Installation

This “Installation” volume describes the setting of the subsystem and the installation of the parts, etc.

Contents

This page is for editorial purpose only.

Chapter 1. Before Starting Installation Work

1.1 Before Starting Installation Work

Take notice of the following when performing an installation work for the subsystem. Read and understand them well before performing the installation.

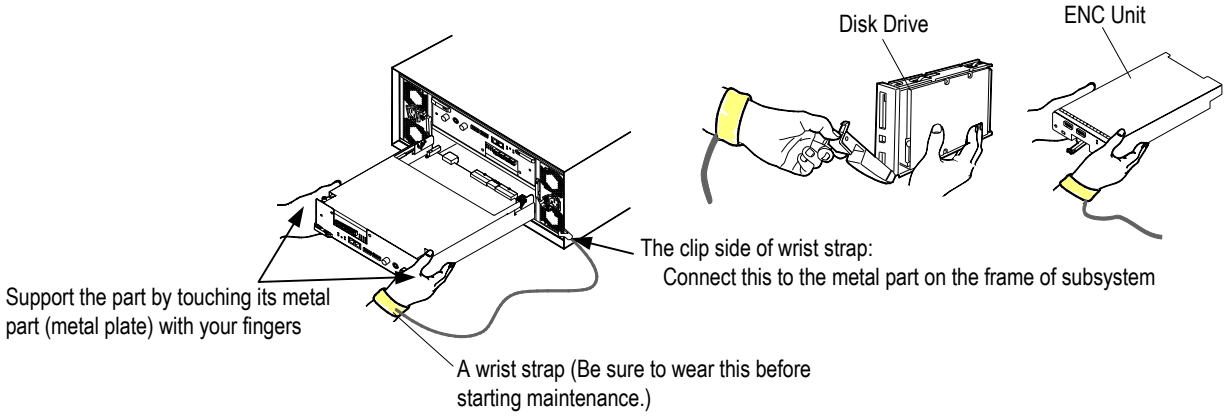
(1) Note at the time of the unpacking
- Unpack it indoor.
  Especially, do not unpack it in such places with the outdoor dust, the direct sunlight, and the infiltration of rainwater.
- Work on the unpacking in the place where a rapid difference of temperature does not occur. It may have dew condensation when it is unpacked in the place where a difference of temperature is extreme.

(2) Note on installing and removing parts
Generally, each part is equipped with high-precision components. Remove and install the part gently so as not to give it any shock.

CAUTION

- **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 chassis before starting and do not take it off until you finish.**
- **Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.**
- **When you install Disk Drive, Control Unit and ENC Unit, support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.**

A failure may be caused by the electric shock since the Disk Drive, Control Unit and ENC Unit are precision instrument. Be sure to put on the wrist strap before starting work in order to protect Disk Drive, Control Unit and ENC Unit from electrostatic discharge.



(3) Note on cable routing

(a) Handling of cables on the floor

- Protect cables which cannot be accommodated by the subsystem and thus laid on the floor or cables which cross a passage with cable protecting, etc.
- Do not make inter-device cables apart from the floor but lay them on the floor.

(b) Handling of under-floor cables when the subsystem is installed on the free access floor.

- Give excess lengths to cables routed under the floor so that they can easily be laid on the slab. Do not make them to be hung dangling.

(c) How to route cables

- Give adequate margin of length to cables to withstand earthquakes, etc.
- Route cables giving them excess lengths lest they should disturb replacement of part to be done for maintenance.
- Make power cable and power cable apart each other. When they have to be positioned close each other, do not make them run in parallel but make them cross each other.
- When using cable protecting duct, be careful not to damage or break cables by catching them.

(d) Be sure to insert or pull out a cable connector holding it with your hand. If you pull a cable, a trouble may be caused.

(e) When bending the FC I/F cable and RC (ENC) cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.

(4) Installation of the adaptable firmware

It is required to install the adaptable firmware depending on the parts to be installed.
Check the adaptable firmware revision referring to Firmware “1.8 Adaptable Firmware Revision” (Firm 01-0180).

(5) Note on restarting

- When restarting the subsystem, turn on the main switch after waiting more than one minute after the main switch is turned off (after the POWER LED goes out).
  If the array subsystem used for a remote side of TrueCopy remote replication/TrueCopy Extended Distance restarts in the status that TrueCopy remote replication/TrueCopy Extended Distance is enabled, the following phenomena occur.
  - The paths of TrueCopy remote replication/TrueCopy Extended Distance are both blocked. The notice of E-mail Alert Function, SNMP Agent Support Function, and TRAP occur at the time of the path blockade.
    Perform the notice and the check to the Failure Monitoring Department in advance.
    The path blockade automatically recovers after restarting.
  - When the status of the pair of TrueCopy remote replication/TrueCopy Extended Distance is PAIR or COPY, the pair changes to PSUE.
    If the Pair status of TrueCopy remote replication/TrueCopy Extended Distance is either PAIR or COPY, suspend the pairs before restarting the array subsystem.

- When Power Saving of the priced option is used, if you restart the subsystem after executing the spin-down and before completing it, the spin-down may fail because of the recognition processing of the host immediately after the subsystem starts.
  Check that there is no RAID Group whose power saving status is "Normal (command monitoring)" after executing the spin-down, and then restart the subsystem.
  If the spin-down fails, execute the spin-down again.
- If the NAS Unit is connected and the NAS service is in operation, ask the NAS Unit administrator for planned shutdown of the NAS Unit.
  After rebooting the array device, ask the NAS Unit administrator to reboot the NAS Unit and check the status of the FC path (Fibre Channel path). Refer to "Recovering from FC path errors" in "Hitachi NAS Manager User's Guide" to check the status of the FC path, and if there is a failure in the FC path, ask the NAS Unit administrator to recover the FC path.

(6) Note on completing a maintenance work
Close all the external covers when a maintenance work is completed.
It is required to make all the external covers closed to operate the subsystem properly.
(Be sure to close all the external covers during operation because it is indispensable to maintain the performance of the subsystem including prevention of adverse effects caused by radio frequency energy.)

(7) Notes while the array subsystem is being started
Because the status where the array subsystem is being started is in the middle of the transition to the status of the subsystem power turned on (Ready status) from the status of the subsystem power turned off, do not perform the following work while the array subsystem is being started.
- Installing or removing the parts
- Inserting or pulling out the cables
- Restarting the array subsystem
- Setting the power control (local or remote)
- Setting the remote adaptors

Also, the setting function or the reference function using the Hitachi Storage Navigator Modular 2 cannot be executed to the array subsystem which is being started.

(8) The equipment with the NEBS specifications is designed for use in an Isolated Battery return configuration (DC-I). Connect the DC Return leads directly to the Central Office Power Return buss. Do not connect the return leads to the chassis or ground.

(9) SAS(SED) Disk Drive does not support single controller configuration. Use it in the dual controller configuration.

(10) In the RKEXS/RKEXSA/RKEXS8F, and the RKAK connected with RKEXS/RKEXSA/RKEXSB/RKEXS8F, SAS(SED) Disk Drive is not supported for installation.

1.2 Model Name

1.2.1 Components and Indispensable Parts

Table 1.2.1 RKM Model (Adaptable Modular Storage 2300)

No.	Name	Model	Components
1	Rackmount Model (RK)	DF800-RK	Frame (1), Panel (1), Cache Backup Battery (1), AC cable J2H (2), Power unit (RKM) (2)
	Rackmount Model (RK2)	DF800-RK2	Frame (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power unit (RKM) (2)
2	Rackmount Model (RKM)	DF800-RKM	Frame (1), Control Unit (1), Panel (1), Cache Backup Battery (1), AC cable J2H (2), Power unit (RKM) (2)
	Rackmount Model (RKEM)	DF800-RKEM	Frame (1), Control Unit (including 8 G bps Host Connector (4)) (1), Panel (1), Cache Backup Battery (1), AC cable J2H (2), Power unit (RKM) (2)
3	Rackmount Model (RKAK)	DF-F800-RKAK(*2)	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (1m) (2)
4	Rackmount Model (RKAKX)	DF-F800-RKAKX(*2)	Frame (1), AC cable J2H (4), Power Unit (RKAKX) (4), ENC Unit (4), ENC cable (3m) (4)
5	Rackmount Model (RKAKS)	DF-F800-RKAKS(*2)	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
6	Control Unit	DF-F800-F1KM	Control Unit (1) (for RKM)
		DF-F800-F1KEM	Control Unit (1) (for RKEM)
7	Cache memory	DF-F800-C1GK	Cache Memory of 1,024 M bytes
		DF-F800-C2GK	Cache Memory of 2,048 M bytes
		DF-F800-C4GK	Cache Memory of 4,096 M bytes
8	Interface Board	DF-F800-DKF44	4Gbps Fibre Channel Interface Board (including Host Connector (4)) (1)
		DF-F800-DKF84	8Gbps Fibre Channel Interface Board (including Host Connector (4)) (1)
		DF-F800-DKS12	1Gbps iSCSI Interface Board (1)
		DF-F800-DKSA2	10Gbps iSCSI Interface Board (1)
9	Disk Drive(*1)	DF-F800-AKH146	3.5-type Disk Drive (142.61 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH300	3.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH450X	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-ANH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

*2 : When the system is configured with a mix of RKAK, RKAKX and RKAKS, DF-F800-K3BS or DF-F800-K5BS ENC cables are needed to be separately purchased.

No.	Name	Model	Components
9	Disk Drive(*1)	DF-F800-AKH600X	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-ANH600X	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKF400	3.5-type Disk Drive (392.73 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE500	3.5-type Disk Drive (491.25 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE750	3.5-type Disk Drive (737.49 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE1KX	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2KX	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2KX	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AKS200	Flash Drive (195.82 G bytes) installed in a canister

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

Table 1.2.2 RKS Model (Adaptable Modular Storage 2100)

No.	Name	Model	Components
1	Rackmount Model (RK)	DF800-RK	Frame (1), Panel (1), Cache Backup Battery (1), AC cable J2H (2), Power Unit (RKS) (2)
	Rackmount Model (RK2)	DF800-RK2	Frame (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power unit (RKM) (2)
2	Rackmount Model (RKS)	DF800-RKS	Frame (1), Control Unit (1), Panel (1), Cache Backup Battery (1), AC cable J2H (2), Power Unit (RKS) (2)
	Rackmount Model (RKES)	DF800-RKES	Frame (1), Control Unit (including 8 G bps Host Connector (2)) (1), Panel (1), Cache Backup Battery (1), AC cable J2H (2), Power Unit (RKS) (2)
3	Rackmount Model (RKAK)	DF-F800-RKAK	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (1m) (2)
4	Rackmount Model (RKAKX)	DF-F800-RKAKX	Frame (1), AC cable J2H (4), Power Unit (RKAKX) (4), ENC Unit (4), ENC cable (3m) (4)
5	Rackmount Model (RKAKS)	DF-F800-RKAKS	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
6	Control Unit	DF-F800-F1KS	Control Unit (1) (for RKS)
		DF-F800-F1KES	Control Unit (1) (for RKES)
7	Cache memory	DF-F800-C1GK	Cache Memory of 1,024 M bytes
		DF-F800-C2GK	Cache Memory of 2,048 M bytes
		DF-F800-C4GK	Cache Memory of 4,096 M bytes
8	Interface Board	DF-F800-DKF42	4Gbps Fibre Channel Interface Board (including Host Connector (2)) (1)
		DF-F800-DKF82	8Gbps Fibre Channel Interface Board (including Host Connector (2)) (1)
		DF-F800-DKS12	1Gbps iSCSI Interface Board (1)
		DF-F800-DKSA2	10Gbps iSCSI Interface Board (1)
9	Disk Drive(*1)	DF-F800-AKH146	3.5-type Disk Drive (142.61 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH300	3.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH450X	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-ANH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600X	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-ANH600X	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKF400	3.5-type Disk Drive (392.73 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE500	3.5-type Disk Drive (491.25 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

No.	Name	Model	Components
9	Disk Drive(*1)	DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE750	3.5-type Disk Drive (737.49 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE1KX	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2KX	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2KX	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AKS200	Flash Drive (195.82 G bytes) installed in a canister

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

Table 1.2.2.1 RKEXS Model (Adaptable Modular Storage 2010)

No.	Name	Model	Components
1	Rackmount Model (RK2)	DF800-RK2	Frame (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power unit (RKM) (2)
2	Rackmount Model (RKEXS)	DF800-RKEXS	Frame (1), Control Unit (including 4 G bps Host Connector (2)) (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power Unit (RKEXS) (2)
3	Rackmount Model (RKAK)	DF-F800-RKAK	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (1m) (2)
4	Rackmount Model (RKAKX)	DF-F800-RKAKX	Frame (1), AC cable J2H (4), Power Unit (RKAKX) (4), ENC Unit (4), ENC cable (3m) (4)
5	Rackmount Model (RKAKS)	DF-F800-RKAKS	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
6	Control Unit	DF-F800-F1KEXS	Control Unit (1) (for RKEXS)
7	Cache memory	DF-F800-C2GK	Cache Memory of 2,048 M bytes
8	Disk Drive(*1)	DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

Table 1.2.2.2 RKEXSA Model (Adaptable Modular Storage 2010)

No.	Name	Model	Components
1	Rackmount Model (RK2)	DF800-RK2	Frame (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power unit (RKM) (2)
2	Rackmount Model (RKEXSA)	DF800-RKEXSA	Frame (1), Control Unit (1), Panel (including 1 Gbps iSCSI Interface Board (1)) (1), Cache Backup Battery (2), AC cable J2H (2), Power Unit (RKEXSA) (2)
3	Rackmount Model (RKAK)	DF-F800-RKAK	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (1m) (2)
4	Rackmount Model (RKAKS)	DF-F800-RKAKS	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
5	Control Unit	HDF-F800-SIS2	Control Unit (1) (for RKEXSA)
6	Cache memory	DF-F800-C2GK	Cache Memory of 2,048 M bytes
7	Disk Drive(*1)	DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

Table 1.2.2.3 RKEXSB Model (Adaptable Modular Storage 2010)

No.	Name	Model	Components
1	Rackmount Model (RK2)	DF800-RK2	Frame (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power unit (RKM) (2)
2	Rackmount Model (RKEXSB)	DF800-RKEXSB	Frame (1), Control Unit (including 10 Gbps iSCSI Interface Board (1)) (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power Unit (RKEXSB) (2)
3	Rackmount Model (RKAK)	DF-F800-RKAK	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (1m) (2)
4	Rackmount Model (RKAKS)	DF-F800-RKAKS	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
5	Control Unit	HDF8XSM-DKSA2.P	Control Unit (1) (for RKEXSB)
6	Cache memory	DF-F800-C2GK	Cache Memory of 2,048 M bytes
7	Disk Drive(*1)	DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

This page is for editorial purpose only.

Table 1.2.2.4 RKEXS8F Model (Adaptable Modular Storage 2010)

No.	Name	Model	Components
1	Rackmount Model (RK2)	DF800-RK2	Frame (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power unit (RKM) (2)
2	Rackmount Model (RKEXS8F)	DF800-RKEXS8F	Frame (1), Control Unit (including 8 G bps Host Connector (2)) (1), Panel (1), Cache Backup Battery (2), AC cable J2H (2), Power Unit (RKEXS8F) (2)
3	Rackmount Model (RKAK)	DF-F800-RKAK	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (1m) (2)
4	Rackmount Model (RKAKS)	DF-F800-RKAKS	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
5	Control Unit	DF-F800-F1KES	Control Unit (1) (for RKEXS8F)
6	Cache memory	DF-F800-C2GK	Cache Memory of 2,048 M bytes
7	Interface Board	FD-F800-DKS12	1Gbps iSCSI Interface Board (1)
8	Disk Drive(*1)	DF-F800-AKH300	3.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

Table 1.2.3 RKH Model (Adaptable Modular Storage 2500)

No.	Name	Model	Components
1	Rackmount Model (RKH)	DF800-RKH	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (2), FAN Unit (2), AC cable J2H (2), Power Unit (RKH) (2)
	Rackmount Model (RKEH)	DF800-RKEH	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (2), FAN Unit (2), AC cable J2H (2), Power Unit (RKH) (2)
	Rackmount Model (RKH2) (*1)	DF800-RKH2	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (4), FAN Unit (2), AC cable J2H (2), Power Unit (RKH) (2)
	Rackmount Model (RKEH2)	DF800-RKEH2	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (4), FAN Unit (2), AC cable J2H (2), Power Unit (RKH) (2)
	Rackmount Model (RKHE) (*1)	DF800-RKHE	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (2), FAN Unit (2), AC cable J2H (2), Power Unit (RKH) (2)
	Rackmount Model (RKHED)	DF800-RKHED	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (2), FAN Unit (2), Power Unit (RKHED) (2)
	Rackmount Model (RKEHD)	DF800-RKEHD	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (2), FAN Unit (2), Power Unit (RKHED) (2)
	Rackmount Model (RKHE2) (*1)	DF800-RKHE2	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (4), FAN Unit (2), AC cable J2H (2), Power Unit (RKH) (2)
	Rackmount Model (RKHE2D)	DF800-RKHE2D	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (4), FAN Unit (2), Power Unit (RKHED) (2)
	Rackmount Model (RKEH2D)	DF800-RKEH2D	Frame (1), Control Unit (2), Panel (1), Cache Backup Battery (4), FAN Unit (2), Power Unit (RKHED) (2)
2	Rackmount Model (RKAK)	DF-F800-RKAK(*3)	Frame (1), AC cable J2H (2), Power Unit (RKAK) (2), ENC Unit (2), ENC cable (2)
	Rackmount Model (RKAKD)	DF-F800-RKAKD	Frame (1), Power Unit (RKAKD) (2), ENC Unit (2), ENC cable (4)
3	Rackmount Model (RKAKX)	DF-F800-RKAKX(*3)	Frame (1), AC cable J2H (4), Power Unit (RKAKX) (4), ENC Unit (4), ENC cable (3m) (4)
4	Rackmount Model (RKAKS)	DF-F800-RKAKS(*3)	Frame (1), AC cable J2H (2), Power Unit (RKAKS) (2), ENC Unit (2), ENC cable (1m) (2)
5	Cache memory	DF-F800-C1GK	Cache Memory of 1,024 M bytes
		DF-F800-C2GK	Cache Memory of 2,048 M bytes
		DF-F800-C4GK	Cache Memory of 4,096 M bytes
6	Interface Board	DF-F800-DKF44	4Gbps Fibre Channel Interface Board (including Host Connector (4)) (1)
		DF-F800-DKF84	8Gbps Fibre Channel Interface Board (including Host Connector (4)) (1)
		DF-F800-DKS12	1Gbps iSCSI Interface Board (1)
		DF-F800-DKSA2	10Gbps iSCSI Interface Board (1)
7	Disk Drive(*2)	DF-F800-AKH146	3.5-type Disk Drive (142.61 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH300	3.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF300	2.5-type Disk Drive (287.62 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKH450	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})

*1 : Can be connected with the Additional Battery Box.

*2 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

*3 : When the system is configured with a mix of RKAK, RKAKX and RKAKS, DF-F800-K3BS or DF-F800-K5BS ENC cables are needed to be separately purchased.

No.	Name	Model	Components
7	Disk Drive(*1)	DF-F800-AKH450X	3.5-type Disk Drive (439.44 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-ANH600	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AKH600X	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-ANH600X	3.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 15,000 min^{-1})
		DF-F800-AMF600	2.5-type Disk Drive (575.30 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AKF400	3.5-type Disk Drive (392.73 G bytes) installed in a canister. (Disk rotational speed: 10,000 min^{-1})
		DF-F800-AVE500	3.5-type Disk Drive (491.25 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE750	3.5-type Disk Drive (737.49 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE1K	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE1KX	3.5-type Disk Drive (983.69 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2K	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AWE2KX	3.5-type Disk Drive (1,956.94 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2K	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE2KX	3.5-type Disk Drive (1,968.52 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3K	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AVE3KX	3.5-type Disk Drive (2,953.31 G bytes) installed in a canister. (Disk rotational speed: 7,200 min^{-1})
		DF-F800-AKS200	Flash Drive (195.82 G bytes) installed in a canister

*1 : The drive capacity values are calculated as 1 G byte =1,000,000,000 bytes. This definition is different from that calculated as 1 k byte =1,024 bytes, which are actually displayed on PCs that you are using.
The RAID group capacity values displayed in the Hitachi Storage Navigator Modular 2 are calculated as 1 k byte =1,024 bytes.

1.2.2 Optional Parts

Table 1.2.4 Optional Parts

No.	Classification	Model	Name	Constitution/Specification
1	Spare Disk Drive	-	Disk Drive	Name : Refer to the column of the Disk Drive.
2	Controller	HDF-F800-MFC4	Controller (RKM)	Controller (1), 4Gbps Fibre Channel Interface Board (including Host Connector (4)) (1), Cache Memory of 2,048 M bytes (2)
		HDF-F800-MFC8		Controller (1), 4Gbps Fibre Channel Interface Board (including Host Connector (4)) (1), Cache Memory of 4,096 M bytes (2)
		HDF-F800-MIS4		Controller (1), iSCSI Interface Board (1), Cache Memory of 2,048 M bytes (2)
		HDF-F800-MIS8		Controller (1), iSCSI Interface Board (1), Cache Memory of 4,096 M bytes (2)
		HDF-F800-M8FC4		Controller (1), 8Gbps Fibre Channel Interface Board (including Host Connector (4)) (1), Cache Memory of 2,048 M bytes (2)
		HDF-F800-M8FC8		Controller (1), 8Gbps Fibre Channel Interface Board (including Host Connector (4)) (1), Cache Memory of 4,096 M bytes (2)
		DF-F800-F1KEM		Control Unit (including 8 G bps FC Interface as standard equipment (4)) (1)
		HDF-F800-SFC2	Controller (RKS)	Controller (1), 4Gbps Fibre Channel Interface Board (including Host Connector (2)) (1), Cache Memory of 2,048 M bytes (1)
		HDF-F800-SFC4		Controller (1), 4Gbps Fibre Channel Interface Board (including Host Connector (2)) (1), Cache Memory of 4,096 M bytes (1)
		HDF-F800-SIS2(*1)		Controller (1), 1 G bps iSCSI Interface Board (1), Cache Memory of 2,048 M bytes (1)
		HDF-F800-SIS4		Controller (1), iSCSI Interface Board (1), Cache Memory of 4,096 M bytes (1)
		DF-F800-F1KES		Control Unit (including 8 G bps Host Connector (2)) (1)
		DF-F800-F1KEXS	Controller (RKEXS)	Control Unit (including 4 G bps Host Connector (2)) (1)
		HDF8XSM-DKSA2.P	Controller (RKEXSB)	Control Unit (1), 10 G bps iSCSI Interface Board (1)
3	Disk Drive for addition (RKM/RKS/RKEXS/ RKEXSA/RKEXSB/ RKEXS8F/RKAK)	-	Disk Drive	Name : Refer to the column of the Disk Drive.
4	FC Interface Board for addition	DF-F800-DKF42 (RKS)	4G bps FC Interface Board	Name : Refer to the column of the Interface Board.
		DF-F800-DKF44 (RKM/RKH)	4G bps FC Interface Board	Name : Refer to the column of the Interface Board.
		DF-F800-DKF84 (RKM/RKH)	8G bps FC Interface Board	Name : Refer to the column of the Interface Board.
		DF-F800-DKF82 (RKES)	8G bps FC Interface Board	Name : Refer to the column of the Interface Board.
5	iSCSI Interface Board for addition	DF-F800-DKS12	1G bps iSCSI Interface Board	Name : Refer to the column of the Interface Board.
		DF-F800-DKSA2	10G bps iSCSI Interface Board	Name : Refer to the column of the Interface Board.
6	Rack frame	A-6516-RK40	Rack frame	Rack frame (It is necessary to order the rack rail.)

*1 : The Control Unit of the RKEXSA also is this model.

No.	Classification	Model	Name	Constitution/Specification
7	PDB for the Rack frame	A-F6516-PDU6	PDB for the Rack frame	Power distribution box for RK40 rack. PDB (2), Bracket (2), Cable clamp (1)
8	Remote Adapter	DF-F800-VR4A	Remote Adapter (Main unit)	Adapter for PS interlock control (Power cables for 100V and 200V each are standard equipment)
		DF-F800-VR4H	Remote Adapter (Hub)	Hub for remote adapter (Power cables for 100 V and 200 V each are standard equipment)
9	Additional Cache Backup Battery	DF-F800-N1K	Cache Backup Battery to the Basic Chassis	It is installed in the empty Cache Backup Battery slot of a Basic Chassis.
		DF-F800-N1RK	Additional Battery Box (AC)	It is installed by external.
		DF-F800-N1RKD	Additional Battery Box (DC)	It is installed by external.
10	Front Bezel (RKHED)	DF-F800-UBKD	Front Bezel	NEBS (Network Equipment-Building System) specification
11	Front Bezel (RKAKD)	DF-F800-UBKAD	Front Bezel	NEBS (Network Equipment-Building System) specification

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1.2.3 Accessory Parts

Table 1.2.5 Accessory Parts

No.	Classification	Model	Name	Constitution/Specification
1	Power cable	DF-F800-J1H	Power cable for Power unit	2.5 m, 2-pole power cable with grounding terminal (AC 125 V, 13 A for Single-phase)
		DF-F800-J2H	Power cable for Mounting chassis	2.5 m inlet type (AC 250 V, 10 A for Single-phase)
		DF-F800-J2H5	Power cable	5.0 m inlet type (AC 200 V for Single-phase)
		DF-F800-J2H10	Power cable	10.0 m inlet type (AC 200 V for Single-phase)
		A-F6516-P620	Power cable	Power cable for PDB (2)
		A-F6516-P630	Power cable	Power cable for PDB (2)
2	Fibre channel interface cable	A-6515-GM5S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (5 m)
		A-6515-GM10S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (10 m)
		A-6515-GM20S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (20 m)
		A-6515-GM30S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (30 m)
		A-6515-GM50S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (50 m)
		A-6515-GM1JS	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (100 m)
		A-6515-GM5L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (5 m)
		A-6515-GM10L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (10 m)
		A-6515-GM20L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (20 m)
		A-6515-GM30L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (30 m)
		A-6515-GM50L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (50 m)
		A-6515-GM1JL	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (100 m)
		A-6515-HM100L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (100 m)
		A-6515-HM2S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (2 m)
		A-6515-HM5S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (5 m)
		A-6515-HM10S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (10 m)
		A-6515-HM20S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (20 m)
		A-6515-HM30S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (30 m)
		A-6515-HM40S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (40 m)
		A-6515-HM50S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (50 m)
		A-6515-HM60S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (60 m)
		A-6515-HM70S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (70 m)
		A-6515-HM80S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (80 m)
		A-6515-HM90S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (90 m)
		A-6515-HM100S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (100 m)
		A-6515-HM150S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (150 m)
		A-6515-HM200S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (200 m)
		A-6515-HM300S	LC-SC Fibre I/F Cable	LC-SC Fibre I/F cable for Optical (300 m)
		A-6515-HM2L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (2 m)
		A-6515-HM5L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (5 m)
		A-6515-HM10L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (10 m)
		A-6515-HM20L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (20 m)
		A-6515-HM30L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (30 m)
		A-6515-HM40L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (40 m)
		A-6515-HM50L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (50 m)
		A-6515-HM60L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (60 m)
		A-6515-HM70L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (70 m)
		A-6515-HM80L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (80 m)
		A-6515-HM90L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (90 m)
		A-6515-HM100L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (100 m)
		A-6515-HM150L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (150 m)
		A-6515-HM200L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (200 m)
		A-6515-HM300L	LC-LC Fibre I/F Cable	LC-LC Fibre I/F cable for Optical (300 m)

No.	Classification	Model	Name	Constitution/Specification
3	Remote Adapter	DF-F800-VR4A	Remote Adapter	Adapter for PS interlock control
4	HUB for Remote Adapter	DF-F800-VR4H	HUB for Remote Adapter	Hub for remote adapter
5	Remote Adapter Cable	DF-F800-VRC2	Remote Adapter cable	PS interlock control of Remote adapter, 2 m
		DF-F800-VRC5	Remote Adapter cable	PS interlock control of Remote adapter, 5 m
		DF-F800-VRC10	Remote Adapter cable	PS interlock control of Remote adapter, 10 m
		DF-F800-VRC20	Remote Adapter cable	PS interlock control of Remote adapter, 20 m
		DF-F800-VRC50	Remote Adapter cable	PS interlock control of Remote adapter, 50 m
6	Tray for Remote Adapter	DF-F700-HVR4	Tray for Remote Adapter	Rail kit for mounting the Remote adapter on the RK40 rack frame.
7	Rack rail (for Chassis)	DF-F800-URHT7	Rail for Mounting Chassis	Rail Kit for RK40 and HA8000/8500
		DF-F800-UR7	Rail for Mounting Chassis	Rail Kit for U4J/HP/EP8000/SUN/AP7000
		DF-F800-URX8	Rail for Mounting Chassis	Rail Kit for mounting the RKAKX
		DF-F800-URHT8AS	Rail for Mounting Chassis	Rail Kit for RK40 and the other racks (other than U7/U6) (for RKAKS)
		DF-F800-URHT8BS	Rail for Mounting Chassis	Rail Kit for U7/U6 (for RKAKS)
8	Rack rail (for Additional Battery Box)	DF-F800-URHTN7	Rail for Mounting for Additional Battery Box	Rail Kit for RK40 and HA8000/8500
		DF-F800-URN7	Rail for Mounting for Additional Battery Box	Rail Kit for U4J/HP/EP8000/SUN/AP7000
9	ENC cable	DF-F800-K5BS	SAS cable for additional	SAS cable 5 m (1)
		DF-F800-K3BS	SAS cable for additional	SAS cable 3 m (1)
10	Decoration panel	A-F6516-U71D	Decoration panel	Panel to cover vacant space (1 EIA) of the RK40 rack frame.
11	Stabilizer	A-F6516-URST	Stabilizer (for RK40)	Installation to the RKAKX is performed when mounting it on the RK40 rack frame.
12	Control cable for Additional Battery Box	DF-F800-K1N	Control cable for Additional Battery Box	Interlocking control cable for the Additional Battery Box.

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1.3 Installation Configuration of the Subsystem

This equipment is the rack-mount model that mounts RKH/RKM/RKS/RKEXS/RKEXSA/RKEXSB/RKEXS8F/RKAK/RKAKX/RKAKS on the 19-inch rack frame.
The RKH is a subsystem with no Disk Drive installed in it.
The rack-mount model uses the special RK40 rack frame.
For a RK40 rack frame, up to 11 RKAKs, 4 RKAKXs or 9 RKAKS can be connected to an RKM.
The configuration, in which up to 15 RKAKs are connected to an RKM/RKEM using two RK40 rack frames, can be formed as the subsystem.
Up to 10 RKAKSs or 5 RKAKXs can be connected to an RKEM.
Up to 7 RKAKs, 3 RKAKXs or 6 RKAKSs can be connected to an RKS.
Up to 3 RKAKs or 3 RKAKSs can be connected to an RKEXS/RKEXSA/RKEXSB.
Up to 5 RKAKs or 3 RKAKSs can be connected to an RKEXS8F.
In the case of one RK40 rack frame, the maximum of 11 RKAKs or 5 RKAKXs (the maximum of 180 Disk Drives) can be connected to the minimum configuration of AMS2500 configured with one RKAK and one RKAKX.
Be sure to mount at least the one RKH and RKAK.
The configuration, in which up to 32 RKAKs or 10 RKAKXs are connected to an RKH using three RK40 rack frames, can be formed as the subsystem.

However, when subsystems are mounted mixing RKAKs and RKAKXs, the mountable number of additional unit is different.
For the mountable number of each additional chassis when subsystems are mounted mixing RKAKs and RKAKXs, refer to Introduction “1.3 (1) (b) Mounted number of a mix of “RKAKs and RKAKXs”, “RKAKS and RKAKX” and “RKAK and RKAKS”” (INTR 01-0090).

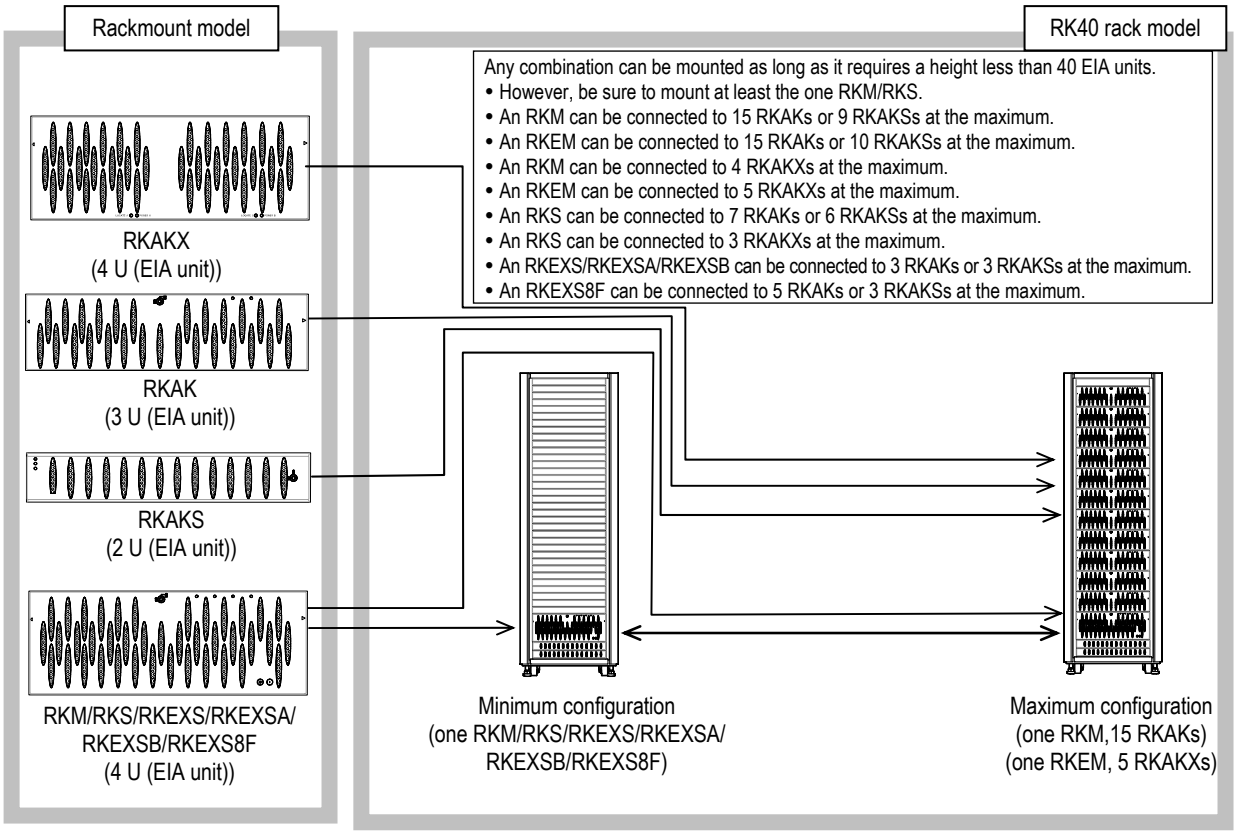


Figure 1.3.1 Subsystem Configuration (RKM/RKS/RKEXS/RKEXSA/RKEXSB/RKEXS8F+RKAK/RKAKX/RKAKS)

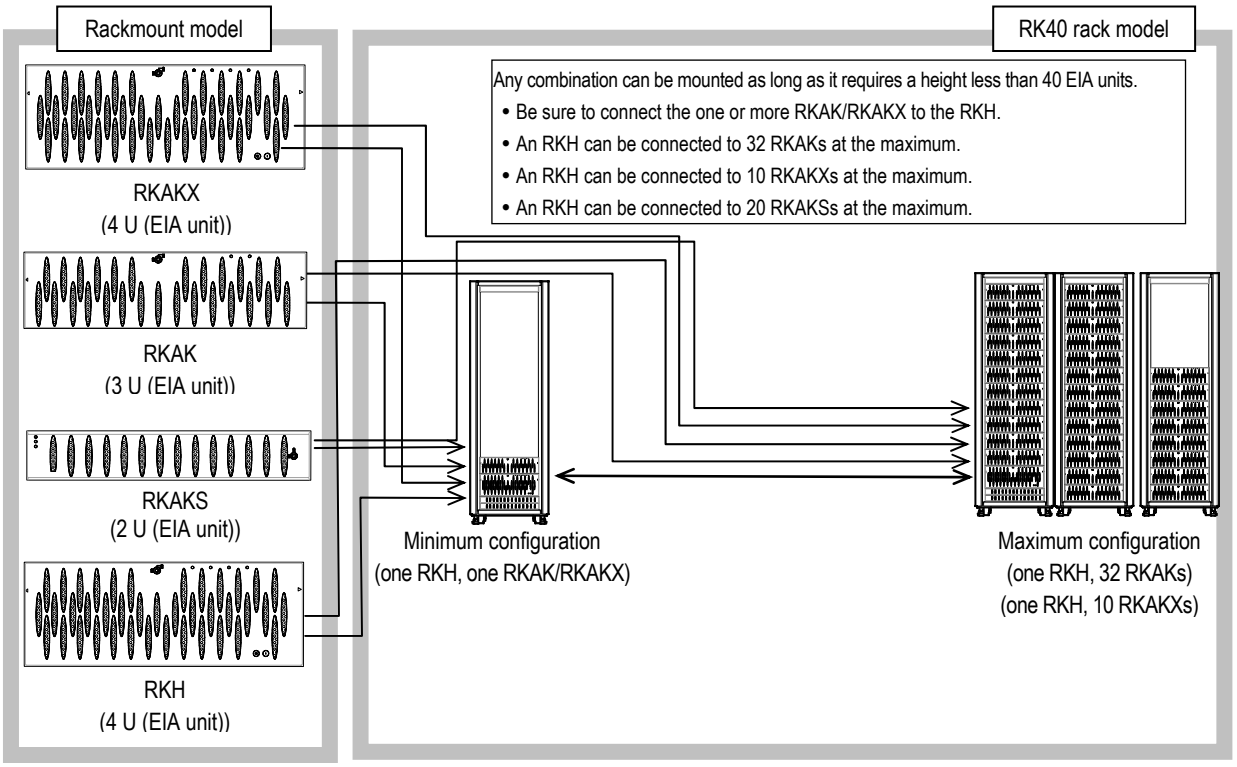


Figure 1.3.2 Subsystem Configuration (RKH+RKAK/RKAKX/RKAKS)

1.4 How to Open/Close Door or Attach/Remove Front Bezel/Rear Door of the Subsystem

1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model

⚠ CAUTION

Attach or remove the Front Bezel carefully following the procedure. Otherwise, you may hurt your fingers by pinching them.

CAUTION

- **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 chassis before starting and do not take it off until you finish.**
- **The front bezels of the RKH/RKM/RKS, the RKAK, and the RKAKS are different in size.**
- **When installing or removing the Front Bezel, try not to operate the main switch incorrectly with the hook or the ON/OFF button of the Front Bezel.**

• In the case of RKH/RKM/RKS/RKAK

A key is necessary to attach or remove the Front Bezel.

(1) Procedure for removal

(a) Insert the key into the keyhole on the Front Bezel and release the Lock of the Front Bezel.

(b) Pull the front bezel toward you holding its sides to disengage it from the ball catches.

(c) Disengage the two hooks of the front bezel from the slots on the subsystem main body by shifting the bezel to the right and remove the bezel.

(2) Procedure for attachment

(a) Hold the side of Front Bezel with your both hands.

(b) Hang the hook of the Front Bezel (left side) on the hole in the bottom left part of the subsystem.

(c) Hang the hook of the Front Bezel (right side) on the hole in the bottom right part of the subsystem.

(d) After making the hooks of the front bezel engaged, press the bezel against the main body until it is stopped.

(e) Fix the front bezel by turning the key.

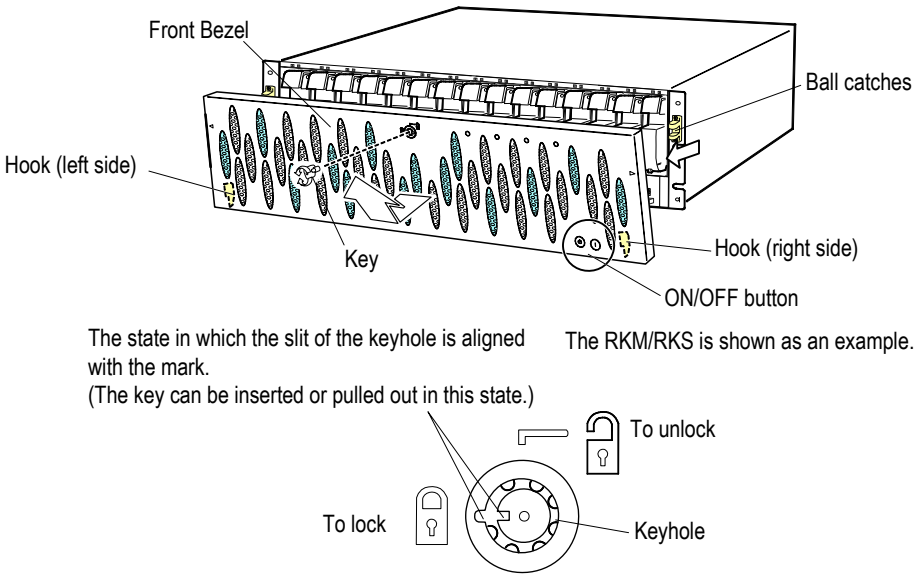
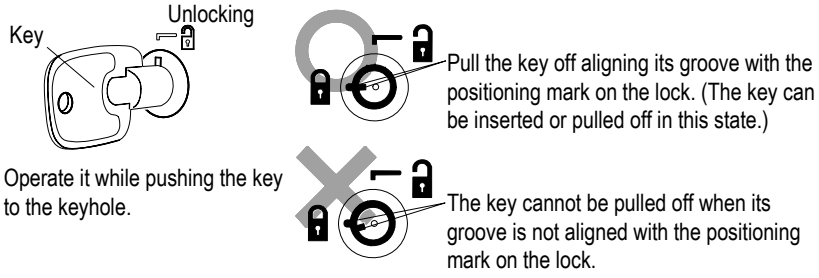


Figure 1.4.1 Procedure for Attaching/Removing Front Bezel

NOTE : • When inserting and turning the key, have it inserted completely. If it is turned when it is inserted half way, a damage of it may be caused.



- When removing the key after locking up the Front Bezel, pull it off aligning its groove with the positioning mark on the lock.
- When the key is pulled off in the state where its groove is not aligned with the positioning mark on the lock, a damage of the lock may be caused.

- In the case of RKAKX.

  RKAKX does not have a key.
  The key operation on the front side of RKAKX is required to pull the RKAKX out of the rack.

⚠ CAUTION

- **Be careful of the workers on the other side when pulling out or storing the RKAKX.**
- **Do not pull out multiple RKAKXs at a time because the rack can fall over.**
- **Do not put objects on the RKAKX which has been pulled out of the rack or use it as working space because the rack can fall over.**

NOTE : • Check that the RKAKXs are installed in the range of 3U to 26U of the rack.
• Check that the stabilizer is attached to the front side of the rack.
If the stabilizer is not attached, attach it to the rack. (Refer to "2.2.1 (7) Installing the stabilizer" (INST 02-0090).)

(1) How to pull the RKAKX out of the rack frame

(a) Remove the Front Bezel by pulling it toward you holding its both sides with both hands.

NOTE : Be careful not to drop the Front Bezel.

(b) Insert the key into the keyhole on the front side, and release the lock.
When the lock is released, the front fixing screws appear.

NOTE : The key is not supplied with the RKAKX.
Use the key of the basic chassis (RKM/RKS/RKH) to unlock.

(c) Loosen the front fixing screws (blue) (one place each at right and left)

(d) Pull out the RKAKX slowly holding the handle on the front side until the latch of the rail clicks.
RKAKX has several types of rack rails, and the shapes of their rail and latch are respectively different.

NOTE : • Pull out the RKAKX gently without giving momentum.
• Be sure to grasp the handles to pull out the subsystem.
• Pull out the subsystem until the latches of the right and left rails are securely locked.
• Be careful not to hit your head on the subsystem which was pulled out.

(e) Remove the top cover of RKAKX by sliding it in the direction shown by the arrow.

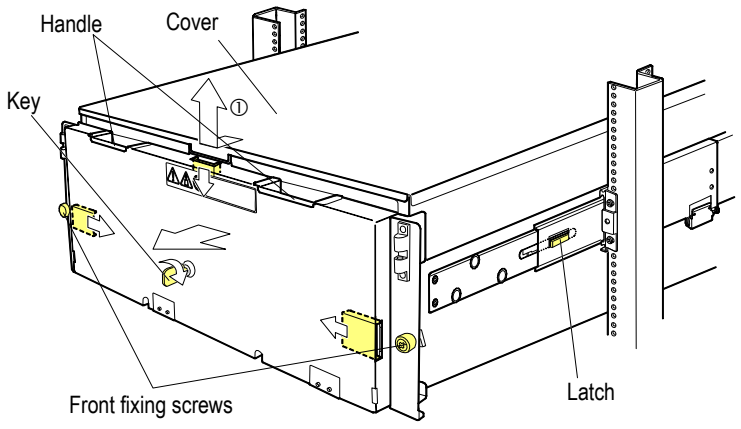


Figure 1.4.1.1 How to Pulling Out the RKAKX

(2) How to store the RKAKX in the rack frame.

(a) Attach the top cover of RKAKX by sliding it in the direction shown by the arrow ①.

NOTE : • Do not drop a screw and such in the subsystem.
If you dropped it, immediately remove it.
If you leave it unattended, the parts will short out, and it will cause a fire or a failure.
• It may cause a failure if the cover is not attached.

(b) After releasing the latch of the rail, push the front side of the RKAKX gently all the way into the rack frame.
RKAKX has several types of rack rails, and their way of releasing a latch is respectively different.

• When the rack rail is Rev.A or Rev.B
Release the lock by pressing the latch of the rail, and then push the front side of RKAKX gently all the way into the rack frame.

NOTE : • Push the RKAKX gently without giving momentum.
• Be careful not to pinch your fingers when releasing the latch of the rail.

• When the rack rail is Rev.C or later
Release the lock by sliding the latch releasing lever which is located in the front terminal of right and left rack rails, and push the front side of the RKAKX gently all the way into the rack rail.

NOTE : Push the RKAKX gently without giving momentum.

(c) Fix the front fixing screws (blue) (one place each at right and left) with your hands.

NOTE : Fix it firmly. If it is loose, there is the danger of the subsystem to jump out.

(d) Insert the key into the keyhole on the front side, and lock it.
When it is locked, the fixing screws are covered.

NOTE : The key is not supplied with the RKAKX.
Use the key of the basic chassis (RKM/RKS/RKH) to lock.

(e) Attach the Front Bezel holding its both sides with both hands.

NOTE : Attach the cover to the RKAKX before returning it to the rack.
If it is left uncovered, it may cause a failure.

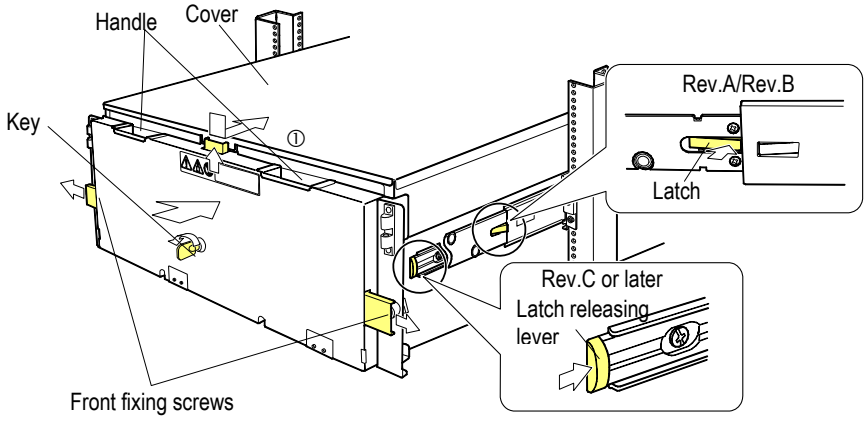


Figure 1.4.1.2 How to Storing the RKAKX

- In the case of RKAKS
  A key is necessary to attach or remove the Front Bezel.

(1) Procedure for removal

(a) Insert the key into the keyhole on the Front Bezel and release the Lock of the Front Bezel (①).

(b) Pull the front bezel toward you holding its bottom right portion, and then disengage the right side of the Front Bezel from the ball catches (②).

NOTE : When the Front Bezel is removed from the subsystem, work at the opening angle between the Front Bezel and the subsystem of up to about 45 degrees. If they are far too opened by force, a damage of the front bezel may be caused.

(c) Pull out the Front Bezel from the tabs on the left side of the subsystem main body to remove the Front Bezel (③).

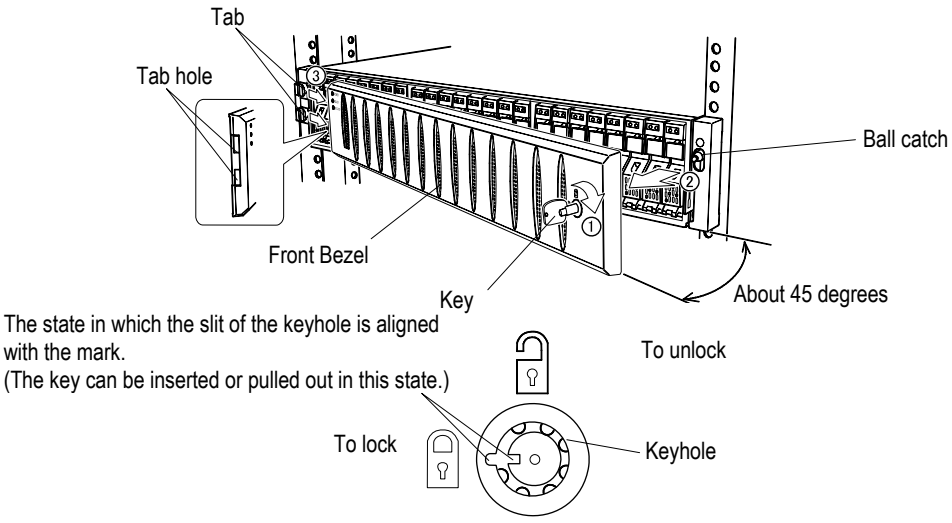
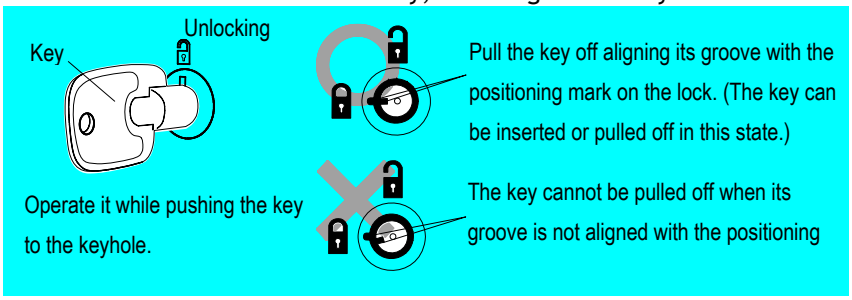


Figure 1.4.1.3 Procedure for Removing Front Bezel (RKAKS)

NOTE : • When inserting and turning the key, have it inserted completely. If it is turned when it is inserted half way, a damage of it may be caused.



- When removing the key after locking up the Front Bezel, pull it off aligning its groove with the positioning mark on the lock.
- When the key is pulled off in the state where its groove is not aligned with the positioning mark on the lock, a damage of the lock may be caused.

(2) Procedure for attachment

(a) Unlock the Front Bezel with the key, and hold the key and bottom of Front Bezel with your both hands.

(b) Insert the tabs on the front side of the subsystem main body into the tab holes in the front bezel (①).

(c) Fix the Front Bezel by pressing the right side of the front bezel to engage the hook of the front bezel with the ball catch (②).

(d) Lock the Front Bezel with the key (③).

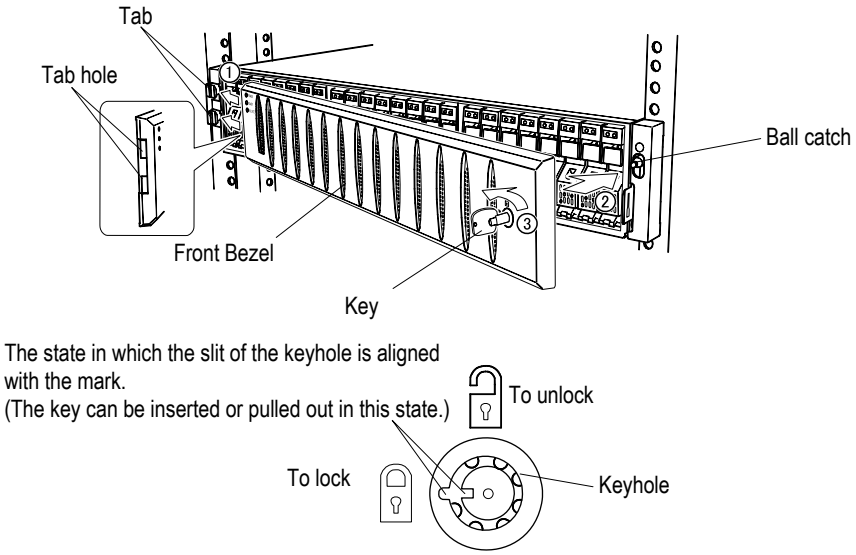
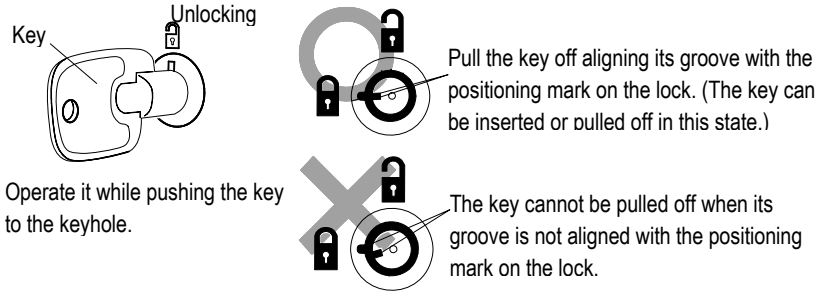


Figure 1.4.1.4 Procedure for Attaching Front Bezel (RKAKS)

NOTE : • When inserting and turning the key, have it inserted completely. If it is turned when it is inserted half way, a damage of it may be caused.



- When removing the key after locking up the Front Bezel, pull it off aligning its groove with the positioning mark on the lock.
- When the key is pulled off in the state where its groove is not aligned with the positioning mark on the lock, a damage of the lock may be caused.

1.4.2 How to Open/Close the Rear Door of RK40 Rack Frame

CAUTION

Open or close the door carefully following the procedure.
Otherwise, you may hurt you fingers by pinching them.

For the procedure for removing and installing the Font Bezel, refer to "1.4 How to Open/Close Door or Attach/Remove Front Bezel/Rear Door of the Subsystem" (INST 01-0100).

(1) Procedure for opening rear door
  (a) Insert the key to the keyhole on the rear door, and turn the key to the left to open lock (①).
  (b) Push the upper part of the lever, and raise the lower part of the lever toward (②,③).
  (c) Turn the lever to the left, and pull the lever toward, and then open the rear door (④).

(2) Procedure for closing rear door
  (a) Close the rear door, and push and turn the lever to the right (⑤).
  (b) Push down the lever, and push the lower part of the lever (⑥).
  (c) Insert the key to the keyhole on the rear door, and turn the key to the right to lock (⑦).

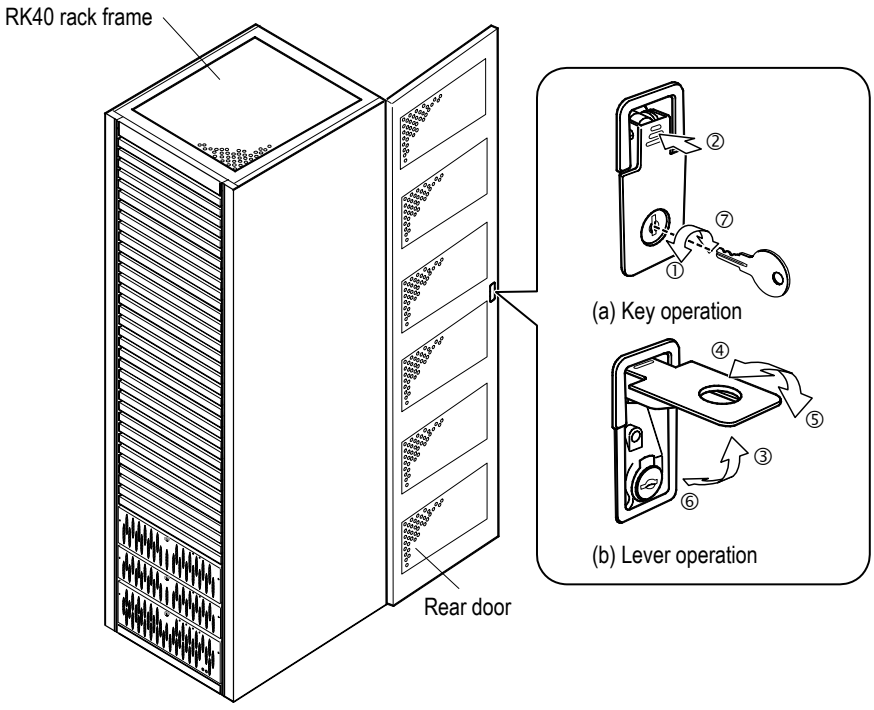


Figure 1.4.2 Procedure for Opening/Closing Rear Door

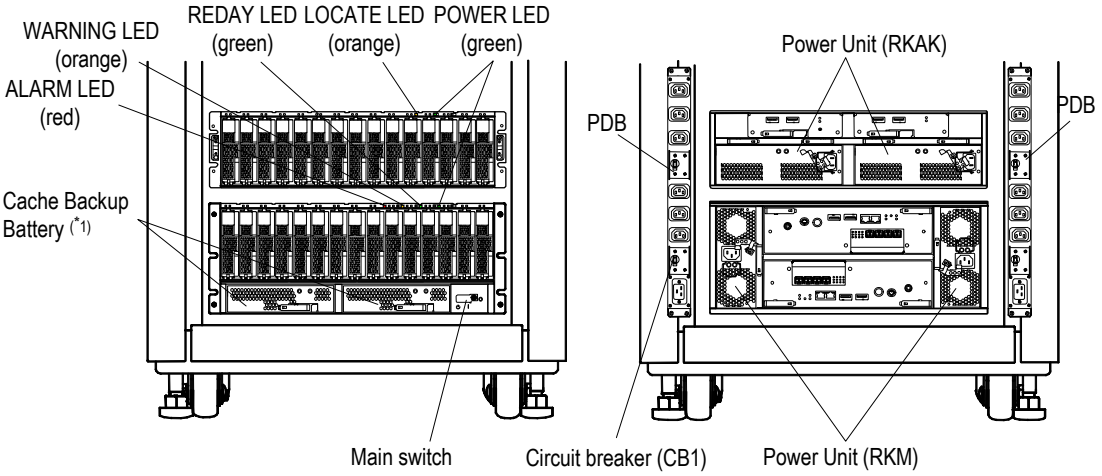
1.5 Power On/Off Procedure

The Disk Drive may emit mechanical sound “click-clack” when the Disk Drive is started (spun up) immediately after the subsystem powering on and when the Disk Drive is powered off (spun down). However, since there is no problem if the WARNING LED (orange) or the ALARM LED (red) on the Basic Chassis is not lighting up or blinking at low speed, please use the subsystem as it is.

- If the array subsystem used for a remote side of TrueCopy remote replication/TrueCopy Extended Distance restarts in the status that TrueCopy remote replication/TrueCopy Extended Distance is enabled, the following phenomena occur.
  - The paths of TrueCopy remote replication/TrueCopy Extended Distance are both blocked. The notice of E-mail Alert Function, SNMP Agent Support Function, and TRAP occur at the time of the path blockade.
    Perform the notice and the check to the Failure Monitoring Department in advance.
    The path blockade automatically recovers after restarting.
  - When the status of the pair of TrueCopy remote replication/TrueCopy Extended Distance is PAIR or COPY, the pair changes to PSUE.
    If the Pair status of TrueCopy remote replication/TrueCopy Extended Distance is either PAIR or COPY, suspend the pairs before restarting the array subsystem.
- When Power Saving of the priced option is used, if you restart the subsystem after executing the spin-down and before completing it, the spin-down may fail because of the recognition processing of the host immediately after the subsystem starts.
  Check that there is no RAID Group whose power saving status is “Normal (command monitoring)” after executing the spin-down, and then restart the subsystem.
  If the spin-down fails, execute the spin-down again.
- If the NAS Unit is connected and the NAS service is in operation, ask the NAS Unit administrator for planned shutdown of the NAS Unit.
  After rebooting the array device, ask the NAS Unit administrator to reboot the NAS Unit and check the status of the FC path (Fibre Channel path). Refer to “Recovering from FC path errors” in “Hitachi NAS Manager User’s Guide” to check the status of the FC path, and if there is a failure in the FC path, ask the NAS Unit administrator to recover the FC path.

1.5.1 Subsystem Power On

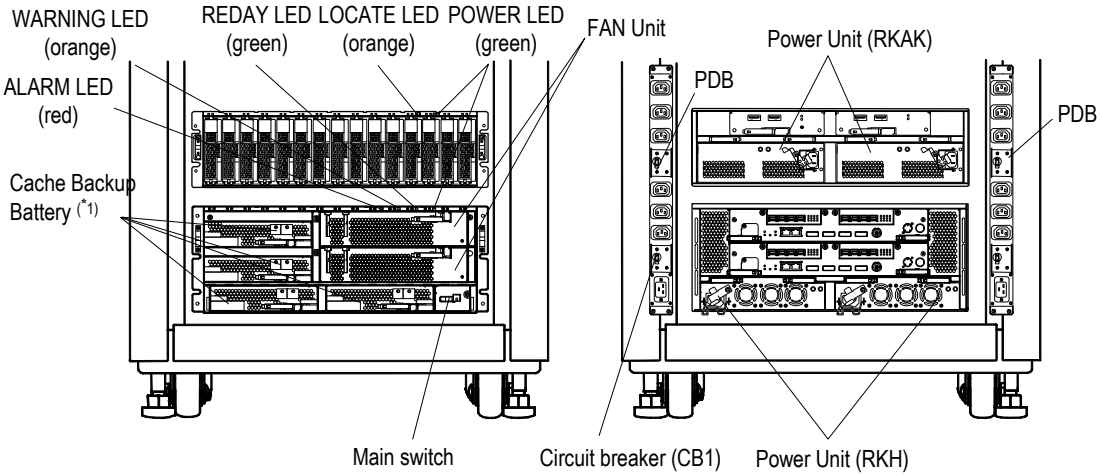
(1) In the case of RKM/RKS/RKH/RKAK/RKAKX/RKAKS, make sure that the circuit breaker is turned off.
In the case of RKHED/RKAKD, make sure that all the Power Unit Switches are turned off.
(2) Make sure that the main switch is turned off.
(3) In the case of RKM/RKS/RKH/RKAK/RKAKX/RKAKS, if the power cables are not connected, connect the power cables to the Power Unit. Turn on the circuit breaker of the PDB.
In the case of RKHED/RKAKD, turn on all the Power Unit Switches.
(4) Turn on the main switch.
(5) Check that the READY LED (green) on the Basic subsystem lights up usually after about four minutes for the RKM/RKS and five minutes for the RKH/RKHED.
When doing this, when the READY LED (green) on the front of the Basic Chassis is blinking at high-speed in the dual controller configuration, the READY LED (green) on the front of the Basic Chassis lights up after it blinks at high-speed for the maximum of 30 to 50 minutes and 40 to 60 minutes for the RKH/RKHED because the automatic download of the ENC firmware is operating. Also, when the WARNING LED (orange) on the front of the Basic Chassis is blinking at high speed in the single controller configuration, the READY LED (green) on the front of the Basic Chassis lights up after the WARNING LED (orange) on the front of the Basic Chassis blinks at high speed for the maximum of 30 to 85 minutes because the update of the flash program or the automatic download of the ENC firmware at the time of turning the power on is operating.
When the READY LED (green) on the front of the Basic Chassis does not light up even if time passed, collect the Full Dump (Refer to Troubleshooting "7.5 Collecting Full Dump" (TRBL 07-0140).), turn off the main switch, remove two power cables from the Power Units of all chassis, and then replace the Control Unit. (Refer to Replacement "2.2.2 (2) Procedure for replacement with the power turned off" (REP 02-0320).)
(6) Check that "I10000 Subsystem is ready" is displayed referring to the Information Message on WEB. (Refer to WEB "2.1 Transferring to the Normal Mode" (WEB 02-0000).)
(7) Check that "IZYR00 Automatic ENC microprogram download completed successfully" and "IZYS00 Automatic ENC microprogram download start" are displayed in Information Message on WEB.
When "IZYQ00 Automatic ENC microprogram download failed" is displayed in Information Message on WEB, perform the maintenance according to the recovery method of the message code. However, when you check [Settings] – [Advanced Settings] – "Start Advanced Settings" – [Maintenance] – [ENC Micro Update] and the automatic download is set to "Disabled", this procedure is not required. (Refer to System Parameter "1.1 Procedure for Connecting Hitachi Storage Navigator Modular 2 with the Subsystem" (SYSPR 01-0020).)
(8) Check that the start message and the end message of the drive firmware automatic download are displayed. When the drive firmware version of the disk drive is new, the start message and completion message of the drive firmware automatic download are not displayed.
When the message indicating the abnormal termination is displayed, perform the maintenance according the recovery method in the message code. (Refer to Firmware "1.6 (4) Checking the start message and end message of the automatic download" (FIRM 01-0890).)



*1 : The Cache Backup Battery of the RKM/RKS is only one in standard, and it is installed on the left side of the subsystem. In the case of the DF800-RK2, two batteries are installed as a standard.

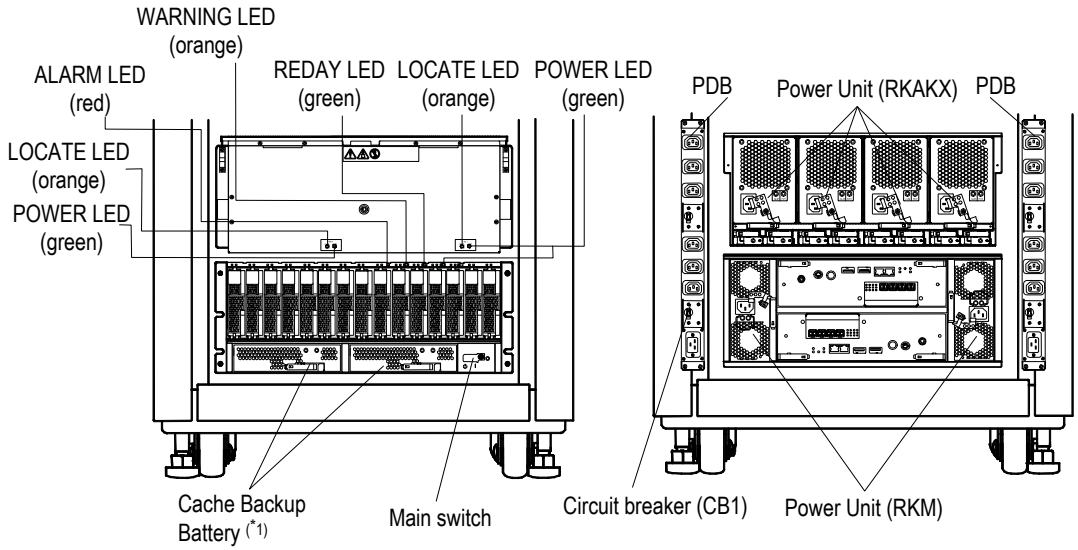
*2 : The figure shows the RKM＋RKAK.

Figure 1.5.1 Locations of Switches and LED for Power On (RKM/RKS/RKAK)



*1 : Two Cache Backup Batterys are installed in the RKH in standard, and it is installed under the subsystem. In the case of the DF800-RKH2 and the DF800-RKHE2, four batteries are installed as a standard.

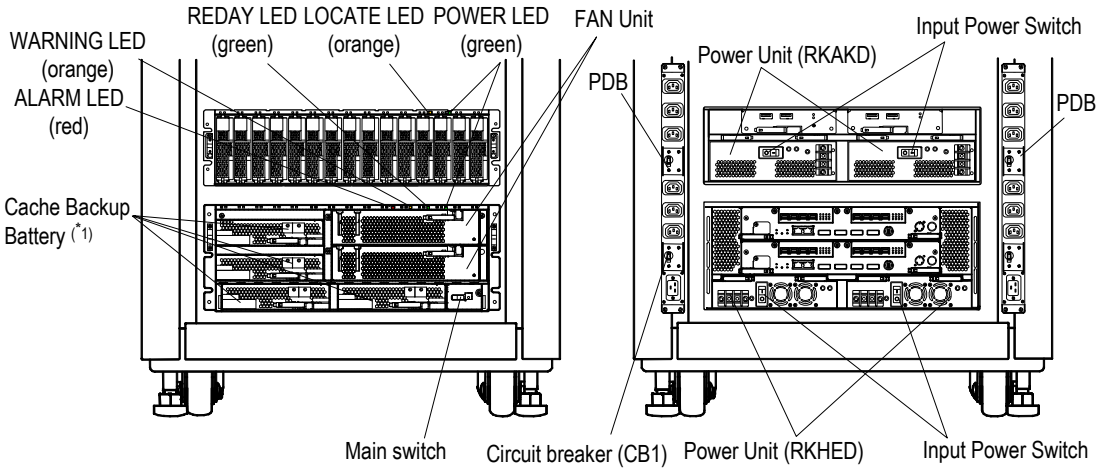
Figure 1.5.2 Locations of Switches and LED for Power On (RKH/RKAK)



*1 : The Cache Backup Battery of the RKM/RKS is only one in standard, and it is installed on the left side of the subsystem. In the case of the DF800-RK2, two batteries are installed as a standard.

*2 : The figure shows the RKM＋RKAKX.

Figure 1.5.2.1 Locations of Switches and LED for Power On (RKM/RKS/RKAKX)



*1 : Two Cache Backup Batterys are installed in the RKHED in standard, and it is installed under the subsystem. In the case of the DF800-RKHE2D, four batteries are installed as a standard.

Figure 1.5.2.2 Locations of Switches and LED for Power On (RKHED/RKAKD)

This page is for editorial purpose only.

1.5.2 Subsystem Power Off (Sequential Shutdown)

NOTE : • Do not perform the planned shutdown (power-off) while the READY LED (green) on the front of the Basic Chassis is blinking at high speed (for the maximum of 30 to 50 minutes, but for the maximum of 40 to 60 minutes in case of the RKH).
- In the case of the single controller configuration, do not perform the planned shutdown (power-off) while the WARNING LED (orange) on the front of the Basic Chassis is blinking at high speed (for the maximum of 30 to 85 minutes).
- When Power Saving of the priced option is used, if you perform the planned shutdown of the system after executing the spin-down and before completing it, the spin-down may fail because of the recognition processing of the host when the subsystem power is turned on.
  Check that there is no RAID Group whose power saving status is "Normal (command monitoring)" after executing the spin-down, and then perform the planned shutdown of the subsystem.
  If the spin-down fails, execute the spin-down again.
- The sequential shutdown may be failed if the Disk Drive is in the blocked status. Maintain the blocked Disk Drive before executing the sequential shutdown.

(1) Turn off the main switch.
(2) Make sure that the POWER LED (green) on the front of the subsystem is off. (‡1)
(3) Power off the subsystem in the following procedure (AC input completely turned off).
  (a) If the power cables of the subsystem are connected to the PDB, check if a power cable of other unit such as a switch is connected to the PDB.
  If the power cable of other unit is not connected, power off the circuit breakers of the PDB.
  If the power cable of other unit is connected to the PDB, check whether the other unit can be powered off.
  If the other unit cannot be powered off, remove two power cables from the power units of the Basic Chassis side and Additional Chassis side.
  (b) If power cables are connected to something other than PDB, remove two power cables of the Basic Chassis and Additional Chassis, or turn off the input power.

In the case of RKHED/RKAKD, turn off all the Power Unit Switches.

‡1 : The POWER LED (green) of the RKAK does not go out when the main switch is turned off in the Maintenance mode, however, this is not a problem.

1.6 Setting the Power Control Mode (Local/Remote Mode)

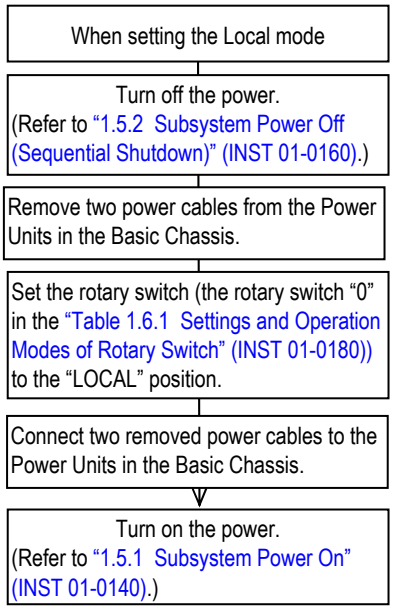
Set the mode of the power control. When the Remote mode is selected, the remote control to control turning on/off of the subsystem power by a host computer is enabled.

NOTE : Change the rotary switch with the AC input of the subsystem (Basic Chassis) completely turned off (with two power cables pulled out). If the subsystem is on, the setting is not reflected.

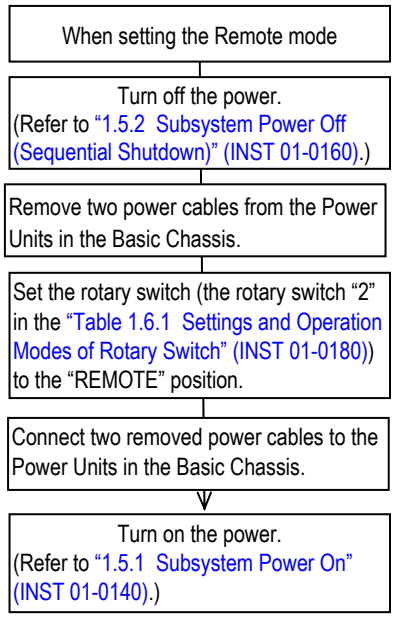
(1) Procedure for setting the Remote/Local mode

The remote adapter is not needed when the UPS with the interlocking function with a host is used.

(a) Setting the Local mode



(b) Setting the Remote mode



(2) Setting the Rotary switch

Set the mode of power control by the Rotary switch. Change the Rotary switch with the AC input of the subsystem completely turned off (pulling out power cables, etc.). If the subsystem is on, the setting is not reflected. Before change the Rotary switch, power off the switch on the front side once (Refer to "1.5.2 Subsystem Power Off (Sequential Shutdown)" (INST 01-0160).), and then disconnect two power cables from the Basic Chassis. After the change, connect the power cables and power on the subsystem (Refer to "1.5.1 Subsystem Power On" (INST 01-0140).). Due to the interlocking action, the subsystem may not start when the remote adapter or UPS is off. However, the Web special window is allowed to be displayed in the Ready status.

When booting the array subsystem, set the Rotary switch to a number other than 8.

Local/Remote mode settings and corresponding operation modes are shown in Table 1.6.1.

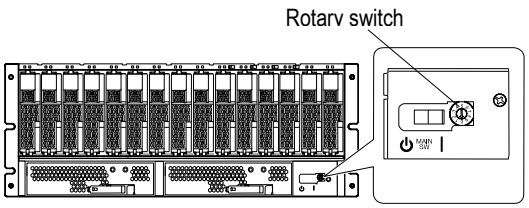
Table 1.6.1 Settings and Operation Modes of Rotary Switch

Rotary switch	Operation mode name	Operation mode
0	LOCAL	Local mode (Before shipment. When the remote adaptor is not used.)
1	–	–
2	REMOTE	Remote mode by means of the HOST AC (using a remote adapter)
3	–	–
4	UPS Interlock mode 1	Interlock mode 1 with an UPS exclusive for the subsystem To set the mode, connect AC #0 and AC #1 to the UPS and an external and an external AC power supply or the PDB of the RK40 rack frame respectively.
5	UPS Interlock mode 2	Interlocking mode 2 with an UPS exclusive for the subsystem To set the mode, connect AC #0 and AC #1 to the one UPS.(*1)
6	UPS Interlock mode 3	Interlocking mode 3 with an UPS exclusive for the subsystem To set the mode, connect each of AC #0 and AC #1 to the different UPSs. (*2)
7	–	–
8	Web special window display permission mode	Web special window can be displayed. It is enabled only in the Ready status. (The firmware version applies from 0862/A or later.)
9	Test mode	Test mode Do not set the rotary switch to this mode because this mode is for a test.

