DF300 Disk Subsystem

Desktop Type

Maintenance Manual

Read this manual carefully and keep it.
· Before starting operation, read the safety instructions carefully and fully understand them. · After reading this manual, keep this manual at hand for reference.

HITACHI

K6600878	SHEET NO.	REV NO.	4
	1/4	Mar.15.'96	

REVISION CONTROL LIST

Correction Code AD : **Added** CH : **Changed** CR : **Corrected** DL : **Deleted**

REV.	Date	DRW.	CHKD.	APPD.	Sheet No.	Description	Code
0	Jul.12.'95	K.Numata	M.Sato	H.Iwasaki	All	Issued	
1	Aug.4.'95	K.Numata	M.Sato	H.Iwasaki	INST	REV.0→Rev.1	
					CHG	REV.0→Rev.1	
2	Sep.29.'95	A.Kano	M.Sato	H.Iwasaki	STRT	Rev.0→Rev.1	
					INST	REV.1→Rev.2	
					MAINT	Rev.0→Rev.1	
					CHG	Rev.1→Rev.2	
					TRBL	Rev.0→Rev.1	
					ERR	Rev.0→Rev.1	
					DISP	Rev.0→Rev.1	
					PANEL	Rev.0→Rev.1	
3	Jan.8.'96	A.Kano	M.Sato	H.Iwasaki	TRBL	Rev.1→Rev.2	
					ERR	Rev.1→Rev.2	
					DISP	Rev.1→Rev.2	
					PANEL	Rev.1→Rev.2	
4	Mar.15.'96	A.Kano			STRT	Rev.1→Rev.2	
					INST	Rev.2→Rev.3	
					MAINT	Rev.1→Rev.2	
					CHG	Rev.2→Rev.3	
					TRBL	Rev.2→Rev.3	
					ERR	Rev.2→Rev.3	
					PANEL	Rev.2→Rev.3	
					SEN	Rev.0	

Preface

This manual describes the maintenance works such as installation of the DF300 disk subsystem and replacement of parts.
Please read this manual carefully before starting the maintenance work so that you may fully understand the operation procedures and instructions.
Always keep the manual at hand so that you can use it any time.

Parts of this manual may be changed without notice in the future.

Organization of DF300 Disk Subsystem (Desktop Type)

Maintenance Manual

DF300 Disk Subsystem

Desktop Type

Entry Section

HITACHI

DF300 Disk Subsystem (Desktop Type) Entry Section

REVISION CONTROL LIST

Correction Code AD : **Added** CH : **Changed** CR : **Corrected** DL : **Deleted**

REV.	Date	DRW.	CHKD.	APPD.	Sheet No.	Description	Code
0	Jul.13.'95	K.Numata	M.Sato	H.Iwasaki	All	Issued	
1	Sep.29.'95	K.Numata	M.Sato	H.Iwasaki	All	Revised	CH
2	Mar.15.'96	A.Kano			5	Table; Data of mini-tower and rack-mount types	DL
					6	(2) Explanation of the breaker	AD
					12	Table; No. 11	CH
					13	Table; No. 17, #8	CH
					15	Figures	CH
						Single-ended → Narrow Single-ended	CH
					16	Table; No. 2 Description of function	AD
						Table; No. 5	AD
						Note **	AD

1. Meaning of Abbreviations

ALA	Alarm
CDB	Command Descriptor Block
CTL	Control
CTLWD	Control-Word
DBUF	Data Buffer
D-CTL	Data Control
DMA	Direct Memory Access
DRR	Data Recovery and Reconstruct
ECC	Error Checking and Correcting
FDD	Floppy Disk Drive
HDU	Hard Disk Unit
I/F	Interface
ID	Identifier
LCD	Liquid Crystal Display
LED	Light Emission Diode
LU	Logical Unit
MPU	Micro Processor Unit
NVS	Non Volatile Storage
PCI	Power Controller Interface
PIC	Peripheral Interface Controller
PS	Power Supply
PSALM	Power Supply Alarm
PWR	Power
REM	Remote
RST	Reset
R/W	Read/Write
SCSI	Small Computer System Interface
SPC	SCSI Protocol Controller
SPU	Sub Processor Unit
SVP	Service Processor
SW	Switch
TERMPWR	Terminator Power
THALM	Thermal Alarm

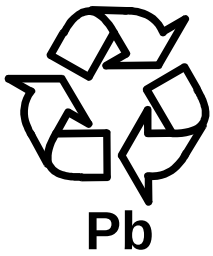
2. Recycling

2.1 Recycling Parts

This equipment uses a lead-acid battery. The lead-acid battery is a precious resource which can be recycled. When a part is to be replaced or a used product is to be discarded, take out the lead-acid battery to get it recycled.

2.2 Indication of Recycle Mark

The following three-arrow mark is a mark indicating that the lead-acid battery is a recycling part and a seal of this mark is attached on the back of the equipment.



2.3 Mounting location and removal method of lead-acid battery

For the mounting location and removal method of the lead-acid battery, see “4. Battery Replacement” in the “Maintenance Section”.

2.4 Specifications of the Lead-acid Battery

No	Specification	Desktop type
1	Manufacturer's name	Shin-Kobe Denki, Ltd.
2	Model	HP1.2-6(6M1.2)
3	Voltage [V]	6
4	Capacity [Ahr]	1.2

2.5 Safety for Measuring and Storing Battery

To prevent the removed lead-acid battery from short-circuiting, take measures such as attaching insulating tapes to the terminals and store it away from other batteries such as a dry battery.

3. Precautions for Performing the Maintenance

(1) Keep the equipment away from vibration and shock.

The hard disk drive installed in this equipment is a precise part. During maintenance of the equipment, take great care to keep it away from vibration and shock. Especially take great care in handling the HDU assembly.

(2) Verify the backup status of the cache memory.

The cache memory installed in this subsystem is controlled with a write-after method. When turning off the power, the subsystem automatically writes all the data left unwritten to the hard disk drive. (This operation is called a destaging.) The subsystem turns off the power when this process is completed. When the power is turned off according to the power failure or by the operation of the breaker on the rear side of the equipment (a switch on the side of the In Box ASSY), the destaging can not be performed. In this case, the subsystem enters the mode of memory backup by the battery to securing the data. If the maintenance is performed when the subsystem is in the memory backup mode, there is a possibility of losing the user data because the battery power is shut down to perform the maintenance for the certain part.

Therefore, when performing the maintenance, check the back up status of the cache memory and verify the backup mode is released. For performing the maintenance of the part whose power does not require to be turned off (see CHG050), this item is not required.

(3) Method for the verification of the backup status of the cache memory

Whether the equipment is in the backup mode or not can be verified by the indication of CACHE PWR (green LED) on the control assembly according to the procedures described below.

(For further details, refer to STRT150.)

① Set the breaker on the back of the equipment to “1” position when the main switch is set to “0” position.

(Be sure to switch the breaker from the position “0” to “1”.)

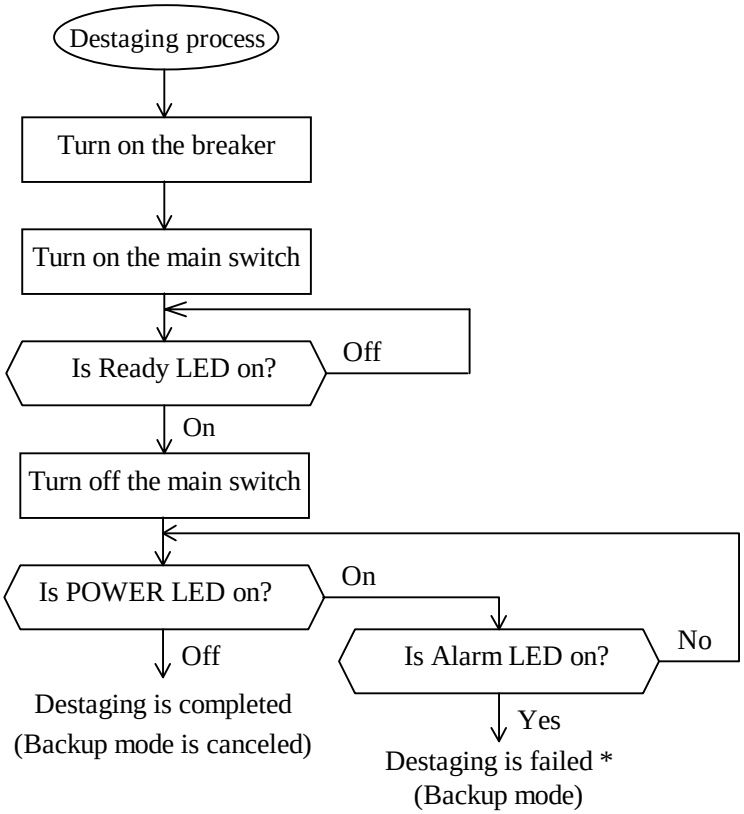
② The status of the memory can be learned from the indication of CACHE PWR.

CACHE PWR LED on: This indicates that the memory is in the backup mode.

CACHE PWR LED off: This indicates that the backup mode is canceled.

(4) Procedures for canceling the backup mode of the cache memory

To cancel the backup status of the cache memory, follow the procedures shown below. When the backup status is canceled by following those procedures, be sure to verify that the backup status is canceled by the procedures in Item (3) mentioned above.

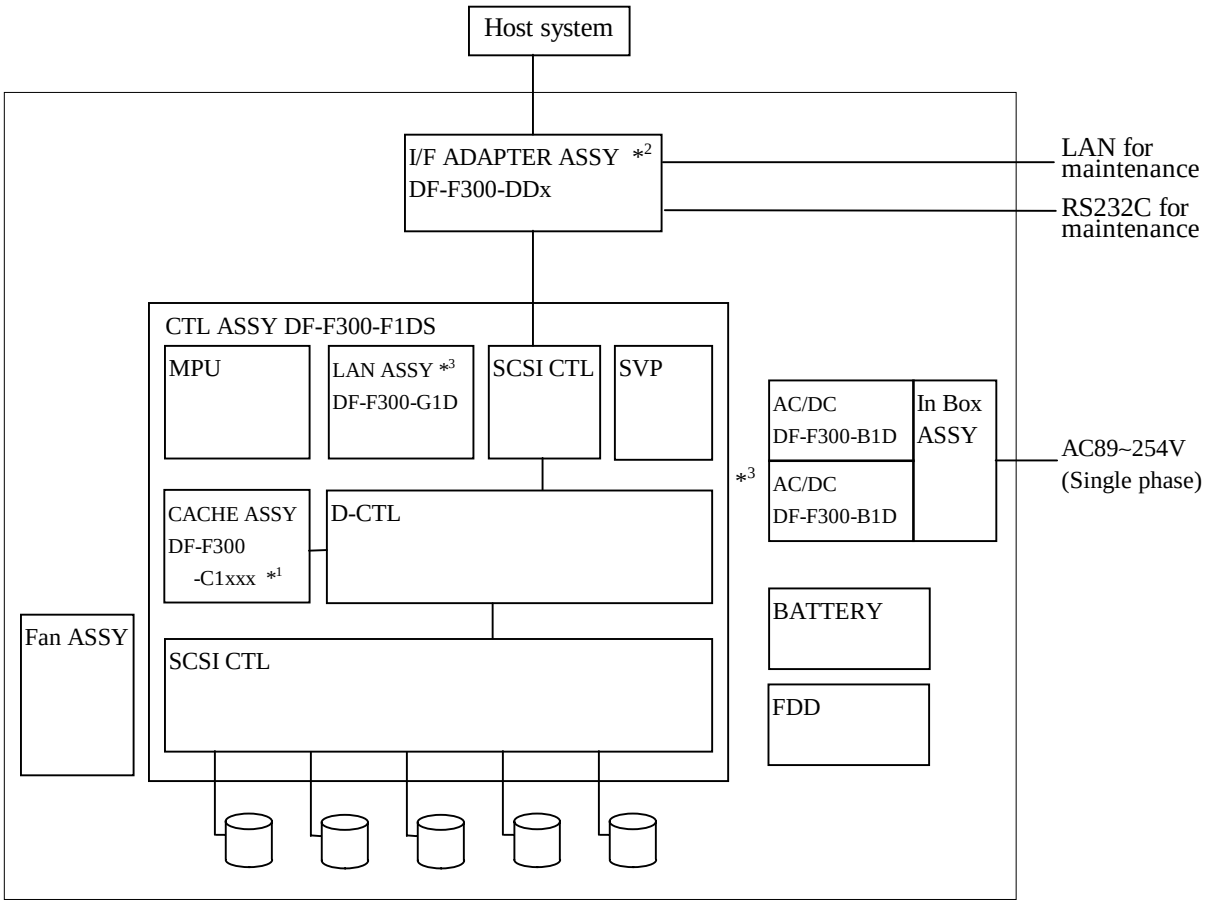


* : When the destaging process fails, execute the above process several times. When the destaging process fails repeatedly, see the section of error display, complete the destaging process, and then perform the maintenance.

4. Configuration of DF300 Disk Subsystem (Desktop Type)

4.1 System Configuration

The DF300 disk subsystem (desktop type) consists of a disk subsystem having five disk drives which are four data disk drives and one parity data disk drive forming an array and a controller for the disk drives.



*1 CACHE ASSY

DF-F300-C18M : 4MB×2(Standard)

DF-F300-C116M: 8MB×2

DF-F300-C132M:16MB×2

DF-F300-C164 :32MB×2

*2 I/F ADAPTER ASSY

DF-F300-DDWDS : Wide Differential SCSI I/F, 68-pin, (pin-lock screw type)

DF-F300-DDNSL : Narrow Single-ended SCSI I/F, 50-pin, (pin-latch type)

DF-F300-DDWSS : Wide Single-ended SCSI I/F, 68-pin, (pin-lock screw type)

*3 Redundant AC/DC power supplies is optional.

4.2 Mechanical Configuration

(1) Appearance of DF300 disk subsystem (Desktop type)

Figure 4.2.1 shows an appearance of the DF300 disk subsystem.

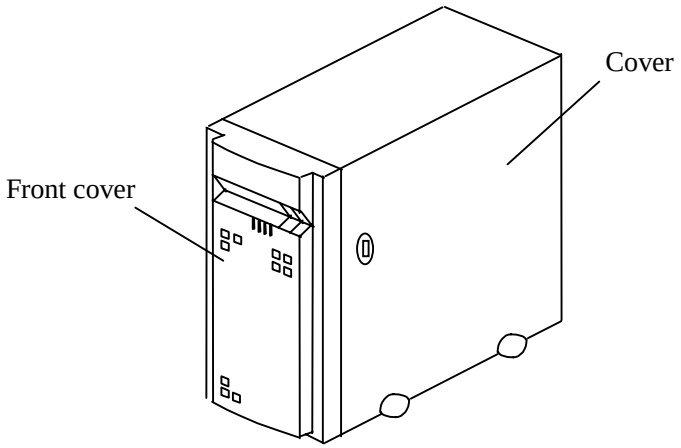


Figure 4.2.1 Appearance of DF 300 Disk Subsystem (Desktop Type)

(2) Parts Location

Figure 4.2.2 shows location of parts in the DF300 disk subsystem (Desktop type).

