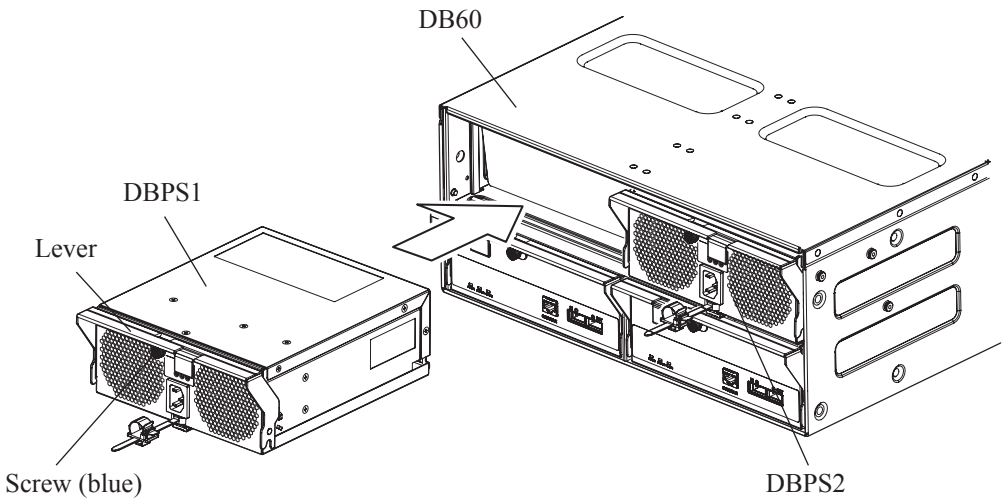


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2.8.5.4 Installing Power Supply (DBPS) for DB60

1. With the lever completely opened, insert the Power Supply (DBPS) into the slot.
   If you cannot insert the Power Supply (DBPS) into the slot easily, insert it after adjusting the position by slightly returning the lever.
2. Push the Power Supply (DBPS) in all the way.
3. Close the lever completely to fix the Power Supply (DBPS) .
4. Tighten the screw (blue) to fix the Power Supply (DBPS) .

Figure 2-79 Installing Power Supply (DBPS) (DB60)



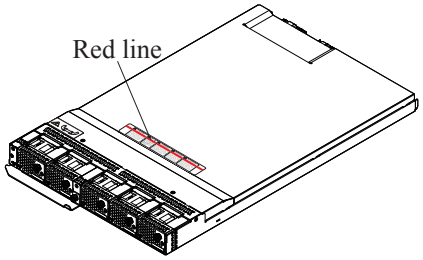
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2.8.6 Installing Built-in Parts of the Channel Board Box

2.8.6.1 Installing Switch Package (SWPK)

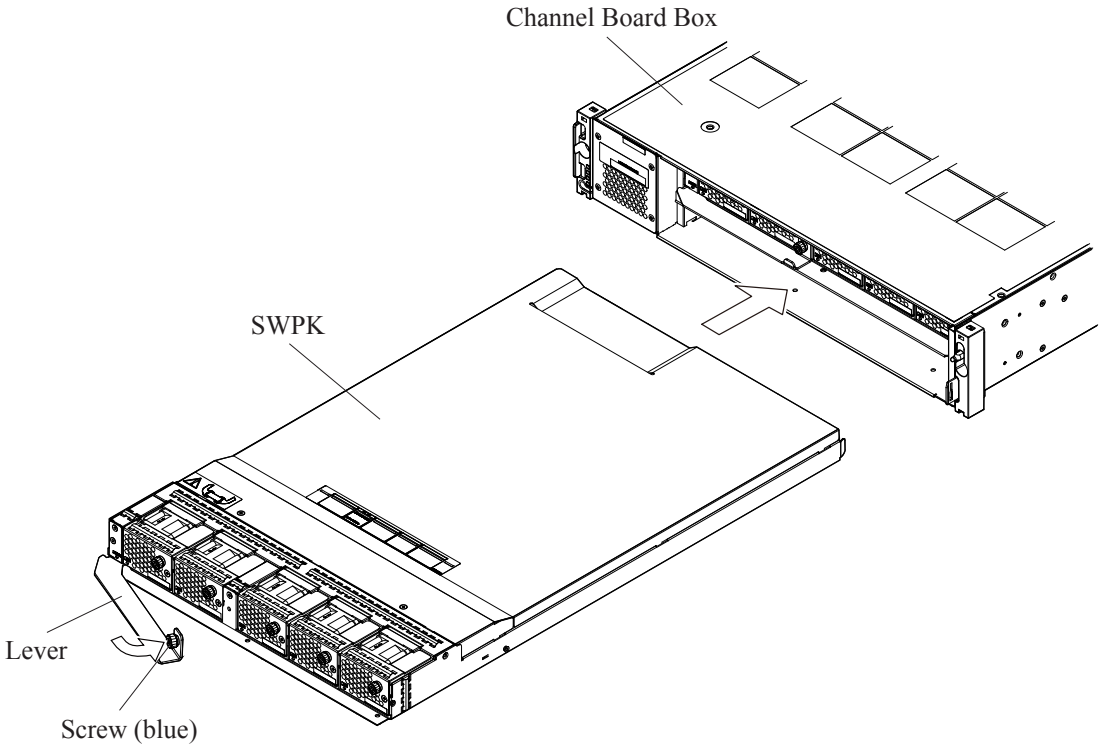
⚠ CAUTION

Dropping the Controller Board may cause injury. Be aware of the red line marked on the Controller Board top - when sliding the Controller Board out of the array past this mark, keep a firm hold on the Controller Board.



1. Open the lever of Switch Package (SWPK) completely toward you.
2. Install the Switch Package (SWPK) in the set position.
   Insert the lever of the Switch Package (SWPK) is slightly closed, and then push the lever toward the Switch Package (SWPK).
3. Tighten the screw (blue) and fix the Switch Package (SWPK).

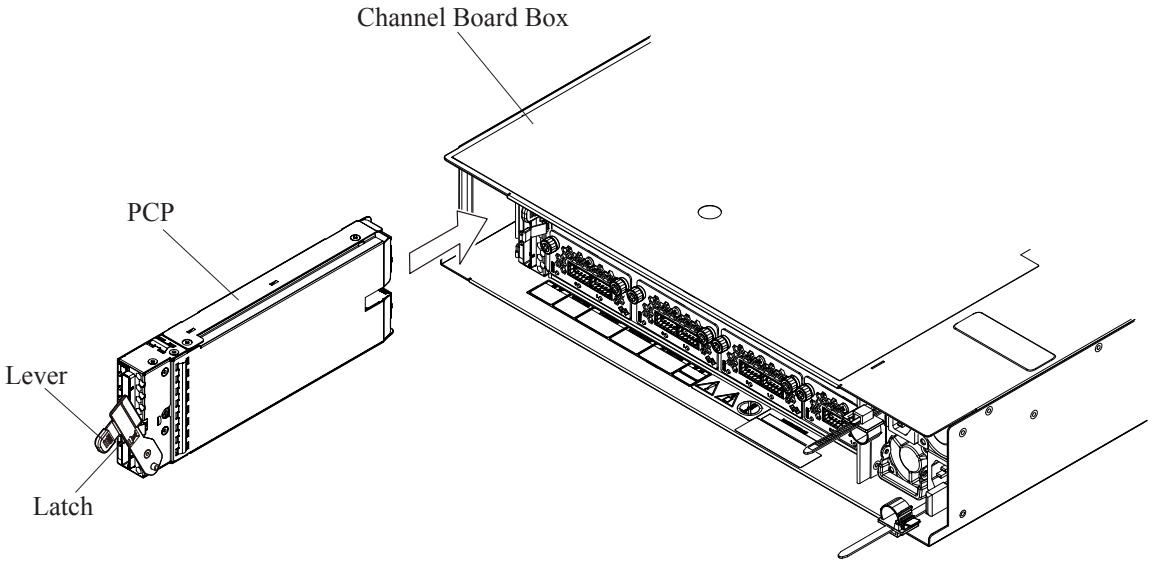
Figure 2-80 Installing Switch Package (SWPK)



2.8.6.2 Installing PCIe-cable Connecting Package (PCP)

1. With the lever opened completely, insert the PCIe-cable Connecting Package into the slot.
2. Push the PCIe-cable Connecting Package in all the way.
3. Push the lever until the latch of PCIe-cable Connecting Package clicks.

Figure 2-81 Installing PCIe-cable Connecting Package (PCP)

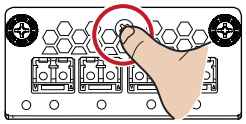


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2.8.6.3 Installing Channel Board

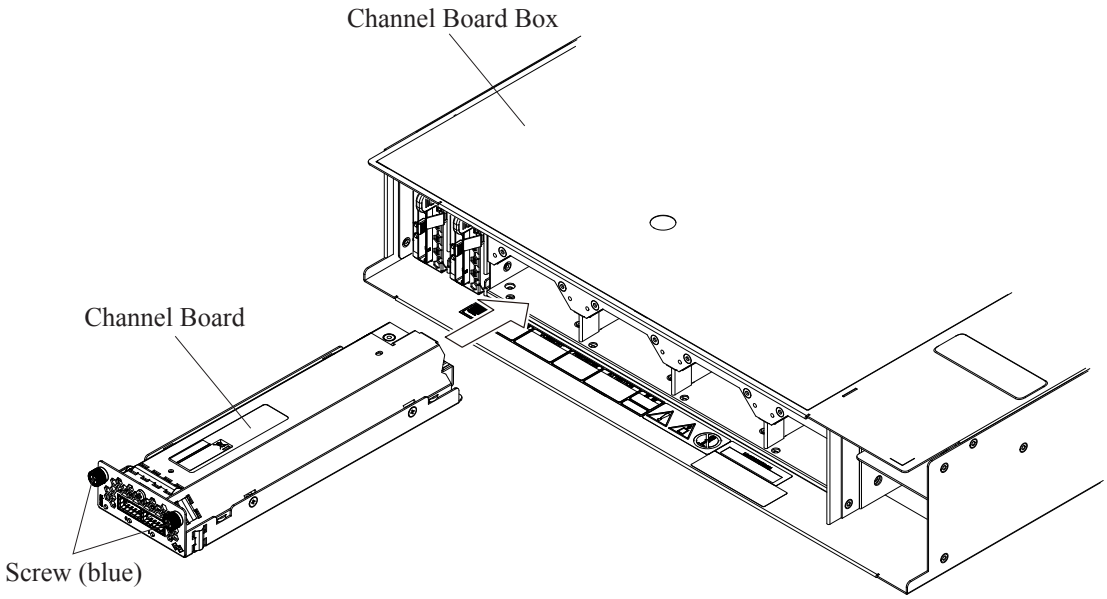
1. Insert the Channel Board.
2. Push the Channel Board in all the way.

NOTICE: Push the front side of the Channel Board all the way to insert it to the end.



3. Tighten the two screws (blue) to fix the Channel Board.

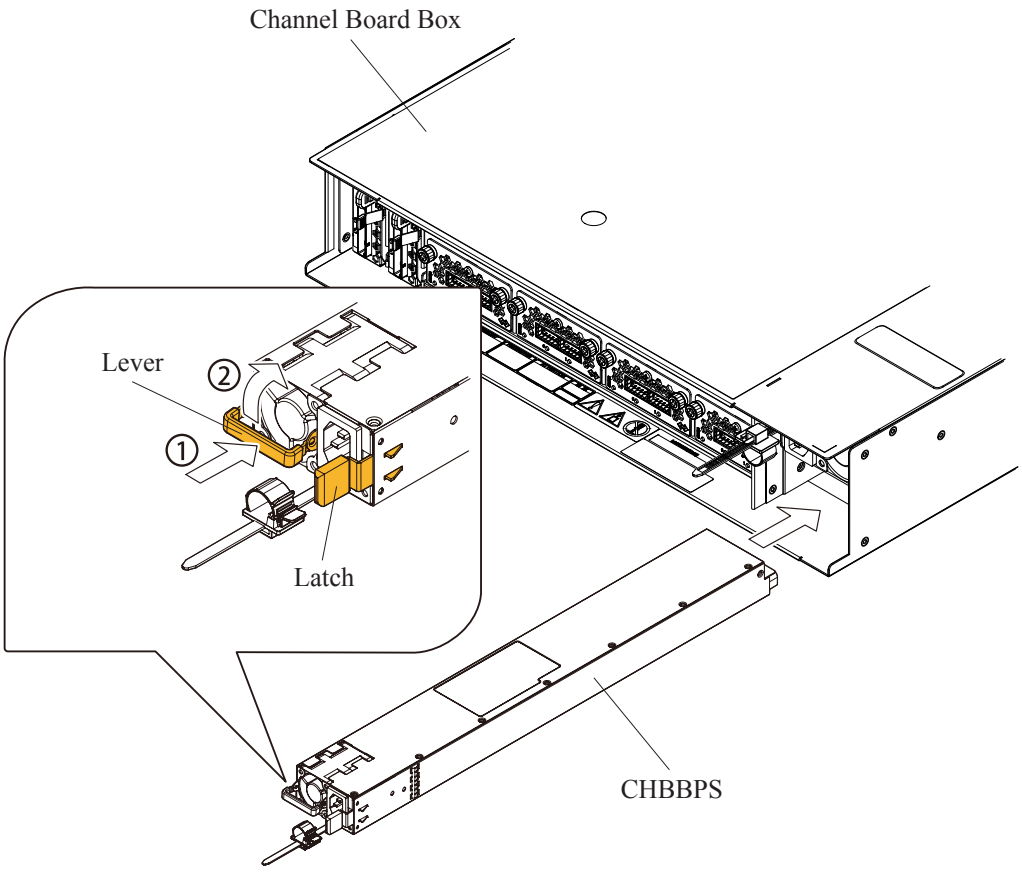
Figure 2-82 Installing Channel Board



2.8.6.4 Installing CHBBPS

1. Hold up the latch on the cable holder of the CHBBPS to release the lock, and then slide the cable holder forward.
2. With the lever completely opened, insert the CHBBPS into the slot.
3. Push the Power Supply the latch of the CHBBPS clicks.
4. Close the lever completely to fix the CHBBPS.

Figure 2-83 Installing CHBBPS

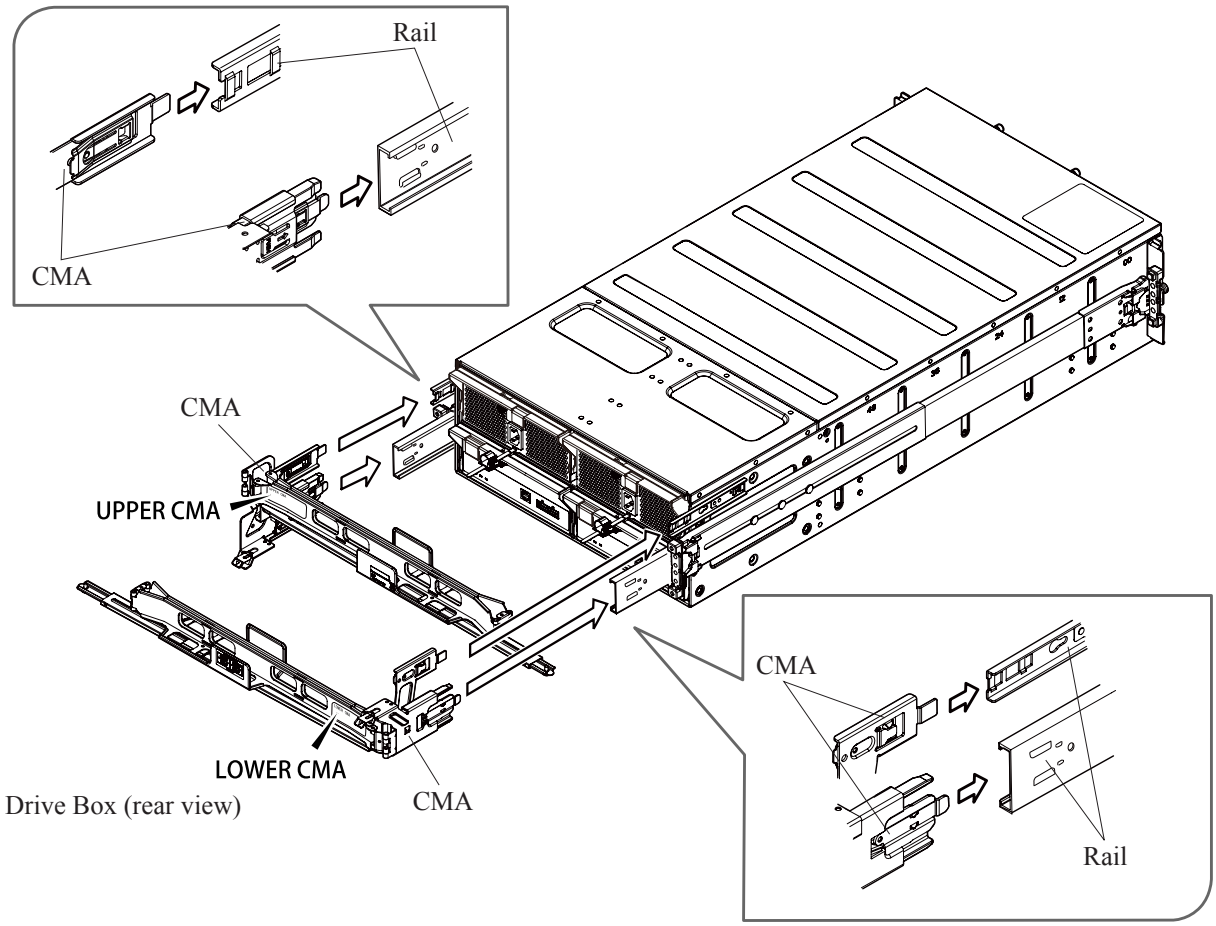


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2.9 Installing CMA

Install two CMAs on the right and left sides of the rear of the Drive Box.
The CMAs on the right and left have different shapes. Install the CMA with UPPER CMA display on the left side and the CMA with LOWER CMA display on the right side.

Figure 2-84 Installing CMA



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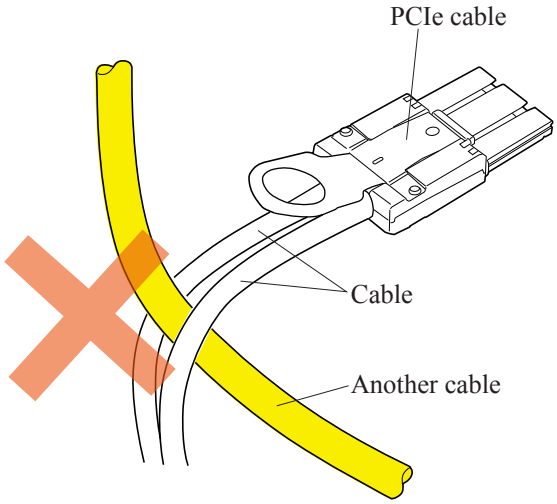
2.10 Connecting Cables

NOTICE: Take full care to connect cables correctly.

Route the cables not to affect the maintenance part replacement.
Because operation of the Storage System is affected by the cable routing, follow the "1.1.3 Note at the Time of Cable Routing".

NOTE: Do not route another cable through the split of the PCIe cable. The cable becomes an obstruction to removing the PCIe cable.

Figure 2-85 Note for cable routing



NOTE : Power supply system of the Storage System is duplicated.
It is recommended to connect each system to outlet of one of the two power sources independent of each other.

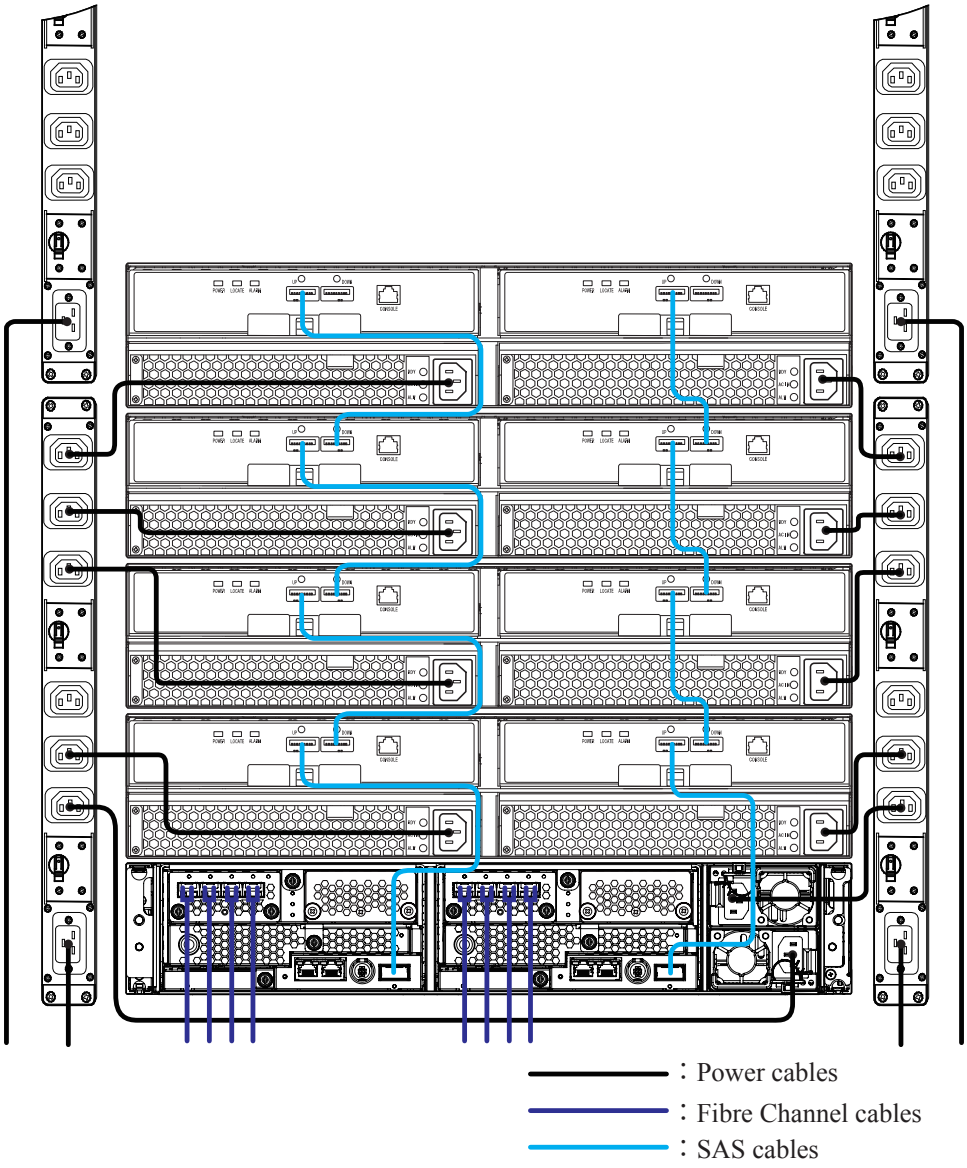
The cable connection of the Storage System that is mounted on the rack frame is shown in Figure 2-86 or later. Table 2-16 shows the types of the cables to be connected.