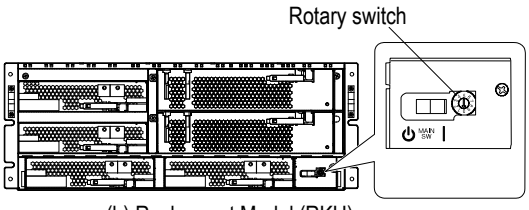
: Do not make this setting when the UPS is not connected.

*1 : The duplication of the power supply system becomes unable to be done.

*2 : This cannot be used in the case of the single controller configuration.



(a) Rackmount Model (RKM/RKS)



(b) Rackmount Model (RKH)

Rotary switch : Here shown is an instance that it is set to Local-mode.

Figure 1.6.1 Location of Rotary Switch

This page is for editorial purpose only.

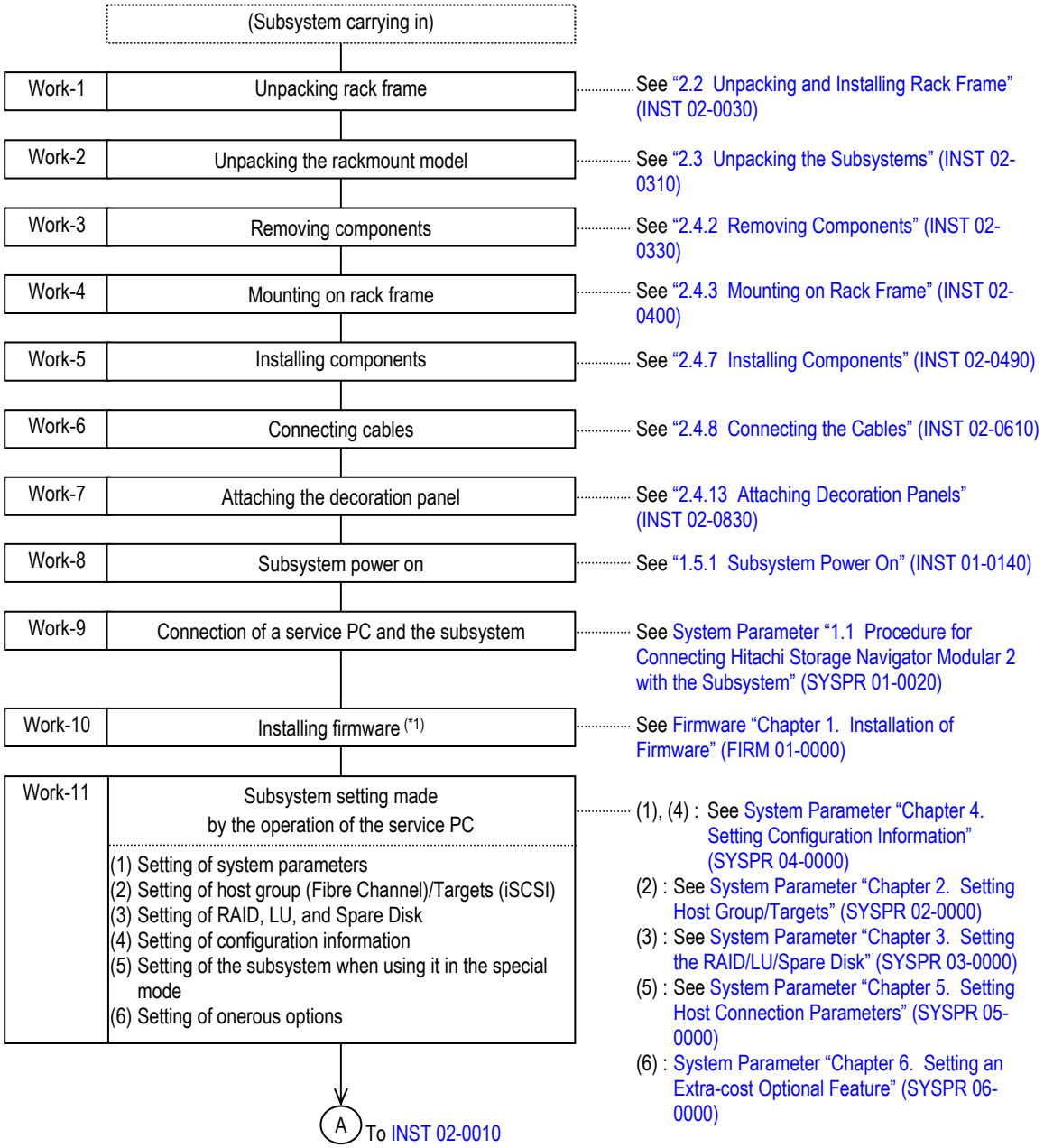
Chapter 2. Installing Rackmount Model

2.1 Procedures for Installing Rackmount Model

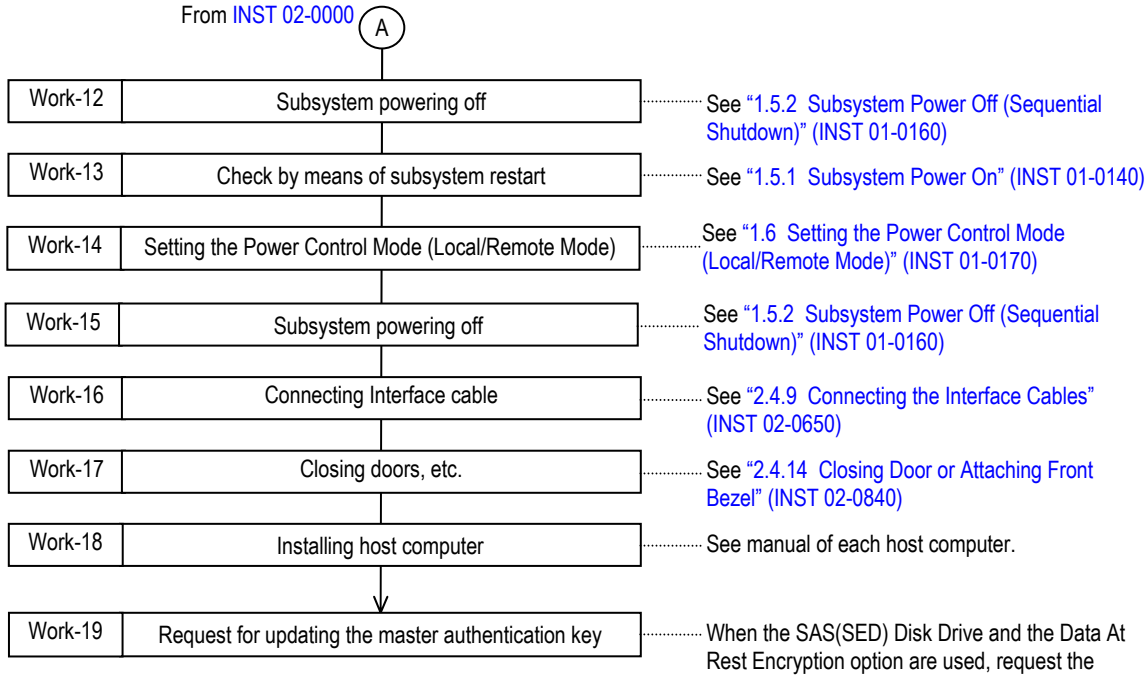
(1) Procedures for installation

In the case of a new introduction or moving, perform the installation after making sure of the following necessary works.

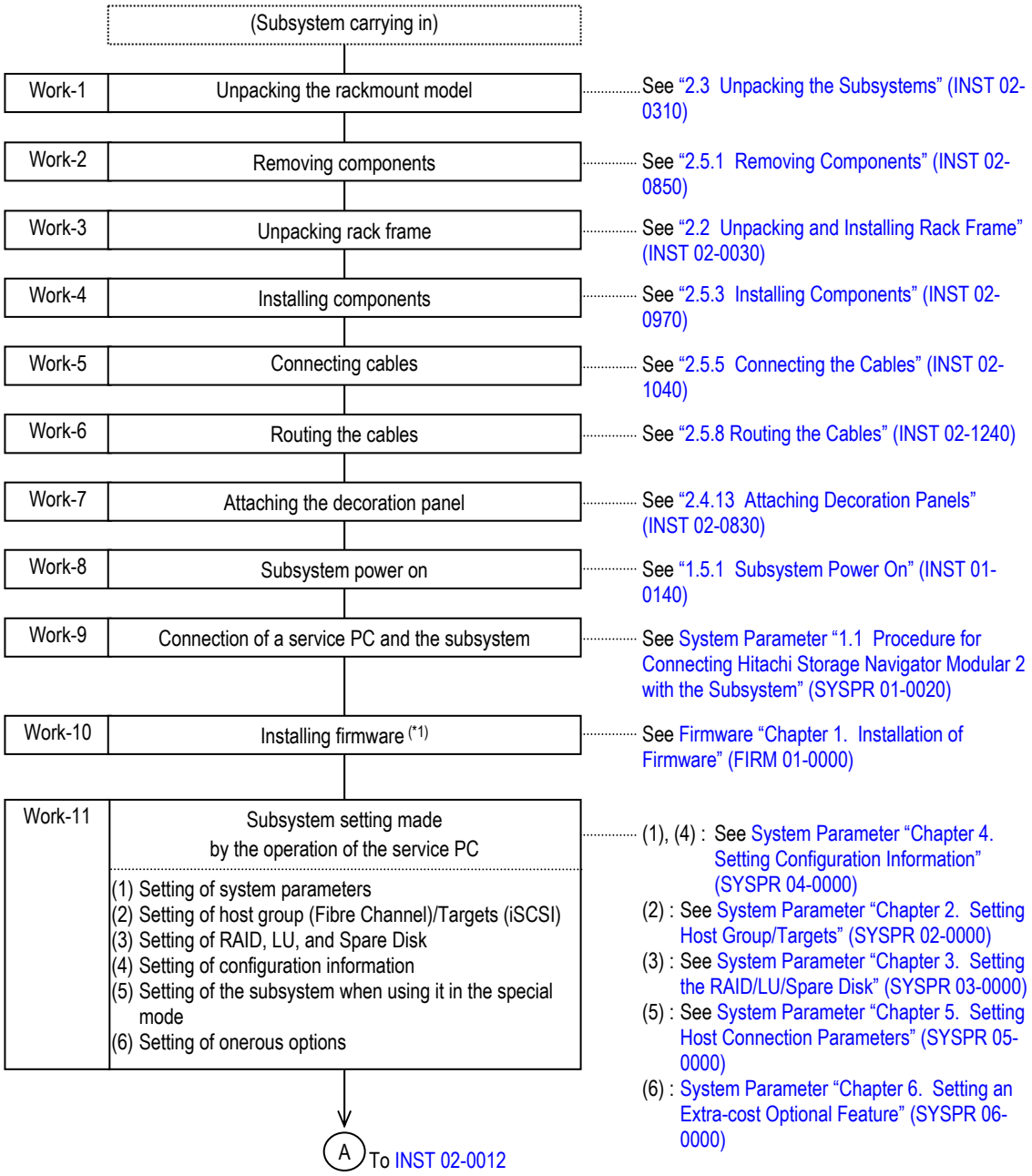
(1-1) In the case of RKM/RKS/RKH/RKAK



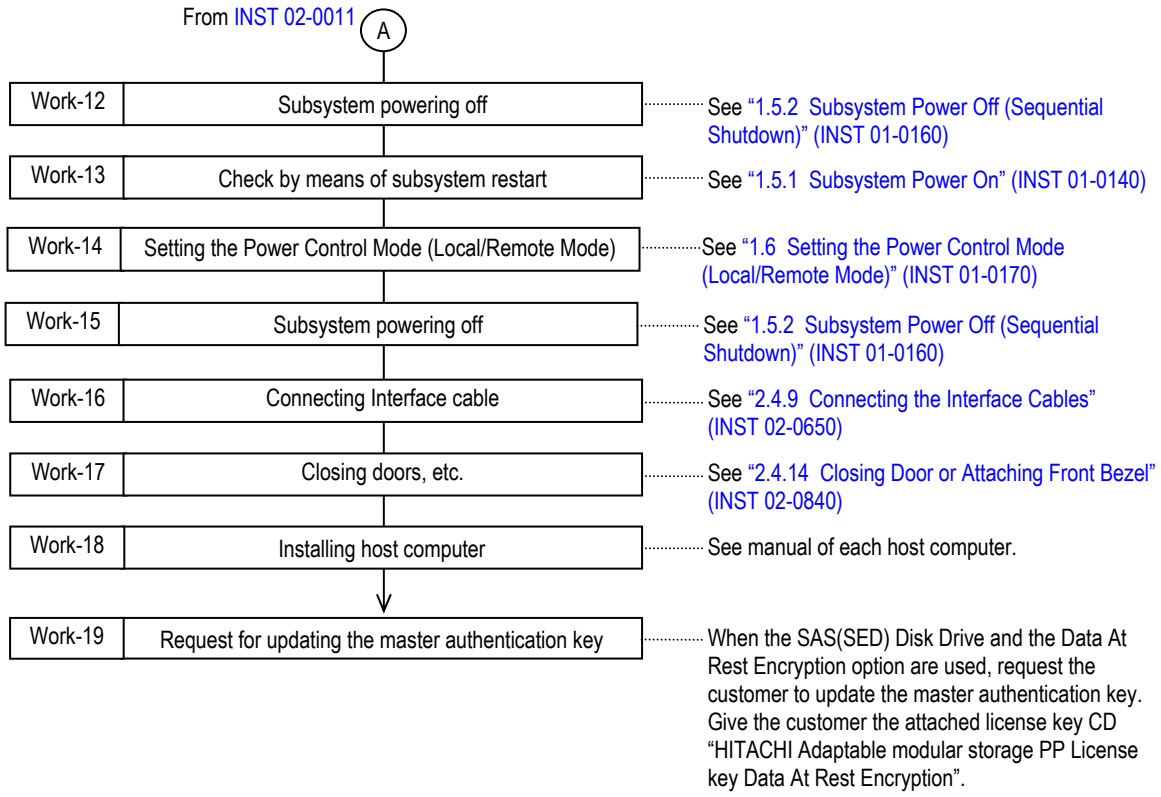
*1 : Normally, firmware are installed when the subsystem is shipped from the factory.



(1-2) In the case of RKAKX



*1 : Normally, firmware are installed when the subsystem is shipped from the factory.



(2) Tools required

The following tools are required for the installation.

Table 2.1.1 Tools Required

Division	Tool name	Specification	Usage
Tool	Slotted screwdriver	No.1	For Local/Remote Mode Setting Switch (rotary switch)
	Phillips screwdriver	No.2	Installation of skirts and fixing the subsystem.
	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 subsystem from the static electricity
	LAN cross cable	Category 5	For connecting a service PC and the subsystem
	PC for maintenance	Pentium	For maintenance (Pentium 4 1 GHz (2 GHz or more is recommended)), Memory 1 G bytes or more (2 G bytes or more is recommended)

2.2 Unpacking and Installing Rack Frame

2.2.1 RK40 Rack Frame (Unpacking/Installing and Installation Areas/Maintenance Areas)

NOTE : When installing the rack rails in the rack frame that has already been in use, perform the installation works in Step "2.2.1 (9) Installing the rails" (INST 02-0100) and the following steps.

The packed status of the RK40 Rack Frame is shown in the Figure 2.2.1.

(1) Unpacking

NOTE : • Unpack it indoor.
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.

(a) Remove the external packaging and packing materials.
(b) Take the rack frame out of the polyethylene bag.

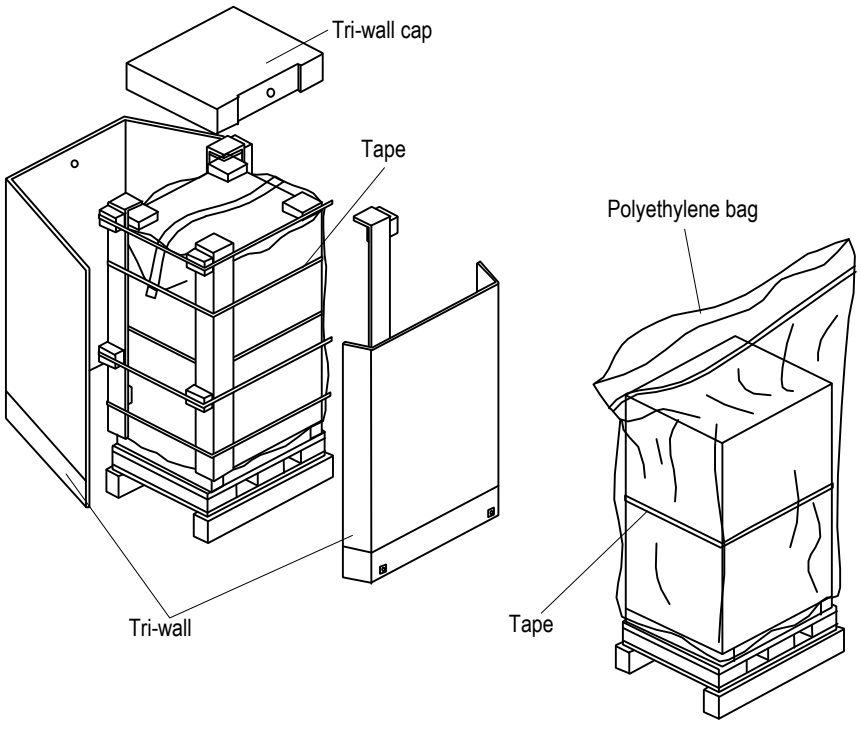


Figure 2.2.1 Packed Status of the RK40 Rack Frame

(2) Inspecting the subsystem visually

Check the exterior of the subsystem visually for distortion or damage owing to the transport.

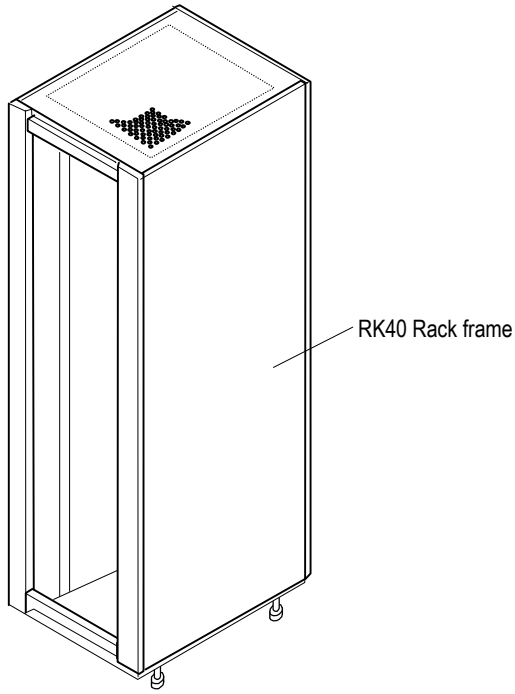


Figure 2.2.2 Exterior Rack Frame

(3) Checking contents of package

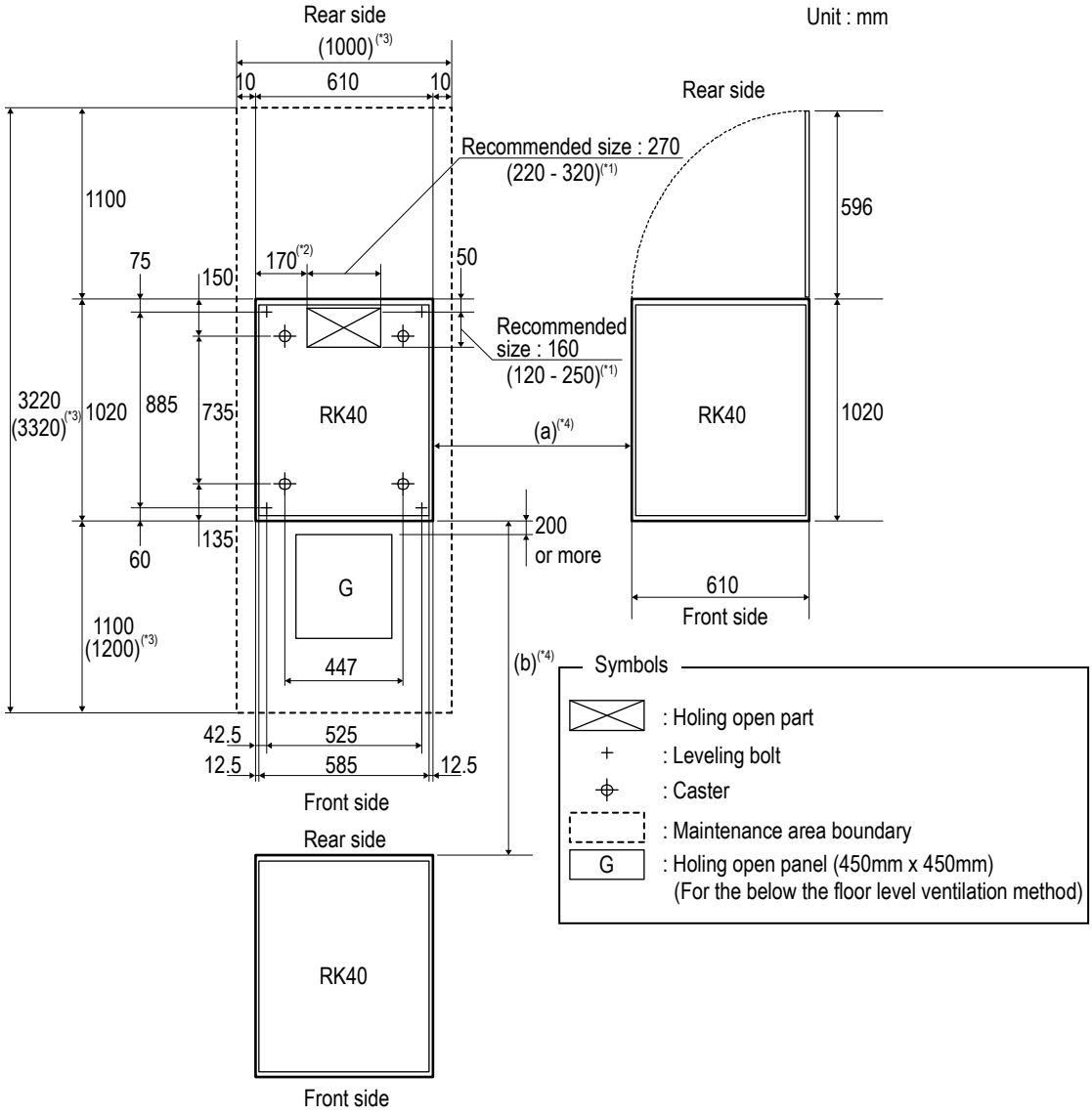
Check if the contents of the package (their model names, product serial numbers, and quantities) agree with those in the packing list shipped with the subsystem.

(4) Installation Area/Maintenance Area and Earthquake-resistant Plan

(4-1) Installation and maintenance areas

Figure 2.2.3 shows installation and maintenance areas for the A-6516-RK40 rack frame.

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.



*1 : This indicates a drilling acceptable range.
The floor cutout position must be center distribution to the subsystem basically.
Check the relation with the floor opening on the subsystem side, and decide the floor cutout position so that the external cable leading has no problem.
There is no problem even if it shifts from the center position as long as it is in the acceptable range.

*2 : This size changes depending on the drilling size.

*3 : Work area at the time of RKAKX installation

*4 : When installing the RK40 racks in parallel, make a space of 10mm or more for (a).
The distance between (a) and (b) varies depending on the system to be installed. Refer to Table 2.2.1.1. to Table 2.2.2.

Figure 2.2.3 Installation and Maintenance Areas of Rack Frame

Table 2.2.1 Distance between the RK40 racks (AMS2500)

Subsystem Configuration	Floor Earthquake-resistant Load Pa (kg f/m^2)	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
AMS2500 (connecting with RKAK)	4,900 (500)	(a) (*1) mm	450	380	250	130	40	10
	4,410 (450)		640	560	410	290	180	90
	3,920 (400)		880	790	620	480	360	260
	3,430 (350)		1,190	1,080	890	730	590	470
	2,940 (300)		1,610	1,480	1,260	1,070	910	760
AMS2500 (connecting with a mix of RKAK+RKAKX)	4,900 (500)	(a) (*1) mm	–	390	250	140	40	10
	4,410 (450)		–	570	420	300	190	100
	3,920 (400)		–	800	630	490	370	260
	3,430 (350)		–	1,100	900	740	600	480
	2,940 (300)		–	1,490	1,270	1,080	920	780
AMS2500 (connecting with RKAKS)	4,900 (500)	(a) (*1) mm	970	870	700	550	430	320
	4,410 (450)		1,220	1,110	920	750	610	490
	3,920 (400)		1,530	1,410	1,190	1,010	850	710
	3,430 (350)		1,940	1,800	1,550	1,340	1,150	1,000
	2,940 (300)		2,480	2,320	2,020	1,780	1,560	1,380

*1 :
- (a) is the (a) of Figure 2.2.3, and it indicates the right and left distance between the RK40 racks.
- (b) is the (b) of Figure 2.2.3, and it indicates the back and forth distance between the RK40 racks.
- Set the same distance to left and right of the RK40 racks for (a) and to back and forth of the RK40 racks for (b).
- For AMS2500(connecting with RKAK), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 794kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2500 (connecting with a mix of RKAK+RKAKX), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 1,408kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2500 (connecting with RKAKS), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 1,063kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
- We recommend you to keep the size of (b) large for the maintenance workability.

Table 2.2.1.1 Distance between the RK40 racks (AMS2300)

Subsystem Configuration	Floor Earthquake-resistant Load Pa (kg f/m^2)	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
AMS2300 (connecting with RKAK)	4,900 (500)	(a) (*1) mm	410	330	210	100	10	10
	4,410 (450)		590	510	370	250	140	50
	3,920 (400)		820	730	570	430	320	210
	3,430 (350)		1,120	1,020	830	680	540	430
	2,940 (300)		1,530	1,410	1,190	1,000	850	710
AMS2300 (connecting with a mix of RKAK+RKAKX)	4,900 (500)	(a) (*1) mm	–	330	210	100	10	10
	4,410 (450)		–	510	370	250	140	50
	3,920 (400)		–	730	570	430	320	210
	3,430 (350)		–	1,020	830	680	540	430
	2,940 (300)		–	1,410	1,190	1,000	850	710
AMS2300 (connecting with RKAKS)	4,900 (500)	(a) (*1) mm	10	10	10	10	10	10
	4,410 (450)		100	40	10	10	10	10
	3,920 (400)		270	210	90	10	10	10
	3,430 (350)		490	410	280	170	70	10
	2,940 (300)		790	700	540	400	290	190

*1 :
- (a) is the (a) of Figure 2.2.3, and it indicates the right and left distance between the RK40 racks.
- (b) is the (b) of Figure 2.2.3, and it indicates the back and forth distance between the RK40 racks.
- Set the same distance to left and right of the RK40 racks for (a) and to back and forth of the RK40 racks for (b).
- For AMS2300(connecting with RKAK), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 770kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2300 (connecting with a mix of RKAK+RKAKX), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 704kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2300 (connecting with RKAKS), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 542kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
- We recommend you to keep the size of (b) large for the maintenance workability.

Table 2.2.1.2 Distance between the RK40 racks (AMS2100)

Subsystem Configuration	Floor Earthquake-resistant Load Pa (kg f/m^2)	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
AMS2100 (connecting with RKAK)	4,900 (500)	(a) (*1) mm	40	10	10	10	10	10
	4,410 (450)		180	120	10	10	10	10
	3,920 (400)		360	290	170	60	10	10
	3,430 (350)		600	520	370	250	150	60
	2,940 (300)		910	810	650	500	380	280
AMS2100 (connecting with a mix of RKAK+RKAKX)	4,900 (500)	(a) (*1) mm	–	10	10	10	10	10
	4,410 (450)		–	120	10	10	10	10
	3,920 (400)		–	290	170	60	10	10
	3,430 (350)		–	520	370	250	150	60
	2,940 (300)		–	810	650	500	380	280
AMS2100 (connecting with 3 RKAKXs)	4,900 (500)	(a) (*1) mm	–	10	10	10	10	10
	4,410 (450)		–	30	10	10	10	10
	3,920 (400)		–	190	80	10	10	10
	3,430 (350)		–	400	270	150	50	10
	2,940 (300)		–	680	520	390	270	180
AMS2100 (connecting with RKAKS)	4,900 (500)	(a) (*1) mm	10	10	10	10	10	10
	4,410 (450)		10	10	10	10	10	10
	3,920 (400)		10	10	10	10	10	10
	3,430 (350)		190	120	10	10	10	10
	2,940 (300)		430	360	220	110	20	10

*1 :
- (a) is the (a) of Figure 2.2.3, and it indicates the right and left distance between the RK40 racks.
- (b) is the (b) of Figure 2.2.3, and it indicates the back and forth distance between the RK40 racks.
- Set the same distance to left and right of the RK40 racks for (a) and to back and forth of the RK40 racks for (b).
- For AMS2100(connecting with RKAK), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 580kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2100 (connecting with a mix of RKAK+RKAKX), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 490kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2100 (connecting with 3 RKAKXs), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 565kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
  For AMS2100 (connecting with RKAKS), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 432kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
- We recommend you to keep the size of (b) large for the maintenance workability.

Table 2.2.2 Distance between the RK40 racks (AMS2010)

Subsystem Configuration	Floor Earthquake-resistant Load Pa (kg f/m^2)	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
AMS2010 (connecting with RKAK)	4,900 (500)	(a) (*1) mm	10	10	10	10	10	10
	4,410 (450)		10	10	10	10	10	10
	3,920 (400)		10	10	10	10	10	10
	3,430 (350)		100	40	10	10	10	10
	2,940 (300)		330	260	130	30	10	10
AMS2010 (connecting with RKAKS)	4,900 (500)	(a) (*1) mm	10	10	10	10	10	10
	4,410 (450)		10	10	10	10	10	10
	3,920 (400)		10	10	10	10	10	10
	3,430 (350)		10	10	10	10	10	10
	2,940 (300)		140	80	10	10	10	10

*1 :
- (a) is the (a) of Figure 2.2.3, and it indicates the right and left distance between the RK40 racks.
- (b) is the (b) of Figure 2.2.3, and it indicates the back and forth distance between the RK40 racks.
- Set the same distance to left and right of the RK40 racks for (a) and to back and forth of the RK40 racks for (b).
- For AMS2010 (connecting with RKAK), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 400kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
- For AMS2010 (connecting with RKAKS), it is calculated with the condition that total amount of the RK40 rack (including the subsystem to be installed) is 343kg, the maintenance materials, etc. are 75kg, and the cables on free access are 10kg/m^2.
- We recommend you to keep the size of (b) large for the maintenance workability.

(4-2) Earthquake-resistant Plan

Figure 2.2.3.1 shows a cross-sectional diagram of the floor of the A-6516-RK40 rack frame. Refer to it for the earthquake-resistant plan.

NOTE : Since a fixed-type caster is adopted on the front side of the subsystem, earthquake-resistant construction by earthquake-resistant legs cannot be applied.

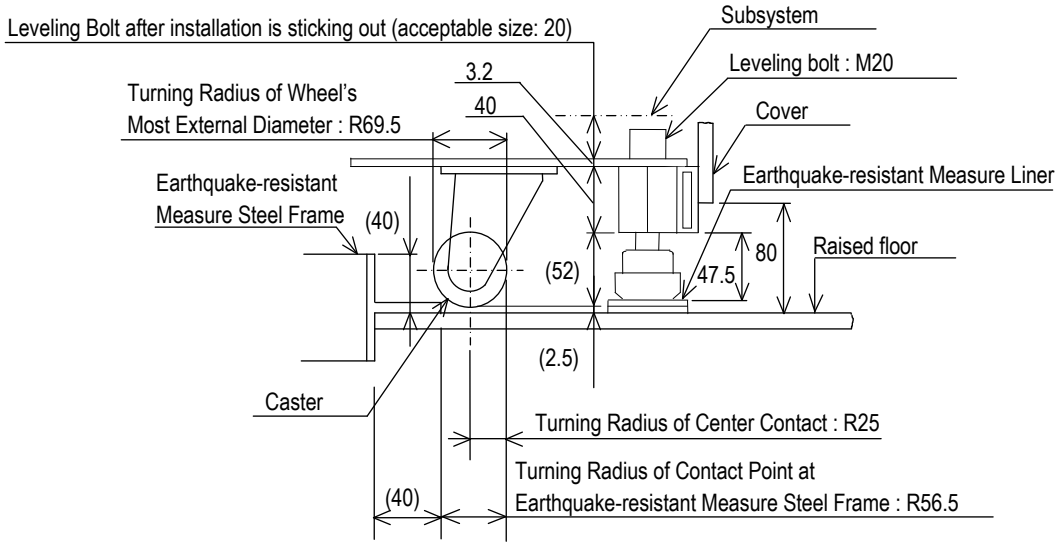


Figure 2.2.3.1 Cross-sectional View of Floor of A-6516-RK40 Rack Frame

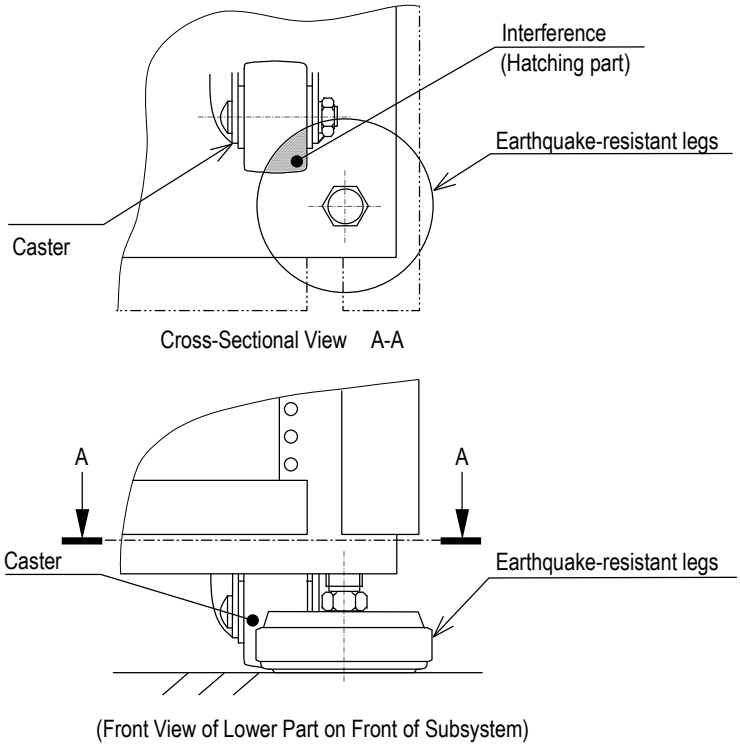


Figure 2.2.3.2 Interference of Casters and Earthquake-resistant Legs

(5) Move the unpacked subsystem to the site where it is to be installed.

(6) Settling the rack frame

Settle the rack frame in the installation site by adjusting the leveling bolts.

(a) Turn the 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.

(b) Adjust the leveling volts so that the tilts of the subsystem to the front or rear and left or right become 0 ± 2 mm.

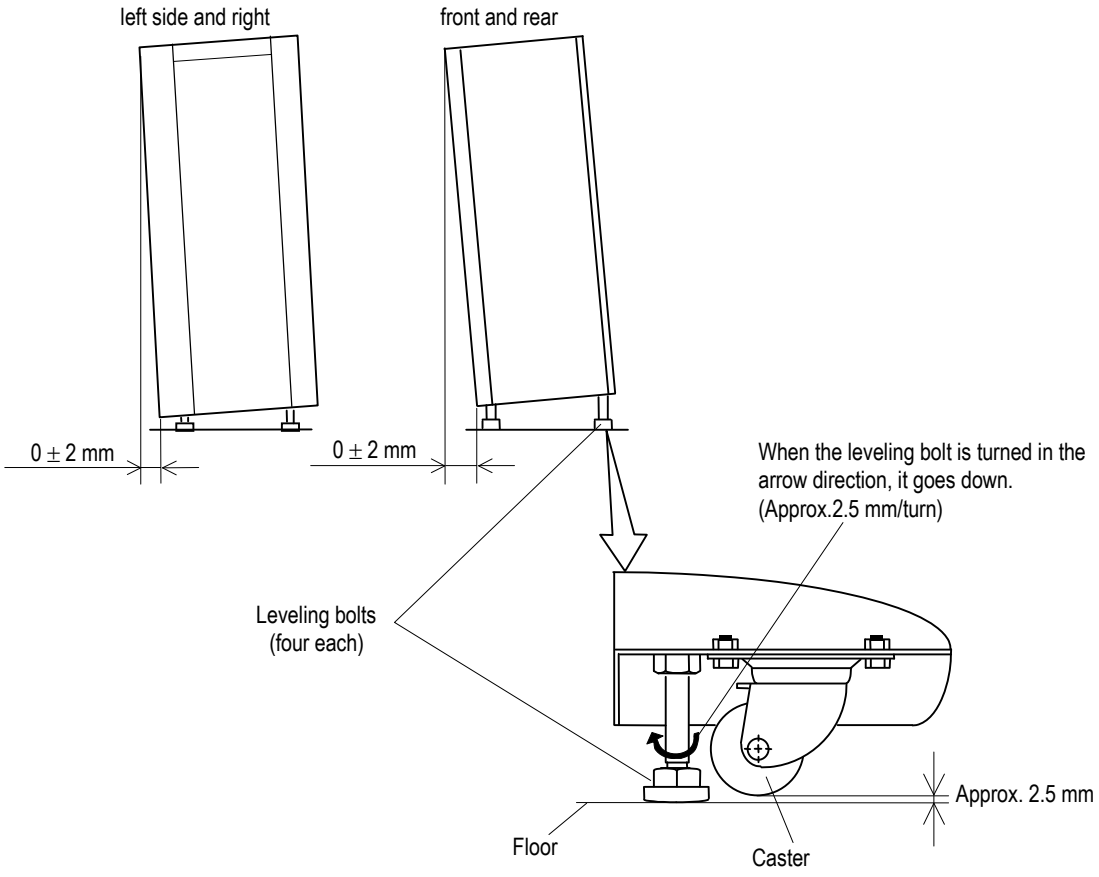


Figure 2.2.5 Adjusting Leveling Bolts

(7) Installing the stabilizer

The stabilizer (A-F6516-URST) is an optional parts.

When installing the RKAKX, attach the stabilizer to the bottom of the front side and fix it with the hexagon socket bolts (three places).

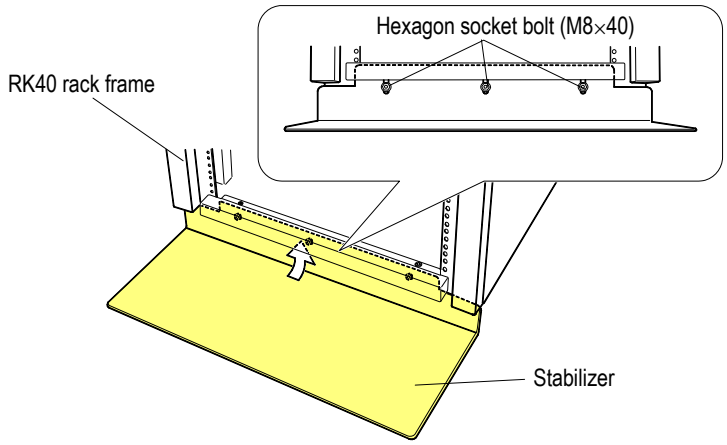


Figure 2.2.5.1 Installing the Stabilizer

(8) Removing the decoration panels (1 U)

When the decorative panels have been attached, it is necessary to remove the one(s) attached to the location(s) where the subsystem(s) is to be mounted.

(a) Pull the decorative panel toward you.

(b) The decorative panel will be come off.

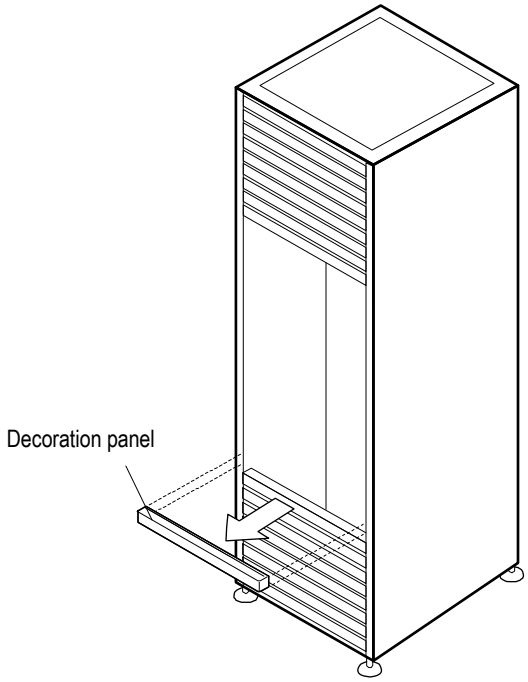


Figure 2.2.6 Removing Decoration Panel(s)

(9) Installing the rails

For the RKAKX, install the rails and mount the subsystem referring to "2.5.2 Mounting the RKAKX on Rack Frame" (INST 02-0880).

If the rails have already been installed, this installation is not required.

EIA units and intervals of mounting holes of 19-inch rack frame conforming to EIA standard

- A unit (U) space conforming to EIA standard is 19 inches wide and 44.5mm high as shown in the figure below.
- The boundary of the unit falls on the middle of the interval of 12.7mm.
- For the RK40 rack frame

  Universal intervals: Repeat of 44.45 mm (15.875 mm + 15.875 mm + 12.7 mm)

  Maximum number of mountable unit spaces: 40

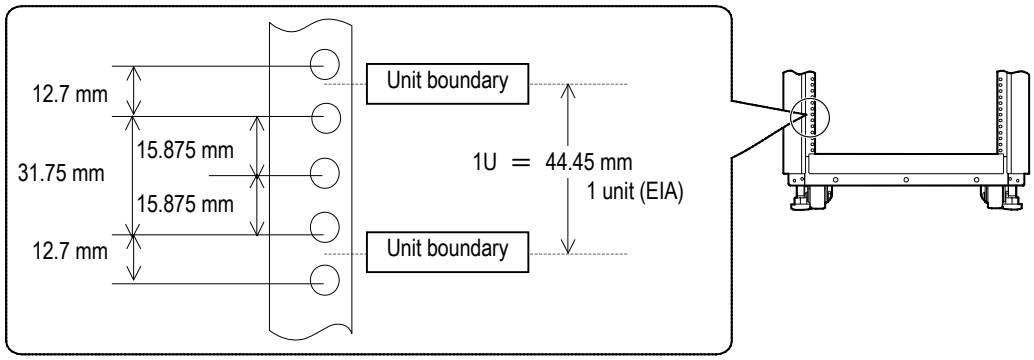
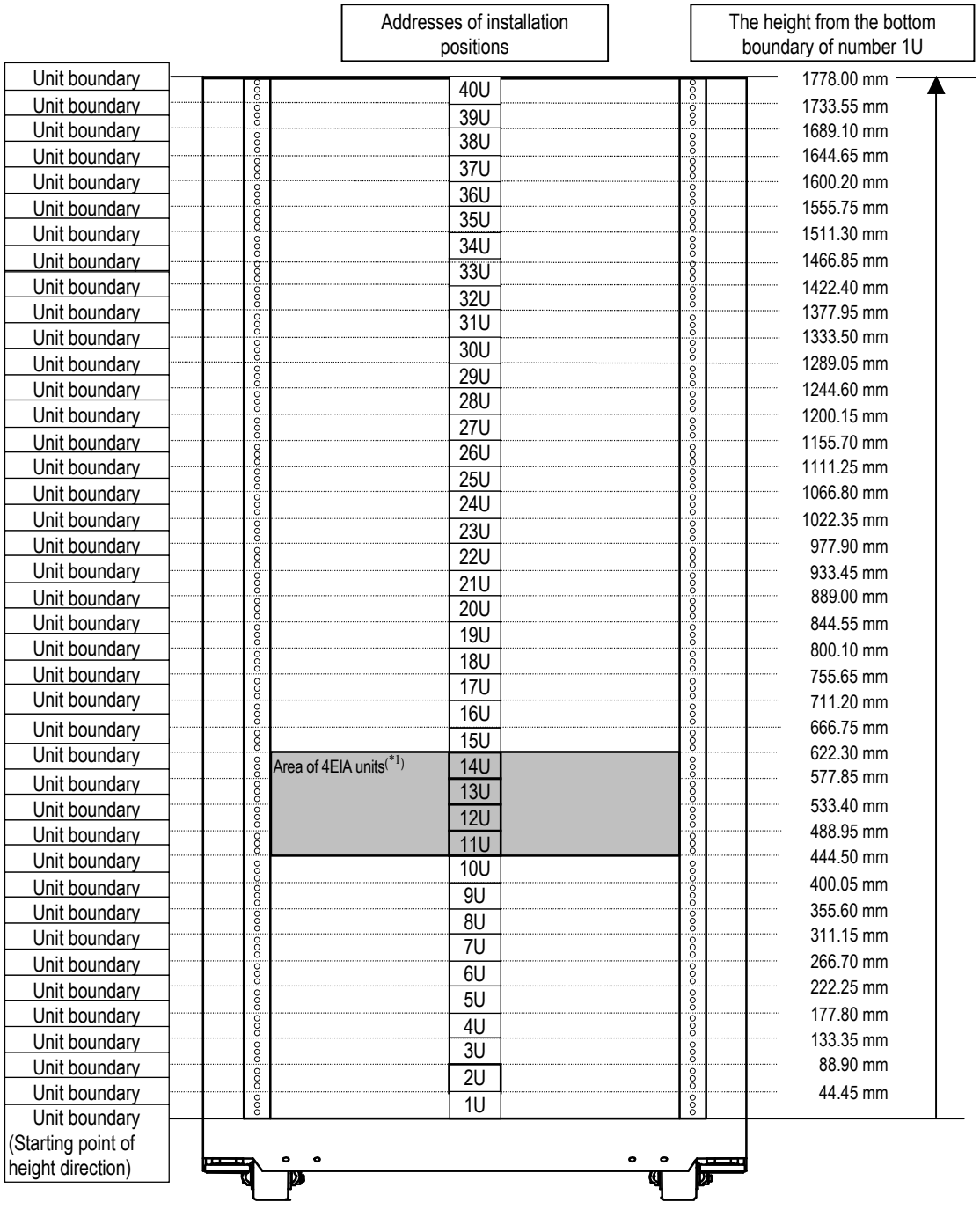


Figure 2.2.7 Attachment Hole Size of Rack

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.
The following figure illustrates the whole layout of addresses of installation positions in the RK40 rack frame.
There are 40 dresses, that is, the 1U to 40U counted in the vertical direction starting from the lower boundary of the 1U (the lowest unit).



*1 : The grayed are ▭ shows a layout of an area for installing the subsystem at the 11U

Figure 2.2.8 Whole Layout of Installation Position Addresses

(9-1) Installing the rails for the Basic Chassis and the Additional Chassis (RKAK)

Table 2.2.2.1 shows the components of the RK40 rack rails used to install the Basic Chassis and the Additional Chassis (RKAK).

Table 2.2.2.1 Components of Rack-rail (DF-F800-URHT7) (Per One Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Rail	3272150-1	1	For right hand side	—
2	Rail	3272150-1	1	For left hand side	—
3	Stopper	5528571-1	2	For fixing the subsystems	—
4	Fastener (M5)	5528564-1	12(*1)	For fixing the rail, subsystems	Not used
5	Fastener (M6)	5528564-3	3(*2)	For fixing the subsystems	Not used
6	Fastener	5510146-1	14(*1)	For fixing the rail, subsystems	—
7	Bind screw (M4×8)	SB408N	8(*1)	For fixing the stopper	—
8	Bind screw (M5×10)	SB510N	6(*1)	For fixing the subsystems	—
9	Hexagon socket bolt (M5×20)	3261899-520	10(*1)	For fixing the rail	—
10	Hexagon socket bolt (M6×12)	BS61N	3(*1)	For fixing the subsystems	Not used
11	LL washer (M4)	5513553-433	6(*1)	For fixing the stopper	Not used
12	LL washer (M5)	5513553-513	10(*1)	For fixing the rail	—
13	Washer	5513554-6	3(*2)	For fixing the subsystems	Not used
14	Lock Washer	5513569-6	3(*2)	For fixing the subsystems	Not used
15	Wire Rope	5490846-1	2(*2)	For dashing out prevention	Not used
16	Repeat binder (Cable)	5409042-3	3(*2)	Used to fix a slackened part of overlong cable	—
17	Cleat (Cable)	5409055-1	4(*1)	For fixing the cable	—
18	Clamp (Fibre)	5511447-1	2	For fixing the cable	—
19	Binder (Flat)	5409039-1	6	For fixing the cable	—
20	Power cable	3272181-E	2	Power cable (900mm)	—

*1 : 2 spares are included.

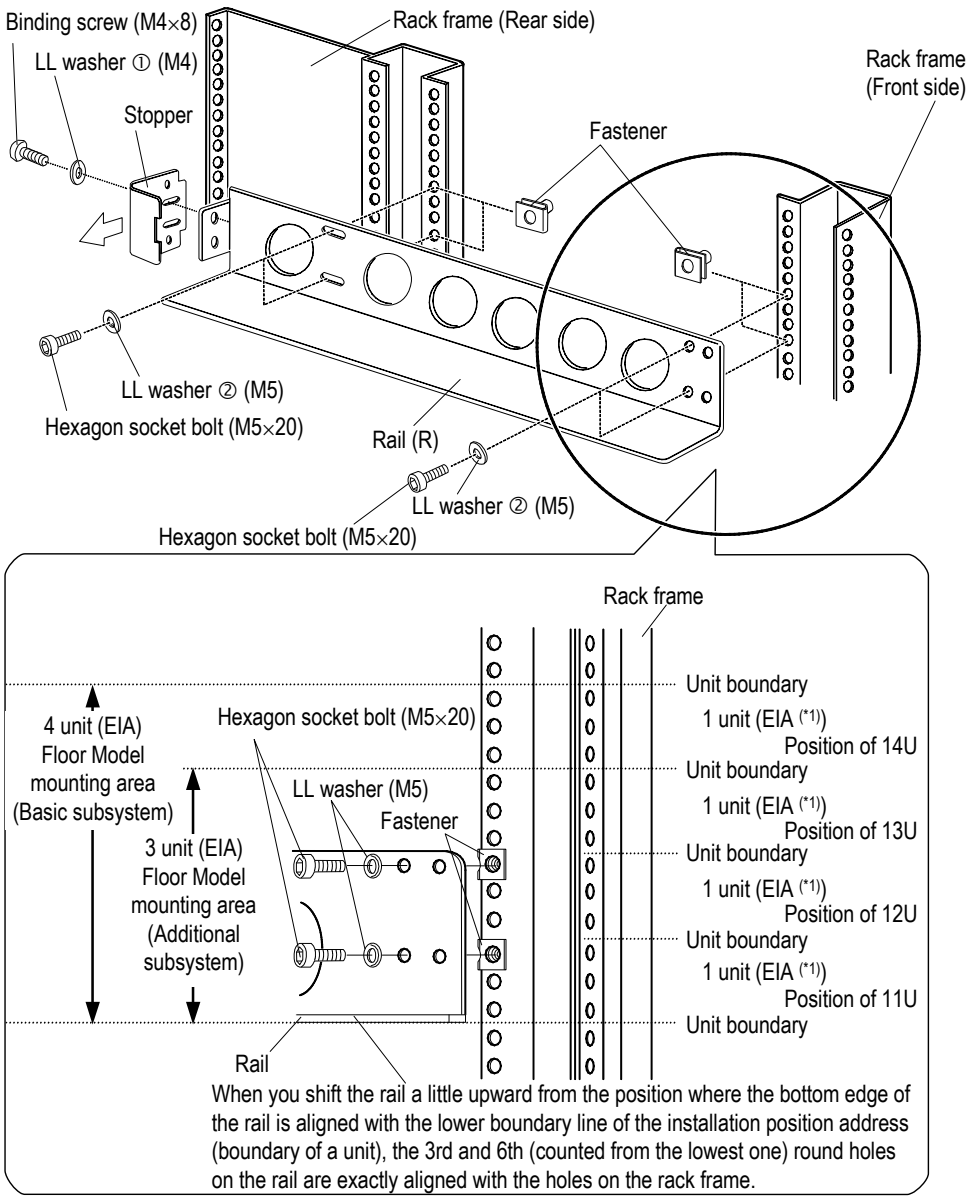
*2 : 1 spare is included.

(a) Slide the stopper in the direction shown by the arrow and temporarily fix it to the Rail (R) using the binding screws and LL washers ① (M4 (at two places.)).
For the installation position address, see Figure 2.2.7.

(b) On the right side of the installation location in the rack frame, align the round holes of the Rail (R) with those of the rack frame and insert the fasteners (at four places in total in front and rear.).

(c) Fasten the Rail (R) to the rack frame using the hexagon socket bolts and LL washers ② (M5 (at two places each on the front and rear sides.)).

(d) Install the Rail (L) to the rack frame in the same way.



*1 : One EIA unit is approximately 44. 45 mm.

Figure 2.2.9 Installation of Rails to the Rack Frame and Installation Positions

(e) Installing fasteners on the front side of the rack frame

Install the fasteners on the front side of the rack frame in order to fasten the subsystems to be mounted on the rack frame.

Fit the two fasteners to each of the right and left beams on the front side of the rack frame referring to Figures 2.2.9 and Figures 2.2.10.

Install the mounting fasteners at the 3rd and 7th (counted upward from the unit boundary on the rack frame at the same height as the bottom of the rail) round holes.

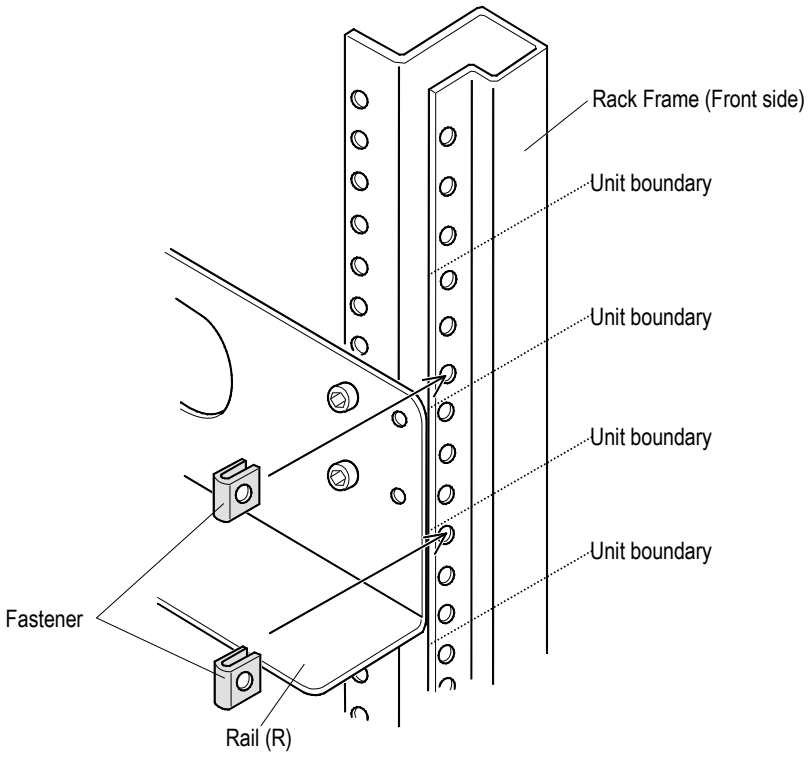


Figure 2.2.10 Installing Fasteners on the Front Side of the Rack Frame

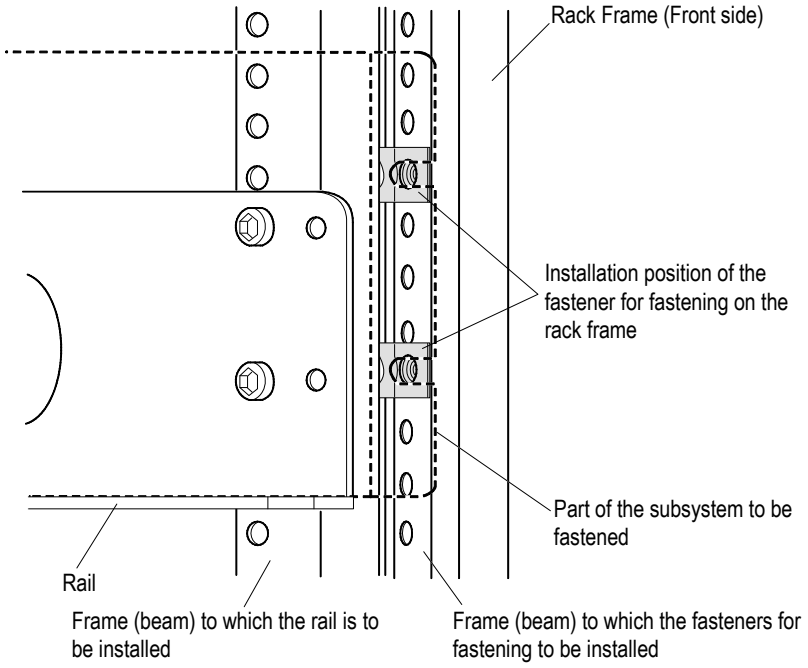


Figure 2.2.11 Installation Positions of Fasteners and Relation with Rails

(9-2) Installing the rails (less than Rev.C) for the Additional Chassis (RKAKS)

Table 2.2.2.2 shows the components of the RK40 rack rails (less than Rev.C) used to install the Additional Chassis (RKAKS).

Table 2.2.2.2 Components of Rack-rail (DF-F800-URHT8AS (less than Rev.C)) (Per One Unit)

No.	Product name	Parts No.	Quantity	Intended use	Remarks
1	Rail	—	2	For right and left hand side	—
2	Spring	R0397-E0264-01	2	For expanding and contracting a rail	—
3	Stopper	R0397-E0262-01	2	For fixing the subsystems	Fixed to the rail
4	Stopper screw	R0397-E0263-01	2	For fixing the stopper	Fixed to the rail
5	Cross recessed and hexagon socket head screw M5	—	8(*1)	For fixing the rail	—
6	Positioning pin	—	8	For the rack with round holes (Diameter : medium)	Fixed to the rail
7	Positioning pin	—	8	For the rack with square holes (Diameter : large)	Not used
8	Positioning pin	—	8	— (Diameter : small)	Not used
9	Repeat binder (Cable)	5409042-3	4(*2)	For fixing the cable	—
10	Power cable	3272181-E	2	Power cable (900 mm) (for RK40 rack)	—

*1 : 4 spares are included.

*2 : 2 spare is included.

(a) Attach the springs to the Rail (R) and the Rail (L) (Refer to Figure 2.2.11.1.)

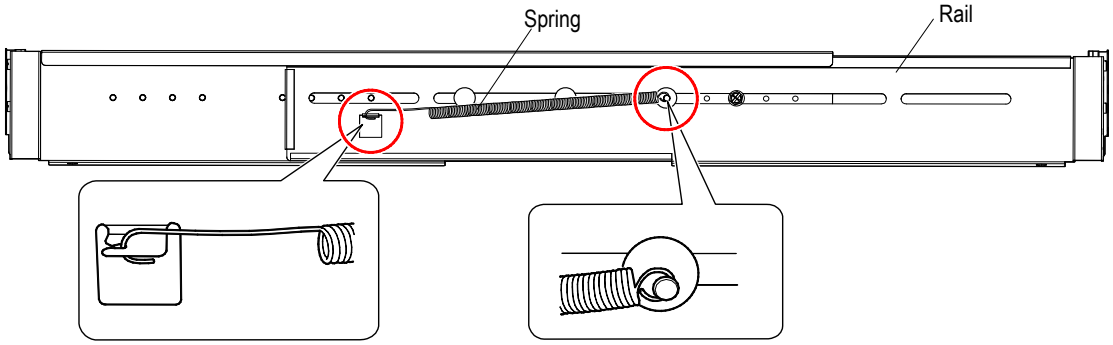


Figure 2.2.11.1 Spring Installing Position

(b) Attach the stoppers to the Rail (R) and the Rail (L) (Refer to Figure 2.2.11.2.)

(i) Check that the stopper is attached to the hole with the marking “R” on the rail (R). When the stopper is attached to the hole other than the hole with the marking “R” on the rail (R), remove the stopper and stopper screw and attach them to the hole with the marking (R).

(ii) Remove the stopper and stopper screw attached to the rail (L), and then attach the stopper to the first hole to the left of the hole with the marking “L”.

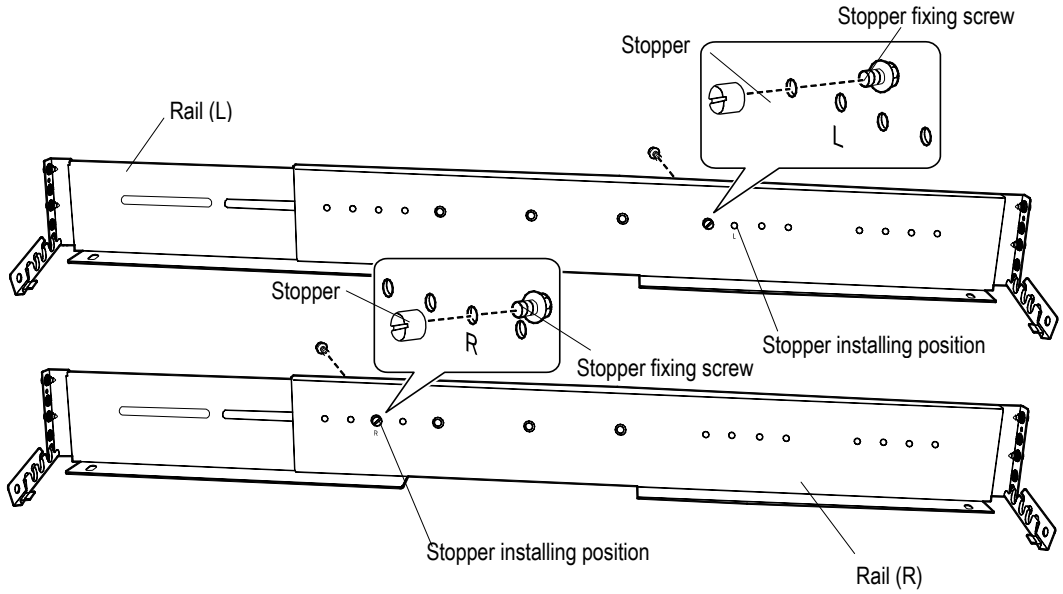


Figure 2.2.11.2 Stopper Installing Position

(c) Fit the positioning pins for the Rail (R) in the holes (at 4 places on the front and the back), located in the position where you want to install the rail, in the right side of the rack frame (Refer to Figure 2.2.11.3.)
Rail can be extend and contract in the front-back direction.
For the subsystem installation position address, refer to Figure 2.2.8.

(d) Raise the front and rear covers with fasteners of the rail (R) toward the rail to fix the Rail (R).

(e) Fix the back end of the Rail (R) with the rail fixing screws (M5 (at two places)).

(f) Fix the Rail (L) to the rack frame in the procedure of (c) to (e) in the same way.

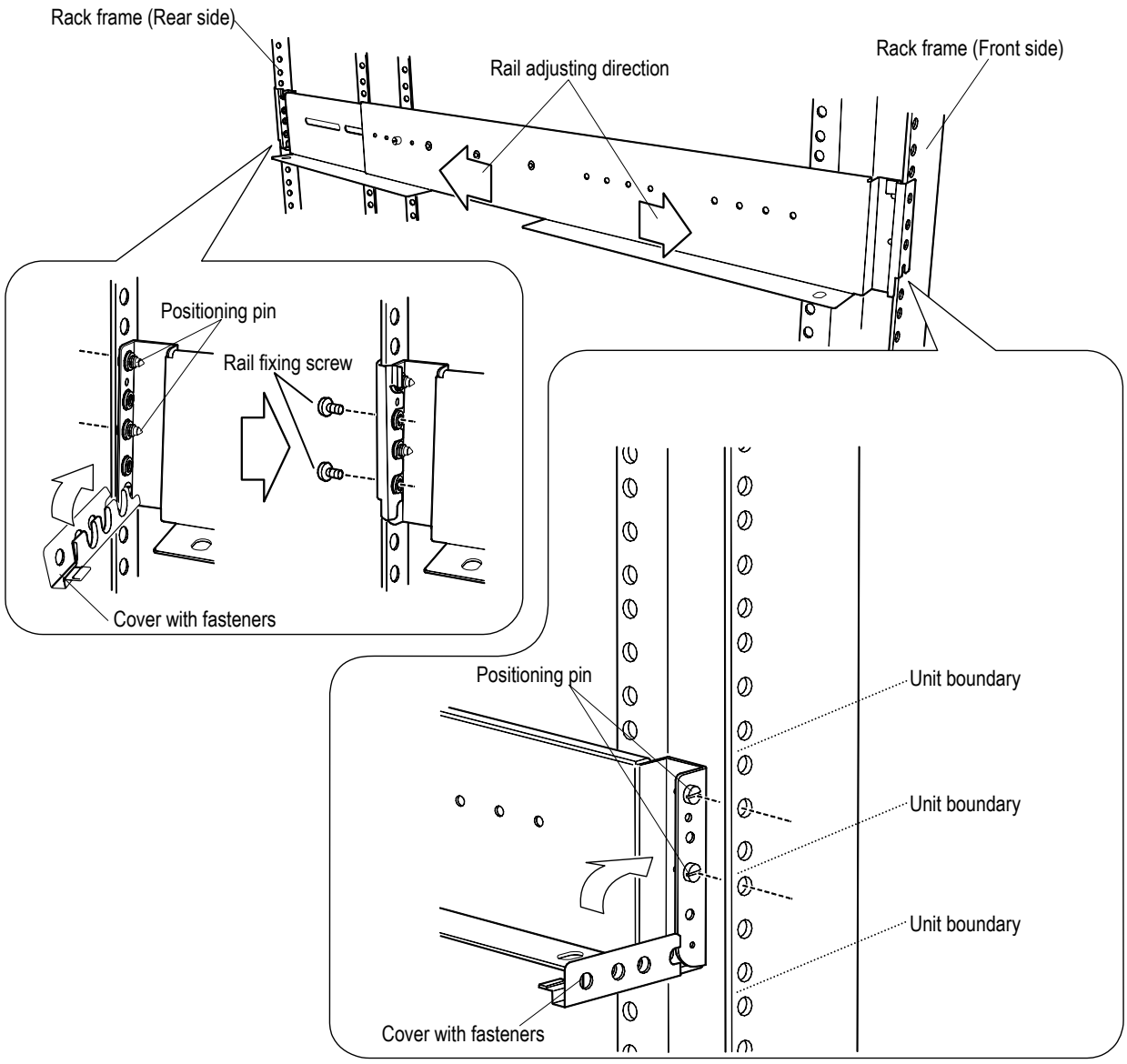


Figure 2.2.11.3 Fixing the Rail to the Rack Frame

(9-3) Installing rack rails (Rev.C or later) for Additional Chassis (RKAKS)

Table 2.2.2.3 shows the components for the rack rails (Rev.C or later) for Additional Chassis (RKAKS).

Table 2.2.2.3 Components for Rack-rail (DF-F800-URHT8AS (Rev.C or later)) (Per Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Fixed side rail	—	1	Fixed side rail for right hand side	—
2	Fixed side rail	—	1	Fixed side rail for left hand side	—
3	Moving side rail	—	2	Moving side rail for right and left hand sides	—
4	Extension plate	—	2	For Basic Chassis	Not used
5	Bracket for fixing the chassis back side	—	2	Chassis back side stopper	—
6	Screw (M4×6)	—	16(*1)	For fixing the fixing and moving rails and the bracket for fixing the chassis back side.	—
7	Bind screw (M5×10)	—	10(*1)	For fixing the rail and chassis	—
8	Philips-head screw (M3x6)	—	10(*1)	For fixing the extension plate	Not used
9	Screw fixing plate	—	2	For square hole	Not used
10	Block	—	10(*1)	For square hole	Not used
11	Repeat binder (cable)	5409042-3	4(*2)	For fixing the cable	—
12	Power cable	3272181-E	2	Power cable (900mm) (for RK40 rack)	—

*1 : 2 spares are included.
The spares are provided with the rail when the rail revision is Rev.D or later.
*2 : 2 spares are included.

(a) Fix the fixed side rail (R) and moving side rail (R) temporarily with six screws (M4×6). (See Figure 2.2.11.4.)

NOTE : Fasten the screws temporarily not to locate the 6 screws in one slit but to distribute them into multiple slits.

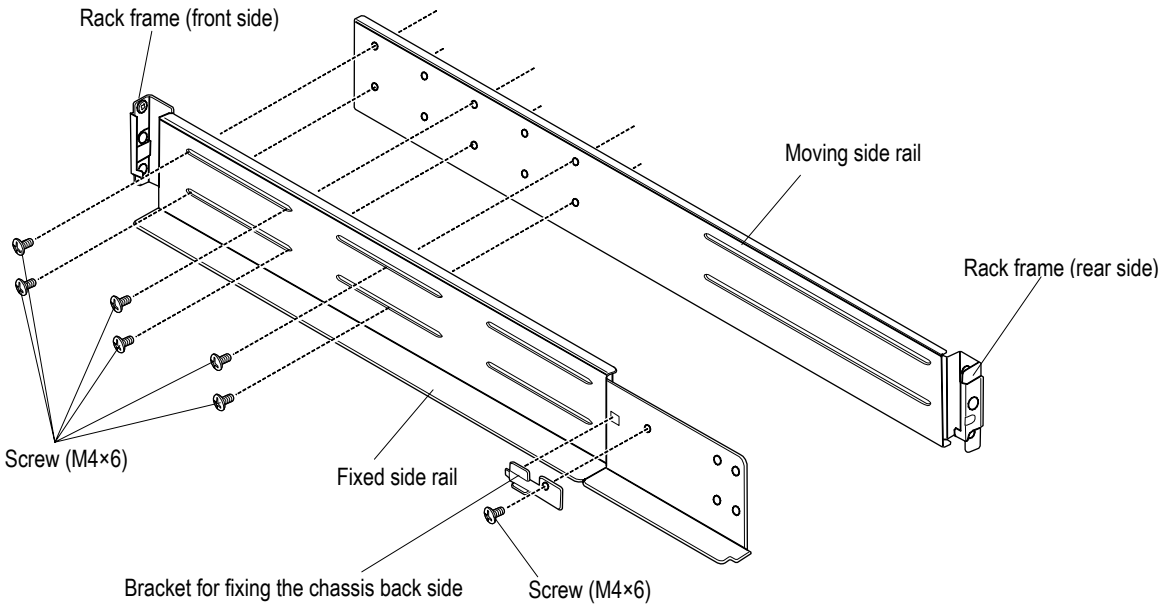


Figure 2.2.11.4 Installing rack rails for Additional Chassis (RKAKS)-1

(b) Fit the positioning pins for the fixed side rail (R) and moving side rail (R) in the holes in the position to be installed on the right side of rack frame (at 4 places in front and rear). (See Figure 2.2.11.5.)

(c) Close the clips for the fixed side rail (R) and moving side rail (R), and then install them in the rack.

NOTE : If the fixed side rail (R) and moving side rail (R) cannot be fixed, return to the step (a) and change the temporary screw fastening position by adjusting the length of the rails.

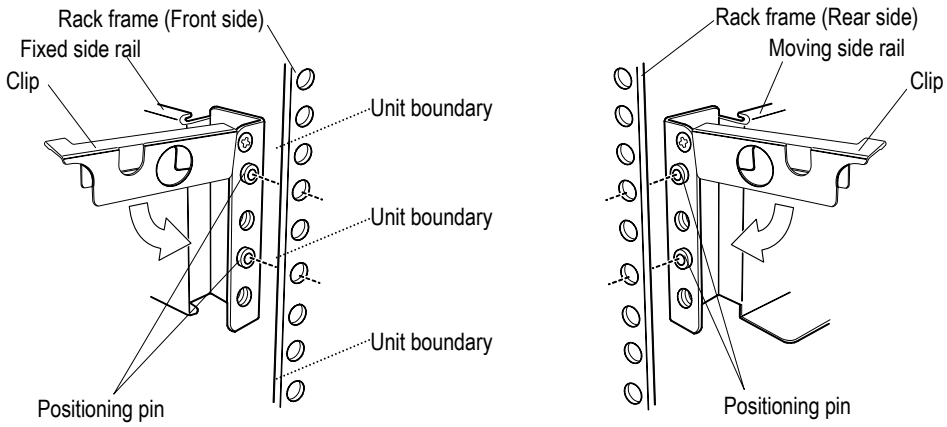


Figure 2.2.11.5 Installing rack rails for Additional Chassis (RKAKS)-2

(d) Tighten the six screws (M4×6) which were temporarily fastened in the step (a) to fix them.
(e) Fix the moving side rail (R) with two screws (M5×10). (See Figure 2.2.11.6.)
(f) Fix the fixed side rail (L) and the moving side rail (L) in the rack frame in the same way following the steps (a) to (e).

NOTE : Fixed side rail (R) and (L) are fixed with the array. (Refer to "2.4.6 (1-2) (a) Fixing the front side of the subsystem" (INST 02-0451).)

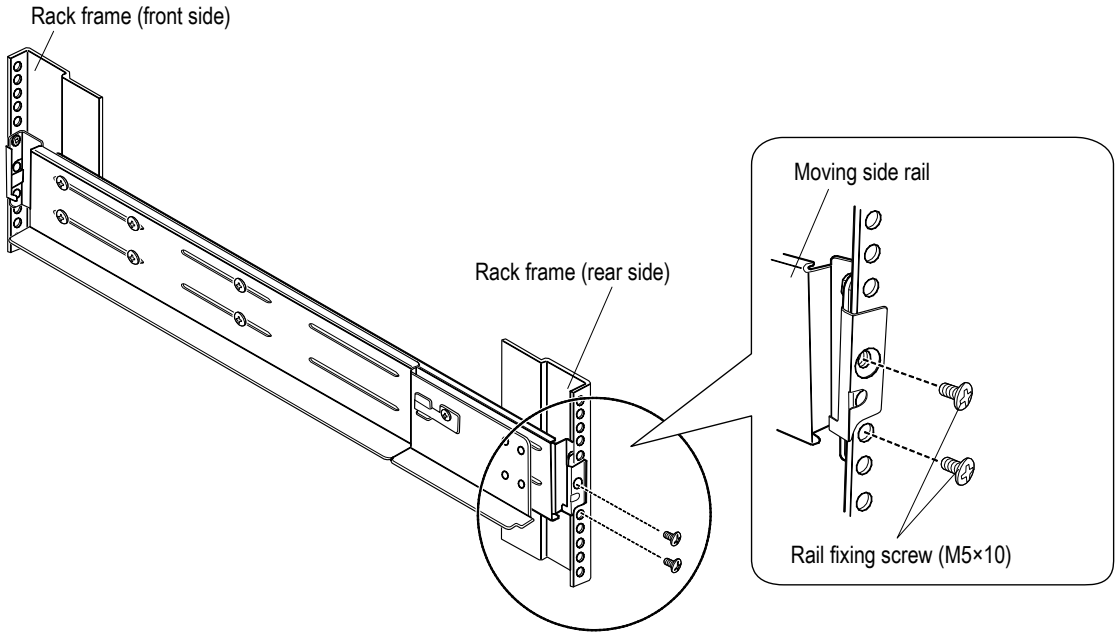


Figure 2.2.11.6 Installing rack rails for Additional Chassis (RKAKS)-3

2.2.2 HP Rack Frame

When installing the RKAKX, contact our Sales Division to confirm it.

The DF800 can be mounted on the HP rack frame by installing the rack rails for Hitachi common rack frame (DF-F800-UR7) which are accessory parts.
Installation procedure for the case where the HP rack frame with the rack rails HP rack frame (HP model name: J1501A) are used is shown below.

The exterior of the packed rack frame is shown in the Figure 2.2.12.
Table 2.2.3 show optional parts required to install one subsystem.
As many kits as the subsystems to be mounted are required.