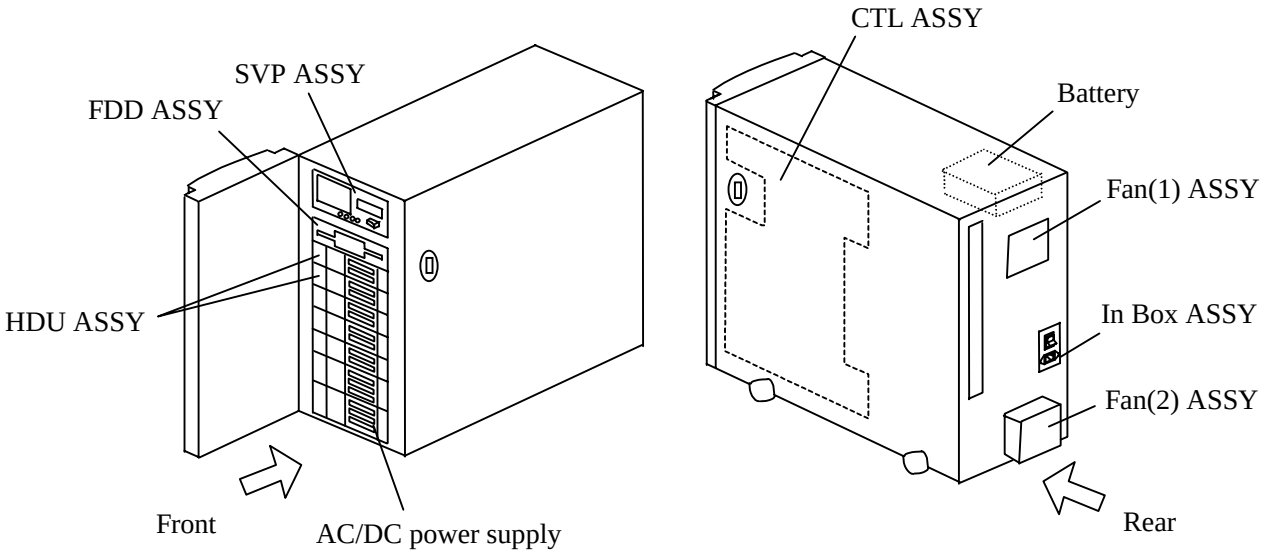


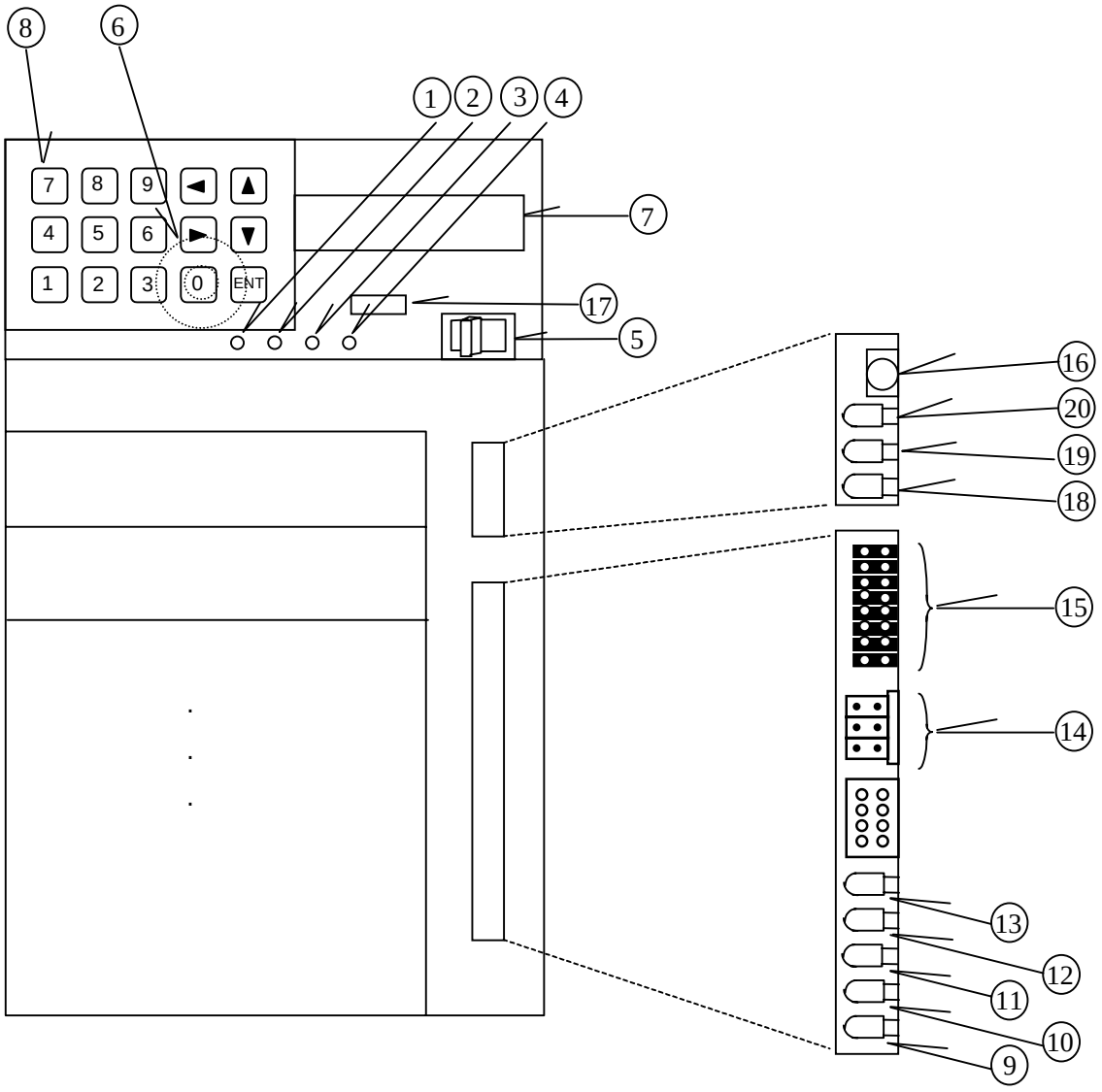
Figure 4.2.2 Parts Location in DF300 Disk Subsystem (Desktop Type)

4.3 PCBs

No.	Function (abbreviated)	PCB name	Description
1	CTL ASSY SVP	SZ750	ARRAY main control SCSI control, PANEL control, DMA / DBUF / DRR control Operation / Conservation Panel Power Control I/F
2	I/F ADAPTER ASSY	SZ669	Narrow Single-ended SCSI I/F(pin-latch type)
		SZ672	Wide Single-ended SCSI I/F(pin-lock screw type)
		SZ749	Wide Differential SCSI I/F(pin-lock screw type)

4.4 Operational Display

(1) Location of switches and LEDs



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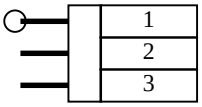
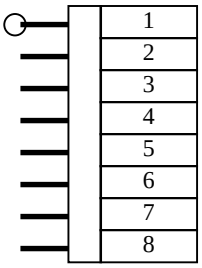
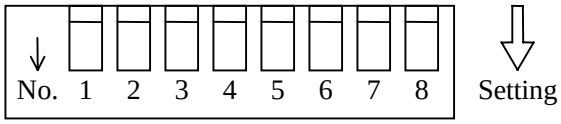
(2) Description of switches and LEDs

No.	Name	Category	Color	Function
1	READY	LED	Green	Indicates that the power is turned on and the subsystem is operable.
2	WARNING	LED	Yellow	Indicates that the subsystem is operable but an internal failure has been occurred.
3	ALARM	LED	Red	Indicates that an inoperable failure has occurred in the subsystem.
4	POWER	LED	Green	Indicates that the power is supplied to drives and PCBs.
5	Main switch	Switch	-	Turns the power on/off. Press the "1" side to turn the subsystem on. Press the "0" side to turn the subsystem off.
6	Buzzer	Buzzer	-	Sounds an alarm when a failure occurs.
7	LCD	LCD	-	Displays a status of the subsystem and an error code.
8	Numeric keypad	Switch	-	Used to set the subsystem.
9	SVP CHECK1	LED	Red	Indicates whether or not a cause of abnormal voltage is displayed.
10	SVP ALARM	LED	Red	Indicates a cause of abnormal voltage with the number of times that this LED blinks.
11	CHARGE	LED	Yellow	Indicates whether the battery is in charge (lighted up), or that the voltage is being checked after the charge (blinks for 30 minutes).
12	BATTERY OK	LED	Green	Indicates that the battery has been charged.
13	SVP READY	LED	Green	Indicates that the SVP is operable.
14	SW3	Jumper socket	-	

#	Meaning
1	On : Reset
2	DC failure detection level On : 4.2V Off : 4.6V
3	Buzzer On : Continues to sound Off : Controlled by the host

* : Remove all the sockets for normal operation.

<table>
<tr><th>No.</th><th>Name</th><th>Category</th><th>Color</th><th>Function</th></tr>
<tr><td>15</td><td>SW2</td><td>Jumper socket</td><td>Black</td><td>


<table>
<tr><th>#</th><th>Meaning</th></tr>
<tr><td>1</td><td>Off : LED test</td></tr>
<tr><td>2</td><td>Off : LCD test</td></tr>
<tr><td>3</td><td>Off : Buzzer test</td></tr>
<tr><td>4</td><td>Off : Battery charge</td></tr>
<tr><td>5</td><td>Off : Battery discharge</td></tr>
<tr><td>6</td><td>Off : Unused</td></tr>
<tr><td>7</td><td>Off : Unused</td></tr>
<tr><td>8</td><td>Off : Unused</td></tr>
</table>
S : Insert all the sockets for normal operation.
</td></tr>
<tr><td>16</td><td>RESET switch</td><td>Switch</td><td>-</td><td>Collects the memory dump information.</td></tr>
<tr><td>17</td><td>DIP switch</td><td>Switch</td><td>-</td><td>


<table>
<tr><th>#</th><th>Meaning</th></tr>
<tr><td>1</td><td>Microprogram installation</td></tr>
<tr><td>2</td><td>Memory dump</td></tr>
<tr><td>3</td><td>EEPROM clear</td></tr>
<tr><td>4</td><td>System parameter test</td></tr>
<tr><td>5</td><td>Initialization of configuration information *</td></tr>
<tr><td>6</td><td>CUDG skip</td></tr>
<tr><td>7</td><td>System installation (overwritten)</td></tr>
<tr><td>8</td><td>RTC set</td></tr>
</table>
* : Initialization of the configuration information of Item No. 5 is valid only when the system install bit of Item No. 7 is on.
</td></tr>
</table>

No.	Name	Category	Color	Function
18	CACHE PWR	LED	Green	This indicates the status that power is supplied to the cache memory. When the indication status of this LED is checked by the following procedures, whether the cache memory is in the backup mode or not can be verified. ① Set the breaker on the back of the equipment to "1" position when the main switch is set to "0" position. (Be sure to switch the breaker from the position "0" to "1".) ② The following statuses can be verified by the indication of this LED. On: This indicates that the memory is in the backup mode. (Power is supplied from the battery to the cache memory.) Off: This indicates that the memory is not backed up. To cancel the backup mode of the cache memory, see the Precautions Before Starting All the Maintenance Work in Section 3 of Entry Section.
19	FAIL	LED	Red	Indicates that the error has occurred in the CTL ASSY and it is not operable.
20	RESET	LED	Yellow	Indicates that the CTL ASSY is being reset.

LED TEST

Lights up all the LEDs on the panel.

LCD TEST

This mode tests the LCD module by displaying the test characters. If a key is pressed during this test, the value being pressed is displayed on the LCD.

BUZZER TEST

This mode tests the buzzer. The buzzer sounds by setting the buzzer (bit 6) of the CTRL Reg. (0X02).

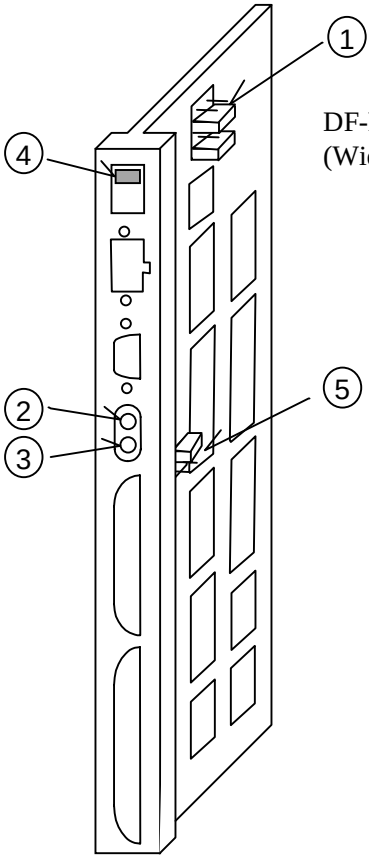
BATTERY CHARGE

This mode is for charging the battery regardless of the battery voltage.

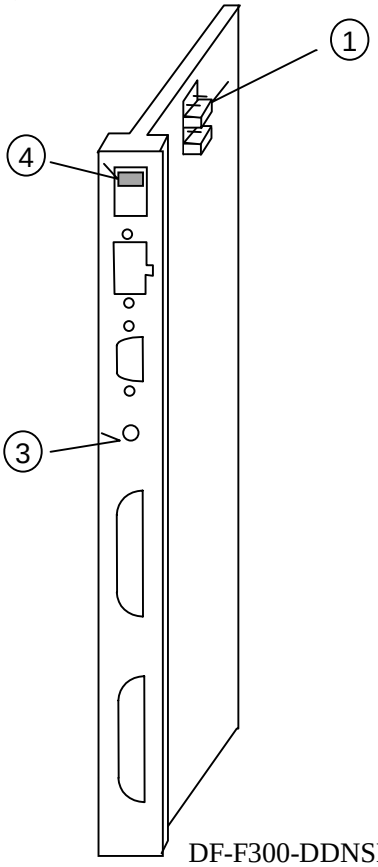
BATTERY DISCHARGE

This mode is for discharging the battery regardless of the battery voltage.

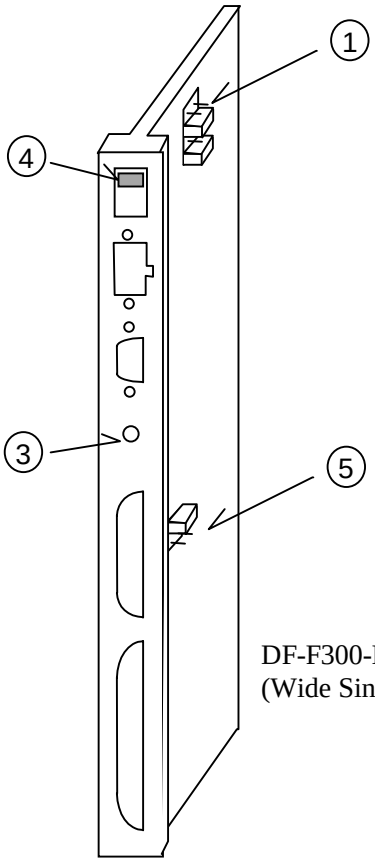
(3) Appearance of I/F ADAPTER ASSY



DF-F300-DDWDS
(Wide Diff pin-lock screw type)

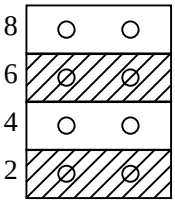
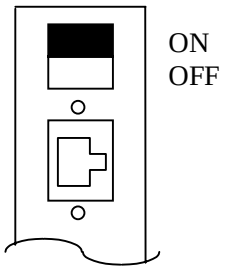
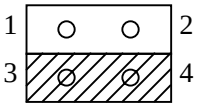


DF-F300-DDNSL
(Narrow Single-ended pin-latch type)



DF-F300-DDWSS
(Wide Single-ended pin-lock screw type)

(4) Description of I/F ADAPTER ASSY

No.	Name	Classification	Color	Function
1	JP1	Jumper socket	Green	Used to set the terminator power and LOCAL/REMOTE. 
2	FAIL*	LED	Red	Indicates that the unit with single-ended I/F is connected to the unit with differential I/F. (PCBs SZ669 and SZ672 for Single Ended SCSI I/F are not equipped with this LED.)
3	TERMPWR	LED	Green	Indicates that the terminator power is supplied.
4	S1	Switch	Black	Used to turn ON/OFF the battery for CACHE back up.  Note) This switch must have been turned on for normal operation.
5	JP2	Jumper socket	Black	 Set this jumper with the pins 1 and 2 short-circuited.