Table 2-16 Types of Cables to be Connected

No.	Cable name	Remarks
1	Fibre Channel cable	See "2.10.1.1 Connecting Fibre Channel Cables".
2	iSCSI cable/NAS cable	See "2.10.1.2 Connecting iSCSI Cables/NAS Cables".
3	PCIe Cable	See "2.10.1.3 Connecting PCIe Cables".
4	SAS cable	See "2.10.2 Connecting SAS Cables".
5	Power cable	See "2.10.3 Connecting Power Cables".
6	Power cable (for rack frame PDU)	See "2.10.4 Connecting Power Cables (Rack Frame PDU)".

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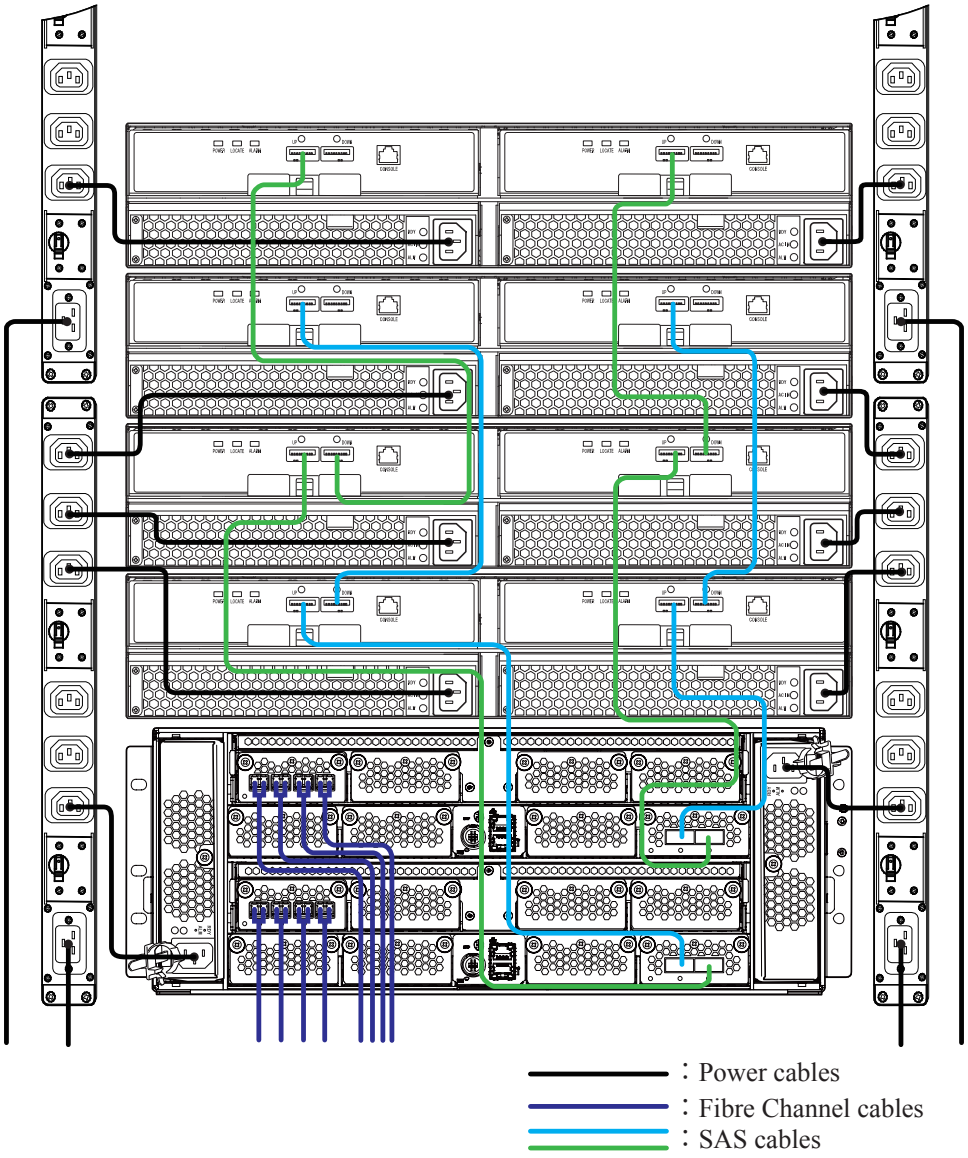
Figure 2-86 Cable Connection (CHB:Fibre Channel) (CBSS/CBSL + DBS/DBL × 4)



*1 : This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

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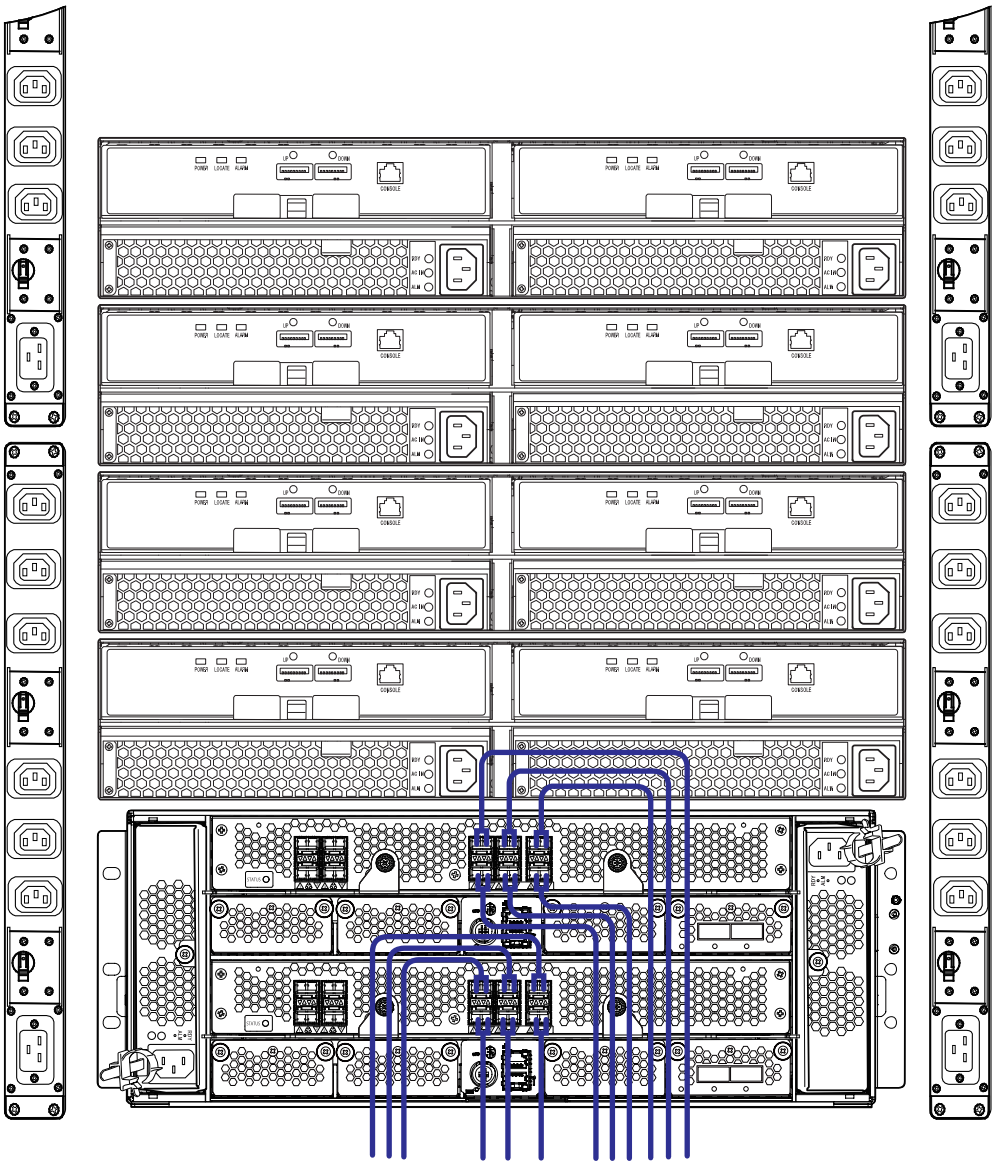
Figure 2-87 Cable Connection (CHB:Fibre Channel) (CBLM + DBS/DBL × 4)



*1 : This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

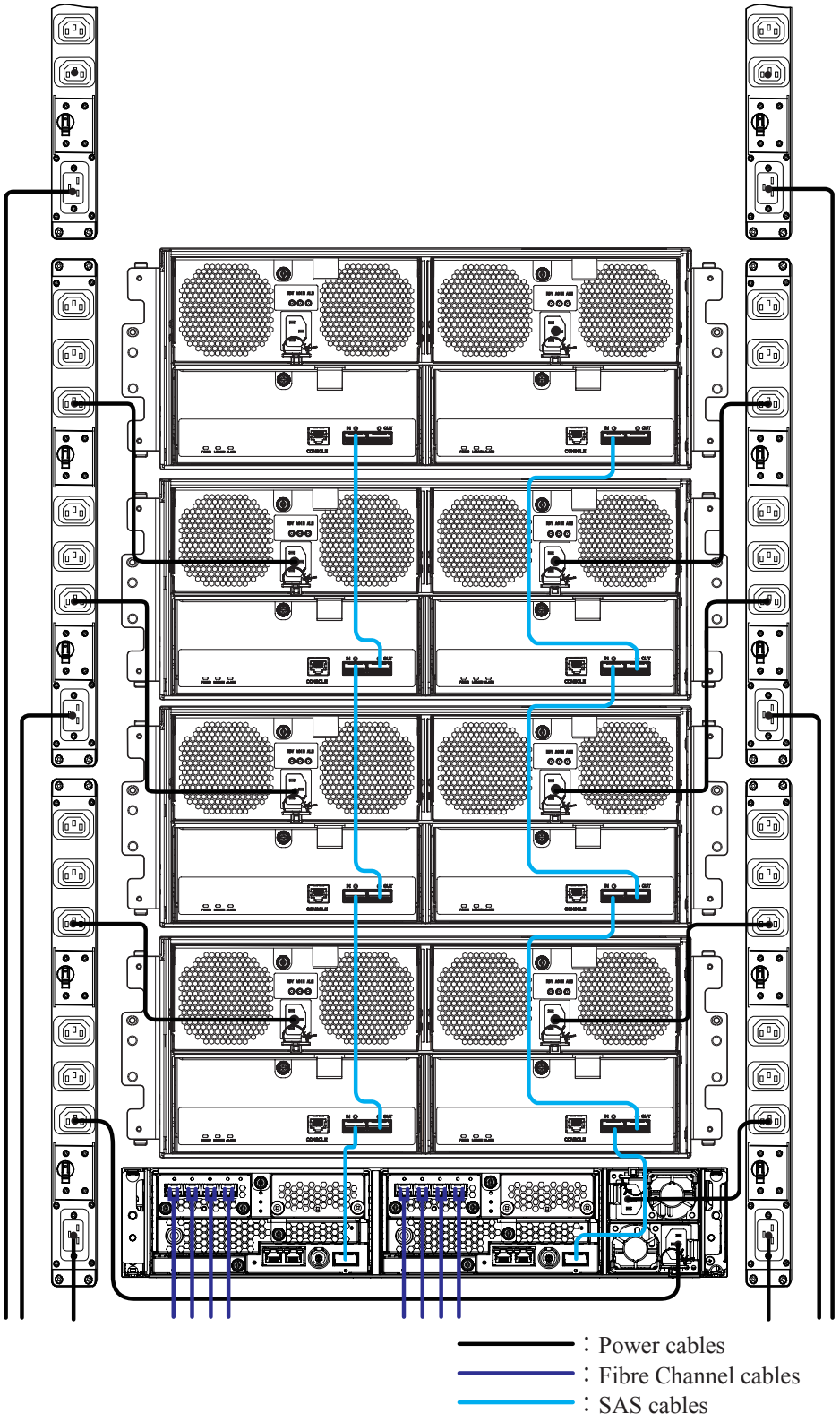
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Figure 2-88 Cable Connection (when the NAS Module is installed) (CBLM + DBS/DBL × 4)



*1 : Because the connection of the SAS cables and power cables are the same as Figure 2-87, see Figure 2-87 for the details.

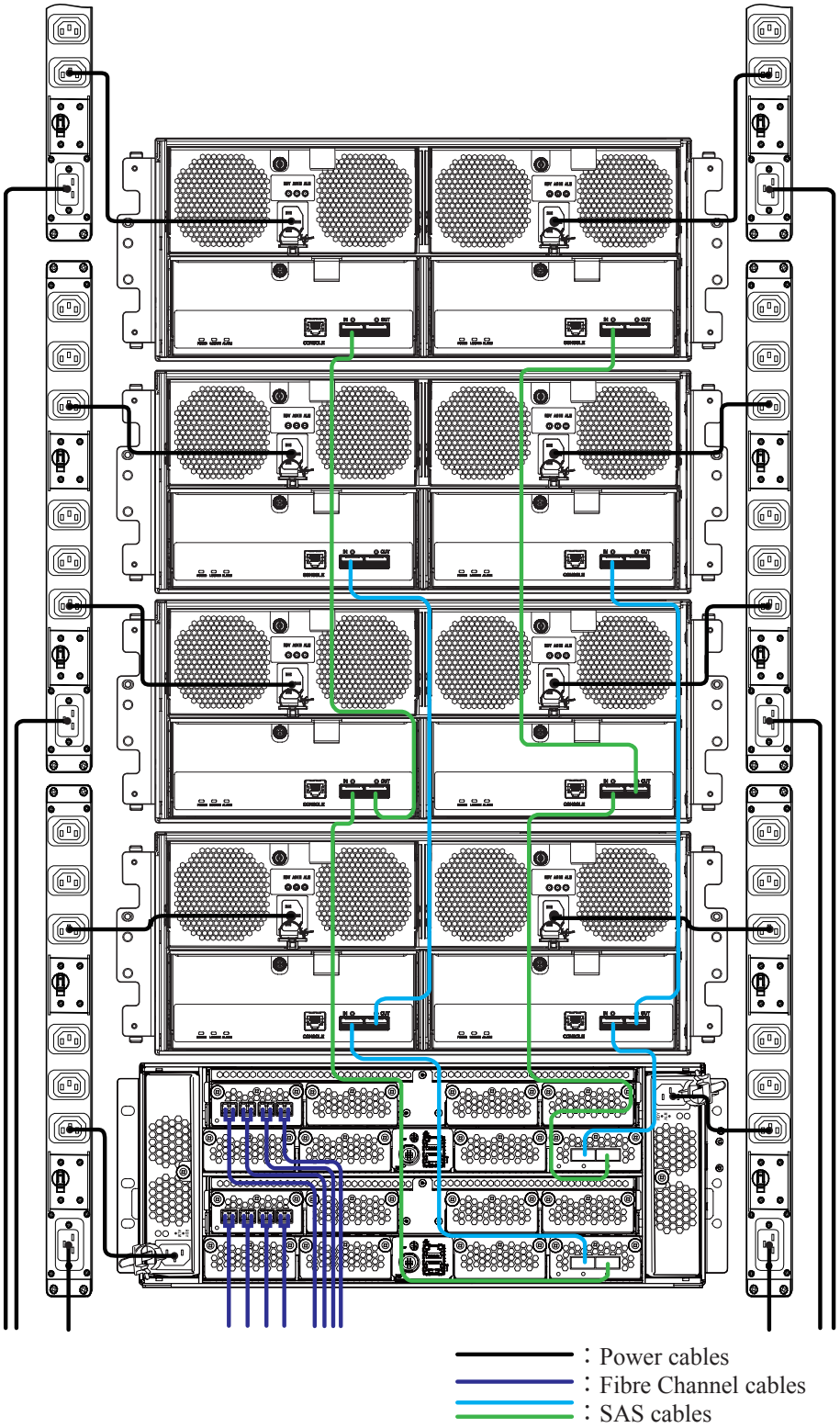
Figure 2-89 Cable Connection (CHB:Fibre Channel) (CBSS/CBSL + DB60 × 4)



*1： This is a connection example when connecting a power cable to PDU6 (breaker rating: 10A).

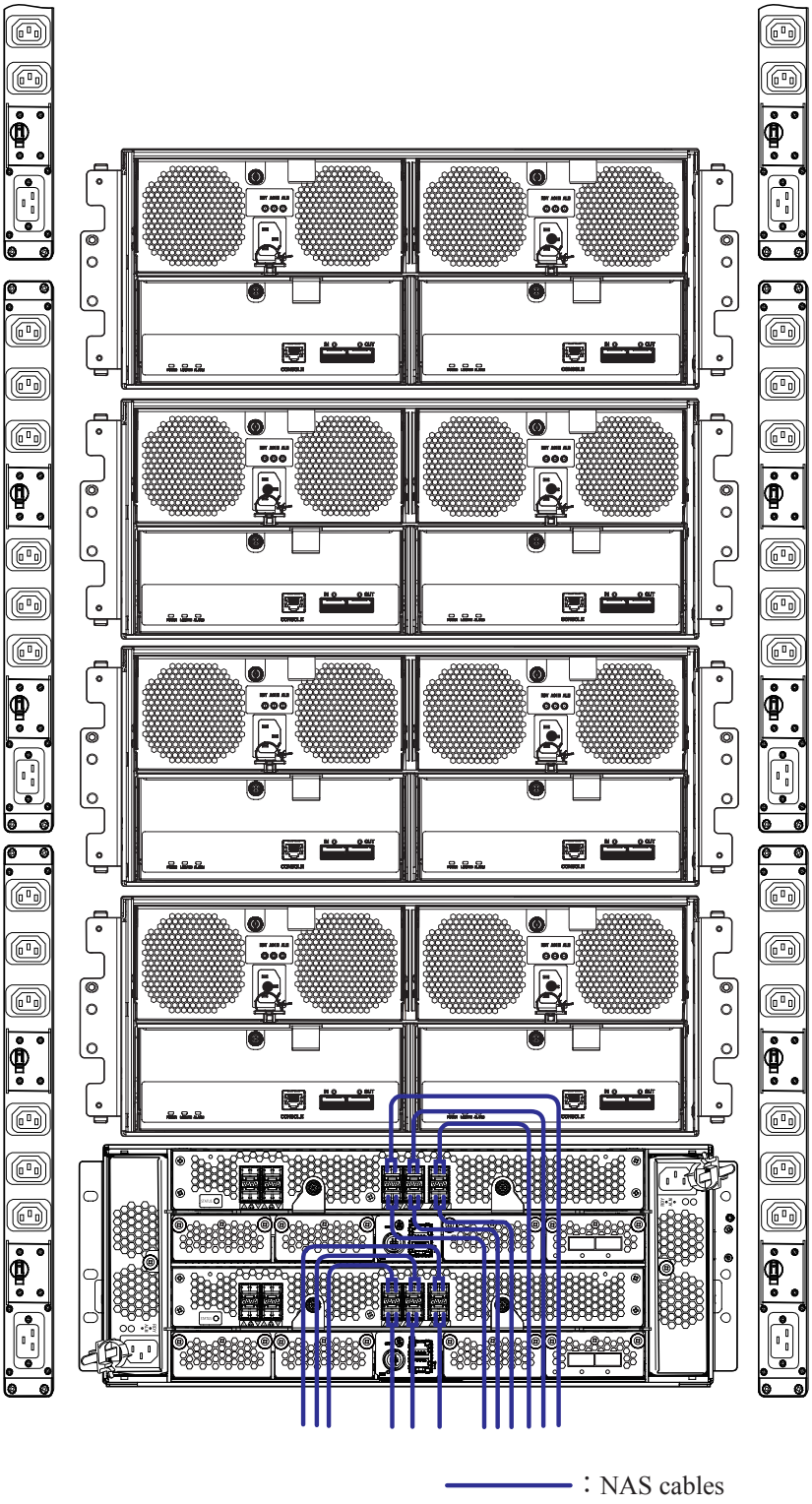
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Figure 2-90 Cable Connection (CHB:Fibre Channel) (CBLM + DB60 × 4)



*1： This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

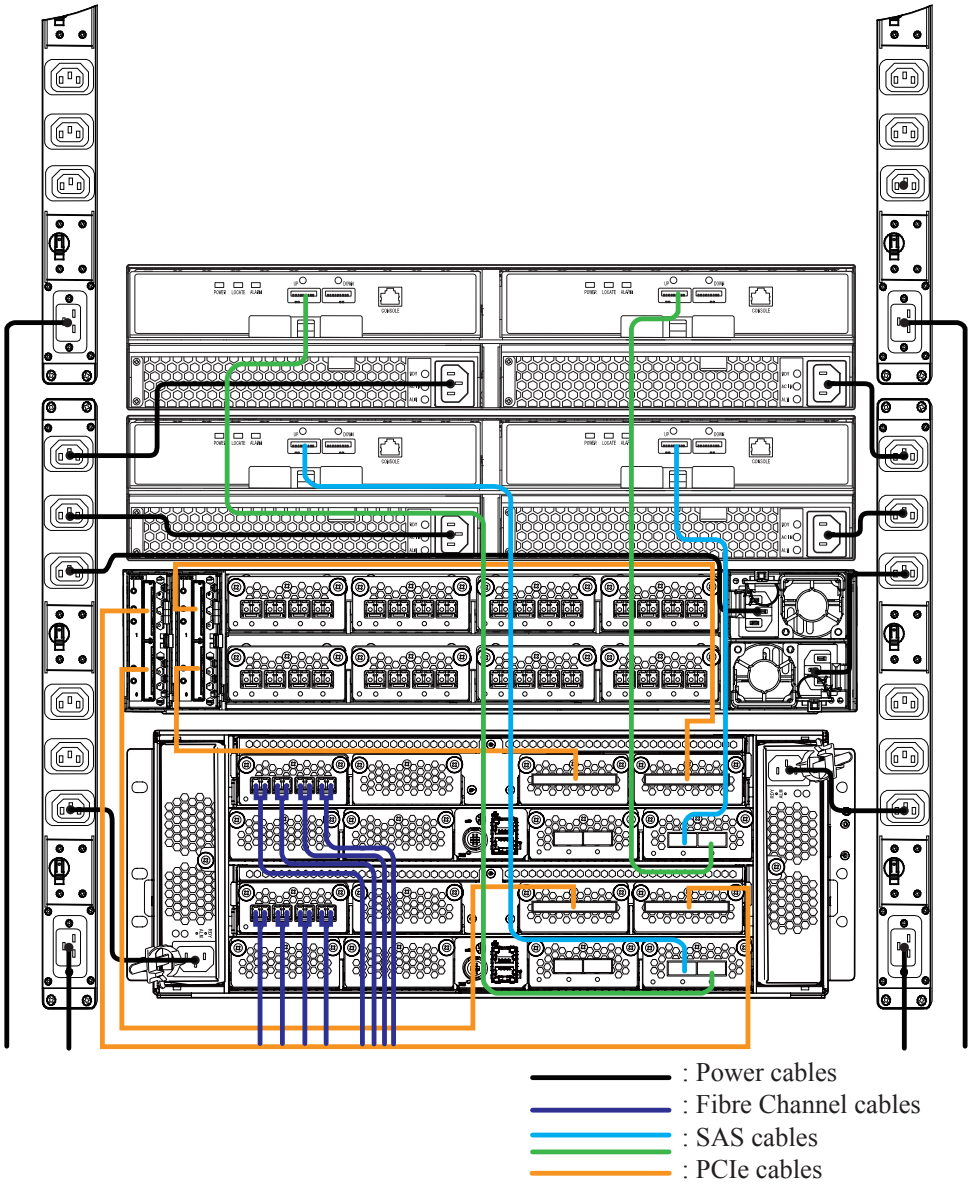
Figure 2-91 Cable Connection (when the NAS Module is installed) (CBLM + DB60 × 4)



*1： Because the connection of the SAS cables and power cables are the same as Figure 2-90, see Figure 2-90 for the details.