Table 2.2.3 Parts Required for Installation of DF-F800-UR7

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Front rail	3272207-1	1	For left hand side	—
2	Front rail	3272207-2	1	For right hand side	—
3	Rear rail	3272208-1	2	For left/right commonness	—
4	Stopper	5528618-1	2	For fixing the subsystems	—
5	Spacer	5528619-1	2	For fixing the rail (For U4J)	—
6	Bind screw (M5×10)	SB510N	18	For fixing the subsystems, rail (2 spares are included.)	—
7	Bind screw (M4×6)	SB406N	14	For fixing the rail (2 spares are included.)	—
8	Bind screw (M3×6)	SB306N	6	For fixing the stopper (2 spares are included.)	—
9	19"PART (nickel plated)	5528564-1	10	For fixing the cage nut, subsystems, rail (2 spares are included.)	Not used
10	Rack nut	5510146-1	14	For fixing the subsystems, rail (6 spares are included.)	—
11	Hexagon Socket Head Bolts	5503443-1	10	For fixing the rail (2 spares are included.)	Not used
12	LL washer	5513553-513	10	For fixing the rail (2 spares are included.)	Not used
13	Repeat binder (Cable)	5409042-1	3	For fixing cables on the subsystem (1 spare is included.)	—

(1) Appearance of HP rack frame
Figure 2.2.12 shows appearance of the HP rack frame.

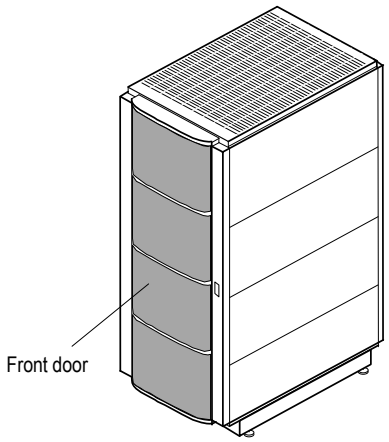


Figure 2.2.12 Appearance of Rack Frame (HP Model Name: J1501A)

(2) Installing the rails

If the rails have already been installed, this installation is not required.

For the components list, see "Table 2.2.3 Parts Required for Installation of DF-F800-UR7" (INST 02-0150).

EIA units and intervals of mounting holes of 19-inch rack frame conforming to EIA standard

- A unit (U) space conforming to EIA standard is 19 inches wide and 44.5 mm high as shown in the figure below.
- The boundary of the unit falls on the middle of the interval of 12.7 mm.
- When the unit space is shifted by 0.5 units, the unit boundary is shifted from the normal position by 22.2 mm.

For the HP rack frame

Universal intervals: Repeat of 44.45 mm (15.875 mm + 15.875 mm + 12.7 mm)

Maximum number of mountable unit spaces: 32

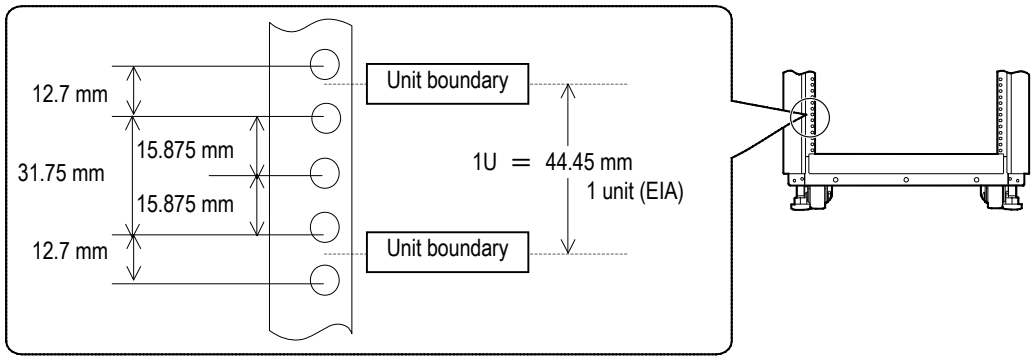
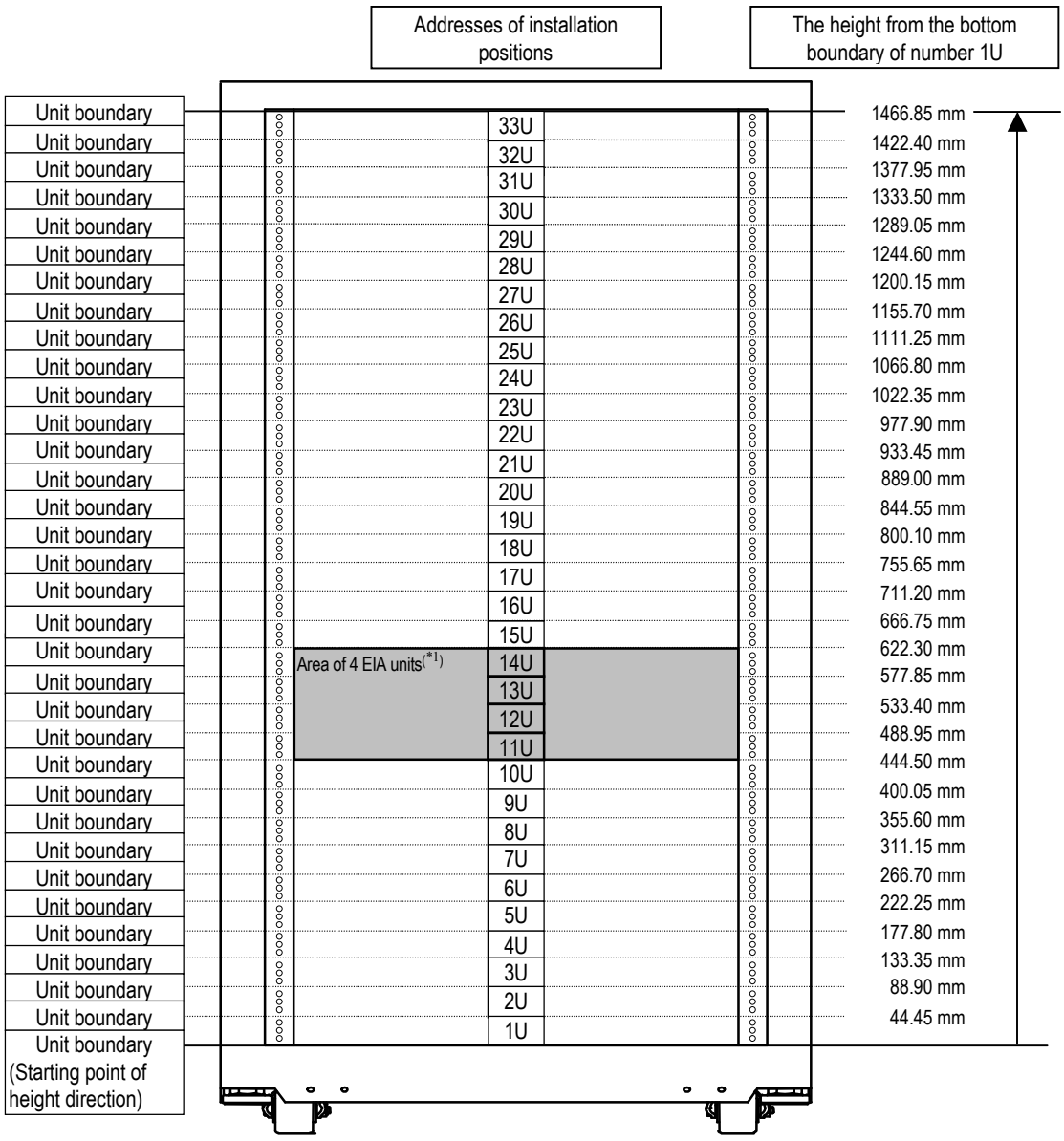


Figure 2.2.13 Attachment Hole Size of Rack

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 : When the HP rack frame has front door, mount the subsystem leaving a space with a height of 1unit (EIA) unit or more from the bottom of the rack frame.



*1 : The grayed are ▭ shows a layout of an area for installing the Basic subsystem at the 11U

Figure 2.2.14 Whole Layout of Installation Position Addresses (HP)

Install the rack rail to the rack frame referring to Figure 2.2.15 to Figure 2.2.17.

(a) Installing the spacer

Install the spacer (there is no vertical distinction) to fix the rail to the front side of the rack frame. (One right and left place for each)

Fasten the 2nd and 8th holes counted upward from the unit boundary of the subsystem installation position and the screw holes at both ends of the space with the binding screws (M5 x 10) from the rear side of the frame.

(b) Remove the rail fixing screws (M4 x 6) of the factory setting.

(c) Fix the places, where the screw holes of the front rail and those of the rear rail are matched, temporarily with the binding screws (M4 x 6 (six places)) (fix at least four places, temporarily).

(d) Install the rack nuts at the 4th and 6th positions counted from the unit boundary of the subsystem installation position of the rear side of the rack frame.

(e) Fasten the holes at two places near the center of the front side of the front rail and the screw holes of the spacer with the binding screws (M5 x 10).

(f) Fasten the rear side of the rear rail and the rack nuts of (d) with the binding screws (M5 x 10).

(g) Fasten the binding screws (M4 x 6) which were temporarily fixed in (c).

(h) Install the rack nuts in the holes at the sheet metal folding part of the front rail (two places).

(i) Perform the above-mentioned installation for the right and left of the rack frame.

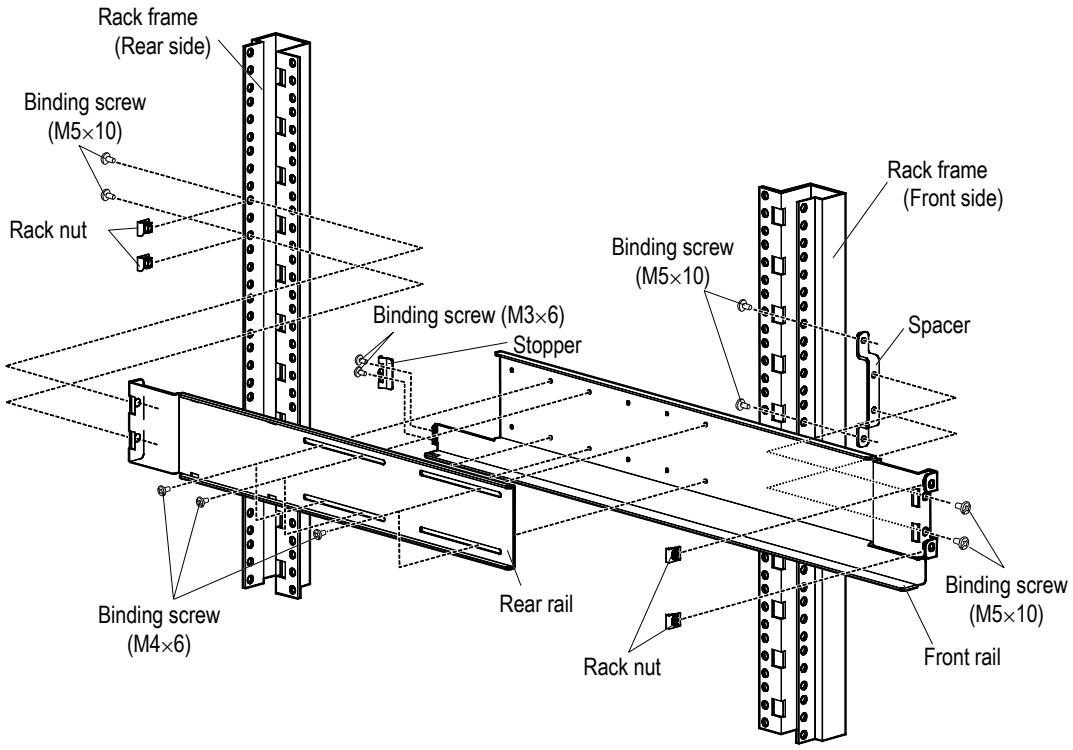
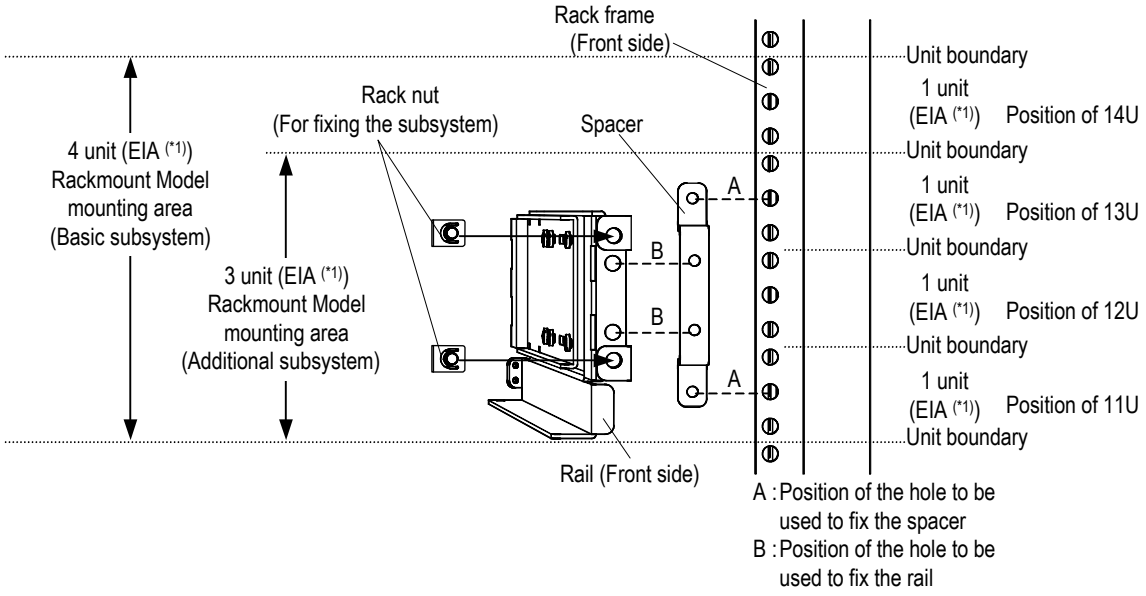


Figure 2.2.15 Installation of Rails to the Rack Frame



*1 : One EIA unit is approximately 44. 45 mm.

Figure 2.2.16 Location of Installing the Rail on the Front Side of the Rack Frame

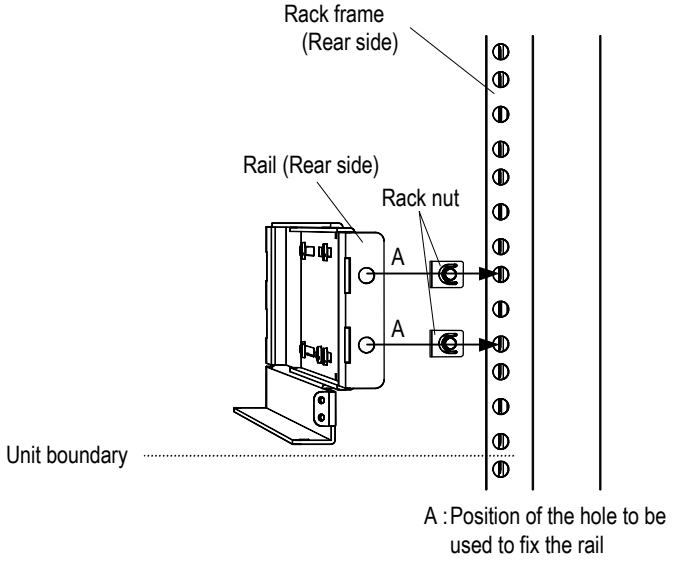


Figure 2.2.17 Location of Installing the Rail on the Rear Side of the Rack Frame

CAUTION

Press the rail against the rack frame as much as possible to secure the rail to the rack frame. If there is a gap between the rail and the rack frame, the rail may interfere with the equipment.

2.2.3 Sun StorEdge Rack Frame

When installing the RKAKX, contact our Sales Division to confirm it.

The RKM/RKAK/RKS can be mounted on the Sun 19-inch rack frame by installing the rack rails (DF-F800-UR7) which are accessory parts.
Installation procedure for the case where the Sun 19-inch rack frame with the rack rails (DF-F800-UR7) are used is shown below.

The Components-list of SUN StorEdge Rack-rail is shown in Table 2.2.4.
The packaging of the Rack-frame is shown in Figure 2.2.19.

Table 2.2.4 Components of Rack-rail (DF-F800-UR7) (Per One Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Front rail	3272207-1	1	For left hand side	—
2	Front rail	3272207-2	1	For right hand side	—
3	Rear rail	3272208-1	2	For left/right commonness	—
4	Stopper	5528618-1	2	For fixing the subsystems	—
5	Spacer	5528619-2	2	For fixing the rail (For U4J)	Not used
6	Bind screw (M5×10)	SB510N	18	For fixing the subsystems (14 spares are included.)	—
7	Bind screw (M4×6)	SB406N	14	For fixing the rail (6 spares are included.)	—
8	Bind screw (M3×6)	SB306N	6	For fixing the stopper (2 spares are included.)	—
9	19"PART (nickel plated)	5528564-1	10	For fixing the cage nut, subsystems, rail (2 spares are included.)	Not used
10	Rack nut	5510146-1	14	For fixing the subsystems (10 spares are included.)	—
11	Hexagon Socket Head Bolts	5503443-1	10	For fixing the rail (2 spares are included.)	—
12	LL washer	5513553-5113	10	For fixing the rail (2 spares are included.)	—
13	Repeat binder (Cable)	5409042-1	3	Used to fix a slackened part of overlong cable (1 spare is included.)	—

(1) Appearance of Sun 19-inch rack frame

Figure 2.2.19 shows appearance of the Sun 19-inch rack frame.

(There are two types of Sun 19-inch rack frames: Sun StorEdge and Sun Fire.)

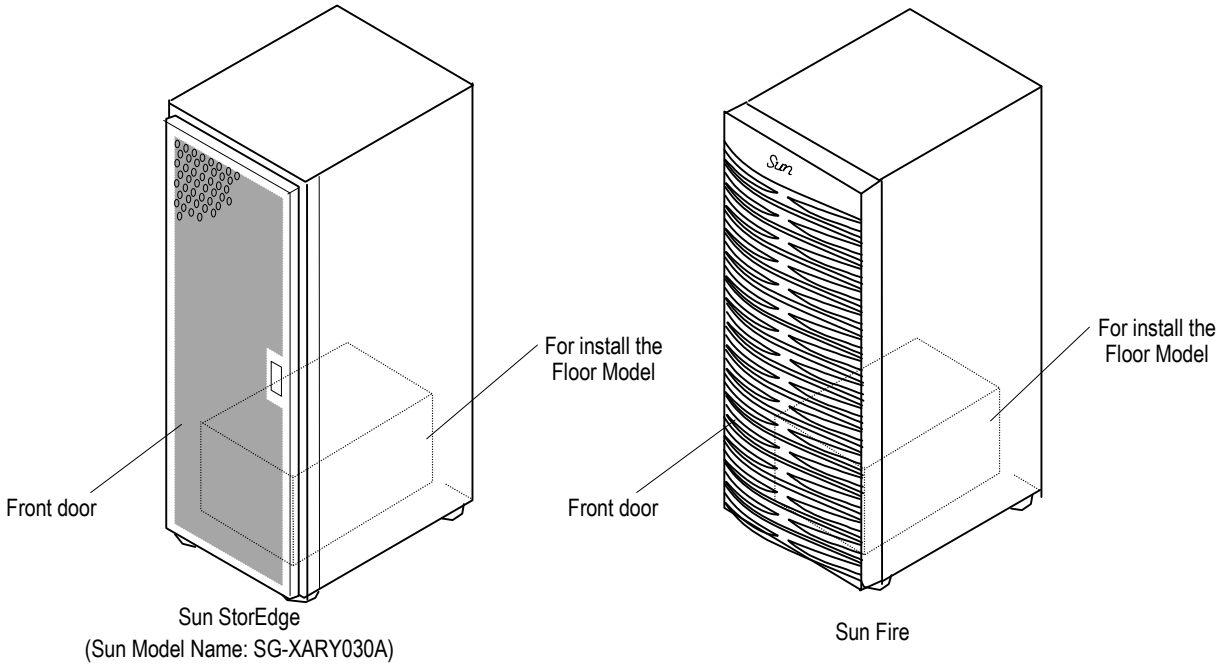


Figure 2.2.19 Appearance of Sun 19-inch Rack Frame

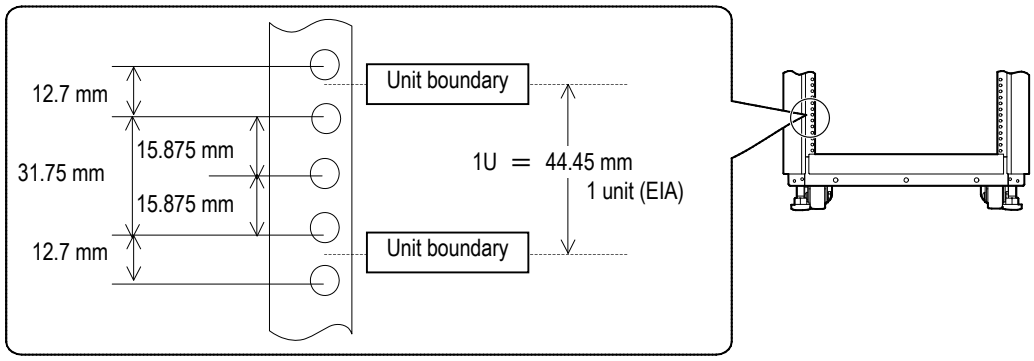


Figure 2.2.20 Attachment Hole Size of Rack

(2) Installing rails

Install the rack rail to the rack frame referring to Figure 2.2.20 to Figure 2.2.22.

(a) Remove the rail fixing screws (M4 x 6) of the factory setting.

(b) Fix the places, where the screw holes of the front rail and those of the rear rail are matched, temporarily with the binding screws (M4 x 6 (four places)).

NOTE : For SUN Fire, fix it temporarily with the binding screws (M4 x 6 (six places)) (fix at least four places, temporarily).

(c) Fasten the holes at two places near the center of the front side of the front rail and the 4th and 6th screw holes counted from the boundary of the subsystem installation position of the front side of the rack frame with the hexagonal socket head bolts and the LL washers M5.

(d) Fasten the holes at two places of the rear side of the rear rail and the 4th and 6th screw holes counted from the boundary unit of the subsystem installation position with the hexagonal socket head bolts and the LL washers M5.

(e) Fasten the binding screws (M4 x 6) which were temporarily fixed in (b).

(f) Install the rack nuts in the holes at the sheet metal folding part of the front rail (two places).

(g) Perform the above-mentioned installation for the right and left of the rack frame.

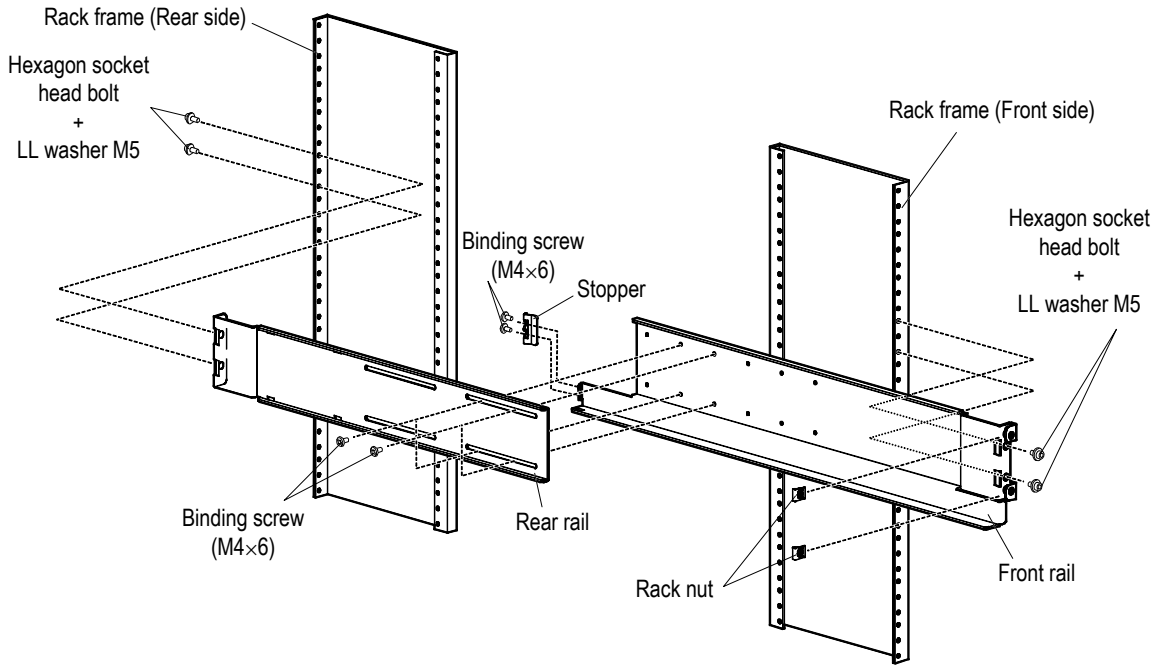
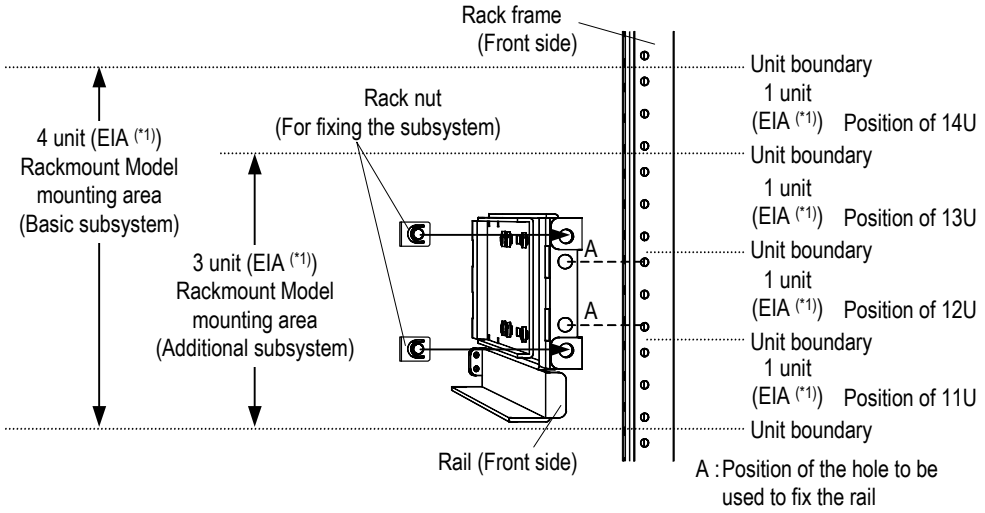


Figure 2.2.20 Installation of Rails to the Rack Frame



*1 : One EIA unit is approximately 44. 45 mm.

Figure 2.2.21 Location of Installing the Rail on the Front Side of the Rack Frame

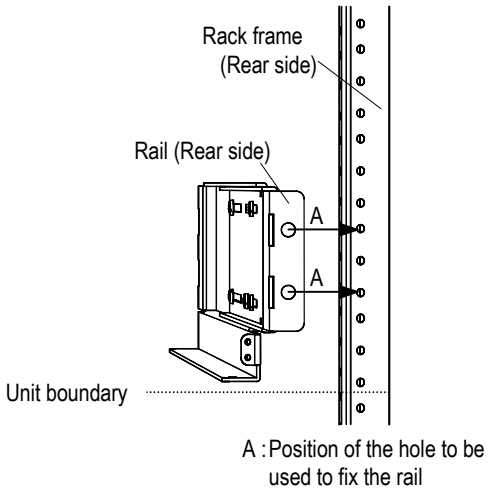


Figure 2.2.22 Location of Installing the Rail on the Rear Side of the Rack Frame

CAUTION

Press the rail against the rack frame as much as possible to secure the rail to the rack frame. If there is a gap between the rail and the rack frame, the rail may interfere with the equipment.

2.2.4 RS6000 Rack Frame

When installing the RKAKX, contact our Sales Division to confirm it.

The subsystems can be mounted on the IBM RS6000 rack frame by installing the rack rails (DF-F800-UR7), which are accessory parts.

(1) When installing DF-F800-UR7

The Components-list of RS6000 Rack-rail is shown in Table 2.2.5.

Table 2.2.5 Components of Rack-rail (DF-F800-UR7) (Per One Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Front rail	3272207-1	1	For left hand side	—
2	Front rail	3272207-2	1	For right hand side	—
3	Rear rail	3272208-1	2	For left/right commonness	—
4	Stopper	5528618-1	2	For fixing the subsystems	—
5	Spacer	5528619-1	2	For fixing the rail (For U4J)	Not used
6	Binding screw (M5×10)	SB510N	18	For fixing the subsystems, rail (6 spares are included.)	—
7	Binding screw (M4×6)	SB406N	14	For fixing the rail (2 spares are included.)	—
8	Binding screw (M3×6)	SB306N	6	For fixing the stopper (2 spares are included.)	—
9	19"PART (nickel plated)	5528564-1	10	For fixing the cage nut, subsystems, rail (2 spares are included.)	Not used
10	Rack nut	5510146-1	14	For fixing the subsystems, rail (2 spares are included.)	—
11	Hexagon Socket Head Bolts	5503443-1	10	For fixing the rail (2 spares are included.)	Not used
12	LL washer	5513553-513	10	For fixing the rail (2 spares are included.)	Not used
13	Repeat binder (Cable)	5409042-1	3	For fixing cable routing (1 spare is included.)	—

(a) Installing the rails and rack nut

Install the rails and rack nut in order to mount the subsystem(s) on the rack frame.

EIA units and intervals of mounting holes of 19-inch rack frame conforming to EIA standard

- A unit (U) space conforming to EIA standard is 19 inches wide and 44.5 mm high as shown in the figure below.
- The boundary of the unit falls on the middle of the interval of 12.7 mm.
- When the unit space is shifted by 0.5 units, the unit boundary is shifted from the normal position by 22.2 mm.

For the IBM RS6000 rack frame

Universal intervals: Repeat of 44.45 mm (15.875 mm + 15.875 mm + 12.7 mm)

Maximum number of mountable unit spaces: 32

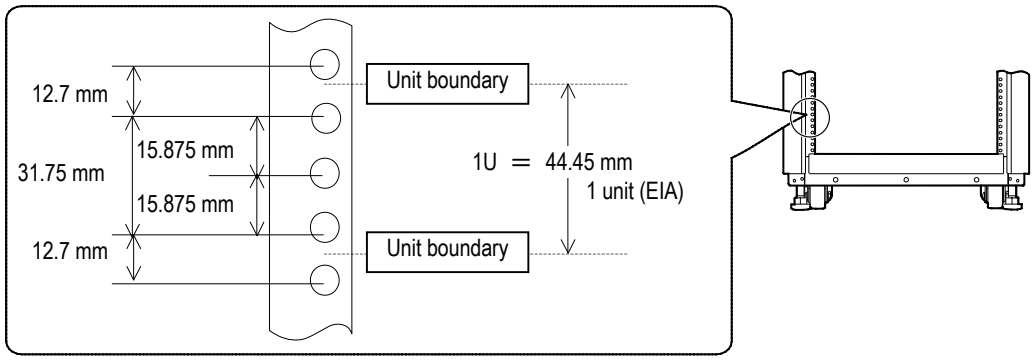


Figure 2.2.23 Attachment Hole Size of Rack

Install the rack rail to the rack frame referring to Figure 2.2.24 to Figure 2.2.26.

(i) Remove the rail fixing screws (M4 x 6) of the factory setting.

(ii) Fix the places, where the screw holes of the front rail and those of the rear rail are matched, temporarily with the binding screws (M4 x 6 (six places)) (fix at least four places, temporarily).

(iii) Install the rack nuts at the 4th and 6th positions counted from the boundary unit of the subsystem installation position for both front and rear sides of the rack frame.

(iv) Fasten the holes at two places near the center of the front side of the front rail and the rack nut installation parts of the front side of the rack frame with the binding screws (M5 x 10) (two places).

(v) Fasten the holes of the rear side of the rear rail and the rack nut installation parts of the rear side of the rack frame with the binding screws (M5 x 10) (two places).

(vi) Fasten the binding screws (M4 x 6) which were temporarily fixed in (ii).

(vii) Install the rack nuts in the holes at the sheet metal folding part of the front rail (two places).

(viii) Perform the above-mentioned installation for the right and left of the rack frame.

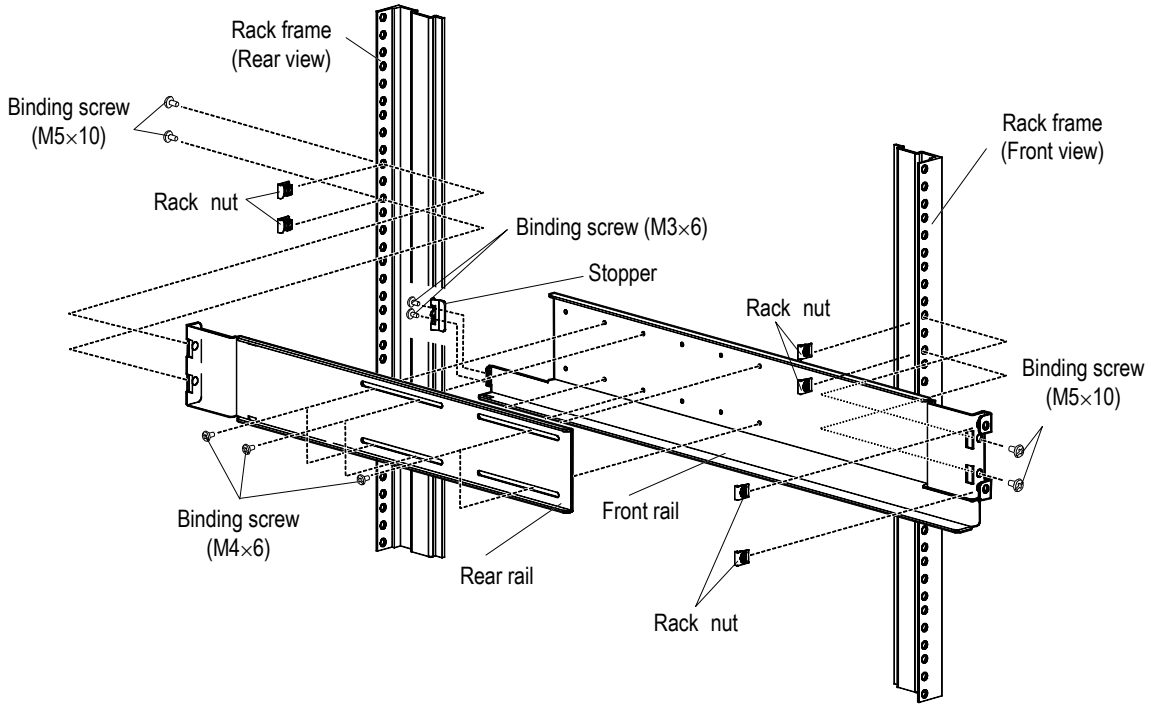
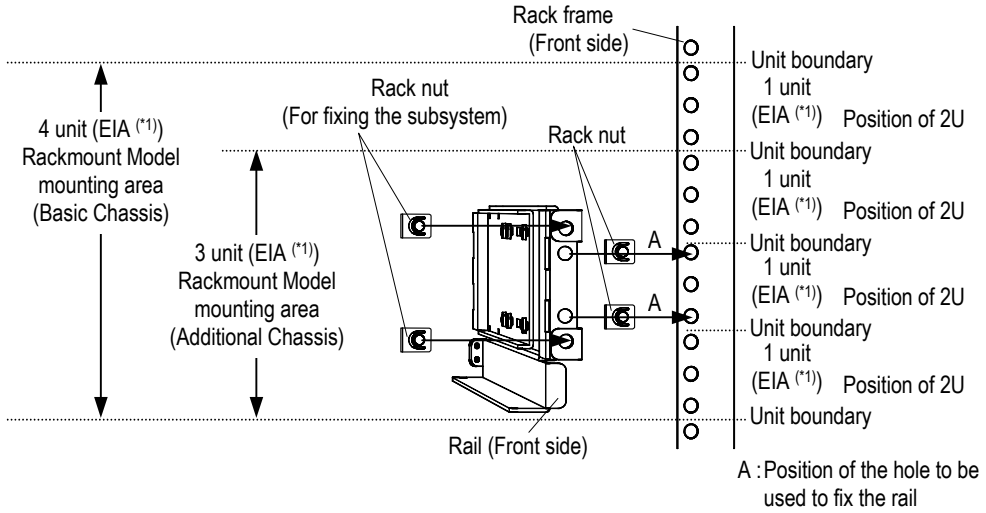


Figure 2.2.24 Installation of Rails to the Rack Frame



*1 : One EIA unit is approximately 44. 45 mm.

Figure 2.2.25 Location of Installing the Rail on the Front Side of the Rack Frame

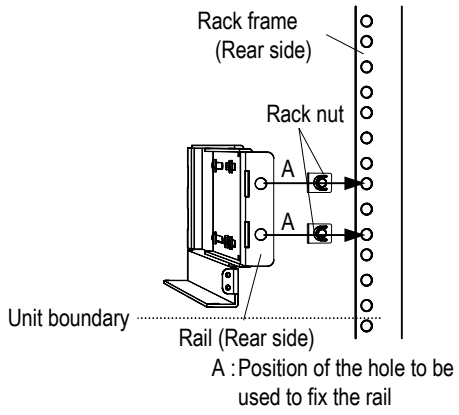


Figure 2.2.26 Location of Installing the Rail on the Rear Side of the Rack Frame

CAUTION

Press the rail against the rack frame as much as possible to secure the rail to the rack frame. If there is a gap between the rail and the rack frame, the rail may interfere with the equipment.

2.3 Unpacking the Subsystems

⚠ CAUTION

- **The unpacking should be done by two or more personnel to prevent turning over of the subsystem or being caught under the subsystem.**
- **Work carefully because the mass of the single RKM/RKS is about 51 kg, RKH is about 46 kg, RKAK is about 40 kg, and RKAKS is about 23 kg.**

(1) Unpacking

NOTE : • Unpack it indoor.
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 2.3.1 shows the subsystem within the outer package and Figures 2.3.2 show the packed subsystem without the outer package.

(a) Remove the outer package and packing materials.
(b) Take the subsystem out of the polyethylene bag.
(c) Remove tapes, etc. applied to the subsystem.
(d) Remove desiccating agent from the lower of the subsystem.
(e) Check the exterior of the subsystem visually for distortion or damage owing to the transport.

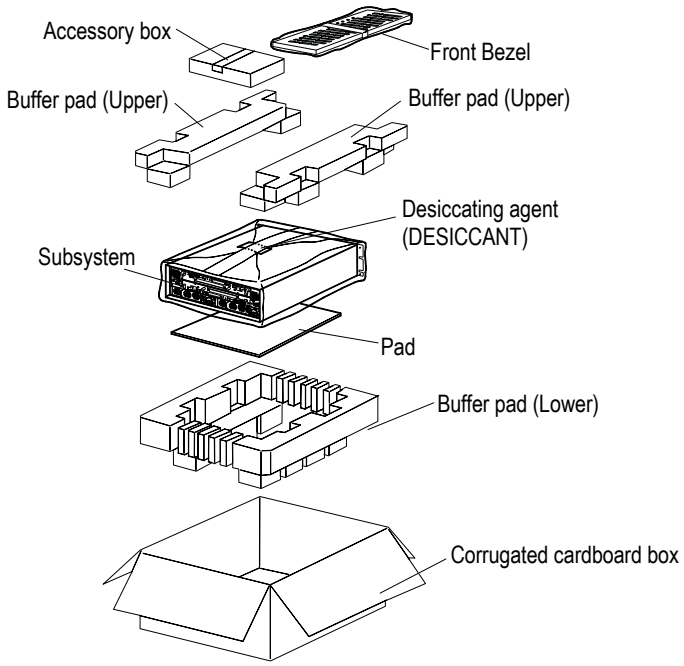


Figure 2.3.1 Packed Subsystem

(2) Checking contents of package

(a) Check if the contents of the package (their model names, product serial numbers, and quantities) agree with those in the packing list shipped with the subsystem.

(b) The key supplied with the subsystem (RKM/RKS/RKH/RKAK for Front Bezel, RKAKX for front lock) must be kept by service personnel in order to prevent users from maintaining the subsystem.

The key for Front Bezel is used to mount and dismount Front Bezel.

The key for front lock is used to lock and unlock the front of the RKAKX.

Keep the key carefully.

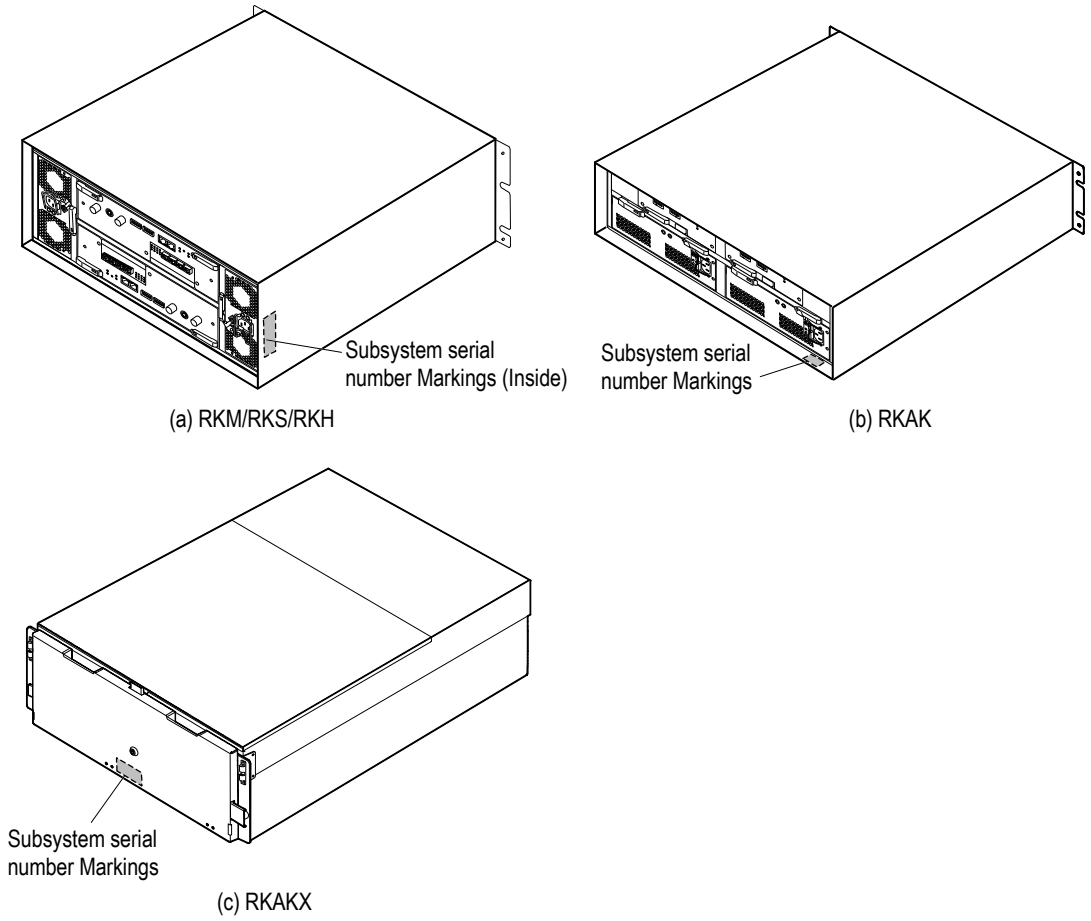


Figure 2.3.2 Locations of Subsystem Serial Number Markings

2.4 Installing the Rackmount Model

2.4.1 Work Procedure before Installing the Rack Mounting

Install it in the Rack Frame with each component mounted when installing it with 1m or less in height or lifter. (Work from "2.4.3 Mounting on Rack Frame" (INST 02-0400).)

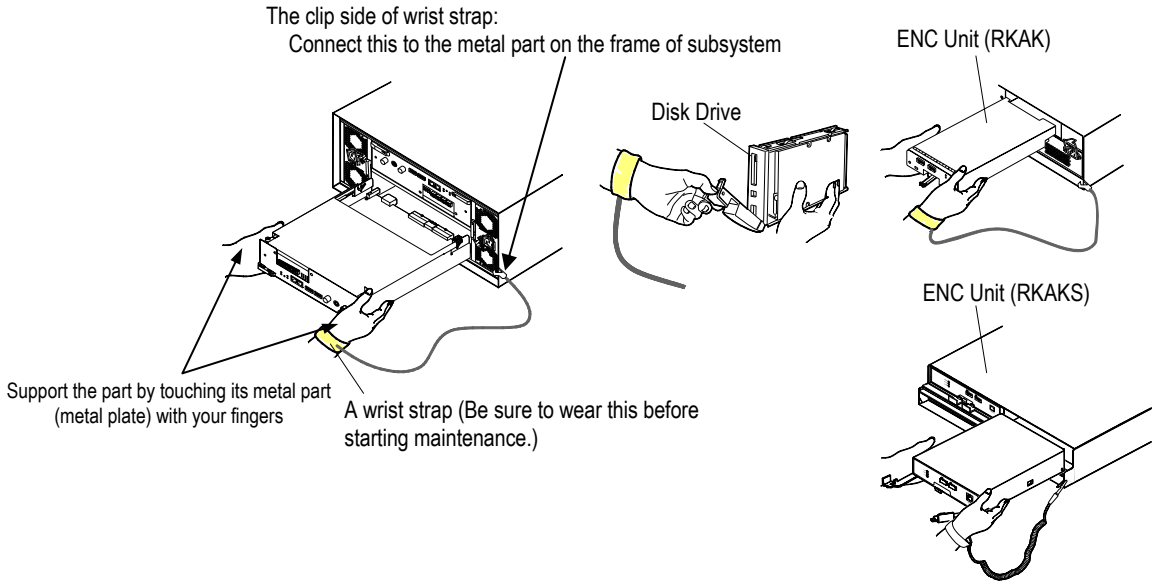
In other cases, install it in the Rack Frame after removing each component. (Work from "2.4.2 Removing Components" (INST 02-0330).)

2.4.2 Removing Components

CAUTION

- **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 chassis before starting and do not take it off until you finish.**
- **Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.**
- **When you install Disk Drive, Control Unit and ENC Unit support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.**

A failure may be caused by the electric shock since the Disk Drive, Control Unit and ENC Unit are precision instrument. Be sure to put on the wrist strap before starting work in order to protect Disk Drive, Control Unit and ENC Unit from electrostatic discharge.



(1) Removing Disk Drive

(1) Remove the Front Bezel. (Refer to "1.4 How to Open/Close Door or Attach/Remove Front Bezel/Rear Door of the Subsystem" (INST 01-0100).)

(2) Remove the Disk Drive or a dummy (Disk Drive).
Pull the stopper at the upper part of the Disk Drive handle toward you to have the lock off, tilt the handle toward you, and then remove the Disk Drive or dummy (Disk Drive) by pulling it out taking care not to apply a shock to it.

(3) Keep the Disk Drive of dummy (Disk 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 disk array unit after the unit is mounted on the rack frame.

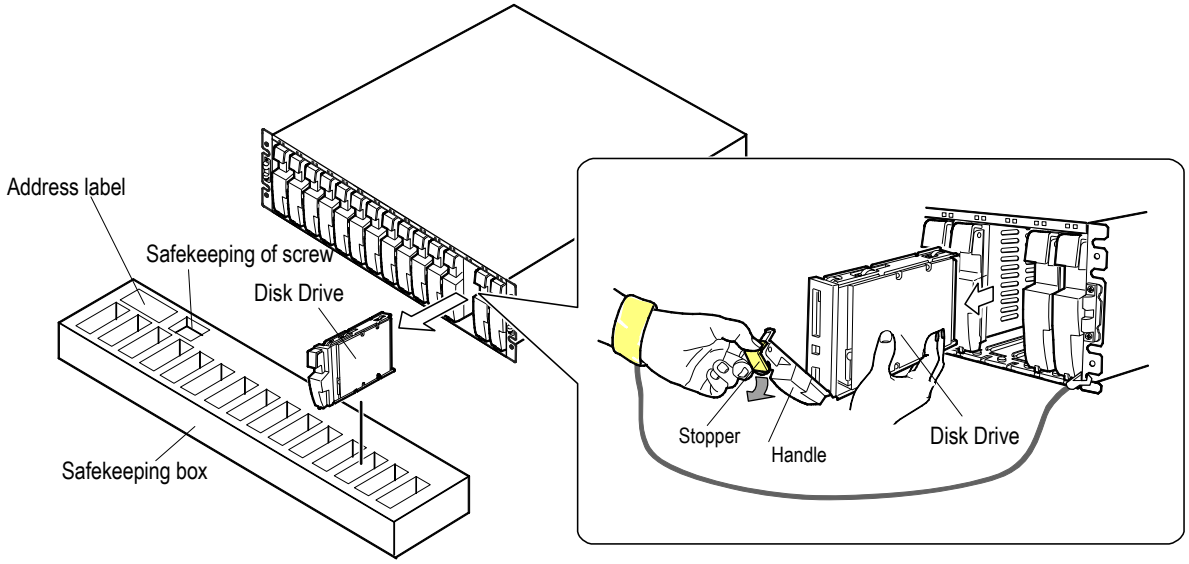


Figure 2.4.1 Removing Disk Drive (RKM/RKS/RKAK)

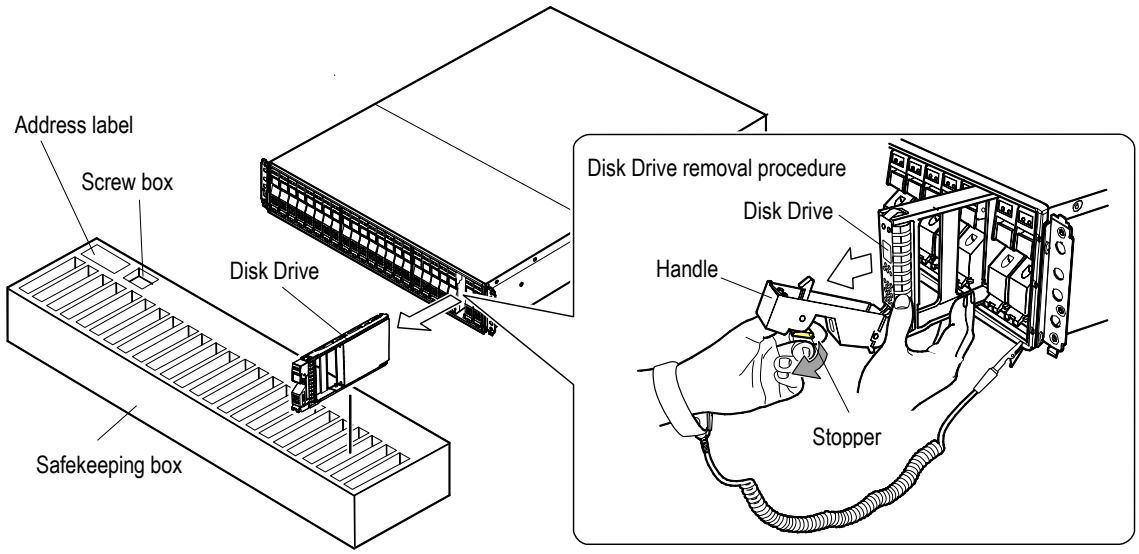


Figure 2.4.1.1 Removing Disk Drive (RKAKS)

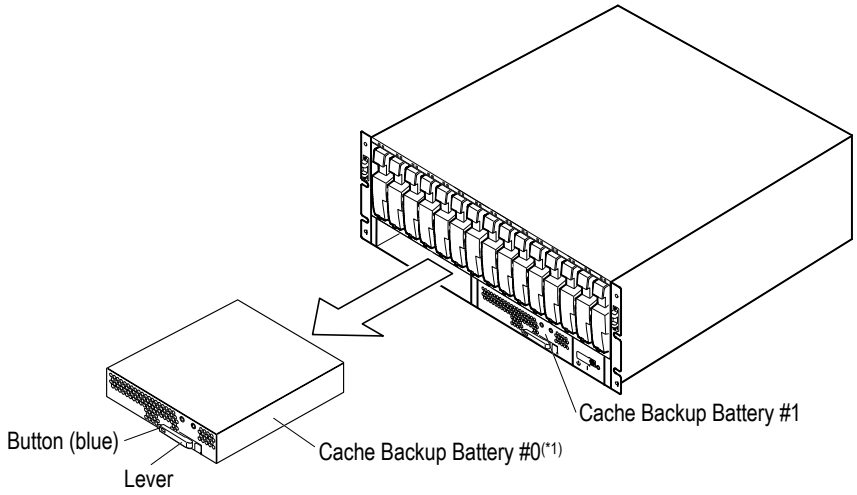
(2) Removing Cache Backup Battery

(a) Open the lever toward you while pressing the button (blue) which fixes the lever of the Cache Backup Battery.

When the lever is completely opened, the Cache Backup Battery comes out forward.

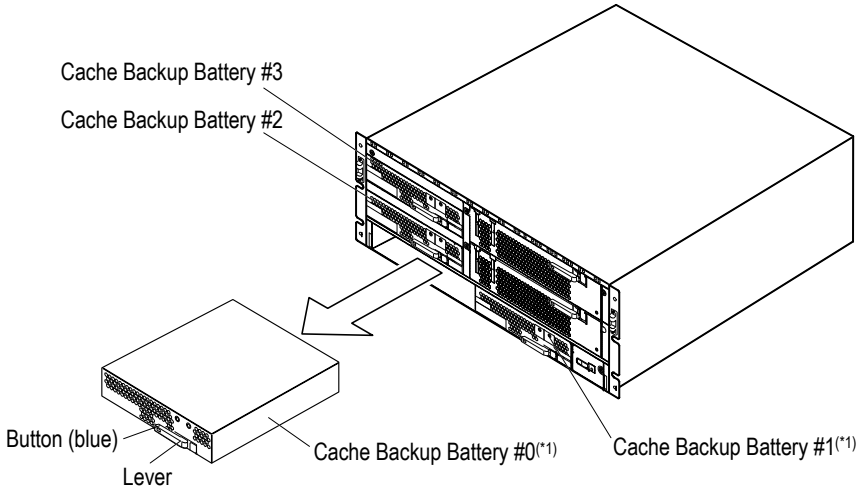
NOTE : Since the depth of a Cache Backup Battery is as short as about 200mm and it is as heavy as about 2.0kg, please pull out carefully.

(b) Remove the Cache Backup Battery while holding the body of the Cache Backup Battery with both hands.



*1 : The Cache Backup Battery of the RKM/RKS is only one in standard, and it is installed on the left side of the subsystem.
In the case of the DF800-RK2, two batteries are installed as a standard.

Figure 2.4.2 Removing Cache Backup Battery (RKM/RKS)



*1 : The Cache Backup Battery of the RKH is two in standard, and it is installed on the #0 and #1 of the subsystem.
In the case of the DF800-RKH2 and the DF800-RKHE2, four batteries are installed as a standard.

Figure 2.4.3 Removing Cache Backup Battery (RKH)

(3) Removing FAN Unit

This work is only required for the RKH.

(a) Open the lever toward you while pressing the button (blue) which fixes the lever of the FAN Unit.

When the lever is completely opened, the FAN Unit comes out forward.

(b) Remove the FAN Unit while holding the body of the FAN Unit with both hands.

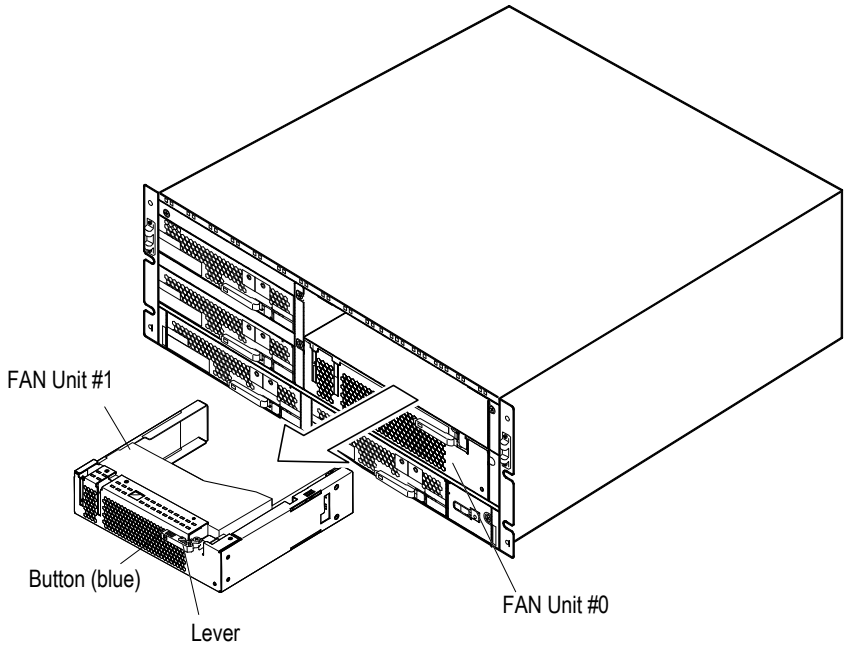


Figure 2.4.4 Removing FAN Unit

(4) Removing the Control Unit

(a) Open the levers toward you while pressing the right and left buttons (blue) which fix the levers of the Control Unit.

When the levers are completely opened, the Control Unit comes out forward.

(b) Pull the Control Unit forward and remove it.

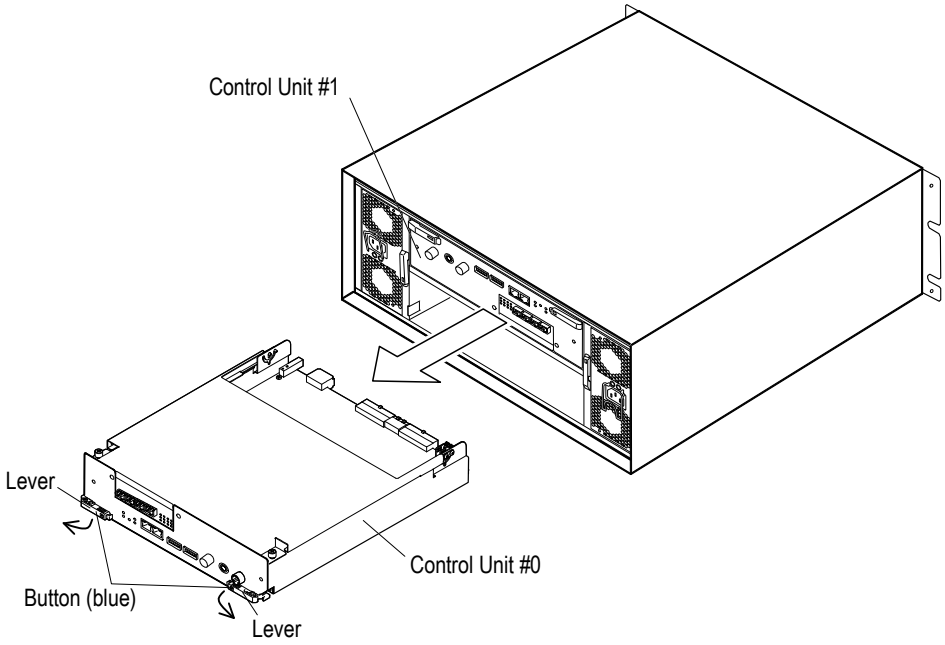


Figure 2.4.5 Removing Control Unit

(5) Removing ENC Unit

ENC Unit removing procedure for RKAK is different from that for RKAKS.

(5-1) For RKAK

(a) Pull and open the lever while pressing the button (blue) which fix the lever of the ENC Unit. When the lever is completely opened, the ENC Unit comes out forward.

(b) Pull out and remove it while holding the ENC Unit with both hands.

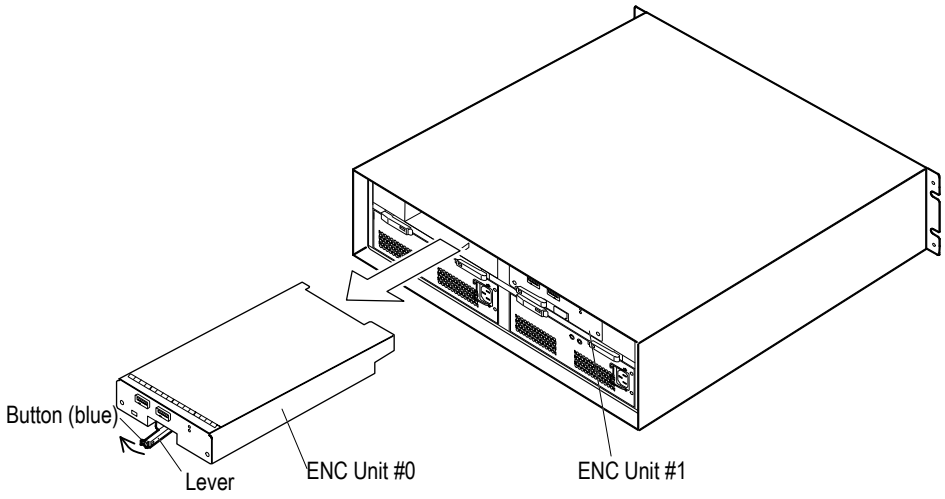


Figure 2.4.6 Removing ENC Unit (RKAK)

(5-2) For RKAKS

(a) Open the right and left levers completely which fix the ENC Unit. When the lever is completely opened, the ENC Unit comes out forward.

(b) Pull out and remove it while holding the ENC Unit with both hands.

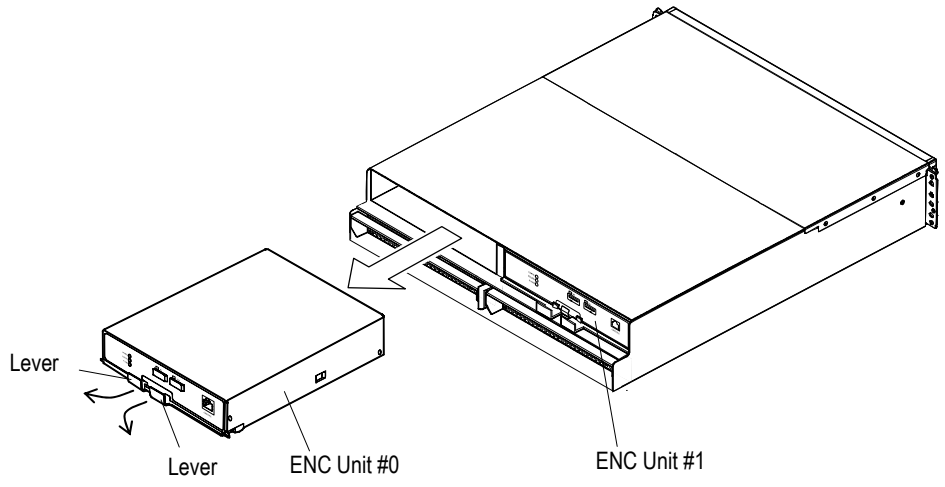


Figure 2.4.6.1 Removing ENC Unit (RKAKS)

(6) Removing Power Unit

The shape of Power Units of RKM/RKS, RKH, RKAK and RKAKS is different respectively.
The Power Unit removal procedure for RKM/RKS, RKH, and RKAK is different from that for RKAKS.

(6-1) For RKM/RKS, RKH, and RKAK

(a) Open the levers toward you while pressing the buttons (blue) which fix the levers of the Power Unit.
When the levers are completely opened, the Power Unit comes out forward.

NOTE : The levers of the Power Unit of the RKAK/RKH are at right and left.

(b) Pull out and remove it while holding the body of the Power Unit with both hands.

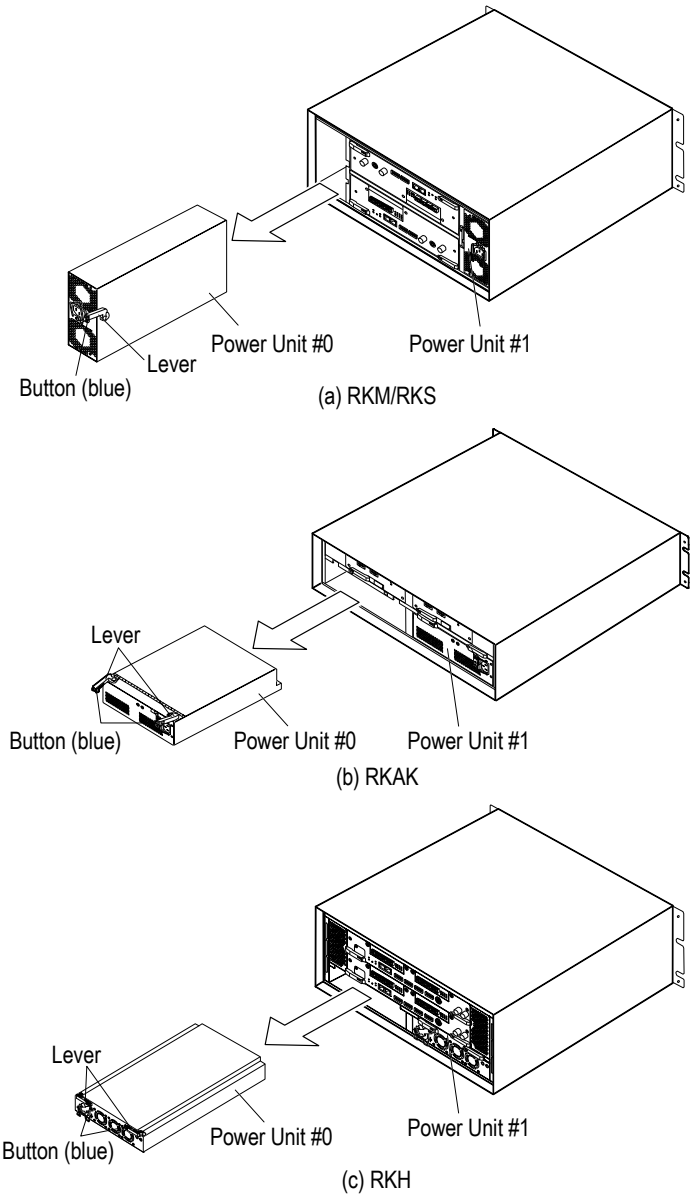


Figure 2.4.7 Removing Power Unit (RKM/RKS/RKAK/RKH)

(6-2) For RKAKS

(a) Open the lever toward you which fixes the Power Unit.
When the levers are completely opened, the Power Unit comes out forward.

(b) Pull out and remove it while holding the body of the Power Unit with both hands.

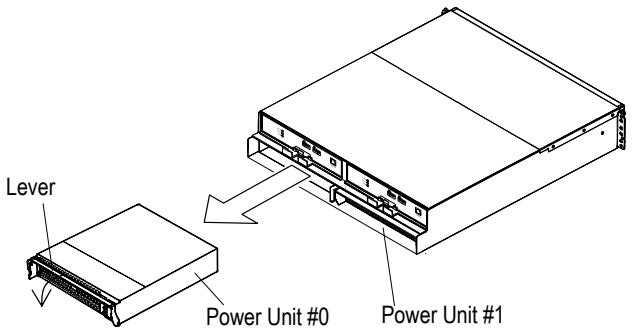


Figure 2.4.7.1 Removing Power Unit (RKAKS)

This page is for editorial purpose only.

2.4.3 Mounting on Rack Frame

(1) Sticking EMI gasket

Install it in the Rack Frame after sticking the EMI gasket on the Frame.

Stick the EMI gasket supplied with the rack rail on the top of the RKM/RKAK frame.

(a) Peel off the anti-adhesion sheet from the bottom surface of the EMI gasket.

(b) Stick the EMI gasket by aligning it with the front end of the top of the frame.

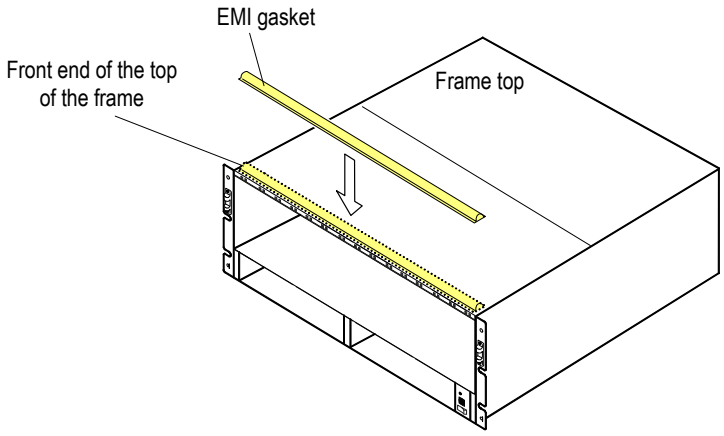


Figure 2.4.8 Position for Sticking EMI Gasket (Basic Chassis)

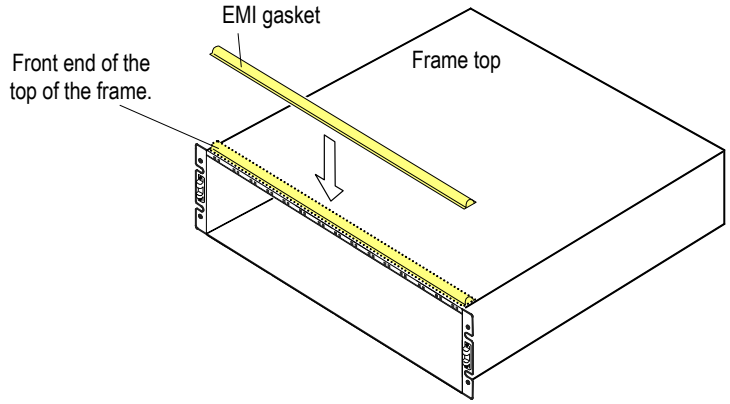


Figure 2.4.9 Position for Sticking EMI Gasket (Additional Chassis)

2.4.4 Mounting Lifter on Rack Frame

Figure 2.4.10 shows external appearance of the special lifter.

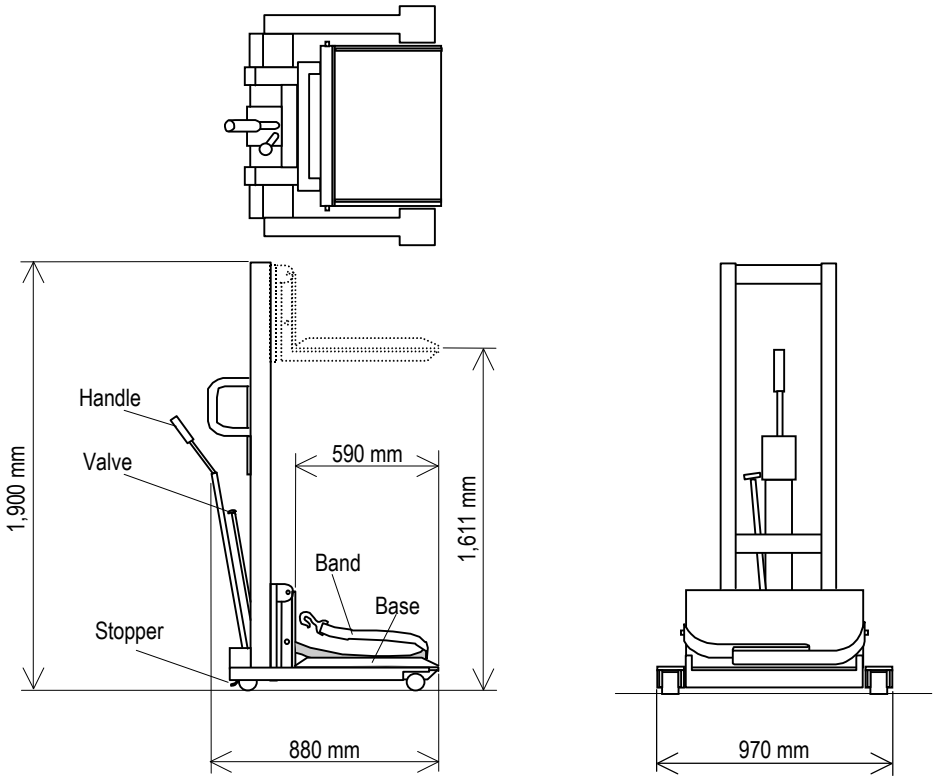


Figure 2.4.10 External Lifter

CAUTION

- **Rack mounting and lifter operation should only be conducted by a person who has been trained and qualified since the subsystem could turn over or a worker could be caught under the subsystem.**
- **Be sure to perform the operation with two or more workers.**
- **Work carefully because the mass of the single RKM/RKS is about 51 kg, RKH is about 46 kg, RKAK is about 40 kg, and RKAKS is about 23 kg.**

(1) Bring the special lifter close to the subsystem to be mounted and apply the brake to the lifter.

NOTE : When putting the subsystem on the special lifter, be sure to remove the front bezel beforehand.

(2) Put the subsystem on the special lifter.
Put the subsystem with its front bezel removed on the lifter.

(3) Secure the subsystem to the lifter with a band of the lifter.
Bind the subsystem with the band tightly by fitting the length of the belt to the subsystem.

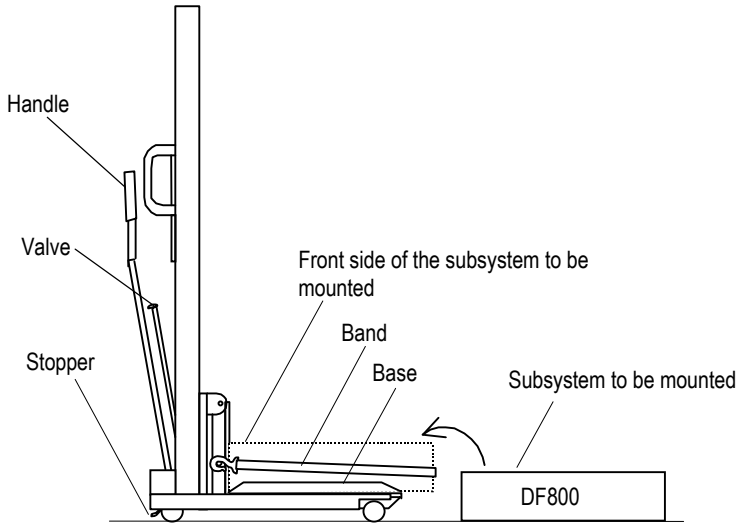


Figure 2.4.11 Setting the Subsystems on Special Lifter

2.4.5 Mounting Subsystem on Rack Frame

⚠ WARNING

If the Subsystem 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.

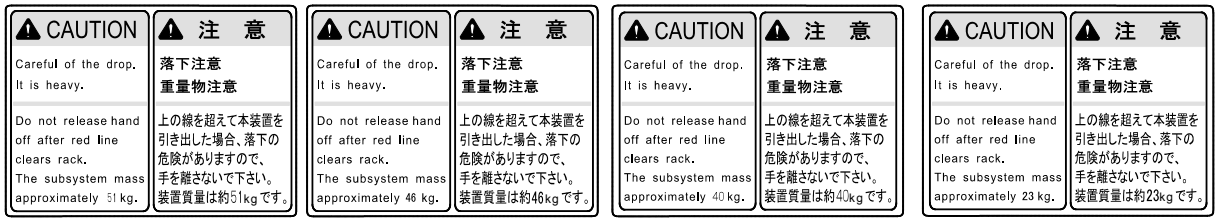
⚠ CAUTION

- **Rack mounting and lifter operation should only be conducted by a person who has been trained and qualified since the subsystem could turn over or a worker could be caught under the subsystem.**
- **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 RKM/RKS is about 51 kg, RKH is about 46 kg, RKAK is about 40 kg, and RKAKS is about 23 kg.**
- **Be sure to install it in order from the bottom to prevent the falling of the rack when you install the subsystem on the rack.**

(1) Take off the brake of the special lifter on which the subsystem has been put, and move the lifter close to the rack frame.
(2) Adjust the position of the subsystem so that it is seated in the center of the rack frame.
(3) Move the pumping handle of the special lifter to the right and left repeatedly to lift the subsystem up to the height suitable for the mounting.
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.
(4) Remove the band and adjust the position of the subsystem so that the subsystem comes in the center in front of the rack frame. If the subsystem is positioned off-centered, a screw contacts the front bezel preventing the bezel from being opened or closed.
(5) Shift the subsystem onto the rails in the rack frame. When shifting the subsystem, push it in to the end gently.

⚠ 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 subsystem enters the rack frame across the end of it. Otherwise, falling of the subsystem may be caused.



RKM/RKS RKH RKAK RKAKS

(6) After mounting the subsystem 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 brake of the lifter.

(7) Move the special lifter to the place where the lifter does not disturb the following works.