*: The LED may be turned on even when the host computer is turned off.

**: For Wide SCSI I/F adapter ASSY only.

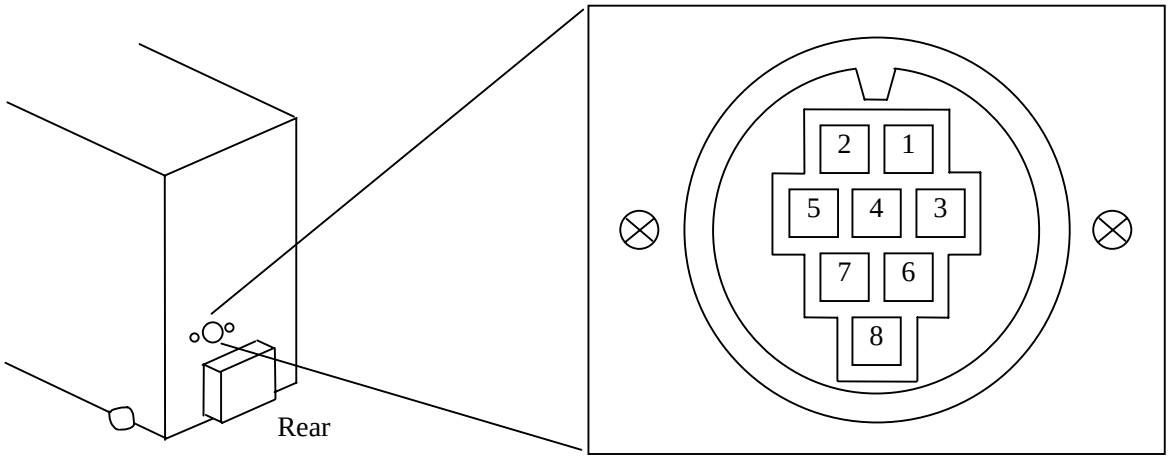
LOCAL mode

The subsystem can be turned on/off using its main switch regardless of the terminator power setting described in Subsection 4.4 in "Installation".

REMOTE mode

The host can remotely control the subsystem startup when the terminator power is set so that the power is supplied using the host SCSI bus. (For this mode, the main switch on the subsystem must have been turned on.)

(5) Description of the connector for HITRACK



1pin …… N.U.

2pin …… N.U.

3pin …… +5V RTN

4pin …… +5V RTN

5pin …… +5V RTN

6pin …… +5V (M)

7pin …… +5V (M)

8pin …… N.U.

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(6) Description of status display

DF300 Disk Subsystem adopts the following three methods to indicate the status of the unit.

① Indications by the LEDs on the SVP

② Indications by the indicators on the Panel

③ Displays on the screen of the maintenance terminal

Fig. 4.4.1 shows the status transition and Table 4.4.2 shows the corresponding indication.

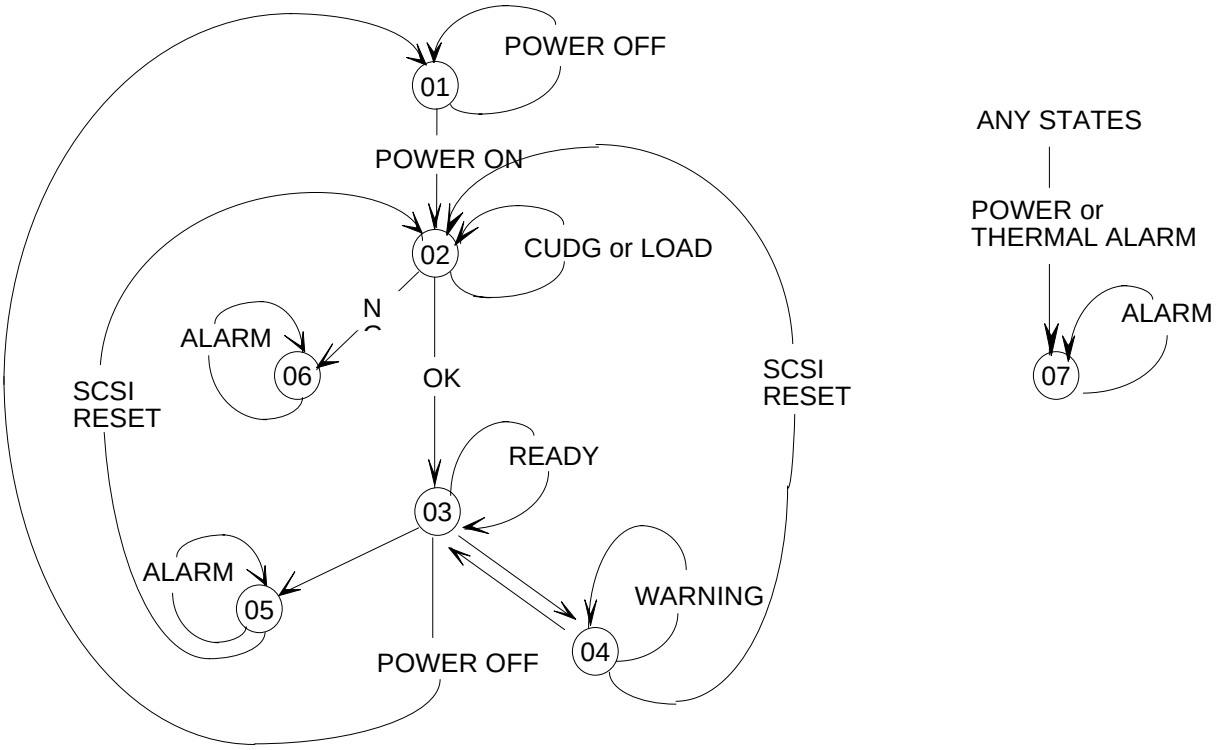


Figure 4.4.1 Status Transition Regarding Indication

Table 4.4.2 Indication of correspond to state

STATE	READY	WARNING	ALARM	POWER
01	-	-	-	-
02	-	◌	-	○
03	○	-	-	○
04	○	○	-	○
05	-	◌*	○	○
06	-	◌*	○	○
07	-	◌*	○	-

(For the codes of LEDs and the indicators other than the above, see "Error Display" or "Status Display Code".)

*: When the status is switched from STATE4 to STATE5, STATE6 or STATE7, the WARNING and ALARM LEDs come on at the same time.

DF300 Disk Subsystem

Desktop Type

Installation

HITACHI

DF300 Disk Subsystem (Desktop Type) Installation

REVISION CONTROL LIST

Correction Code AD : **Added** CH : **Changed** CR : **Corrected** DL : **Deleted**

REV.	Date	DRW.	CHKD.	APPD.	Sheet No.	Description	Code
0	Jul.3.'95	K.Numata	M.Sato	T.Haruna	All	Issued	
1	Aug.4.'95	K.Numata	M.Sato	T.Haruna	8	Installation type Floor→Desktop	CR
					21	Tools, Procedures, Figure	DL
					22	Figure	CH
2	Sep.29.'95	A.Kano	M.sato	H.Iwasaki	All	Revised	
3	Mar.15.'96	A.Kano			All	Revised	

1. Appearance

Figures 1 shows appearance of the DF300 disk subsystem (Desktop type.)

UNIT : mm

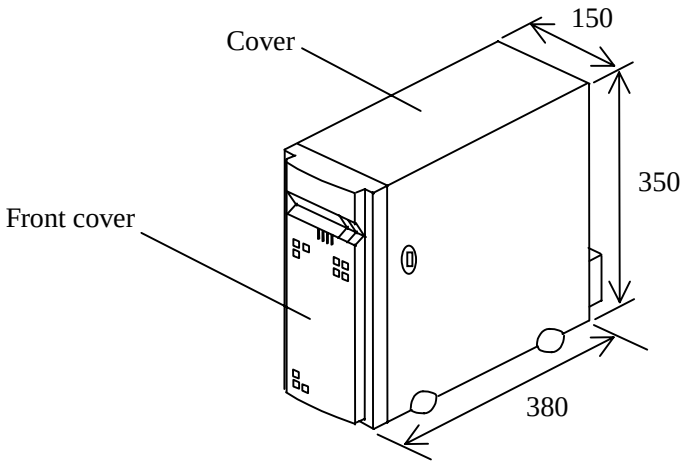


Figure 1 Appearance

2. Maintenance Area

Figures 2 shows maintenance area for the DF300 disk subsystems (Desktop type.)

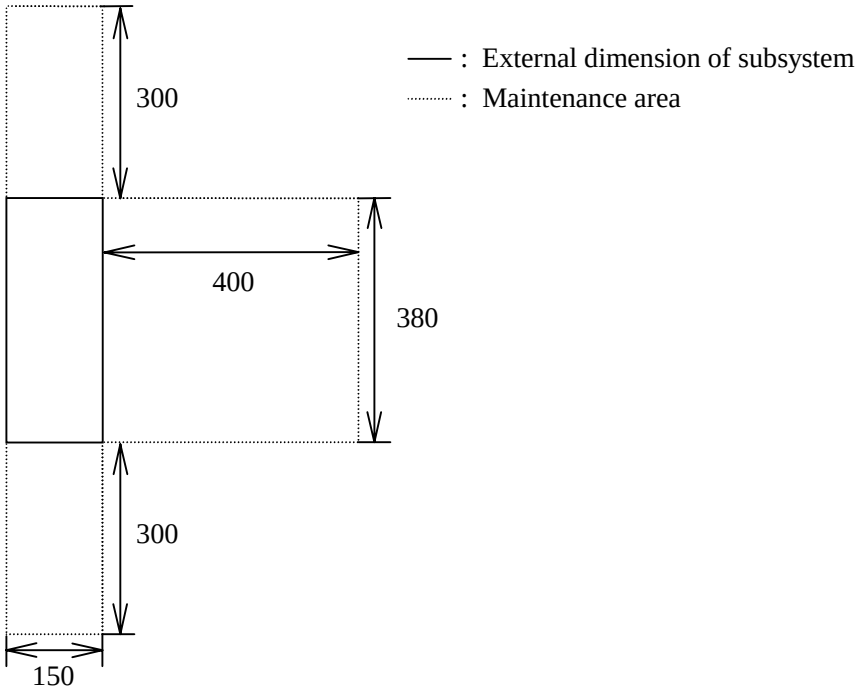


Figure 2 Maintenance Area

3. Unpacking

(1) Figure 3.1 shows the subsystems packed in an assembly package.

(2) Figure 3.2 shows the subsystem packed in an item package.

(3) Unpacking

1. Loosen the polyester fiber bands.
2. Pull out the Tri-wall nails.
3. Remove the external packaging and packing materials.
4. Take out the item package.
5. Unpack the item package.
6. Take the subsystem out of the polyethylene bag.
7. Keep two keys in the attached box carefully.
   (These keys are used for opening/closing front cover.)
8. Remove the cushioning materials, tape, desiccates, and the like attached on the subsystem.