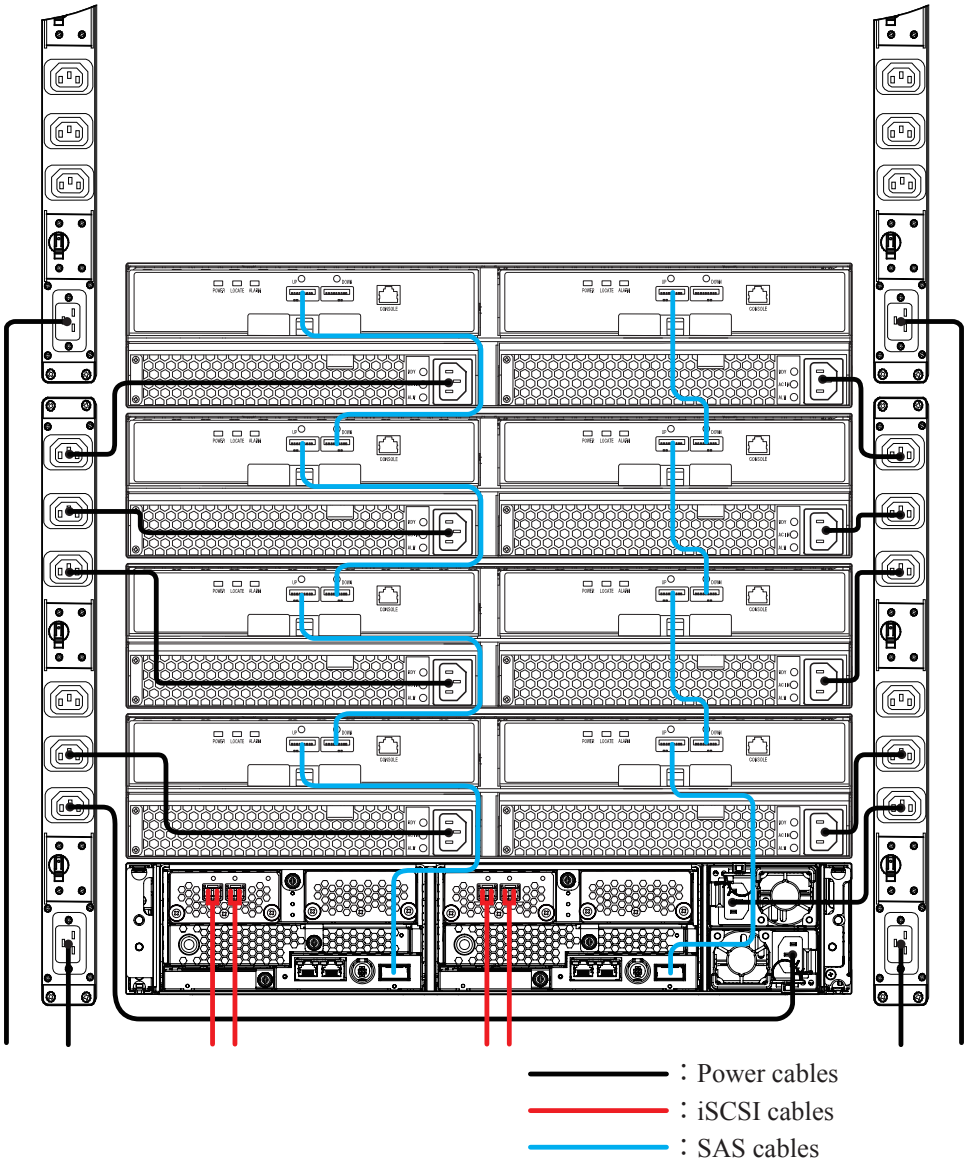
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Figure 2-92 Cable Connection (CHB:Fibre Channel) (CBLH + CHBB + DBL × 2)



*1 : This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

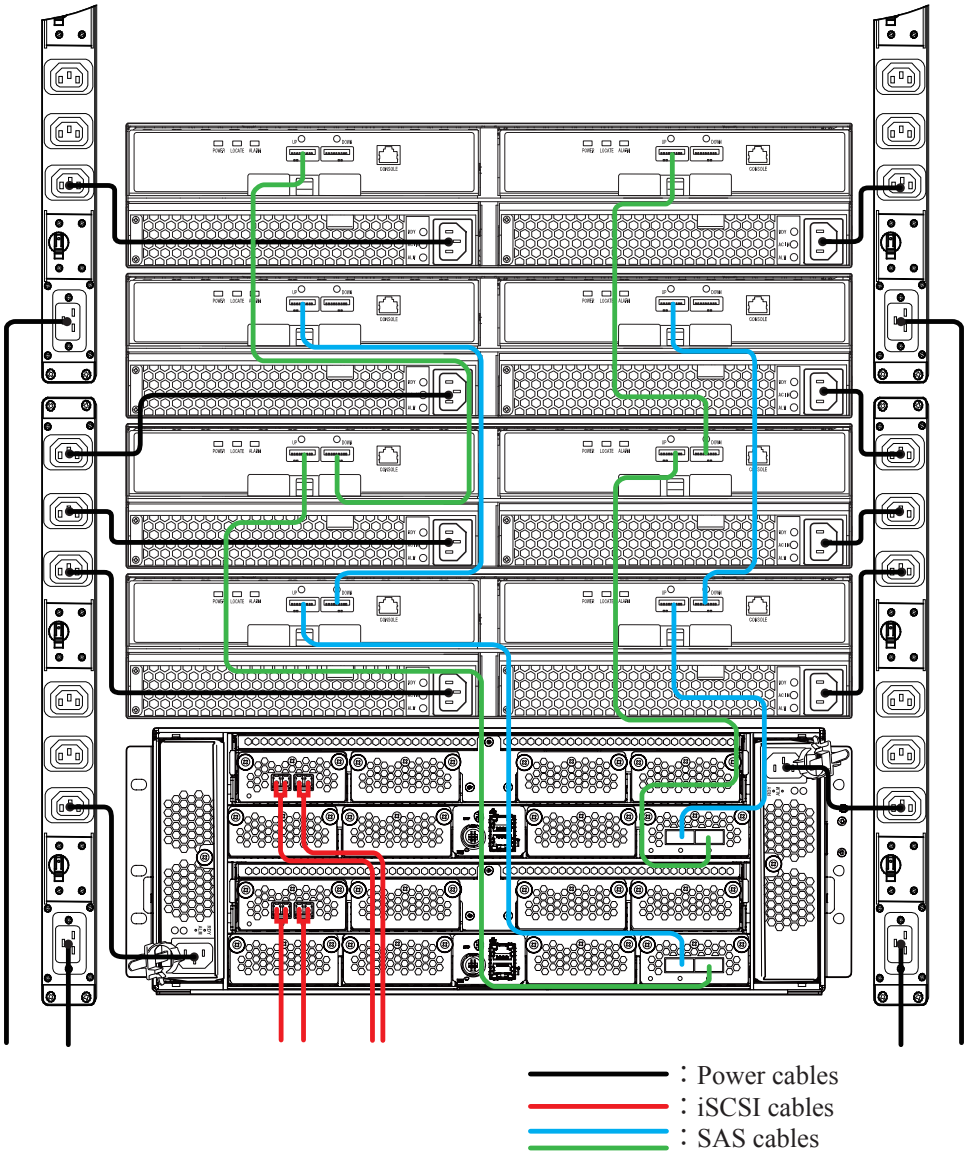
Figure 2-93 Cable Connection (CHB:iSCSI) (CBSS/CBSL + DBS/DBL × 4)



*1: This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

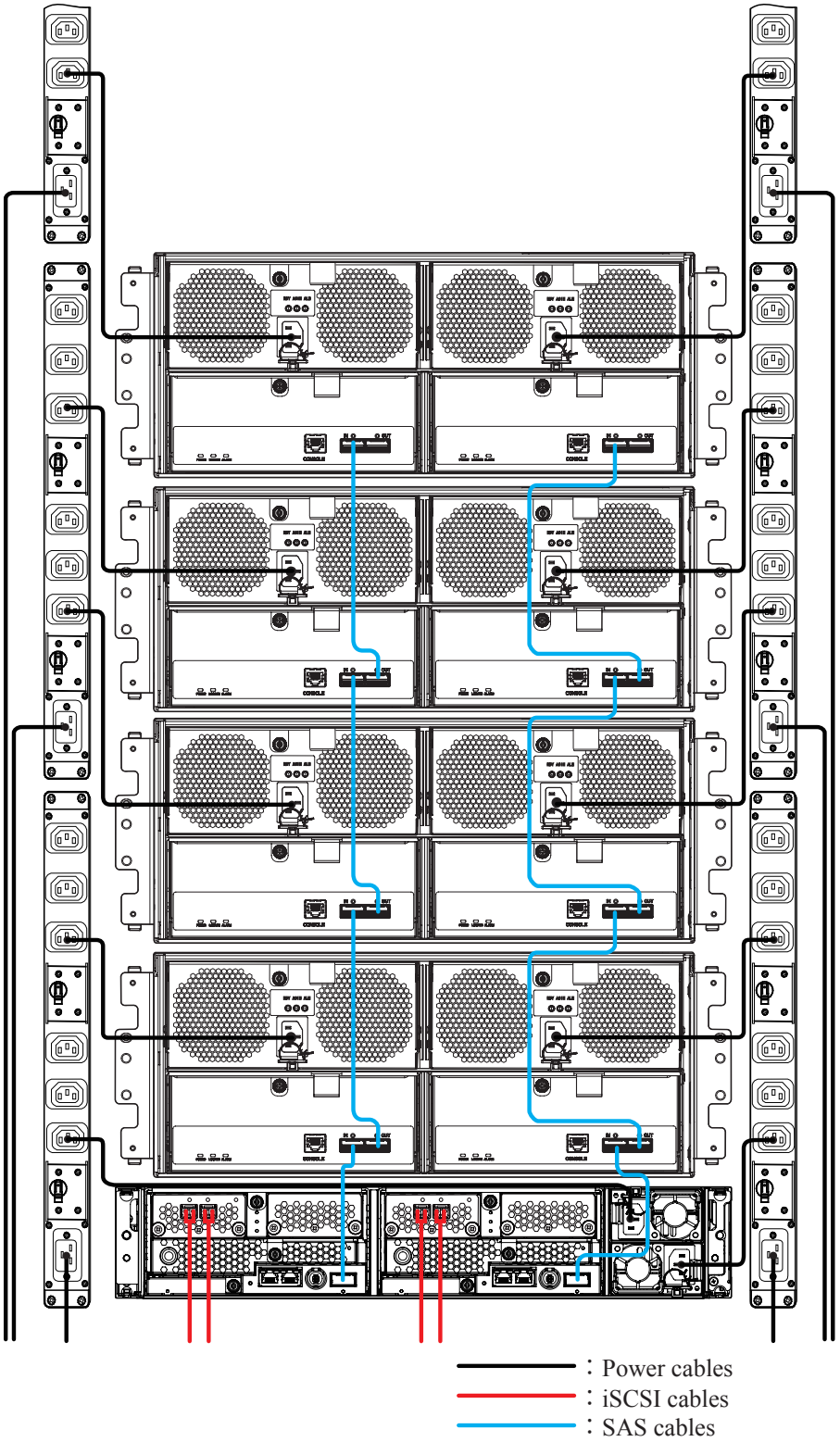
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Figure 2-94 Cable Connection (CHB:iSCSI) (CBLM + DBS/DBL × 4)



*1: This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

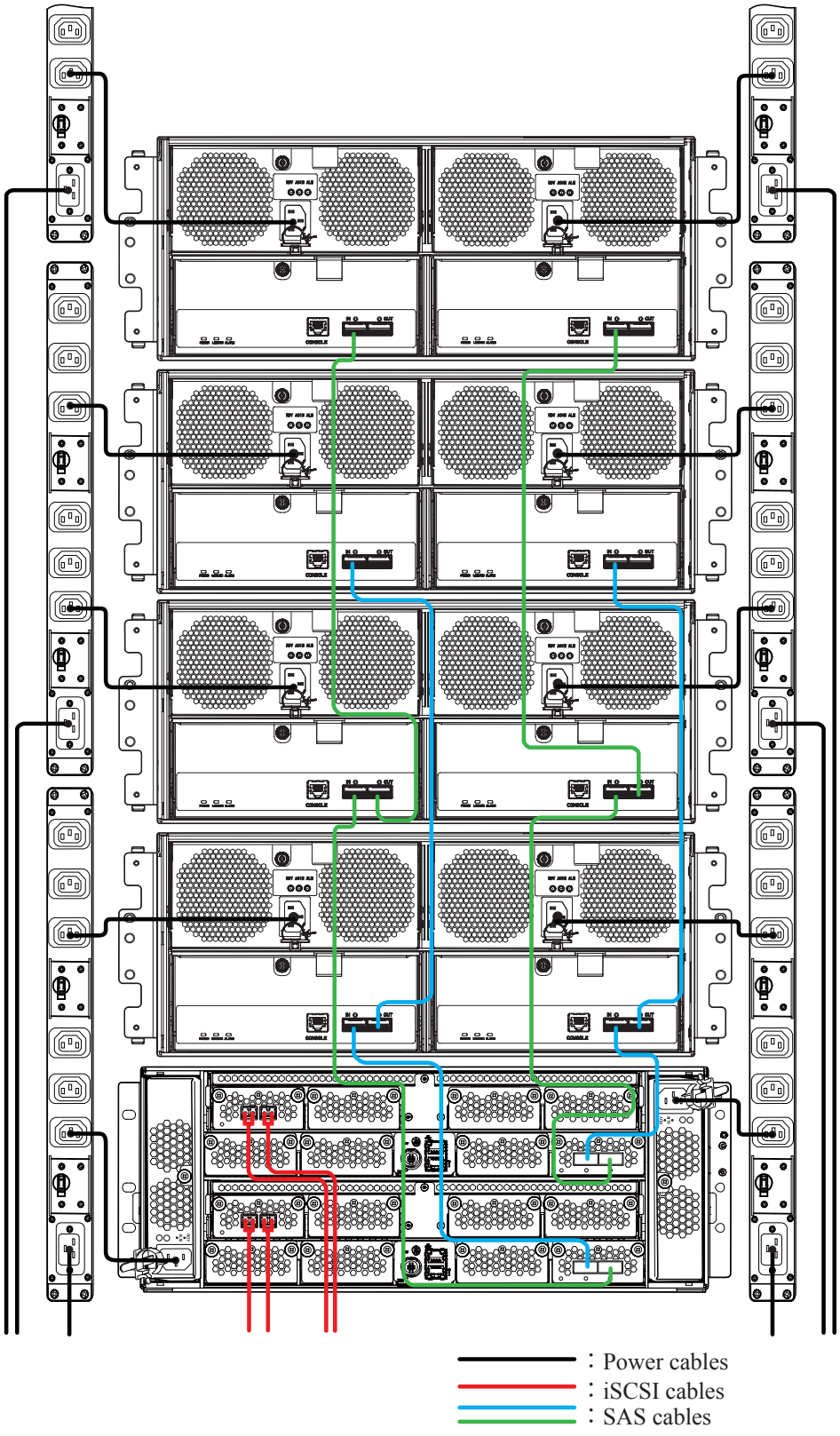
Figure 2-95 Cable Connection (CHB:iSCSI) (CBSS/CBSL + DB60 × 4)



*1: This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

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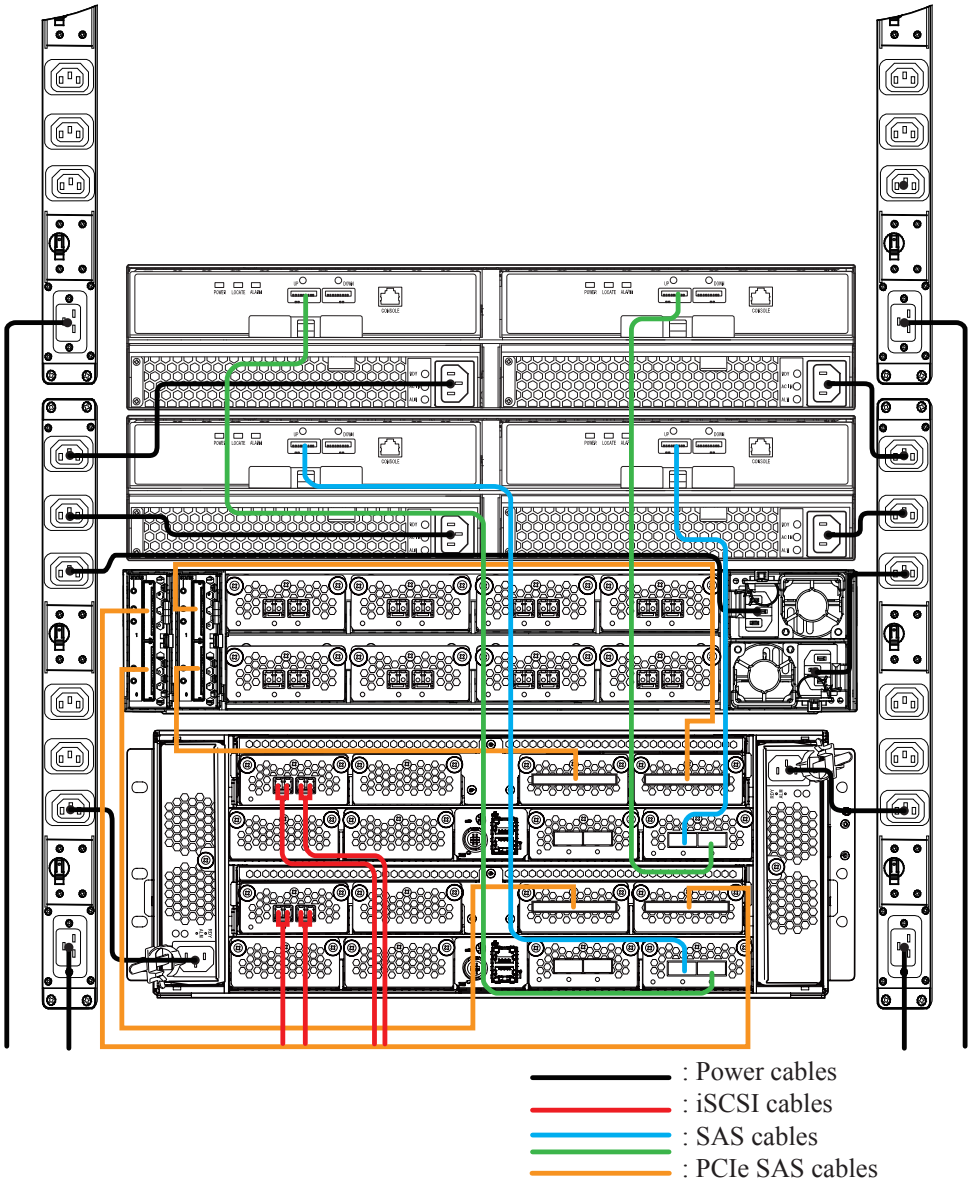
Figure 2-96 Cable Connection (CHB:iSCSI) (CBLM + DB60 × 4)



*1: This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

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Figure 2-97 Cable Connection (CHB:iSCSI) (CBLH + CHBB + DBL × 2)



*1: This is a connection example when connecting a power cable to PDU6 (breaker rating: 10 A).

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2.10.1 Connecting Interface Cables

Two types of cable are provided as the Interface cables to be used so that they fit to connector shapes of the Controller Chassis and host computer (or HBA (Host Bus Adapter), SW) to be connected.
When the multiple ports are used, make sure of the port corresponding to the host computer to be connected.
Table 2-17 and Table 2-18 show correspondences between the connector shapes and cable types.
Choose the applicable cables from the table correctly.

Table 2-17 Connecting Interface Cables

Channel Board side (for Controller Chassis side)			Host computer side (HBA (Host Bus Adapter) , SW)	Types of Cables to be Connected	
Parts name of connected cable plug	Model	Connector form	Connector form	Cable connector type	Cable model
Channel Board	DW-F800-4HF8 DW-F800-2HF16 DW-F800-4HR32R DW-F800-2HS10S	LC	LC	LC-LC cable	A-6515-GMxL (*1) A-6515-HMxL (*1) A-6515-JMzL (*1) A-6515-GSzL (*1)
NAS Module	DW-F800-NAS				

*1 : “x” denotes a valuable that shows a cable length.