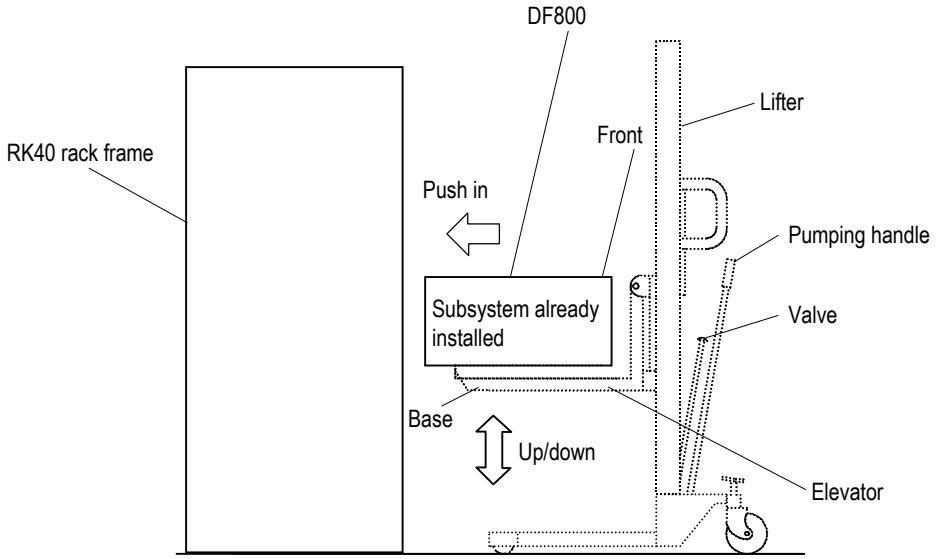


Figure 2.4.12 Mounting Subsystem on Rack Frame

2.4.6 Fastening the Subsystem

(1) RK40 Rack frame

(1-1) Fixing the Basic Chassis or the Additional Chassis (RKAK)

(a) Fastening the front side of the subsystem

(i) Fasten the subsystem to the rack frame with the four M5×10 binding screws.

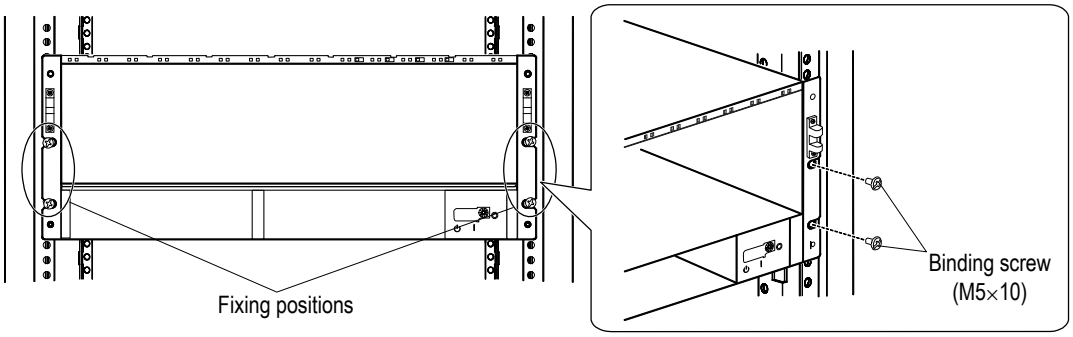


Figure 2.4.13 Fastening Front Side of the Subsystem

(b) Fastening rear side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Shift each of the two stoppers in the direction shown by the arrow and make it contact the frame.

(ii) Tighten the binding screws (M4 x 8) to fix it.

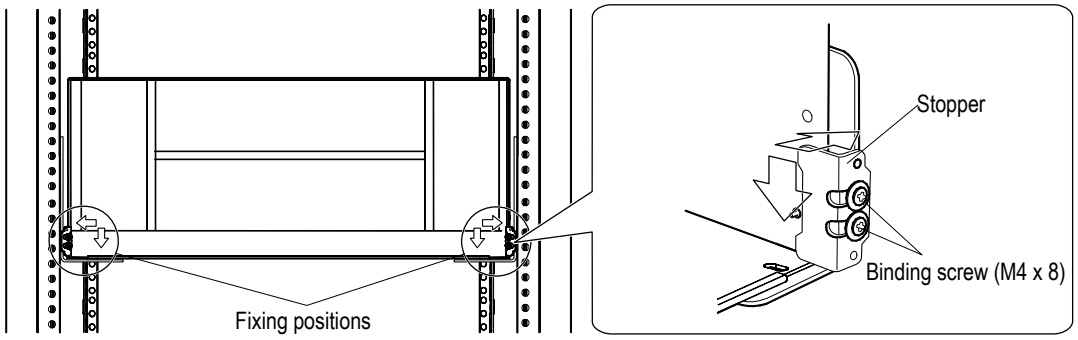


Figure 2.4.14 Fastening Rear Side of the Subsystem

(1-2) Fixing the Additional Chassis (RKAKS)

The components for fixing the subsystem are included in the Front Bezel. Check the table of the components list.

Table 2.4.1 Front Bezel Components List (Per one unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Front Bezel	2853184-A	1	For RKAKS	—
2	Side bezel (R)	3285018-1	1	For right hand side	—
3	Side bezel (L)	3285016-1	1	For left hand side	—
4	Bracket (R)	3282416-A	1	For right hand side	—
5	Bracket (L)	3282373-2	1	For left hand side	—
6	Bind Screw (M5 × 10)	SB510N	4	For fixing the subsystem and the bracket	—

(a) Fixing the front side of the subsystem

(i) Fasten the subsystem and bracket together to the rack frame with the four M5×10 binding screws temporarily (Refer to Figure 2.4.14.1).

(ii) Tighten the bind screws pressing the bracket in the direction of ① and ② to fix the bracket (Refer to Figure 2.4.14.1).

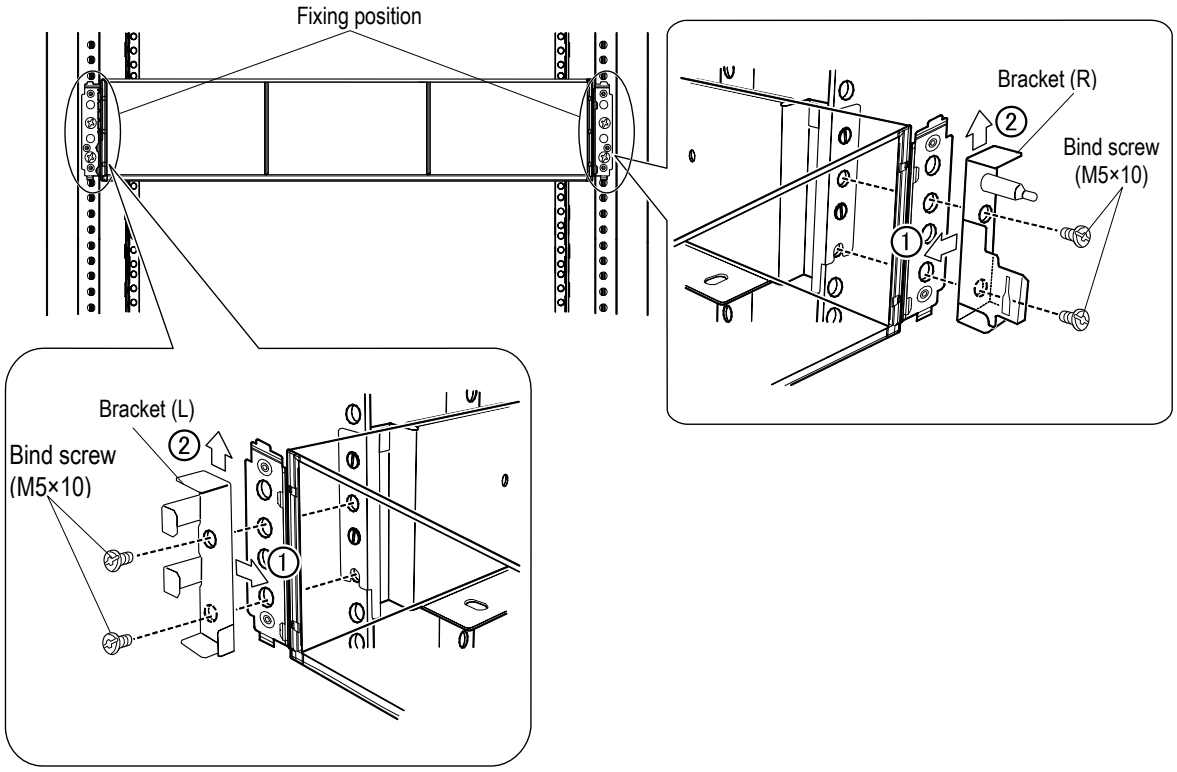
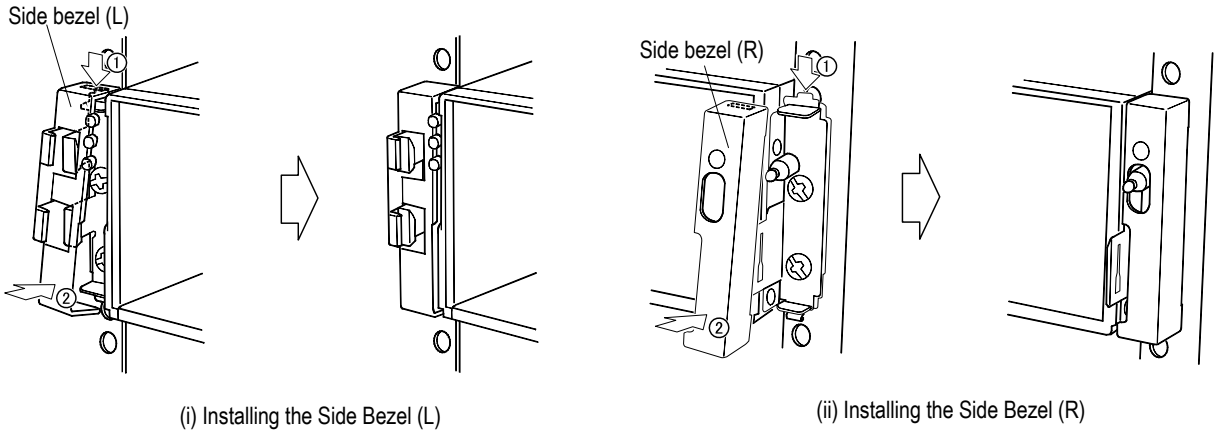


Figure 2.4.14.1 Fixing the front side of the subsystem

(b) Attaching the side bezel

(i) Attach the side bezel in the procedure ① and ② to cover the left side of the front side of the subsystem with the side bezel (L) from the top (Refer to Figure 2.4.14.2.)

(ii) Attach the side bezel in the procedure ① and ② to cover the right side of the front side of the subsystem with the side bezel (R) from the top (Refer to Figure 2.4.14.2.)



(i) Installing the Side Bezel (L)

(ii) Installing the Side Bezel (R)

Figure 2.4.14.2 Attaching the Side Bezels

(2) HP Rack frame

(a) Fastening the front side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Fasten the cutouts of the subsystem to the rack frame with the binding screws (M5 x 10) (four places).

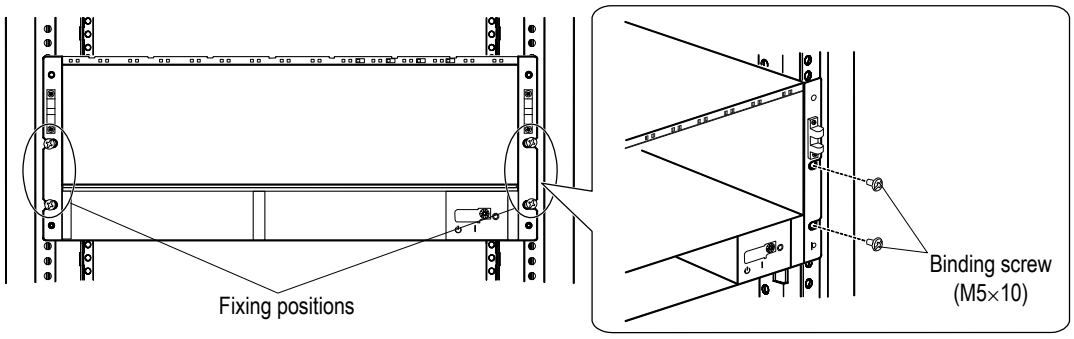


Figure 2.4.15 Fastening Front Side of the Subsystem

(b) Fastening rear side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Slide each of the two stoppers in the direction shown by the arrow until it contacts with the frame.

(ii) Tighten the binding screws (M3 x 6) to fix it.

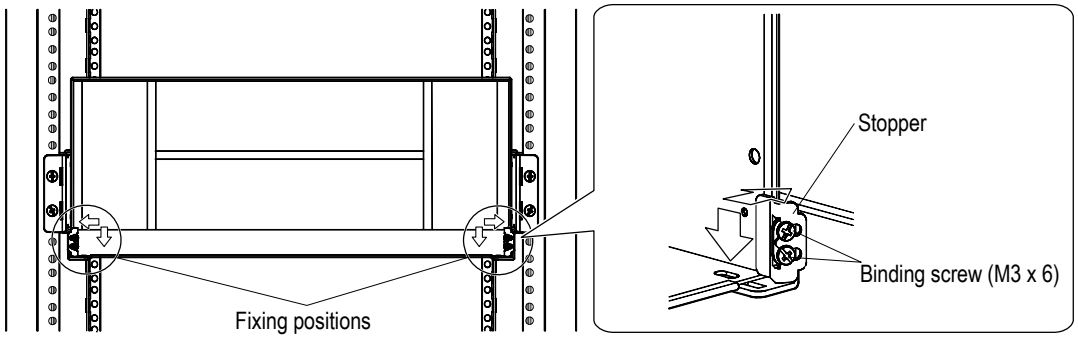


Figure 2.4.16 Fastening Rear Side of the Subsystem

(3) Sun StorEdge Rack frame

(a) Fastening the front side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Fasten the cutouts of the subsystem to the rack frame with the binding screws (M5 x 10) (four places).

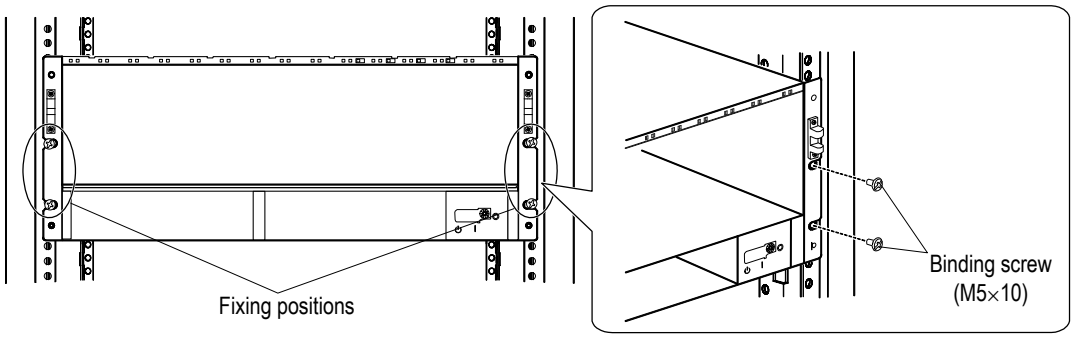


Figure 2.4.17 Fastening Front Side of the Subsystem

(b) Fastening rear side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Slide each of the two stoppers in the direction shown by the arrow until it contacts with the frame.

(ii) Tighten the binding screws (M3 x 6) to fix it.

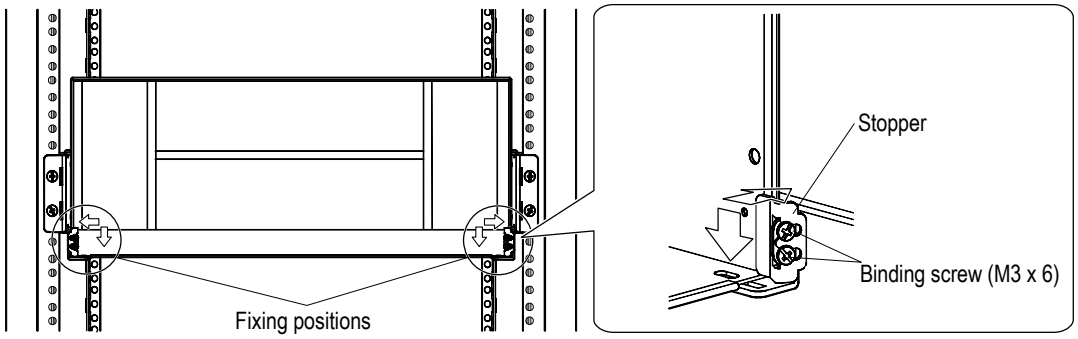


Figure 2.4.18 Fastening Rear Side of the Subsystem

(4) IBM RS6000 Rack frame

(a) Fastening the front side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Fasten the cutouts of the subsystem to the rack frame with the binding screws (M5 x 10) (four places).

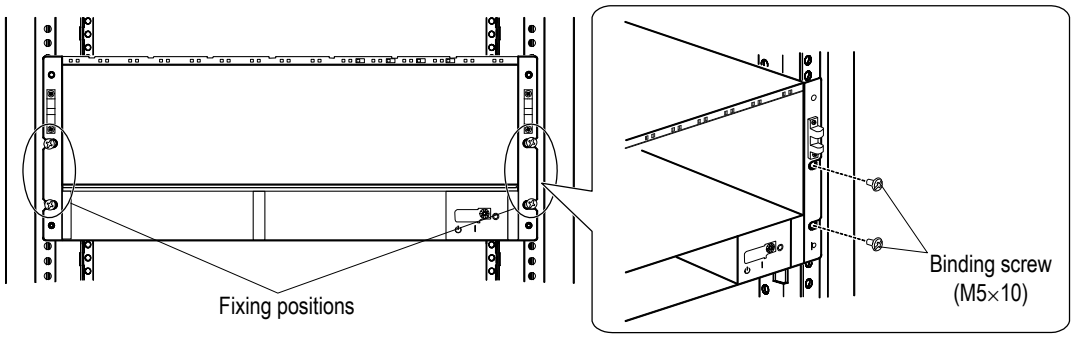


Figure 2.4.19 Fastening Front Side of the Subsystem

(b) Fastening rear side of the subsystem

This is common for the three unit and four unit Rackmount models.

(i) Slide each of the two stoppers in the direction shown by the arrow until it contacts with the frame.

(ii) Tighten the binding screws (M3 x 6) to fix it.

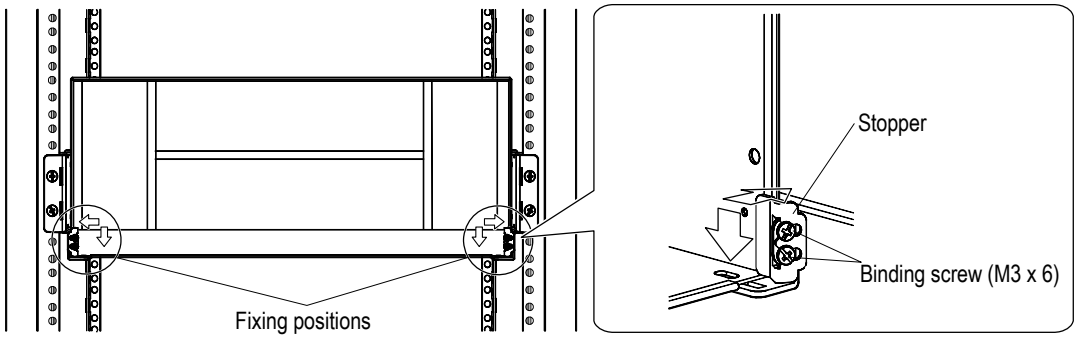


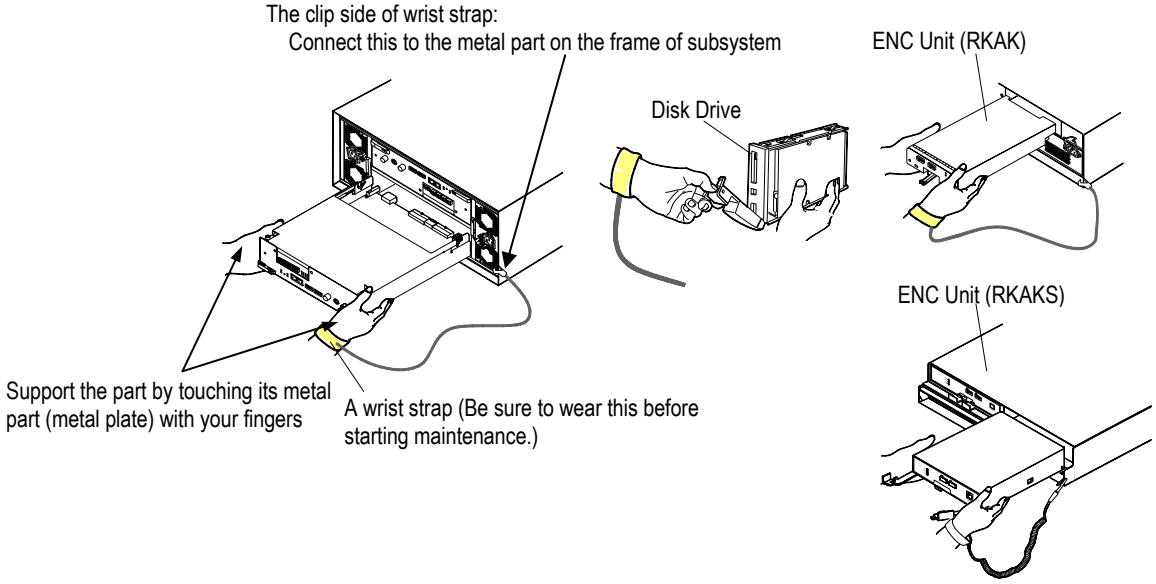
Figure 2.4.20 Fastening Rear Side of the Subsystem

2.4.7 Installing Components

CAUTION

- **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 chassis before starting and do not take it off until you finish.**
- **Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.**
- **When you install are Disk Drive, Control Unit and ENC Unit, support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.**

A failure may be caused by the electric shock since the Disk Drive, Control Unit and ENC Unit is precision instrument. Be sure to put on the wrist strap before starting work in order to protect Disk Drive, Control Unit and ENC Unit from electrostatic discharge.



When the components are not installed, install them. If they have already been installed, go to the next step since this work is not needed.

Table 2.4.1.1 Parts Required for Installation of RKM/RKS

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AKH146	2 to 15(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AKH300		
		DF-F800-AKH450		
		DF-F800-AKH600		
		DF-F800-ANH600		
		DF-F800-AKF400		
		DF-F800-AVE500		
		DF-F800-AVE750		
		DF-F800-AVE1K		
		DF-F800-AWE2K		
		DF-F800-AVE2K		
		DF-F800-AVE3K		
		DF-F800-AKS200		
2	Cache Backup Battery	DF-F800-N1K	2(*2)	—
3	Control Unit	DF-F800-F1KM	1 or 2(*1)	for RKM
		DF-F800-F1KEM	1 or 2(*1)	for RKEM
		DF-F800-F1KS	1 or 2(*1)	for RKS
		DF-F800-F1KES	1 or 2(*1)	for RKES
4	Cache Unit	DF-F800-C1GK	1 or 2(*3)	The Cache Unit with a model name selected from those shown on the left is installed.
		DF-F800-C2GK		
		DF-F800-C4GK		
5	Interface Board	DF-F800-DKF42	1 or 2	4G bps FC Interface Board (RKS)
		DF-F800-DKF44	1 or 2	4G bps FC Interface Board (RKM)
		DF-F800-DKF82	1 or 2	8G bps FC Interface Board (RKES)
		DF-F800-DKF84	1 or 2	8G bps FC Interface Board (RKM)
		DF-F800-DKS12	1 or 2	1G bps iSCSI Interface Board
		DF-F800-DKSA2	1 or 2	10 G bps iSCSI Interface Board
6	Power Unit	—	2	—

*1 : When no component is installed, a dummy part is installed instead.

*2 : Only one Cache Backup Battery is installed in the RKM/RKS in standard. Install it left side of the subsystem.

*3 : It is a number per Control Unit. But install one Cache Unit per Control Unit in RKS.

Table 2.4.1.2 Parts Required for Installation of RKEXS

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AKH450	2 to 15(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AKH600		
		DF-F800-AVE1K		
		DF-F800-AWE2K		
		DF-F800-AVE2K		
		DF-F800-AVE3K		
2	Cache Backup Battery	DF-F800-N1K	2	—
3	Control Unit	DF-F800-F1KEXS	1 or 2(*1)	—
4	Cache Unit	—	1(*2)	2 G bytes of Cache Memory is installed per Control Unit.
5	Power Unit	—	2	—

*1 : When no component is installed, a dummy part is installed instead.

*2 : It is a number per Control Unit.

Table 2.4.1.3 Parts Required for Installation of RKEXSA

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AKH450	2 to 15(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AKH600		
		DF-F800-AVE1K		
		DF-F800-AWE2K		
		DF-F800-AVE2K		
		DF-F800-AVE3K		
2	Cache Backup Battery	DF-F800-N1K	2	—
3	Control Unit	HDF-F800-SIS2	1 or 2(*1)	—
4	Cache Unit	—	1(*2)	2 G bytes of Cache Memory is installed per Control Unit.
5	Interface Board	DF-F800-DKS12	1 or 2	1G bps iSCSI Interface Board
6	Power Unit	—	2	—

*1 : When no component is installed, a dummy part is installed instead.
*2 : It is a number per Control Unit.

Table 2.4.1.4 Parts Required for Installation of RKEXSB

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AKH450	2 to 15(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AKH600		
		DF-F800-AVE1K		
		DF-F800-AWE2K		
		DF-F800-AVE2K		
		DF-F800-AVE3K		
2	Cache Backup Battery	DF-F800-N1K	2	—
3	Control Unit	HDF-F800-SIS2	1 or 2 (*1)	—
4	Cache Unit	—	1(*2)	2 G bytes of Cache Memory is installed per Control Unit.
5	Interface Board	DF-F800-DKSA2	1 or 2	10 G bps iSCSI Interface Board
6	Power Unit	—	2	—

*1 : When no component is installed, a dummy part is installed instead.
*2 : It is a number per Control Unit.

Table 2.4.1.5 Parts Required for Installation of RKEXS8F

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AKH300	2 to 15(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AKH450		
		DF-F800-AKH600		
		DF-F800-AVE1K		
		DF-F800-AWE2K		
		DF-F800-AVE2K		
		DF-F800-AVE3K		
2	Cache Backup Battery	DF-F800-N1K	2	—
3	Control Unit	DF-F800-F1KES	1 or 2(*1)	—
4	Cache Unit	—	1(*2)	2 G bytes of Cache Memory is installed per Control Unit.
5	Interface Board	DF-F800- DKS12	1 or 2	1G bps iSCSI Interface Board
		DF-F800-DKSA2	1 or 2	10 G bps iSCSI Interface Board
6	Power Unit	—	2	—

*1 : When no component is installed, a dummy part is installed instead.
*2 : It is a number per Control Unit.

Table 2.4.2 Parts Required for Installation of RKH

No.	Component name	Model	Quantity	Remark
1	Cache Backup Battery	DF-F800-N1K	4	—
2	FAN Unit	—	2	—
3	Control Unit	—	2	for RKH
4	Cache Unit	DF-F800-C1GK	2 or 4(*1)	The Cache Unit with a model name selected from those shown on the left is installed.
		DF-F800-C2GK		
		DF-F800-C4GK		
5	Interface Board	DF-F800- DKF44	0/2/4	4G bps FC Interface Board
		DF-F800- DKF84	0/2/4	8G bps FC Interface Board
		DF-F800- DKS12	0/2/4	1G bps iSCSI Interface Board
		DF-F800-DKSA2	1 or 2	10 G bps iSCSI Interface Board
6	Power Unit	—	2	—

*1 : It is a number per Control Unit.

Table 2.4.3 Components Required for the RKAK

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AKH146	2 to 15(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AKH300		
		DF-F800-AKH450		
		DF-F800-AKH600		
		DF-F800-ANH600		
		DF-F800-AKF400		
		DF-F800-AVE500		
		DF-F800-AVE750		
		DF-F800-AVE1K		
		DF-F800-AWE2K		
		DF-F800-AVE2K		
		DF-F800-AKS200		
		DF-F800-AVE3K		
2	ENC Unit	—	2	—
3	Power Unit	—	2	—
4	ENC cable	—	2	

*1 : When no component is installed, a dummy part is installed instead.

Table 2.4.3.1 Components Required for the RKAKS

No.	Component name	Model	Quantity	Remark
1	DISK Drive	DF-F800-AMF300	2 to 24(*1)	The Disk Drive with a model name selected from those shown on the left is installed.
		DF-F800-AMF600		
2	ENC Unit	—	2	—
3	Power Unit	—	2	—
4	ENC cable	—	2	

*1 : When no component is installed, a dummy part is installed instead.

(1) Installing the Disk Drive

NOTE : • Disk Drives of #0 to #4 in the RKM/RKS or the Disk Drives #0 to #4 of the RKAK/RKAKS corresponding to the unit ID#0 connected to the RKH, the Disk Drive #A0 to #A4 of the RKAKX, the SAS Disk Drives, the SATA Disk Drives, the SAS7.2K Disk Drives and the Flash Drives are mixed and cannot be installed.
• Disk Drives of #0 to #4 in the RKM/RKS or the Disk Drives #0 to #4 of the RKAK/RKAKS corresponding to the unit ID#0 connected to the RKH, the Disk Drive #A0 to #A4 of the RKAKX, the SAS(SED) Disk Drives cannot be installed.
• SAS(SED) Disk Drive does not support single controller configuration. Use it in the dual controller configuration.
• In the RKEXS/RKEXSA/RKEXS8F, and the RKAK connected with RKEXS/RKEXSA/RKEXS8F, SAS(SED) Disk Drive is not supported for installation.

(a) Pull the parts out of the Disk Drives safekeeping of component.
Be sure to install the removed Disk Drive to the original bay.
(b) Insert the Disk Drive into the position (address) where it was by holding it with the handle.
(i) Fit the Disk Drive in the guide rail and slide it in the direction shown by the arrow.
(ii) Push it in until it reaches the position where a hook of the handle can be entered into the rectangular hole at the lower part of a frame on the front side of the disk array unit.
(iii) Raise the stopper, which has been titled toward you, and then have the lock on by pressing the stopper.

NOTE : If the handle is raised in the state in which its hook cannot be entered into the rectangular hole, the Disk Drive cannot be installed correctly because it runs into the frame of the disk array unit.

(c) Pull the handle lightly to make sure that the Disk Drive cannot be pulled out.
(d) Attach the dummy (Disk Drive) to the each Disk Drive slot in which no Disk Drive is installed. Insert it into the slot slowly so that the latch (round dent) part of the dummy (Disk Drive) comes to the lower side.

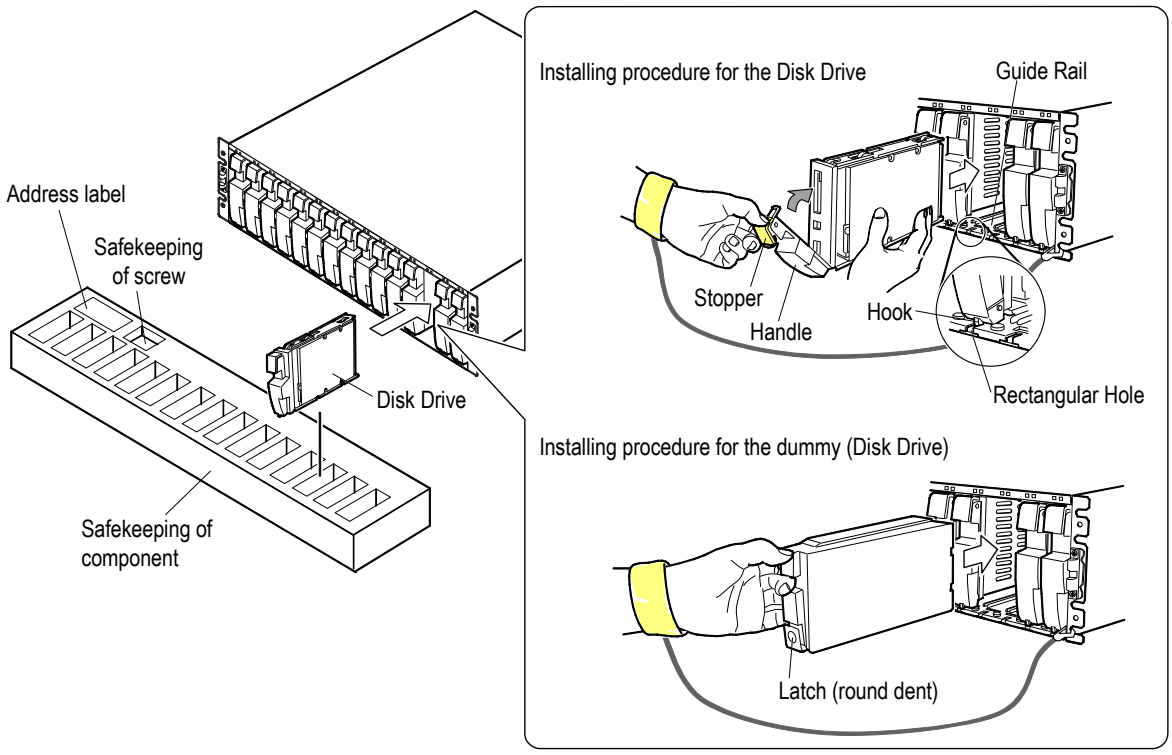


Figure 2.4.21 Installing the Disk Drive/Dummy (Disk Drive) (RKM/RKS/RKAK)

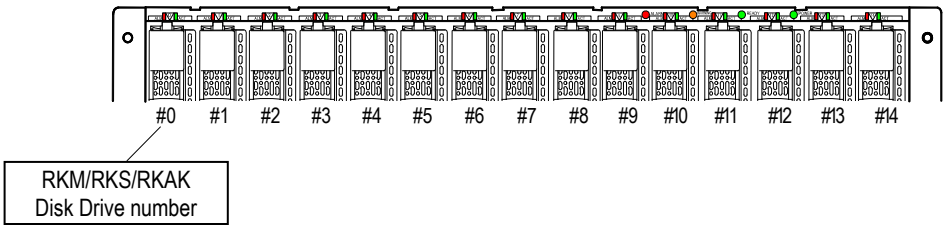


Figure 2.4.22 Disk Drive Mounting Location (RKM/RKS/RKAK)

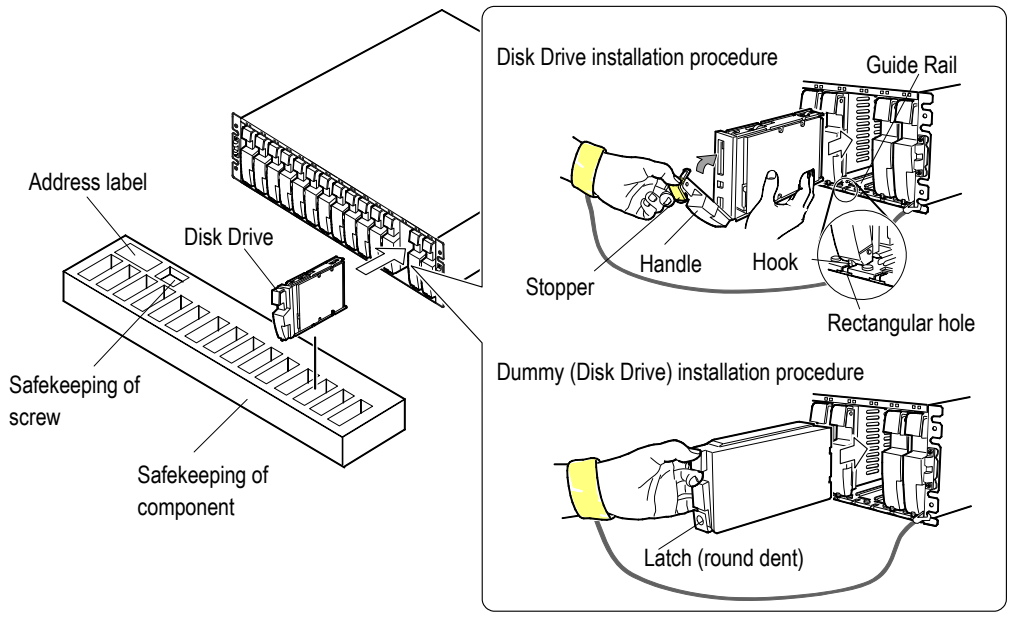


Figure 2.4.22.1 Installing the Disk Drive/Dummy (Disk Drive) (RKAKS)

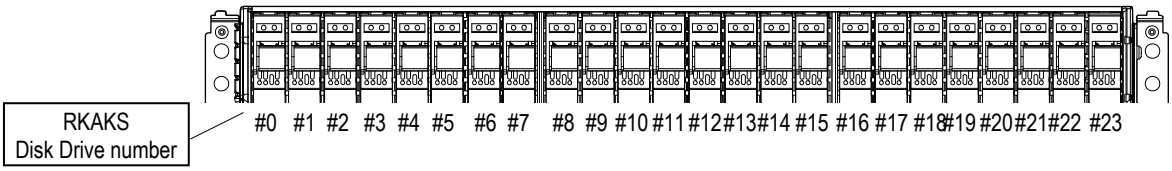


Figure 2.4.22.2 Disk Drive Mounting Location (RKAKS)

This page is for editorial purpose only.

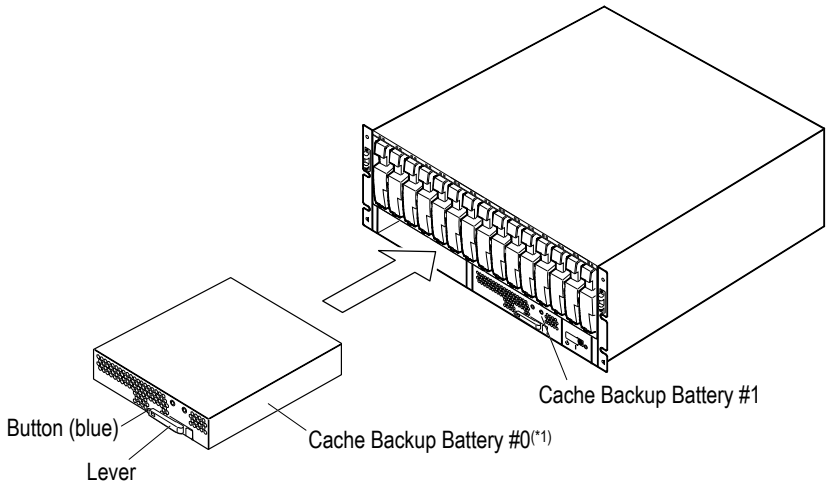
(2) Installing Cache Backup Battery

(a) Remove the Front Bezel. (Refer to "1.4 How to Open/Close Door or Attach/Remove Front Bezel/Rear Door of the Subsystem" (INST 01-0100).)

(b) Open the lever of the Cache Backup Battery to be installed toward you.

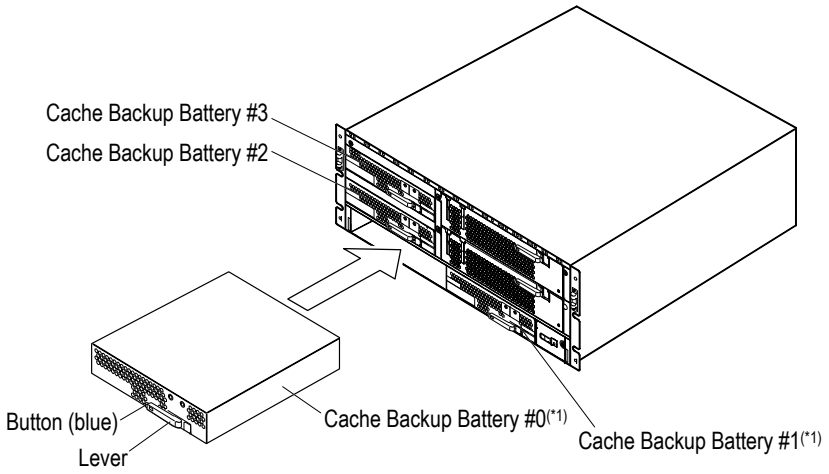
(c) Install the Cache Backup Battery in the set position.

Insert the Cache Backup Battery until its lever is slightly closed, and then close it completely until you hear the button (blue), which fixes the lever, click.



*1 : The Cache Backup Battery of the RKM/RKS is only one in standard, and it is installed on the left side of the subsystem.
In the case of the DF800-RK2, two batteries are installed as a standard.

Figure 2.4.23 Installing Cache Backup Battery (RKM/RKS)



*1 : The Cache Backup Battery of the RKH is two in standard, and it is installed on the #0 and #1 of the subsystem.
In the case of the DF800-RKH2 and the DF800-RKHE2, four batteries are installed as a standard.

Figure 2.4.24 Installing Cache Backup Battery (RKH)

(3) Installing FAN Unit

This work is only required for the RKH.

For the installation of Fan Units, the same parts are installed one above the other in the subsystem.

(a) Open the lever of the FAN Unit to be installed toward you.

(b) Install the FAN Unit in the set position.

Insert the FAN Unit until its lever is slightly closed, and then close it completely until you hear the button (blue), which fixes the lever, click.

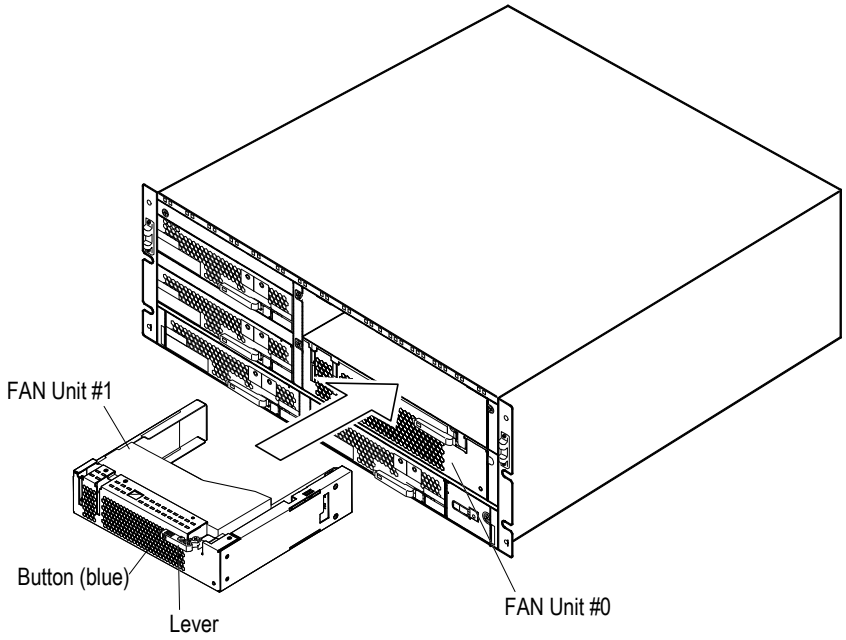


Figure 2.4.25 Installing FAN Unit

(4) Installing the Control Unit, Cache Unit and Interface Board

When the Cache Unit and the Interface Board are already installed, the installing work for Cache Unit and the Interface Board is not required.

(4-1) In the case of RKM/RKEM/RKS/RKES/REKEXS/RKEXS8F

(a) Loosen two cover fixing screws (blue) on the top of the cover, and open the cover to the arrow (⟶) direction.

You can fix the cover at a perpendicular position and, furthermore, you can lift the cover a little from this position and fall it to the opposite side.

(b) For the RKM/RKS or the RKEM/RKES/RKEXS8F to install optional Interface Board, install the Interface Board.

(i) Place the Interface Board according to the positioning pin of the Control Unit, temporarily fix the fixing screw ①. Press the label (PUSH HERE) part, and insert it in the connector. At this time, insert the connector surely. Insert the Interface Board making its sheet metal part face inside of the Control Unit.

NOTE : When installing the Interface Board, insert the connector after checking the locations of the positioning pin and the fixing screws for Interface Board because the incorrect location decision may cause the connector to damage.

(ii) Fix the Interface Board by tightening the fixing screws ① to ④.

(iii) Make sure that the Interface Board is firmly installed.

(c) Install the Cache memory after removing the dust cover from the Cache slot of the Control Unit.

NOTE :
- when installing two Cache Units in RKM, install the Cache Unit of the same capacity as each slot.
- For the dual Control Unit, install the Cache Unit of the same capacity in the Control Unit #0 and #1.
- Be careful not to insert the Cache Units in the reverse orientation.
- Insert the Cache Units in the cache slots in regular order starting from the slot #0.
- Insert the dust cover in the Cache slot in which the Cache memory is not installed.

(d) Make sure that the Cache Unit is firmly installed.

(e) Close the cover and fix it by fastening two covers fixing screws (blue) on the top of the cover.

(f) Open the right and left levers of the Control Unit toward you.

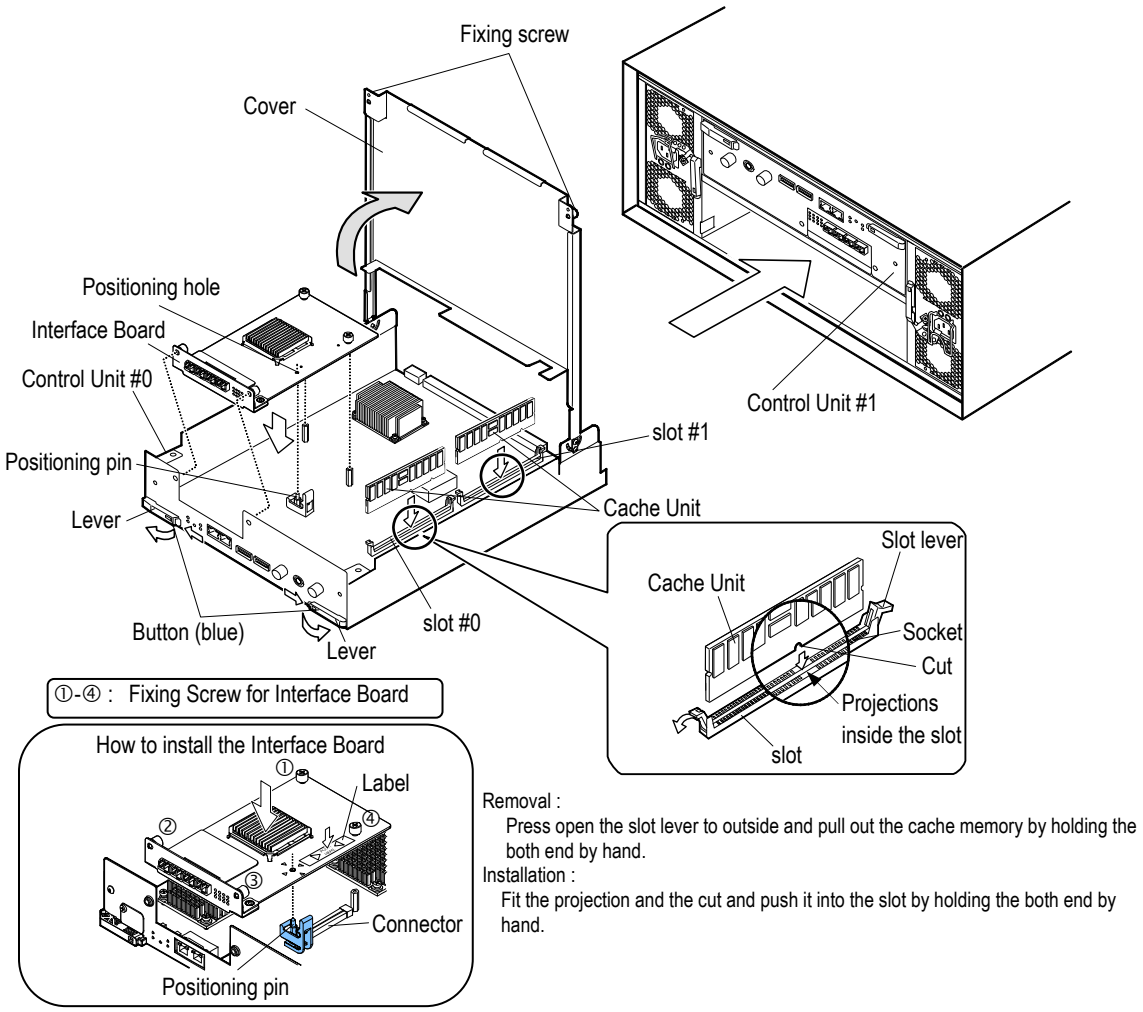
(g) Install the Control Unit in the set position.

Insert the Control Unit in the position of the Control Unit #0 until its levers are slightly closed, and then close them completely until you hear the buttons (blue), which fix the levers, click.

Insert the Power Unit until its levers are slightly closed, and then close them completely until you hear the buttons (blue), which fix the levers, click.

In case of a dual controller, also install the Control Unit in the #1 side.

NOTE : The installation direction is different in the Control Unit # 0 and # 1. Install the Control Unit #0 with the cover up and #1 with the cover down.



Removal :
Press open the slot lever to outside and pull out the cache memory by holding the both end by hand.
Installation :
Fit the projection and the cut and push it into the slot by holding the both end by hand.

*1 : The figure shows the case where the FC Interface Board is installed in the Control Unit of the RKM.

Figure 2.4.26 Installing Control Unit, Cache Unit and Interface Board (RKM/RKS)

(4-2) In the case of RKH

(a) Loosen two cover fixing screws (blue) on the top of the cover, and open the cover to the arrow (⟶) direction.
You can fix the cover at a perpendicular position and, furthermore, you can lift the cover a little from this position and fall it to the opposite side.

(b) Place the Interface Board according to the positioning pin of the Control Unit, temporarily fix the fixing screw ①. Press the label (PUSH HERE) part, and insert it in the connector.
At this time, insert the connector surely. Insert the Interface Board making its sheet metal part face inside of the Control Unit.

NOTE : • Be careful that the position to install the Interface Board is determined.
- Install the Interface Boards of the same type in the same position of the Control Unit #0 and #1.
- When installing the Interface Board, insert the connector after checking the locations of the positioning pin and the fixing screws for Interface Board because the incorrect location decision may cause the connector to be damaged.

(c) Fix the Interface Board by tightening the fixing screws ① to ④.

(d) Make sure that the Interface Board is firmly installed.

(e) Install the Cache memory after removing the dust cover from the Cache slot of the Control Unit.

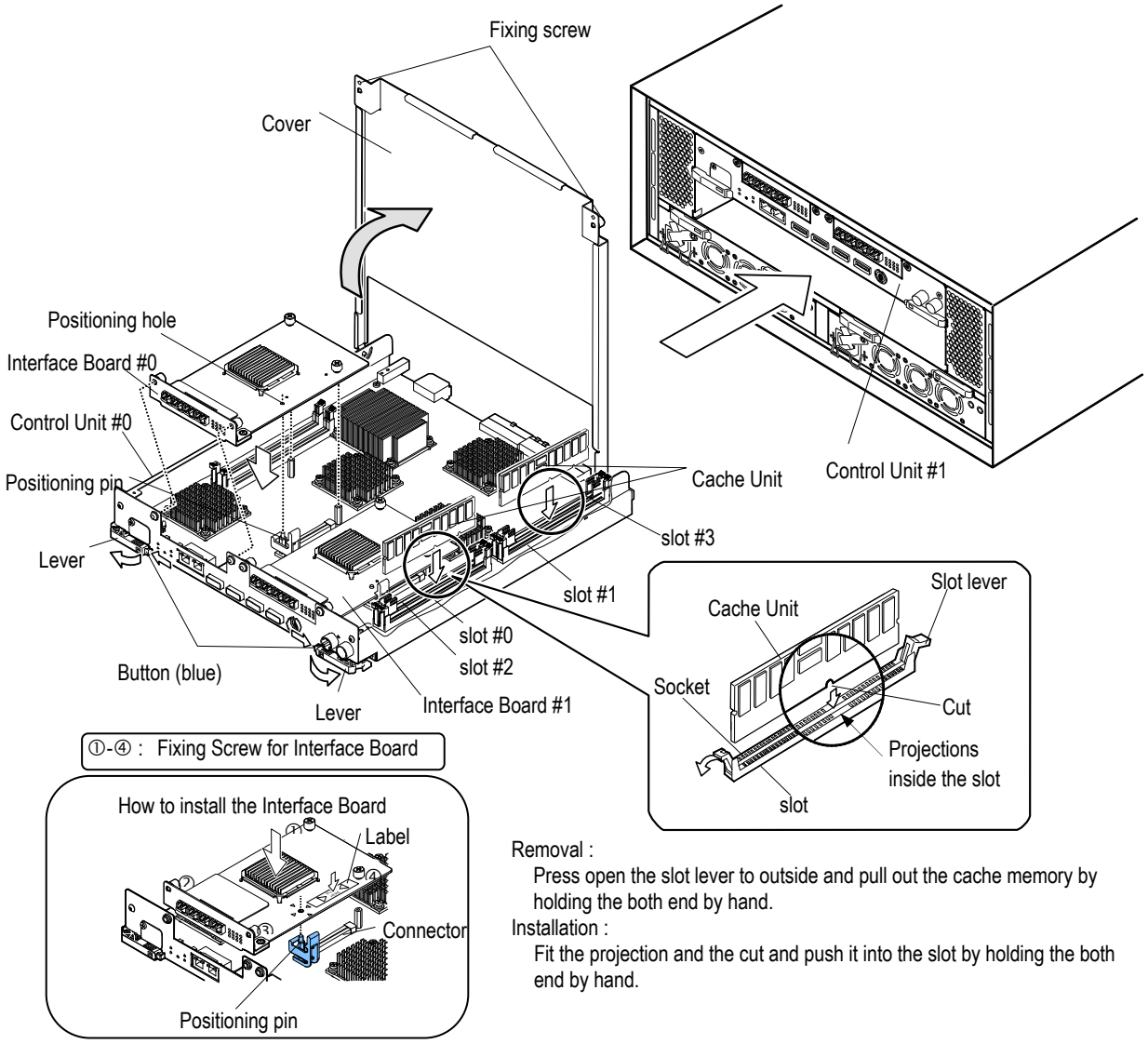
NOTE : • Be careful not to insert the Cache Units in the reverse orientation.
- If the Cache memories are not installed in the slot #0 and the slot #1, the blockade of the Control Unit occurs.
  Be sure to install the Cache memories in the slot #0 and the slot #1.
- Install the Cache Unit of the same capacity in the Control Unit #0 and #1.
- Install the Cache Units by the set of two in the slot #0 and #1 and the slot #2 and #2.
- Install the Cache Unit of the same capacity in the slot #0, slot #1 and slot #2, slot #3, respectively.
- Insert the dust cover in the Cache slot in which the Cache memory is not installed.

(f) Make sure that the Cache Unit is firmly installed.

(g) Close the cover and fix it by fastening two covers fixing screws (blue) on the top of the cover.

(h) Open the right and left levers of the Control Unit toward you.

(i) Install the Control Unit in the set position.
Insert the Control Unit in the position of the Control Unit #0 until its levers are slightly closed, and then close them completely until you hear the buttons (blue), which fix the levers, click.
Insert the Power Unit until its levers are slightly closed, and then close them completely until you hear the buttons (blue), which fix the levers, click.
Also install the Control Unit in the #1 side.



Removal :
Press open the slot lever to outside and pull out the cache memory by holding the both end by hand.
Installation :
Fit the projection and the cut and push it into the slot by holding the both end by hand.

Figure 2.4.27 Installing Control Unit, Cache Unit and Interface Board (RKH)

(5) Installing ENC Unit

ENC Unit installation procedure for RKAK is different from that for RKAKS.

(5-1) For RKAK

(a) Open the lever of the ENC Unit to be installed toward you.

(b) Install the ENC Unit in the set position.

Insert the ENC Units until its lever is slightly closed, and then close it completely until you hear the button (blue), which fixes the lever, click.

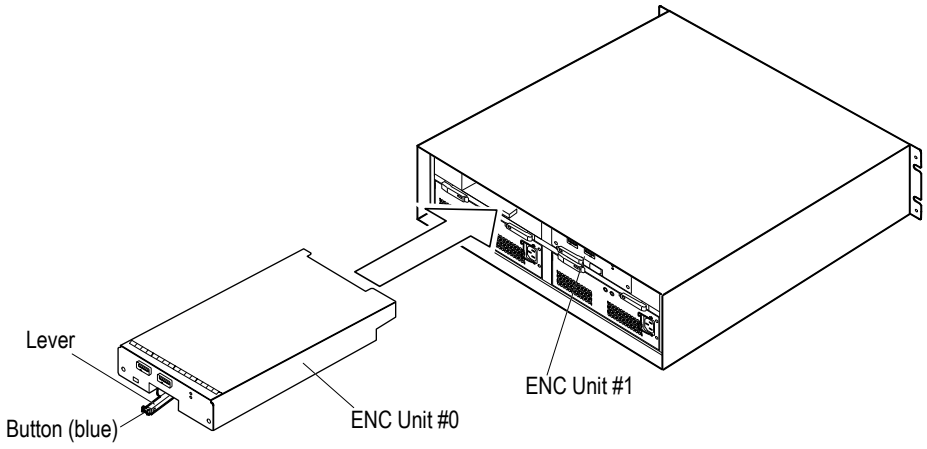


Figure 2.4.28 Installing ENC Unit (RKAK)

(5-2) For RKAKS

(a) Pull the right and left levers of the ENC Unit to be installed toward you, and open them completely.

(b) Install the ENC Unit in the set position.

Insert the ENC Unit until its right and left levers are slightly closed, and then push the levers toward the ENC Unit.

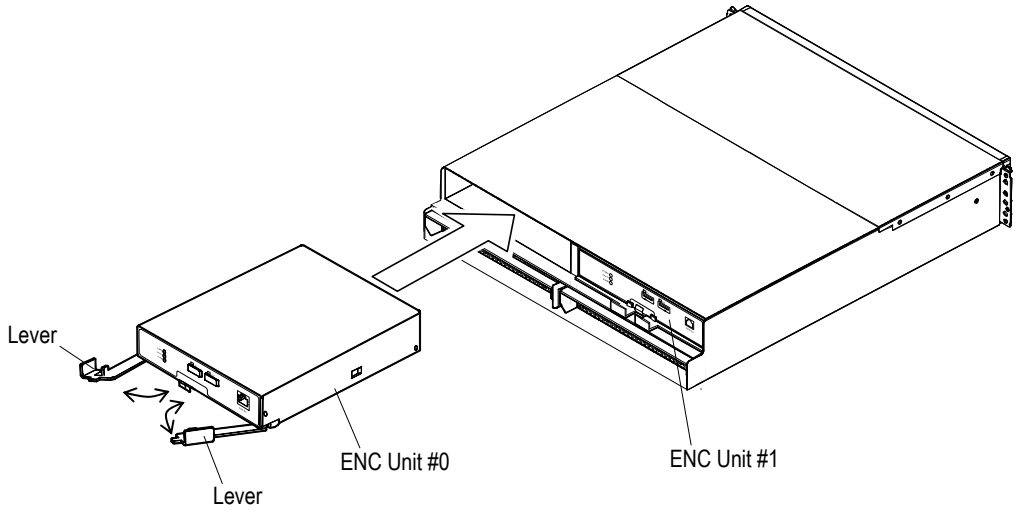


Figure 2.4.28.1 Installing ENC Unit (RKAKS)

(6) Installing Power Unit

The Power Unit of RKM/RKS, RKH, RKAK, and RKAKS is different respectively. Install them in the set positions not to make mistakes.

The Power Unit installation procedure for RKM/RKS, RKH, and RKAK is different from that for for RKAKS.

(6-1) For RKM/RKS, RKH, RKAK, and RKAKS

Install the same Power Units of the RKM/RKS in the right and left of the subsystem making them face reverse direction.

Do not make a mistake in the installation direction.

(a) Open the levers of the Power Unit to be installed toward you.

NOTE : The levers of the Power Unit of the RKH/RKAK are at right and left.

(b) Install the Power Unit in the set position.

Insert the Power Unit until its levers are slightly closed, and then close them completely until you hear the buttons (blue), which fix the levers, click.

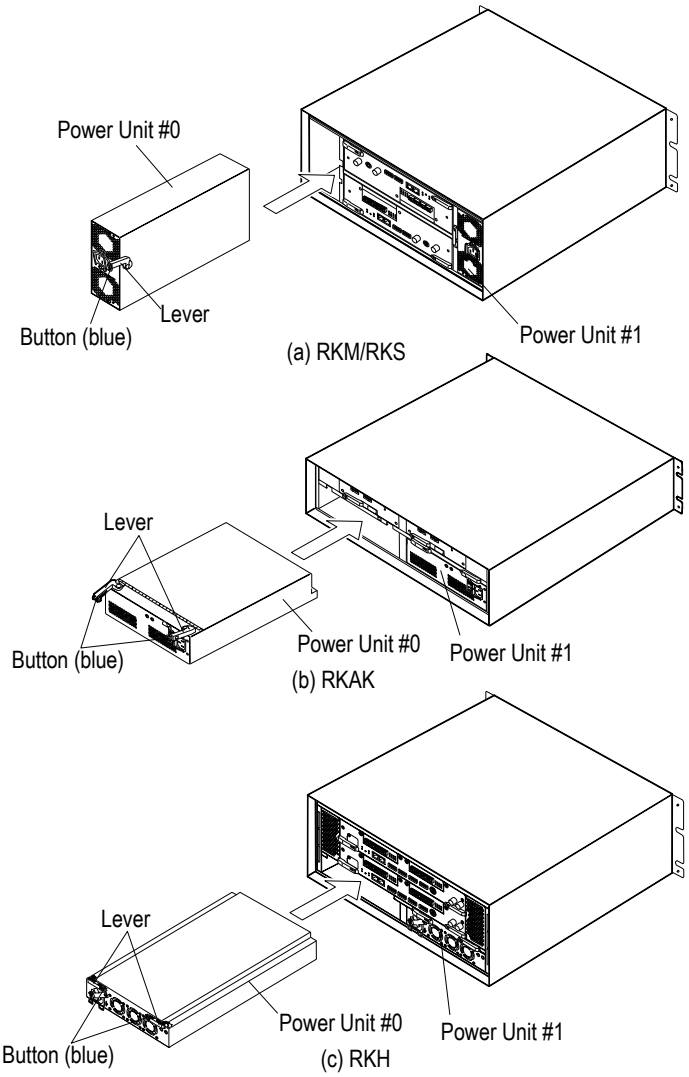


Figure 2.4.29 Installing Power Unit (RKM/RKS/RKAK/RKH)

(6-2) For RKAKS

(a) Open the lever of the Power Units to be installed toward you.

(b) Install the Power Unit in the set position.

Insert the Power Unit until its lever is slightly opened, and then push the lever toward the Power Unit.

If you cannot insert the Power Unit into the slot easily, insert it after adjusting the position by slightly returning the lever.

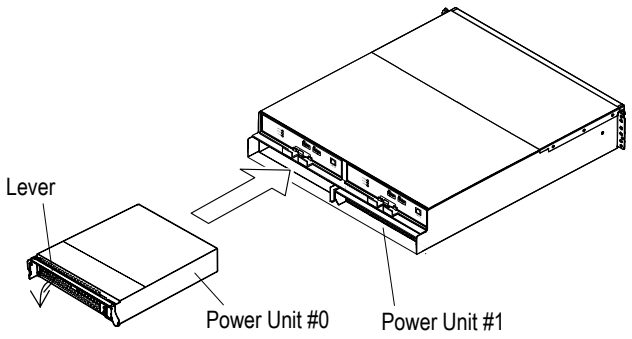


Figure 2.4.29.1 Installing Power Unit (RKAKS)

This page is for editorial purpose only.

2.4.8 Connecting the Cables

CAUTION

Take full care to connect cables correctly.

Because operation of the subsystem is affected by the cable routing, follow the "1.1 (3) Note on cable routing" (INST 01-0010).

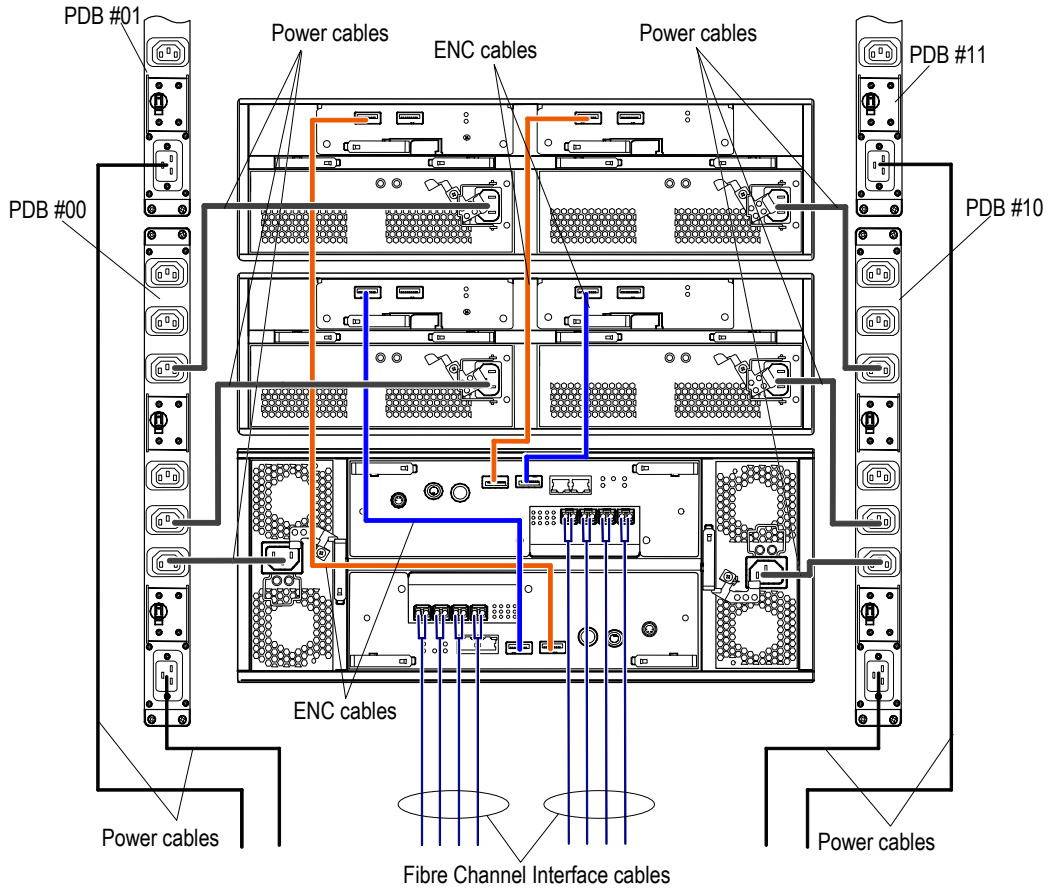
NOTE : Power supply system of the subsystem is duplicated.
It is recommended to connect each system to outlet of one of the two power sources independent of each other.

The cable routing for the subsystem which is mounted on the rack frame is shown in Figure 2.4.30 to Figure 2.4.32.3. Types of the cables to be used are shown in Table 2.4.4.

Table 2.4.4 Types Cables to be Connected

No.	Cable name	Remarks
1	Fibre Channel Interface cable	See "2.4.9 Connecting the Interface Cables" (INST 02-0650)
2	iSCSI Interface cable	See "2.4.9 Connecting the Interface Cables" (INST 02-0650)
3	ENC cable	See "2.4.10 Connecting the ENC Cables" (INST 02-0700)
4	Power cable(*1) (100 V)	See "2.4.11 Connecting the Power Cables" (INST 02-0800)
5	Power cable (200 V) (Rack frame PDB)	See "2.4.12 Connecting the Power Cables (Rack frame PDB)" (INST 02-0820)
	Power cable (Added PDB)	See Addition/Removal/Relocation "1.5.2 (5) Installing the power Cable (Added PDB append parts) and cable holder." (ADD 01-0650)

*1 : When replacing power cable of the RKM/RKS/RKAK, which has already been connected, with the optional power cable, refer to Addition/Removal/Relocation "3.2.1 Disconnecting the Power Cables" (ADD 03-0050).



*1 : The figure shows the connection of RKM and RKAK.