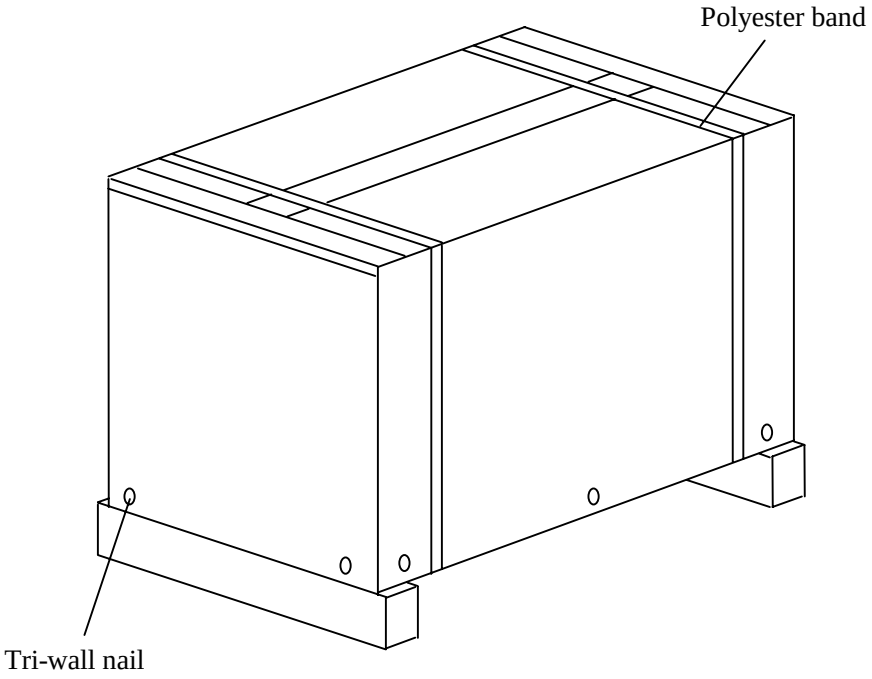


Figure 3.1 Subsystems Packed in an Assembly Package

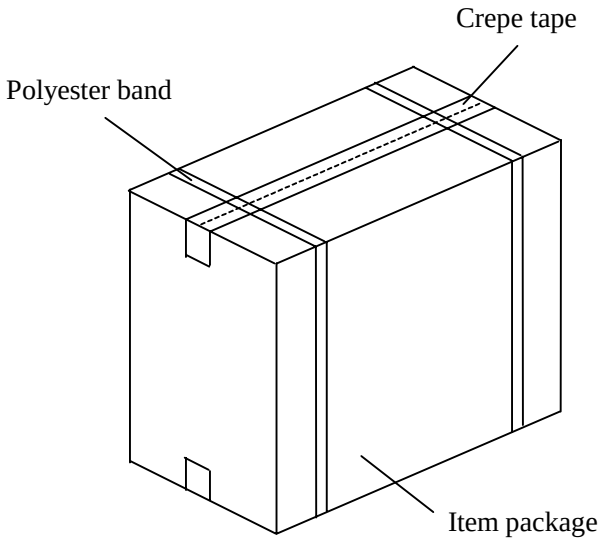


Figure 3.2 Subsystem Packed in an Item Package

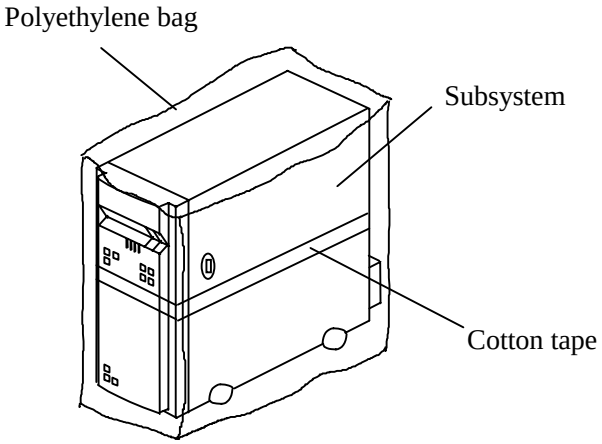


Figure 3.2(a) Subsystem Taken Out from the Item Package

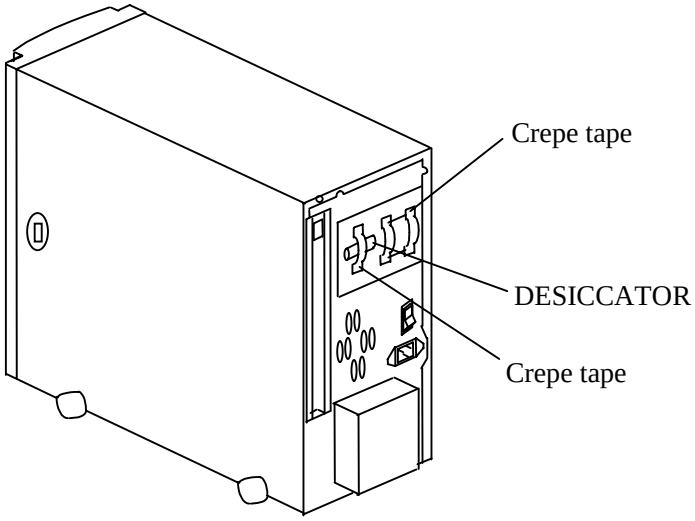


Figure 3.2(b) Location of Desiccator being Attached

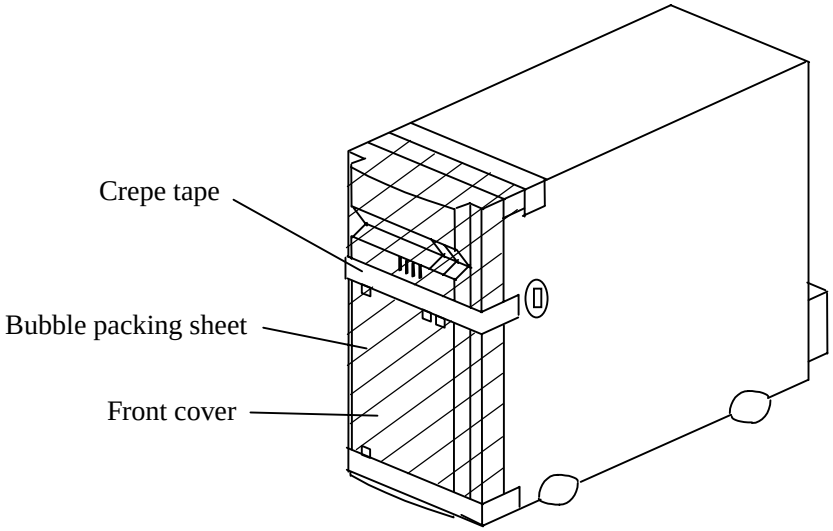


Figure 3.2(c) Front Cover Protection

4. Installation

4.1 Installation

(1) Tool needed for installation

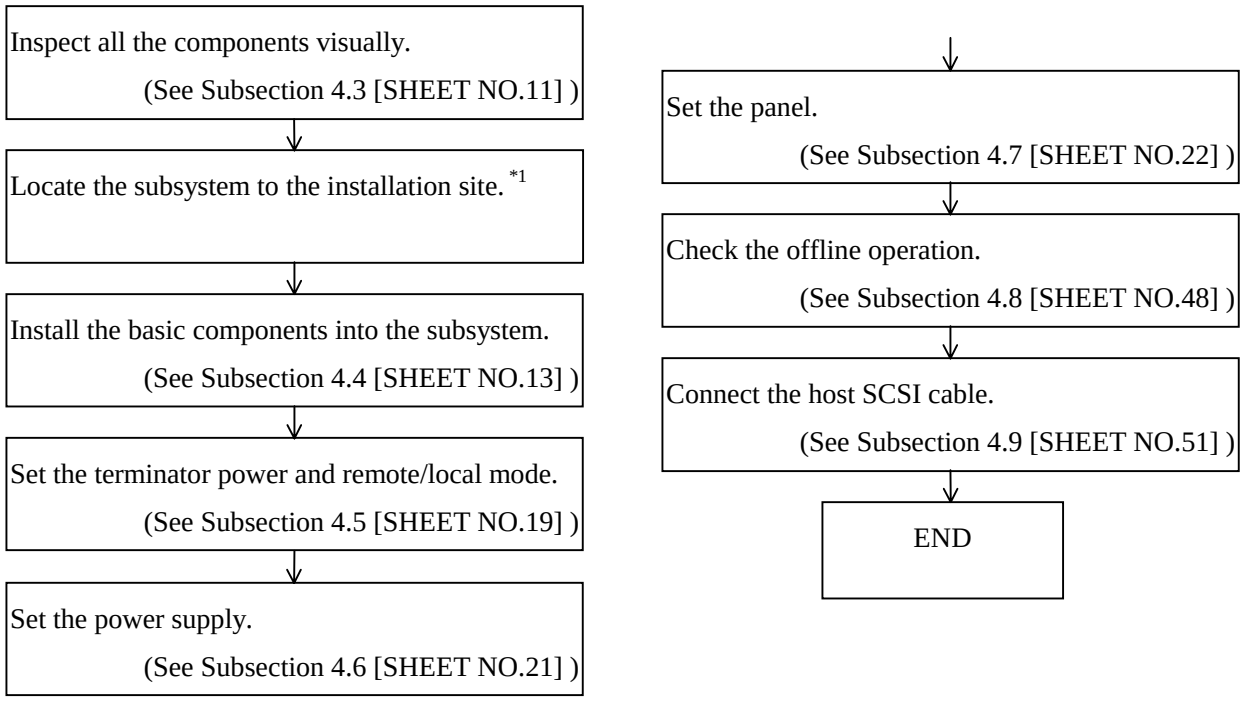
Table 1 shows the tool needed for installing the DF300 disk subsystem (Desktop type).

Table 1. Tool

No.	Installation type	Tool
1	Desktop	Name : Phillips screwdriver Size : Nominal 2 Usage : For maintenance and replacing parts.

(2) How to install

This subsection describes how to install the subsystem after being unpacked.



Note *1 : Take up more than 30 cm space both at the front side and at the rear side since this subsystem takes in air from the front louver and lets it out through the rear vents.

4.2 Opening/Closing the Front Cover and Attaching/Removing the Cover

4.2.1 Opening/Closing the Front Cover

(1) Opening/closing the front cover (See Figure 4.2.1.)

1. Insert the key attached to the subsystem into the keyhole and turn it to the direction of an arrow (counterclockwise). Next, carefully open the front cover.
2. When closing, close the front cover gently. Insert the key in the keyhole, and turn it in the direction of an arrow (counterclockwise).

⚠ Caution

Open/close the side covers carefully to avoid subjecting the subsystem to any impact since it has precision components.

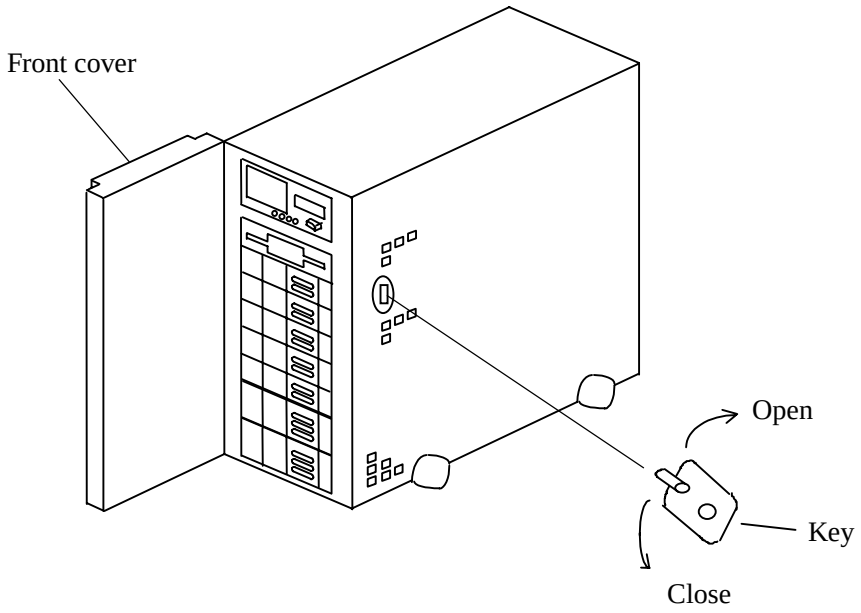


Figure 4.2.1 Opening/Closing Front Cover

4.2.2 Attaching/Removing the Front Cover

Tool : Phillips screwdriver (no. 2)

(1) Removing procedures (See Figure 4.2.2.)

1. Open the front cover. (See Subsection 4.2.1.)
2. Remove the I/F ADAPTER ASSY. (See CHG170)
3. Loosen six 6 screws①(front:2, rear:4).
4. Lift up the cover and remove it.

(2) Attaching procedure

1. Reverse the removing procedures to attach the cover.

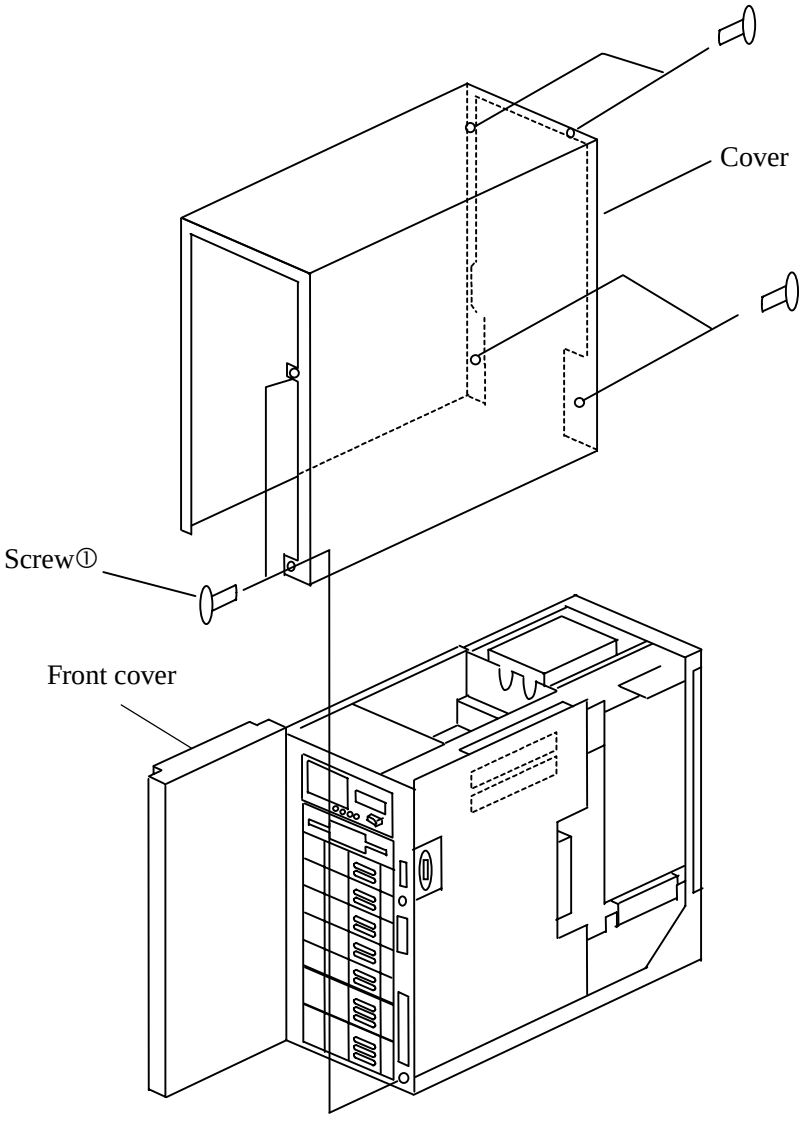


Figure 4.2.2 Attaching/Removing the Front Cover

4.3 Inspecting all the components visually

Check the following components before installation according to a customer's configuration.

(1) Mandatory features

Model Name	Specification	Quantity	Comment
DF300-DK	Desktop	1	
DF-F300-E2C1	1"H Disk Drive(1.0GB×5)	1	
-E2C2	1"H Disk Drive(2.1GB×5)		
-E2C4	1"H Disk Drive(4.3GB×5)		
DF-F300-B1D	Power Supply	1~2	
DF-F300-C14	Cache Memory(4MB)	1~2	
-C18D	(8MB)		
-C116D	(16MB)		
-C132D	(32MB)		
DF-F300-DDWDS	Interface Board* for Wide Differential SCSI Interface	1	
-DDNSL	Narrow Single Ended SCSI Interface		
-DDWSS	Wide Single Ended SCSI Interface		

* This includes a Terminator.

(2) Optional features

Model Name	Specification	Quantity	Comment
DF-F300-B1D	Spare Power Supply	0 or 1	
DF300 -G1D	LAN Board	0~1	
-G2D	LAN Board (SNMP)		

(3) Accessories

Model Name	Specification	Quantity	Comment
DF-F300 -J1 -J2	Power Supply Cable (Connector attached to two poles with earth) (Inlet type connector, EN60320 STANDARD SHEET C14)	0 or 1	
DF-F300-K050L	Interface Cable(50PL, 1.5m)	0~	
DF-F300-K150L	Interface Cable(50PL, 3m)		
DF-F300-K068S	Interface Cable(68PS, 1.5m)		
DF-F300-K268S	Interface Cable(68PS, 3m)		
DF-F300-K168S	Interface Cable(68PS, 5m)		
DF-F300-K350L	Interface Cable(50PL, 5m)		
DF-F300-S1	RS232C Cable	0~	

4.4 Installing the basic components into the subsystem

This subsection describes how to install the basic components into the subsystem.

Figures 4.4.1 and 4.4.2 show mechanical configuration and parts location of this subsystem.