Table 2-18 Connecting Interface Cables (Copper)

Channel Board side (for Controller Chassis side)			Host computer side	Types of Cables to be Connected	
Parts name of connected cable plug	Model	Connector form	Connector form	Cable connector type / Maximum cable connection length / Data transfer / Corresponding Transmission Band	Specification
Channel Board	DW-F800-2HS10B	RJ-45	RJ-45	Cable type:Category 5e / 6a LAN cable Maximum cable connection length : 100m Data transfer : 1Gbps Corresponding Transmission Band : 1000 BASE-T	Cable : STP (*1) Connector form : RJ-45
				Cable type:Category 6a LAN cable Maximum cable connection length : 50m Data transfer : 10Gbps Corresponding Transmission Band : 10G BASE-T	

*1 : It is essential to use the STP cable that suppresses the radio noise.

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2.10.1.1 Connecting Fibre Channel Cables

1. Connect the Fibre Channel cables after making sure of the ports to be connected on the rear face of the Storage System.

NOTE : When bending the Fibre Channel cable to connect it, give it a bend with a long radius (not less than 40 mm) so as not to apply the cable and the connector excessive stresses.

Figure 2-98 Connection Port for Fibre Channel Cables (8 Gbps/16 Gbps (4 Port)/32 Gbps (4 Port) FC)

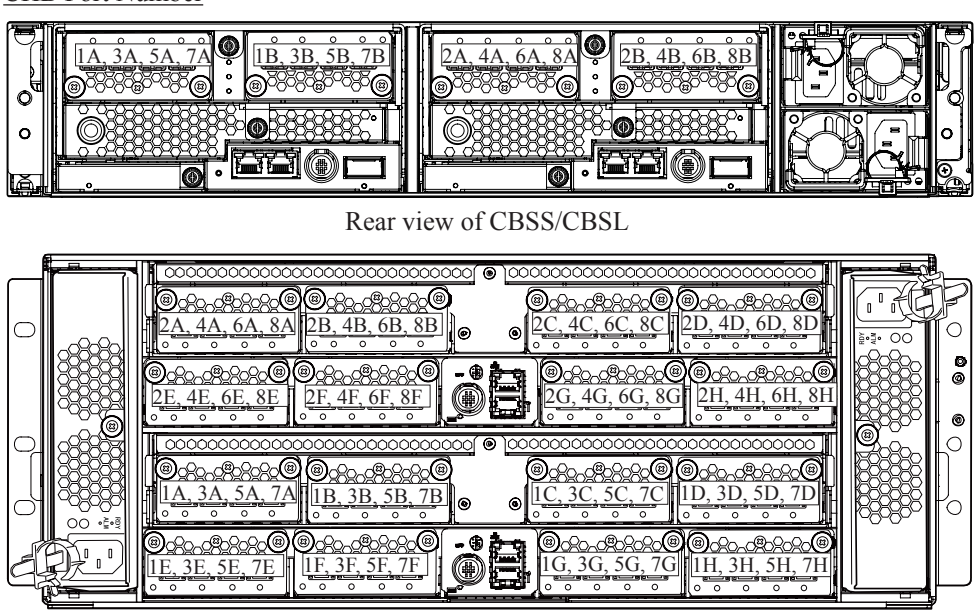
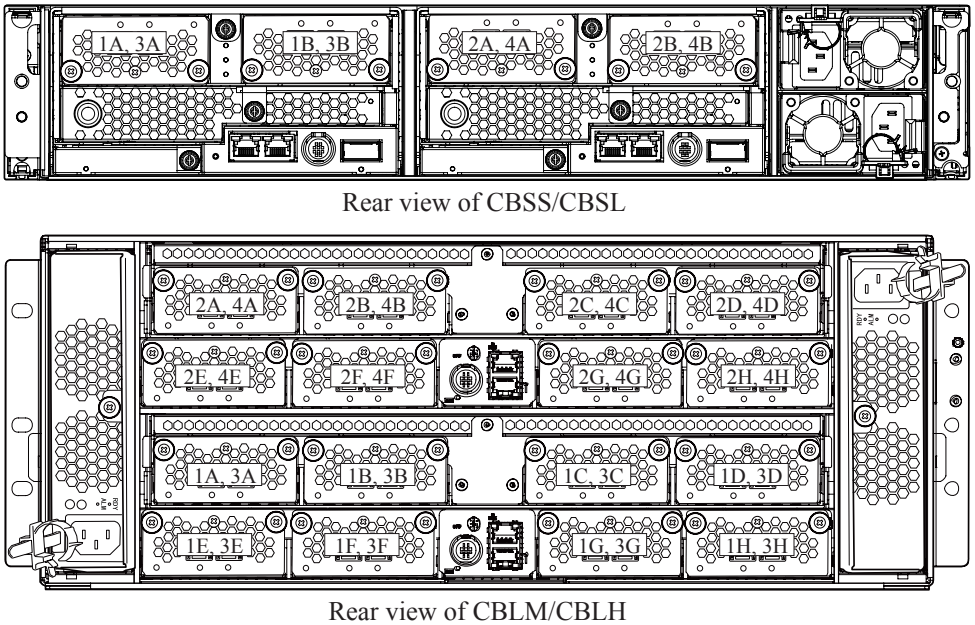


Figure 2-99 Connection Port for Fibre Channel Cables (16 Gbps (2 Port) FC/iSCSI)



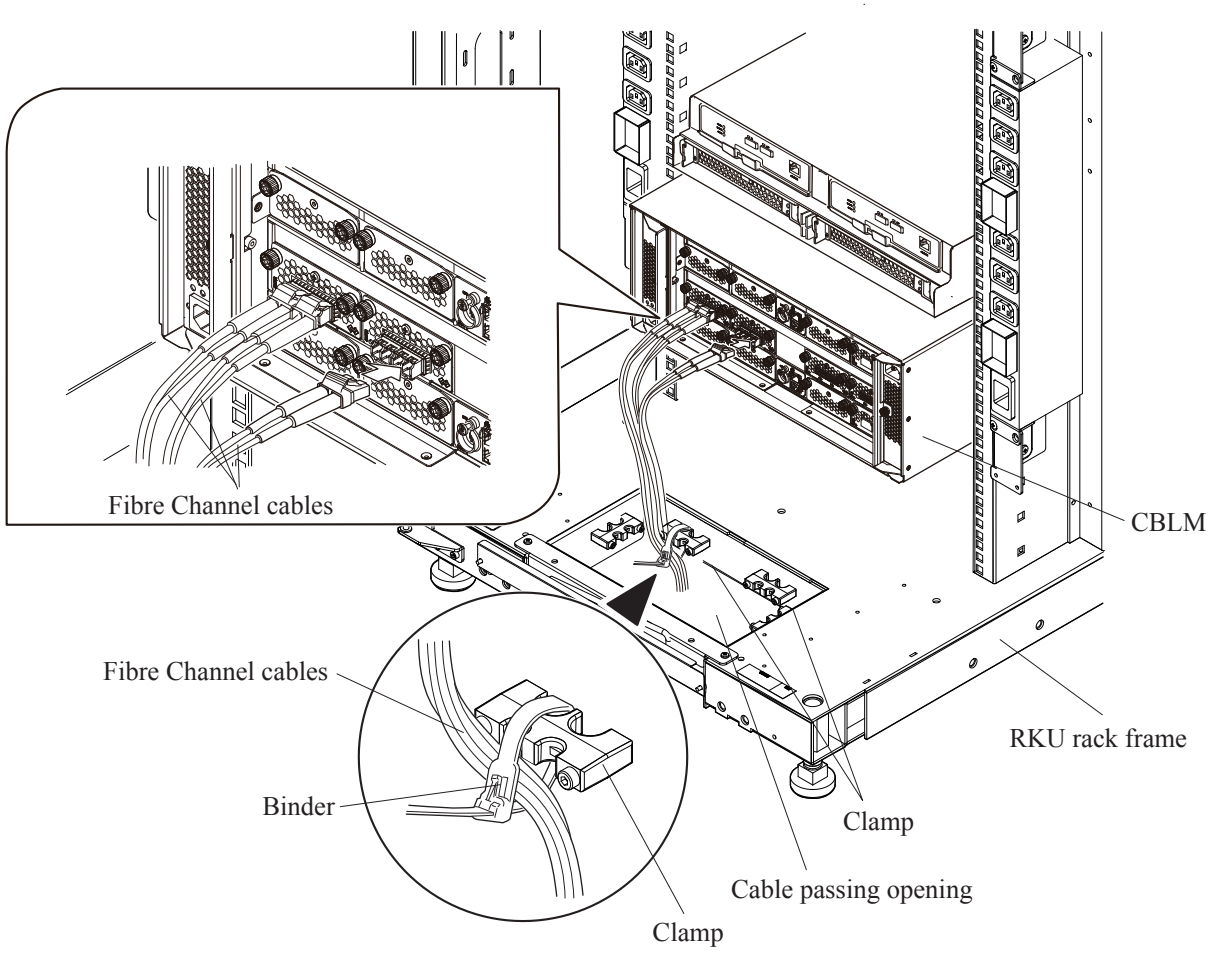
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2. Pull all the Fibre Channel cables into the rack frame passing them through an opening for cables on the bottom plate of the rack frame.
3. Connect the Fibre Channel cable to the connector of the each port.

NOTE : • Insert the Fibre Channel cables until they are fixed to the Small Form-Factor Pluggable (SFP).
If the Fibre Channel cables are inserted half in the Small Form-Factor Pluggable (SFP), the Controller Board continues to detect the Fibre Channel cable failures, and the I/O processing of the Controller Board may be deteriorated.
• The location of Fibre Channel cable connectors is different depending on Controller Board. Check the location before connecting a cable.
• Check that Fibre Channel cable latch clicks and the cables are surely connected.

4. Fix the Fibre Channel cables to the clamp with binders of the cable passing opening on the bottom plate giving them excessive lengths.

Figure 2-100 Optical Fibre Channel Routing in the RKU Rack Frame



*1 : The figure shows the CBLM/CBLH.

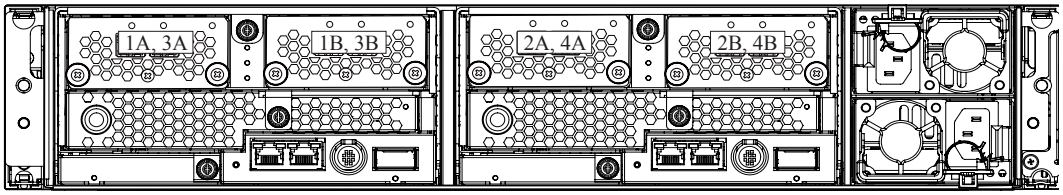
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2.10.1.2 Connecting iSCSI Cables/NAS Cables

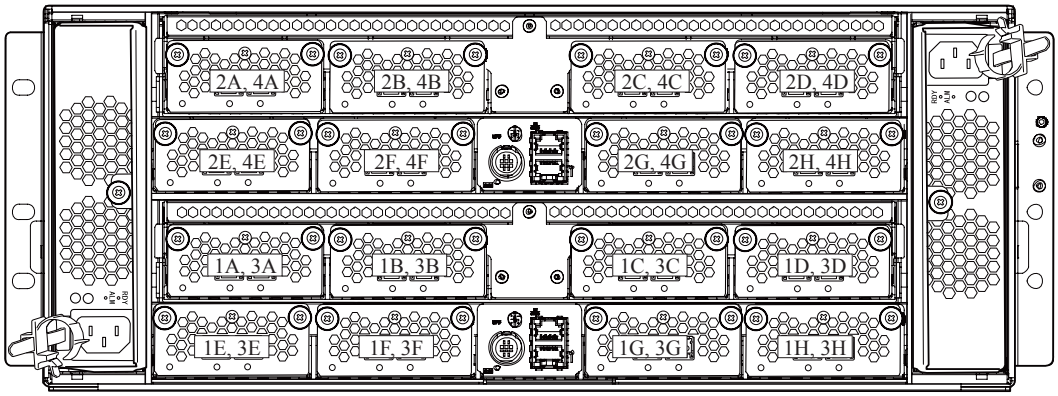
1. Connect the iSCSI cables after making sure of the ports to be connected on the rear face of the Storage System.

NOTE : When bending the iSCSI cable to connect it, give it a bend with a long radius (not less than 40 mm) so as not to apply the cable and the connector excessive stresses.

Figure 2-101 Connection Port for iSCSI Cables



Rear view of CBSS/CBSL

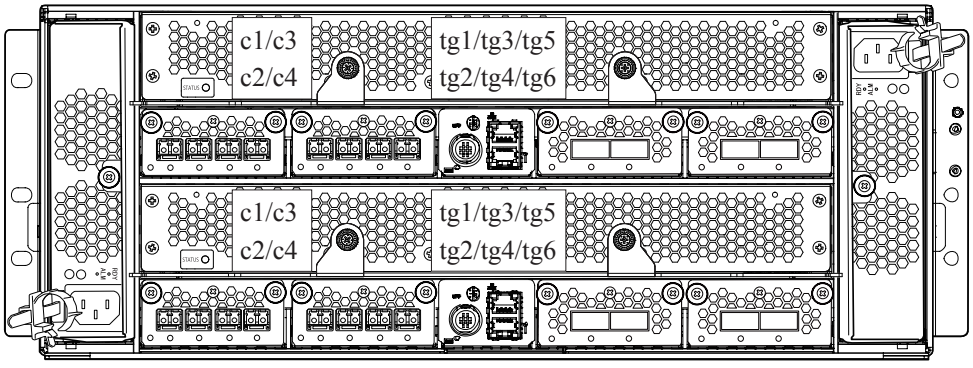


Rear view of CBLM/CBLH

*1 : The figure shows CBLM/CBLH with 10 G bps iSCSI installed.

Figure 2-102 Connection Ports for NAS Cables (Cables are the same as those used for iSCSI(optic))

NAS Module Port Number



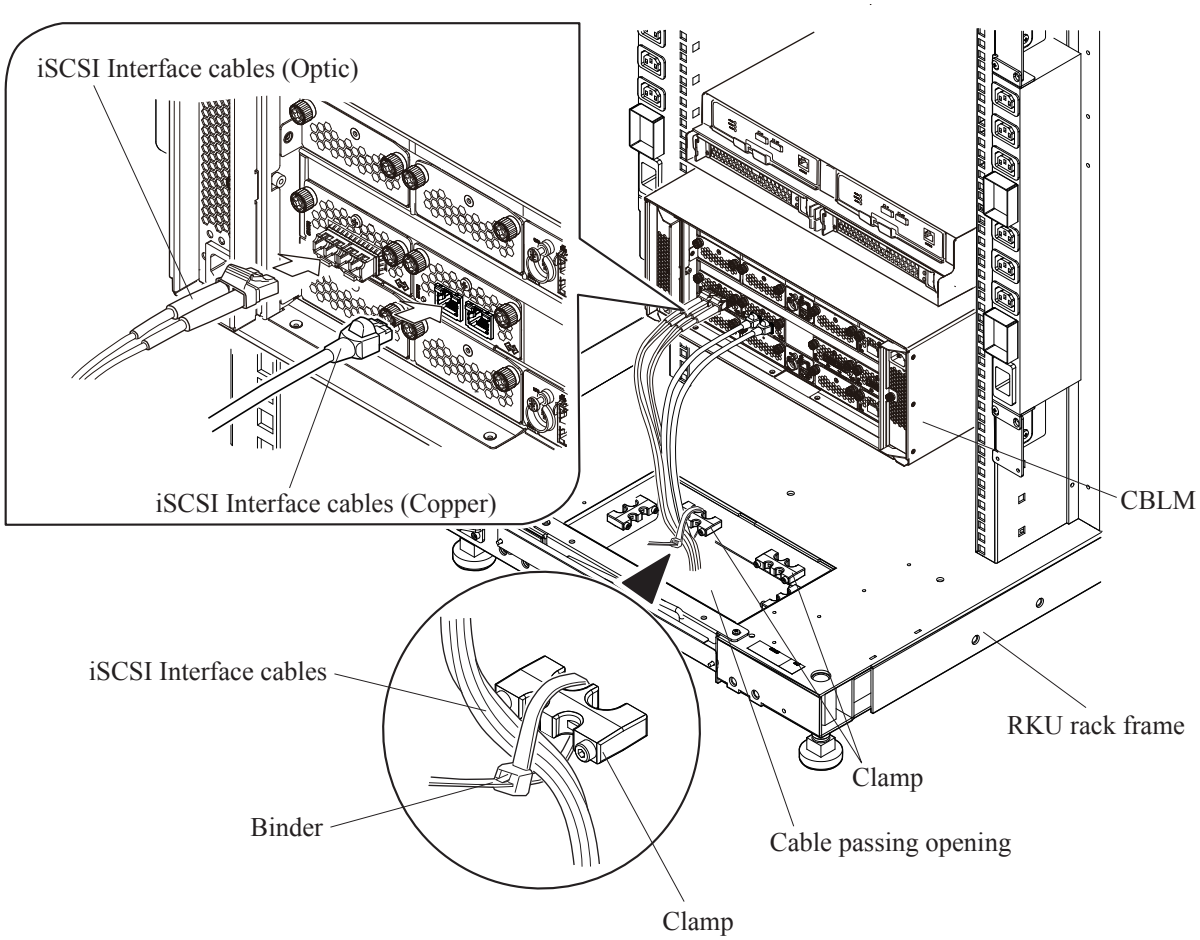
Rear view of CBLM/CBLH

2. Pull all the iSCSI cables into the rack frame passing them through an opening for cables on the bottom plate of the rack frame.
3. Connect the iSCSI cable to the connector of the each port.

NOTE : • Insert the iSCSI cables until they are fixed to the Small Form-Factor Pluggable (SFP). If the iSCSI cables are inserted half in the Small Form-Factor Pluggable (SFP), the Controller Board continues to detect the iSCSI cable failures, and the I/O processing of the Controller Board may be deteriorated.
• The location of iSCSI cable connectors is different depending on Controller Board. Check the location before connecting a cable.
• Check that optional cable latch clicks and the cables are surely connected.

4. Fix the iSCSI cables to the clamp with binders of the cable passing opening on the bottom plate giving them excessive lengths.

Figure 2-103 iSCSI Cable Routing



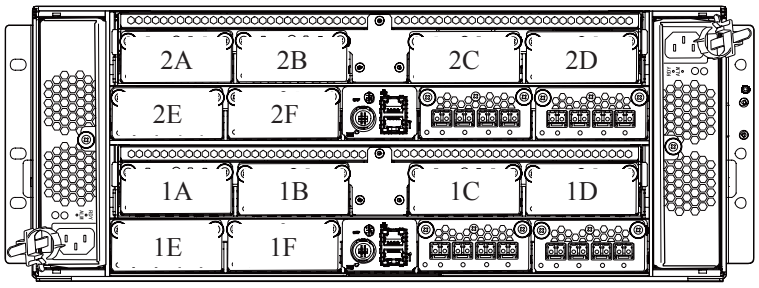
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2.10.1.3 Connecting PCIe Cables

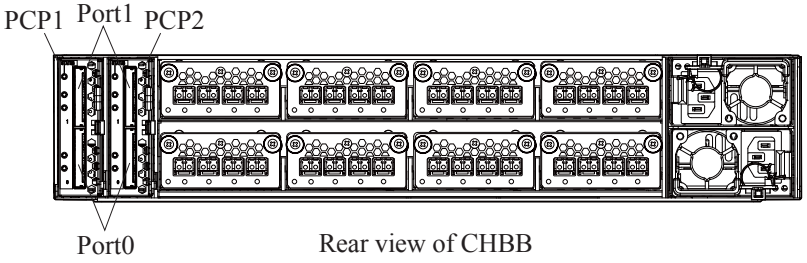
Connect the CBLH PCIe Channel Board and the PCIe-cable connecting package (PCP) of the Channel Board Box (CHBB) with the PCIe cable.

NOTE: Check the CBLH slot to connect the PCIe cable and the PCIe-cable connecting package (PCP) port (Refer to "Figure 2-104 CBLH Slot and PCIe-cable Connecting Package (PCP) Port" and "Table 2-19 PCIe Cable Connection Rule").

Figure 2-104 CBLH Slot and PCIe-cable Connecting Package (PCP) Port



Rear view of CBLH



Rear view of CHBB

Table 2-19 PCIe Cable Connection Rule

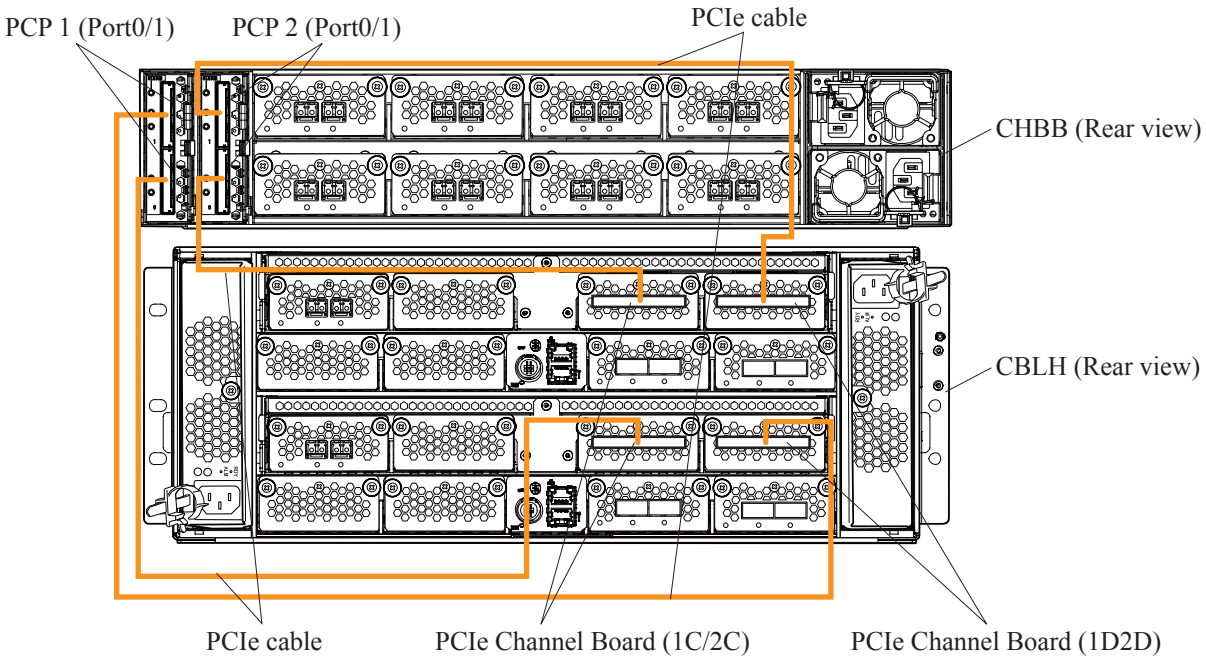
PCIe Cable Connection	Installation Slot Location	PCP Connection port
2-cable/Cluster	Can be added to any slot of 1A/1B/2A/2B, 1C/1D/2C/2D, 1E/1F/2E/2F.	• Connect the CBLH slots 1A, 1C, and 1E to Port 0 of PCP1. • Connect the CBLH slots 1B, 1D, and 1F to Port 1 of PCP1. • Connect the CBLH slots 2A, 2C, and 2E to Port 0 of PCP2. • Connect the CBLH slots 2B, 2D, and 2F to Port 1 of PCP2.