Figure 2.4.30 Fibre Channel Interface Cable Routing for the Subsystem (RKM/RKS+RKAK)

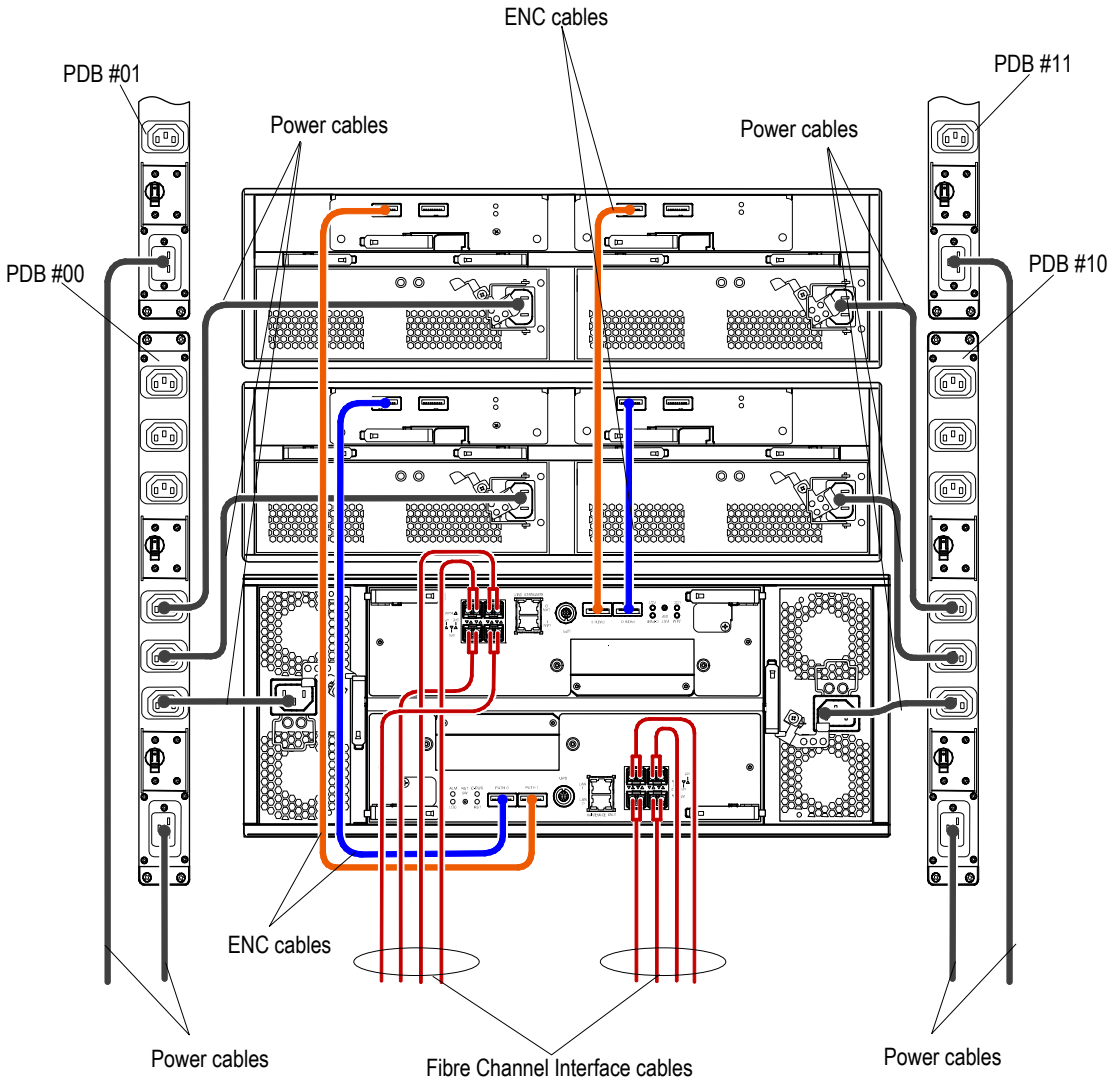


Figure 2.4.30.1 Fibre Channel Interface Cable Routing for the Subsystem (RKEM+RKAK)

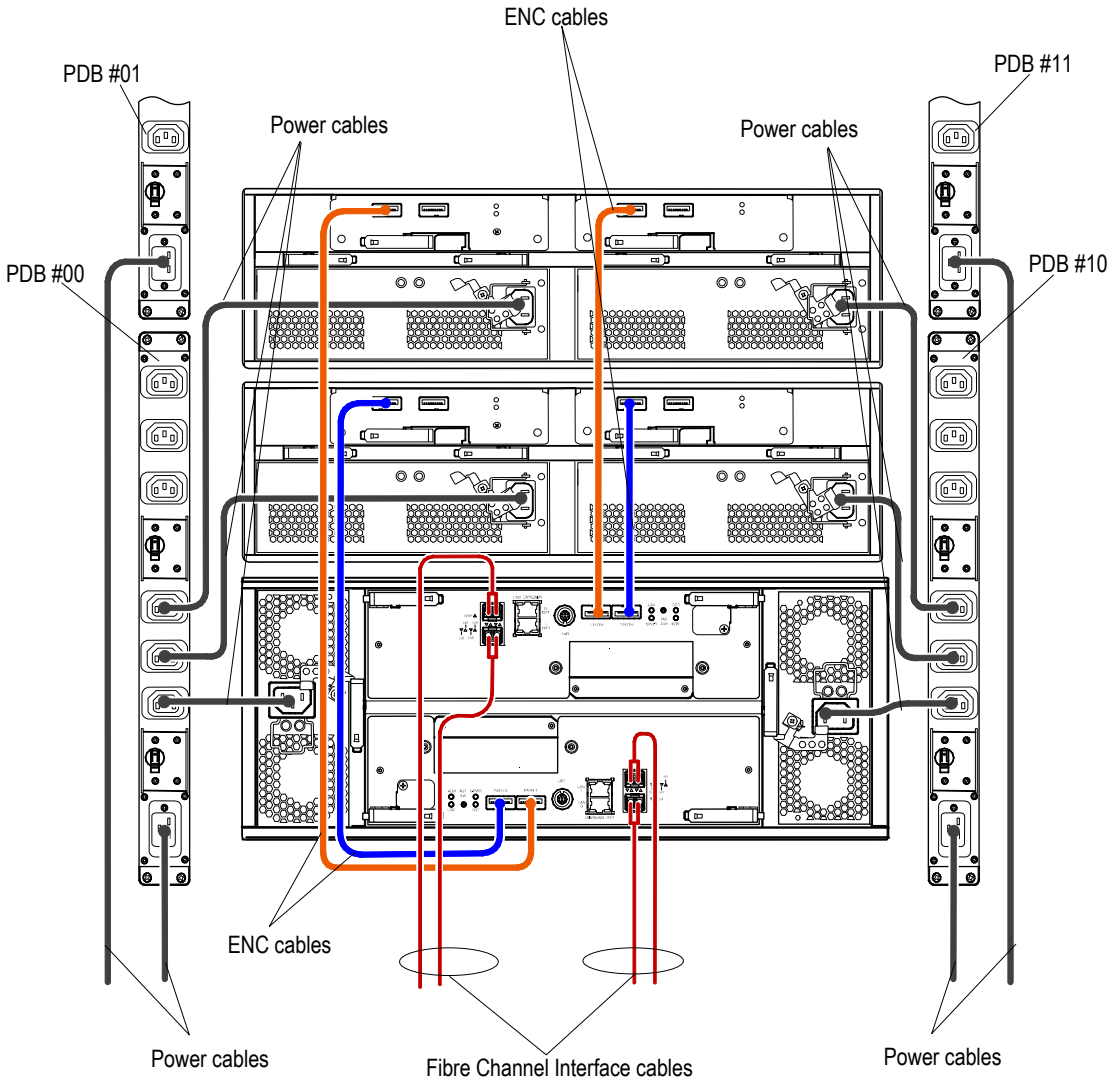


Figure 2.4.30.2 Fibre Channel Interface Cable Routing for the Subsystem (RKES+RKAK)

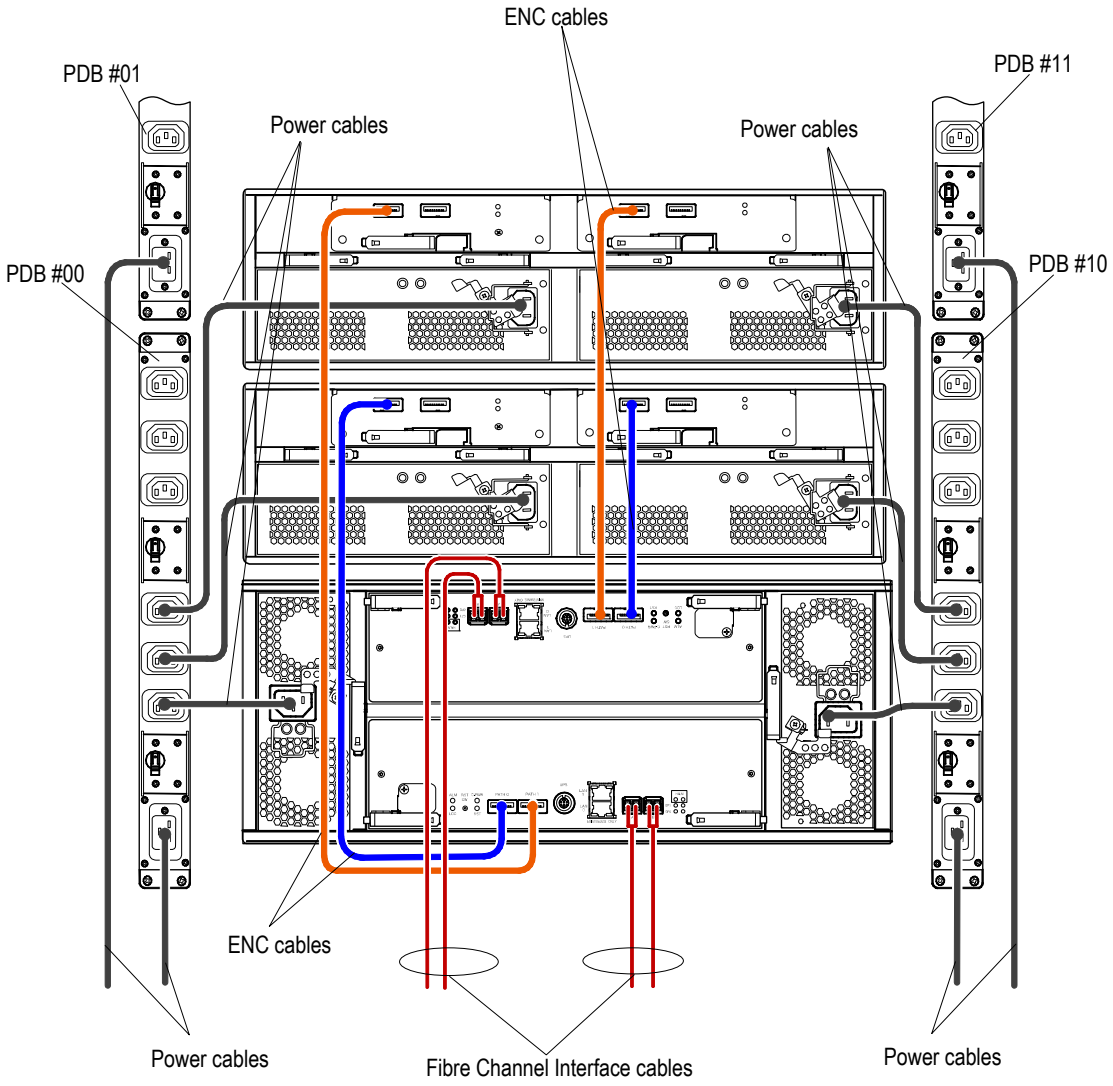


Figure 2.4.30.3 Fibre Channel Interface Cable Routing for the Subsystem (RKEXS+RKAK)

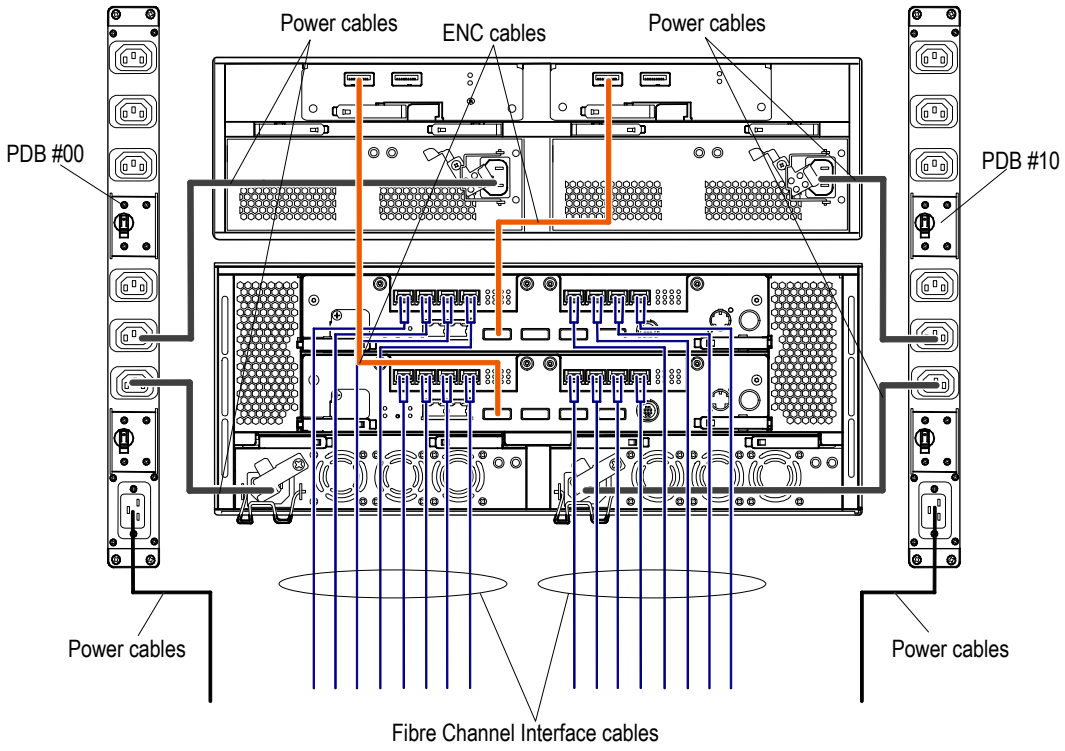


Figure 2.4.31 Fibre Channel Interface Cable Routing for the Subsystem (RKH+RKAK)

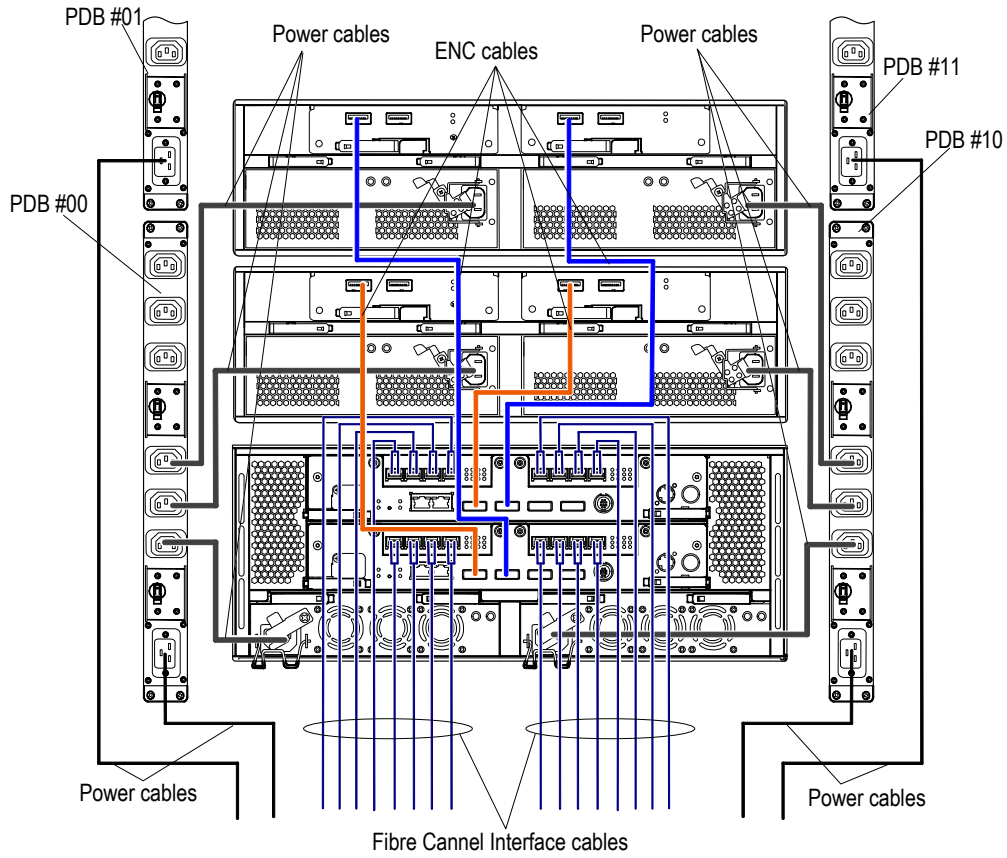
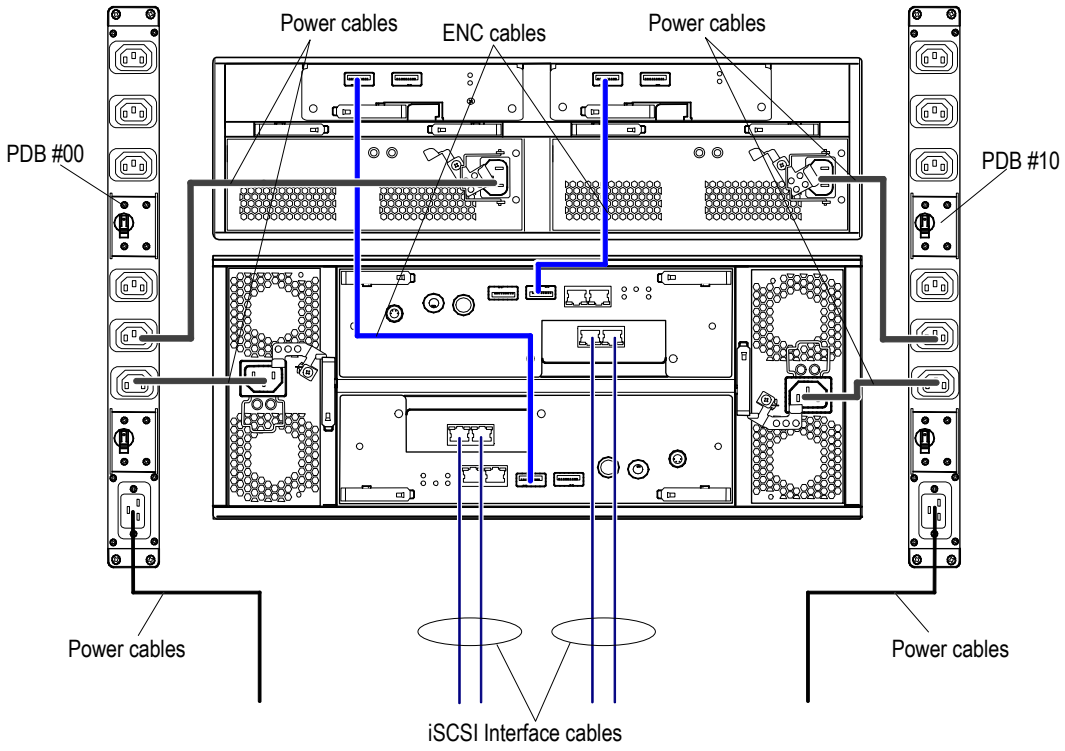


Figure 2.4.32 Fibre Channel Interface Cable Routing for the Subsystem (RKH+RKAK × 2)



*1 : The figure shows the connection of RKM and RKAK.

Figure 2.4.32.1 iSCSI Interface Cable Routing for the Subsystem (RKM/RKS+RKAK)

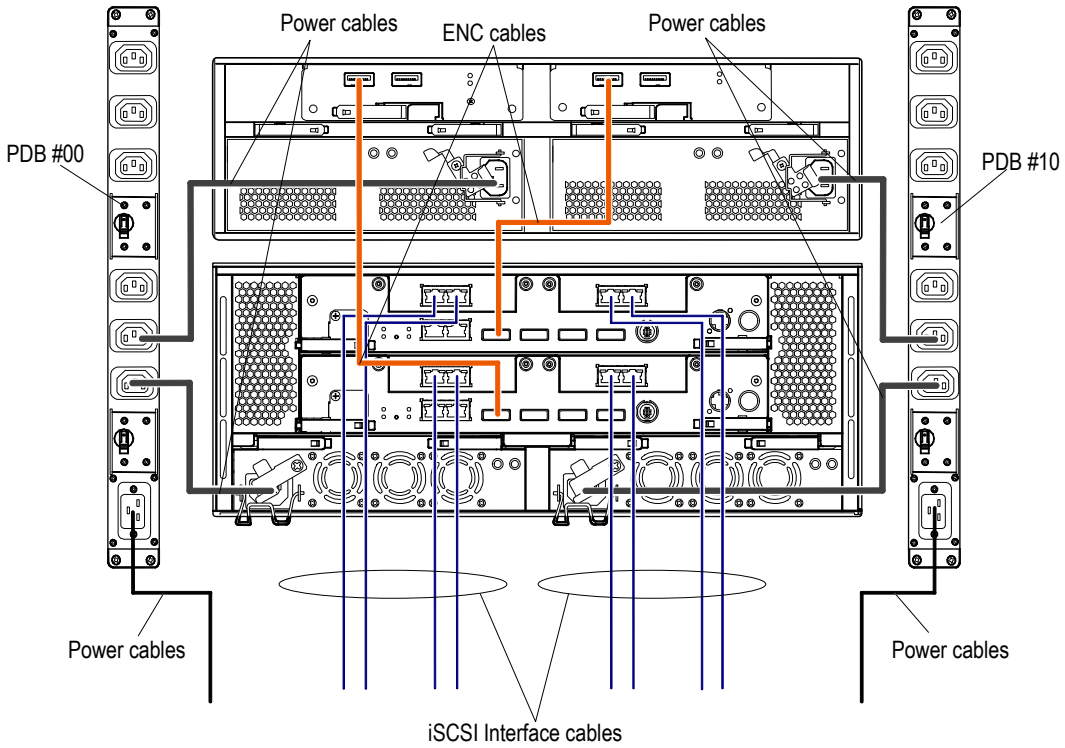


Figure 2.4.32.2 iSCSI Channel Interface Cable Routing for the Subsystem (RKH+RKAK)

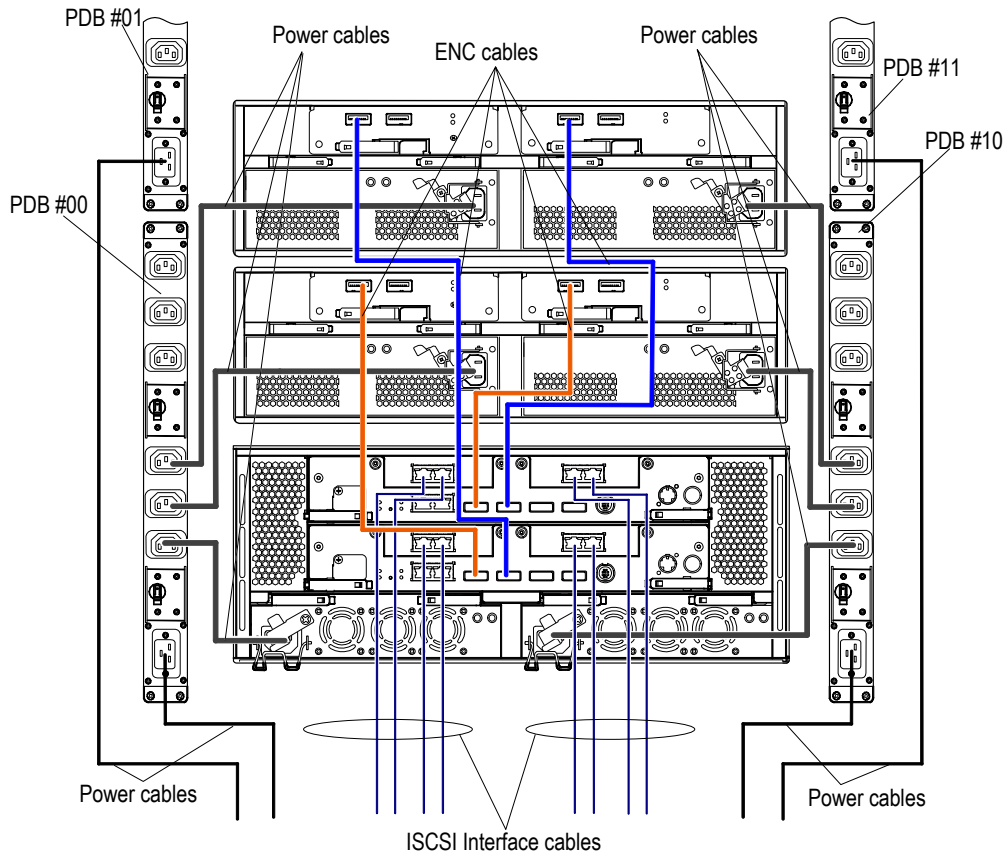


Figure 2.4.32.3 iSCSI Interface Cable Routing for the Subsystem (RKH+RKAK × 2)

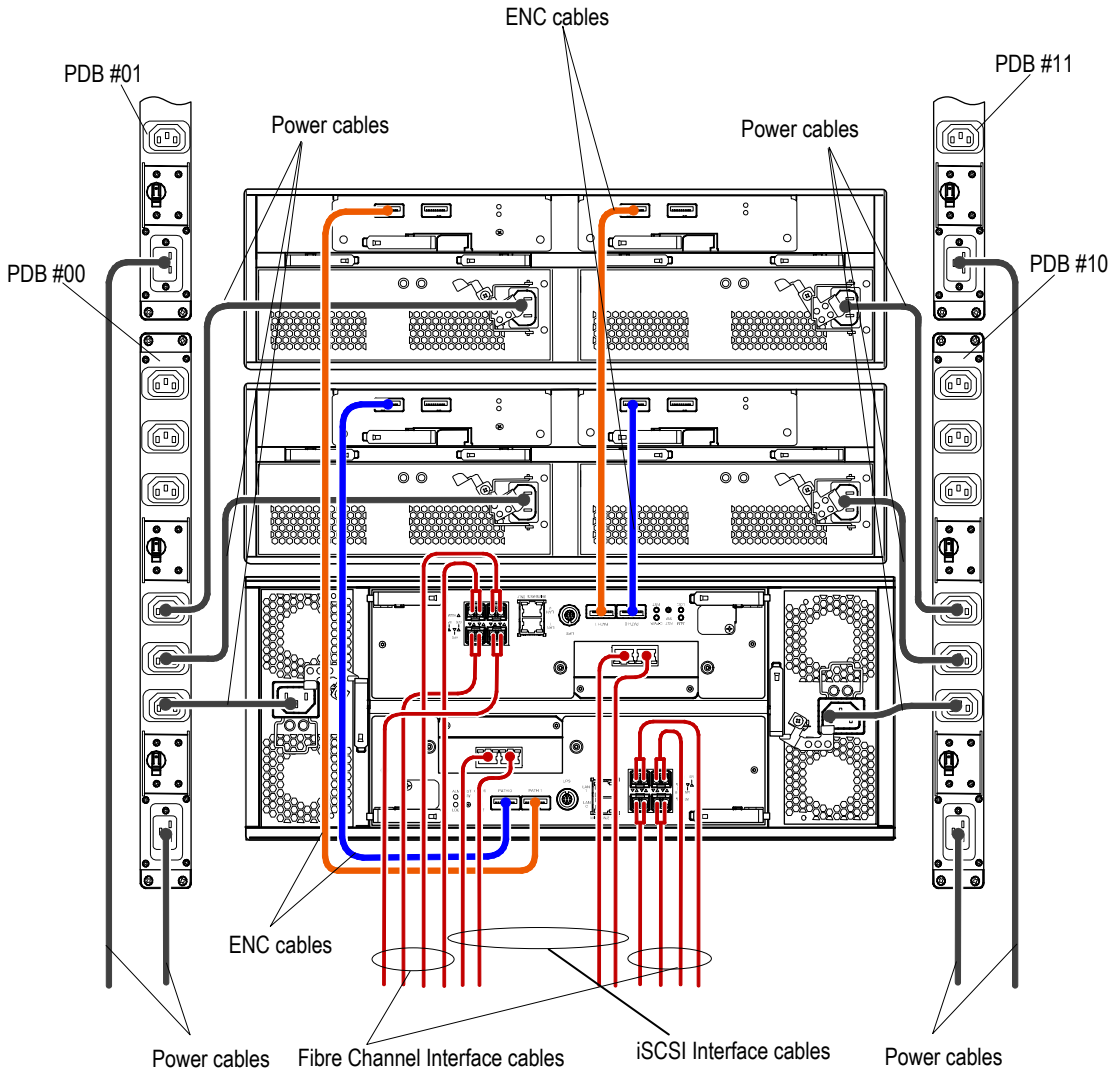


Figure 2.4.32.4 Fibre Channel and iSCSI Interface Cable Routing for the Subsystem (RKEM+RKAK × 2)

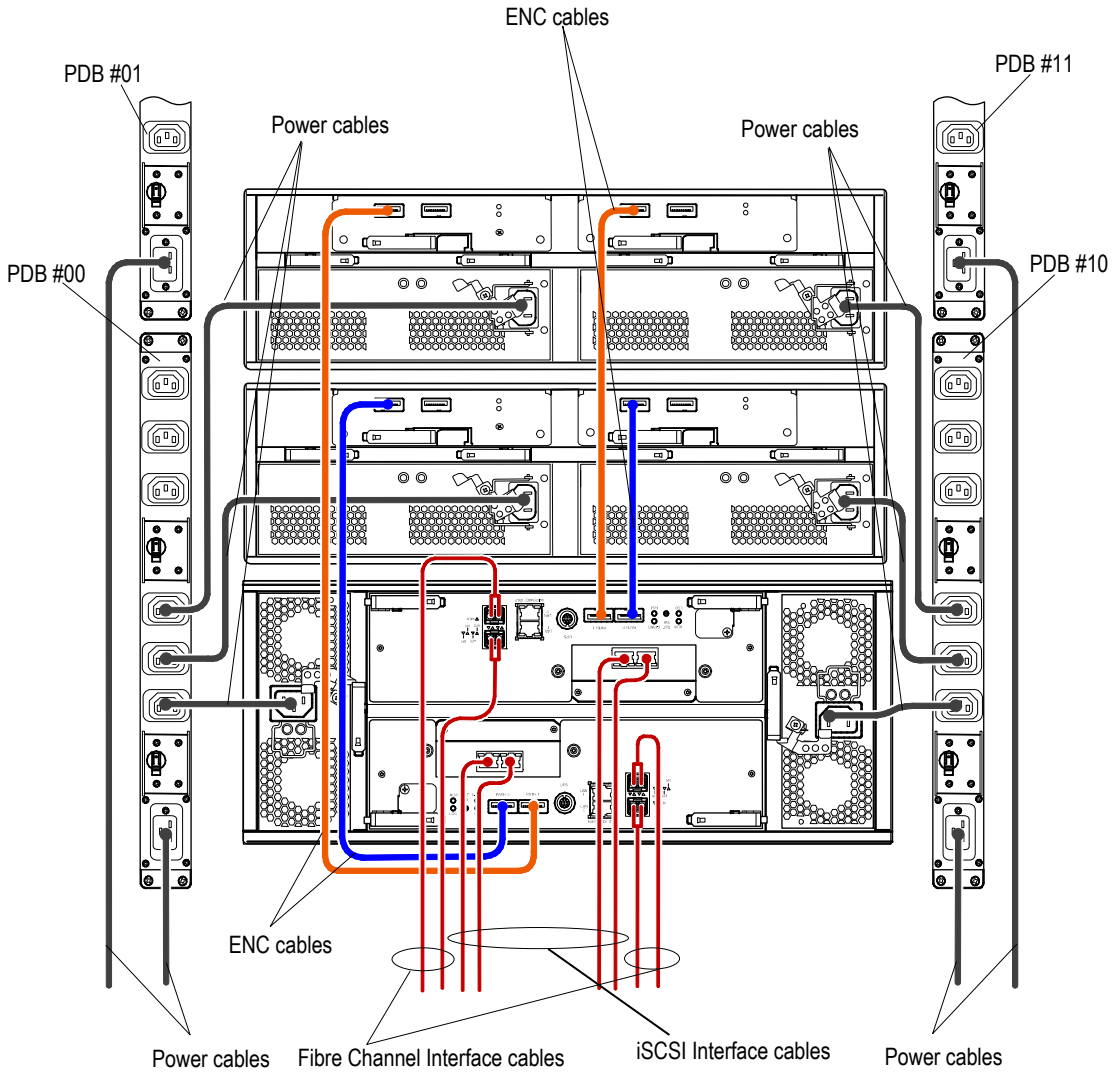


Figure 2.4.32.5 Fibre Channel and iSCSI Interface Cable Routing for the Subsystem (RKES/RKEXS8F+RKAK × 2)

2.4.9 Connecting the Interface Cables

(1) Connecting the Fibre Channel Interface cable

Two types of cable are provided as the Fibre Channel Interface cables(‡1) to be used so that they fit to connector shapes of the RKM/RKS/RKH and host computer (or HBA (Host Bus Adapter), SW) to be connected.

Table 2.4.5 shows correspondences between the connector shapes and cable types. Choose the applicable cables from the table correctly.

Table 2.4.5 Types Fibre Channel Interface Cables to be Connected

FC Interface Board side (for RKM/RKS/RKH side)			Host computer side (HBA (Host Bus Adapter), SW)	Types Cables to be Connected	
Parts name of connected cable plug	Model	Connector form	Connector form	Cable connector shape	Model
FC Interface Board	DF-F800-DKF42 DF-F800-DKF44 DF-F800-DKF84 DF-F800-DKF82	LC	SC	LC-SC cable	A-6515-GMxS (*1) A-6515-HMxS (*1)
			LC	LC-LC cable	A-6515-GMxL (*1) A-6515-HMxL (*1)

*1 : “x” denotes a valuable (1 to 300) that shows a cable length.

(a) Connect the Fibre Channel Interface cables after making sure of the ports to be connected on the rear face of the subsystem. (Refer to Figure 2.4.33.)

NOTE : When bending the Fibre Channel Interface cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.

‡1 : When the multiple ports are used, make sure of the port corresponding to the host computer to be connected.

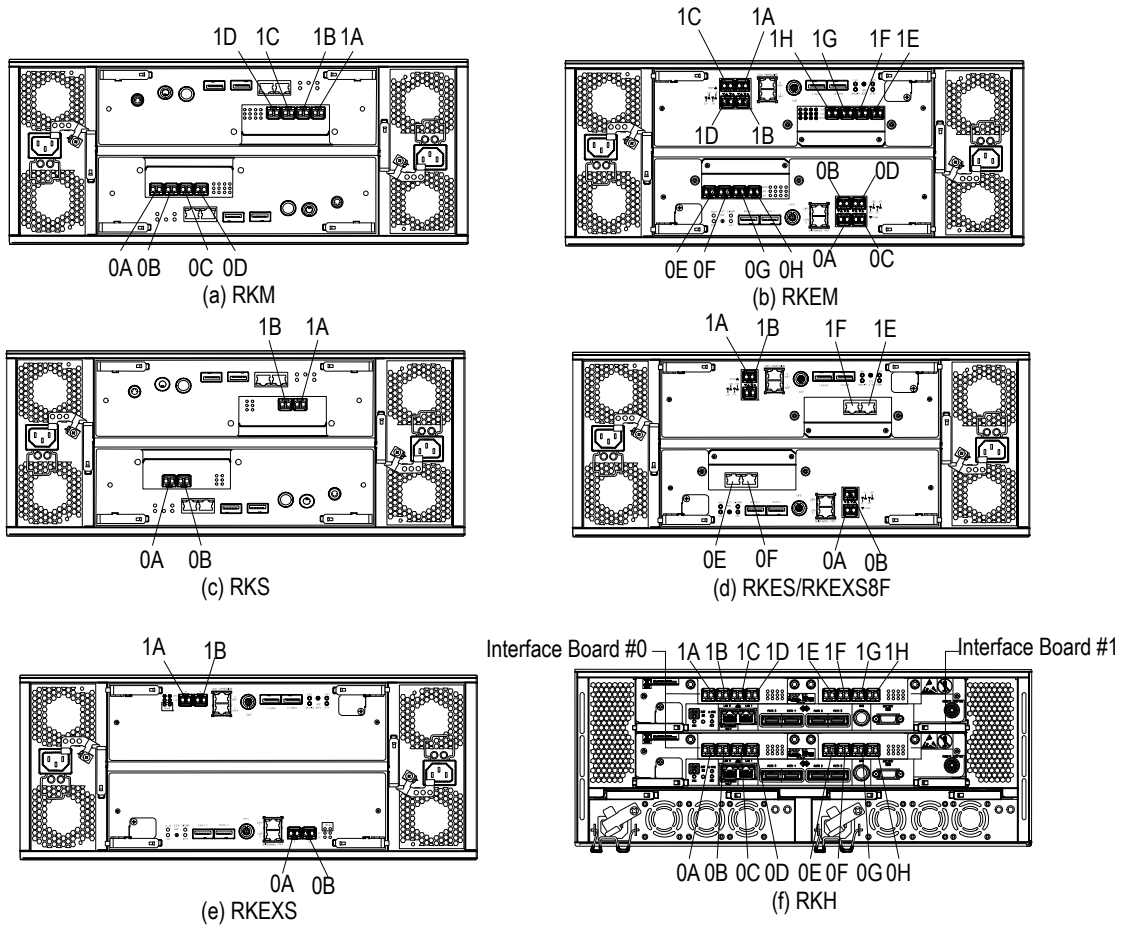


Figure 2.4.33 Connection Port for Fibre Channel Interface Cables

(b) Pull all the Fibre Channel Interface cables into the rack frame passing them through an opening for cables on the bottom plate of the rack frame.

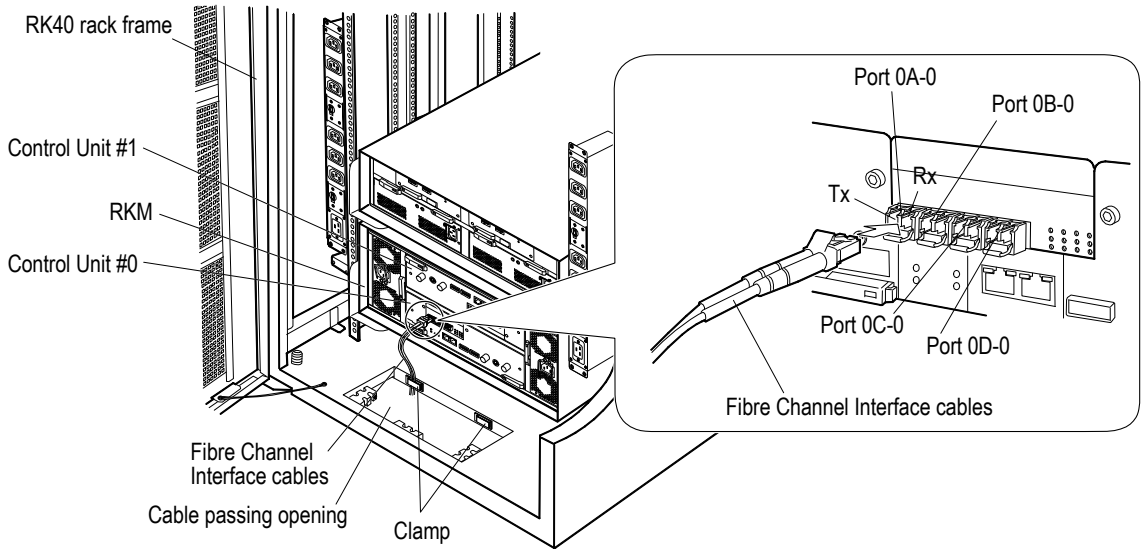
(c) Connect the Fibre Channel Interface cable to the connector of the each port.

NOTE : • Insert the Fibre Channel interface cables until they are fixed to the host connectors.
If the Fibre Channel Interface cables are inserted half in the host connectors, the Control Unit continues to detect the Fibre Channel failures, and the I/O processing of the Control Unit may be deteriorated.

- The location of Fibre Channel connectors is different depending on Control Unit. Check the location in Figure 2.4.33 before connecting a cable.
- To the ports 0A/0C/1B/1D on the RKEM/RKES, connect a cable turning it upside down.

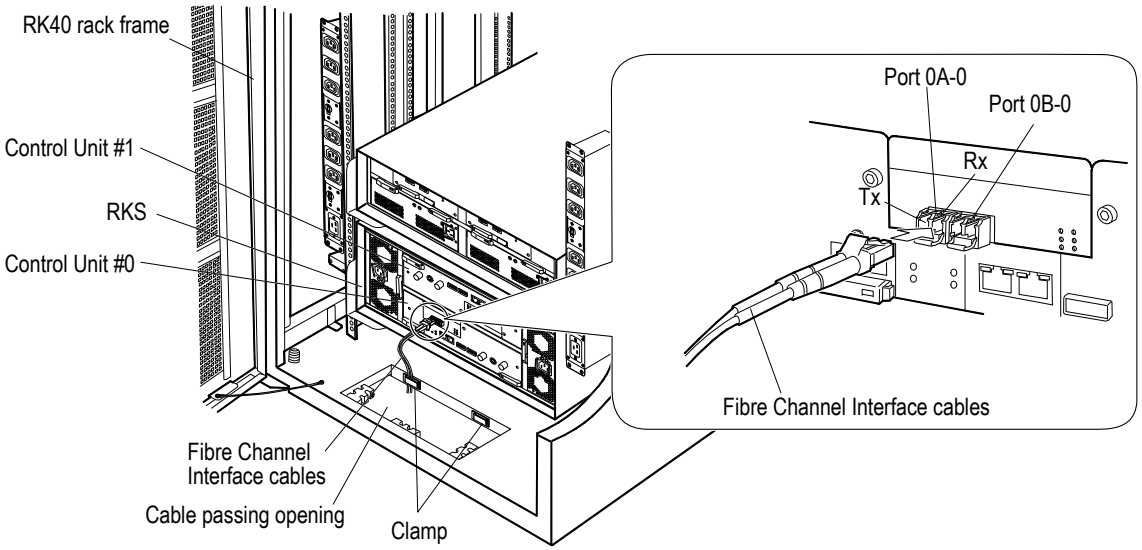
(d) Affix the clamps attached to the DF-F800-URHT7 (rail kit for the RK40) on it, and perform the routing of the Fibre Channel interface cables.

(e) Fasten the Fibre Channel Interface cables to the cable passing opening on the bottom plate giving them excessive lengths.



*1 : The figure shows the case where the FC Interface Board is installed in the Control Unit #0 of the RKM.

Figure 2.4.34 Fibre Channel Interface Cable Routing in the RK40 Rack Frame (RKM)



*1 : The figure shows the case where the FC Interface Board is installed in the Control Unit #0 of the RKS.

Figure 2.4.35 Fibre Channel Interface Cable Routing in the RK40 Rack Frame (RKS)

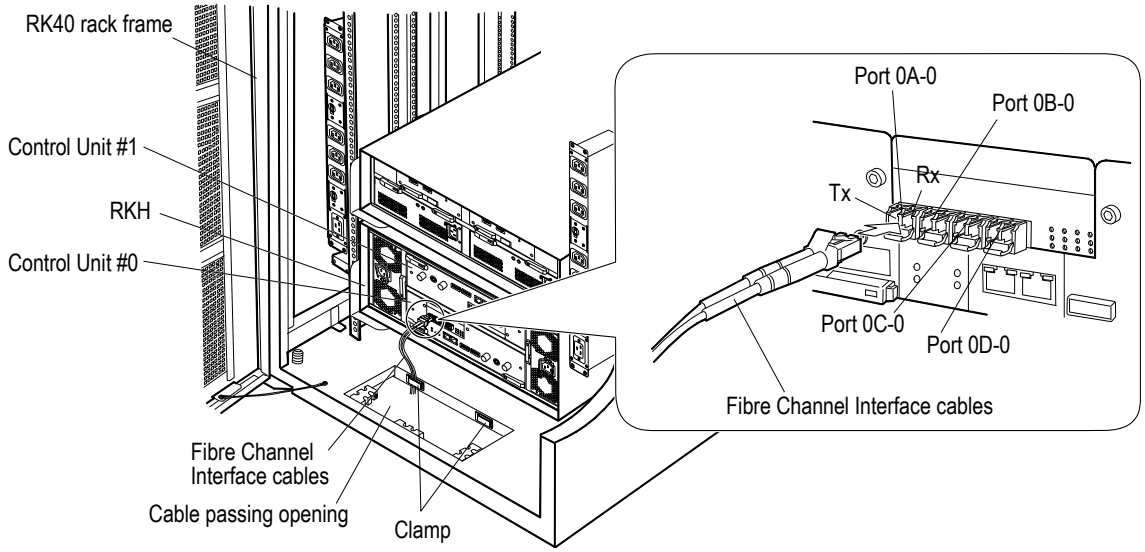


Figure 2.4.36 Fibre Channel Interface Cable Routing in the RK40 Rack Frame (RKH)

(2) Connecting the iSCSI Interface cable

(a) Connect the iSCSI Interface cables after making sure of the ports to be connected on the rear face of the subsystem. (Refer to Figure 2.4.36.1.)

NOTE : When bending the iSCSI Interface cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.

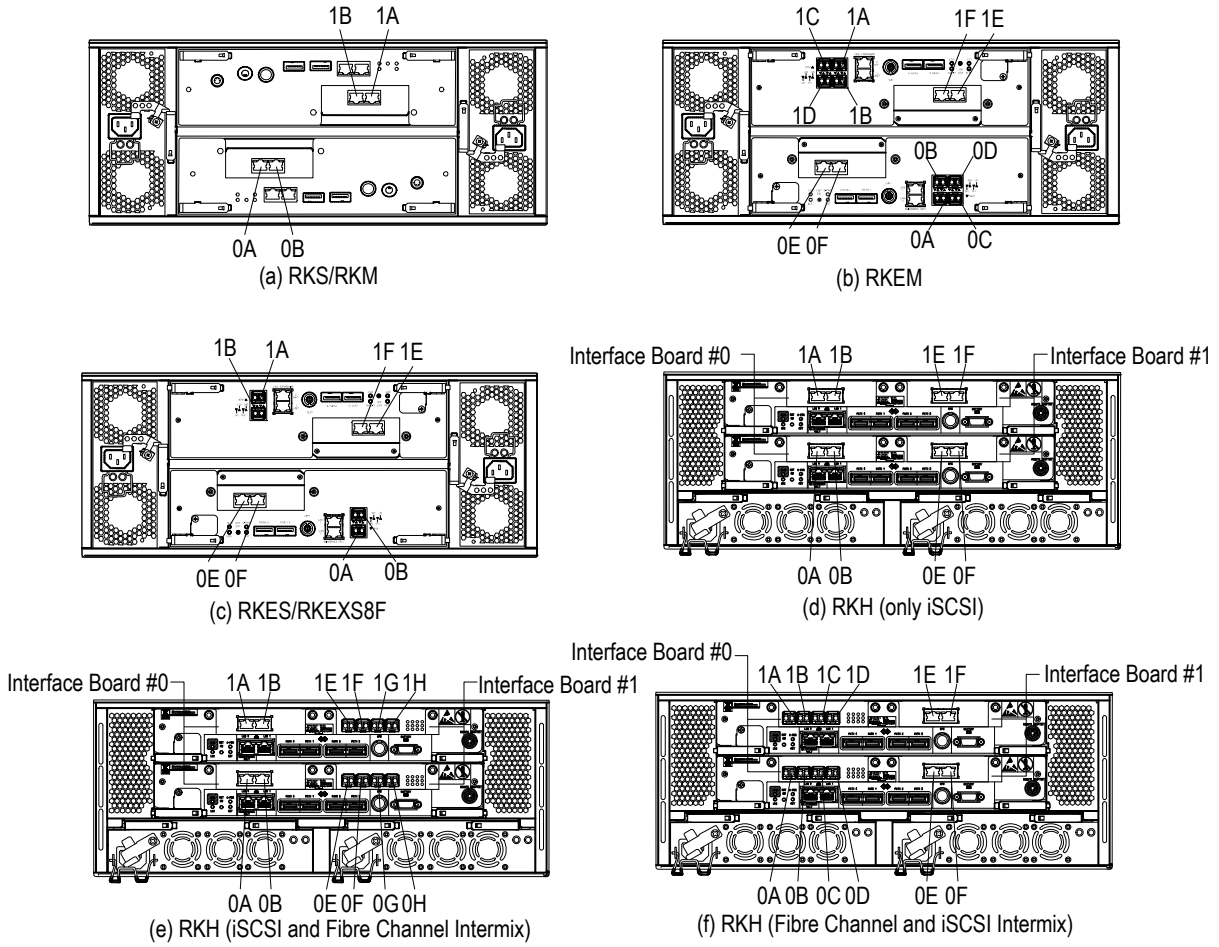


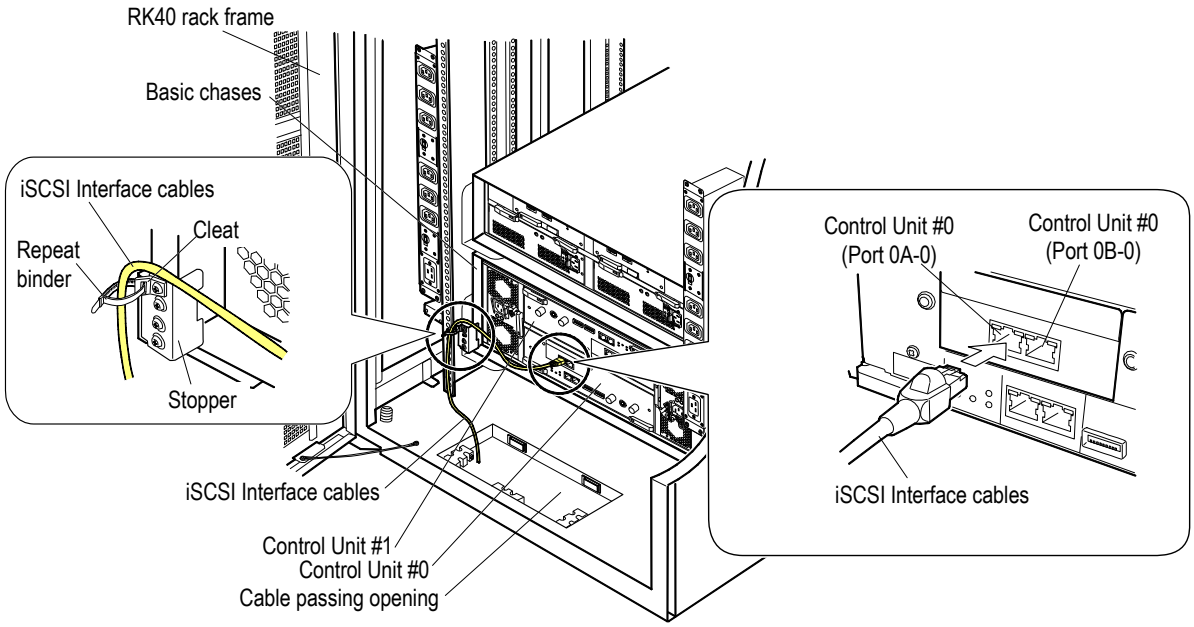
Figure 2.4.36.1 Connection Port for iSCSI Interface Cables

(b) Pull all the Interface cables into the rack frame passing them through an opening for cables on the bottom plate of the rack frame.

(c) Connect the Interface cable to the connector of the each port.

(d) In case of the U7 rack frame, perform the routing of the iSCSI interface cables, attach the cleat to the stopper, and fix the iSCSI interface cables through the repeat binder.

(e) Fasten the iSCSI interface cables giving them excessive lengths so that they will not be pulled.



*1 : The figure shows the case where the iSCSI Interface Board is installed in the Control Unit of the RKM.

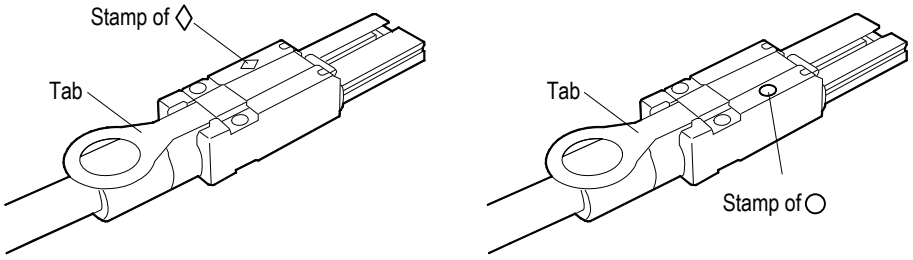
Figure 2.4.36.2 iSCSI Interface Cable Routing

2.4.10 Connecting the ENC Cables

NOTE : Chassis connection has a rule to connect them in order of Path number according to the order of unit ID number. For details, refer to Introduction "1.3 (1) (a) Rule of Additional Chassis connection ordering" (INTR 01-0081).

Connect a Basic Chassis and an Additional Chassis or an Additional Chassis and another Additional Chassis with the ENC cable.
Perform (1) to connect the RKM/RKS and the RKAK/RKAKS (refer to "(1) When connecting the RKM/RKS and the RKAK/RKAKS" (INST 02-0710).
Perform (2) to connect the RKH and the RKAK/RKAKS (refer to "(2) When connecting the RKH and the RKAK/RKAKS" (INST 02-0730).

NOTE : • The rubber cap is attached to the ENC connector.
Remove the rubber cap before installing the ENC cable.
• As for the plug of the ENC cable, both ends are different. One plug can be inserted in the ENC connector of the Basic Chassis or the OUT side of the Additional Chassis.
The other plug can be inserted in the IN side of the additional chassis.
Check the stamp of the plug and connect the ENC cable (refer to Figure 2.4.37).



(a) Connectable to the ENC connector of the Basic Chassis or the OUT side of the ENC connector of the Additional Chassis

(b) Connectable to the IN side of the ENC connector of the Additional Chassis

Figure 2.4.37 ENC Cable Stamp Position

(1) When connecting the RKM/RKS and the RKAK/RKAKS

Connect the Control Unit of the RKM/RKS and the ENC Unit of the RKAK/RKAKS (‡1) (the ENC cables are supplied with the RKAK/RKAKS).

Connect the Control Unit #0 of the RKM/RKS with the tab of the ENC cable being upward.

Connect the Control Unit #1 of the RKM/RKS and the ENC Unit of the RKAK/RKAKS with the tab of the ENC cable being downward.

NOTE : • In case of the single controller, connect only the ENC Unit #0 side. Do not connect the ENC Unit #1 side.
However, when connecting two or more RKAKs/RKAKSs, both ENC Units #0 and #1 should be connected with the ENC cables for the RKAKs/RKAKSs.
• When bending the ENC cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.
• If you insert it incorrectly, remove the ENC cable while pulling the tab of the ENC cable.

Connect the ENC cable in the following procedure referring to Figure 2.4.38.

(a) Connect the ENC cable to the ENC connector of the RKM/RKS.

(b) Connect the ENC cable to the IN side of the ENC Unit of the RKAK/RKAKS.

NOTE : Connect the Control Unit #0 of the RKM/RKS and the ENC Unit #0.
Also connect the Control Unit #1 of the RKM/RKS and the ENC Unit #1 of the RKAK/RKAKS.

(c) When connecting two ore more RKAKs/RKAKSs, connect the IN side and OUT side of the RKAK/RKAKS with the ENC cable.
For connecting the ENC cable when the RKM/RKS and the RKAKs/RKAKSs are installed at the maximum configuration, refer to "(3) ENC cable connection of maximum configuration" (INST 02-0750).

(d) Bundle lightly a part for the extra length of the connected ENC cable in the shape of a circle with a repeat binder.
Route the ENC cables as shown in Figure 2.4.44.2 Example of the ENC Cable Routing (INST 02-0792).

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

‡1 : Keep the ENC cables carefully to provide for the case where they are needed.

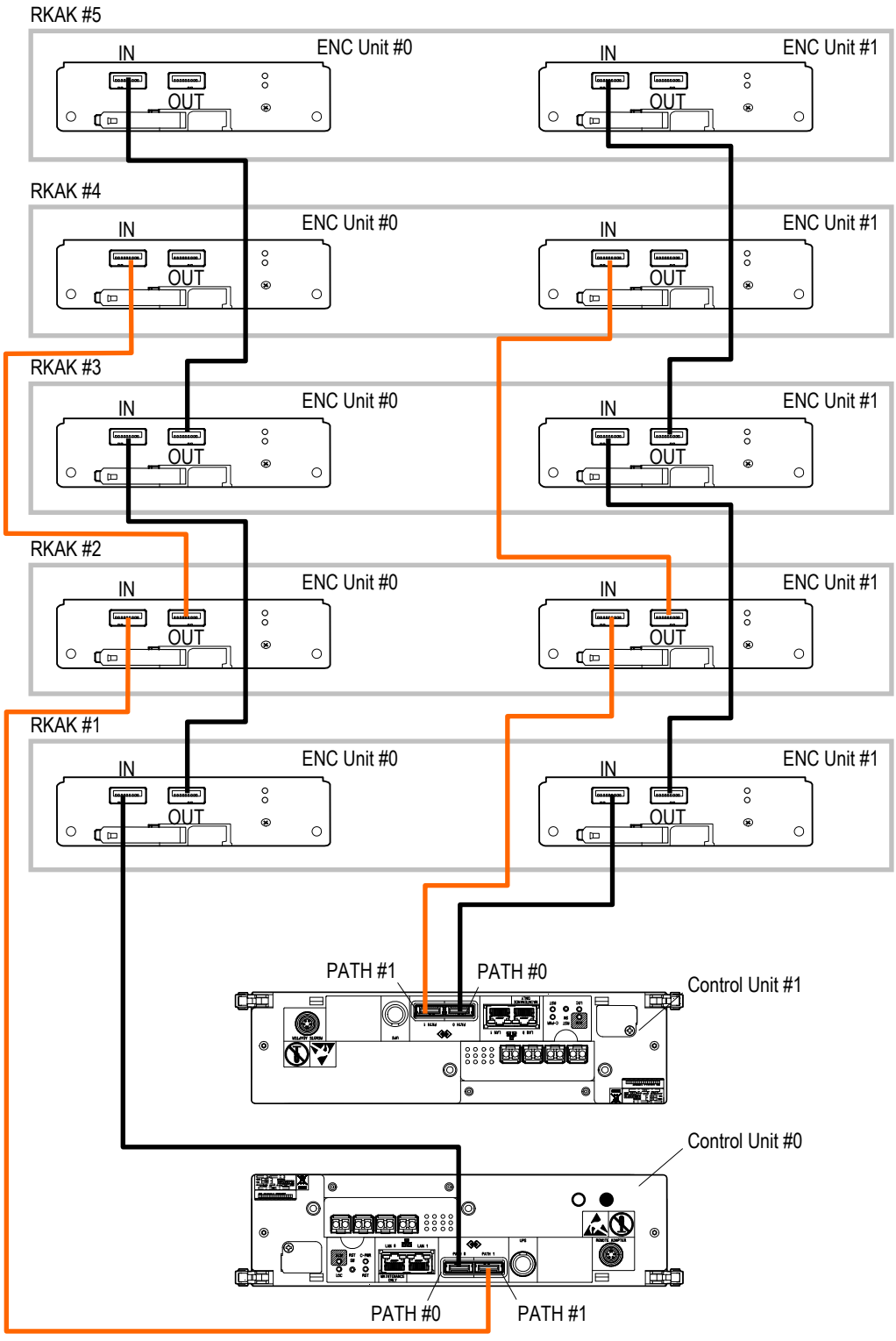


Figure 2.4.38 Connecting ENC Cables (RKM/RKS+RKAK)

(2) When connecting the RKH and the RKAK/RKAKS

Connect the Control Unit of the RKH and the ENC Unit of the RKAK/RKAKS [‡1] (the ENC cables are supplied with the RKAK/RKAKS).

Connect the Control Unit of the RKH with the tab of the ENC cable being upward.

Connect the ENC Unit of the RKAK/RKAKS with the tab of the ENC cable being downward.

NOTE : • When connecting two or more RKAKs/RKAKSs, both ENC Units #0 and #1 should be connected with the ENC cables for the RKAKs/RKAKSs.
• When bending the ENC cable to connect it, give it a bend with a long radius (not less than 30 mm) so as not to apply the cable and the connector excessive stresses.
• If you insert it incorrectly, remove the ENC cable while pulling the tab of the ENC cable.

Connect the ENC cable in the following procedure referring to Figure 2.4.39.

(a) Connect the ENC cable to the ENC connector of the RKH.

(b) Connect the ENC cable to the IN side of the ENC Unit of the RKAK/RKAKS.

NOTE : Connect the Control Unit #0 of the RKH and the ENC Unit #0.
Also connect the Control Unit #1 of the RKH and the ENC Unit #1 of the RKAK/RKAKS.

(c) When connecting five or more RKAKs/RKAKSs, connect the IN side and OUT side of the RKAK/RKAKS with the ENC cable.

For connecting the ENC cable when the RKH and the RKAKs/RKAKSs are installed at the maximum configuration, refer to "(3) ENC cable connection of maximum configuration" (INST 02-0750).

(d) Bundle lightly a part for the extra length of the connected ENC cable in the shape of a circle with a repeat binder.

Route the ENC cables as shown in Figure 2.4.44.2 Example of the ENC Cable Routing (INST 02-0792).

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

‡1 : Keep the ENC cables carefully to provide for the case where they are needed.

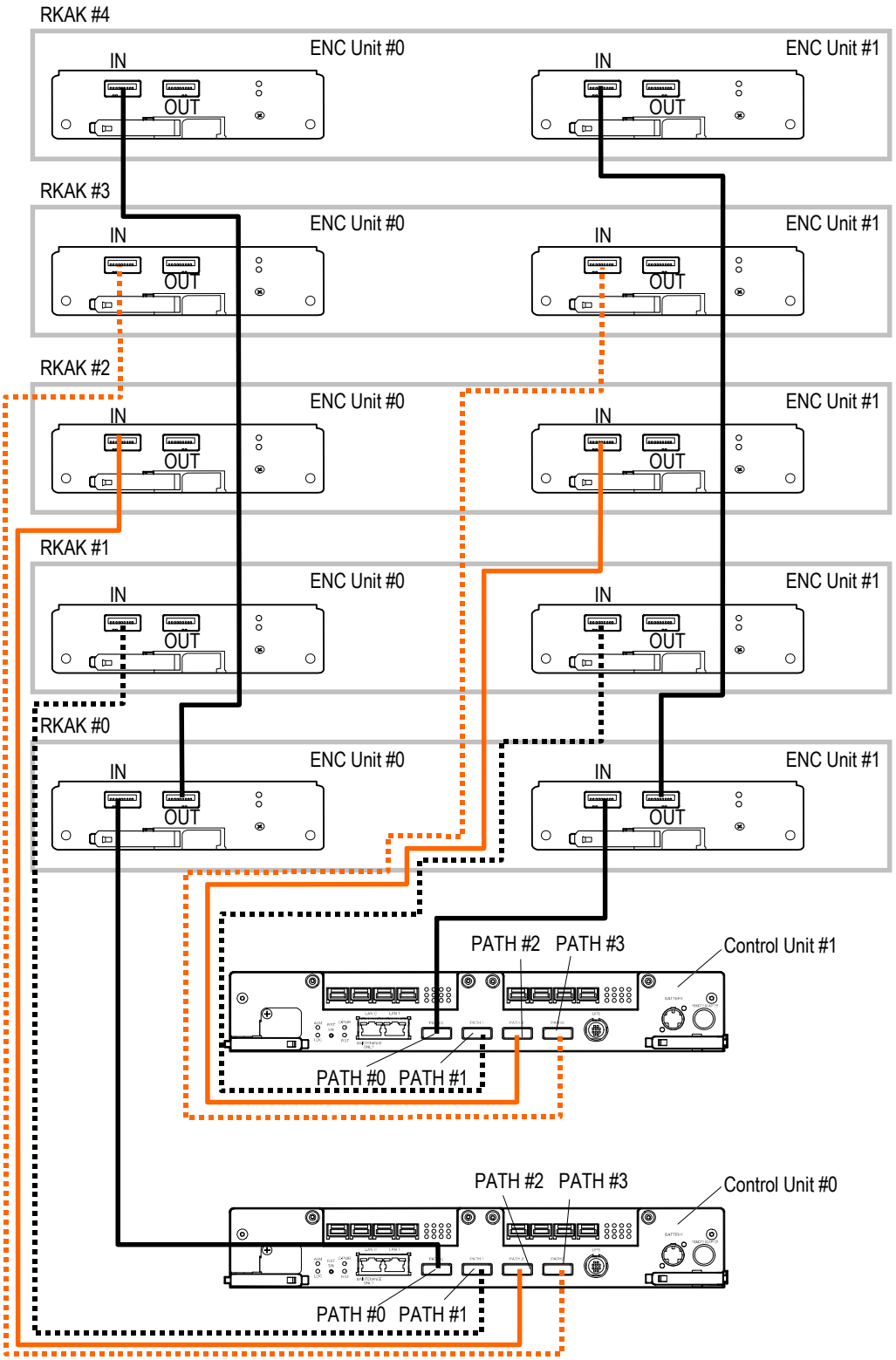


Figure 2.4.39 Connecting ENC Cables (RKH+RKAK)

(3) ENC cable connection of maximum configuration

The ENC cable connection figures of structures RKM, RKS, RKEXS, RKEXSA and RKH are listed from (a) to (v).

(a) RKM Dual Control Unit configuration (RKM + 15 RKAKs)

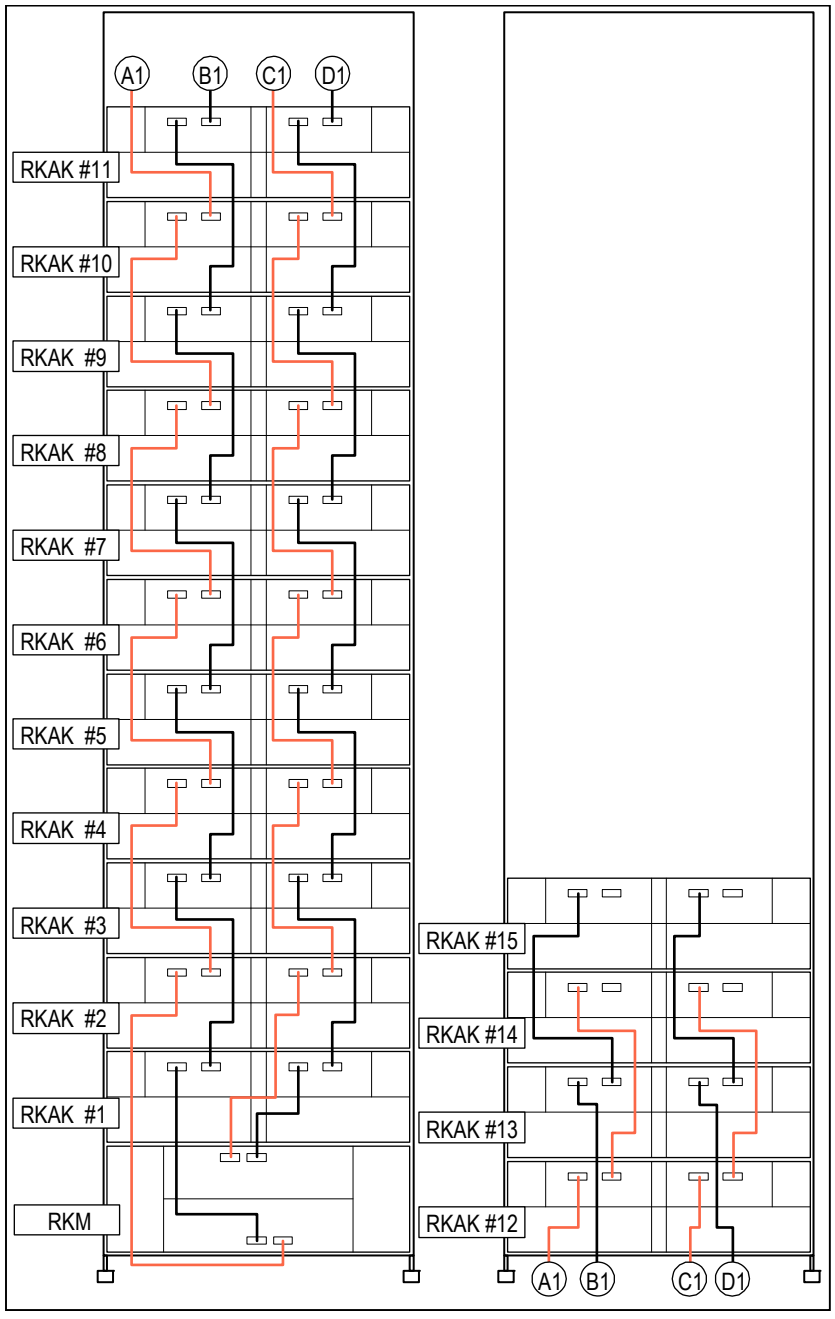


Figure 2.4.40 ENC Cable connection of the RKM + 15 RKAKs (Dual Control Unit configuration)

(b) RKM Single Control Unit configuration (RKM + 15 RKAKs)

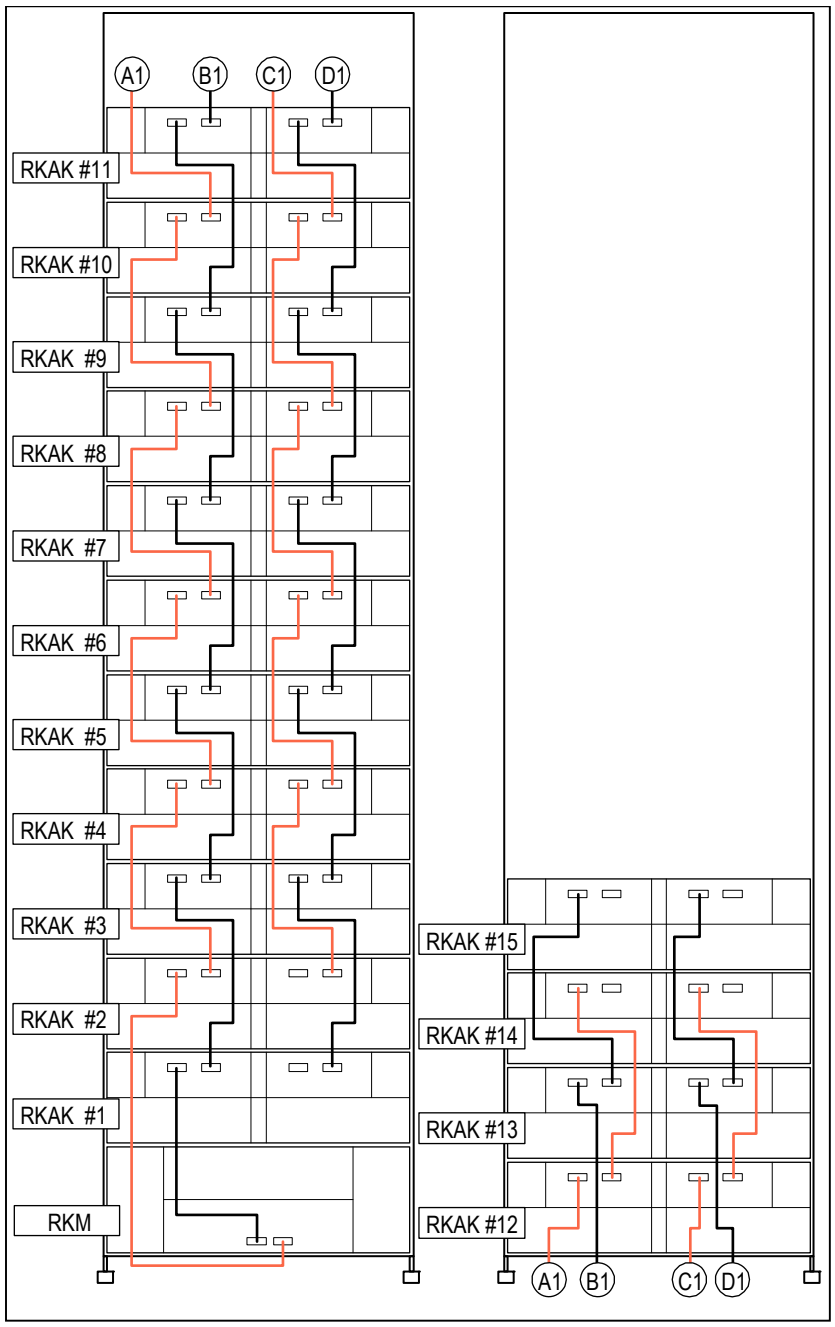


Figure 2.4.41 ENC Cable connection of the RKM + 15 RKAKs (Single Control Unit configuration)

(c) RKM Dual Control Unit configuration (RKM + 9 RKAKSs)

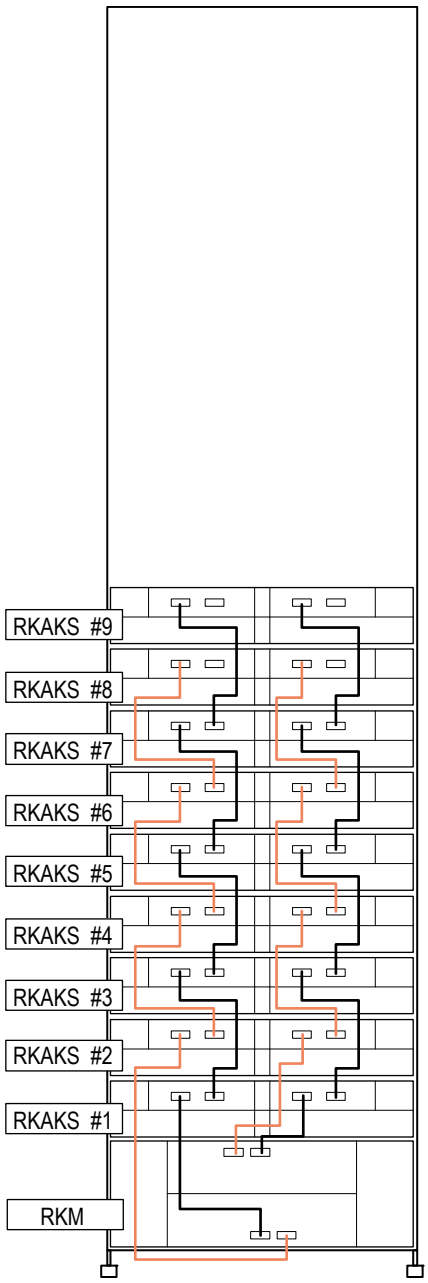


Figure 2.4.41.1 ENC Cable connection of the RKM + 9 RKAKSs (Dual Control Unit configuration)

(d) RKM Single Control Unit configuration (RKM + 9 RKAKSs)

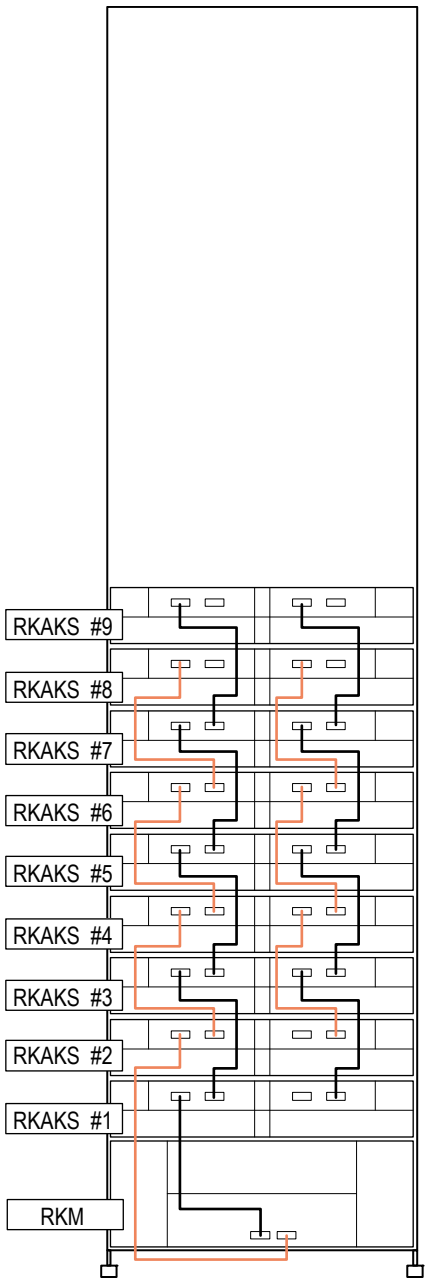


Figure 2.4.41.2 ENC Cable connection of the RKM + 9 RKAKSs (Single Control Unit configuration)

(e) RKS Dual Control Unit configuration (RKS+ 7 RKAKs)

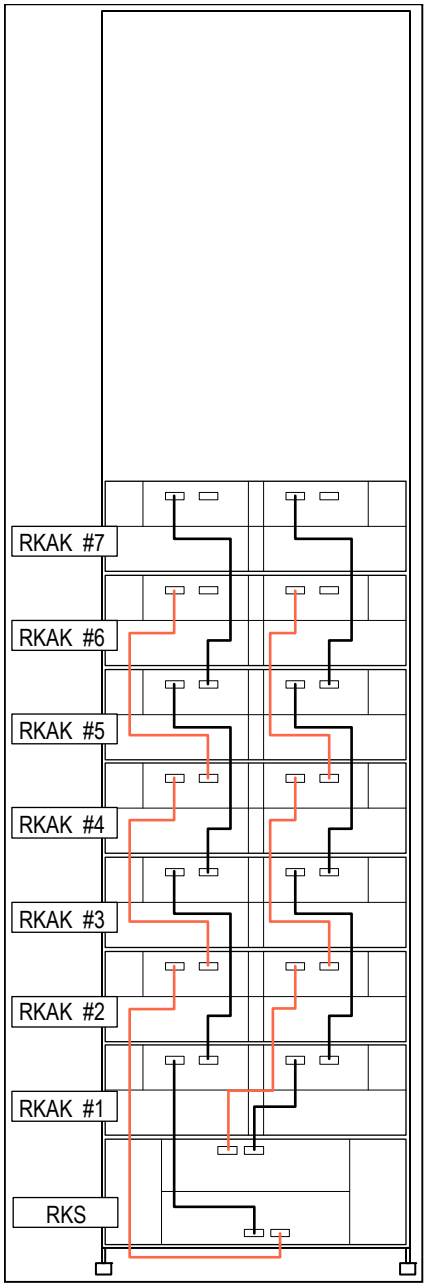


Figure 2.4.42 ENC Cable connection of the RKS + 7 RKAKs (Dual Control Unit configuration)

(f) RKS Single Control Unit configuration (RKS + 7 RKAKs)

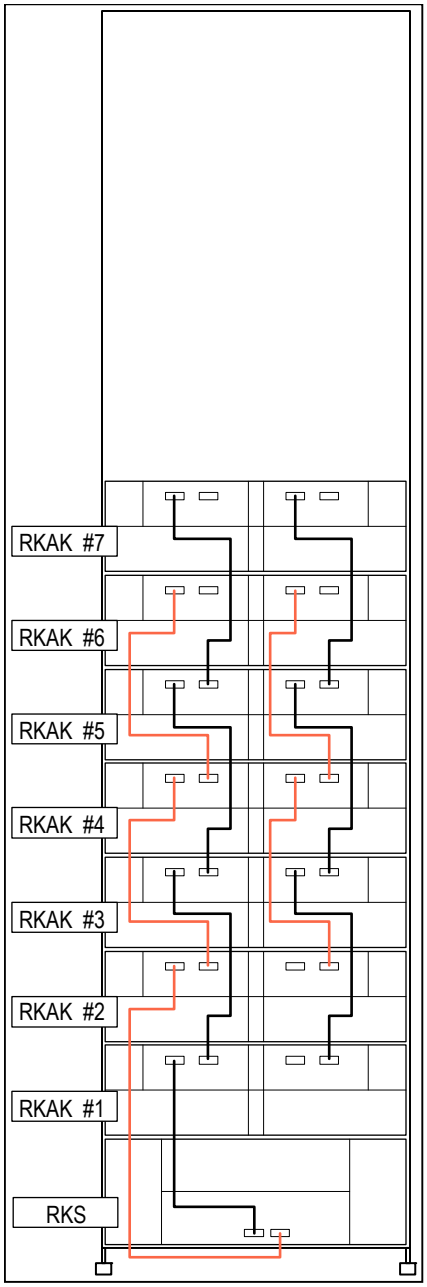


Figure 2.4.42.1 ENC Cable connection of the RKS + 7 RKAKs (Single Control Unit configuration)

(g) RKS Dual Control Unit configuration (RKS+ 6 RKAKSs)

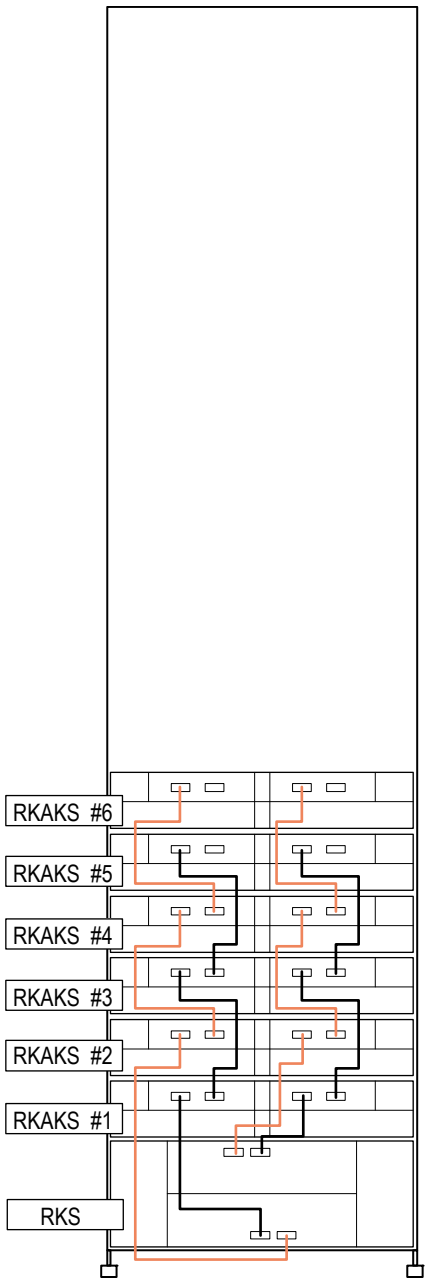


Figure 2.4.42.2 ENC Cable connection of the RKS + 6 RKAKSs (Dual Control Unit configuration)

(h) RKS Single Control Unit configuration (RKS + 6 RKAKSs)

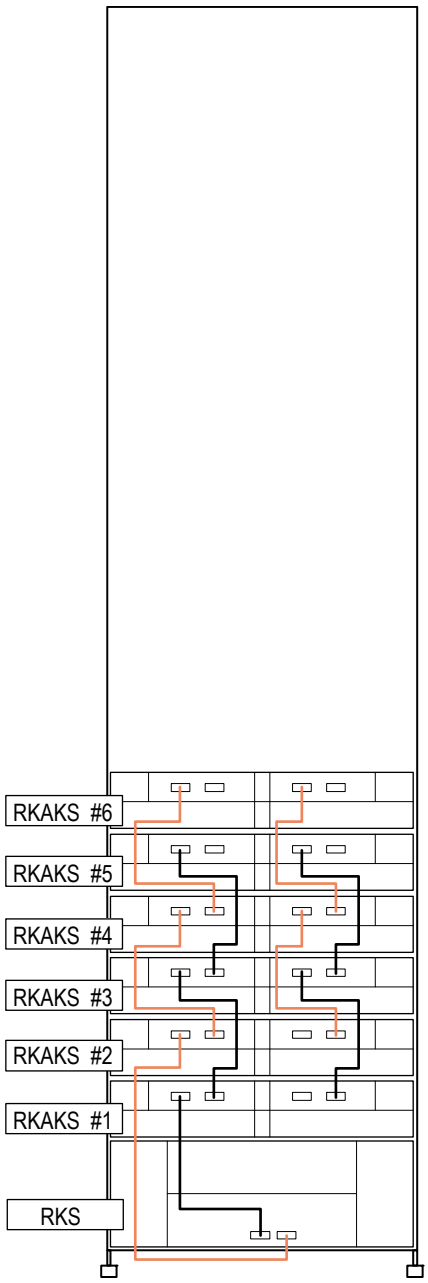


Figure 2.4.42.3 ENC Cable connection of the RKS + 6 RKAKSs (Single Control Unit configuration)

(i) RKEXS Dual Control Unit configuration (RKEXS+ 3 RKAKs)