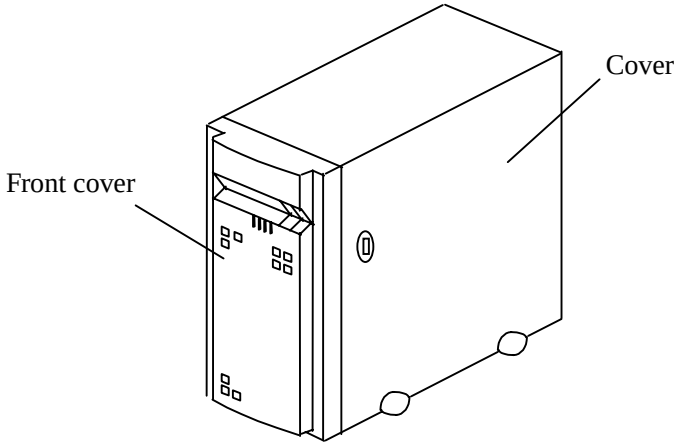


Figure4.4.1 Appearance of DF 300 Disk Subsystem (Desktop Type)

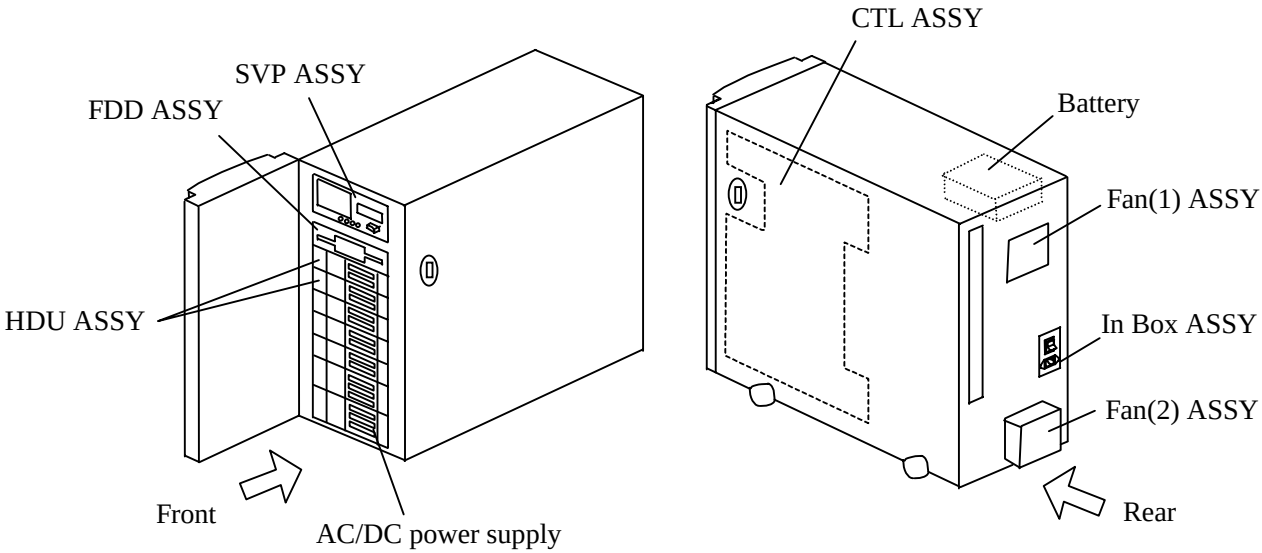


Figure4.4.2 Parts Location

(1) Installing HDU ASSY (See Figure 4.4.3)

1. Open the handle in the direction of an arrow (⇢) completely and insert the HDU ASSY into the right place.
2. Close the handle in the direction of an arrow (⟶).

⚠ Caution

Do not subject the HDU ASSY to any impact or vibration since it is a precision component.

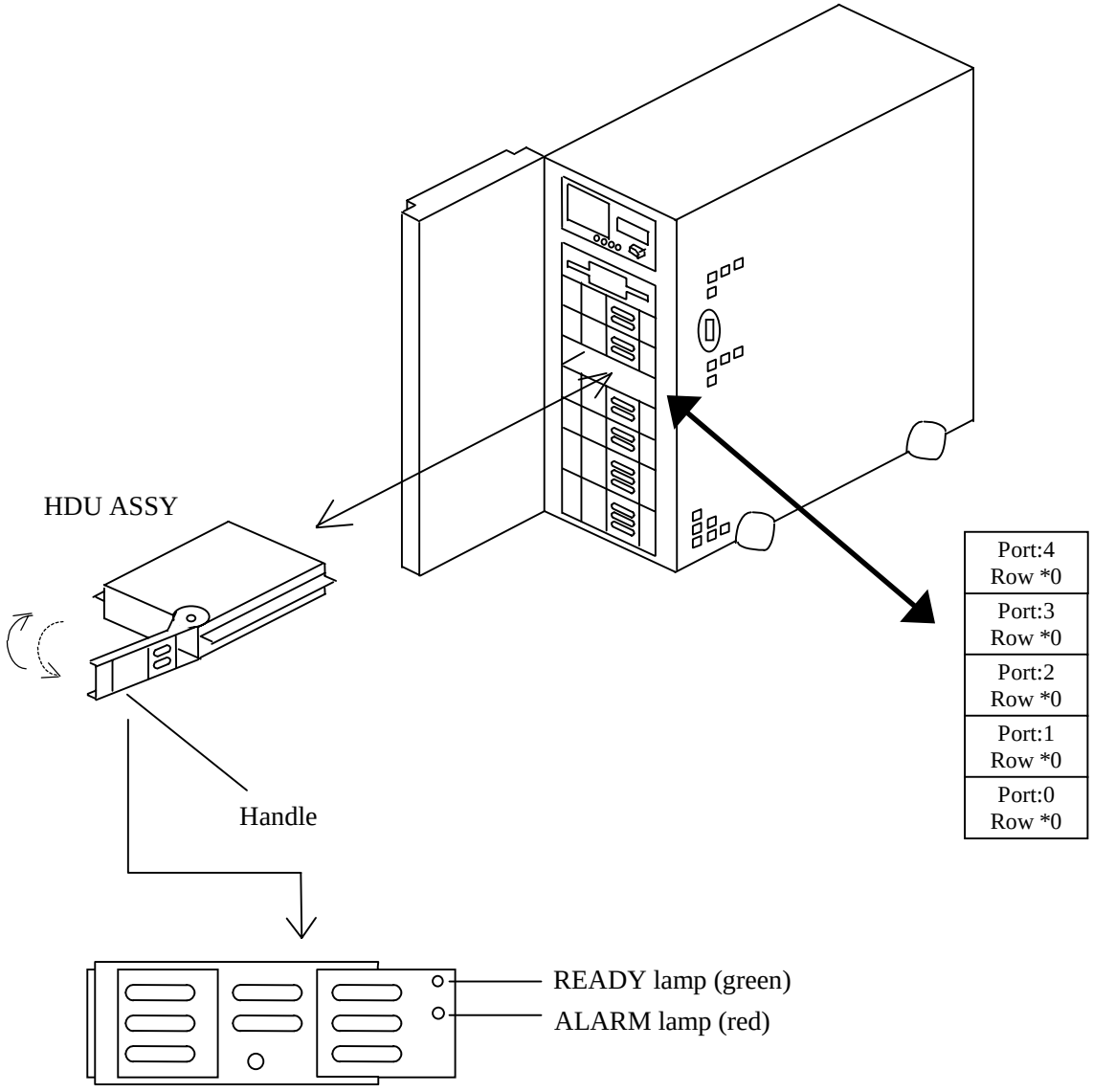


Figure4.4.3 Replacing HDU ASSY

(2) Setting AC/DC power supply (See Figure 4.4.4)

1. Insert the PS ASSY into the right place with its right and left levers being opened, then close the lever to the direction of arrows (⟶) at the same time.
2. Tighten the Screw①.

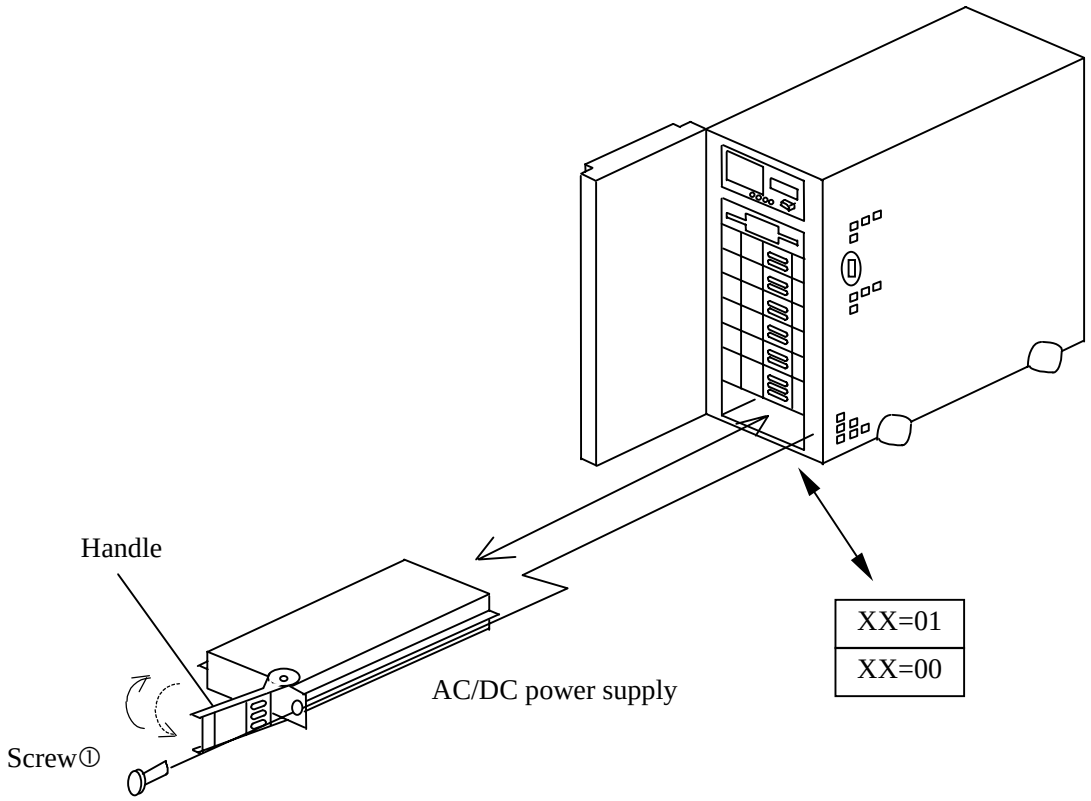


Figure 4.4.4 Setting AC/DC power supply

(3) Installing a CACHE ASSY (See Figure 4.4.5)

Note) When the cache assemblies are to be inserted into the cache slots, add them in the order of cache slots #0 and #1.

1. Remove the cover.
2. Pull out the CTL ASSY.
3. Install the CACHE ASSY.
4. Insert the CTL ASSY into the former place.
5. Attach the cover.

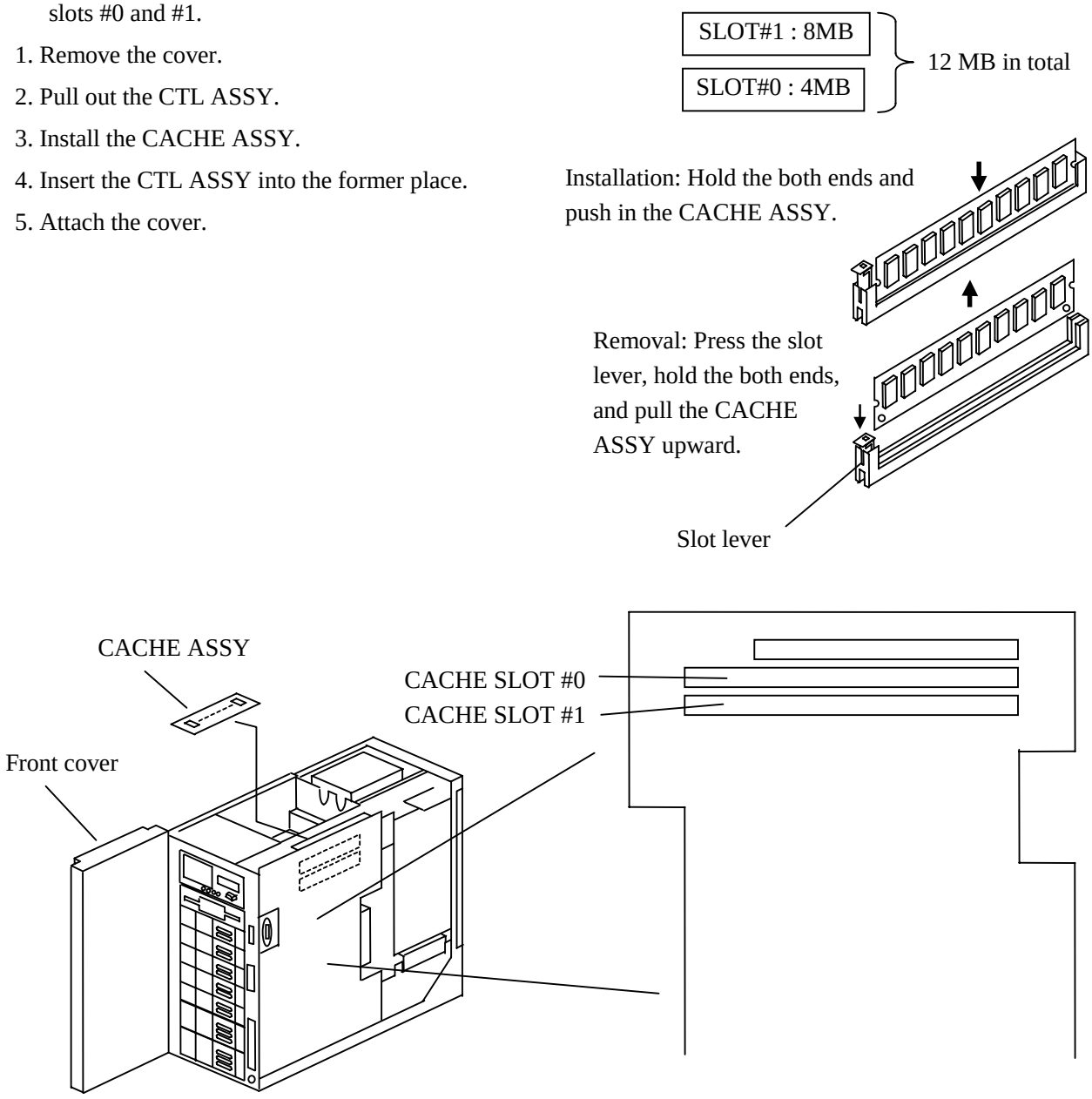


Figure 4.4.5 Installing a CACHE ASSY

Correspondence Table of Panel Setting for Each Cache Model

#	Model name	Part name	Setting	Remark
1	DF-F300-C14	4MB (4MB×1)	4M SINGLE	This is set for the slots (0 or 1) where caches are inserted.
2	DF-F300-C18D	8MB (8MB×1)	4M DOUBLE	This is set for the slots (0 or 1) where caches are inserted.
3	DF-F300-C116D	16MB (16MB×1)	16M SINGLE	This is set for the slots (0 or 1) where caches are inserted.
4	DF-F300-C132D	32MB (32MB×1)	16M DOUBLE	This is set for the slots (0 or 1) where caches are inserted.
5	DF-F300-C164	64MB (32MB×2)	16M DOUBLE	This is set for both of the slots (0 and 1) where caches are inserted.

① Cache slot packaging information

(a) Panel display

C A C H E C O N F I G

← The display is changed by using the keys [↑] and [↓] of the ten-key pad.

↑
Display start position

(b) Display content

#	Displayed message	Description
1	CACHE SLOT #0	Setting of cache slot #0 installation status
2	CACHE SLOT #1	Setting of cache slot #1 installation status
5	CANCEL	Return to the initial menu

② Setting of the cache slot installation status

(a) Panel display

C A C H E S L O T # *

← A * mark varies with the selected menu. (0 to 3)
←The display is changed by using the keys [↑] and [↓] of the ten-key pad.

↑
Display start position ×2 (The content which is set at present is displayed.
A * mark is displayed at the beginning of the content which is set at present.)