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1. Connecting two PCIe cables for each cluster
   Mount two PCIe Channel Boards on each of Controller Board 1 and 2, and connect the PCIe Channel Boards and the PCIe-cable Connecting Package (PCP) of the Channel Board Box with four PCIe cables.

   NOTE: Route the PCIe cable not to disturb the maintenance work of other parts and place an extra length of the cable in the space under the CBLH.

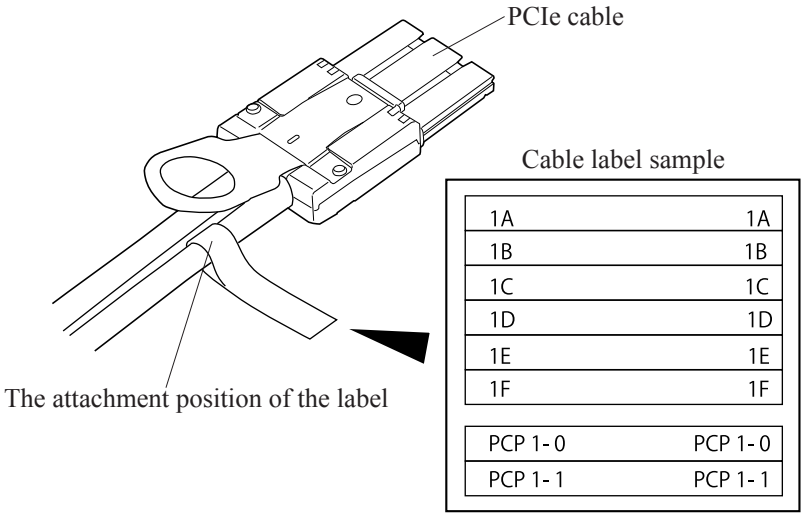
Figure 2-105 Connection Example of PCIe Cables



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2. Attaching PCIe cable labels
   (1) Check the location on the storage system to which the SAS cable was connected.
   (Refer to LOCATION SECTION "2.2.3 CBLM/CBLH" and "2.2.4 Channel Board Box (CHBB)".)
   (2) Select a corresponding label from the labels attached on the CHBB.
   (3) Attach the label on the PCIe cable.
   (4) Attach labels on all PCIe cables.

Figure 2-106 Attaching PCIe Cable Labels



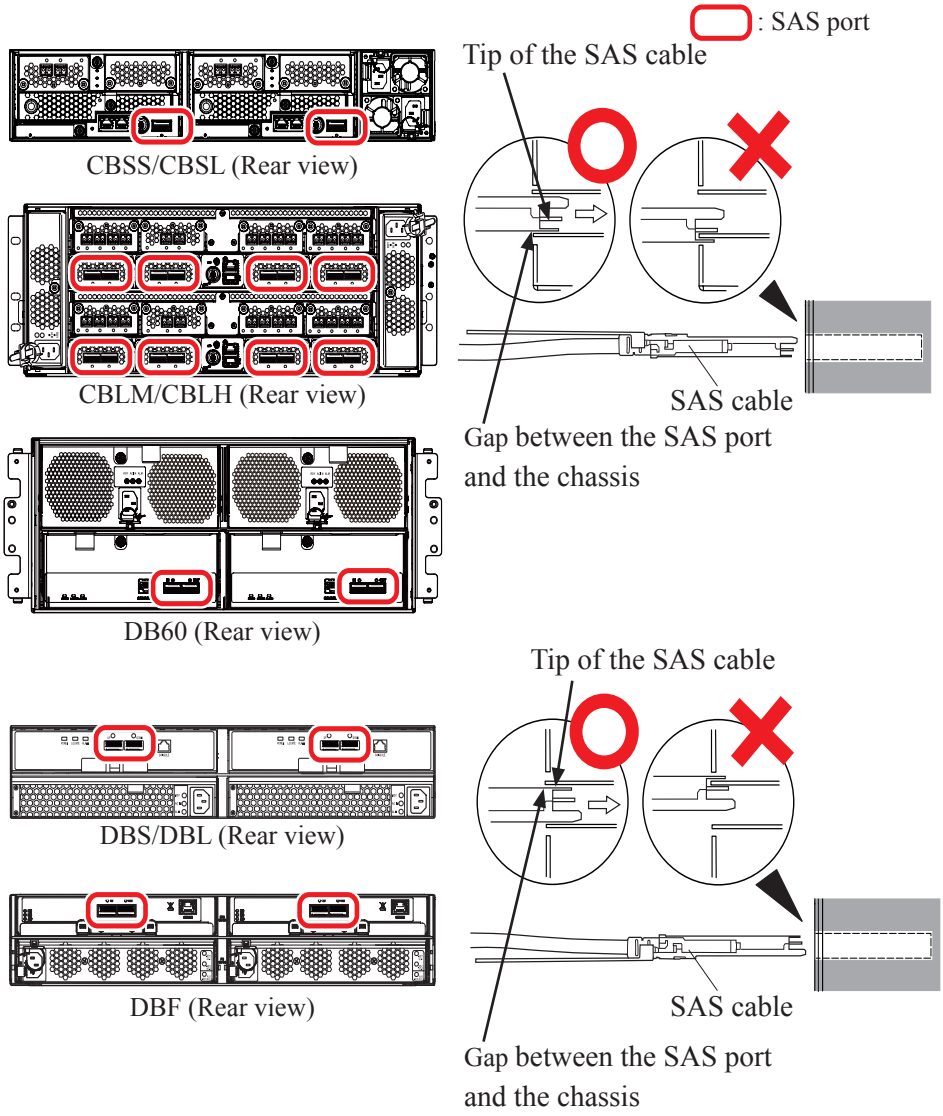
2.10.2 Connecting SAS Cables

Connect a Controller Chassis and a Drive Box or a Drive Box and another Drive Box with the SAS cable.

2.10.2.1 Precautions when Connecting SAS Cables

NOTE :
- The rubber cap is attached to the SAS connector.
  Remove the rubber cap before installing the SAS cable.
- The plugs of the SAS cable have no distinction between IN and OUT. They can be inserted in both IN and OUT.
- Be careful when connecting the SAS cable. The tip of the SAS cable may be inserted into a gap between the SAS port and the chassis and damaged.
- Check that optional cable latch clicks and the cables are surely connected.

Figure 2-107 Note on Connecting the SAS Cable

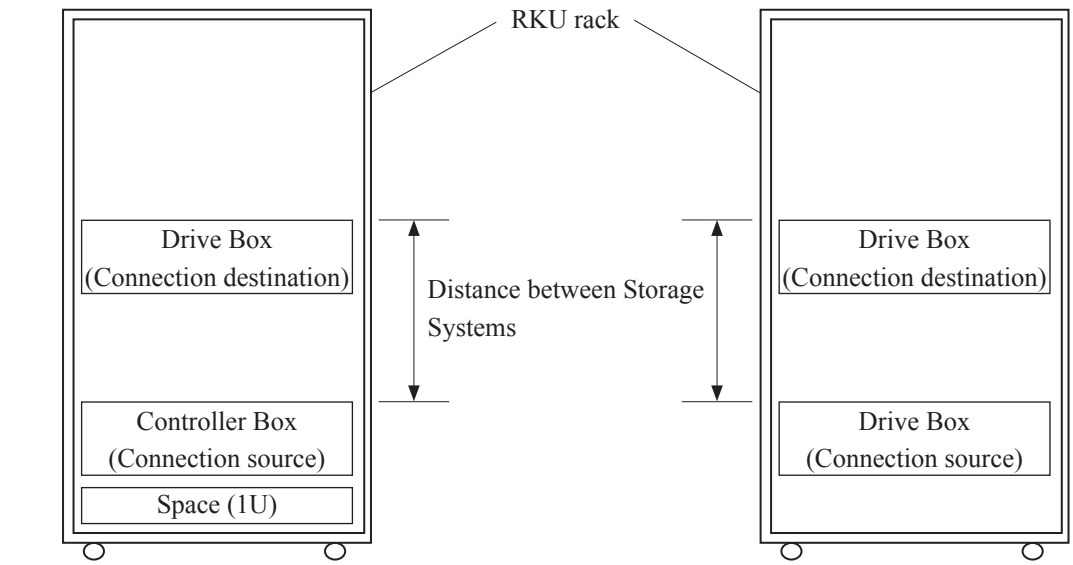


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2.10.2.2 Connecting SAS Cables

Connect the Controller Board and the ENC of the Drive Box (the SAS cables are supplied with the Drive Box).
The SAS cable is only supplied with DB60 as standard.
Usable SAS cables differ depending on the distance of Storage System to be connected.
Refer to Table 2-20 through Table 2-23 and select appropriate SAS cables.

Figure 2-108 Distance between Storage Systems



NOTE :
- Each Storage System model has a restriction on the length of the SAS cable that can be connected to a Controller Board (1PATH).
  - VSP G200: 130 m or less
  - VSP G400: 135 m or less
  - VSP G600: 155 m or less
  - VSP G800: 125 m or less
- When connecting two or more Drive Boxes, both ENC1 and ENC2 should be connected with the SAS cables for the Drive Boxes.
- When bending the SAS cable to connect it, give it a bend with a long radius (not less than 40 mm) so as not to apply the cable and the connector excessive stresses. Wind the cables to be φ200 mm or more as a guide.
- If you insert it incorrectly, remove the SAS cable while pulling the tab of the SAS cable.
- Before wiring SAS cables, unwind, stretch and untwist them. If they twist while wiring, untwist and wire them.
- When inserting the connector into the socket, do not rotate the connector 90 degrees or more.
  When rotating 90 degrees or more, rotate the connector and the cable together, match the insertion direction of the connector and connect it.
  Before wiring SAS cables, unwind, stretch and untwist them.

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Table 2-20 Applicable SAS Cables of Drive Box Connected to CBSS/CBSL

Connection source Storage System	Connection destination Storage System	Storage System distance (U)(*1)	Applicable SAS cable	
			Cable length (m)	Cable model
CBSS/CBSL	DBS/DBL/DBF	2 to 10	1	DW-F800-SCQ1
		11 to 20	1.5	DW-F800-SCQ1F
		21 to 40	3	DW-F800-SCQ3
		41 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA
	DB60	4 to 23(*3)	3	DW-F800-SCQ3(*2)
		24 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA

*1: 1U is 44.45 mm
The distance between the Storage Systems is the distance from the top surface of the connection source Storage System to the top surface of the connection destination Storage System.
*2: This is supplied with DB60 as standard.
*3: 23U is a limit value (when mounting the RKU rack) by the height limit of DB60.

Table 2-21 Applicable SAS Cables of Drive Box Connected to CBLM/CBLH

Connection source Storage System	Connection destination Storage System	Storage System distance (U)(*1)	Applicable SAS cable	
			Cable length (m)	Cable model
CBLM/CBLH	DBS/DBL/DBF	2 to 10	1.5	DW-F800-SCQ1F
		11 to 38	3	DW-F800-SCQ3
		39 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA
	DB60	4 to 21(*3)	3	DW-F800-SCQ3(*2)
		22 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA

*1: 1U is 44.45 mm
The distance between the Storage Systems is the distance from the top surface of the connection source Storage System to the top surface of the connection destination Storage System.
*2: This is supplied with DB60 as standard.
*3: 21U is a limit value (when mounting the RKU rack) by the height limit of DB60.

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Table 2-22 Applicable SAS Cables of Drive Box Connected to DBS/DBL/DBF

Connection source Storage System	Connection destination Storage System	Storage System distance (U)(*1)	Applicable SAS cable	
			Cable length (m)	Cable model
DBS/DBL/DBF	DBS/DBL/DBF	2 to 8	1	DW-F800-SCQ1
		9 to 20	1.5	DW-F800-SCQ1F
		21 to 40(*3)	3	DW-F800-SCQ3
		41 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA
	DB60	4 to 27	3	DW-F800-SCQ3(*2)
		28 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA

*1: 1U is 44.45 mm
The distance between the Storage Systems is the distance from the top surface of the connection source Storage System to the top surface of the connection destination Storage System.
*2: This is supplied with DB60 as standard.
*3: 40U is the top installation position when mounting the RKU rack.

Table 2-23 Applicable SAS Cables of Drive Box Connected to DB60

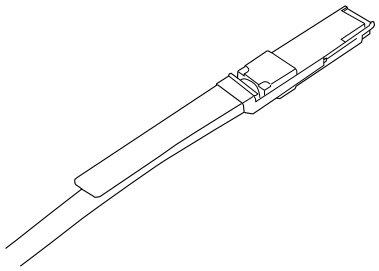
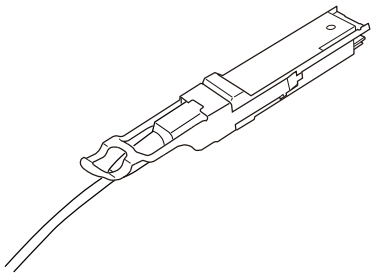
Connection source Storage System	Connection destination Storage System	Storage System distance (U)(*1)	Applicable SAS cable	
			Cable length (m)	Cable model
DB60	DBS/DBL/DBF	4 to 27	3	DW-F800-SCQ3
		28 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA
	DB60	4 to 16	3	DW-F800-SCQ3(*2)
		17 or more or between racks	5	DW-F800-SCQ5
			10	DW-F800-SCQ10A
			30	DW-F800-SCQ30A
			100	DW-F800-SCQ1HA

*1: 1U is 44.45 mm
The distance between the Storage Systems is the distance from the top surface of the connection source Storage System to the top surface of the connection destination Storage System.
*2: This is supplied with DB60 as standard.

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1. Connecting SAS cables.
   Connect the SAS cable in the following procedure referring to Figure 2-109 through Figure 2-112.
   Refer to LOCATION SECTION "5. Storage System Cable Diagram" for the connection position of the connector.

Table 2-24 Types of SAS Cables

No.	Model	Shape
1	DW-F800-SCQ1 DW-F800-SCQ1F DW-F800-SCQ3 DW-F800-SCQ5	
2	DW-F800-SCQ10A DW-F800-SCQ30A DW-F800-SCQ1HA	

(1) Connect SAS cables.
- When the Controller Board is CBSS/CBSL, connect SAS cables to the SAS ports on the Controller Board.
- When the Controller Board is CBLM/CBLH, connect SAS cables to the SAS ports on the Disk Board installed in the Controller Board.

NOTE: Check that optional cable latch clicks and the cables are surely connected.

(2) Connect the SAS cables to the ENC (IN side) of the Drive Box.

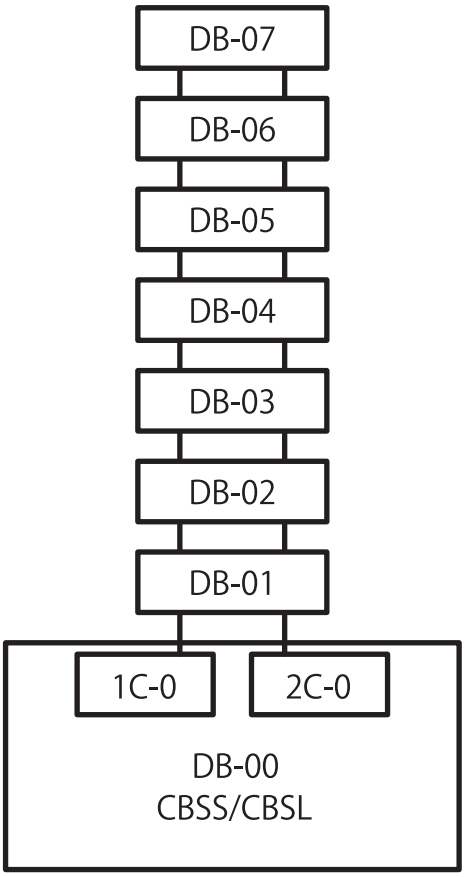
NOTE: Connect the Controller Board 1 and the ENC1 of the Drive Box. Also connect the Controller Board 2 and the ENC2 of the Drive Box.

(3) When installing two or more Drive Boxes, connect the ENC (OUT side) of the first Drive Box and the ENC (IN side) of the second Drive Box via SAS cables.

NOTE: Check that optional cable latch clicks and the cables are surely connected.

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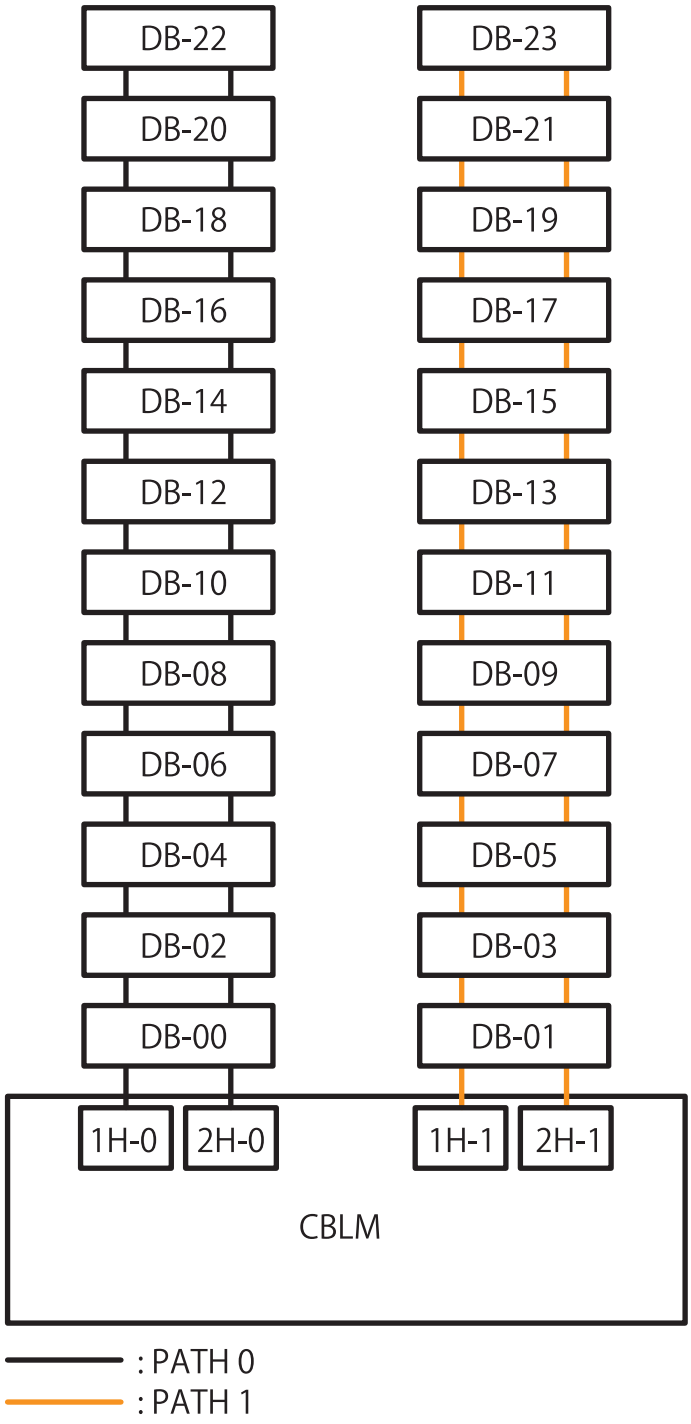
Figure 2-109 Connecting SAS Cables (CBSS/CBSL + DBS/DBL/DBF/DB60)



*1 : The number of connectable Drive Boxes differs for each type. (Refer to the specifications in THEORY OF OPERATION SECTION "4.6 Outline of Hardware".)
The figure shows the maximum configuration of Drive Boxes connected by CBSS/CBSL.

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Figure 2-110 Connecting SAS Cables (CBLM + DBS/DBL/DBF/DB60)



*1 : The number of connectable Drive Boxes differs for each type. (Refer to the specifications in THEORY OF OPERATION SECTION "4.6 Outline of Hardware".)
The figure shows the maximum configuration of Drive Boxes connected by CBLM.