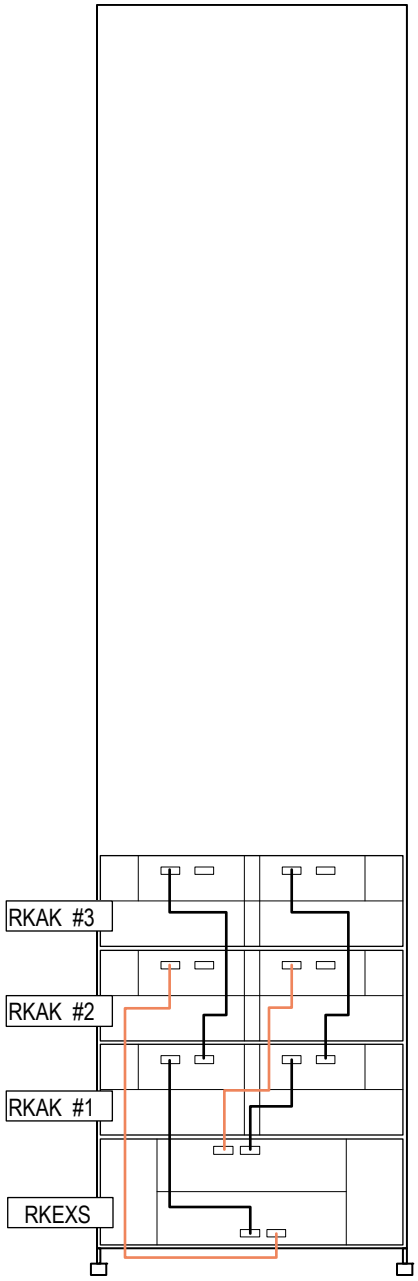


Figure 2.4.43 ENC Cable connection of the RKEXS + 3 RKAKs (Dual Control Unit configuration)

(j) RKEXS Single Control Unit configuration (RKEXS + 3 RKAKs)

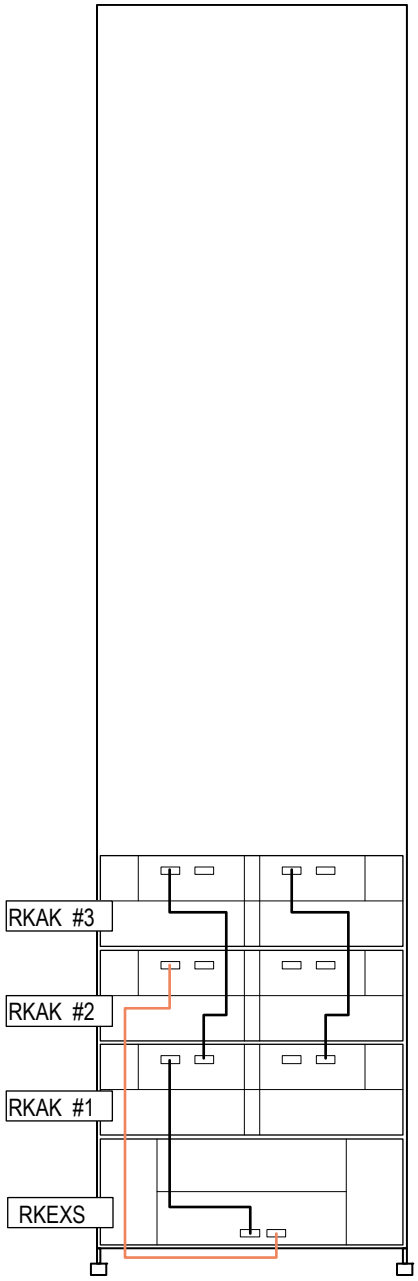


Figure 2.4.43.1 ENC Cable connection of the RKEXS + 3 RKAKs (Single Control Unit configuration)

(k) RKEXS Dual Control Unit configuration (RKEXS+ 3 RKAKSs)

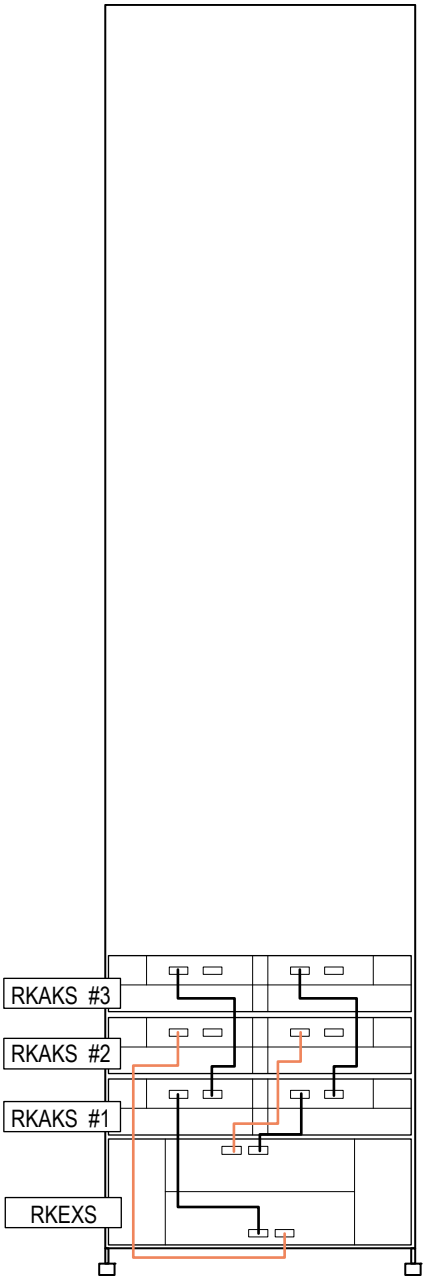


Figure 2.4.43.2 ENC Cable connection of the RKEXS + 3 RKAKSs (Dual Control Unit configuration)

(l) RKEXS Single Control Unit configuration (RKEXS + 3 RKAKSs)

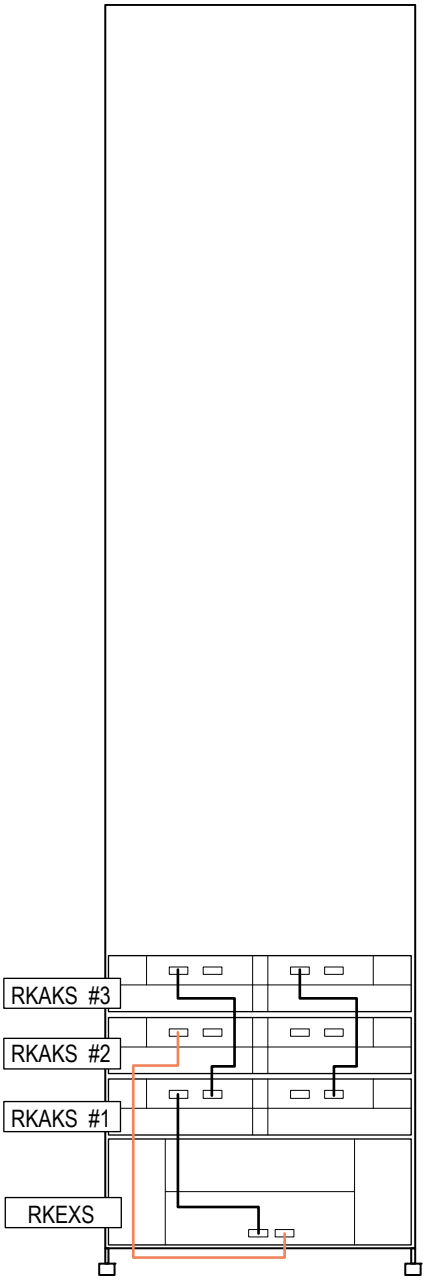


Figure 2.4.43.3 ENC Cable connection of the RKEXS + 3 RKAKSs (Single Control Unit configuration)

(m) RKEXSA/RKEXSB Dual Control Unit configuration (RKEXSA/RKEXSB + 3 RKAKs)

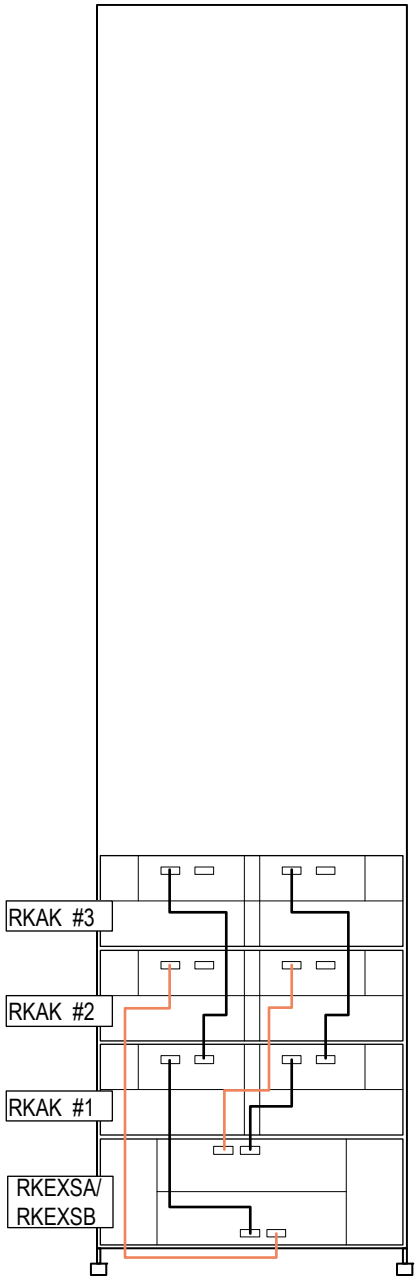


Figure 2.4.43.4 ENC Cable connection of the RKEXSA/RKEXSB + 3 RKAKs (Dual Control Unit configuration)

(n) RKEXSA/RKEXSB Single Control Unit configuration (RKEXSA/RKEXSB + 3 RKAKs)

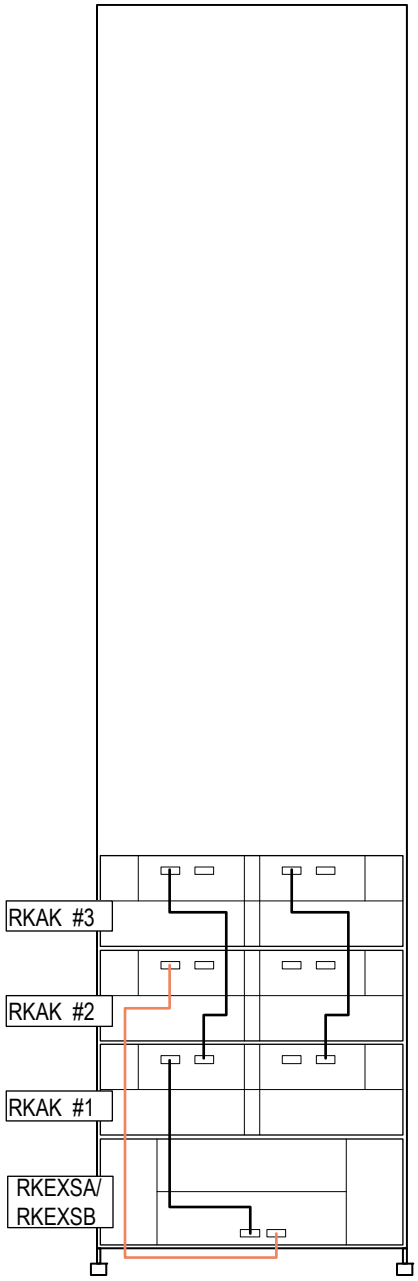


Figure 2.4.43.5 ENC Cable connection of the RKEXSA/RKEXSB + 3 RKAKs (Single Control Unit configuration)

(o) RKEXSA/RKEXSB Dual Control Unit configuration (RKEXSA/RKEXSB + 3 RKAKSs)

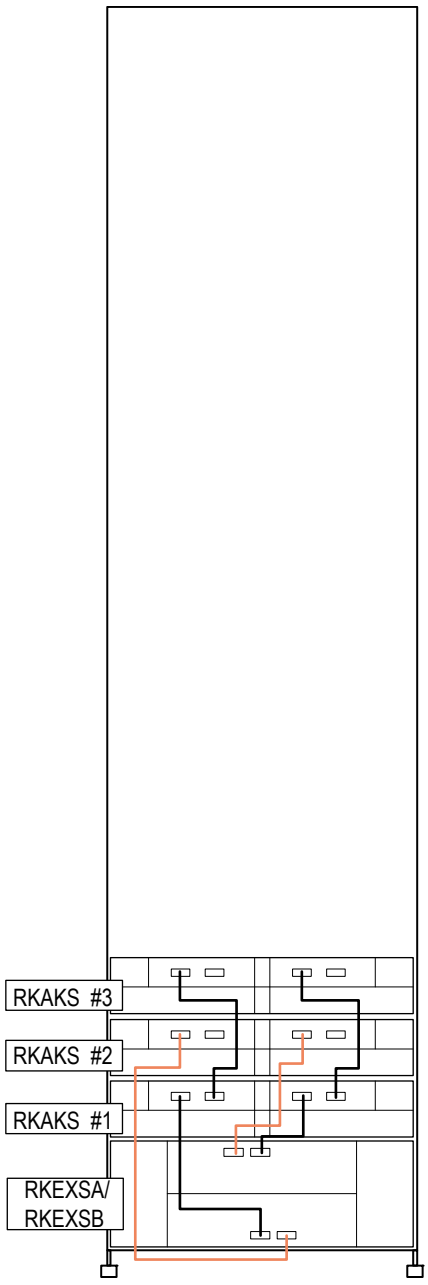


Figure 2.4.43.6 ENC Cable connection of the RKEXSA/RKEXSB + 3 RKAKSs (Dual Control Unit configuration)

(p) RKEXSA/RKEXSB Single Control Unit configuration (RKEXSA/RKEXSB + 3 RKAKSs)

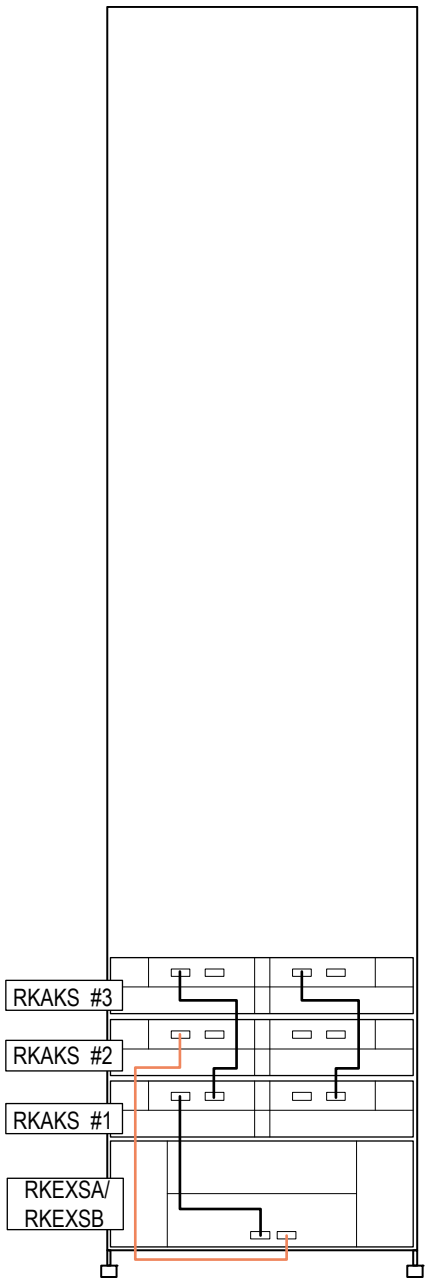


Figure 2.4.43.7 ENC Cable connection of the RKEXSA/RKEXSB + 3 RKAKSs (Single Control Unit configuration)

(q) RKEXS8F Dual Control Unit configuration (RKEXS8F + 5 RKAKs)

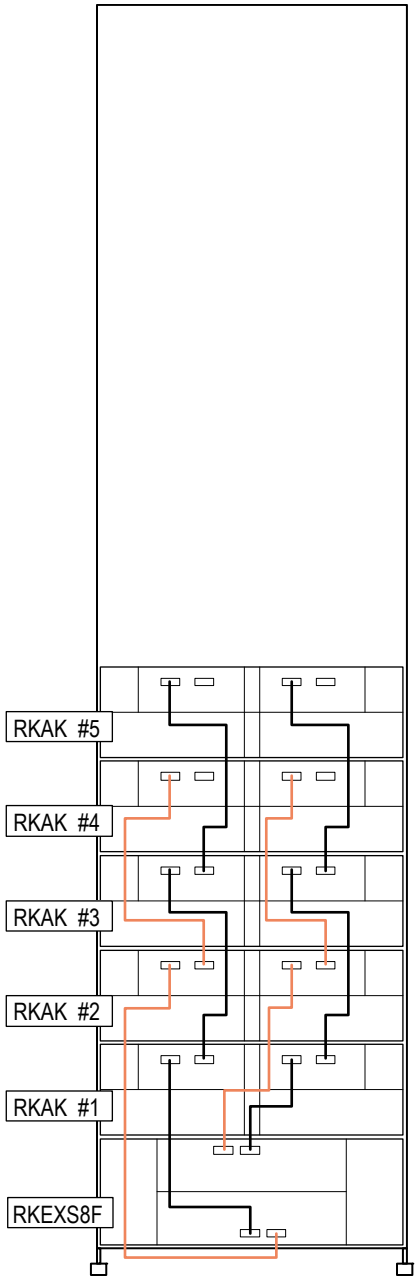


Figure 2.4.43.8 ENC Cable connection of the RKEXS8F + 5 RKAKs (Dual Control Unit configuration)

(r) RKEXS8F Single Control Unit configuration (RKEXS8F + 5 RKAKs)

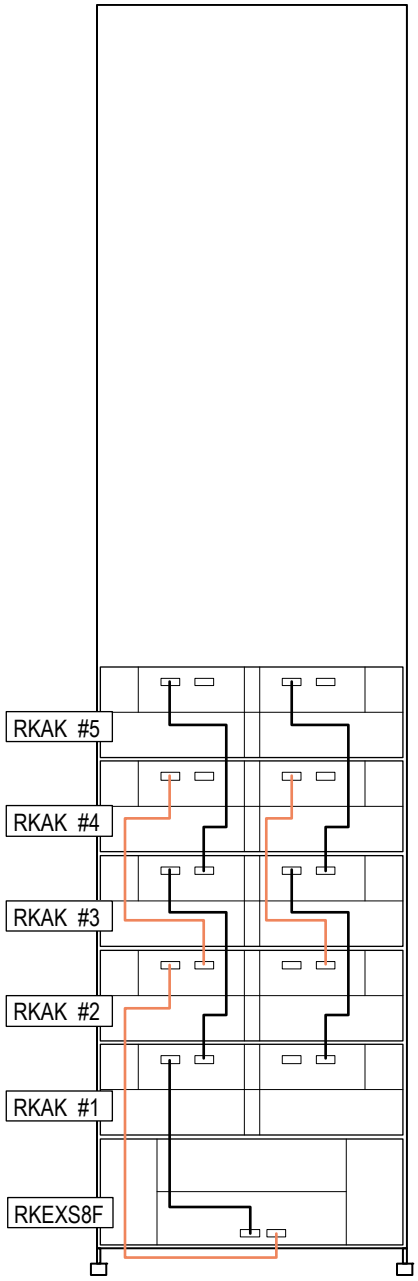


Figure 2.4.43.9 ENC Cable connection of the RKEXS8F + 5 RKAKs (Single Control Unit configuration)

(s) RKEXS8F Dual Control Unit configuration (RKEXS8F + 3 RKAKSs)

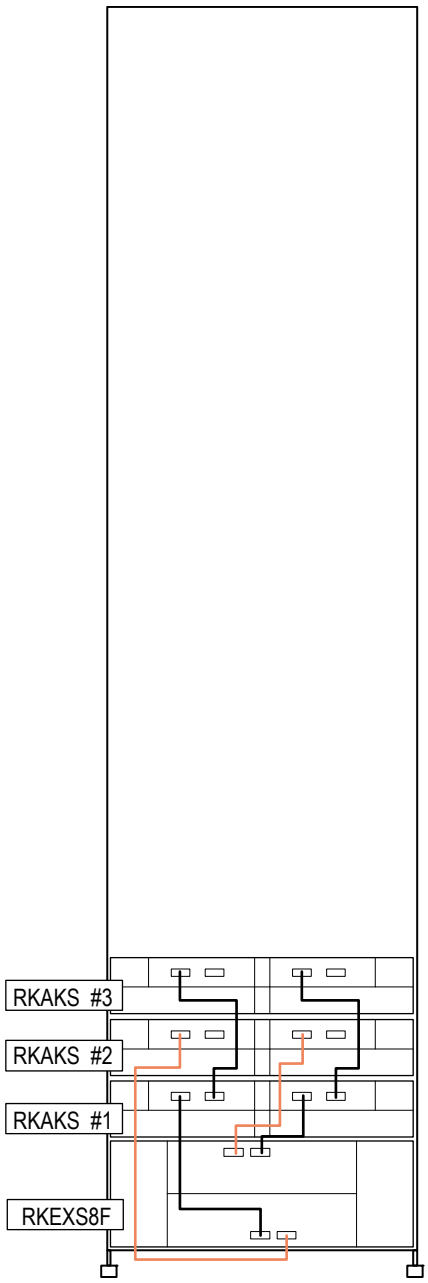


Figure 2.4.43.10 ENC Cable connection of the RKEXS8F + 3 RKAKSs (Dual Control Unit configuration)

(t) RKEXS8F Single Control Unit configuration (RKEXS8F + 3 RKAKSs)

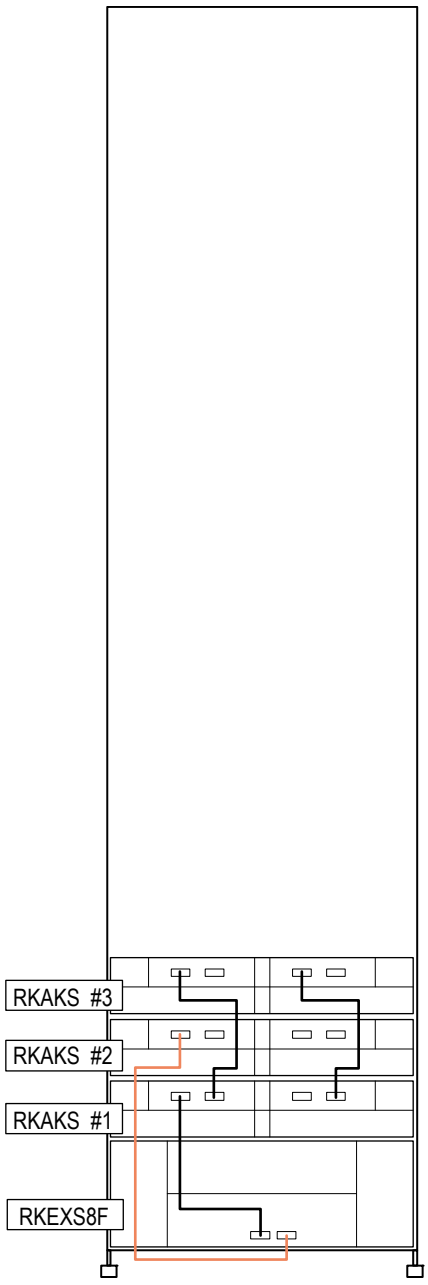


Figure 2.4.43.11 ENC Cable connection of the RKEXS8F + 3 RKAKSs (Single Control Unit configuration)

(u) RKH configuration (RKH + 32 RKAKs)

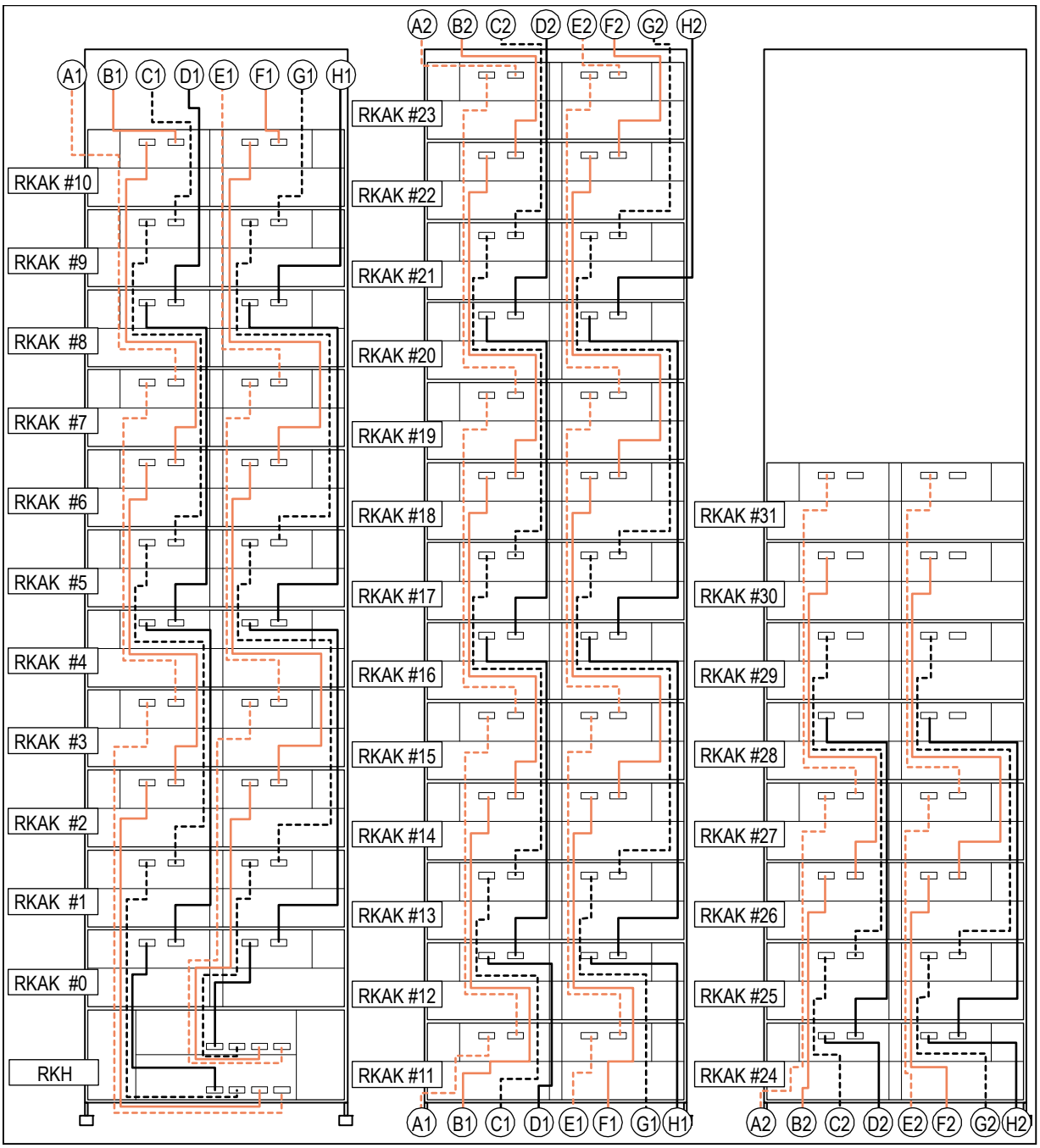


Figure 2.4.44 ENC Cable connection of the RKH + 32 RKAKs

(v) RKH configuration (RKH + 20 RKAKSs)

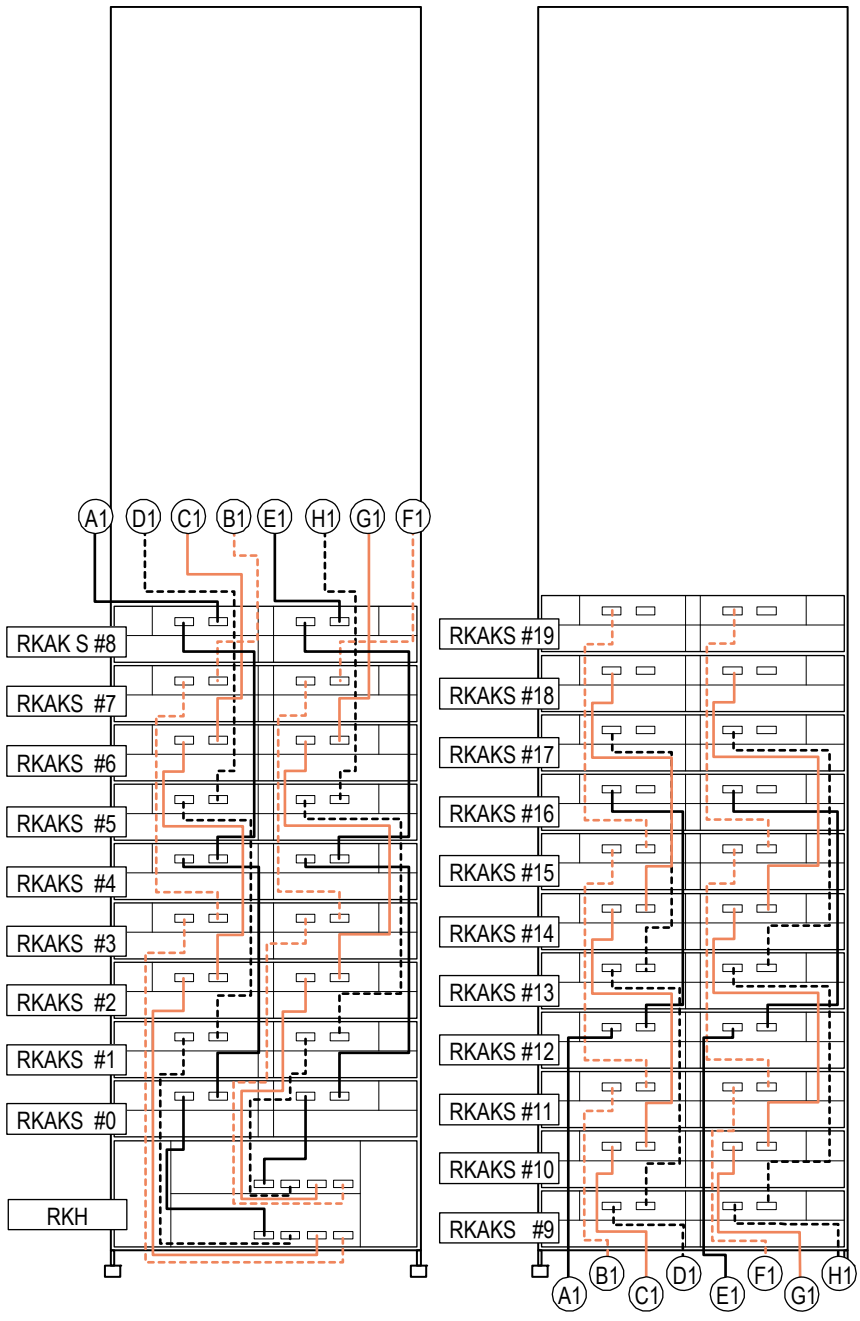
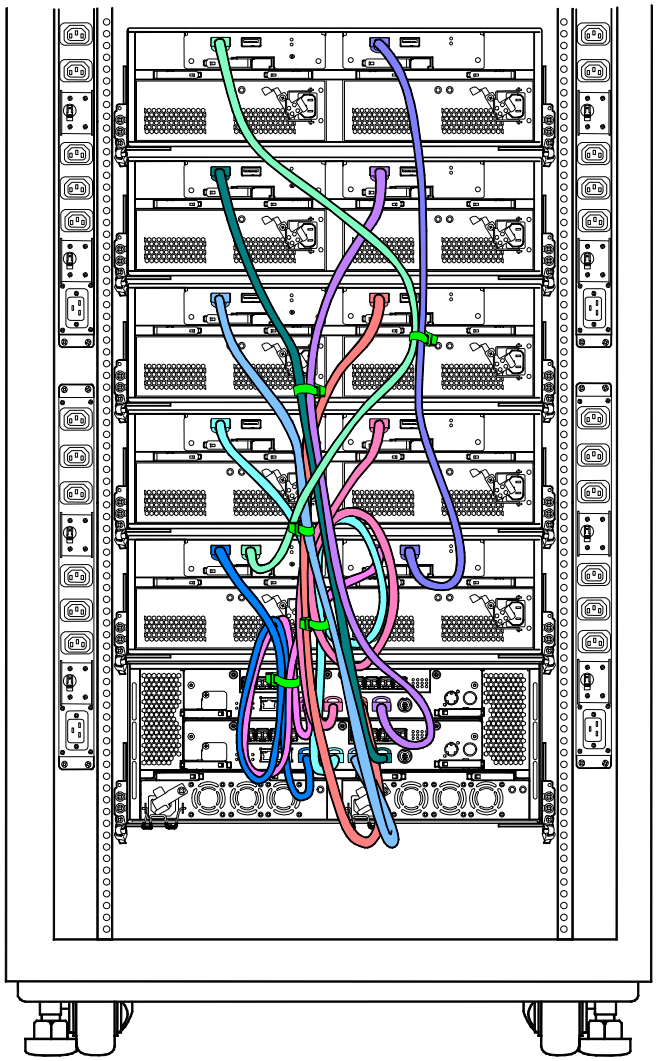


Figure 2.4.44.1 ENC Cable connection of the RKH + 20 RKAKSs



*1: This figure indicates the ENC cable routing in the configuration with one RKH and five RKAKs connected.

Figure 2.4.44.2 Example of ENC Cable Routing

2.4.11 Connecting the Power Cables

Connecting the power cables of Power Unit

(1) In the case of the RKM/RKS/RKH/RKAK/RKAKS

⚠ 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.**

(a) Make sure that the breaker of the each PDB has been turned off.
(b) Insert the power cable plug completely into the receptacle on the each Power Unit.
(c) Pass Repeat Binders through the cleats attached to the right and left stoppers and fasten the power cable with the Binders.
(d) Insert the each power cable plug into the corresponding receptacle of the PDB. (Use the PDB receptacles in the order from the J101 to J103.)

NOTE : • Be sure to plug the power cable for the Power Unit#0 in the receptacle of the PDB#00 or PDB#01.
Be sure to plug the power cable for the Power Unit#1 in the receptacle of the PDB#10 or PDB#11.
If they are plugged in the receptacles of the PDBs 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 subsystem in the outlet of the PDB.
• Limit the total current output from the outlets J101 to J103/J201 to J203 so that it does not exceed 16 amperes (‡1).

(e) Hang the cable clamp of PDB on the plug of the power cable.

NOTE : When using PDB 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.

‡1 : Connect the power cables so that the load on a PDB does not exceed 16 A after checking the load through a calculation.
Connect the power cables so that the load on a PDB breaker does not exceed 8 A after checking the load through a calculation.
RKH one unit : 2.2 A
RKM one unit : 3.8 A
RKS one unit : 3.8 A
RKAK one unit : 2.4 A

(f) Route the power cables.

(g) Push in the plug of the power cable which has been inserted into the PDB again.
It may be loosened owing to a routing.
Route the power cables as shown in Figure 2.4.45.1 Example of Power Cable Routing (INST 02-0811).

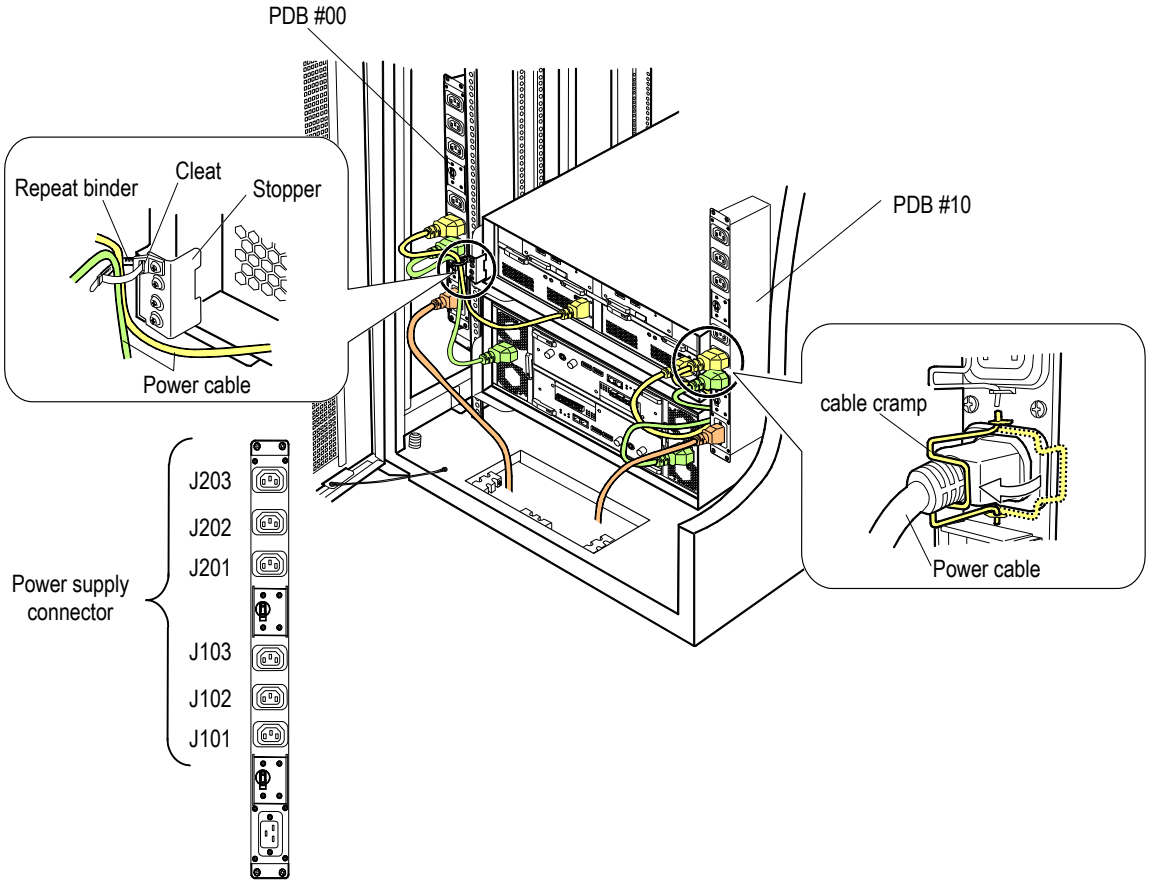
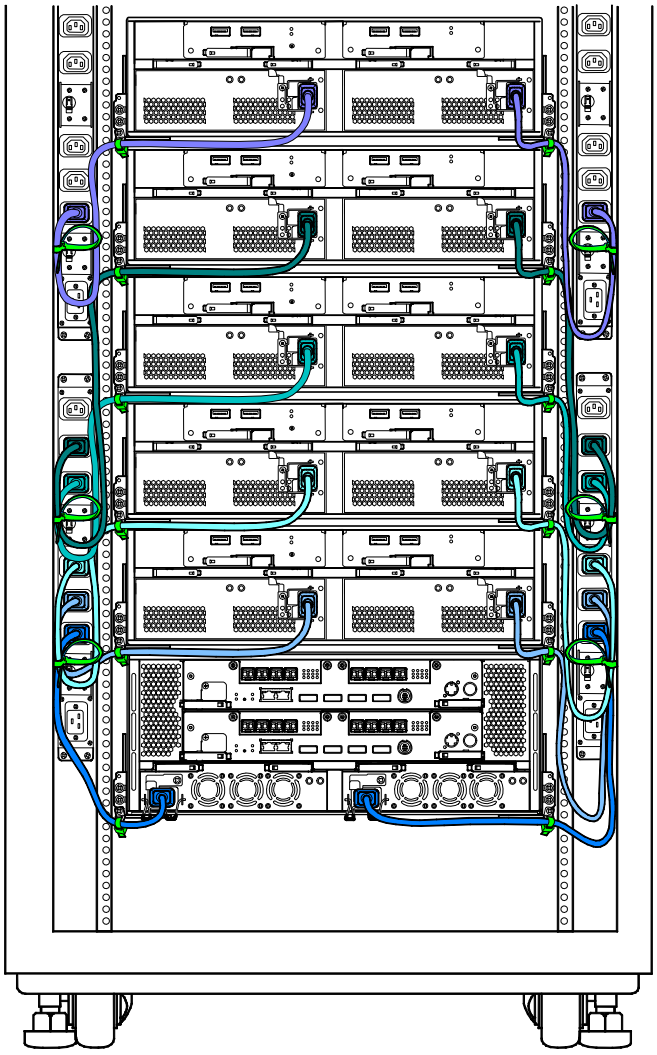


Figure 2.4.45 Routing Power Cables to the Mounted Subsystem in the RK40 Rack Frame



*1: This figure indicates the power cable routing in the configuration with one RKH and five RKAKs connected.

Figure 2.4.45.1 Example of Power Cable Routing

(2) In the case of the RKHED/RKAKD

The Power Unit of the RKHED and RKAKD is Power Unit (DC).

The direction for installing the power cable (DC) is different in the Power Unit (DC) of the RKHED and RKAKD.

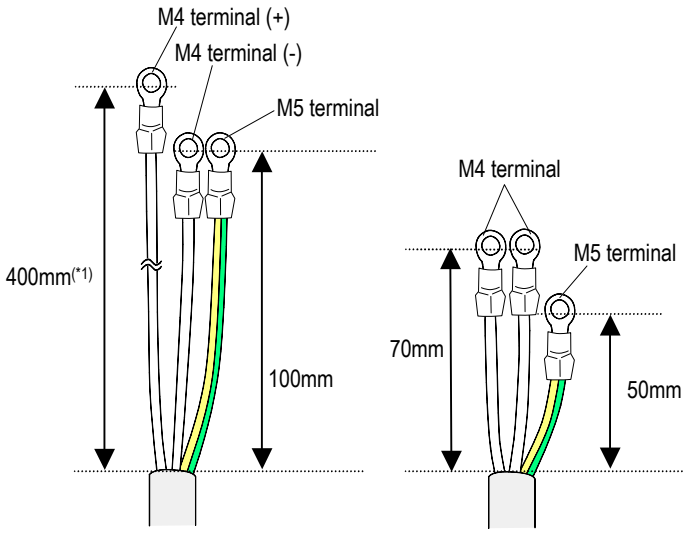
The specification of the Power Unit (DC) cable and the terminal form for the subsystem side are shown in Table 2.4.6 and Figure 2.4.45.2.

NOTE : • When replacing the Power Unit for the reasons such as a failure, it needs to shut off the power supply to the concerned power unit. For the power supply system, shut off the power supply by the switch such as breaker.

• For the power cable (including FG) and breaker in the equipment, use the ones other than and equal to the breaker capacity of the subsystem.

Table 2.4.6 Specification of the Power Cable (DC)

Items \ Subsystem name		RKHED Breaker 20A	RKAKD Breaker 30A
3-core	Wire Description	1015/1431 (For Wire rating temperature 105°C)	
	Size AWG	AWG12	AWG10
	Stranding	65/0.26 mm	104/0.26mm
Single core	Wire Description	1015/1431 (For Wire rating temperature 105°C)	
	Size AWG	AWG16	AWG14
	Stranding	54/0.18mm	41/0.26mm



(a) RKHED (b) RKAKD

*1 : When the type name of Front Bezel is DF-F800-UBKD (NEBS specification), the length of the cable is 400mm. The length of the cable other than the DF-F800-UBKD (NEBS specification) for the type name of Front Bezel is 100mm.

Figure 2.4.45.2 Terminal Form for Subsystem Side

⚠ CAUTION

Make sure that there is no scratch or flaw on a power cable. It can cause an electric shock or even a fire.

⚠ CAUTION

Here exists a hazard that can cause an electric shock. Start the work after making sure that the breaker in the power distribution box has been turned off.
Connect the power cable by tightening screws of the terminals firmly.

(a) Make sure that Power Unit Switches (breakers) on the Power Unit (DC) have been all turned off.
(b) Remove the terminal block cover.

⚠ CAUTION

- **This subsystem shall be connected directly to the d.c. supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the d.c. supply system earthing electrode conductor is connected.**
- **This subsystem shall be located in the same immediate area (such as, adjacent cabinets) as any other subsystem that has a connection between the earthed conductor of the same d.c. supply circuit and the earthing conductor, and also the point of earthing of the d.c. system. The d.c. system shall not be earthed elsewhere.**
- **The d.c. supply source is to be located within the same premises as this subsystem.**
- **Switching or disconnecting devices shall not be in the earthed circuit conductor between the d.c. source and the point of the connection of the earthing electrode conductor.**

(c) Connect the FG cable to the frame ground (FG).
(d) When the type name of Front Bezel for RKHED is DF-F800-UBKD (NEBS specification), run the (+) cable side (the longer one) of the power cable through the ferrite core supplied with the subsystem four times and then connect it.

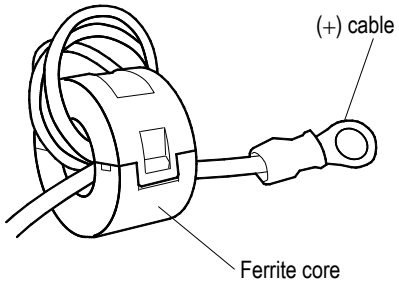


Figure 2.4.45.3 Ferrite Core Attachment

(e) Connect the cable to the (+) and (−) power input terminals on the terminal block. When doing this, take care not to confuse the plus and minus terminals. Use the cable with a ferrite core for the RKHED attached for the (+) side.
(f) Install the terminal block cover.
(g) Fix the power cable to the rack with a strain relief so as not to give the load to the terminal. Route the power cables so that the Power Unit, Control Unit, and ENC Unit can be replaced.

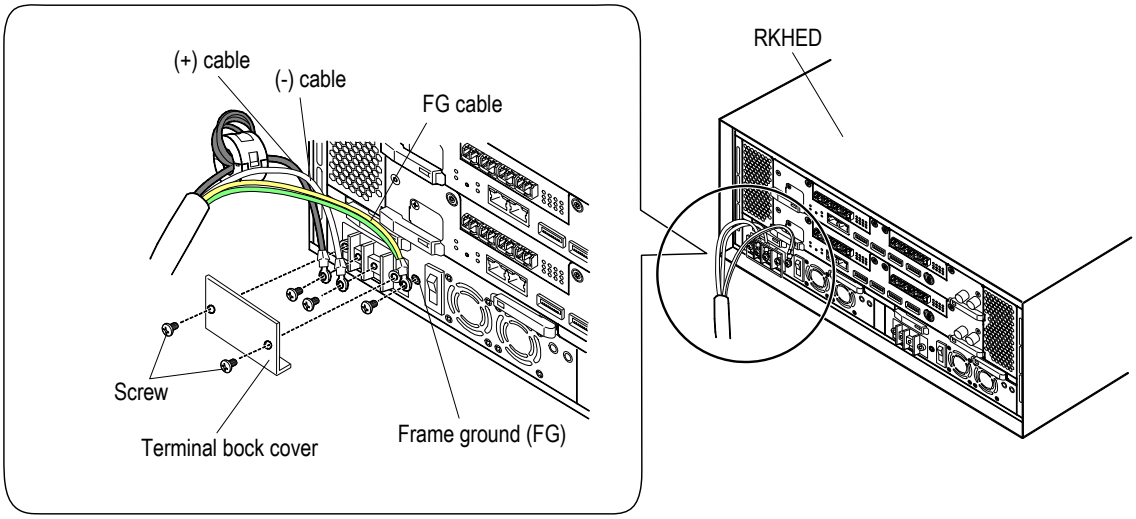


Figure 2.4.45.4 RKHED Power Cable Connection

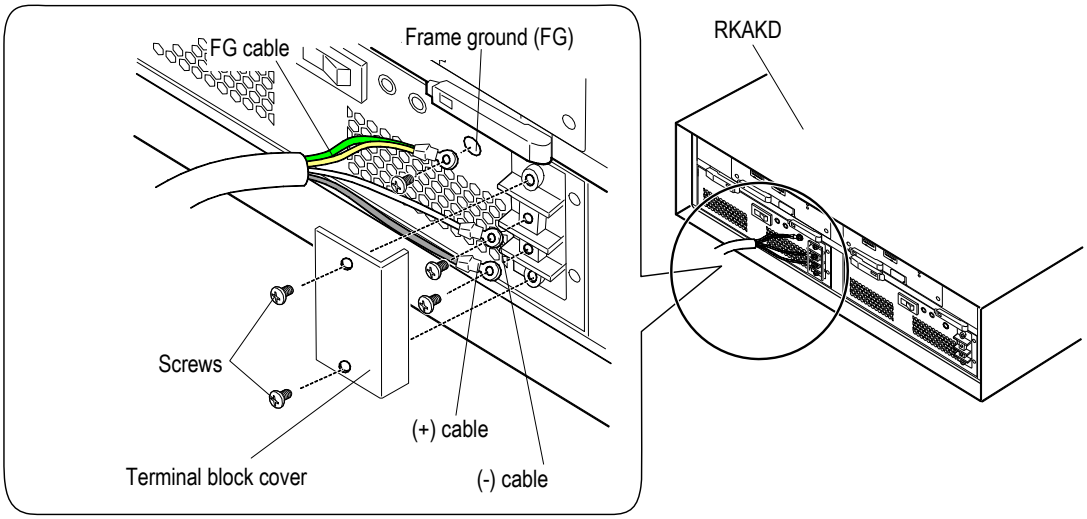


Figure 2.4.45.5 RKAKD Power Cable Connection

2.4.12 Connecting the Power Cables (Rack Frame PDB)

⚠ 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.**

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. (See "1.4.2 How to open/close the Rear Door of RK40 rack frame" (INST 01-0120).)
(2) Make sure that the power supply switches of the PDBs are turned off.
(3) Put out the power cables of PDBs 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) Make sure that the connecter is securely fixed after the assembly work.

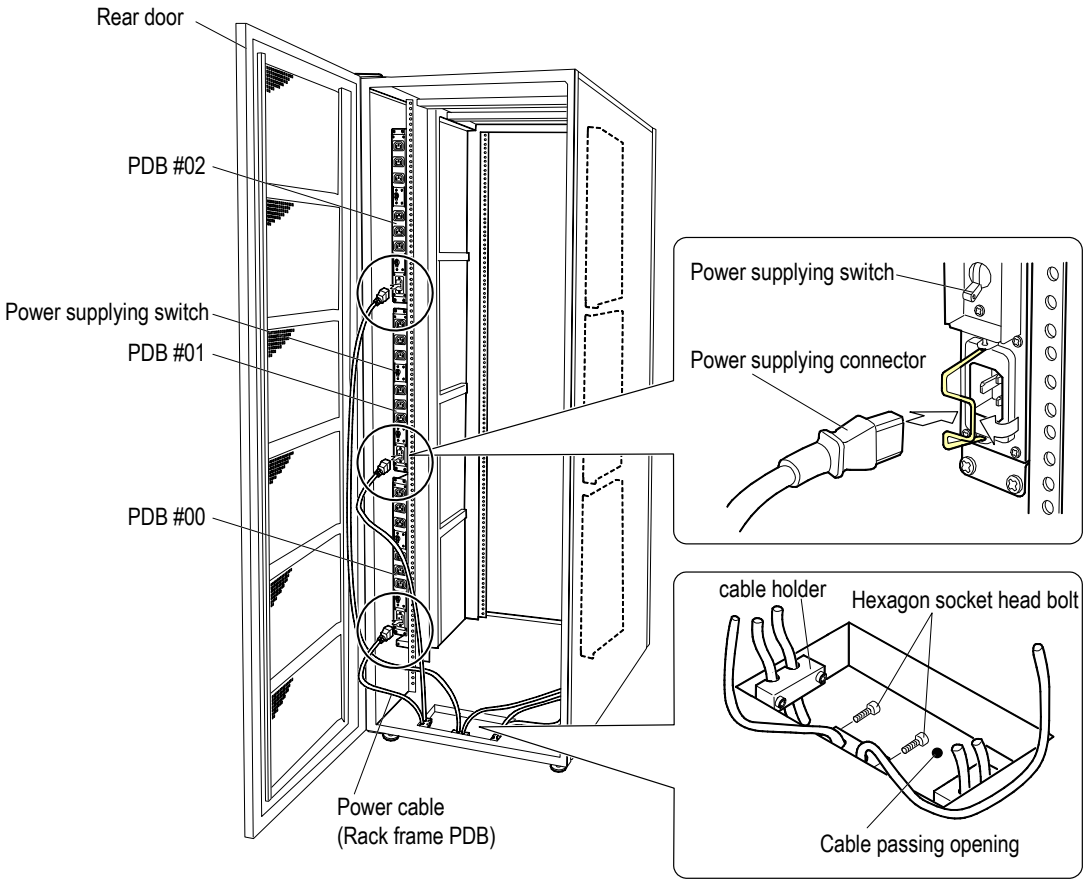


Figure 2.4.46 Connecting Power Cables (Rack Frame PDB)

2.4.13 Attaching Decoration Panels

When a vacant 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 extrusions 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.

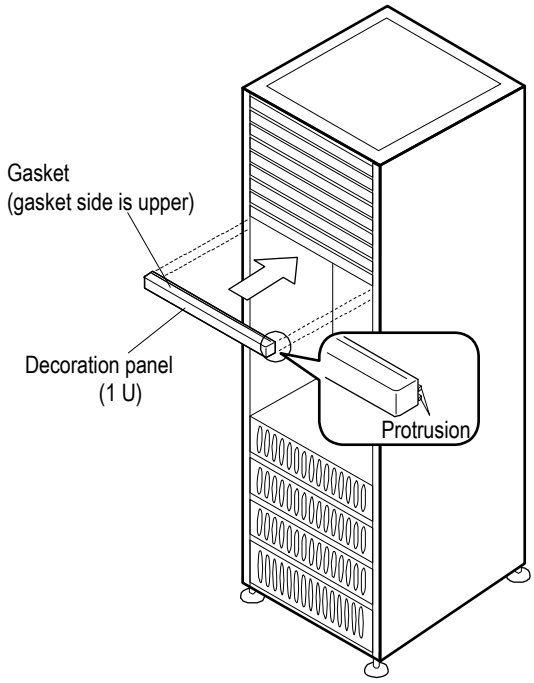


Figure 2.4.47 Attaching Decoration Panel

2.4.14 Closing Door or Attaching Front Bezel

(1) Close the rear door. (Refer to "1.4.2 How to open/close the Rear Door of RK40 Rack Frame" (INST 01-0120).)

(2) Attach the Front Bezel. (Refer to "1.4.1 How to attach/remove Front Bezel of the Rackmount Model" (INST 01-0100).)

(3) When the Air Filter is attached to the Front Bezel, initialize the timer and make it enable. (Refer to System Parameter "Chapter 10. Setting Air Filter Information" (SYSPR 10-0000).)

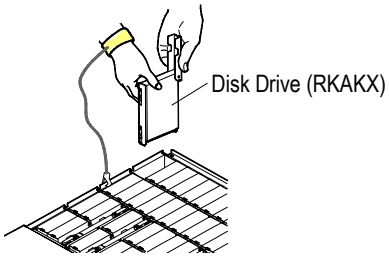
2.5 Installing RKAKX

2.5.1 Removing Components

CAUTION

- **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 chassis before starting and do not take it off until you finish.**
- **Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.**
- **When you remove a Disk Drive, support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.**

A failure may be caused by the electric shock since the Disk Drive is precision instrument. Be sure to put on the wrist strap before starting work in order to protect Disk Drive and ENC Unit from electrostatic discharge.



(1) Removing the Disk Drive

(a) Remove the top cover of the RKAKX (Refer to "1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model" (INST01-0100).).

(b) Remove the Disk Drive or a dummy (Disk Drive).
Open the handle of Disk Drive, and then remove the Disk Drive or dummy (Disk Drive) by pulling it out taking care not to apply a shock to it.

(c) Keep the Disk Drive of dummy (Disk 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. It is to be installed in the disk array unit after the unit is mounted on the rack frame.

(d) Attach the top cover of the RKAKX (Refer to "1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model" (INST01-0100).).

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

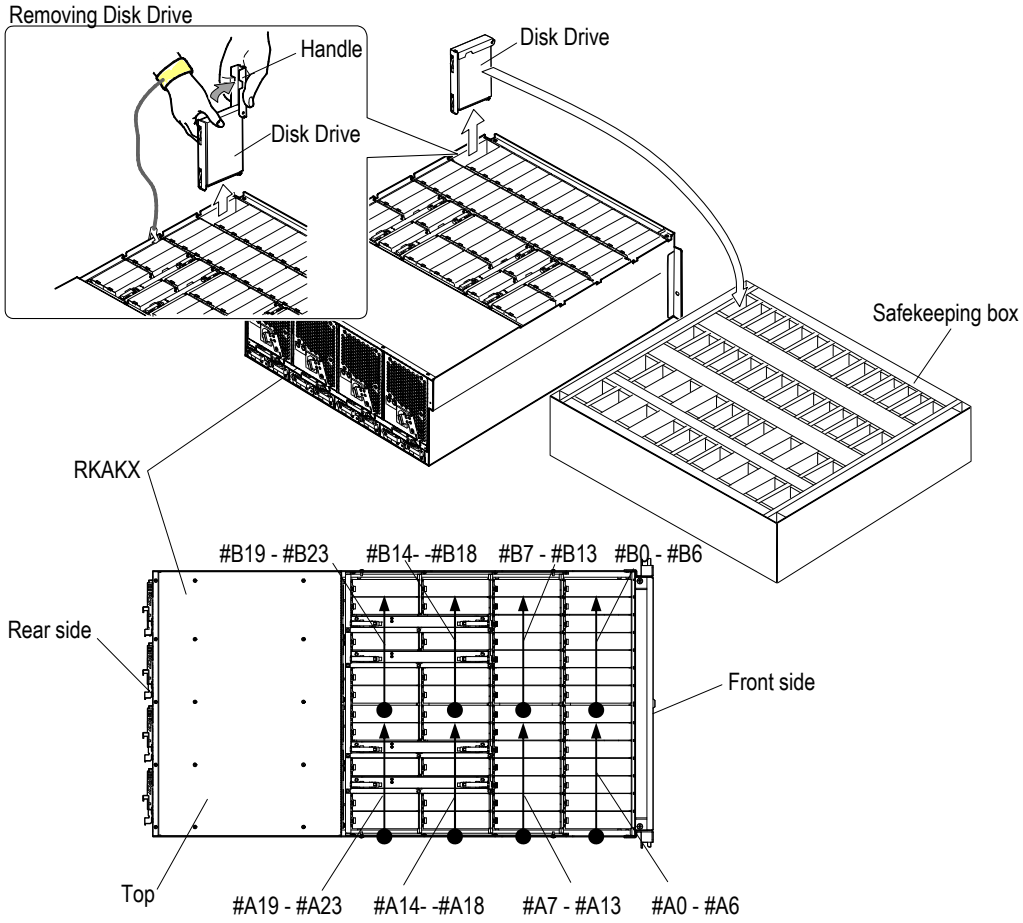


Figure 2.5.1 Removing the Disk Drive (RKAKX)

(2) Removing the Power Unit

(a) Open the levers toward you while pressing the buttons (blue) which fix the levers of the Power Unit.

When the levers are completely opened, the Power Unit comes out forward.

(b) Pull out and remove it while holding the body of the Power Unit with both hands.

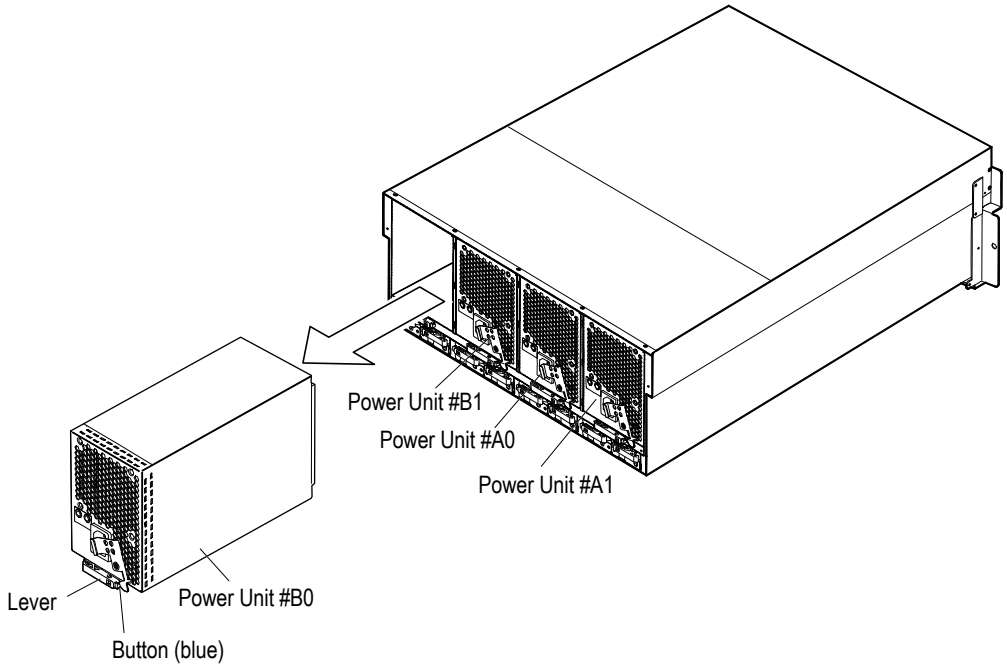


Figure 2.5.2 Removing Power Unit

2.5.2 Mounting the RKAKX on Rack Frame

(1) Installing the rails

If the rails have already been installed, this installation is not required.

For rack rail for the RKAKX, there are several revisions. Each rack rail is different in the configuration.

(Table 2.5.1, Table 2.5.1.1 and Table 2.5.1.2 show the components list of the rack rail for the RKAKX.)

As the Rev. A and Rev.B are similar in shape, confirm the Rev. of the rack rail with the slide rail (L).

The shape of the Rev.C or later is different from that of Rev.A/Rev.B, and there is no distinction between its right and left.

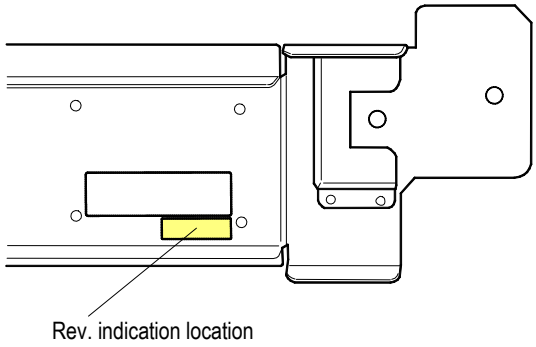


Figure 2.5.2.1 Rev. Indication Location of Rev. A and Rev.B Rack Rail

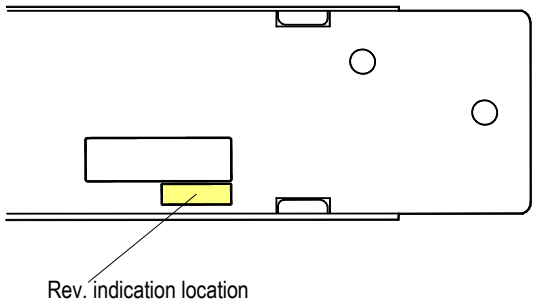


Figure 2.5.2.2 Rev. Indication Location of Rev. C or later Rack Rail

Table 2.5.1 Components of Rack-rail (DF-F800-URX8) - Rev.A (Per One Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Slide rail	2852901-A	1	For left hand side	–
2	Slide rail	2852901-B	1	For right hand side	–
3	Stopper	9282114-A	1	For fixing the subsystems	–
4	Fastener (M5)	5528564-1	12(*1)	For fixing the rail, subsystems	Not used
5	Counter-sink screw	SC410	16(*1)	For fixing the slide rail	Not used
6	Fastener	5510146-1	14(*1)	For fixing the rail, subsystems	–
7	Bind screw (M4×6)	SB406N	6(*1)	For fixing the slide rail	–
8	Bind screw (M5×10)	SB510N	10(*1)	For fixing the rail	–
9	Hexagon socket bolt (M5×20)	3261899-520	10(*1)	For fixing the rail	–
10	LL washer (M5)	5513553-513	12(*1)	For fixing the rail	–
11	Cable support	2852893-1	2	Cable routing bar	–
12	Cable support bracket	3282116-1	1	Parts for installing the cable routing bar for left hand side.	–
13	Cable support bracket	3282116-2	1	Parts for installing the cable routing bar for right hand side.	–
14	Repeat binder (Cable)	5409042-3	24(*2)	Used to fix a slackened part of overlong cable	–
15	Cable label	3282126-1	2	Attaching it on the ENC cables.	–
16	Cable label	3282126-2	2	Attaching it on the ENC cables.	–

*1 : 2 spares are included.

*2 : 11 spare are included.

Table 2.5.1.1 Components of Rack-rail (DF-F800-URX8) - Rev.B (Per One Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Slide rail	2852901-C	1	For left hand side	–
2	Slide rail	2852901-D	1	For right hand side	–
3	Stopper	3282119-B	1	For fixing the subsystems	–
4	Fastener (M5)	5528564-1	12(*1)	For fixing the rail, subsystems	Not used
5	Counter-sink screw	SC410	16(*1)	For fixing the slide rail	Not used
6	Fastener	5510146-1	14(*1)	For fixing the rail, subsystems	–
7	Bind screw (M4×6)	SB406N	6(*1)	For fixing the slide rail	–
8	Bind screw (M5×10)	SB510N	10(*1)	For fixing the rail	–
9	Hexagon socket bolt (M5×20)	3261899-520	10(*1)	For fixing the rail	–
10	LL washer (M5)	5513553-513	12(*1)	For fixing the rail	–
11	Cable support	2852959-1	2	Cable routing bar	–
12	Cable support bracket	3282160-1	1	Parts for installing the cable routing bar for left hand side.	–
13	Cable support bracket	3282160-2	1	Parts for installing the cable routing bar for right hand side.	–
14	Clamp tape (Cable)	5544251-1	17(*2)	Used to fix a slackened part of overlong cable	–
15	Cable label	3282126-1	2	Attaching it on the ENC cables.	–
16	Cable label	3282126-2	2	Attaching it on the ENC cables.	–
17	Cable tray	2852962-1	1	–	–

*1 : 2 spares are included.

*2 : 4 spares are included.

Table 2.5.1.2 Components of Rack-rail (DF-F800-URX8) - Rev.C or later(Per One Unit)

No.	Product name	Parts No.	Quantity	Comment	Remarks
1	Slide rail	2853095-A	1	For left hand side	—
2	Slide rail	2853095-B	1	For right hand side	—
3	Stopper	3282300-A	1	For fixing the subsystems	—
4	Fastener (M5)	5528564-1	12(*1)	For fixing the rail, subsystems	Not used
5	Fastener	5510146-1	14(*1)	For fixing the rail, subsystems	—
6	Bind screw (M4×6)	SB406N	18(*1)	For fixing the slide rail	—
7	Bind screw (M5×10)	SB510N	10(*1)	For fixing the rail	—
8	Hexagon socket bolt (M5×20)	3261899-520	10(*1)	For fixing the rail	—
9	LL washer (M5)	5513553-513	12(*1)	For fixing the rail	—
10	Cable support	2853082-001	2	Cable routing bar	—
11	Cable support bracket	3282282-001	1	Parts for installing the cable routing bar for left hand side.	—
12	Cable support bracket	3282281-001	1	Parts for installing the cable routing bar for right hand side.	—
13	Clamp tape (Cable)	5544251-1	17(*2)	Used to fix a slackened part of overlong cable	—
14	Cable label	3282126-1	2	Attaching it on the ENC cables.	—
15	Cable label	3282126-2	2	Attaching it on the ENC cables.	—
16	Cable tray	2853084-001	1	—	—

*1 : 2 spares are included.

*2 : 4 spares are included.

EIA units and intervals of mounting holes of 19-inch rack frame conforming to EIA standard

- A unit (U) space conforming to EIA standard is 19 inches wide and 44.5mm high as shown in the figure below.
- The boundary of the unit falls on the middle of the interval of 12.7mm.
- For the RK40 rack frame

  Universal intervals: Repeat of 44.45 mm (15.875 mm + 15.875 mm + 12.7 mm)

  Maximum number of mountable unit spaces: 40

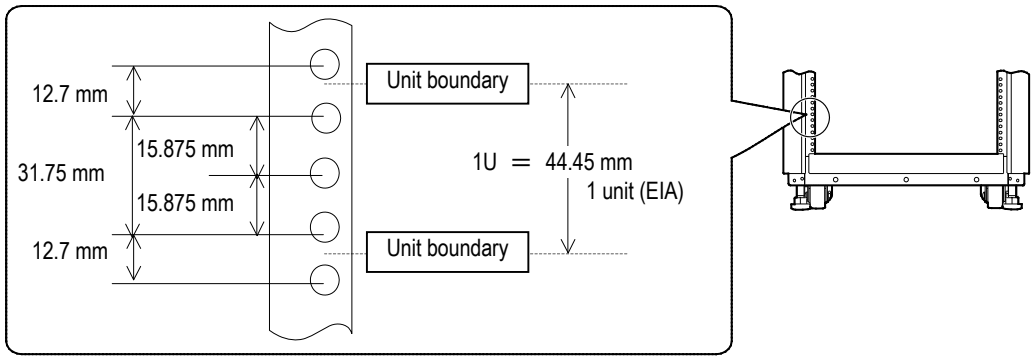
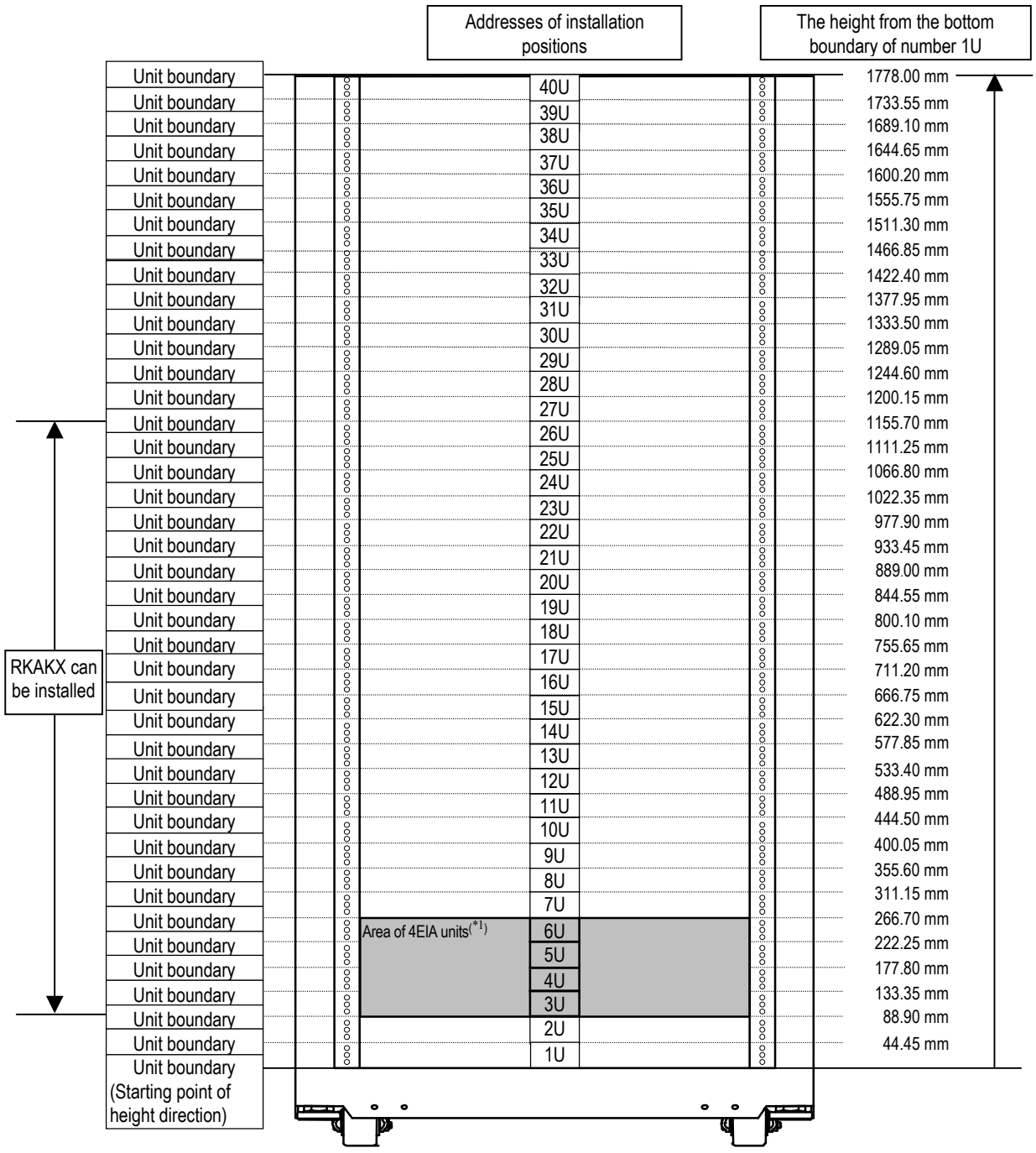


Figure 2.5.3 Attachment Hole Size of Rack

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.
The following figure illustrates the whole layout of addresses of installation positions in the RK40 rack frame.
There are 40 dresses, that is, the 1U to 40U counted in the vertical direction starting from the lower boundary of the 1U (the lowest unit).

NOTE :
- When installing the RKAKX at the bottom step, do not use the space for 2U from the bottom step because of securing the cable routing area.
- Up to five RKAKXs can be installed in a single rack.
  Install RKAKXs within 1300mm (within the range of 3u to 26U).
- When installing the RKAKX, be sure to attach the stabilizer to the front side of the rack.
- The total weight of subsystems that can be mounted on the RK40 is 600kg.
  Do not install subsystems that weight more than the above-mentioned weight.



*1 : The grayed area ▭ shows a layout of an area for installing the basic chassis at the 3U.

Figure 2.5.4 Whole Layout of Installation Position Addresses

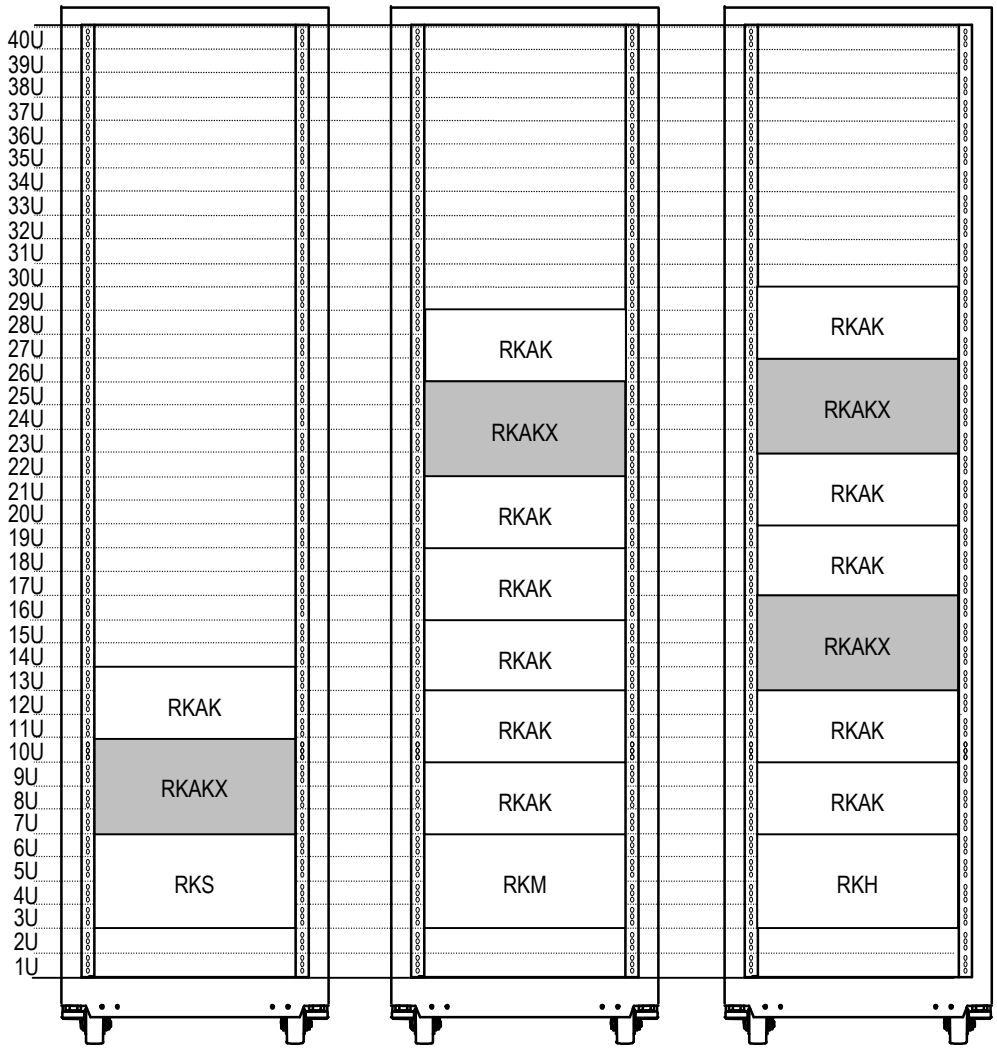


Figure 2.5.5 Installing sample

(a) Installing the Inners

(i) Remove the Inners from the Inters of the rails by sliding them.
For the Rev.A and Rev.B, remove the Inners from the Inters (R)/(L) of the rails by sliding them respectively.
For the Rev.C or later, remove the Inner of two rails respectively.