(b) Display content

#	Displayed message	Description
1	NOT EXIST	No cache is installed.
2	4M SINGLE	Single 4M-bit DRAM is installed.
3	4M DOUBLE	Double 4M-bit DRAMs are installed.
4	16M SINGLE	Single 16M-bit DRAM is installed.
5	16M DOUBLE	Double 16M-bit DRAMs are installed.
6	64M SINGLE	Single 64M-bit DRAMs are installed. (Not Available.)
7	64M DOUBLE	Double 64M-bit DRAMs are installed. (Not Available.)

Note: For cache slots #0 and #1 set not exist.

(4) Setting I/F ADAPTER ASSY (See Figure 4.4.6)

1. Turn the battery switch on (slide it upward).
2. Insert the I/F ADAPTER ASSY into the right place and tighten the two screws.

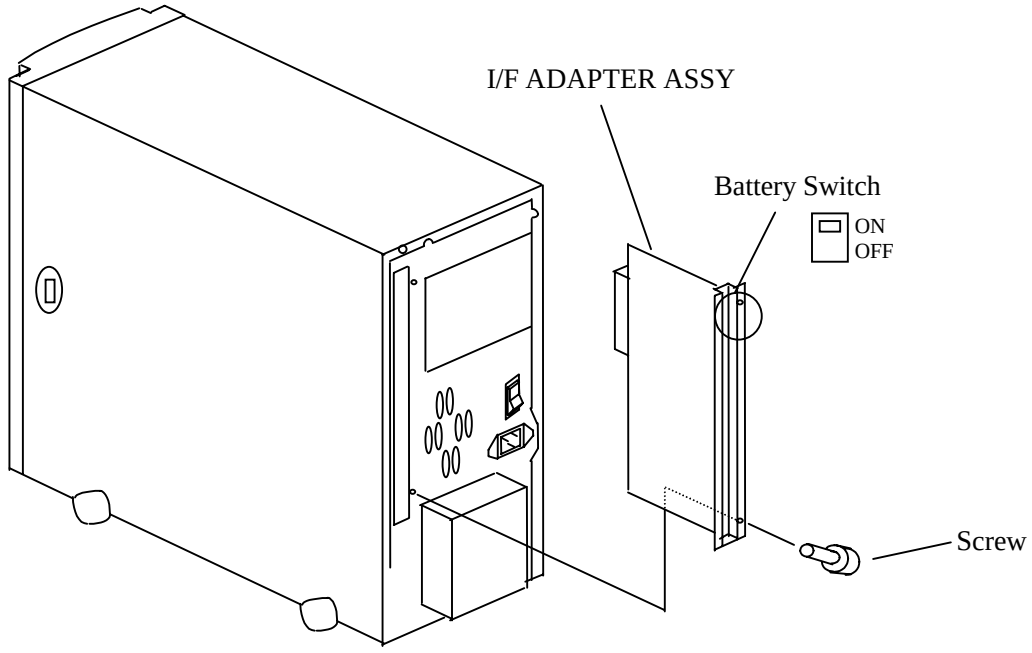


Figure 4.4.6 Setting I/F ADAPTER ASSY

4.5 Setting the Terminator Power and Remote/Local mode

Follow the procedure described below to set the terminator power.

Tool : Phillips screwdriver (no. 2)

1. ake sure that both the main switch and the switch placed on the side of the In Box ASSY are off.
2. Remove the screws. Hold the handle and pull out the I/F ADAPTER ASSY.
3. Set the terminator power and remote/local mode according to Figure 4.5.1 and Table 4.5.1.
4. After setting the terminator power and remote/local mode, insert the I/F ADAPTER ASSY and tighten the screw.

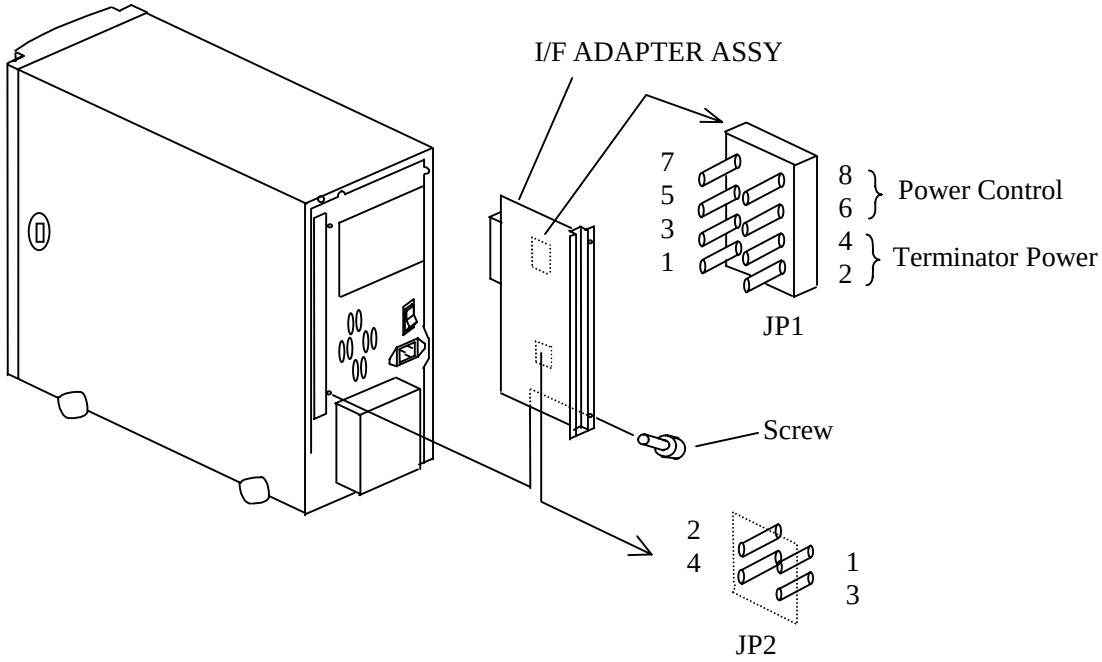
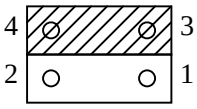
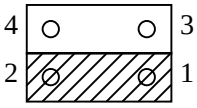
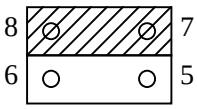
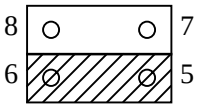


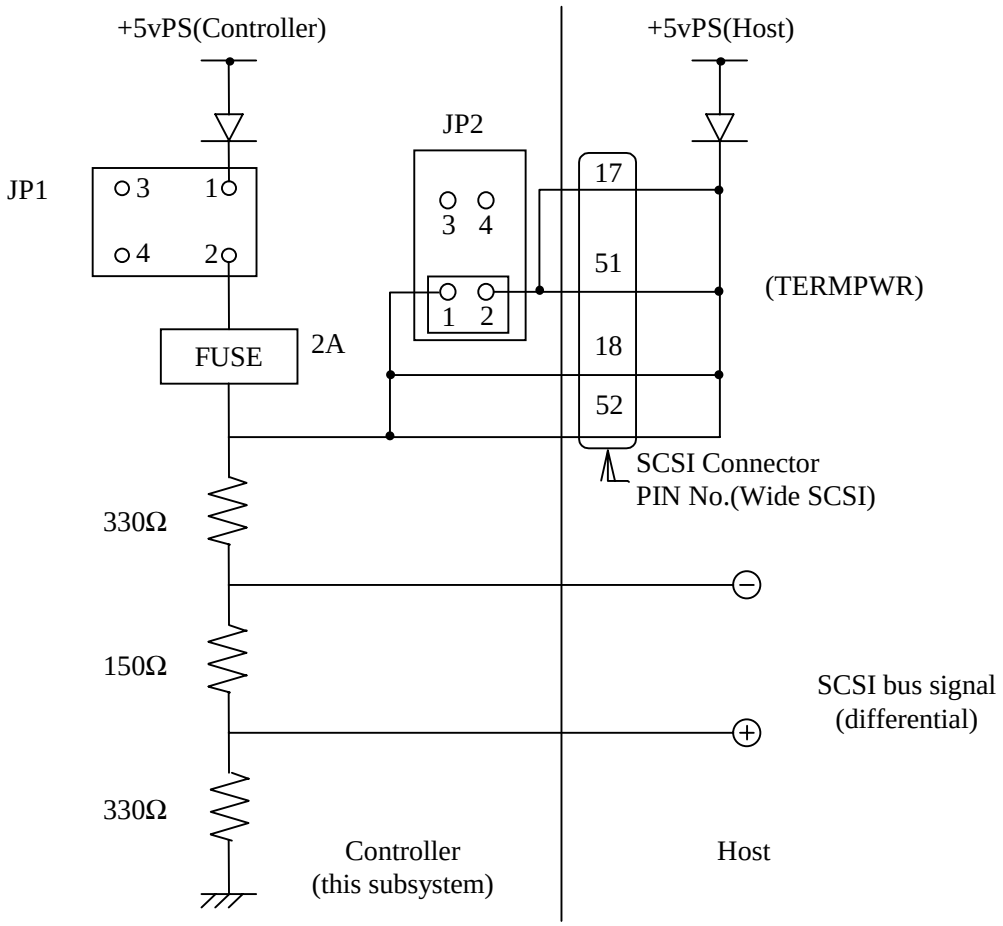
Figure 4.5.1 Setting the Terminator Power and Power Control

Table 4.5.1 Setting the Terminator Power and Remote/Local mode [*1, *2]

No.	Jumper setting	Function	
1		+5 V power supply for the terminator power is supplied from the array controller and the host. (default setting.)	Setting the Terminator Power
2		+5 V power supply for the terminator power is supplied only from the host.	
3		Remote mode: The host can remotely control the subsystem startup when the terminator power is set so that the poweris supplied using the host SCSI bus. (For this mode, the main switch on the subsystem must have been turned on.)	Setting the Power control.
4		Local mode:(default setting) The subsystem can be turned on/off using its main switch regardless of the terminator power setting.	

*1 : The terminator power means that the power for the terminator is supplied from the host so that the SCSI bus is not shut down by a power failure of the subsystem.

*2 : The combination of No.2 and No.3 can not be set.



4.6 Setting the Power Supply

Make sure that both the main switch and the curcuit breaker are off (0 side).

(1) Connecting the AC cable

The power for the packages, drives, and fans of the DF300 disk subsystem is supplied by the In Box ASSY and AC/DC power supply converting AC to the DC power. See Figure 4.6 for connecting the AC cable of the In Box ASSY.

(2) Setting the In Box ASSY

Press the "1" side (upward) of the circuit breaker.

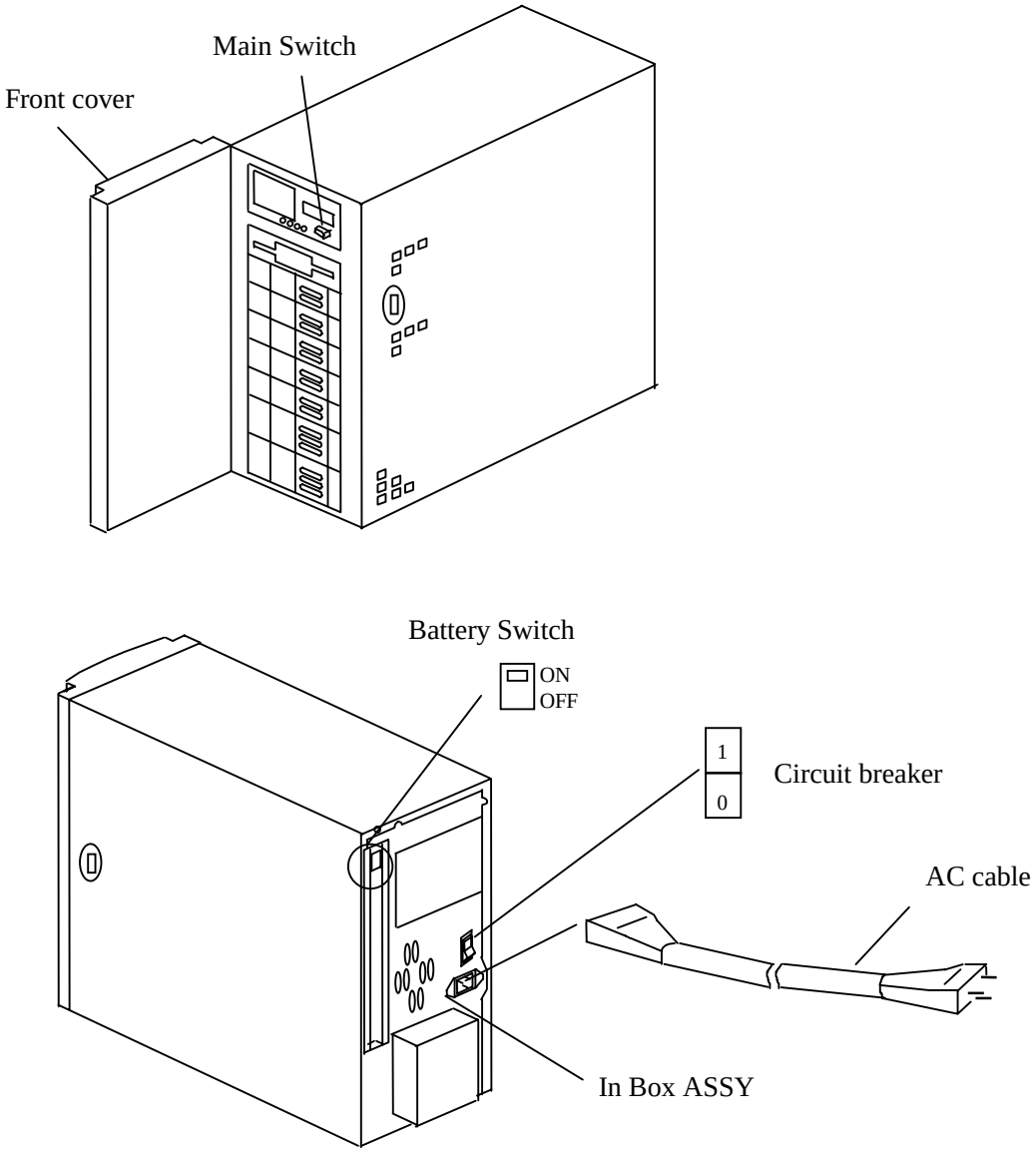


Figure 4.6 Setting the power supply

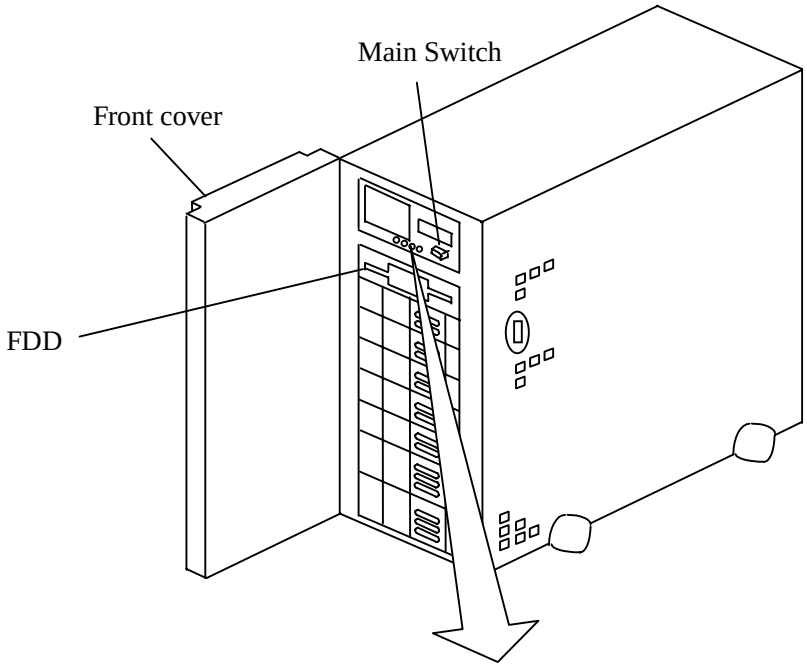
4.7 Setting the panel

(1) Setting the System parameters and doing the downloading

Operate as described below.