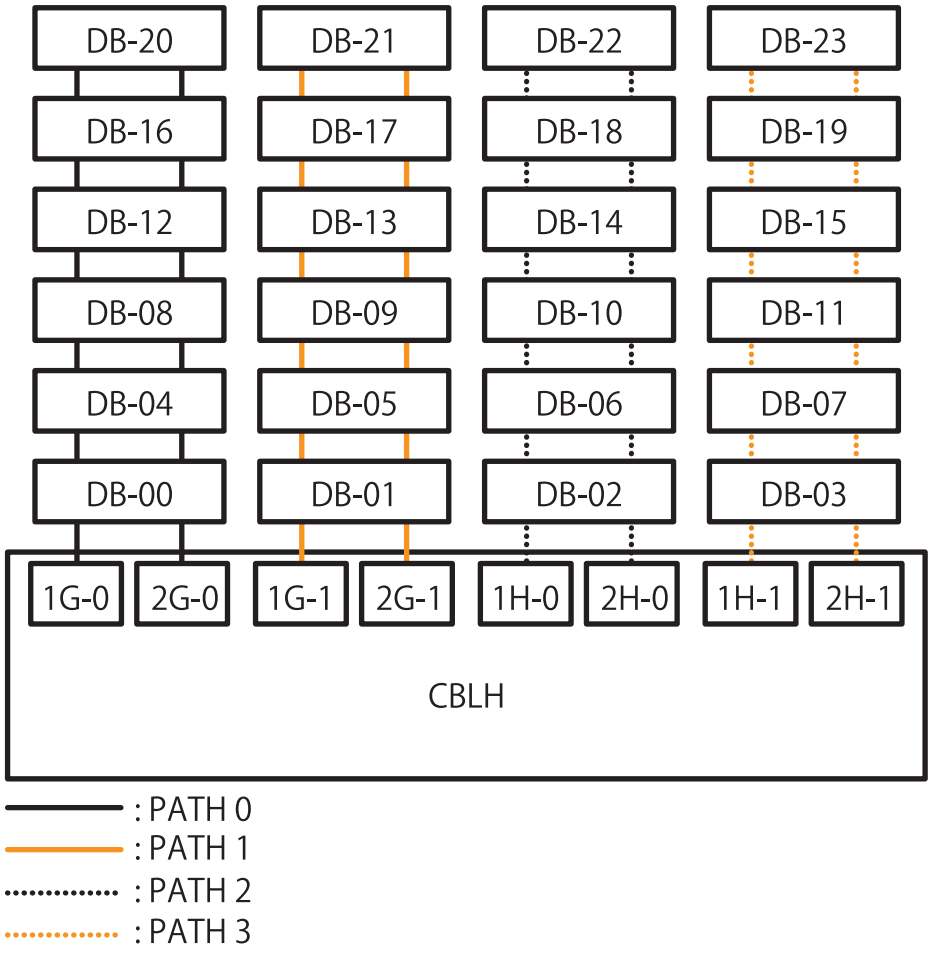
*2 : As shown in the figure, the Storage System number of the Drive Box connectable to each PATH is determined.
Add Drive Boxes in ascending order of the Drive Box numbers.

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Figure 2-111 Connecting SAS Cables (CBLH (Standard) + DBS/DBL/DBF/DB60)

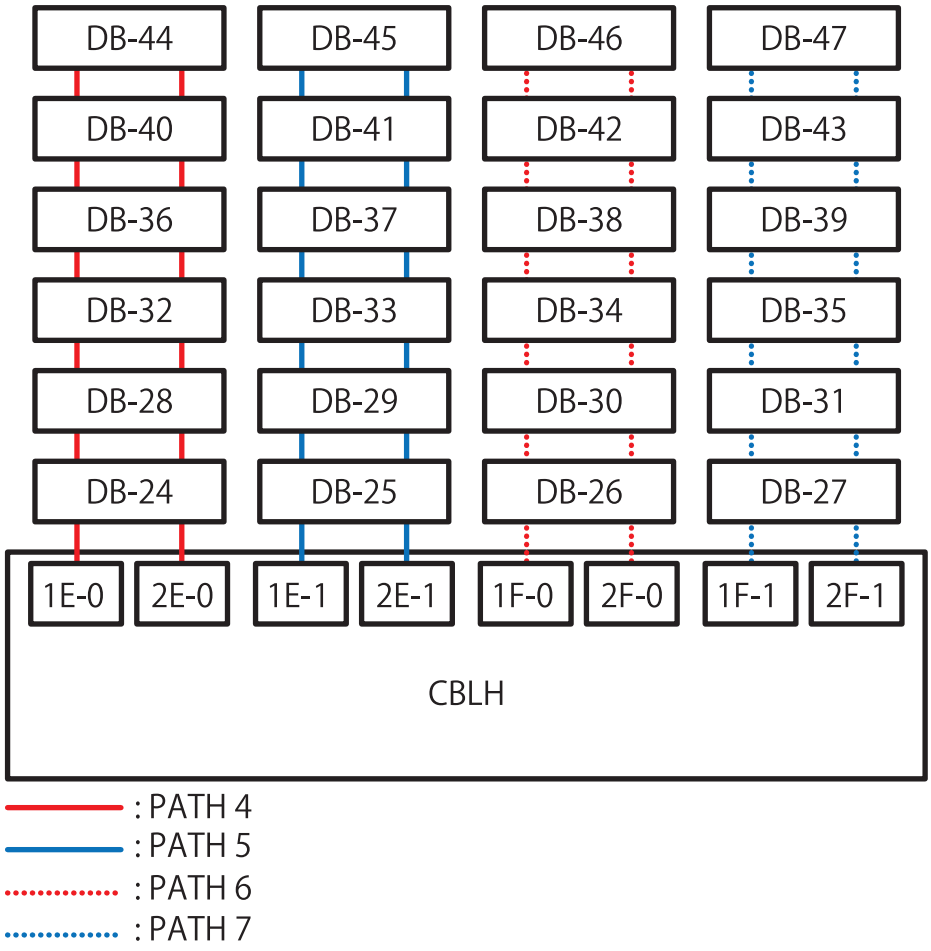


*1 : The number of connectable Drive Boxes differs for each type. (Refer to the specifications in THEORY OF OPERATION SECTION "4.6 Outline of Hardware".)
The figure shows the maximum configuration of Drive Boxes connected by the standard PATHs (PATH 0 to PATH 3) of CBLH.

*2 : As shown in the figure, the Storage System number of the Drive Box connectable to each PATH is determined.
Add Drive Boxes in ascending order of the Drive Box numbers.

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Figure 2-112 Connecting SAS Cables (CBLH (Option) + DBS/DBL/DBF/DB60)



*1 : The number of connectable Drive Boxes differs for each type. (Refer to the specifications in THEORY OF OPERATION SECTION “4.6 Outline of Hardware”.)
The figure shows the maximum configuration of Drive Boxes connected by the optional PATHs (PATH 4 to PATH 7) of CBLH.

*2 : As shown in the figure, the Storage System number of the Drive Box connectable to each PATH is determined.
Add Drive Boxes in ascending order of the Drive Box numbers.
Optional PATHs can be added regardless of the additional status of the standard PATHs.

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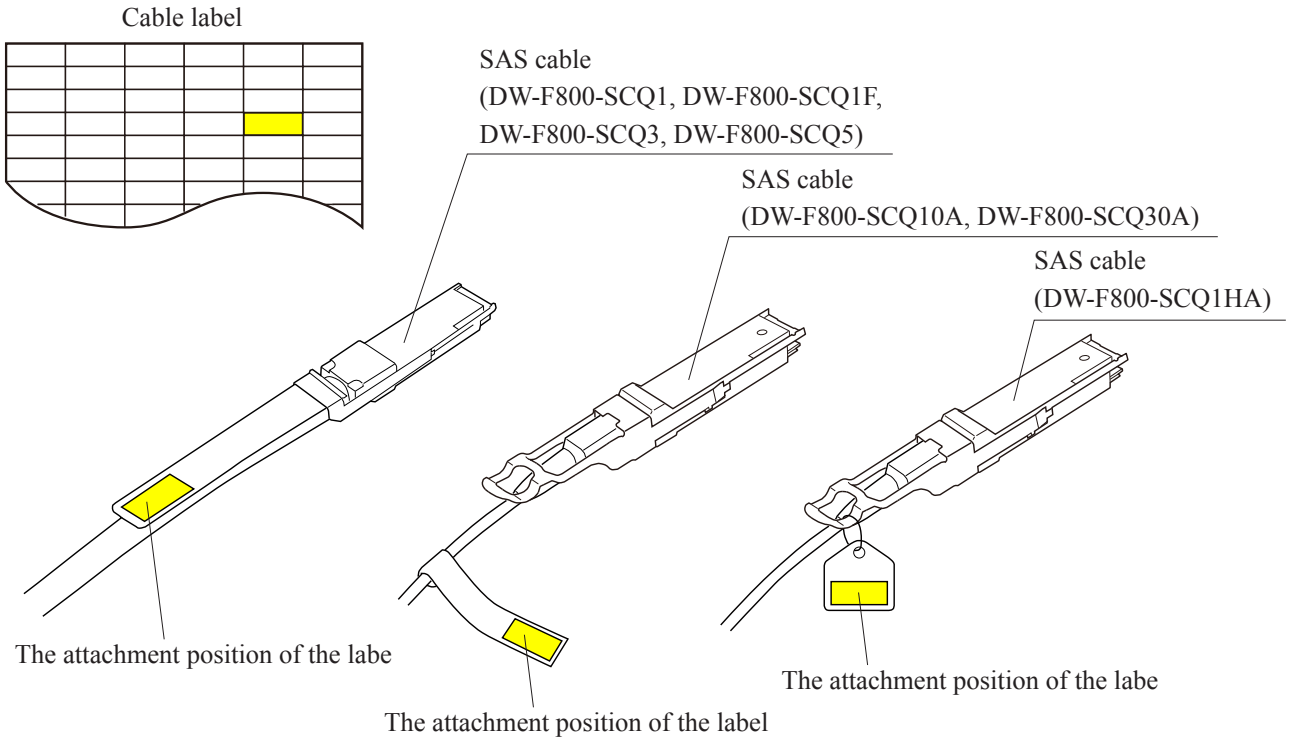
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2. Attaching cable labels
   (1) Check the location on the storage system to which the SAS cable was connected.
   (Refer to LOCATION SECTION "5. Storage System Cable Diagram".)
   (2) Select a corresponding label from the labels attached on the CBSS/CBSL/CBLM/CBLH.

   NOTE : When the target number is already used, write a number on a spare blank label and attach it.

   (3) Attach the label inside the tab of the SAS cable.
   (4) Attach labels on all SAS cables.

Figure 2-113 Attaching Cable Labels



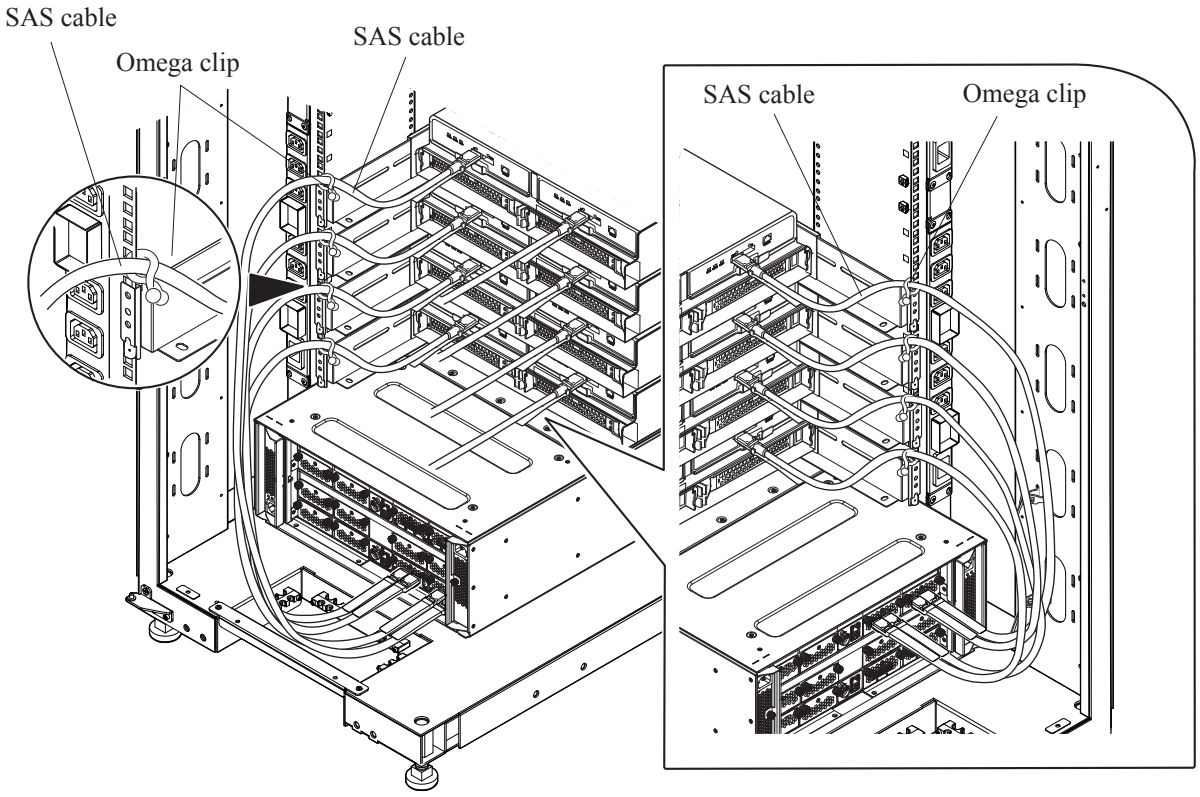
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3. Routing of SAS cables.
   Route the SAS cables passing under the Controller Chassis.
   (1) In case of DBS/DBL/DBF
   For the extra length of the connected SAS cable, keep a length (approx. 350mm to 400mm) to insert/pull out the cables and fix it by omega clips.

   NOTE : Do not fix the SAS cables and the power cables together.

   (2) In case of DB60
   After connecting the power cables, see "2.11 Routing Cables for DB60" and route the SAS cable and the power cables together.

Figure 2-114 SAS Cable Routing



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2.10.3 Connecting Power Cables

The procedure is different between the AC power models (CBSS/CBSL/CBLH/DBS/DBL/DB60/DBF) and the DC power models (CBBSD/CBSLD/DBSD/DBLD).

- When connecting AC power cables: "2.10.3.1 Connecting AC Power Cable"
- When connecting AC power cables: "2.10.3.2 Connecting DC Power Cable"

2.10.3.1 Connecting AC Power Cable

⚠ CAUTION

- Make sure that there is no scratch or flaw on a power cable. It can cause an electric shock or even a fire.
- When inserting the power cable in the connector of PDB, have it inserted completely, and then fix it with a cable clamp, etc. If it is loosened, the connection is damaged, and it causes an electric shock or fire.

1. Make sure that the breaker of the each PDU has been turned off.
2. Insert the power cable plug completely into the receptacle on the each Power Supply.
3. Fix the power cable holder to the power cables.
4. In case of DBS/DBL/DBF, correct the twisted power cable and fix it to the rail with omega clips.
5. Insert the power cable plug into the PDU (connect from J101 to J103/J201 to J203 sequentially).

NOTE :
- Be sure to plug the power cable for the Power Supply 1 in the receptacle of the PDU #00 or PDU #01.
  Be sure to plug the power cable for the Power Supply 2 in the receptacle of the PDU #10 or PDU #11.
  If they are plugged in the receptacles of the PDUs on the same side, the function of the duplicated power supply does not work.
- Do not plug any cable other than the power cable of the mounted Storage System in the outlet of the PDU.
- Limit the total current output from the outlets J101 to J103 so that it does not exceed 10 amperes.
  Limit the total current output from the outlets J201 to J203 so that it does not exceed 10 amperes.
  CBSS one unit : 4.0 A, CBSL one unit : 4.0 A, CBLM one unit : 7.0 A
  CBLH one unit : 8.0 A, CHBB one unit : 4.0 A, DBS one unit : 2.4 A
  DBL one unit : 1.9 A, DB60 one unit : 6.0 A, DBF one unit : 2.6 A

6. Hang the cable clamp of PDU on the plug of the power cable.

NOTE : When using PDU without a cable clamp, ensure that the power cable is firmly fixed to the rack with repeat binders, etc. to prevent the connector from coming off.

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7. Route the power cables.
8. Push in the plug of the power cable which has been inserted into the PDU again.
   It may be loosened owing to a routing.
   Route the power cables as shown in Figure 2-116.

Figure 2-115 Connecting Power Cables to the RKU Rack Frame

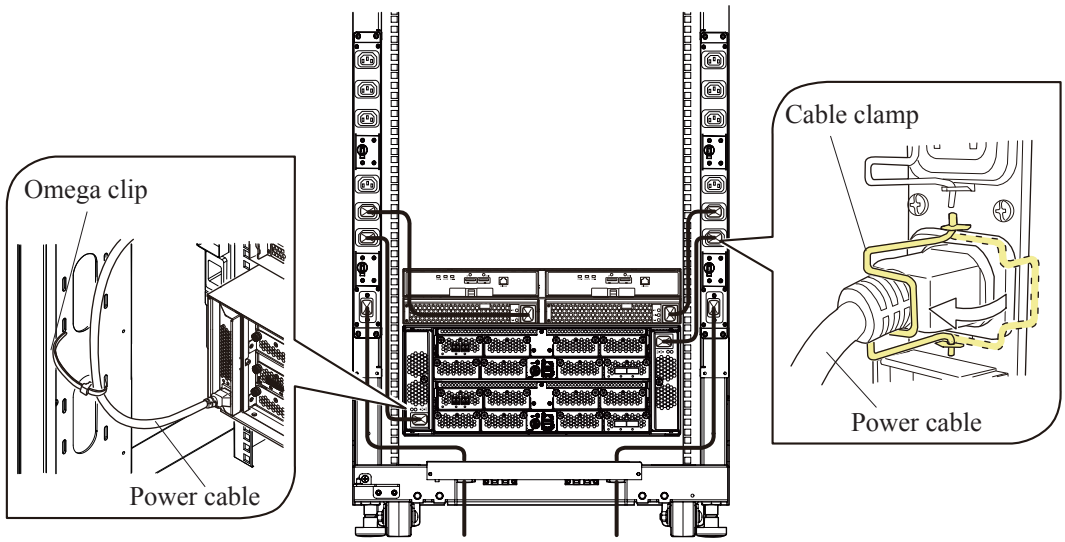
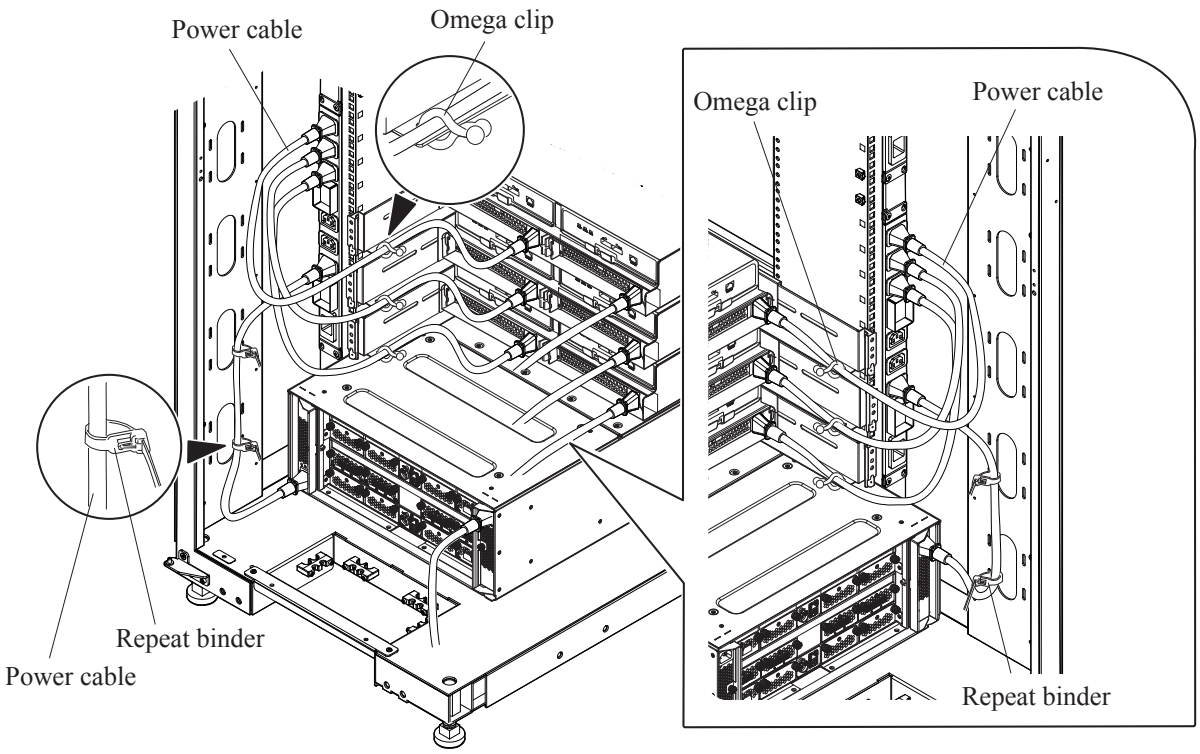


Figure 2-116 Power Cable Routing (Example: CBLM+DBLx3)



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2.10.3.2 Connecting DC Power Cable

⚠ CAUTION

- Make sure that there is no scratch or flaw on a power cable. It can cause an electric shock or even a fire.
- Hazard exists that can cause an electric shock.
  Start the work after making sure that the breaker in the power distribution box has been turned off.

NOTICE:
- DC input to this Storage System is required reinforced insulation between a primary and a secondary power source. Use the ones that are reinforced insulation to the DC power supply.
- This Storage System needs to be directly connected to the grounding electrode bar of the DC power system or directly connected to the grounding terminal bar connecting to the grounding electrode of the DC power system or jumper wiring from the grounding bus.
- This Storage System needs to be installed in the same adjacent part (e.g. adjacent cabinet) of the other device connecting to the grounding power supply and grounding wiring of the same DP power circuit. Furthermore, it needs to be grounded to the grounding point of the DC power system. The DC power system does not have to be grounded other than this part.
- The DC power supply needs to be set up in the same building as this Storage System.
- Do not set the switching or shutoff devices for the grounded circuit wire which connects the DC power supply and the grounding point of the grounding electrode bar.

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Connect the socket of the power cables to the Power Supply.

NOTE: Insert the socket straight into the connector of the Power Supply and check that the latches on both sides of the socket click and lock.

NOTICE: Do not allow a mix of AC Power Supply Model and DC Power Supply Model to be used in the same Storage System. Otherwise, the incorrect Power Supply information will be notified when a power failure occurs.
Also, a mix of AC Power Supply and DC Power Supply cannot be installed in the same Storage System.