NOTE : For the rail of Rev.A and Rev.B, there is no stopper of the Inter.
Be careful that the Inter may jump out if you tilt the rail carelessly after removing the Inner.

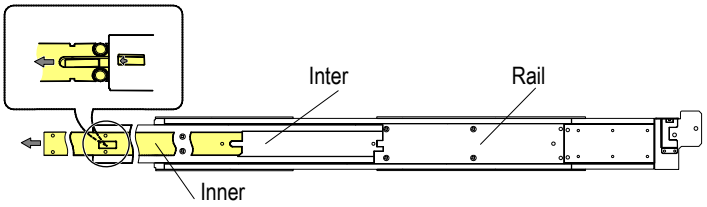


Figure 2.5.6 Removing the Inner (Rev.A/Rev.B)

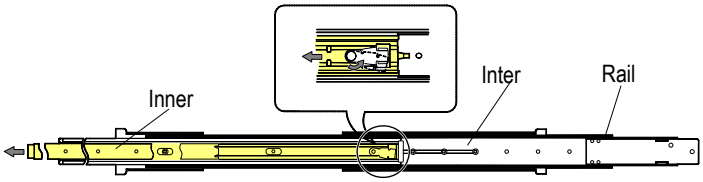


Figure 2.5.6.1 Removing the Inner (Rev.C or later)

(ii) Install the Inners in the both sides of RKAKX.
For the Rev.A and Rev.B, fix them with the counter-sink screws (M4×10) (seven places each at right and left).
For the Rev.C or later, fix them with the bind screws (M4×6) (six places each at right and left).

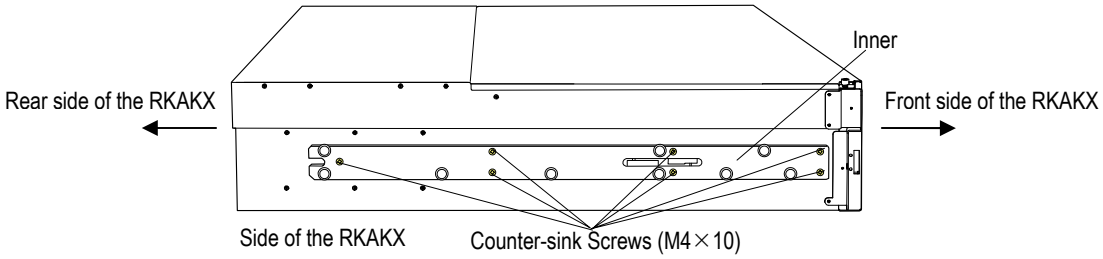


Figure 2.5.7 Installing the Inner (Rev.A/Rev.B)

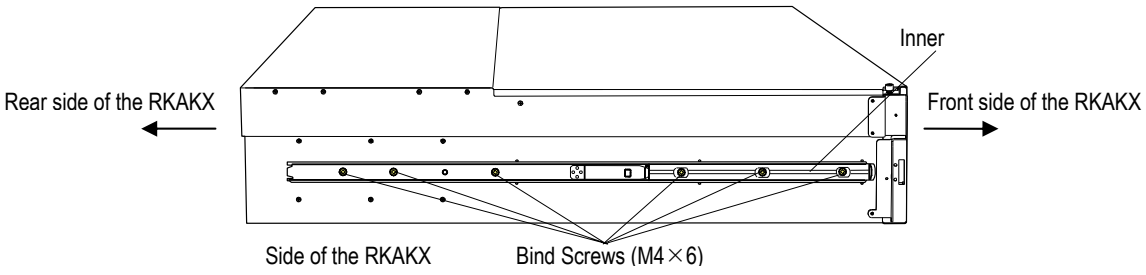


Figure 2.5.7.1 Installing the Inner (Rev.C or later)

(b) Installing the rails

(b-1) When the rack rail is Rev.A/Rev.B

NOTE : Confirm the (R) and (L) with the marks on the rails.

(i) Loosen the adjustable screws for the rail (R) (four places).
When the rack frame and the width of rack rail are not matched even if the adjustable screws are loosened, refer to "(c) When the rack frame and the width of rack rail are mismatched" (INST 02-0932), and then adjust the length of the rack rail.

(ii) On the right side of the installation location in the rack frame, align the round holes of the rail (R) with those of the rack frame and insert the fasteners (at four places in total in front and rear.).

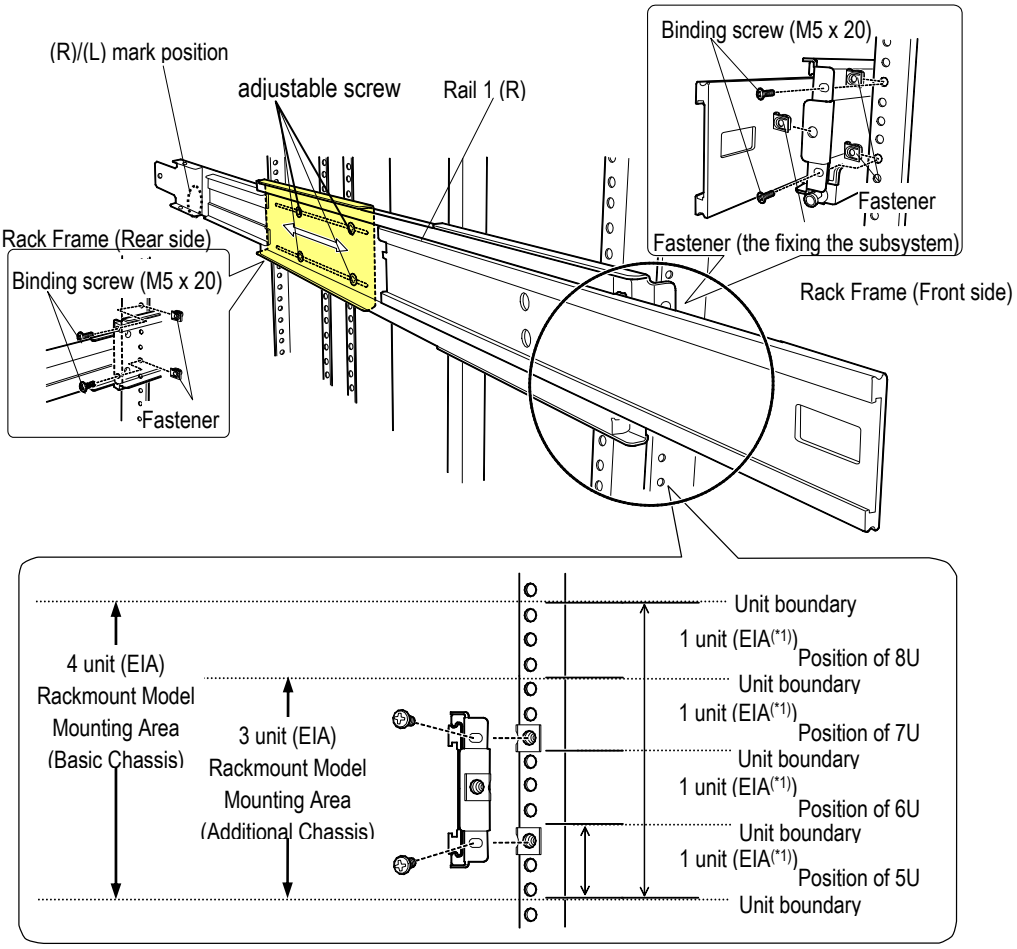
(iii) Fix the rail (R) with the binding screws (M5 (at four places in total in front and rear.)).
Adjust the length of the rail (R) by sliding the arrow part (⇔).

NOTE : Fix the rail (R) pressing it to outside.

(iv) Fix the rail (R) with the adjustable screw.

(v) Attach the fastener for fixing the subsystem to the front side of the rail (R) (at one place).

(vi) In the same way, fix the rail (L) to the rack frame.



*1 : One EIA unit is approximately 44.45 mm.
*2 : The figure shows the rail (R).

Figure 2.5.8 Fixing the Rails to the Rack Frame (Rev.A/Rev.B)

(b-2) When the rack rail is Rev.C or later

(i) Loosen the adjustable screws for the rail (four places).
Loosen the adjustable screw on the front side of the rail from the adjustable hole by sliding the Inter in the direction of the back side to the adjustable position.
When the rack frame and the width of rack rail are not matched even if the adjustable screw is loosened, refer to "(c) When the rack frame and the width of rack rail are mismatched" (INST 02-0932), and then adjust the length of the rack rail.

(ii) On the right side of the installation location in the rack frame, align the round holes of the rail with those of the rack frame and insert the fasteners (at four places in total in front and rear.).

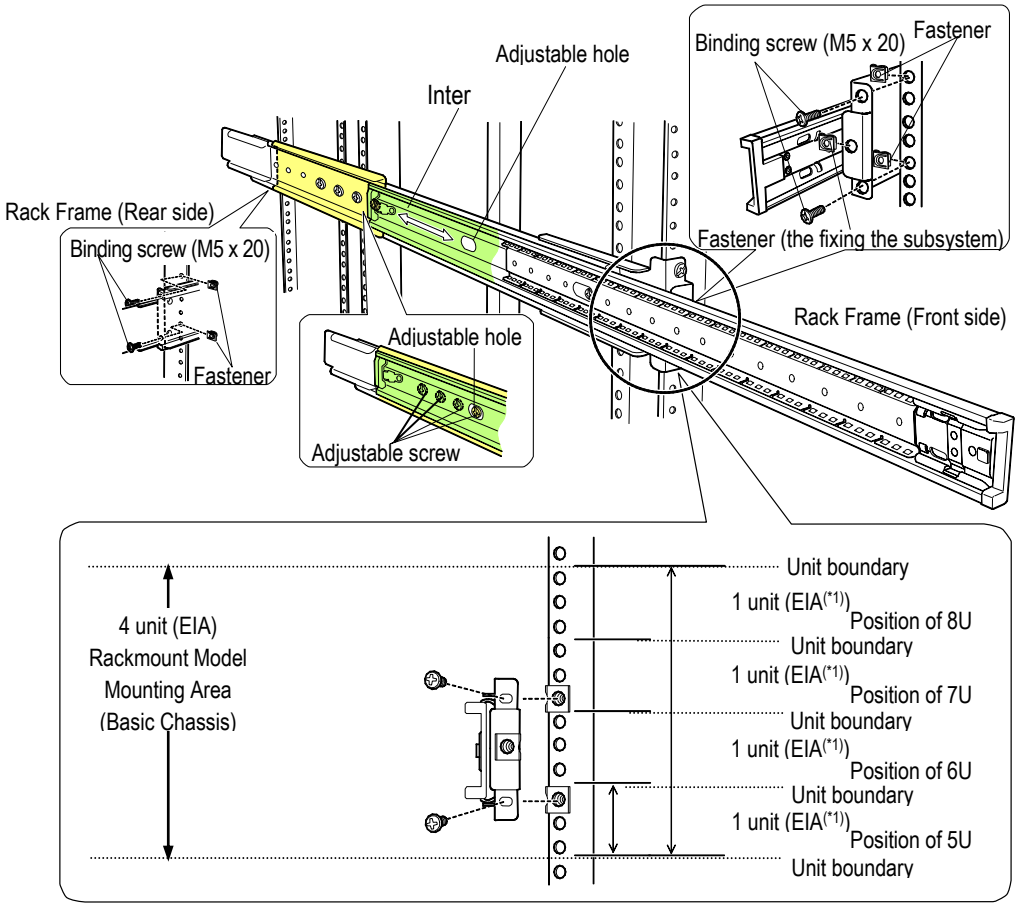
(iii) Fix the rail with the binding screws (M5 (at four places in total in front and rear.)).
Adjust the length of the rail by sliding the arrow part (⇔).

NOTE : Fix the rail pressing it to outside.

(iv) Fix the rail with the adjustable screw.
Tighten the adjustable screw on the front side of the rail from the adjustable hole by sliding the Inter in the direction of the back side to the adjustable position.

(v) Attach the fastener for fixing the subsystem to the front side of the rail (R) (at one place).

(vi) In the same way, fix the rail to the left side of the rack frame.



*1 : One EIA unit is approximately 44.45 mm.

*2 : This figure shows the rail is installed in the right side of the rack frame.

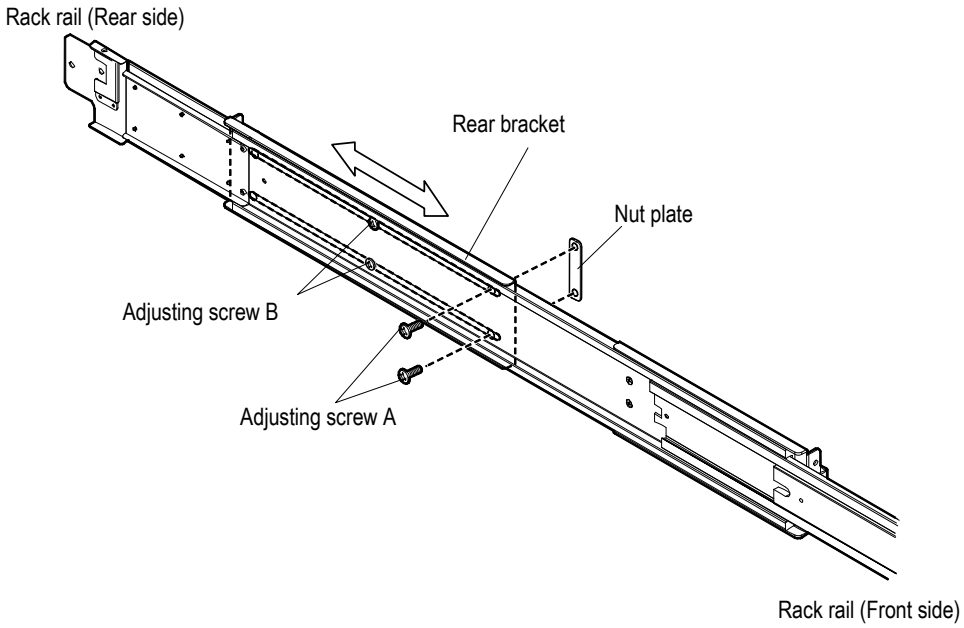
Figure 2.5.8.1 Fixing the Rails to the Rack Frame (Rev.C or later)

(c) When the rack frame and the width of rack rail are mismatched

Just by loosening the adjustable screw, the width of rack rail may not fit the rack frame.
In the following procedure, remove the adjusting screws and change the location of the rear bracket to adjust the length of the rack rail.

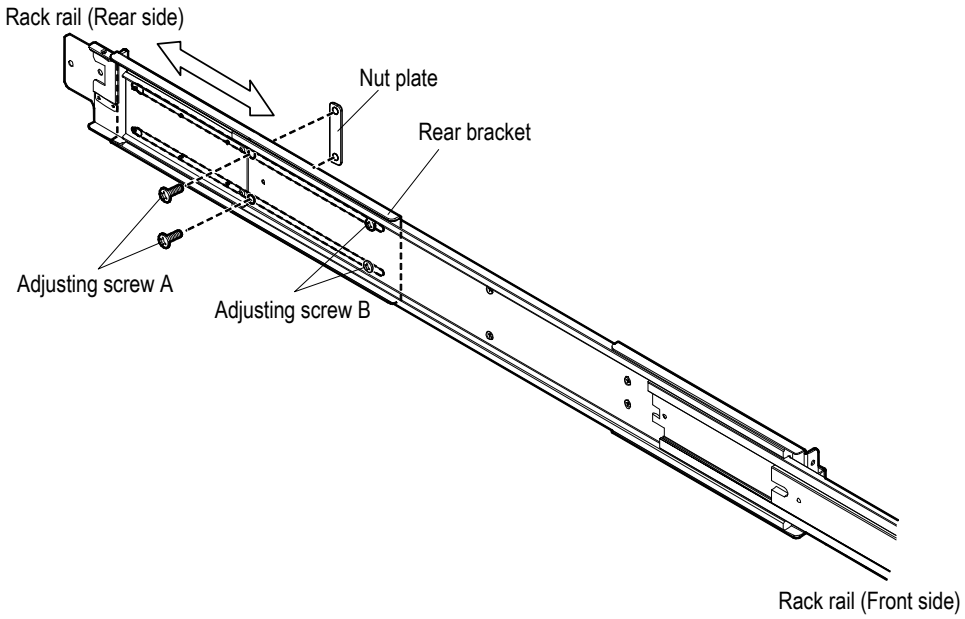
(c-1) When the rack rail is Rev.A/Rev.B

(i) Remove the two adjusting screws A and the nut plate which fix the rear bracket.
(ii) Loosen the two adjusting screws B.
(iii) Change the location of the rear bracket according to the depth of the rack.
(iv) Move the two adjusting screws A and the nut plate according to the rear bracket, and fix the rear bracket.
Here, fix the rear bracket with the adjusting screws loosened.



*1: This figure shows the rail (R).

Figure 2.5.8.2 Removing the Nut Plate from the Rack Rail (Rev.A/Rev.B)



*1: This figure shows the rail (R).

Figure 2.5.8.3 Installing the Nut Plate by Adjusting the Rack Rail Length (Rev.A/Rev.B)

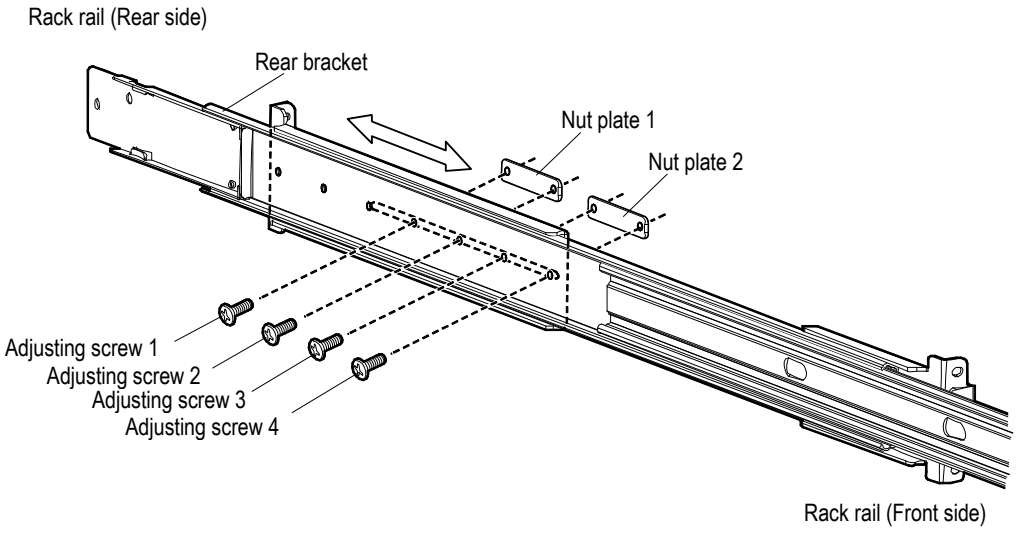
(c-2) When the rack rail is Rev.C or later

(i) Remove the adjusting screws 1 to 4 and the nut plates 1 and 2 which fix the rear bracket. To remove the adjusting screw which is hidden in the inter, move the inter, and then remove the screw from the adjusting hole.

(ii) Slide the rear bracket according to the depth of the rack.

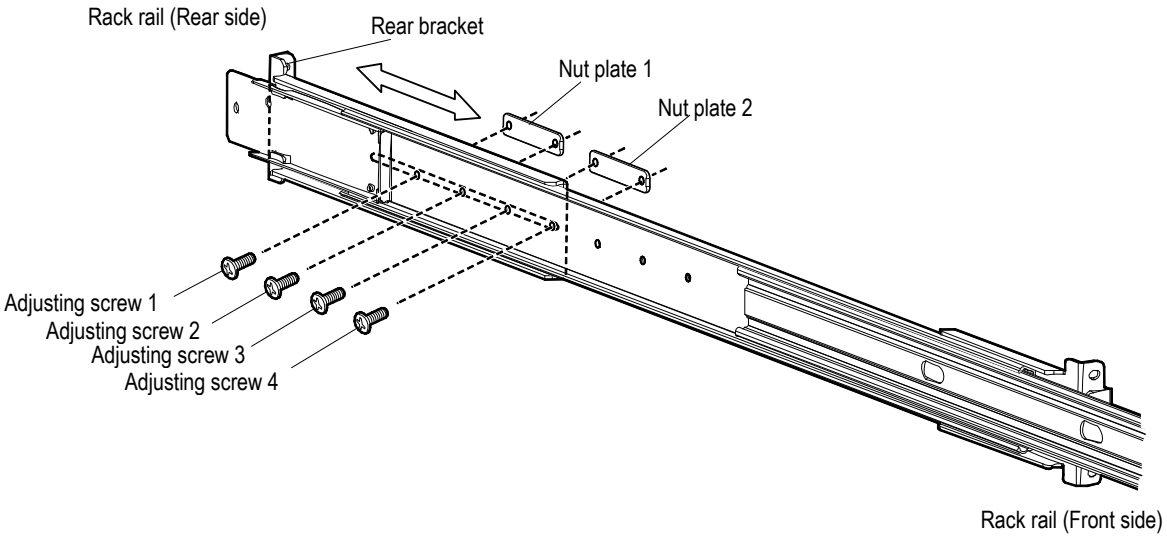
(iii) Move the adjusting screws 1 to 4 and the nut plates 1 and 2 according to the rear bracket, and fix the rear bracket.
Here, fix the rear bracket with the adjusting screws loosened.

NOTE : When the rail length become shorter than 650mm to 700mm, install the nut plate 2 with the adjusting screw 3 and 4.
Adjusting screw 1 and 2, and nut plate 1 are not needed.



*1: This figure shows the rail (R).

Figure 2.5.8.4 Removing the Nut Plate from the Rack Rail (Rev.C or later)



*1: This figure shows the rail (R).

Figure 2.5.8.5 Installing the Nut Plate by Adjusting the Rack Rail Length (Rev.C or later)

This page is for editorial purpose only.

(2) Installing the RKAKX

Mount the RKAKX on the rack using a special lifter.

⚠ WARNING

If the Subsystem 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 subsystem could turn over or a worker could be caught under the subsystem.**
- **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 RKAKX is about 81 kg.**
- **Be sure to install it in order from the bottom to prevent the falling of the rack when you install the subsystem on the rack.**

NOTE : Check that the stabilizer is attached to the front side of the rack.
If the stabilizer is not attached, attach it to the rack. (Refer to "2.2.1 (7) Installing the stabilizer" (REP 02-0090).)

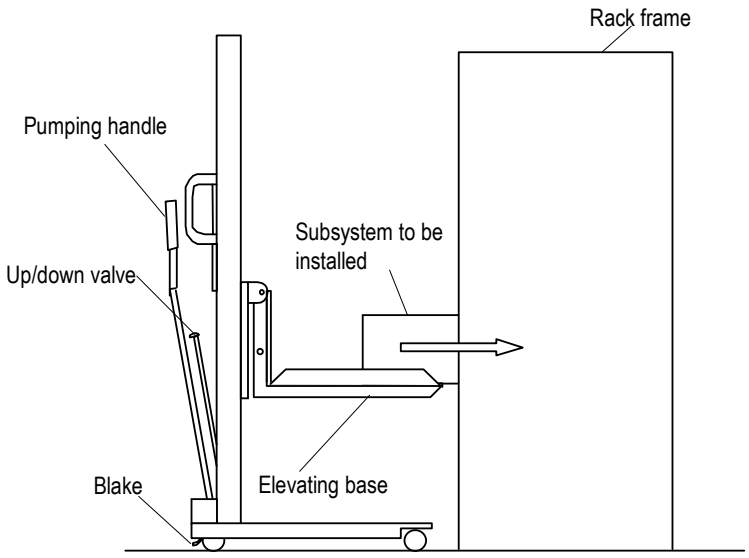


Figure 2.5.9 Mounting the Subsystem on the Rack Frame

CAUTION

When the red line on the label affixed on the subsystem enters the rack frame across the end of the rack rails, the rails are locked. Do not move the lifter away from the rack frame nor lower the elevator until the rails are locked. Otherwise, falling of the subsystem may be caused.

RKAKX

(2-1) Mounting RKAKX in Rev.A/Rev.B rack rail

(a) Pull out the Inters from the rails until they are locked.

(b) Put the subsystem on the special lifter (Refer to "2.4.4 Mounting Lifter on Rack Frame" (INST02-0410).).

(c) Take off the brake of the special lifter on which the subsystem has been put, and move the lifter close to the rack frame.

(d) Adjust the position of the subsystem so that it is seated in the center of the rack frame, and fix the special lifter with its brake.

(e) Move the pumping handle of the special lifter to the right and left repeatedly to lift the subsystem up to the height suitable for the mounting.
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.

(f) Remove the band and adjust the position of the subsystem so that the subsystem comes in the center in front of the rack frame.

(g) Slide the Inners into the Inters, and shift the RKAKX onto the rails in the rack frame. When shifting the RKAKX, push it gently until the latch is locked.

(h) After mounting the subsystem 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 brake of the lifter.

(i) Move the special lifter to the place where the lifter does not disturb the following works.

(j) Release the latch of the Inner, and push the RKAKX in to the end.
RKAKX has three types of rack rails, and the way of releasing the latch is different.
Release the locks by pressing the latches, and push the RKAKX in to the end.

NOTE : • Be careful not to pinch your fingers when releasing the latches.
• Be careful not to hit the Inter during the work.

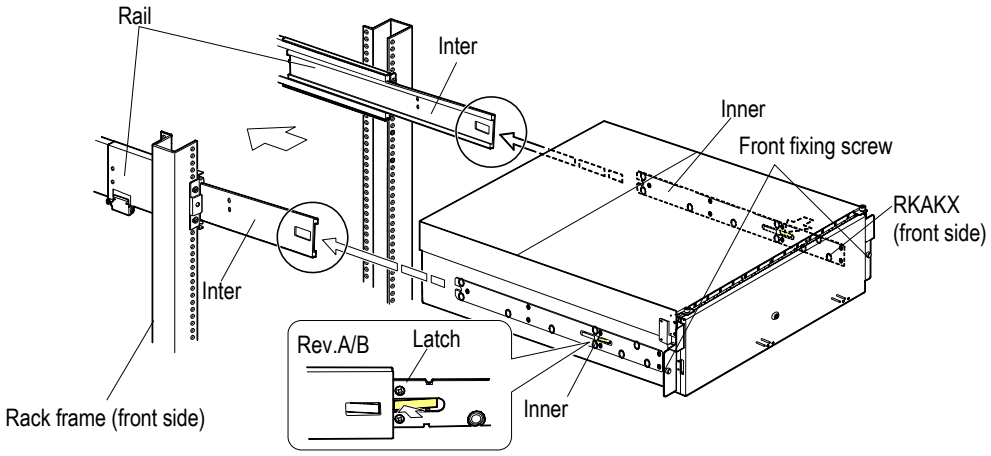


Figure 2.5.10 Mounting the RKAKX to Rev.A/Rev.B Rack Rails

(k) Tighten the front fixing screws (one place each at right and left) with your hand to fix the RKAKX.

(2-2) Mounting RKAKX in Rev.C or later rack rail

(a) Pull out the right and left center rails toward you until they are locked.

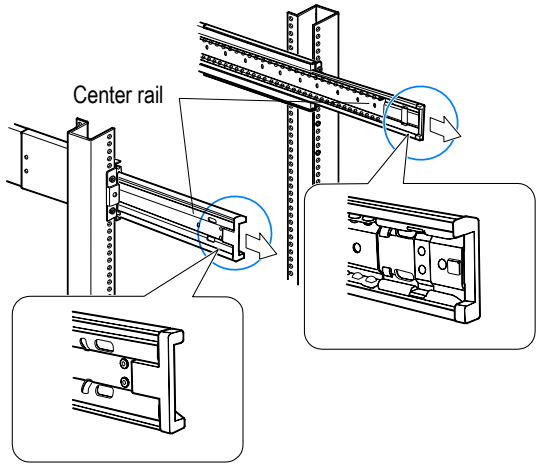


Figure 2.5.10.1 Pulling out the Center Rails toward You.

(b) Put the subsystem on the special lifter (Refer to "2.4.4 Mounting Lifter on Rack Frame" (INST02-0410).).

(c) Take off the brake of the special lifter on which the subsystem has been put, and move the lifter close to the rack frame.

(d) Adjust the position of the subsystem so that it is seated in the center of the rack frame, and fix the special lifter with its brake.

(e) Move the pumping handle of the special lifter to the right and left repeatedly to lift the subsystem up to the height suitable for the mounting.
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.

(f) Remove the band and adjust the position of the subsystem so that the subsystem comes in the center in front of the rack frame.

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

NOTE : Check that the inner rails fit surely in the center rail from the hole for checking of the center rail.

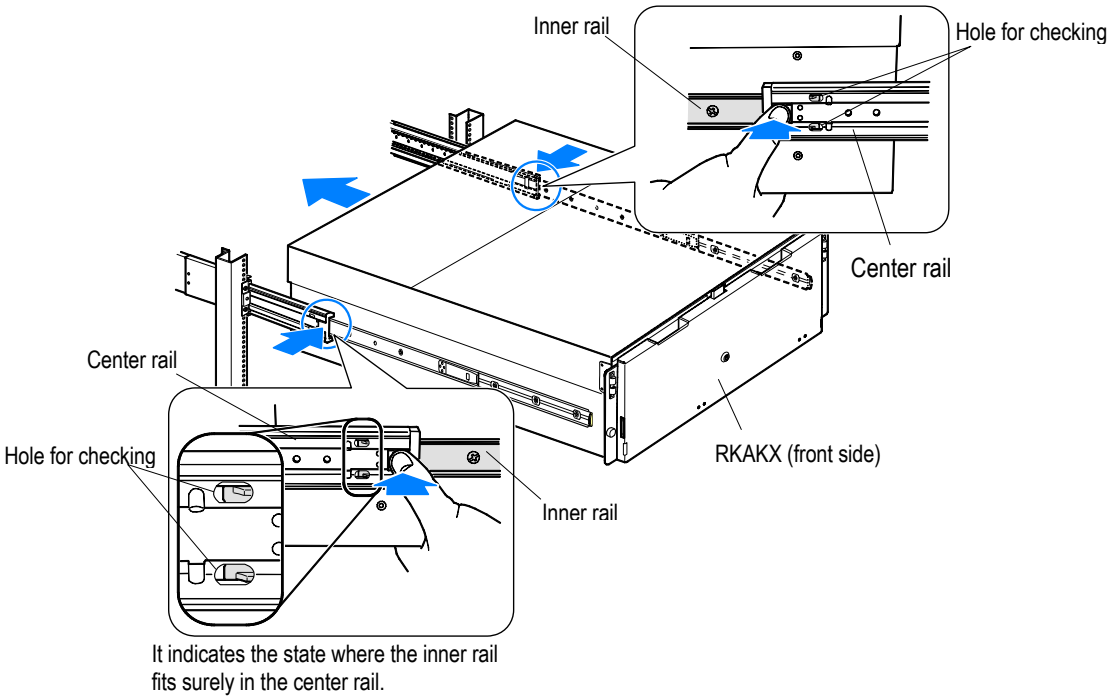


Figure 2.5.10.2 Inserting the Inner Rails into the Center Rail

(h) Push the RKAKX gently until the right and left rack rails are locked.

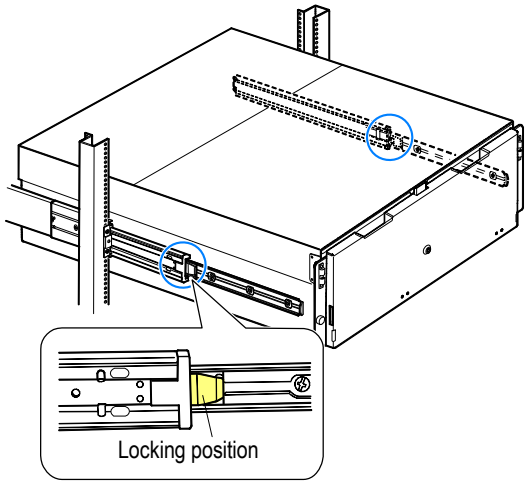


Figure 2.5.10.3 Rack Rail Locking Position

(i) After mounting the subsystem 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 brake of the lifter.

(j) Move the special lifter to the place where the lifter does not disturb the following works.

(k) Release the locks by sliding the latch releasing lever in the front end of the right and left rack rail, and then push the front side of RKAKX gently in to the end by pushing its front side gently.

NOTE : Be careful not to hit the Inter during the work.

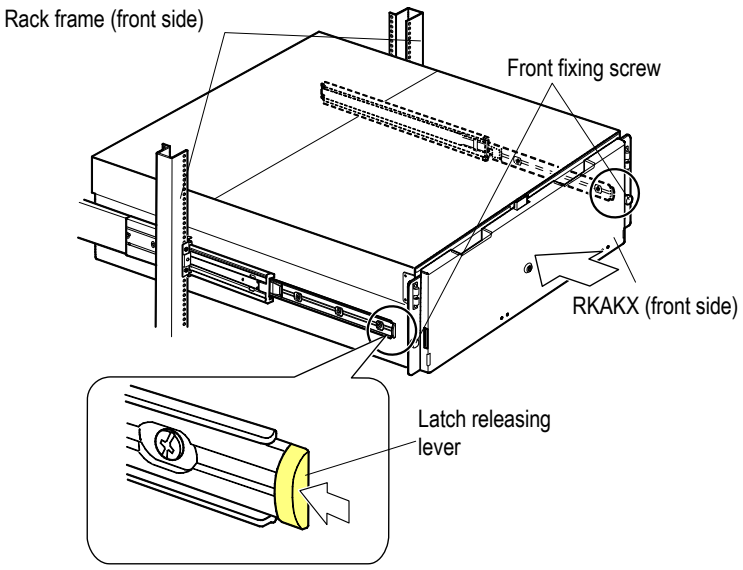


Figure 2.5.10.4 Mounting the RKAKX to Rev.C or later Rack Rails

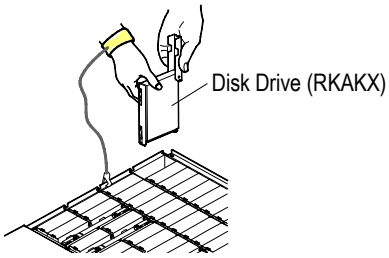
(l) Tighten and fix the front fixing screws (one each for right and left) by hand.

2.5.3 Installing Components

CAUTION

- **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 chassis before starting and do not take it off until you finish.**
- **Be sure to wear a wrist strap connected to the chassis whenever you unpack parts from a case. Otherwise, the static electrical charge on your body may damage the parts.**
- **When you install are Disk Drive, support its metal part with your hand that has the wrist strap. You can discharge static electricity by touching the metal plate.**

A failure may be caused by the electric shock since the Disk Drive is precision instrument. Be sure to put on the wrist strap before starting work in order to protect Disk Drive and ENC Unit from electrostatic discharge.



When the components are not installed, install them. If they have already been installed, go to the next step since this work is not needed.

Table 2.5.2 Components Required for the RKAKX

No.	Component name	Model	Quantity	Remark
1	Disk Drive	DF-F800-AKH450X	38(*1)	—
		DF-F800-AKH600X		
		DF-F800-ANH600X		
		DF-F800-AVE1KX	8 to 48(*1)	
		DF-F800-AVE2KX		
		DF-F800-AWE2KX		
		DF-F800-AWE3KX		
2	ENC Unit	—	4	—
3	Power Unit	—	4	—
4	ENC cable	—	4	

*1 : When no component is installed, a dummy part is installed instead.

(1) Installing the Disk Drive

(a) Pull the RKAKX out of the rack, and remove the top cover. (Refer to "1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model" (INST01-0100).)

(b) Remove the Disk Drive from the Disk Drive safekeeping container.
Be sure to install the removed Disk Drive from the safekeeping container to its original position.

NOTE : • For SATA drives and SAS7.2K drives, up to 48 Disk Drives can be installed in a RKAKX.
For SAS/SAS(SED) drives, up to 38 Disk Drives can be installed in a RKAKX. Install them in the positions of #A0 to #A18 and #B0 to #B18. Do not install them in the positions of #A19 to #A23 and #B19 to #B23.
In a RKAKX, intermix of SAS Disk Drives, SATA Disk Drives and SAS7.2K Disk Drives is not supported for installation.
• Disk Drives of #A0 to #A4 in the first RKAK to be connected to the RKH, the SAS(SED) Disk Drives cannot be installed.
• SAS(SED) Disk Drive does not support single controller configuration. Use it in the dual controller configuration.

(c) Open the handle, and insert the Disk Drive into the same address as the one on the subsystem holding it with both hands.

(e) Close the handle.

(f) Install the Dummy into the slot where the Disk Drive is not installed.

(g) Return the RKAKX into the rack after attaching its cover. (Refer to "1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model" (INST01-0100).)

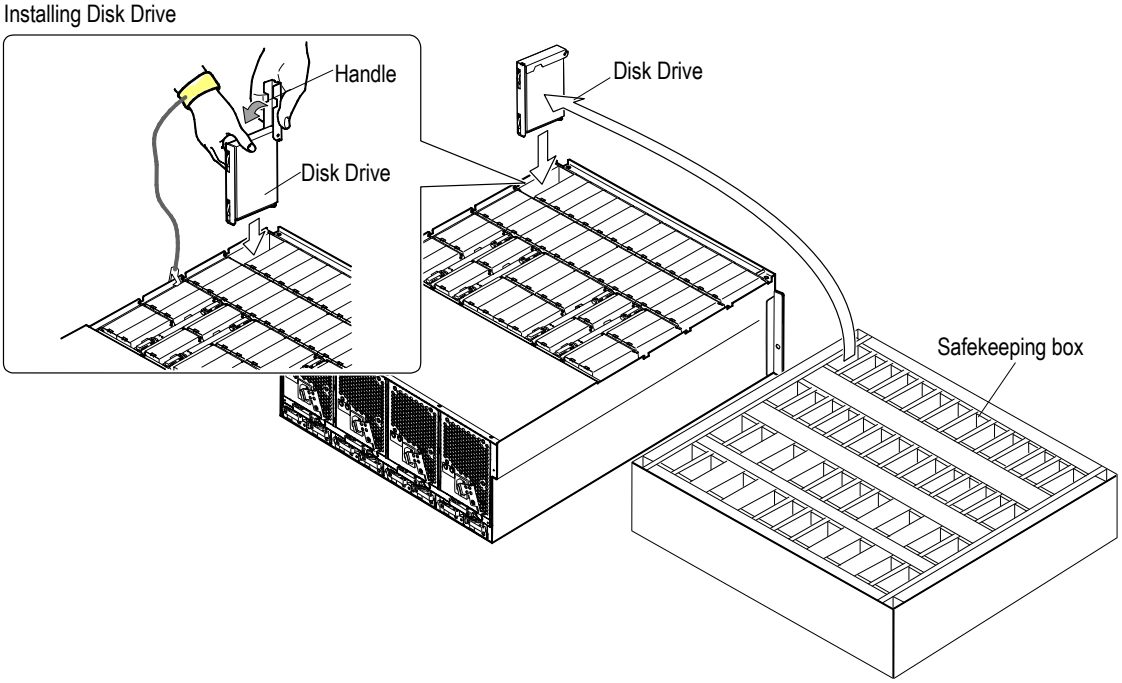


Figure 2.5.11 Installing the Disk Drive/Dummy (Disk Drive)

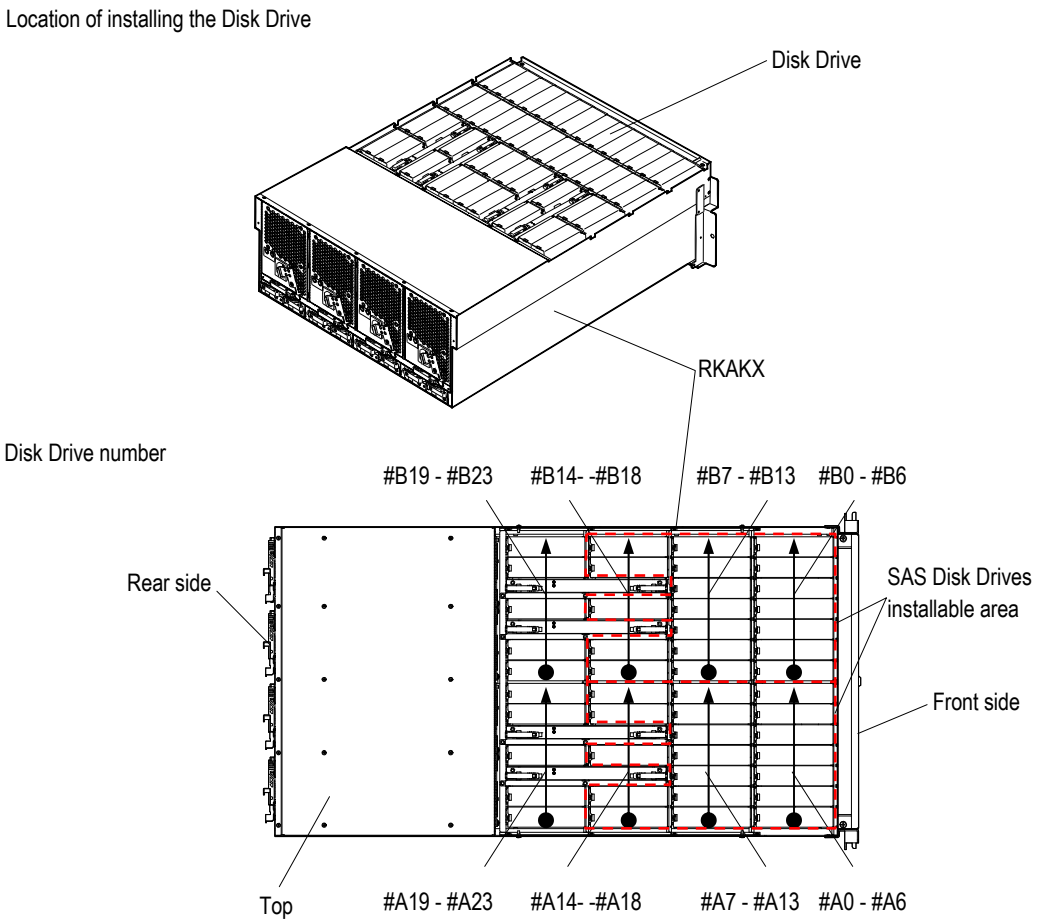


Figure 2.5.12 Location of Installing the Disk Drive

(2) Installing Power Unit

(a) Open the levers of the Power Unit to be installed toward you.

(b) Install the Power Unit in the set position.

Insert the Power Unit until its levers are slightly closed, and then close them completely until you hear the buttons (blue), which fix the levers, click.

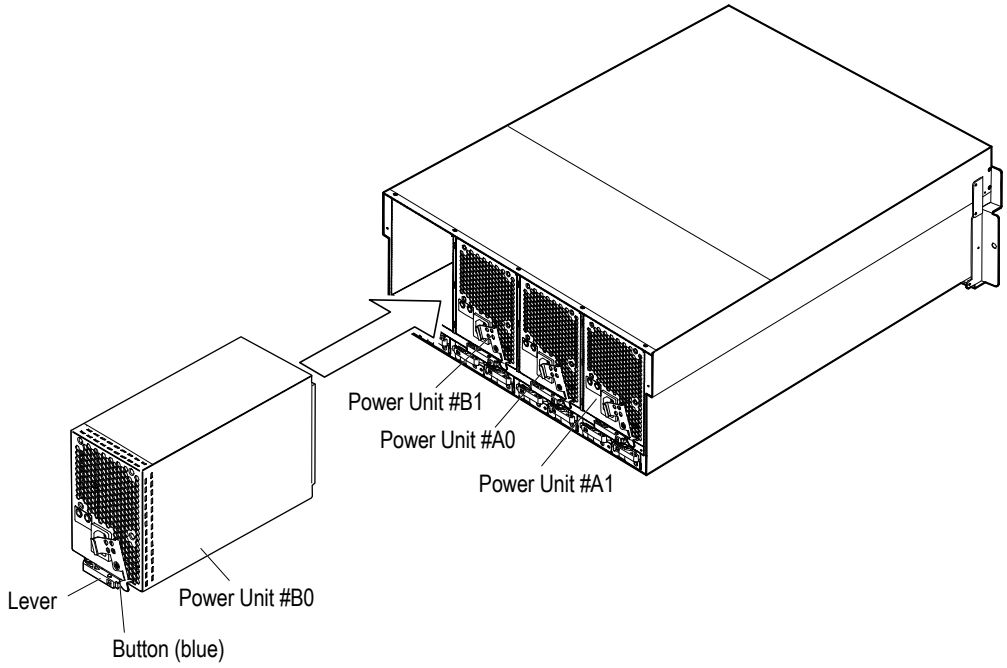


Figure 2.5.13 Installing the Power Unit

2.5.4 Installing the Cables Routing Bars

(1) Install the cable routing bar installing parts in the right and left of the rear side of the RKAKX, and fix them with the biding screws. (two places each at right and left)
For the Rev.A/Rev.B, install the cable routing bar confirming the (R) and (L) mark on its installing part (Refer to Figure 2.5.14).
For the Rev.C or later, the shape in the installing part differs in the right and left routing bars, and they have no (R) and (L) mark. Install it confirming its shape (Refer to Figure 2.5.14.1).

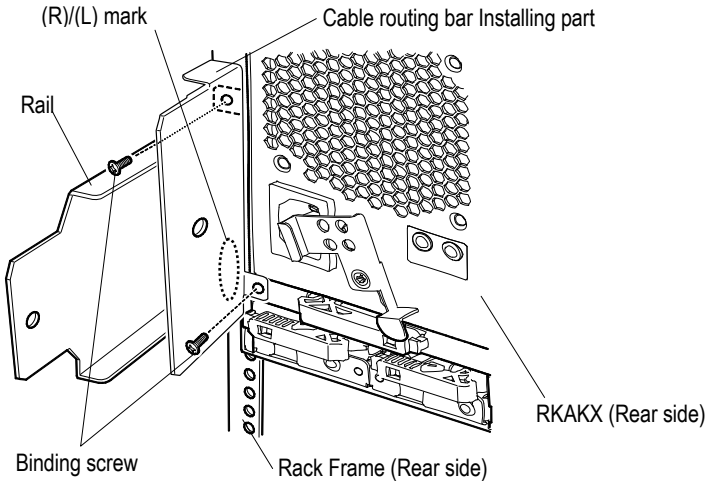


Figure 2.5.14 Installing the Cable Routing Bar Installing Part (Rev.A/Rev.B)

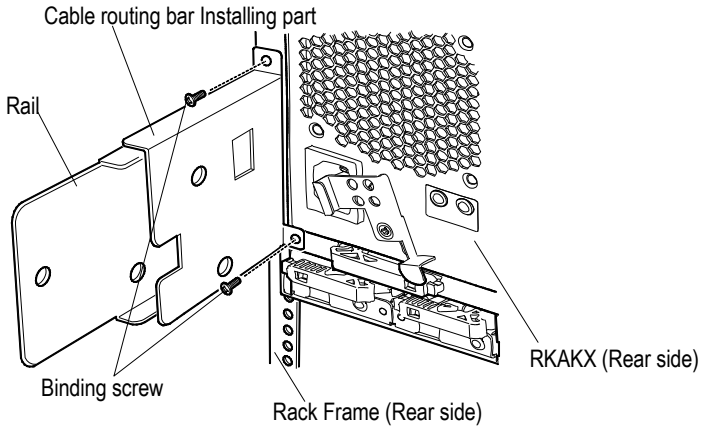
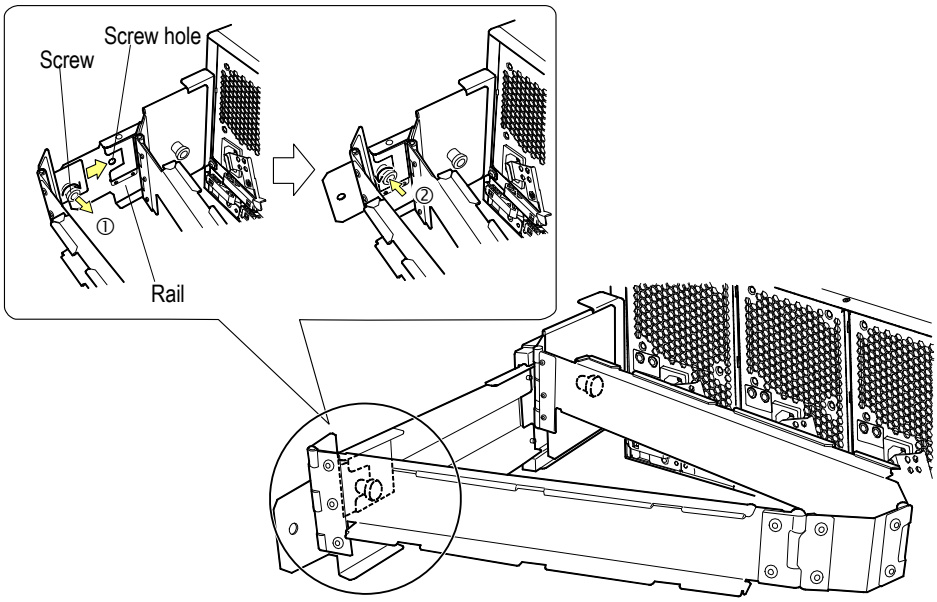


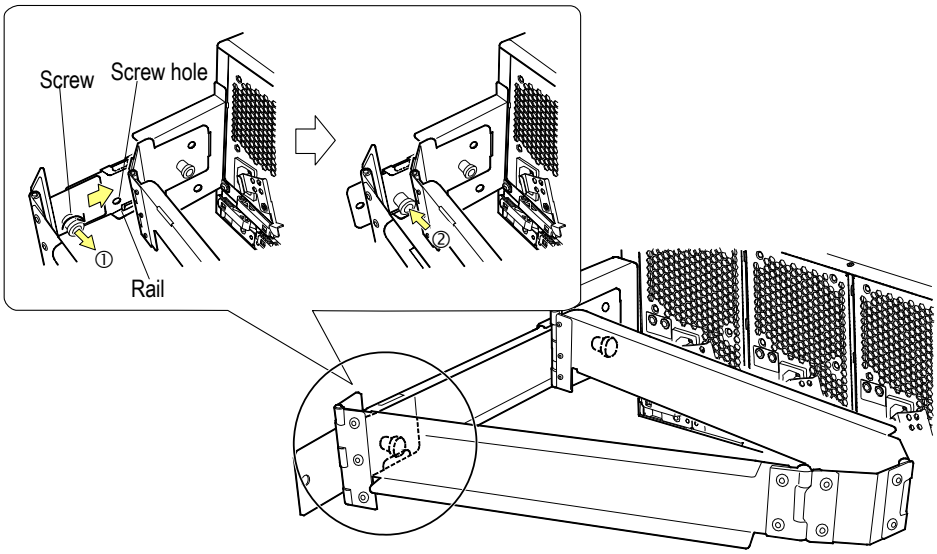
Figure 2.5.14.1 Installing the Cable Routing Bar Installing Part (Rev.C or later)

(2) Fixing the cable routing bars
Install the cable routing bars in the right and left of the rear side of the RKAKX.
(a) Fixing the cable routing bar to the rail
The Rev.A/Rev.B and Rev.C or later are different in the shape of the fixing part. Fix it referring to Figure 2.5.15 and Figure 2.5.15.1.
(i) Pull the screw of the stopper in the direction shown by the ①, and rotate it 90 degrees. The screw will be fixed with them opened.
(ii) Install one side of the cable routing bars up to the place where the screw holes of the rails match, and fix it by pressing it in the direction of arrow ② while turning the screws 90 degrees.



*1 : The figure shows the rail (R).

Figure 2.5.15 Connection with the Rail (Rev.A/Rev.B)



*1 : The figure shows the rear left side of the RKAKX.

Figure 2.5.15.1 Connection with the Rail (Rev.C or later)

This page is for editorial purpose only.

(b) Fixing the cable routing bar to the subsystem

The Rev.A/Rev.B and Rev.C or later are different in the shape of the fixing part. Fix it referring to Figure 2.5.16 and Figure 2.5.16.1.

(i) Pull the screw of the stopper in the direction shown by the ①, and rotate it 90 degrees. The screw will be fixed with them opened.

(ii) Install the other side of the cable routing bars up to the place where the screw holes of the rails match, and fix it by pressing it in the direction of arrow ② while turning the screws 90 degrees.

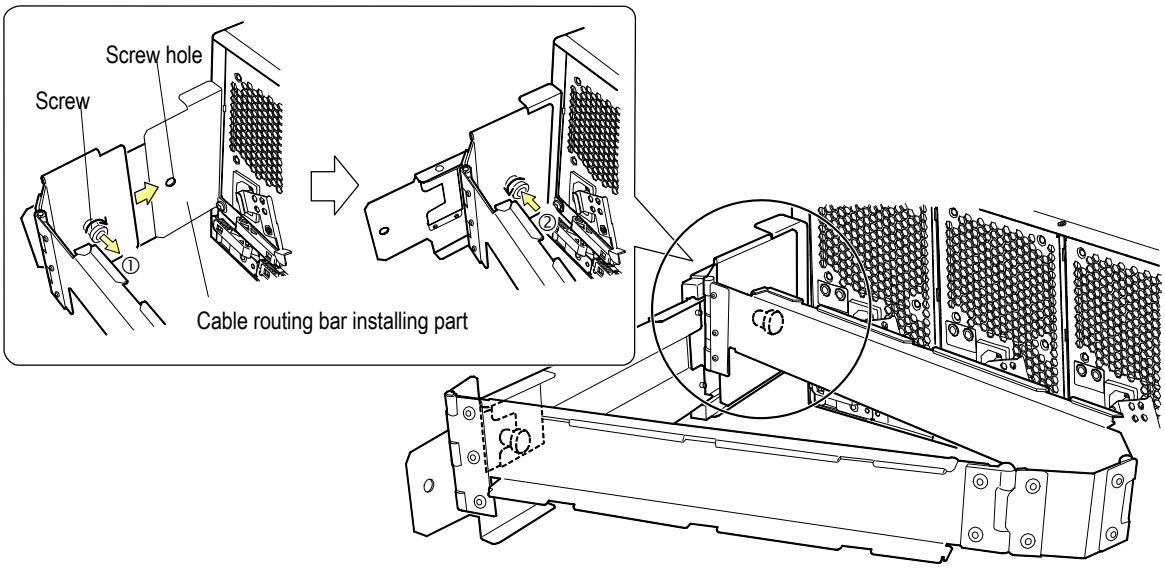


Figure 2.5.16 Connection with the Subsystem (Rev.A/Rev.B)

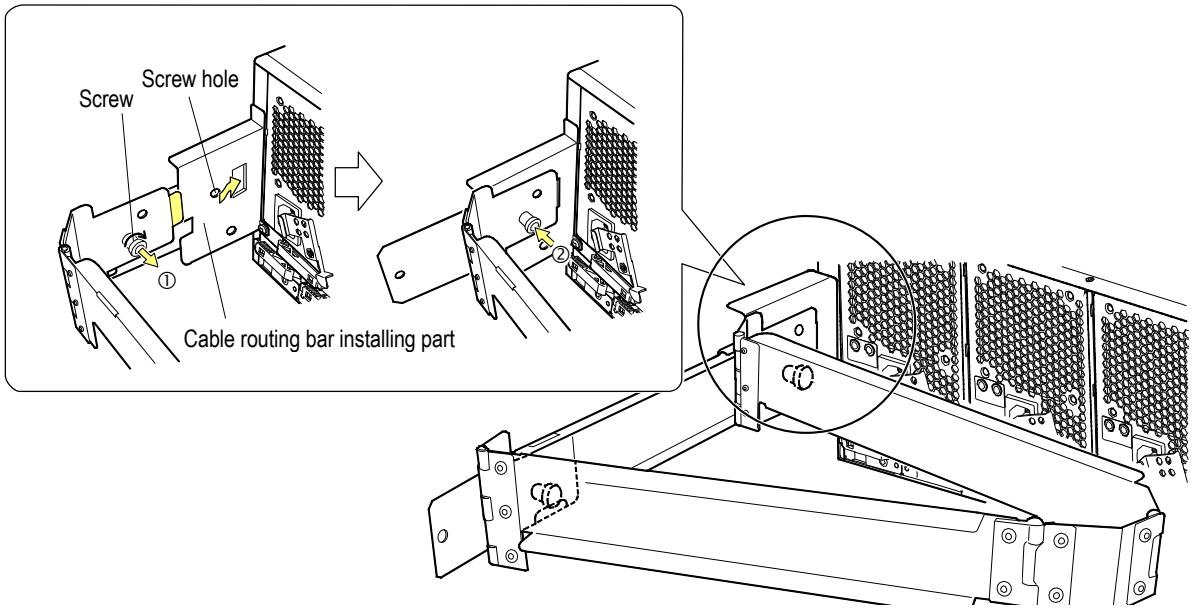
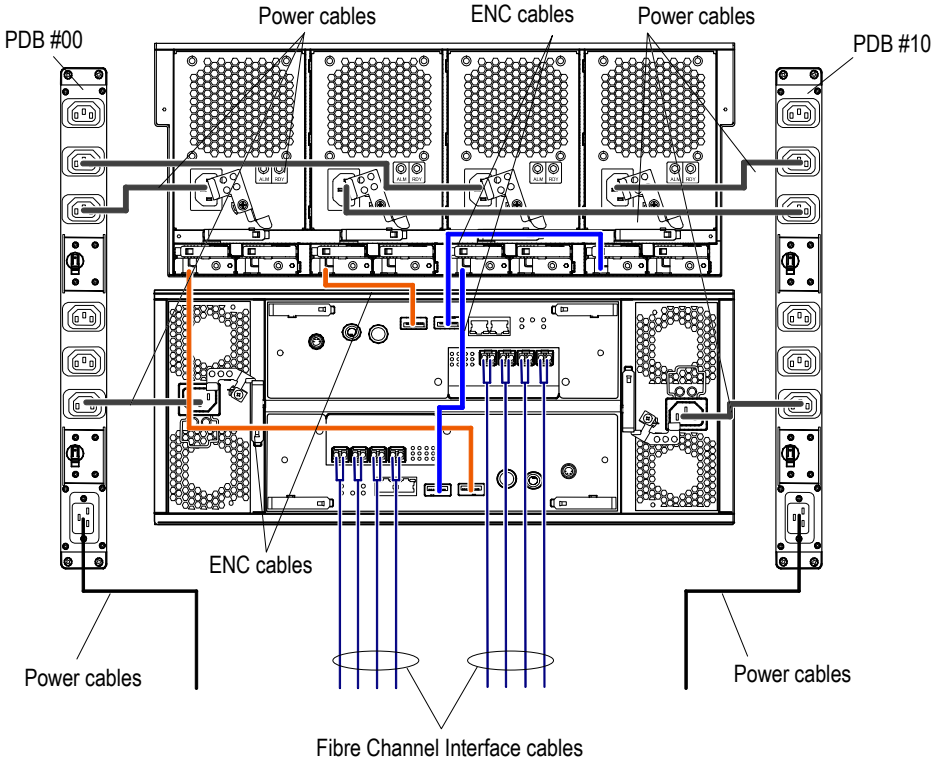


Figure 2.5.16.1 Connection with the Subsystem (Rev.C or later)

2.5.5 Connecting the Cables

The cable routing for the interface cable and power cable is shown in Figure 2.5.17 to Figure 2.5.22.



*1 : The figure shows the connection of RKM and RKAKX.

Figure 2.5.17 Fibre Channel Interface Cable Routing for the Subsystem (RKM/RKS+RKAKX)

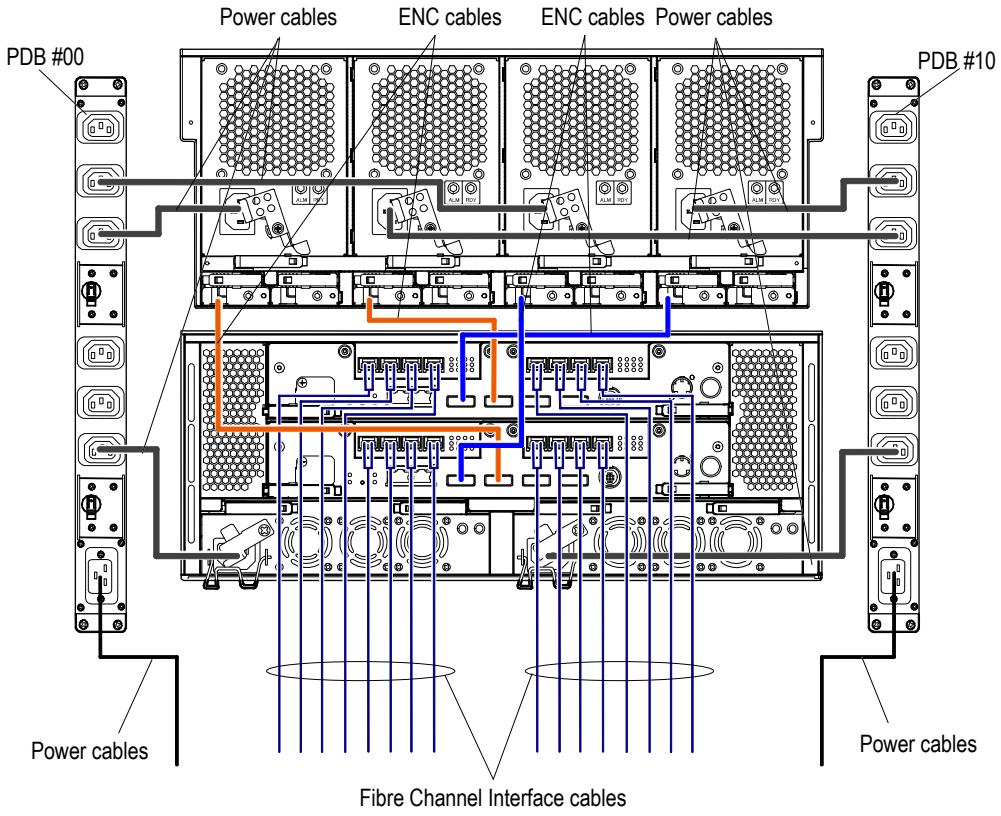


Figure 2.5.18 Fibre Channel Interface Cable Routing for the Subsystem (RKH+RKAKX)

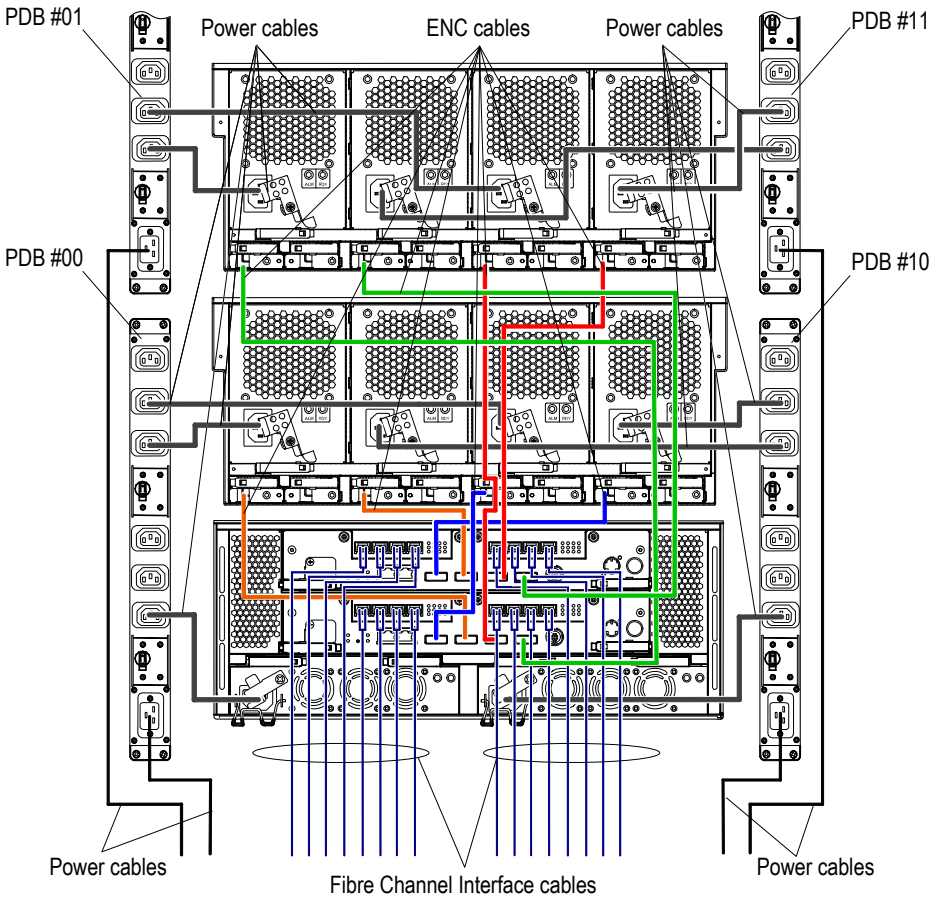
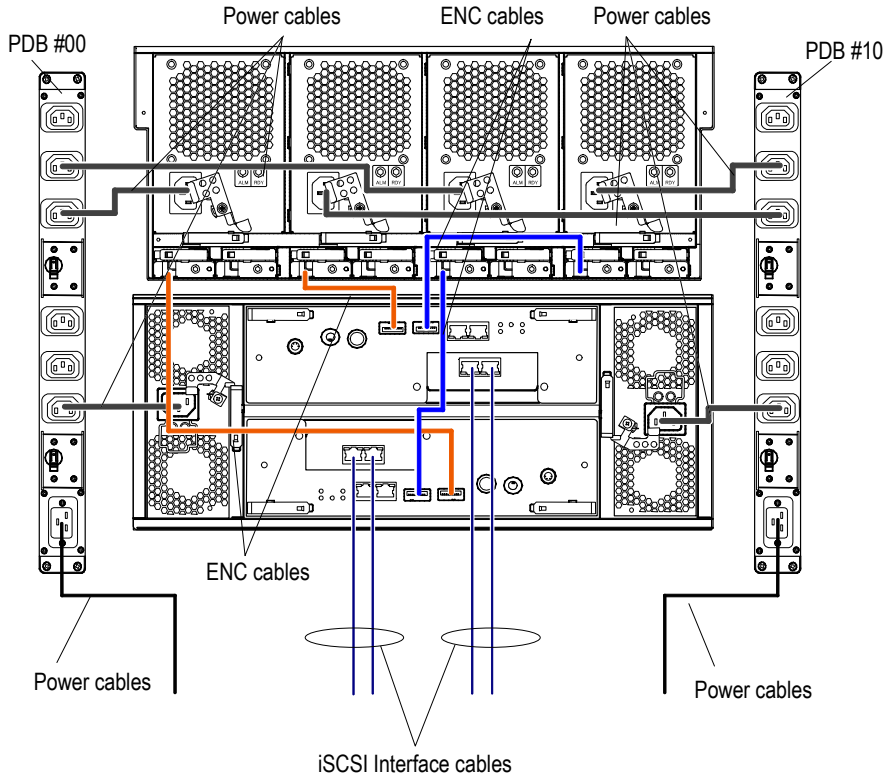


Figure 2.5.19 Fibre Channel Interface Cable Routing for the Subsystem (RKH+RKAKX×2)



*1 : The figure shows the connection of RKM and RKAKX.

Figure 2.5.20 iSCSI Interface Cable Routing for the Subsystem (RKM/RKS+RKAKX)

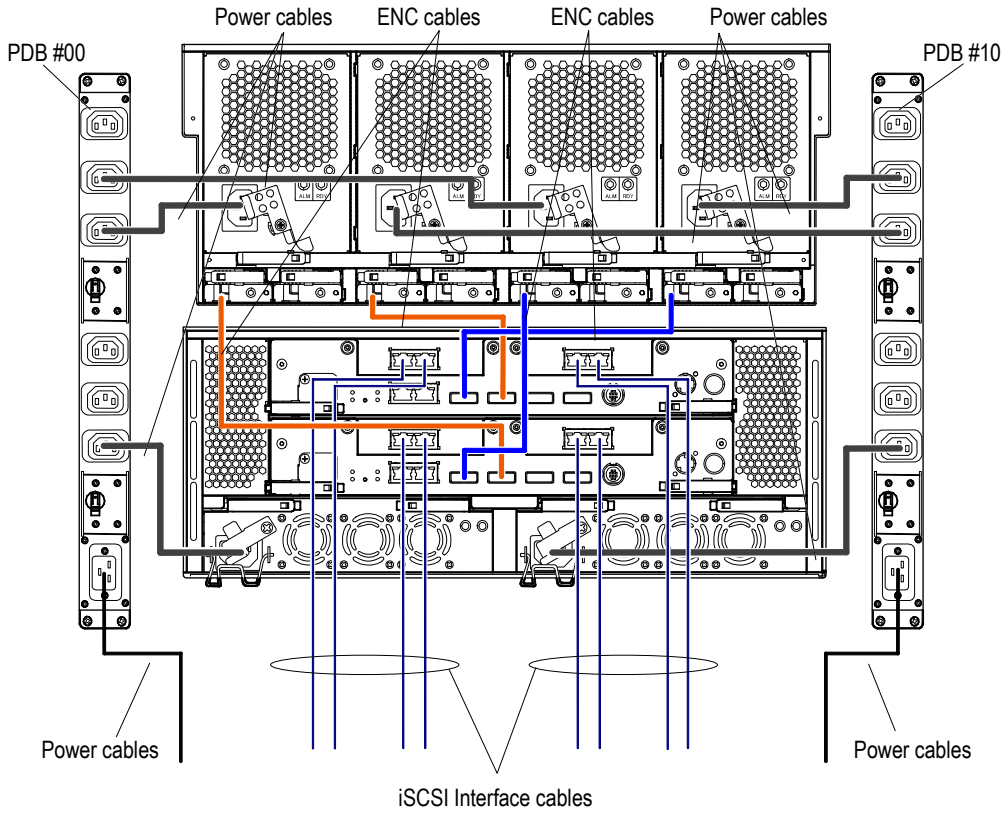


Figure 2.5.21 iSCSI Channel Interface Cable Routing for the Subsystem (RKH+RKAKX)

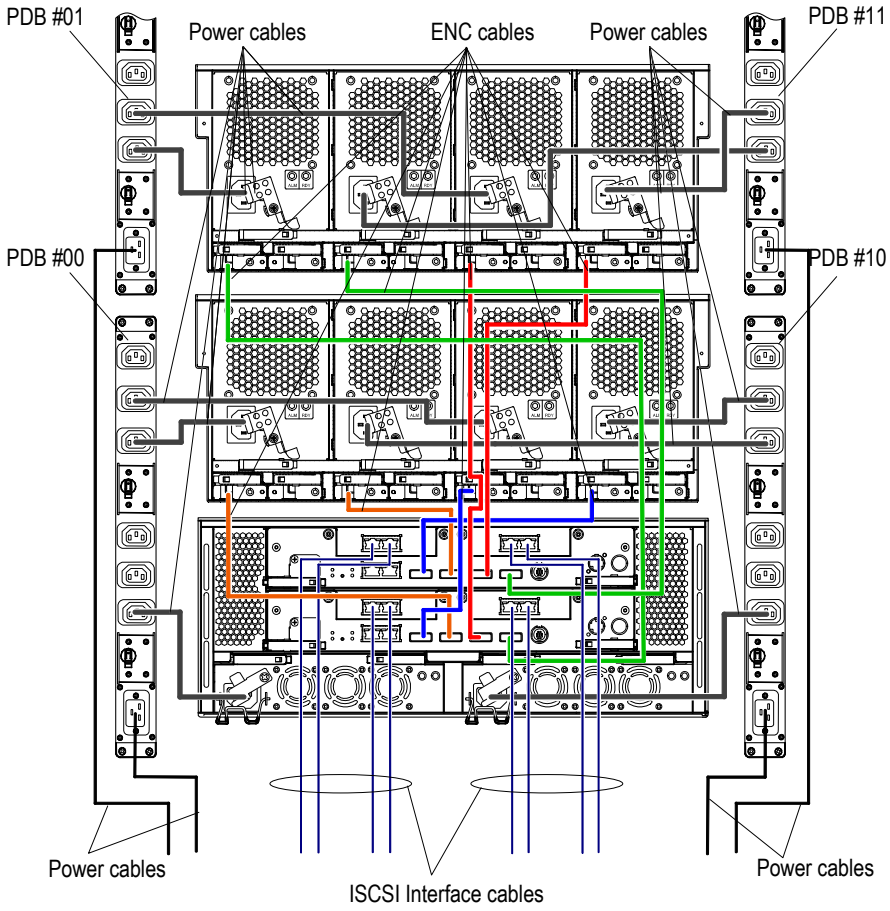


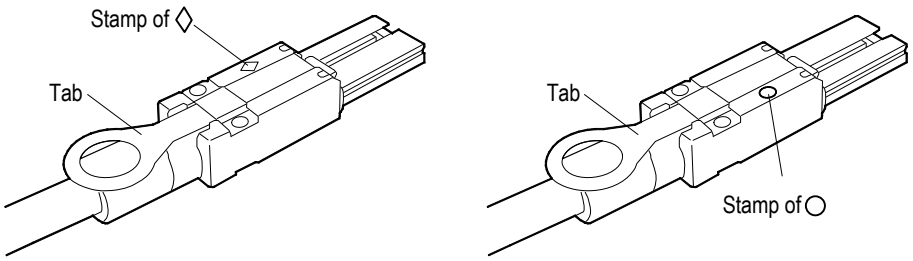
Figure 2.5.22 iSCSI Interface Cable Routing for the Subsystem (RKH+RKAKX×2)

2.5.6 Connecting the ENC Cables

NOTE : Chassis connection has a rule to connect them in order of Path number according to the order of unit ID number. For details, refer to Introduction "1.3 (1) (a) Rule of Additional Chassis connection ordering" (INTR 01-0081).

Connect a Basic Chassis and an Additional Chassis or an Additional Chassis and another Additional Chassis with the ENC cable.
Perform (2-1) to connect the RKM/RKS and the RKAKX (refer to "(2-1) When connecting the RKM/RKS and the RKAKX" (INST 02-1130).
Perform (2-2) to connect the RKH and the RKAKX (refer to "(2) When connecting the RKH and the RKAKX" (INST 02-1170).

NOTE :
- The rubber cap is attached to the ENC connector.
  Remove the rubber cap before installing the ENC cable.
- As for the plug of the ENC cable, both ends are different. One plug can be inserted in the ENC connector of the Basic Chassis or the OUT side of the Additional Chassis.
  The other plug can be inserted in the IN side of the additional chassis.
  Check the stamp of the plug and connect the ENC cable (refer to Figure 2.5.23).



(a) Connectable to the ENC connector of the Basic Chassis or the OUT side of the ENC connector of the Additional Chassis

(b) Connectable to the IN side of the ENC connector of the Additional Chassis

Figure 2.5.23 ENC Cable Stamp Position

(1) Connecting the ENC cable of the RKAKX

For the RKAKX, connect the ENC cable to the cable holder corresponding to the ENC unit in the following procedure.

(a) Open the cable routing bar on the rear side of the RKAKX toward you.

(b) Remove the cable holder of the ENC unit to which the ENC cable is connected.
Open the lever and remove the ENC cable pressing the button which fixes the lever of the cable holder.

(c) Loosen the screw (blue) which fixes the holder cover, and remove it.

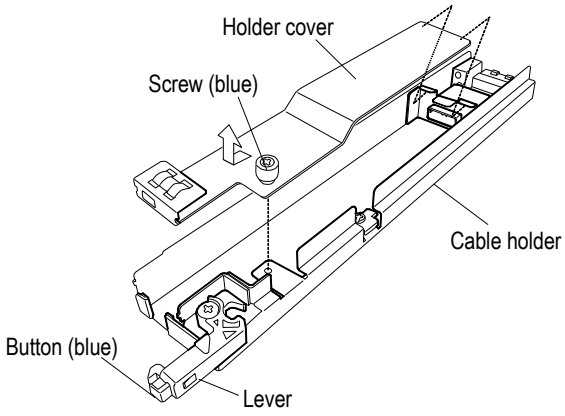


Figure 2.5.24 Attaching/Removing the Cable Holder and the Holder Cover

(d) Connect the ENC cable to the cable holder.
Connect the cable having it passed under the lever of the cable holder.

NOTE: Pull the ENC cable lightly to check if it is surely connected to the cable holder.

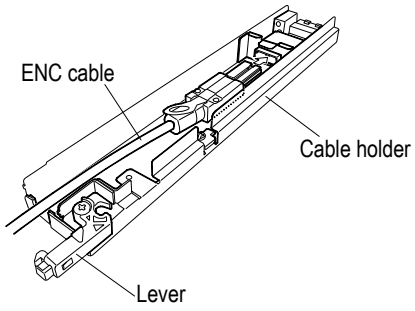


Figure 2.5.25 Connecting the ENC cable

(e) Attach the holder cover to the cable holder, and tighten the screw (blue) to fix the cover.