(The ID has been set to 0 at the time of shipment.)

① Before powering on the subsystem, set Dip SW No.1,3,4,5,6,7 as shown in Figure 4.7.1.



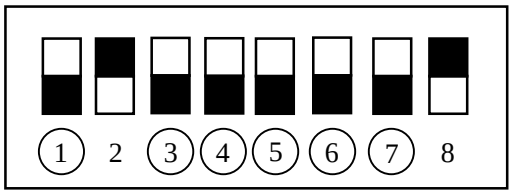


Figure 4.7.1 Dip SW
(System Parameter Is Set)

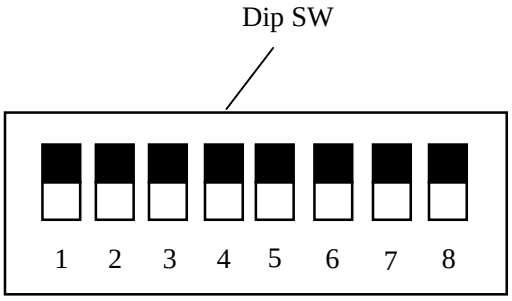


Figure 4.7.2 Dip SW(normal condition)
(System Parameter Is Not Set)

Figure 4.7 Setting the panel

② Operate as described below.

Operation | Panel display

Power on the subsystem (Power on the circuit breaker and the main switch).

(in a few minutes)

DISPSWITCH SET
ROM RESP MODE

This indication shows that the system parameter setting operation is started.

If you do not want to connect the LAN, skip (α) and execute (β) only. (See SHEET NO.25)

(α)

Keep on pressing ▼ key until the indication shown on the right appears.

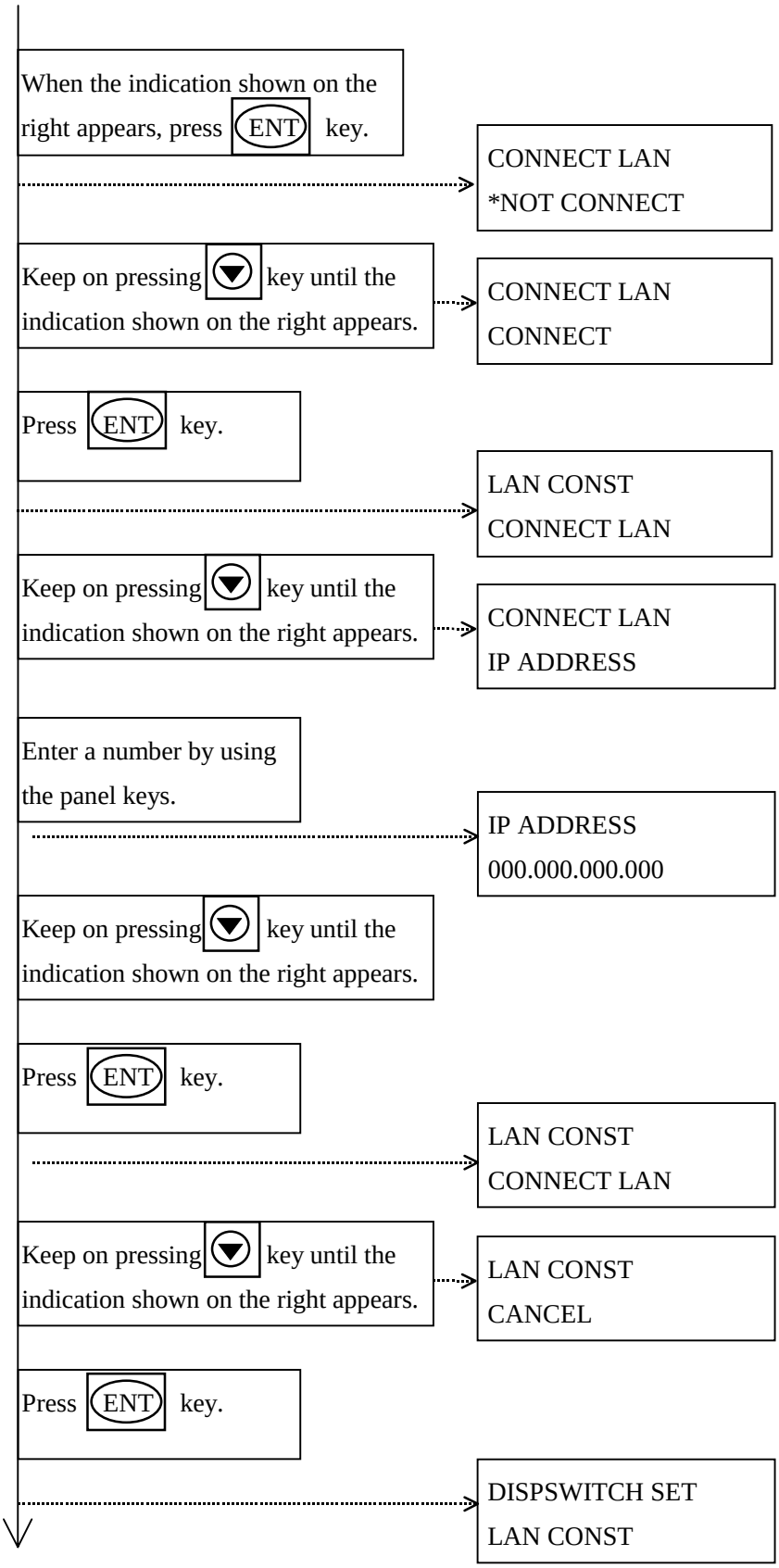
DISPSWITCH SET
LAN CONST

Press ENT key when "LAN CONST" is indicated.

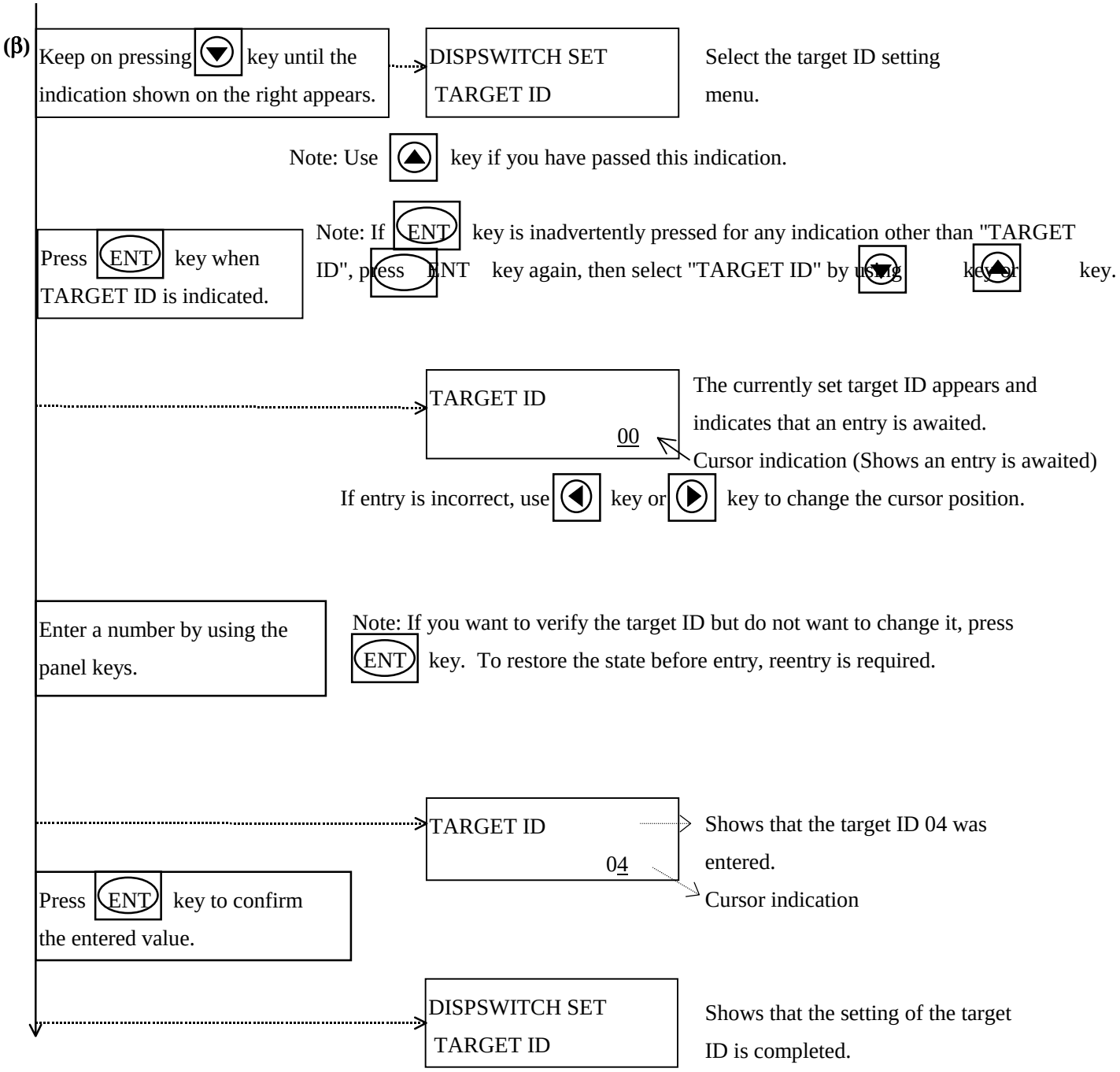
Note: Use ▲ key if you have passed this indication.

Note: If ENT key is inadvertently pressed for any indication other than "LAN CONST", press ENT key again, then select "TARGET ID" by using ▲ key or ▼ key.