Figure 2-117 Connecting Power Cables (CBSSD/CBSLD)

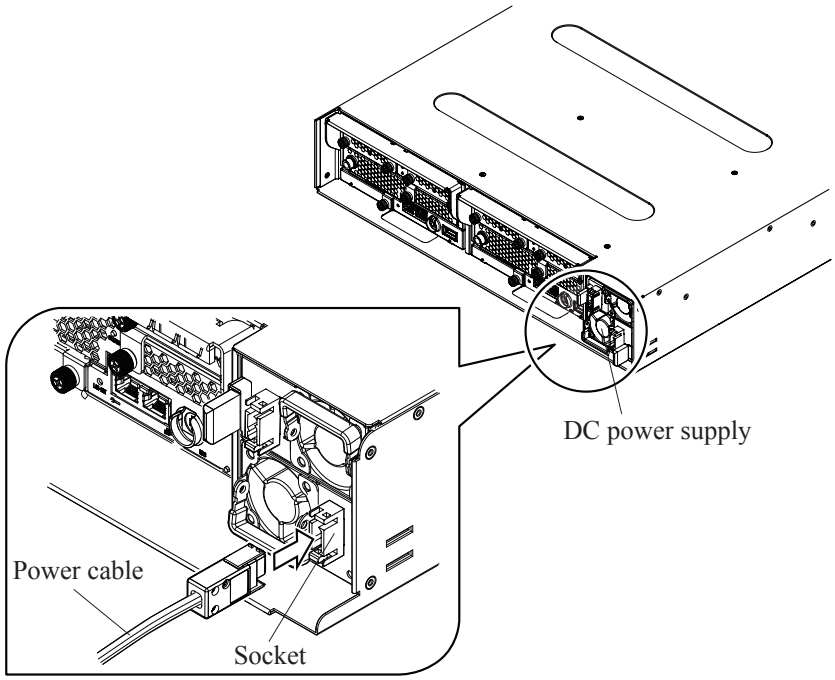
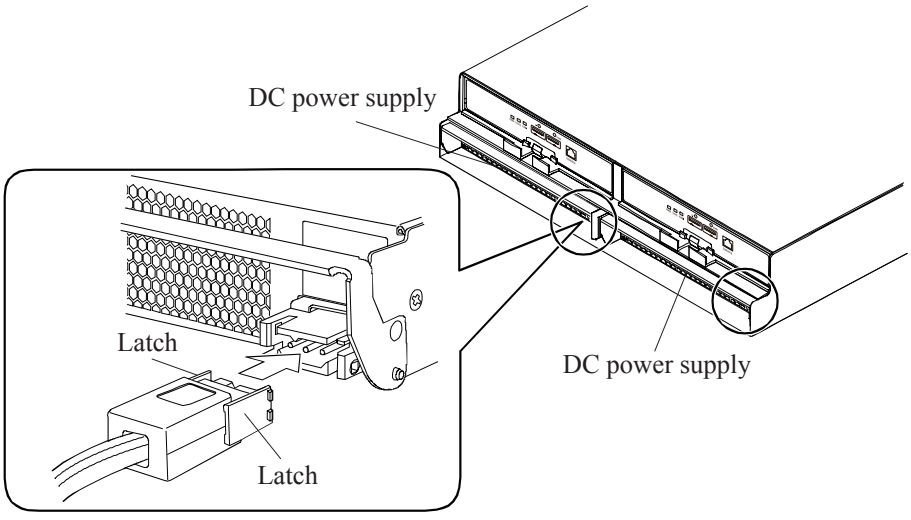


Figure 2-118 Connecting Power Cables (DBSD/DBSLD)



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2.10.4 Connecting Power Cables (Rack Frame PDU)

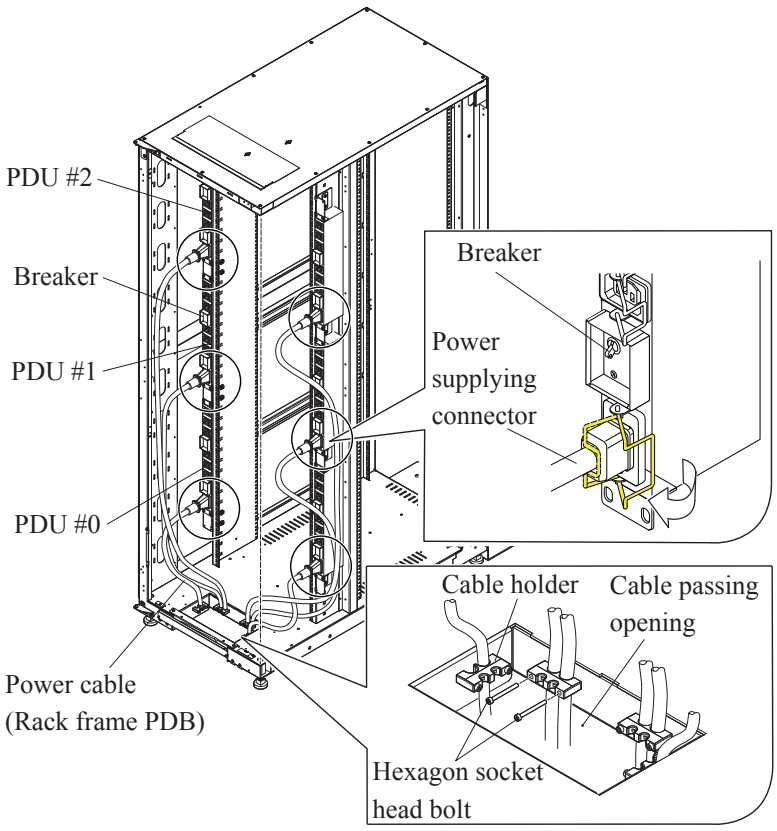
⚠ CAUTION

- Make sure that there is no scratch or flaw on a power cable. It can cause an electric shock or even a fire.
- When inserting the power cable in the connector of PDU, have it inserted completely, and then fix it with a cable clamp, etc. If it is loosened, the connection is damaged, and it causes an electric shock or fire.

NOTE : Make sure that conductors shall be provided with 30 A over current protection in accordance with Article 240 of the National Electrical Code, ANSI/NFPA 70, and the Canadian Electrical Code, Part 1, CSA C22.1, Section 14.

1. Open the rear door. (Refer to "1.4.2 How to Open/Close the Door of the RKU Rack Frame".)
2. Check that the breakers of the PDUs are turned off.
3. Put out the power cables of PDUs through the Cable passing opening at the bottom of the Rack.
4. Remove the cable holders from the rack frame by removing the hexagon socket head bolts.
5. Fasten the power cables to the rack frame by attaching the cable holders with the Allen bolts.
6. Check that the connecter is securely fixed after the assembly work.

Figure 2-119 Connecting Power Cables (Rack Frame PDU)



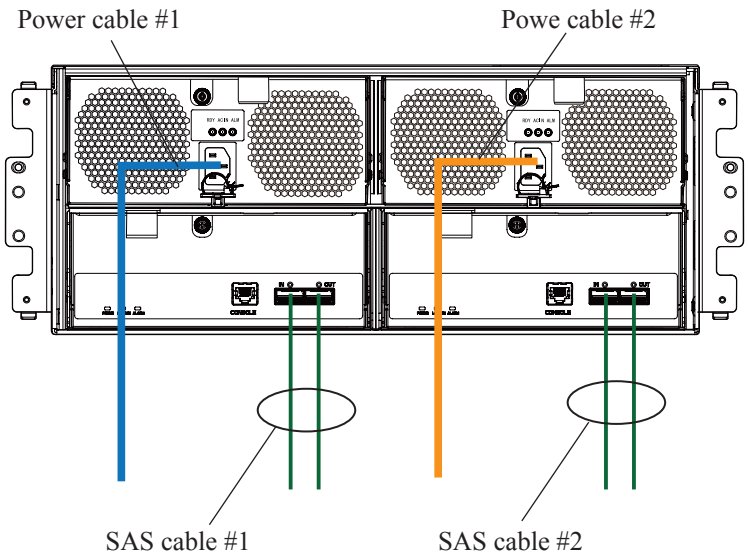
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2.11 Routing Cables for DB60

This work is only for DB60.
Route the SAS cables and power cables.
The following figure shows routing cable numbers.

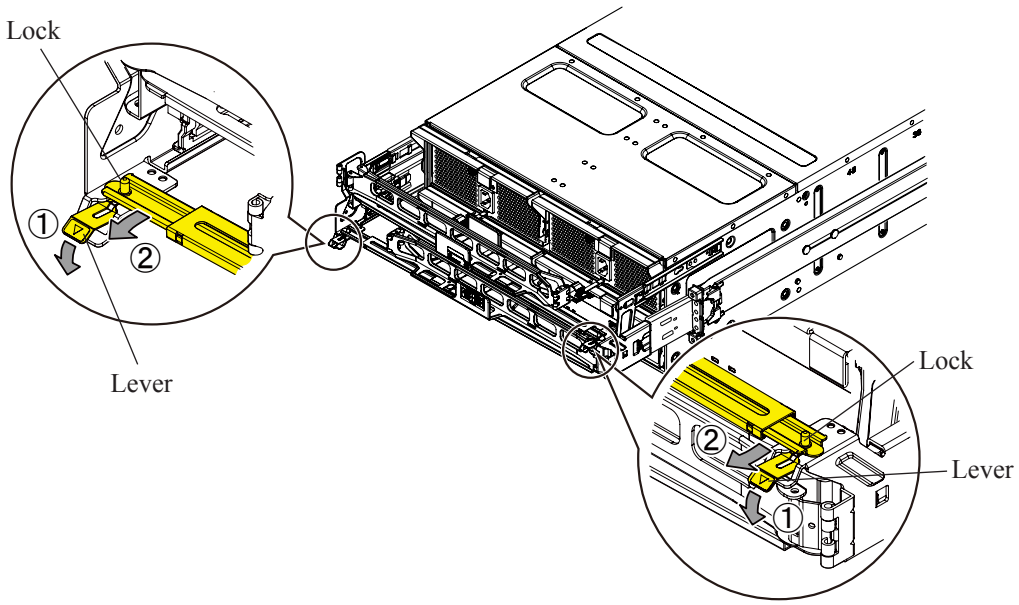
NOTE : When bending the cable to connect it, give it a bend with a long radius (not less than 40 mm) so as not to apply the cable and the connector excessive stresses.

Figure 2-120 Cable Number



1. Push (①) the levers on both sides of CMAs 1 and 2 to unlock (②).

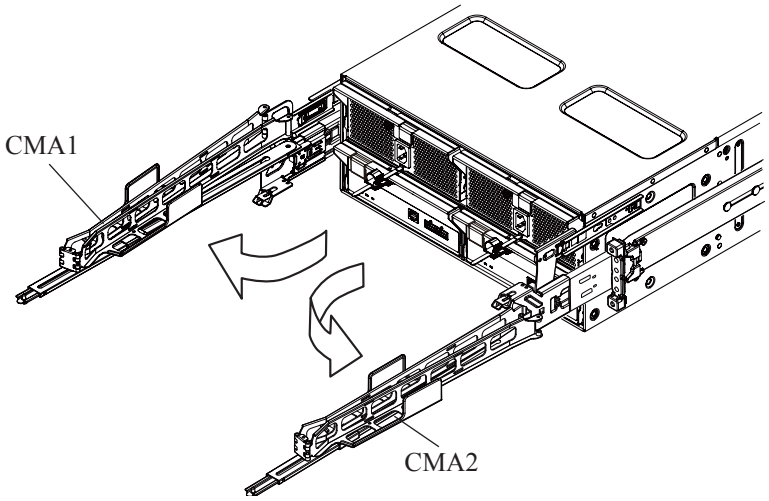
Figure 2-121 Unlocking CMAs



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2. Open CMAs 1 and 2.

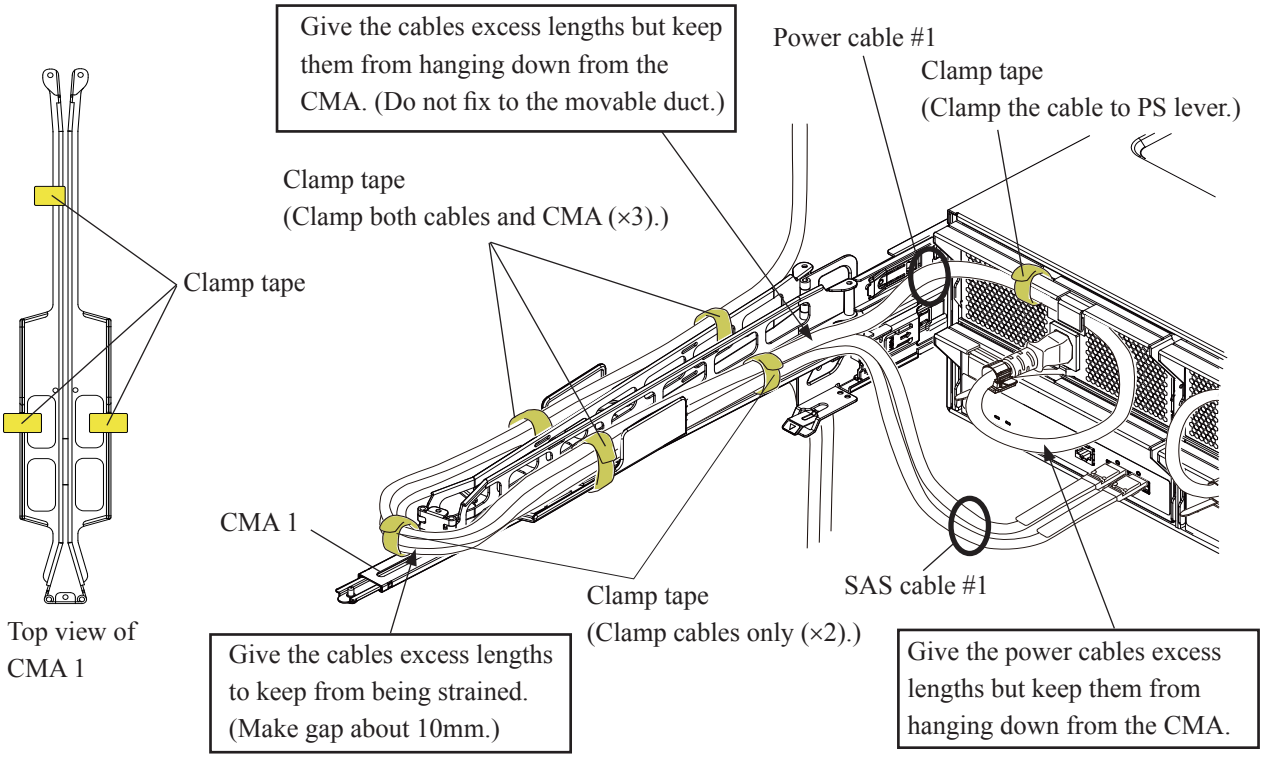
Figure 2-122 Moving CMAs



3. Route SAS cable #1 and power cable #1 for CMA 1 and fix the cables with six clamp tapes.

NOTE : • Give the cables excess lengths to keep from strain or load when pulling out the DB60.
• Keep the cables from hanging down below the DB60.
• Do not give excessive twists to the cables.
• Route and clamp cables with CMA1 (upper) and CMA2 (lower) are fully opened.
• Do not route another chassis cables inside CMA.

Figure 2-123 Routing of the SAS Cable #1 and Power Cable #1

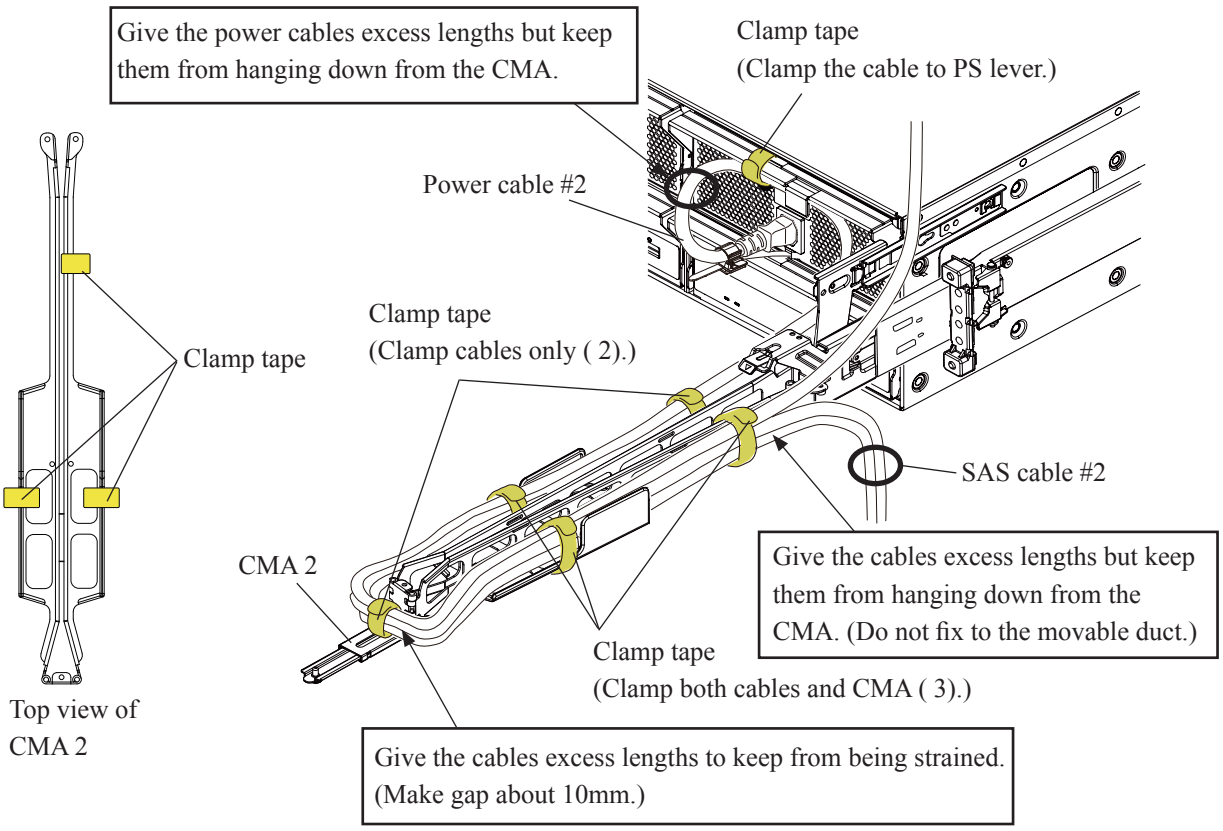


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4. Route SAS cable #2 and power cable #2 for CMA 2 and fix the cables with six clamp tapes.

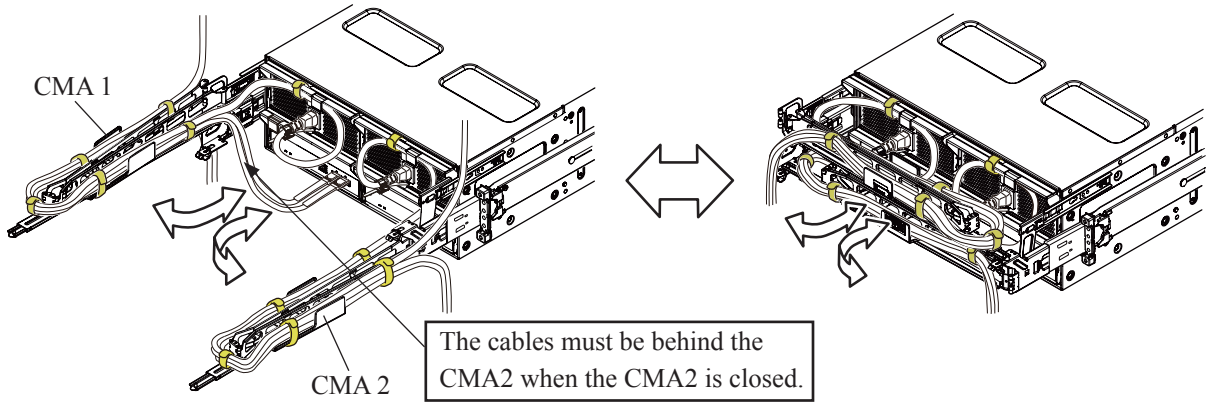
NOTE :
- Give the cables excess lengths to keep from strain or load when pulling out the DB60.
- Keep the cables from hanging down below the DB60.
- Do not give excessive twists to the cables.
- Route and clamp cables with CMA1 (upper) and CMA2 (lower) are fully opened.
- Do not route another chassis cables inside CMA.

Figure 2-124 Routing of the SAS Cable #2 and Power Cable #2



5. Move CMAs 1 and 2 to the storage position and check that the cables do not have strain or load. Adjust the excess lengths, routes and others.

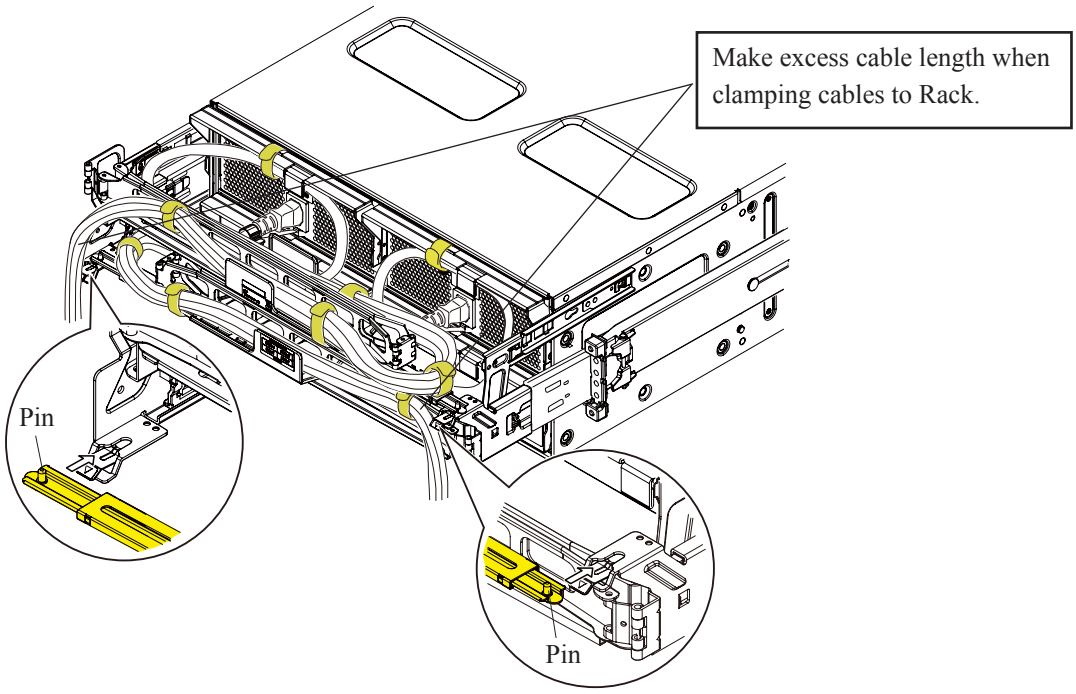
Figure 2-125 Checking the Routing of SAS Cables and Power Cables



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6. Close CMAs 1 and 2 and fit the right and left pins in the CMAs to lock.