NOTE: • There are cable holder A and cable holder B with their different shapes near the claw to which the holder cover is set.
Work after confirming their shapes.
• Set and attach the tip of the holder cover to the correct position in the claw of the cable holder.

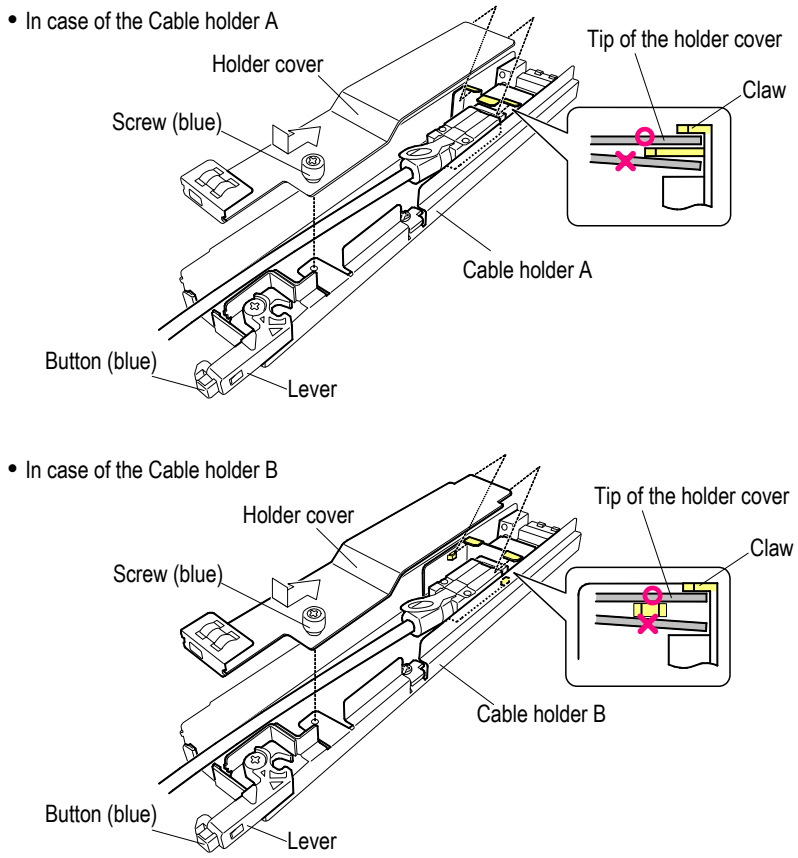


Figure 2.5.26 Attaching the Cable Holder

(f) Attach the cable holder to the RKAKX.
Open the lever of the cable holder toward you. Insert the cable holder until its lever is slightly closed, and then close the lever completely until you hear the button (blue), which fixes the lever, click.

NOTE : Connect the cable holder to the correct connector (IN/OUT).

(g) Return the cable routing bar on the rear side of the RKAKX to its original position.

(2) Connecting the ENC cables between subsystems

(2-1) When connecting the RKM/RKS and the RKAKX

Connect the Control Unit of the RKM/RKS and the ENC Unit of the RKAKX (‡1) (the ENC cables are supplied with the RKAKX).

Connect the Control Unit #0 of the RKM/RKS with the tab of the ENC cable being upward.

Connect the Control Unit #1 of the RKM/RKS and the ENC Unit of the RKAKX with the tab of the ENC cable being downward.

NOTE :
- In the single controller configuration, connect the ENC Unit #A0 and #B0 side. Do not connect the ENC Unit #A1 and #B1 side. However, when installing two or more RKAKXs, both ENC unit#A1 and #B1 should be connected between RKAKXs with the ENC cables.
- When bending the ENC cable to connect it, give it a bend with a long radius (more than 20 mm) so as not to apply the cable and the connector excessive stresses.
- If you insert it incorrectly, remove the ENC cable while pulling the tab of the ENC cable.

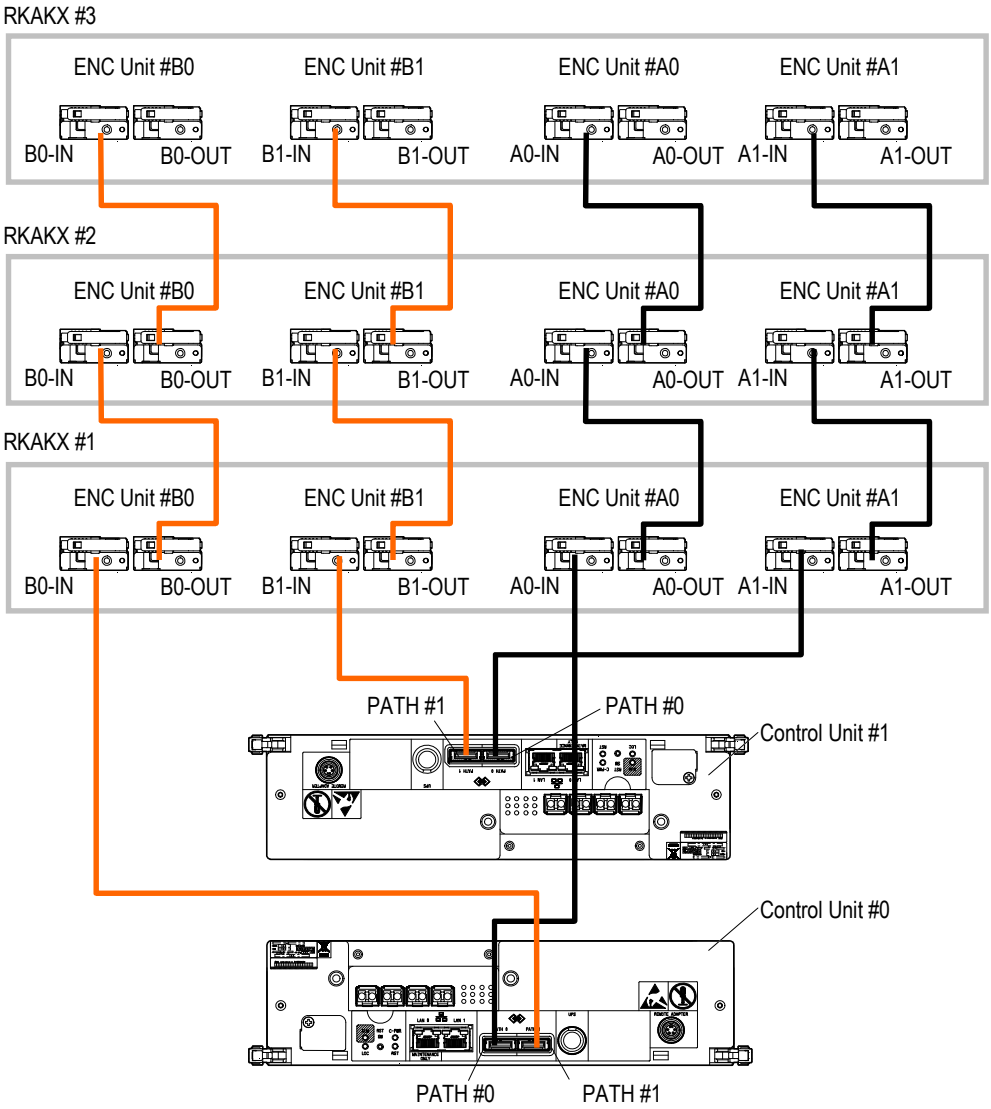
Connect the ENC cable in the following procedure referring to Figure 2.5.27 to Figure 2.5.29.

(a) Connect the ENC cable to the ENC connector of the RKM/RKS.

(b) Connect the ENC cable to the cable holder of the ENC Unit #A0 (IN side) in the RKAKX.

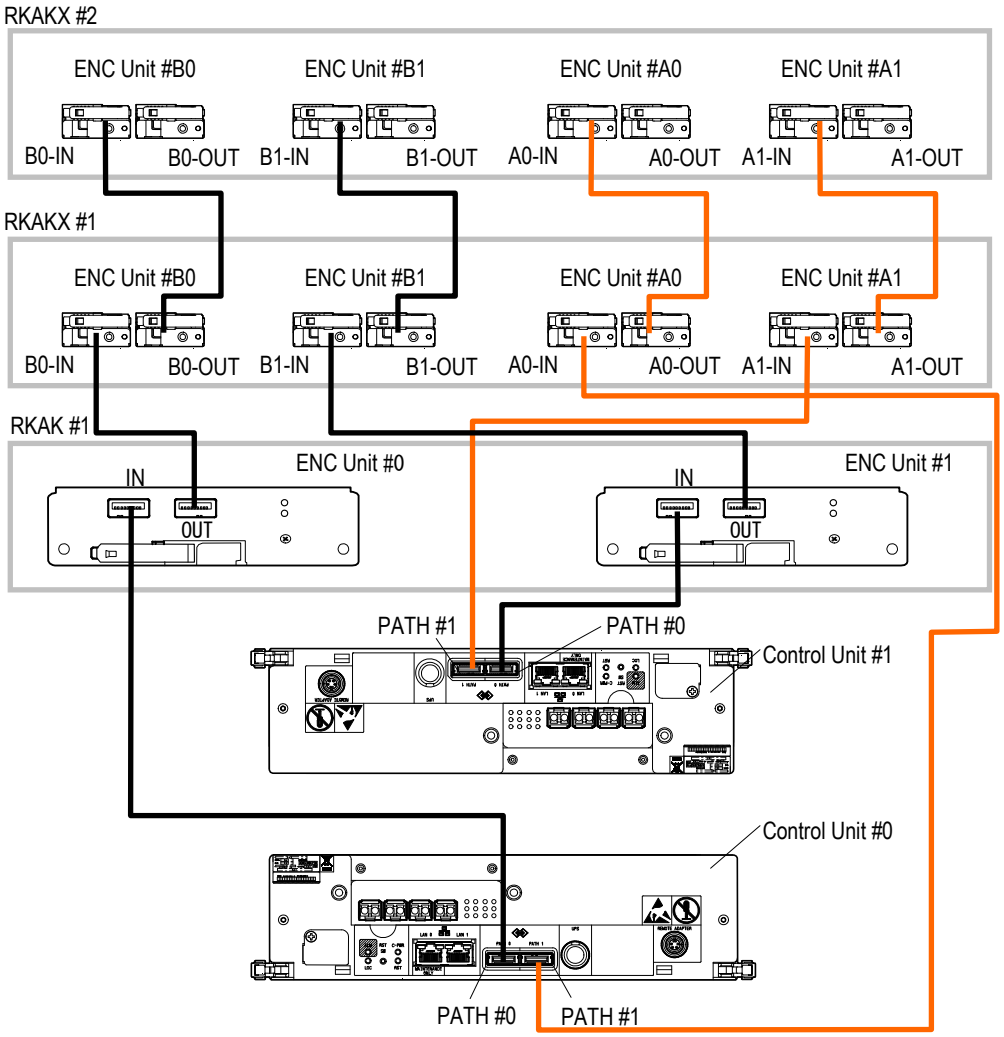
NOTE : Connect the Control Unit #0 of the RKM/RKS with the ENC Unit #A0 and #B0 of the RKAKX, and the Control Unit #1 of the RKM/RKS with the ENC Unit #A1 and #B1 of the RKAKX.

(c) When installing two or more RKAKXs, connect the IN side and OUT side of the RKAKX with the ENC cable.



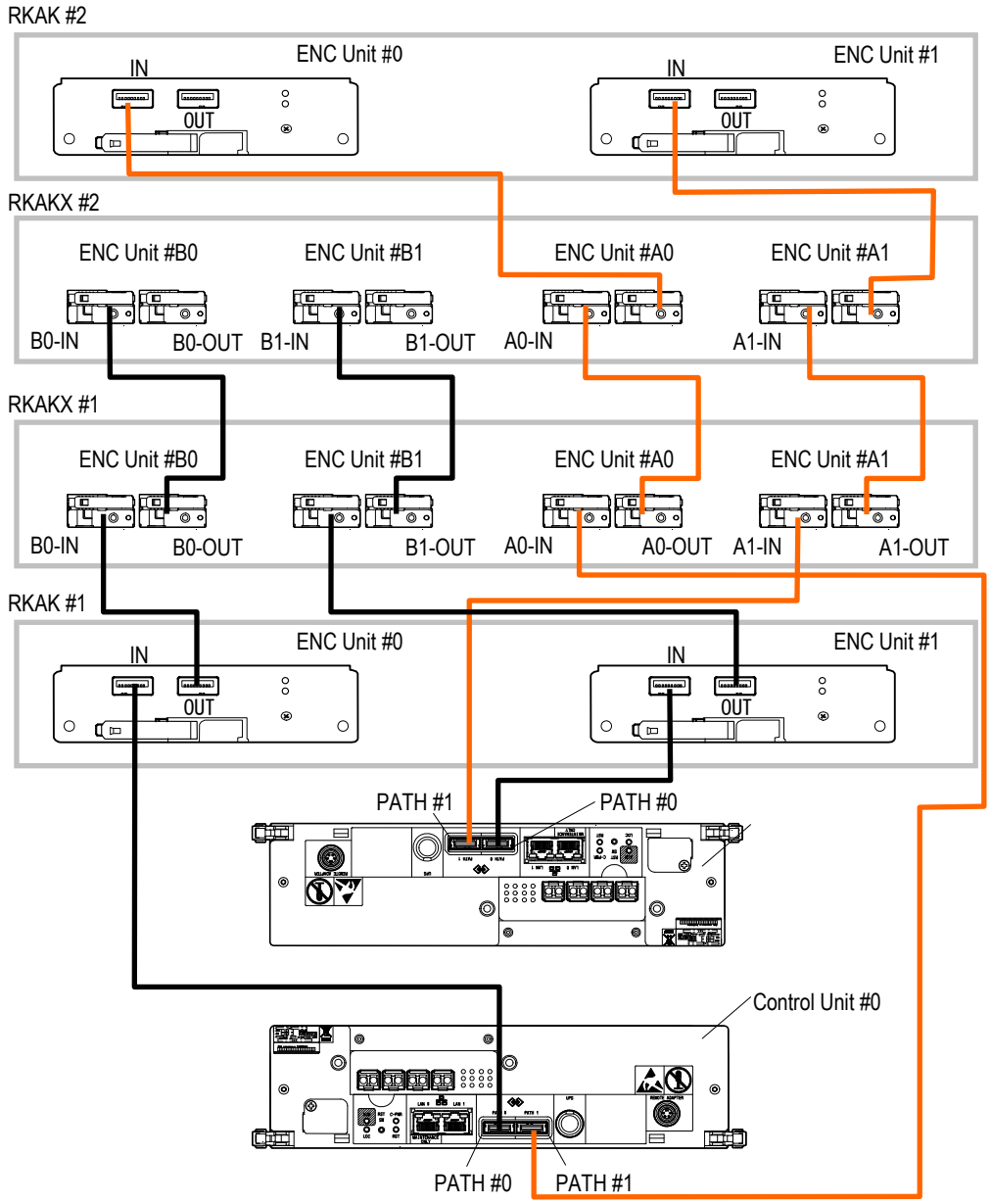
*1 : The figure shows the dual controller configuration.
In the single controller configuration, since only the Control Unit #0 is used, ENC cable is not connected to the A1-IN and B1-IN of the RKAKX #1

Figure 2.5.27 Connecting ENC Cables (RKM/RKS+RKAKX×3)



*1 : The figure shows the dual controller configuration.
In the single controller configuration, since only the Control Unit #0 is used, ENC cable is not connected to the ENC Unit #1 (IN) in the RKAK #1and the A1-IN of the RKAKX #1.

Figure 2.5.28 Connecting ENC Cables (RKM/RKS+RKAK+RKAKX×2)



*1 : The figure shows the dual controller configuration.
In the single controller configuration, since only the Control Unit #0 is used, ENC cable is not connected to the ENC Unit #1 (IN) in the RKAK #1 and the A1-IN of the RKAKX.

Figure 2.5.29 Connecting ENC Cables (RKM/RKS+RKAK+RKAKX×2+RKAK)

(2-2) When connecting the RKH and the RKAKX

Connect the Control Unit of the RKH and the ENC Unit of the RKAKX [‡1] (the ENC cables are supplied with the RKAKX).

Connect the Control Unit of the RKH with the tab of the ENC cable being upward.

Connect the ENC Unit of the RKAKX with the tab of the ENC cable being downward.

NOTE : • When installing two or more RKAKXs, the ENC units #A0, #A1, #B0 and #B1 should be connected between RKAKXs with the ENC cables.
• When bending the ENC cable to connect it, give it a bend with a long radius (more than 20 mm) so as not to apply the cable and the connector excessive stresses.
• If you insert it incorrectly, remove the ENC cable while pulling the tab of the ENC cable.

Connect the ENC cable in the following procedure referring to Figure 2.5.30 to Figure 2.5.32.

(a) Connect the ENC cable to the ENC connector of the RKH.

(b) Connect the ENC cable to the cable holder of the ENC Unit #A0 (IN side) in the RKAKX.

NOTE : Connect the Control Unit #0 of the RKH with the ENC Unit #A0 and #B0 of the RKAKX #1 and #2, and the Control Unit #1 of the RKH with the ENC Unit #A1 and #B1 of the RKAKX #1 and #2.

(c) When installing three or more RKAKXs, connect the IN side and OUT side of the RKAKX with the ENC cable.

‡1 : Keep the ENC cables carefully to provide for the case where they are needed.

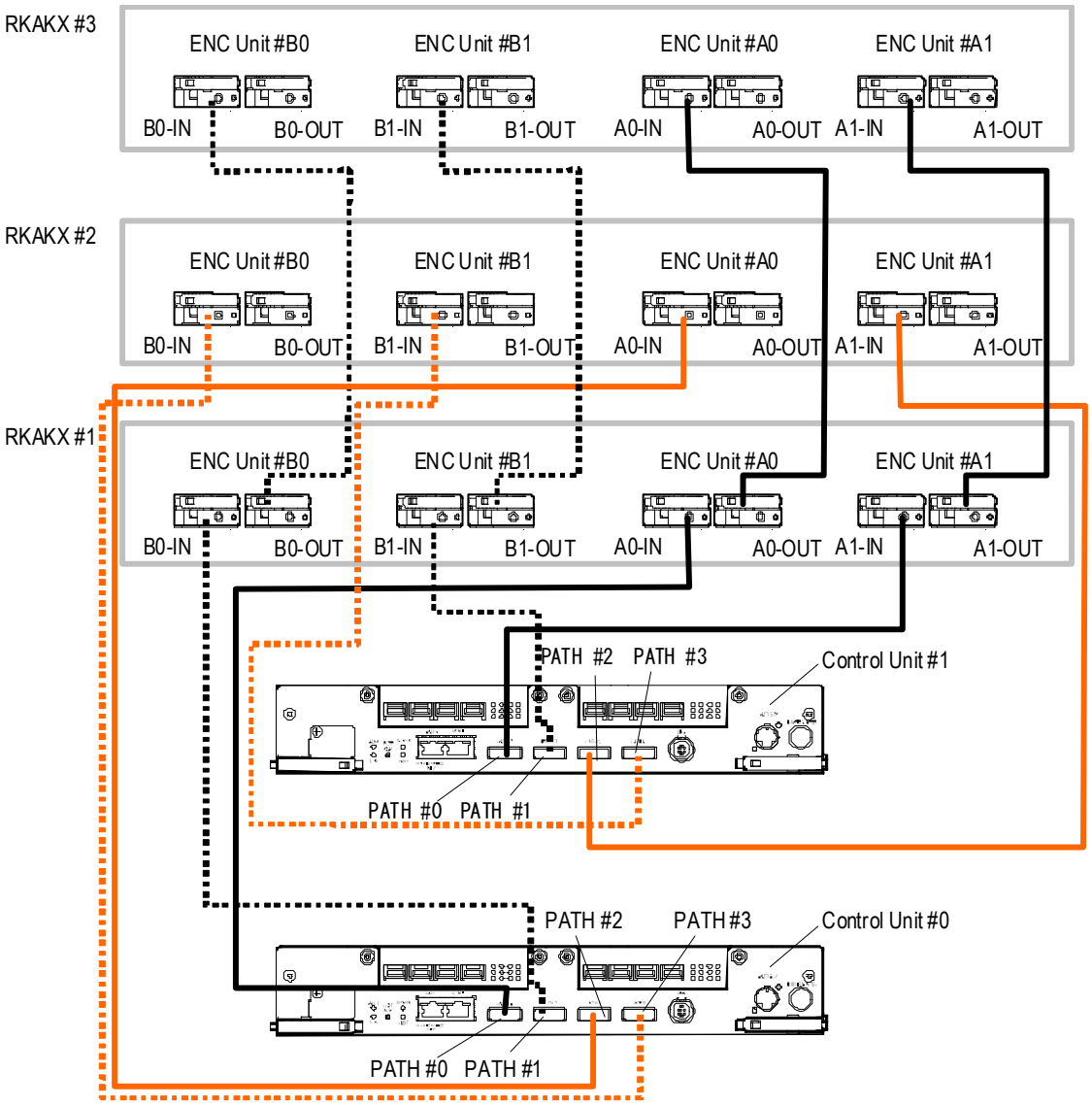


Figure 2.5.30 Connecting ENC Cables (RKH+RKAKX×3)

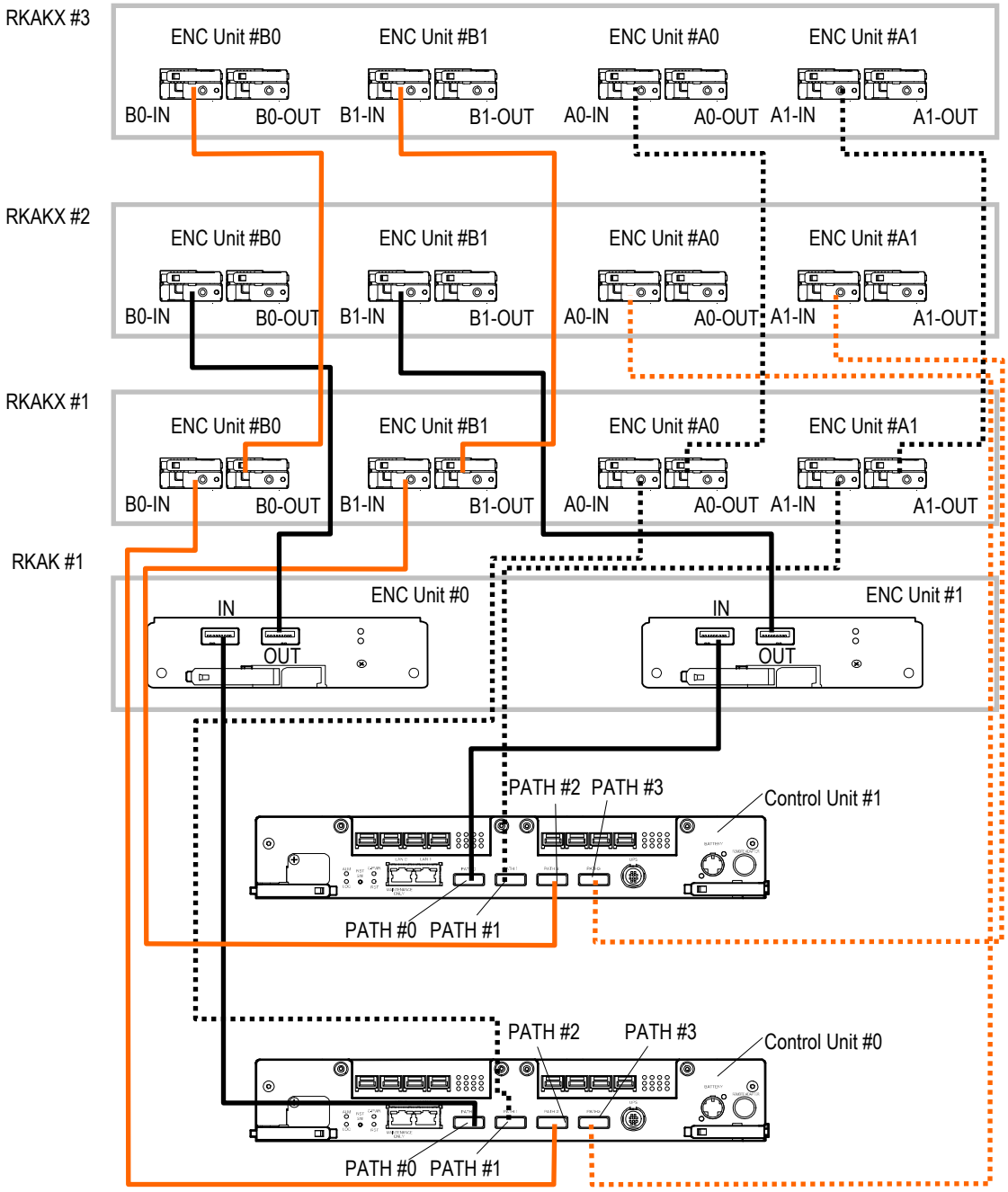


Figure 2.5.31 Connecting ENC Cables (RKH+RKAK+RKAKX×3)

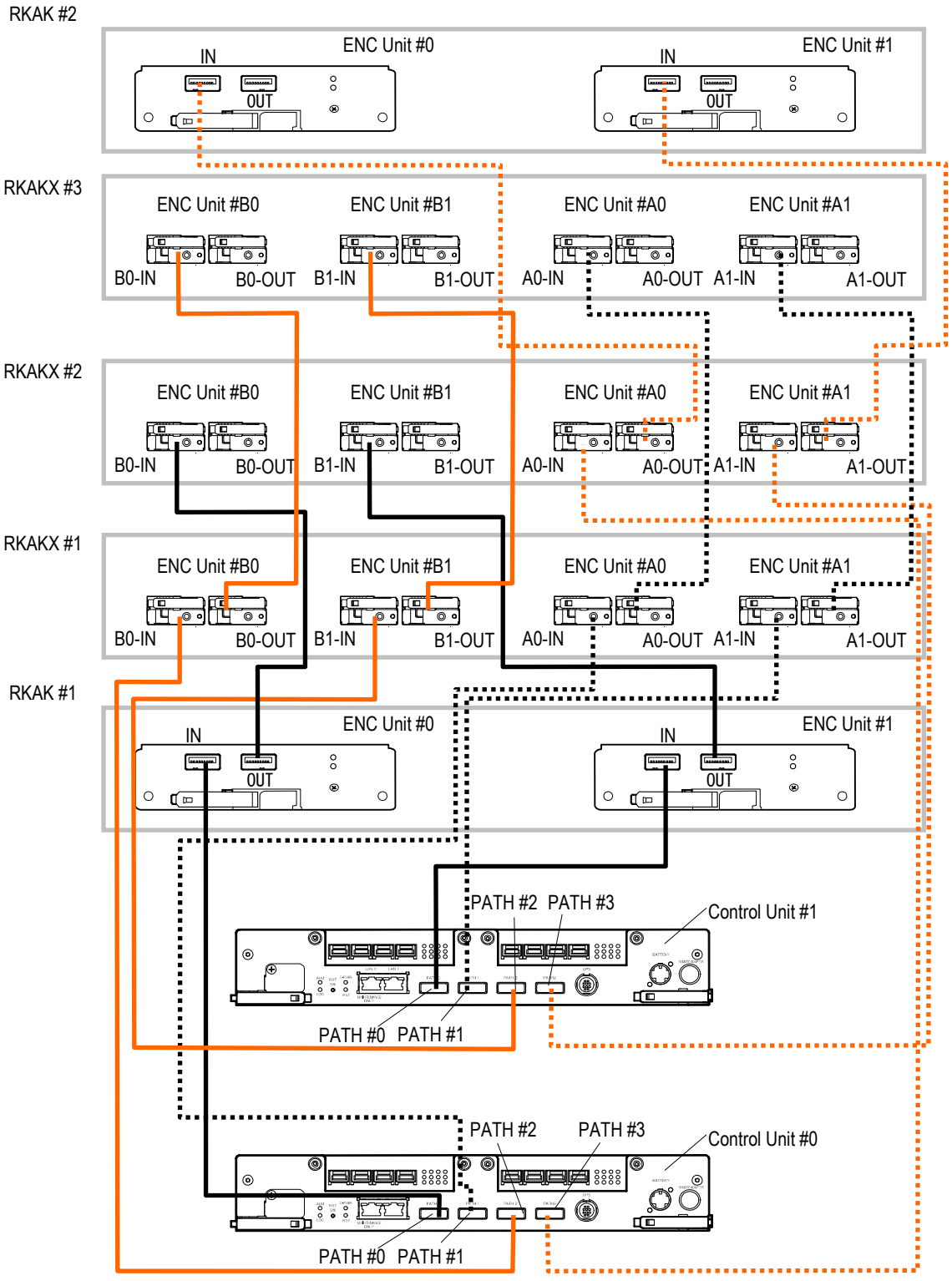


Figure 2.5.32 Connecting ENC Cables (RKH+RKAK+RKAKX×3+RKAK)

(2-3) ENC cable connection of maximum configuration

(a) RKH + 10 RKAKXs configuration

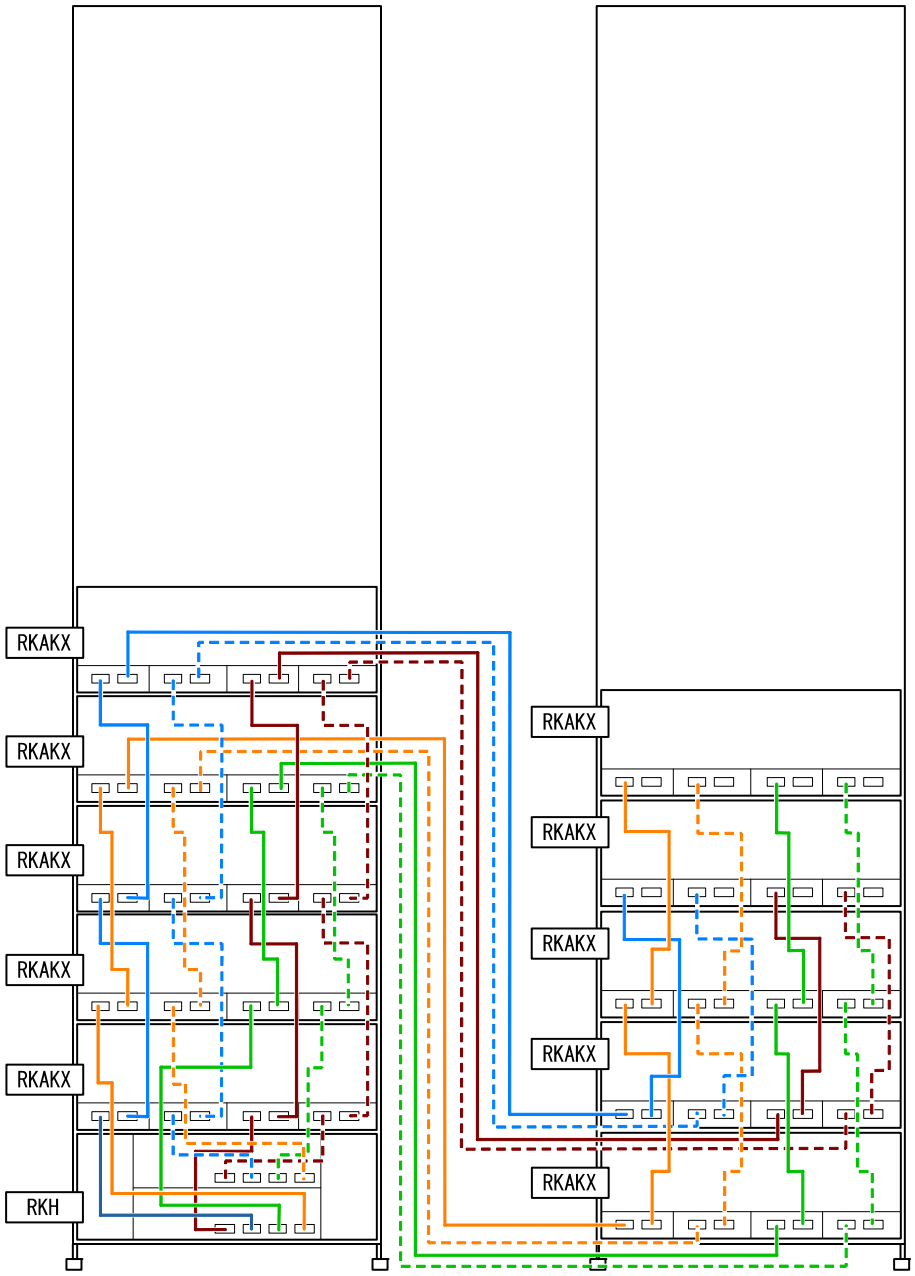


Figure 2.5.32.1 ENC Cable connection of the RKH + 10 RKAKXs

(b) RKH + 2 RKAKs + 9 RKAKXs configuration

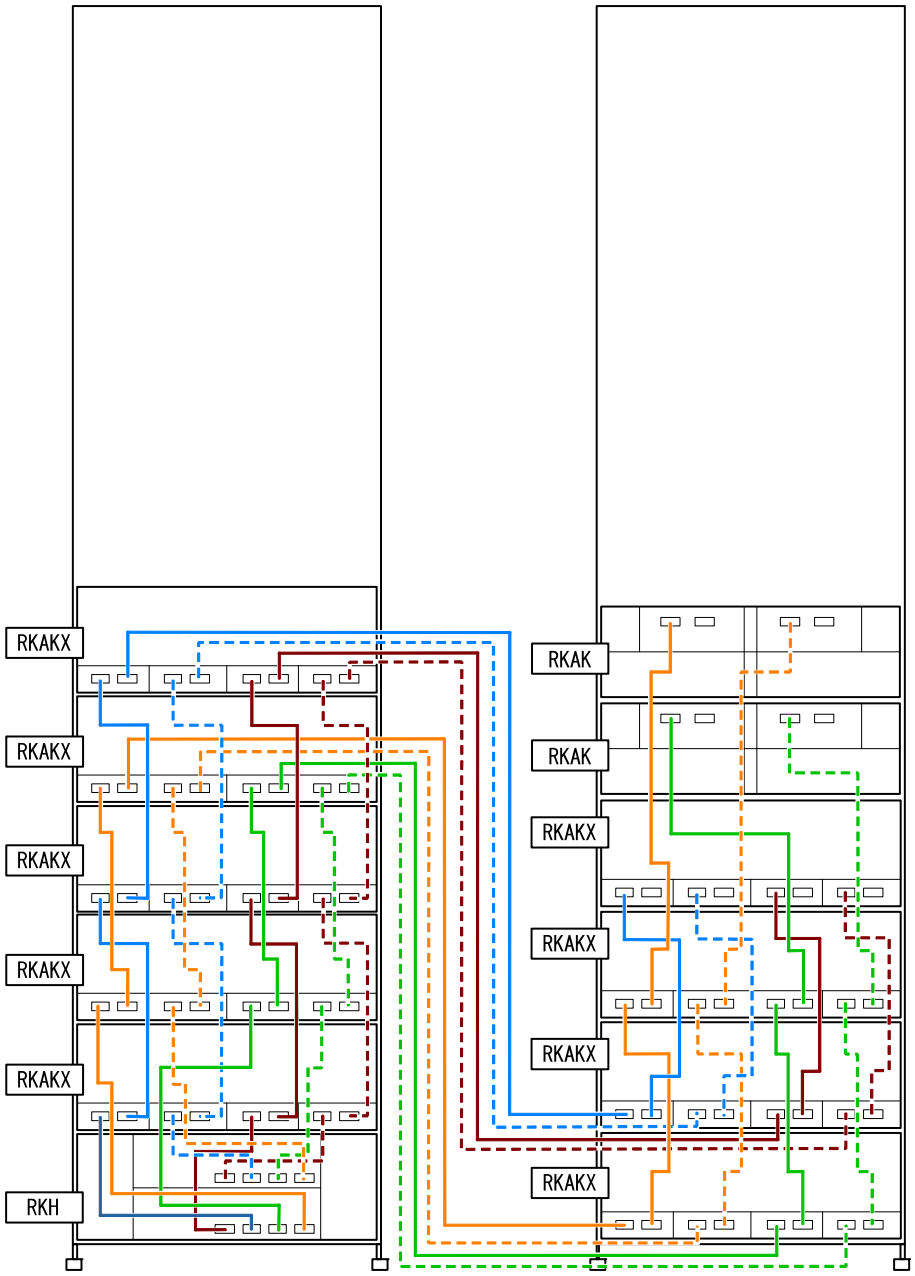


Figure 2.5.32.2 ENC Cable connection of the RKH + 2 RKAKs + 9 RKAKXs

(c) RKH + 6 RKAKs + 8 RKAKXs configuration

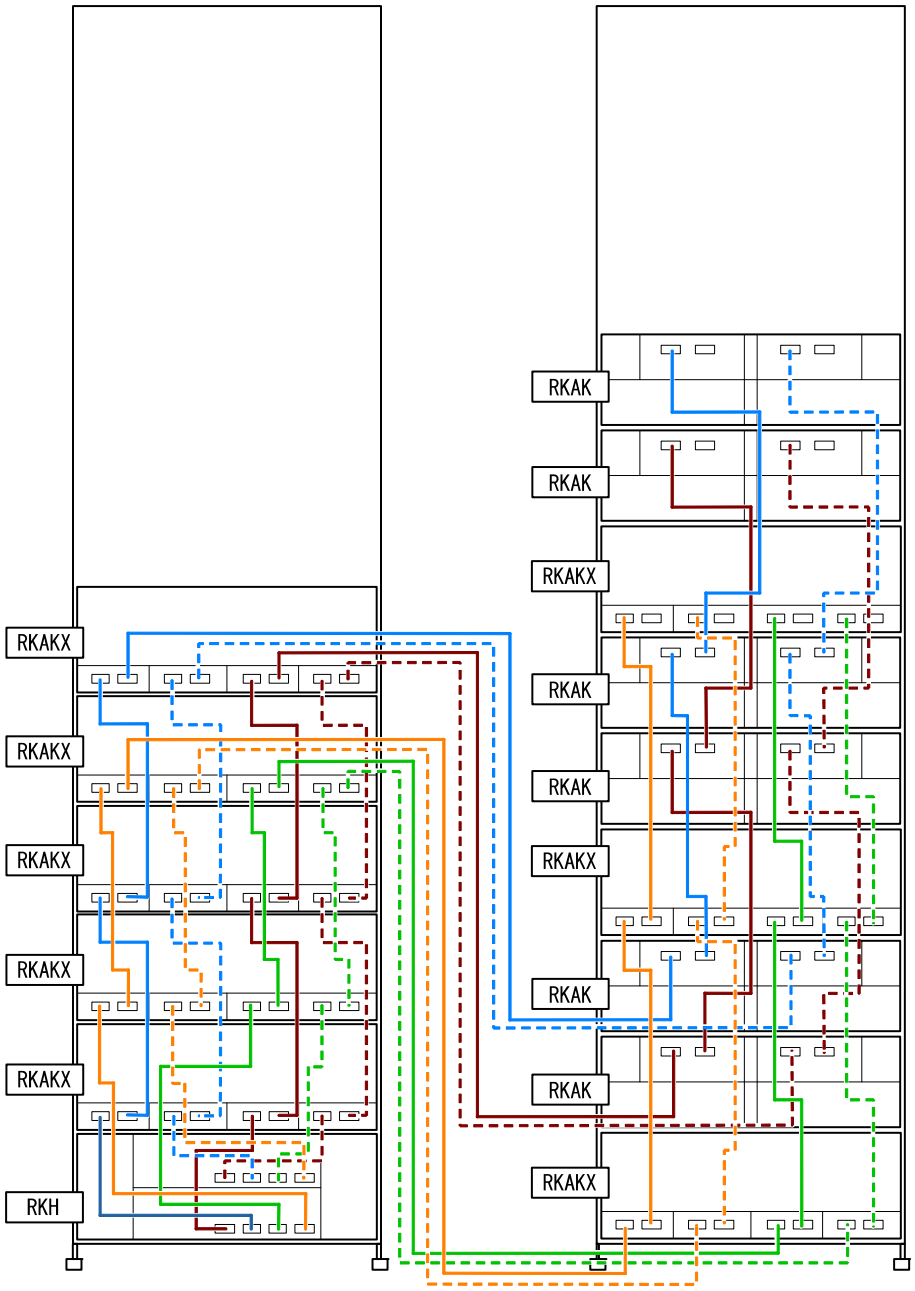


Figure 2.5.32.3 ENC Cable connection of the RKH + 6 RKAKs + 8 RKAKXs

(d) RKH + 8 RKAKs + 7 RKAKXs configuration

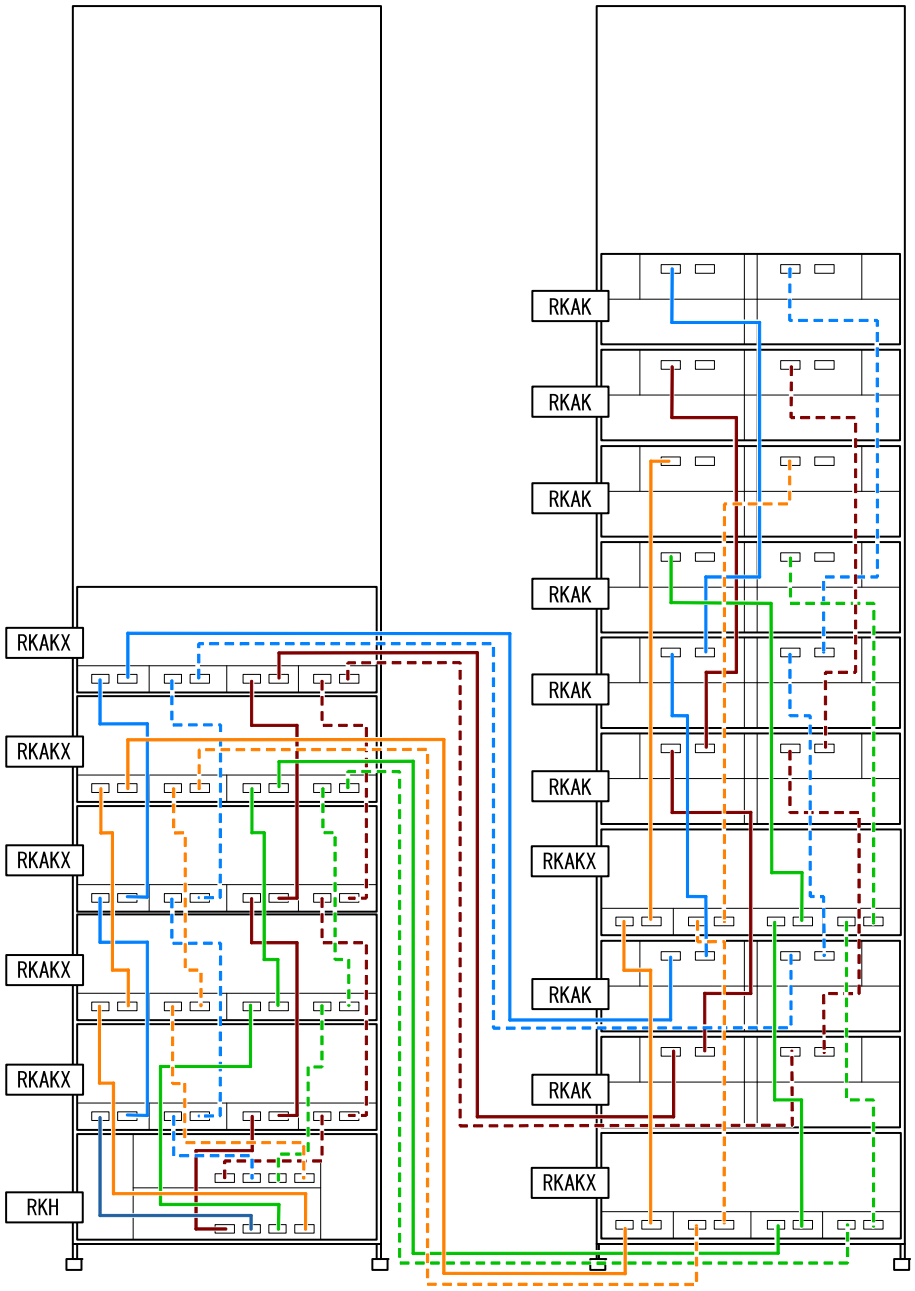


Figure 2.5.32.4 ENC Cable connection of the RKH + 8 RKAKs + 7 RKAKXs

(e) RKH + 12 RKAKs + 6 RKAKXs configuration

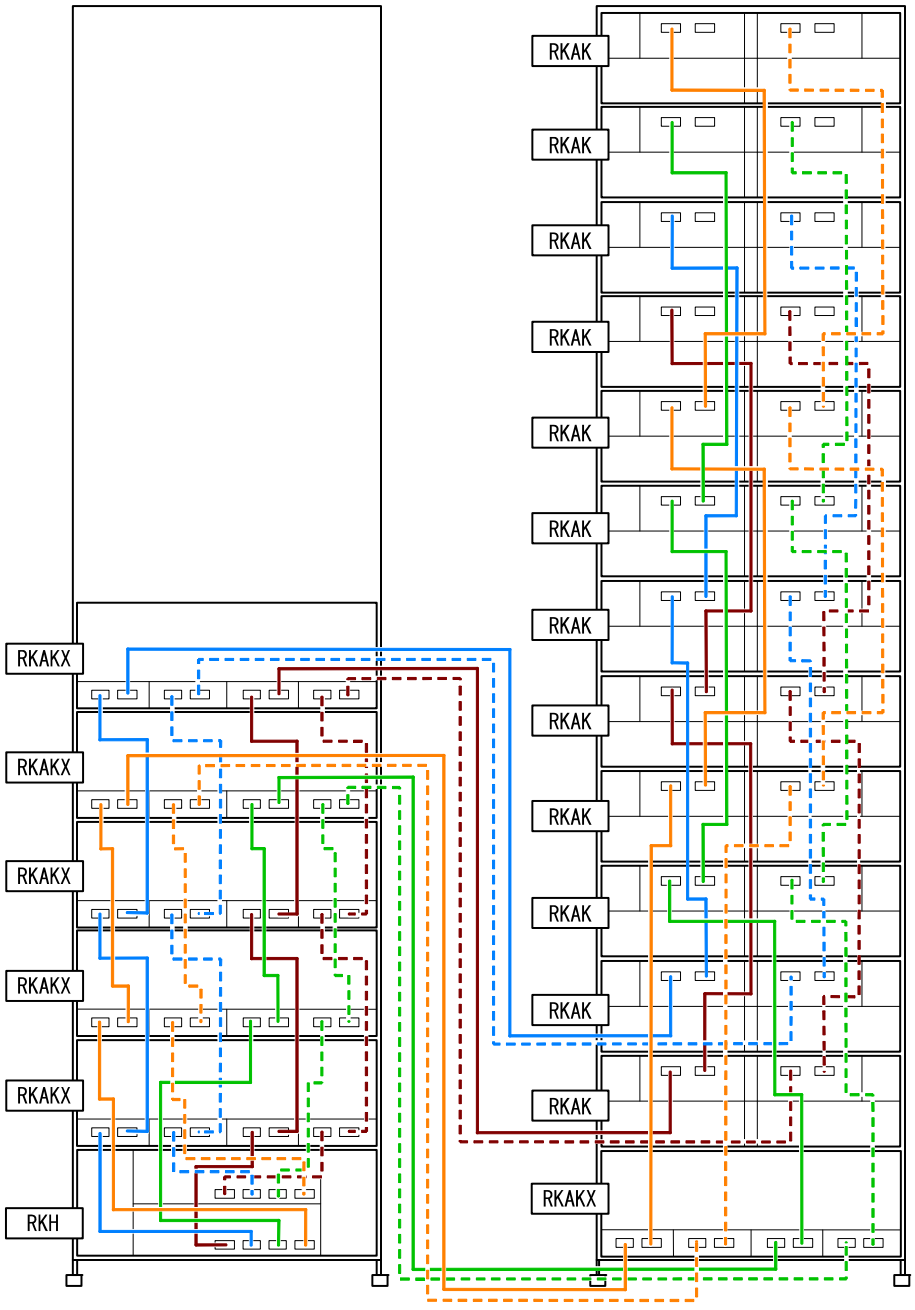


Figure 2.5.32.5 ENC Cable connection of the RKH + 12 RKAKs + 6 RKAKXs

This page is for editorial purpose only.

(3) Attaching cable labels

(a) Check the Control Unit#/PATH# and IN/OUT, and attach the cable labels on the ENC cable.

NOTE : Attach the cable labels both on the connection source and connection destination of the cable.

(b) Write the Unit# of array and the ENC Unit # in the empty space of the cable label with the RoHS-compliant marker pen.

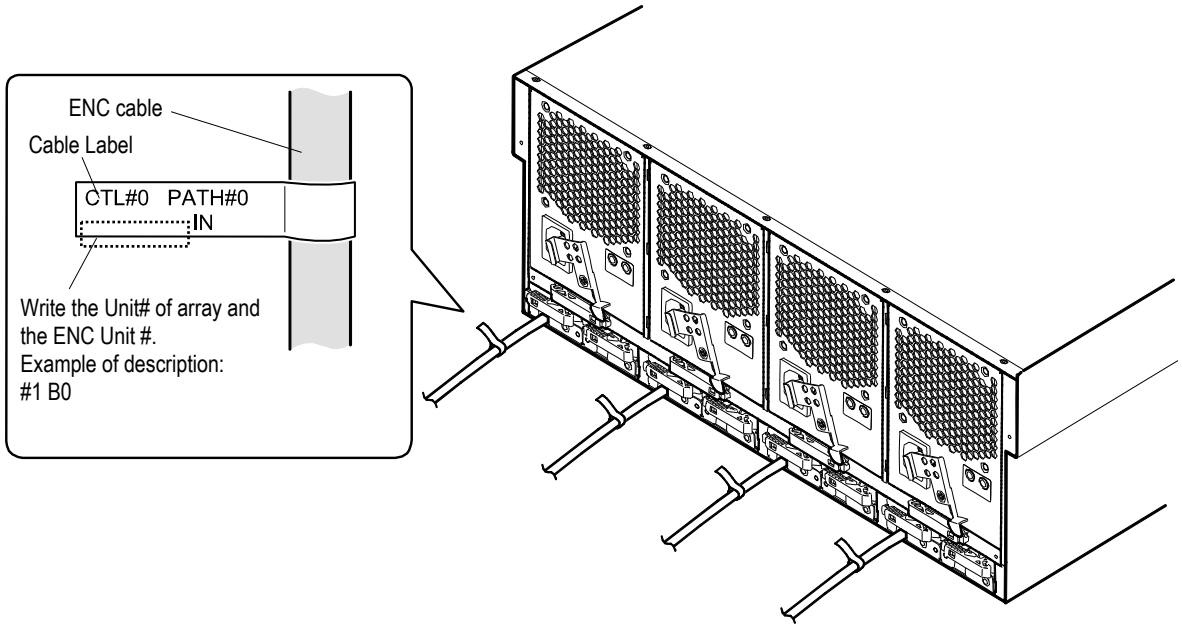


Figure 2.5.33 Attaching Cable Labels

2.5.7 Connecting the Power Cables

Connecting the power cables of Power Unit

⚠ 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 PDB has been turned off.
(2) Insert the power cable plug into the receptacle on the each Power Unit of the RKAKX.
(3) Insert the each power cable plug completely into the corresponding receptacle of the PDB. (Use the PDB receptacles in the order from the J101 to J103.)

NOTE : • Be sure to plug the power cable for the Power Unit#A0 and #B0 in the receptacle of the PDB#00 or PDB#01.
Be sure to plug the power cable for the Power Unit#A1 and #B1 in the receptacle of the PDB#10 or PDB#11.
If they are plugged in the receptacles of the PDBs 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 subsystem in the outlet of the PDB.
• Limit the total current output from the outlets J101 to J103/J201 to J203 so that it does not exceed 16 amperes (‡1).

(4) Hang the cable clamp of PDB on the plug of the power cable.

NOTE : When using PDB 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.

‡1 : Connect the power cables so that the load on a PDB does not exceed 16 A after checking the load through a calculation.
Connect the power cables so that the load on a PDB breaker does not exceed 8 A after checking the load through a calculation.
RKH one unit : 2.2 A, RKM one unit : 3.8 A, RKS one unit : 3.8 A, RKAK one unit : 2.4 A, RKAKX one unit : 3.7 A x 2

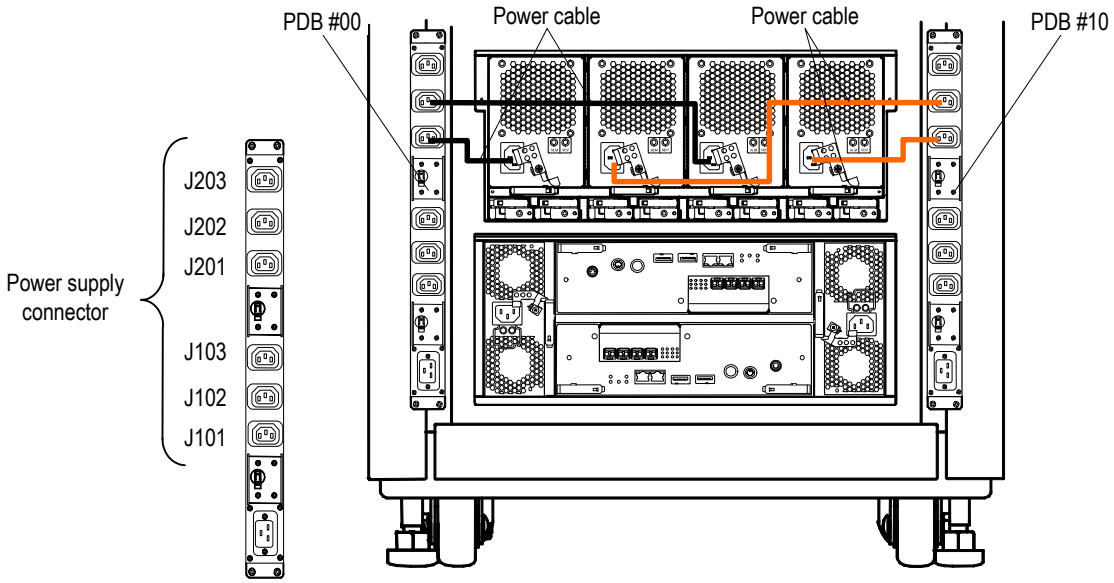


Figure 2.5.34 Routing Power Cables to the Mounted Subsystem in the RK40 Rack Frame

2.5.8 Routing the Cables

Route the ENC cables and power cables.
The numbers of the cables to be routed are shown in Figure 2.5.35.

NOTE : When bending the cable to connect it, give it a bend with a long radius (more than 20 mm) so as not to apply the cable and the connector excessive stresses.

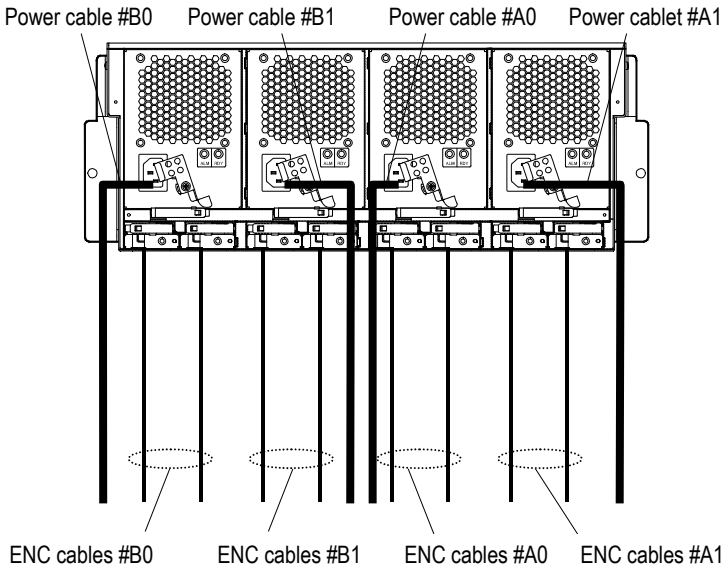


Figure 2.5.35 Cable #

(1) Open the cable routing bar toward you.
(2) Routing of the cable routing bar#0
(a) Route the ENC cable #A0 and #A1 running them on the upper side of the receptor of the Power Unit #B0 and #B1.

NOTE : Keep the cables from hanging down below the subsystem.

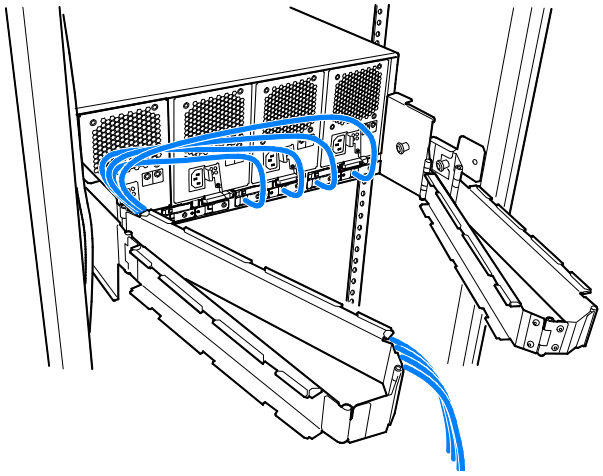


Figure 2.5.36 Routing of the Power Cable #A0, #A1

(b) Route the power cable #B0 as shown in the Figure 2.5.37.

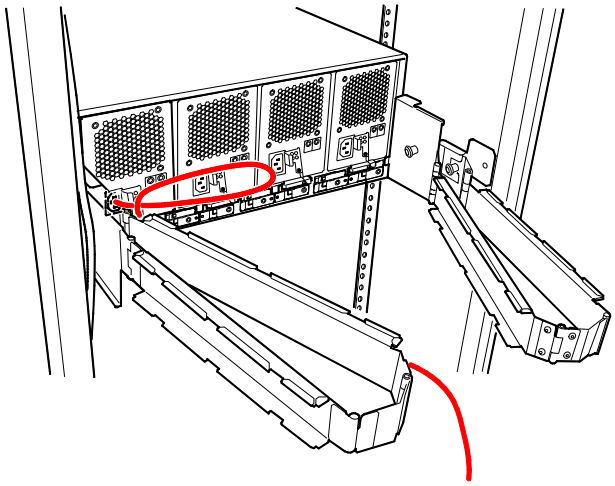


Figure 2.5.37 Routing of the Power Cable #B0

(c) Fixing to the cable routing bar #0

Fix the ENC cable #A0, #A1 and the power cable #B0, #A0 with the repeat binder (for Rev.A) or clamp tape (for Rev.B or later) (at six places) running them along the cable routing bar#0.

NOTE : Keep the cables near each connector (Figure 2.5.38 or Figure 2.5.38.1 ①) from hanging down below the subsystem.

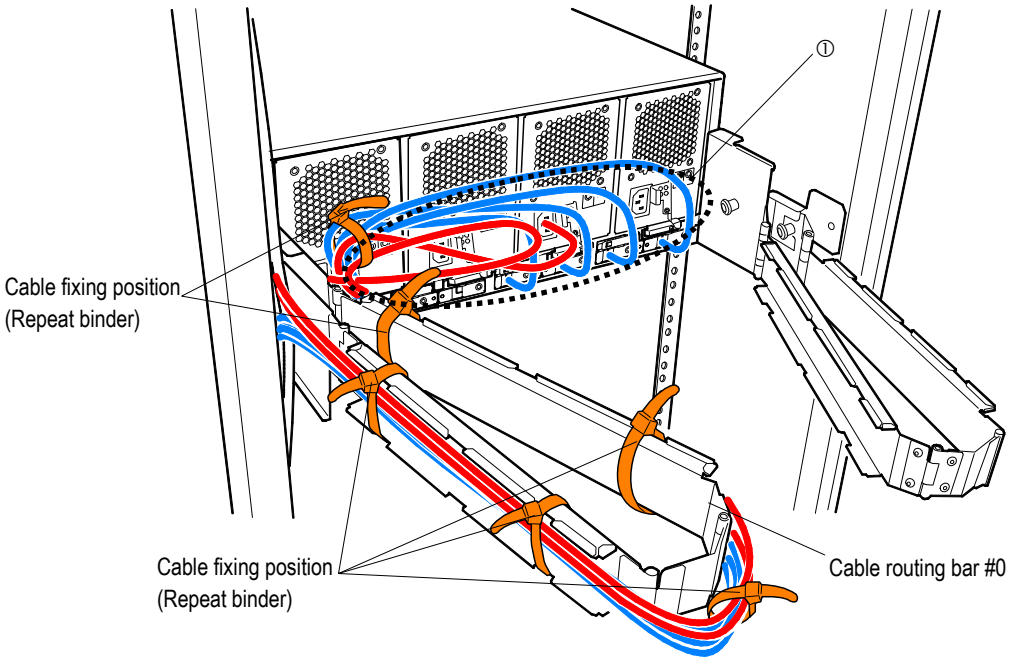


Figure 2.5.38 Fixing the ENC Cable #A0, #A1 and Power Cable #B0, #A0 (for Rev.A)

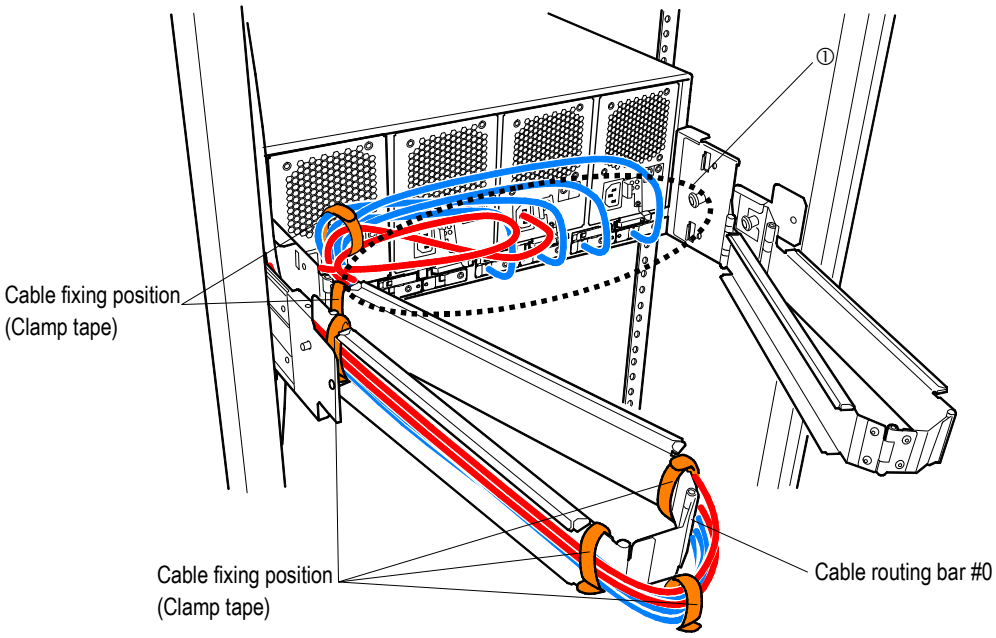


Figure 2.5.38.1 Fixing the ENC Cable #A0, #A1 and Power Cable #B0, #A0 (for Rev.B or later)

(3) Routing of the cable routing bar#1

(a) Route the ENC cable #B0 and #B1 running them on the upper side of the receptor of the Power Unit #A0 and #A1.

NOTE : Keep the cables from hanging down below the subsystem.

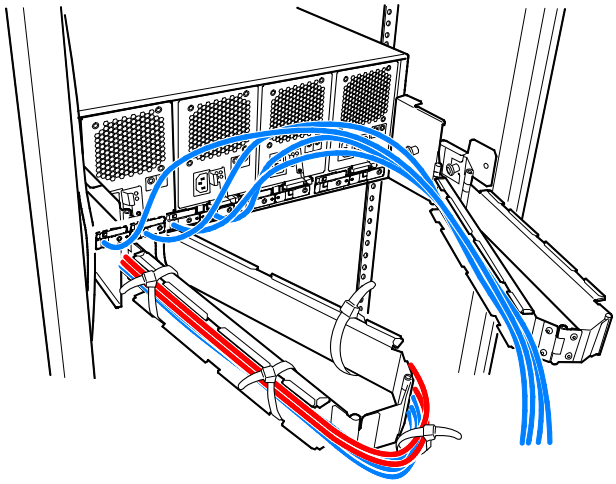


Figure 2.5.39 Routing of the Power Cable #B0, #B1

(b) Route the power cable #A1 as shown in Figure 2.5.40.

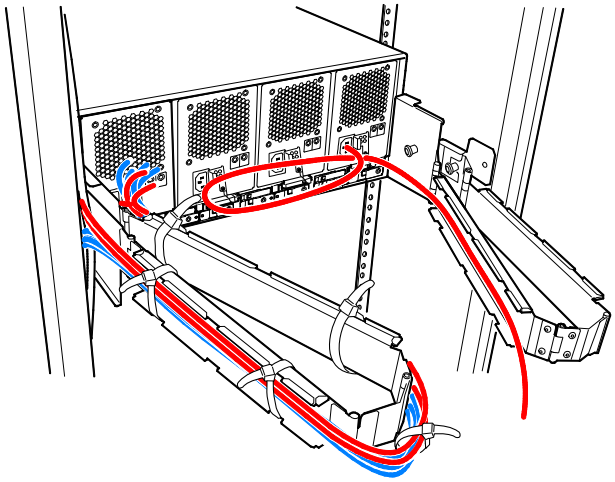


Figure 2.5.40 Routing of the Power Cable #A1

(c) Fix the ENC cable #B0, #B1 and the power cable #B1, #A1 with the repeat binder (for Rev.A) or clamp tape(for Rev.B or later) (at six places) running them along the cable routing bar#0.

NOTE : Keep the cables near each connector (Figure 2.5.41 or Figure 2.5.41.1 ①) from hanging down below the subsystem.

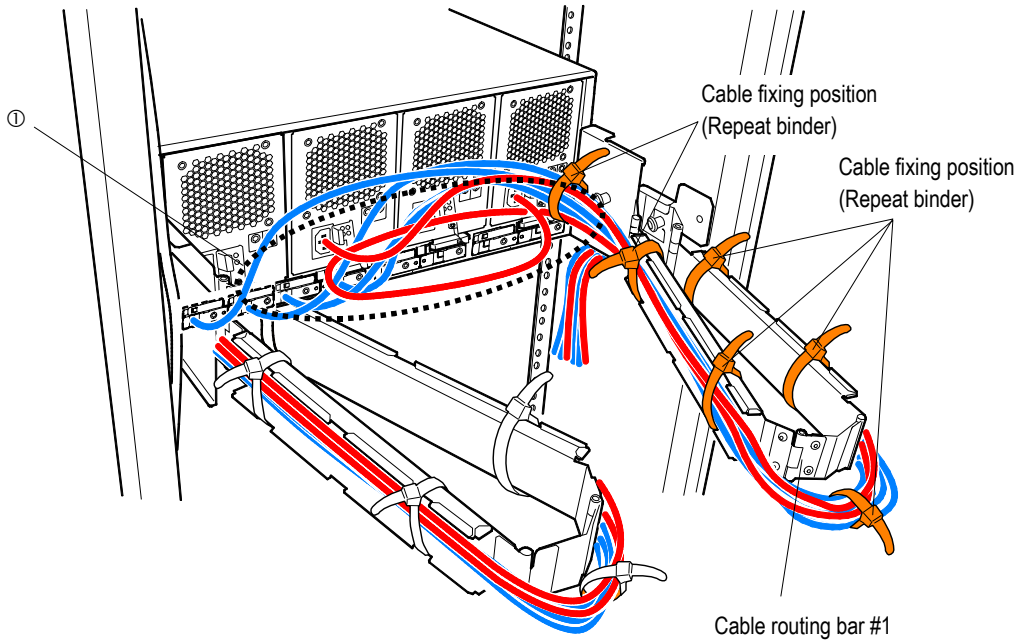


Figure 2.5.41 Fixing the ENC Cable #B0, #B1 and Power Cable #B1, #A1 (for Rev.A)

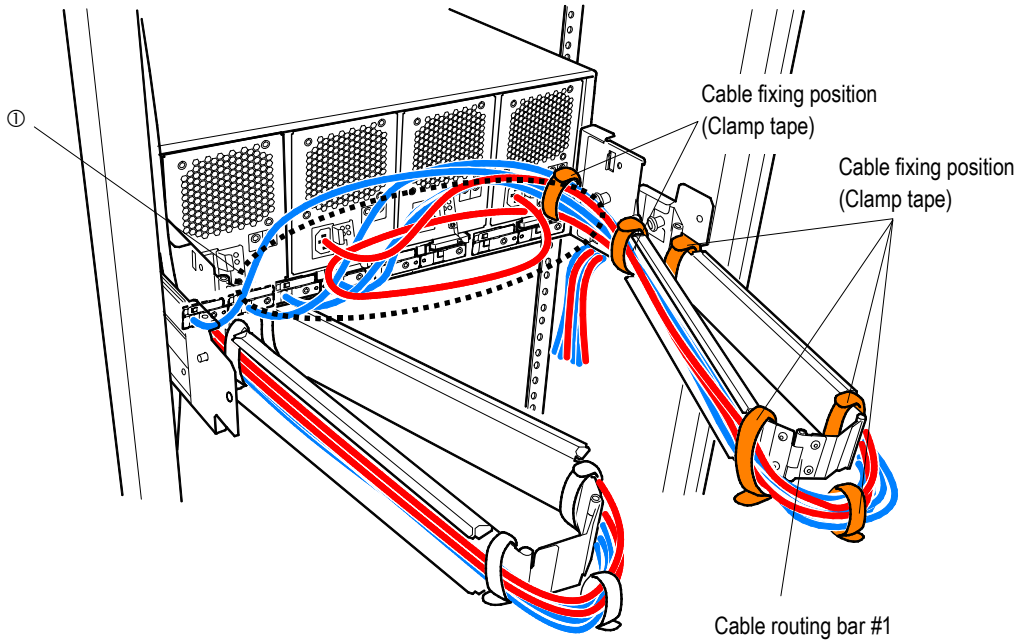


Figure 2.5.41.1 Fixing the ENC Cable #B0, #B1 and Power Cable #B1, #A1 (for Rev.B or later)

(4) Fixing the cables in the middle

Bundle all the cables connected to the RKAKX in the middle, and then fix them with the repeat binder (for Rev.A) or clamp tape (for Rev.B or later).

NOTE : Bundle and fix the cables so that they do not hang down below the subsystem.

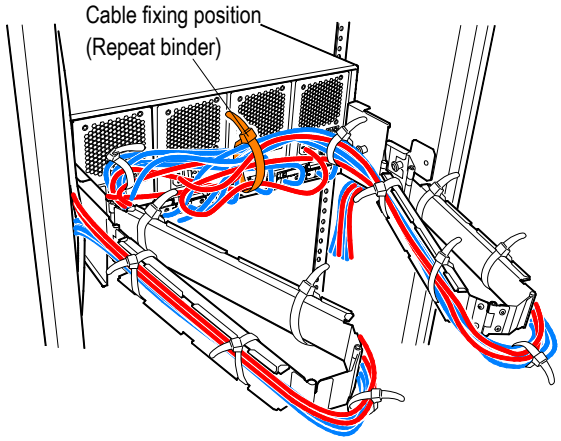


Figure 2.5.42 Fixing the Cables in the Middle (for Rev.A)

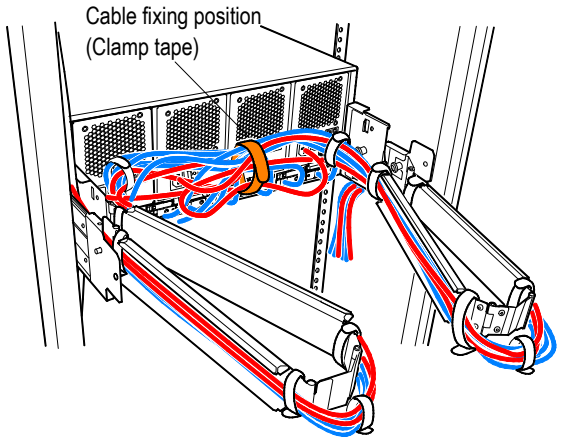


Figure 2.5.42.1 Fixing the Cables in the Middle (for Rev.B or later)

(5) Attaching the cable tray

For the Rev.B or later, attach the cable tray.

The Rev.B and Rev.C or later are different in the shape of the fixing part. Fix it referring to Figure 2.5.42.2.

(a) Pull the right and left screws of the cable tray in the direction shown by the arrow ①, and rotate them 90 degrees.

The screws are fixed with them opened.

(b) Press the cable tray in the direction shown by the arrow ②.

(c) Push the stopper to the place where the right and left screws match the screw holes of the rails, and fix it by pressing it in the direction of arrow ③ while turning the screws 90 degrees.

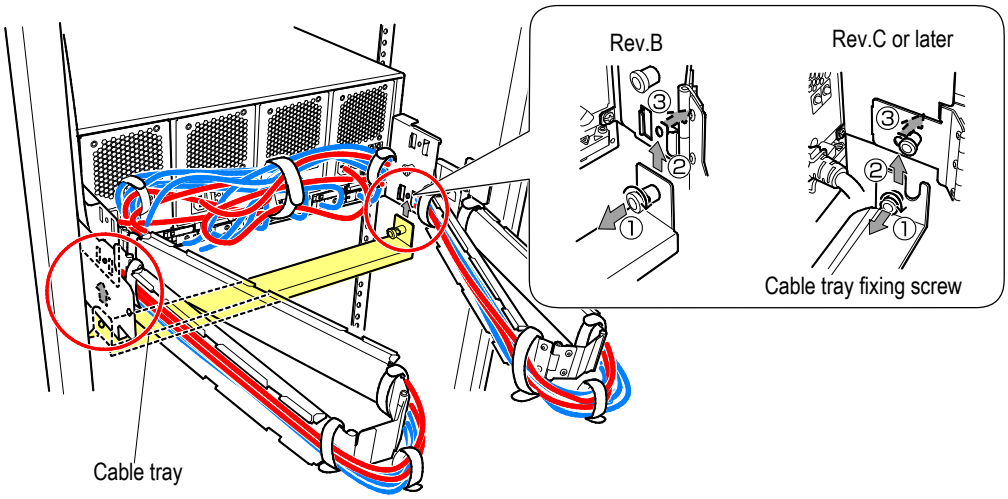


Figure 2.5.42.2 Attaching the Cable Tray

(6) Attaching the stopper

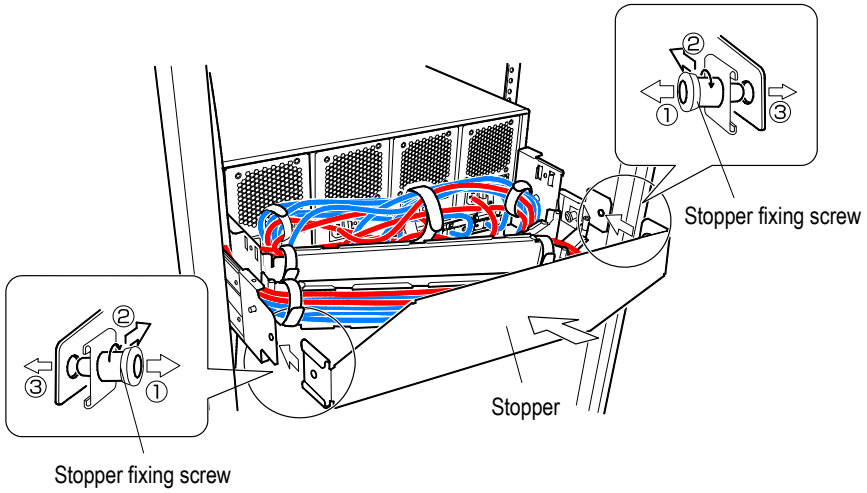
The Rev.A/Rev.B and Rev.C or later are different in the shape of the stopper.

(a) Pull the right and left screws in the direction shown by the arrow ①, and rotate them 90 degrees.

The screws are fixed with them opened.

(b) Press the stopper in the direction shown by the arrow ② pushing the cables.

(c) Push the stopper to the place where the right and left screws match the screw holes of the rails, and fix it by pressing it in the direction of arrow ③ while turning the screws 90 degrees.



*1 : The figure shows the stopper of the Rev.A/Rev.B.

Figure 2.5.43 Attaching the Stopper

(7) Checking the routing

(a) Pull out the subsystem and check that the routing is performed correctly (Refer to "1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model" (INST01-0100).).

NOTE : Check that the routing is not performed with other cables.

(b) Return the subsystem on the rack (Refer to "1.4.1 How to Attach/Remove Front Bezel of the Rackmount Model" (INST01-0100).).