Figure 2-126 Locking CMAs 1 and 2



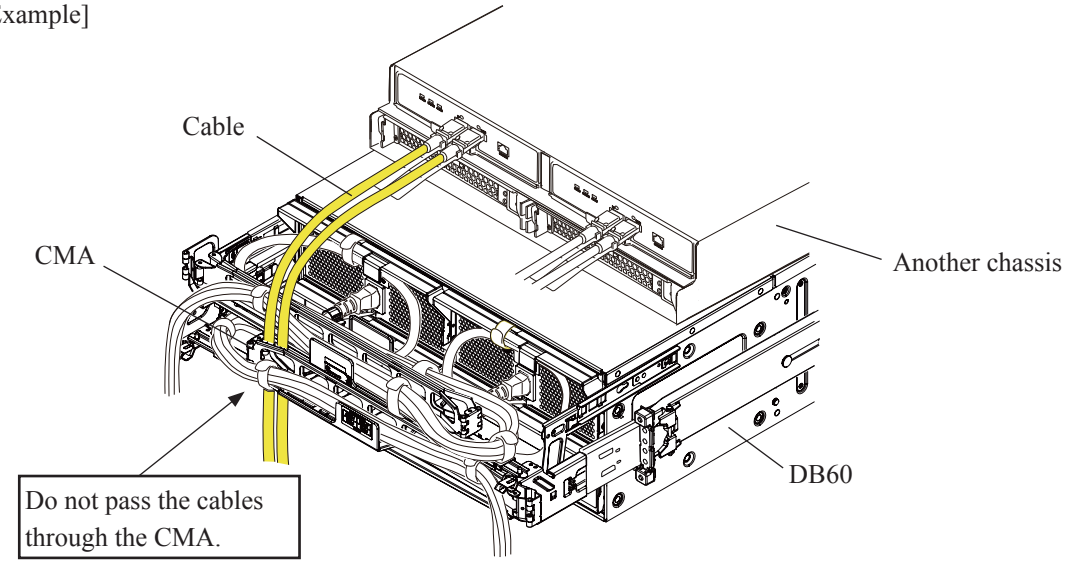
7. Checking the routing
   (1) Pull out the DB60 and check that the routing is performed correctly. (Refer to "1.4.1.3 In Case of DB60".)

   NOTE : • Check that the routing is not performed with other cables.
   • Confirm that cables are not caught in CMA1 (upper)/CMA2 (lower).

   (2) Return the DB60 on the rack. (Refer to "1.4.1.3 In Case of DB60".)

Figure 2-127 Checking Cable Routing

[Example]



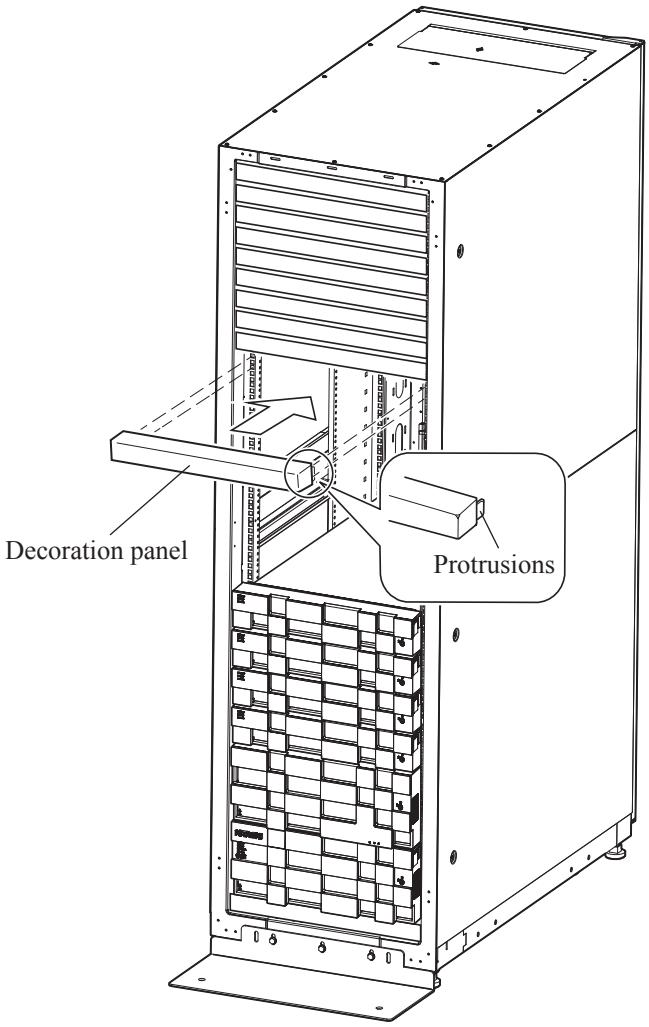
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2.12 Attaching Decoration Panels

When a free space is left on the front side of the rack frame, install the decoration panels there.

1. Fit the decoration panels to the front side of the rack frame one by one starting from the top.
2. The decoration panel can be installed when the two protrusions of it are aligned with the holes, which are prepared on the rack frame with intervals of one EIA unit, and then pressed into the holes.

Figure 2-128 Attaching Decoration Panel



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2.13 Setting External Covers

1. Close the rear door of the rack frame. (Refer to "1.4.2 How to Open/Close the Door of the RKU Rack Frame".)
2. Attach the Front Bezel. (Refer to "1.4.1 How to Attach/Remove the Front Bezel".)

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2.14 Attaching Logo

NOTE: This procedure should be applied at the time of shipment in the factory.

1. Attach the logo to the Front bezel of the Controller Chassis.
2. After attaching the logo, peel off the clear protection film of the logo.

Figure 2-129 Attaching Logo Label

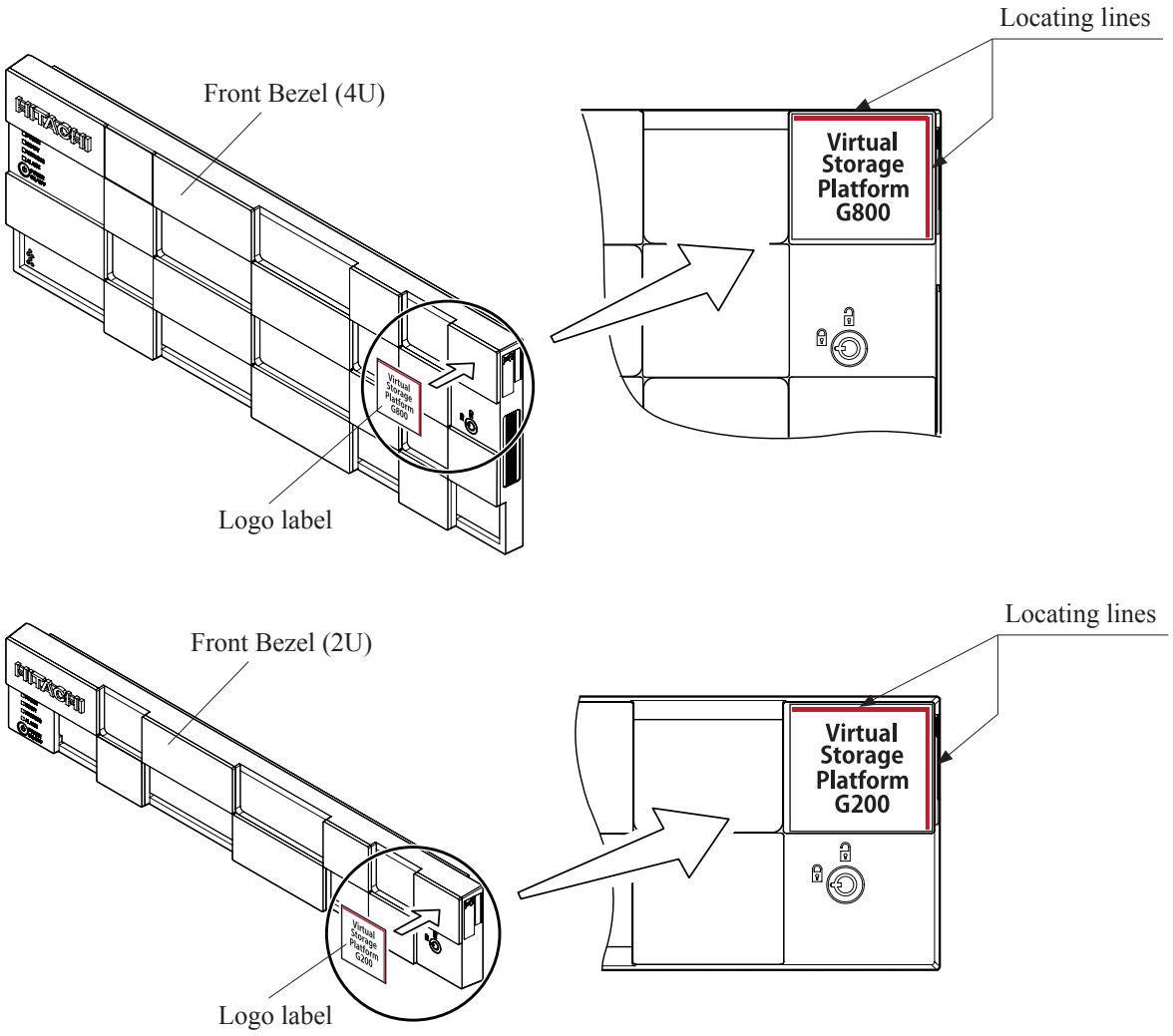


Table 2-25 Logo Labels

No.	Model Name	Parts No.
1	VSP G800	3290884-001
2	VSP G600	3290884-002
3	VSP G400	3290884-003
4	VSP G200	3290884-007
5	VSP F800	3290884-004
6	VSP F600	3290884-005
7	VSP F400	3290884-006

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2.15 Powering ON the SVP

1. Connect the power cable of the SVP between the SVP and the PDU. The PDU is for the voltage of 200V. If the customer prepared the SVP, check the power specifications and connect it.
2. Push the power switch. The power LED is ON.

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2.16 Network Setting of SVP

The subnetwork address that meets the network segment of the Maintenance PC, the SVP and the storage system is required.

1. When using the customer's SVP
   Set IP addresses of the SVP in accordance with the default IP addresses of the Storage System.
   The default IP addresses of the Storage System are shown below.
   - Controller Board #1 side user LAN port: 192.168.0.16
   - Controller Board #2 side user LAN port: 192.168.0.17
   - Subnet mask: 255.255.255.0

   Set IP addresses of the SVP to 192.168.0.xxx (xxx: Numbers from one to 254 except 16 and 17).

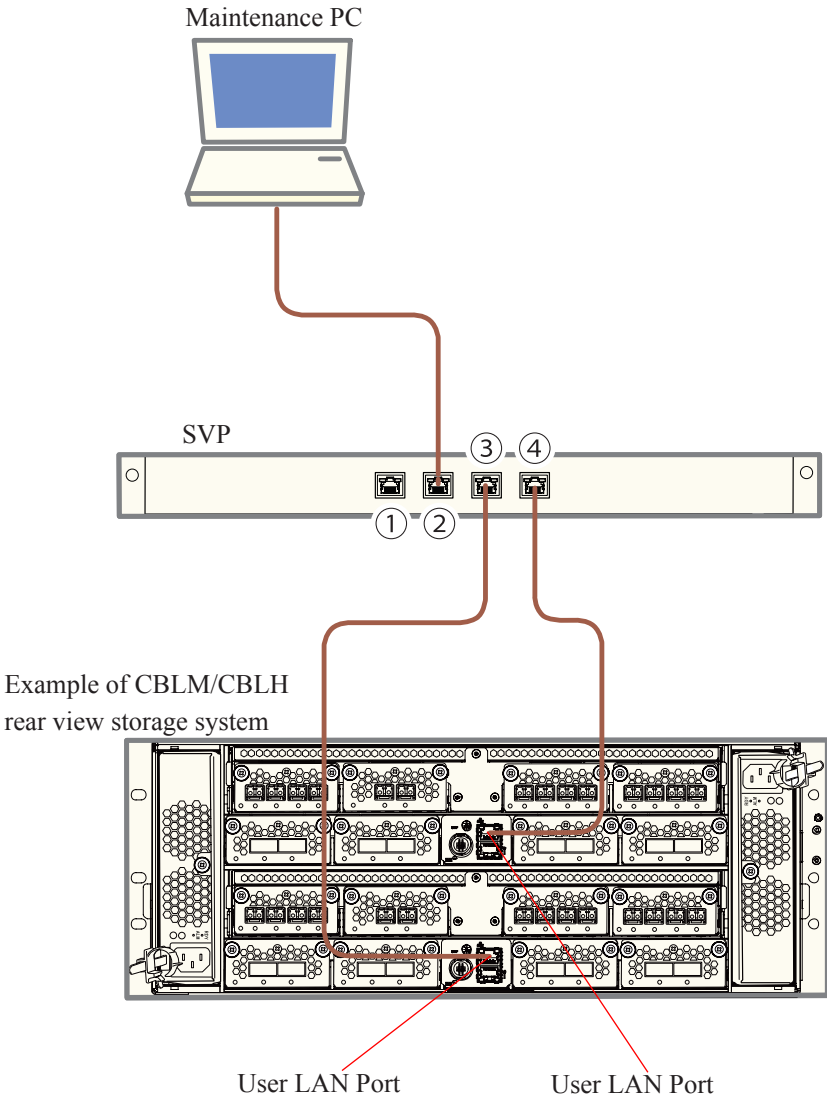
2. When using the SVP provided by our company
   The change is unnecessary because the setting is done immediately after the shipment.

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2.17 Connecting the Maintenance PC to SVP with LAN Cables

1. The SVP is the four ports configuration. Connect to the port separately.

Port	Usage	Symbols
LAN#1	Connect your LAN or the client PC.	①
LAN#2	For maintenance (it is used in work later) and initial setting.	②
LAN#3	Connect the user LAN port on the storage system.	③
LAN#4	Connect the user LAN port on the storage system.	④



2. You operate the SVP using the Remote Desktop Connection from the client PC.

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2.18 Using the Initial Startup Tool

Use the Initial Startup Tool: Initial Startup Tool to set the IP address on the SVP and the storage system.

NOTICE:	Initial Startup Tool can be used only in the initial state SVP and the storage system. When the IP address setting is changed from the default setting (192.168.0.15 for the SVP and CTL1:192.168.0.16, CTL2:192.168.0.17 for the storage system), the error (21645-005009, 21645-007002, 21645-007003 or 21645-007005) is displayed. When the built-in account of the storage system is changed, an error (21645-007004) is displayed. In the environment that the IP address setting and the built-in account are already changed, set the IP addresses of Windows and the storage system separately without using Initial Startup Tool. (Refer to "2.20 Setting IP Address of the Storage System and the SVP Manually".) DHCP cannot be used for the IP addresses of the SVP and the storage system.

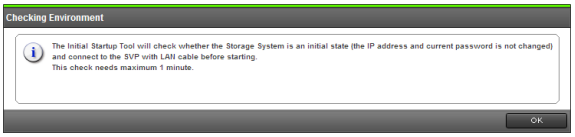
1. On the SVP, right-click Start - [Hitachi Device Manager-Storage Navigator] -[Initial Startup Tool].

2. Select Run as [Administrator] on the menu.

3. The welcome window Opens. Click the [Start Setup] button.

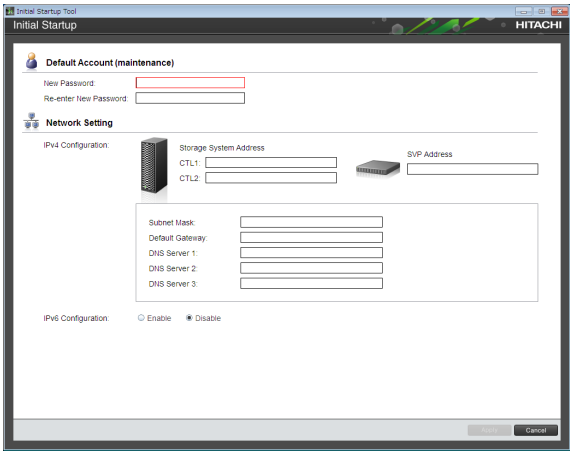


4. The Environment check message appears. Click the [OK] button.



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5. The Initial Startup Tool window appears.



Item	Description
Default Account	
New Password	Specifies the new password for the Default Account of maintenance (6 to 255characters)
Re-enter New Password	Specifies the new password again.
Network Setting (IPv4 Configuration)	
Storage System Address	Specifies the IP address for each controller. Default: CTL1: 192.168.0.16 CTL2: 192.168.0.17
SVP Address	Specifies the IP address for the SVP. Default:192.168.0.15
Subnet Mask	Specifies the subnet mask of the network to which the storage system is connected. Default: 255.255.255.0
Default Gateway	Specifies the Default Gateway of the network to which the storage system is connected.
DNS Server 1 DNS Server 2 DNS Server 3	Specifies the IP addresses for up to three Domain Name Systems servers.
IPv6 Configuration	Selects whether to set the IPv6. When Enable is selected, the setting items for IPv6 appears. Enable: Sets the IPv6 settings. Disable: Does not set the IPv6.

6. Confirm the settings. Click the [Apply] button.
   The progress of the initial startup appears

7. The completion message appears. Click the [Close] button.

8. The SVP restarts. Wait for about ten minutes until the restart is completed.

   NOTE：When the SVP restarts, the Remote Desk Top connection is cancelled. Log in to the SVP again.

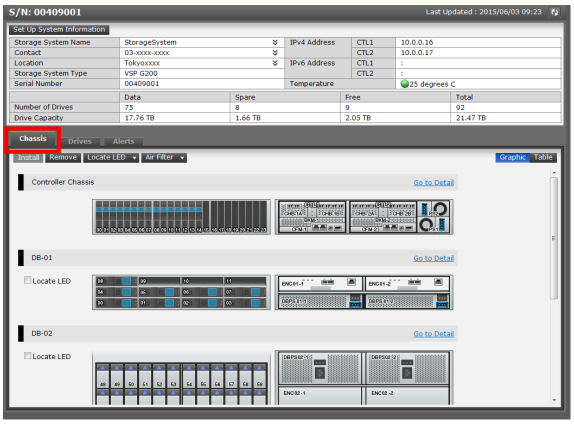
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2.19 Controlling Air Filters

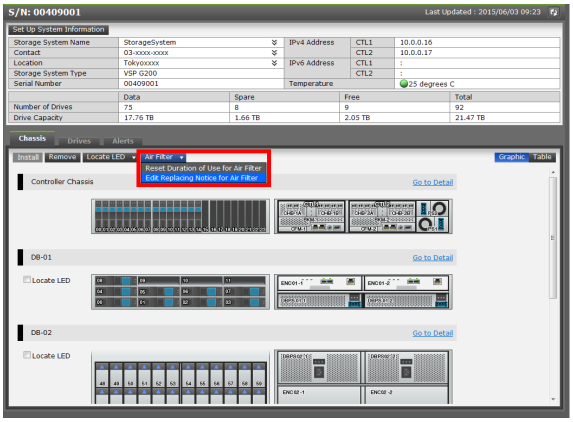
Edit the replacement time notice for the air filter periodic inspection of the CBSSD/CBSLD/DBSD/DBLD in which the DC Power Supply is installed.

2.19.1 Editing Air Filter Replacement Notice

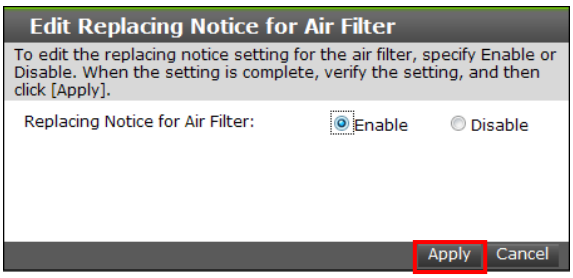
1. Click the [Chassis] tab in the “Maintenance Utility” window.



2. Click the [Air Filter] button and select [Edit Replacing Notice for Air Filter].



3. When notifying the air filter replacement time, select [Enable] and when not notifying it, select [Disable], and then click the [Apply] button.



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4. The completion message is displayed. Click the [Close] button.



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2.20 Setting IP Address of the Storage System and the SVP Manually

Set an IP address of the storage system by accessing Maintenance Utility that is the management tool of the storage system from the SVP. Then, set an IP address of the LAN port of the SVP that is connected to the storage system on the SVP.

The storage system is initially set by connecting the client PC, the SVP and the storage system to the management LAN. Therefore, the network segment of the client PC, the SVP and the storage system needs to be matched. Set the IP address of the storage system and the SVP to meet your network for operating the storage system.
Note that set an IP address of the SVP temporarily according to the default IP address of the storage system to access Maintenance Utility of the storage system from the SVP.

The default IP address of the storage system is set to:
- Controller Board #1 user LAN port: 192.168.0.16
- Controller Board #2 user LAN port: 192.168.0.17
- Subnetmask: 255.255.255.0

The SVP IP address needs to be temporarily set to192.168.0.xxx where xxx is a number from 1 to 254, excluding 16 and 17.

NOTICE:	Do not connect network servers such as the proxy between the client PC, SVP and the storage system.

1. Power on the SVP.
2. Log in to the SVP.
3. Set the IP address temporarily. Refer to the manual of the OS that you are using for how to set it.
4. Launch the browser.
5. Enter the IP address of the Controller Board #1 in the address bar of the browser.
   Maintenance Utility login window opens.
6. Log into Maintenance Utility by the user account having the administrative privilege.
7. The first time you log in to Maintenance Utility, specify a password for the user account.
   (1) Select Maintenance Utility menu [System Management]-[Change Password].
   (2) Set the password and click the [Finish] button.
8. Set up the storage system IP address for user.
   (1) Select Maintenance Utility menu [System Management]-[Change Password].
   (2) In the “Network Settings” window, click the [Set Up Network Settings] button.
   (3) Set the IP address of the CTL1 and the CTL2, and then click the [Apply] button.
9. Click the [Log Out] button to close the Maintenance Utility.
10. Right-click the connection icon “Storage Device List” on the desktop of the Maintenance PC and select [Run as administrator].
11. Change the IP address of the storage system in the Storage Device List.
12. Set the SVP IP address.
13. Change the IP address of SVP in the Storage Device List.
14. If the IP address of the client PC is temporarily set, reset the IP address to meet the network system environment to be connected. Refer to the manual of the OS that you are using for how to set it.