LAN CONST
CONNECT LAN

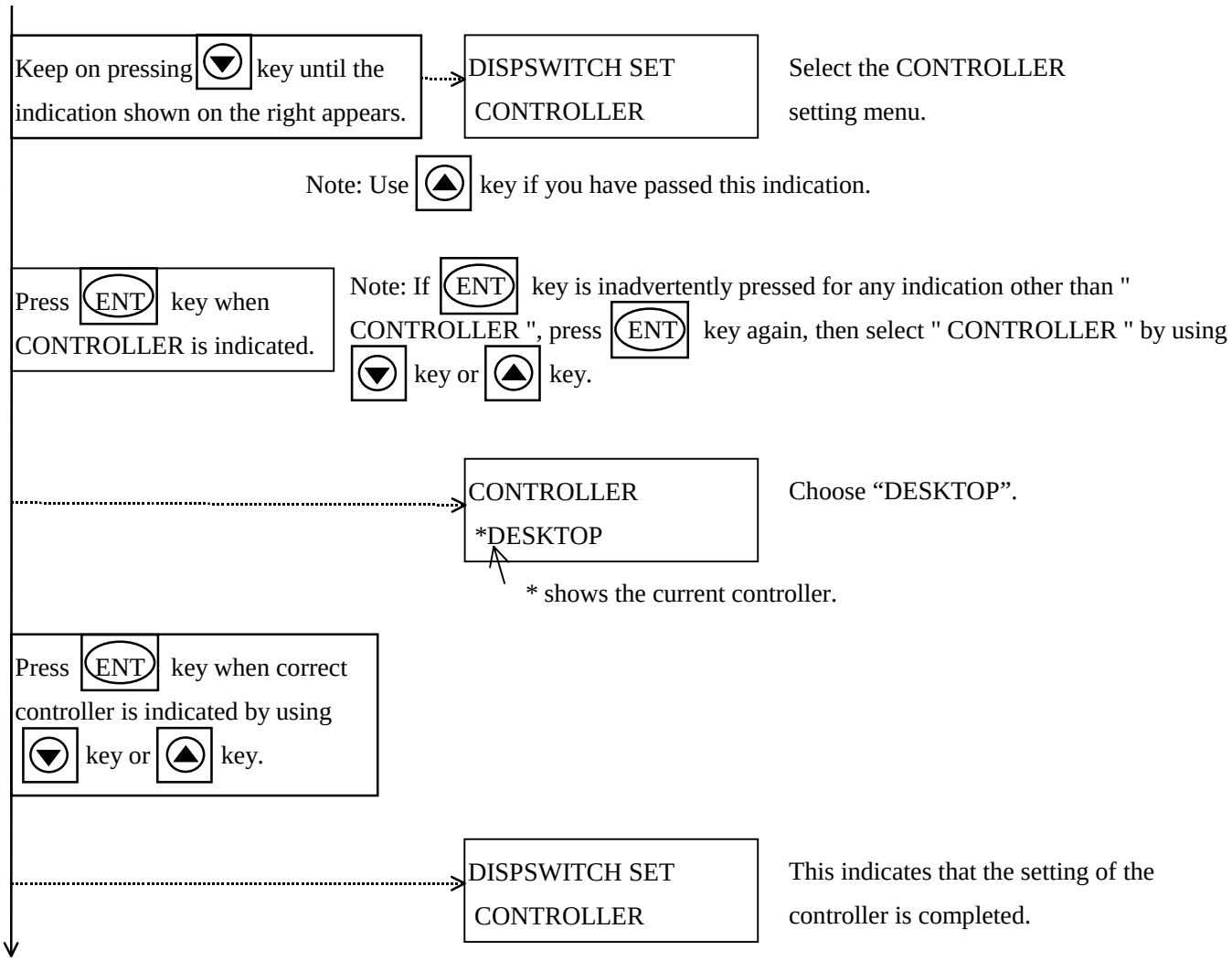


INST240



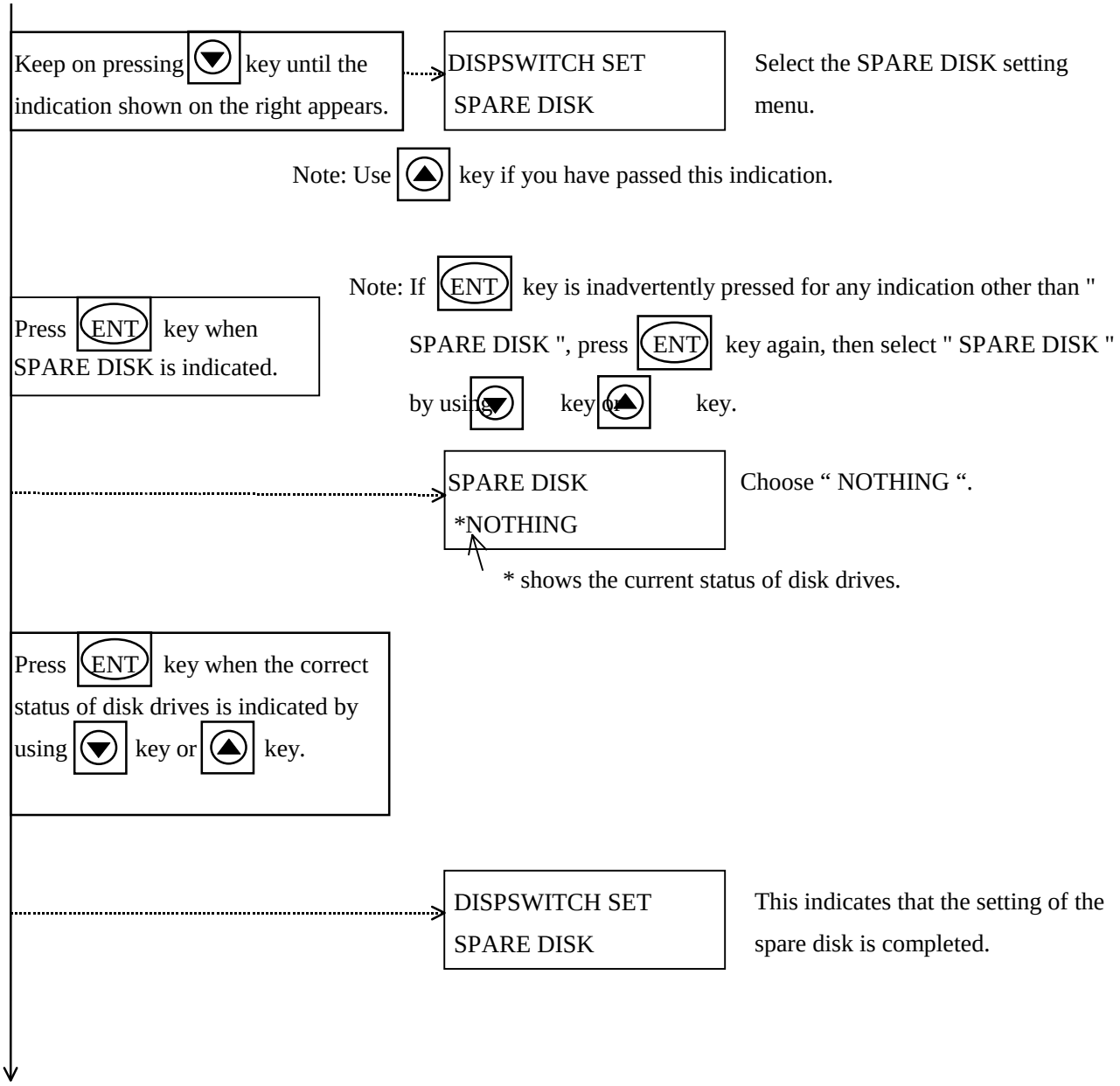
INST250

K6600928	SHEET NO.	REV NO.	3
	47/	Mar.15.'96	



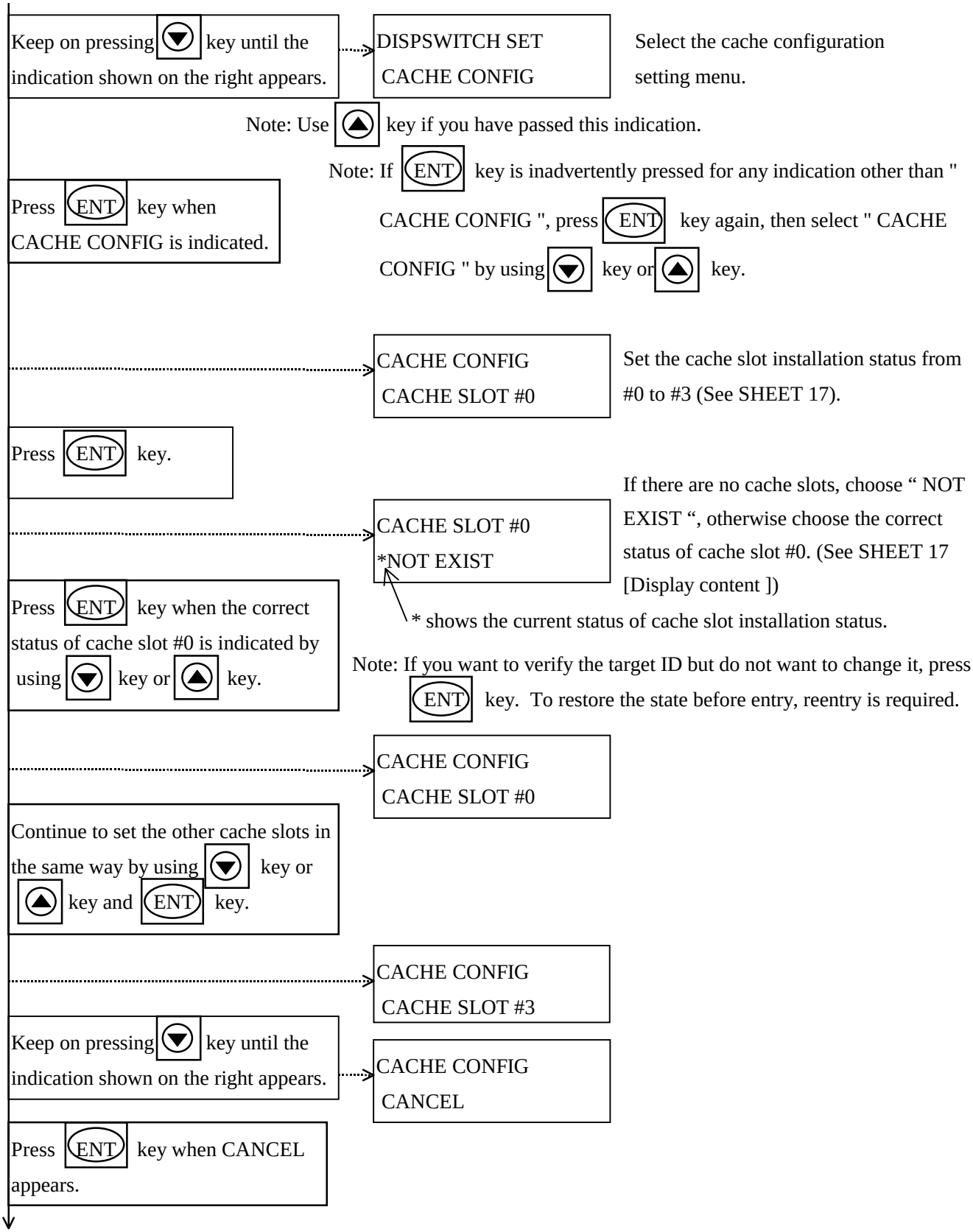
INST260

K6600928	SHEET NO.	REV NO.	3
	48/	Mar.15.’96	



INST270

K6600928	SHEET NO.	REV NO.	3
	49/	Mar.15.'96	



INST280

K6600928	SHEET NO.	REV NO.	3
	50/	Mar.15.'96	

Keep on pressing ▼ key until the indication shown on the right appears.

DISPSWITCH SET
SYSTEM LBA NO

Select the System LBA NO setting menu.

Note: Use ▲ key if you have passed this indication.

Note: If ENT key is inadvertently pressed for any indication other than " SYSTEM LBA NO ", press ENT key again, then select " SYSTEM LBA NO " by using ▼ key or ▲ key.

Press ENT key when SYSTEM LBA NO is

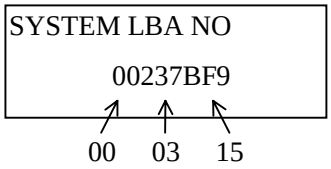
SYSTEM LBA NO
00000000

The currently set System LBA NO appears and indicates that an entry is awaited.
Cursor indication (Shows an entry is awaited)

If entry is incorrect, use ◀ key or ▶ key to change the cursor position.

Input numbers by using the panel keys (See Table 4.6.1).

Example of System LBA (1[GB])



You have to input numbers by HEX. as described above.

Table 4.6.1 System LBA NO

Drive Capacity	Model	SYSTEM LBA NO
1[GB]	DF-F300-E2C1	**$(237BF9)_{16}$**
2[GB]	DF-F300-E2C2	**$(3E696B)_{16}$**
4[GB]	DF-F300-E2C4	**$(7CD2D7)_{16}$**

Press ENT key to confirm the entered value.

DISPSWITCH SET
SYSTEM LBA NO

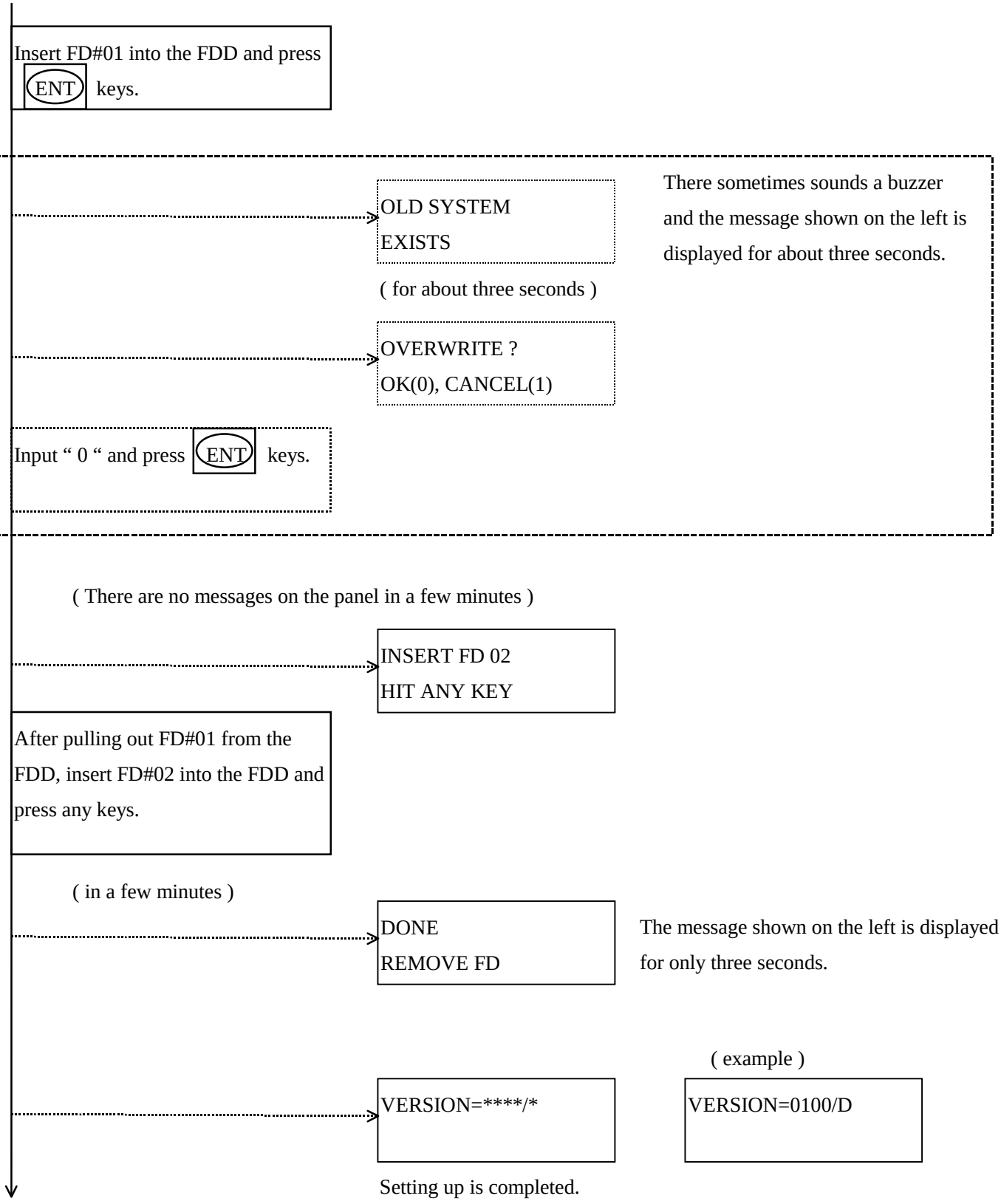
Shows that the setting of the System LBA No is completed.

Keep on pressing ▼ key until the indication shown on the right appears.

DISPSWITCH SET
CANCEL

Note: To perform buzzer setting at the same time, perform the operation of ② in 4.6(1) [SHEET NO. 23] successively.

INST290



The READY lamp on the subsystem comes on.

Note: If the READY lamp does not come on, turn off the subsystem power. Then, restart the operation from

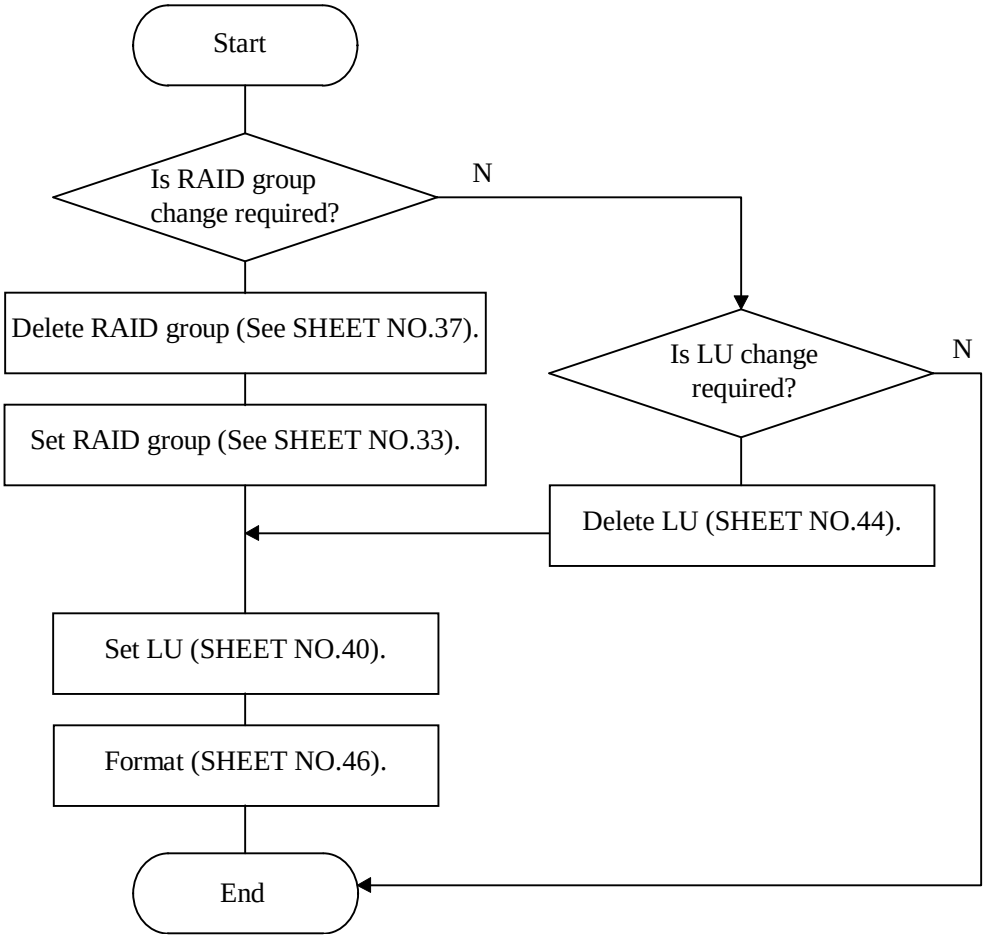
The subsystem is automatically started with the new system parameters.

③ Set Dip SW No.1,3,4,5,6,7 normal condition as shown in Figure 4.7.2[SHEET NO.22] (system parameter is not set).

(2) LU setting procedures

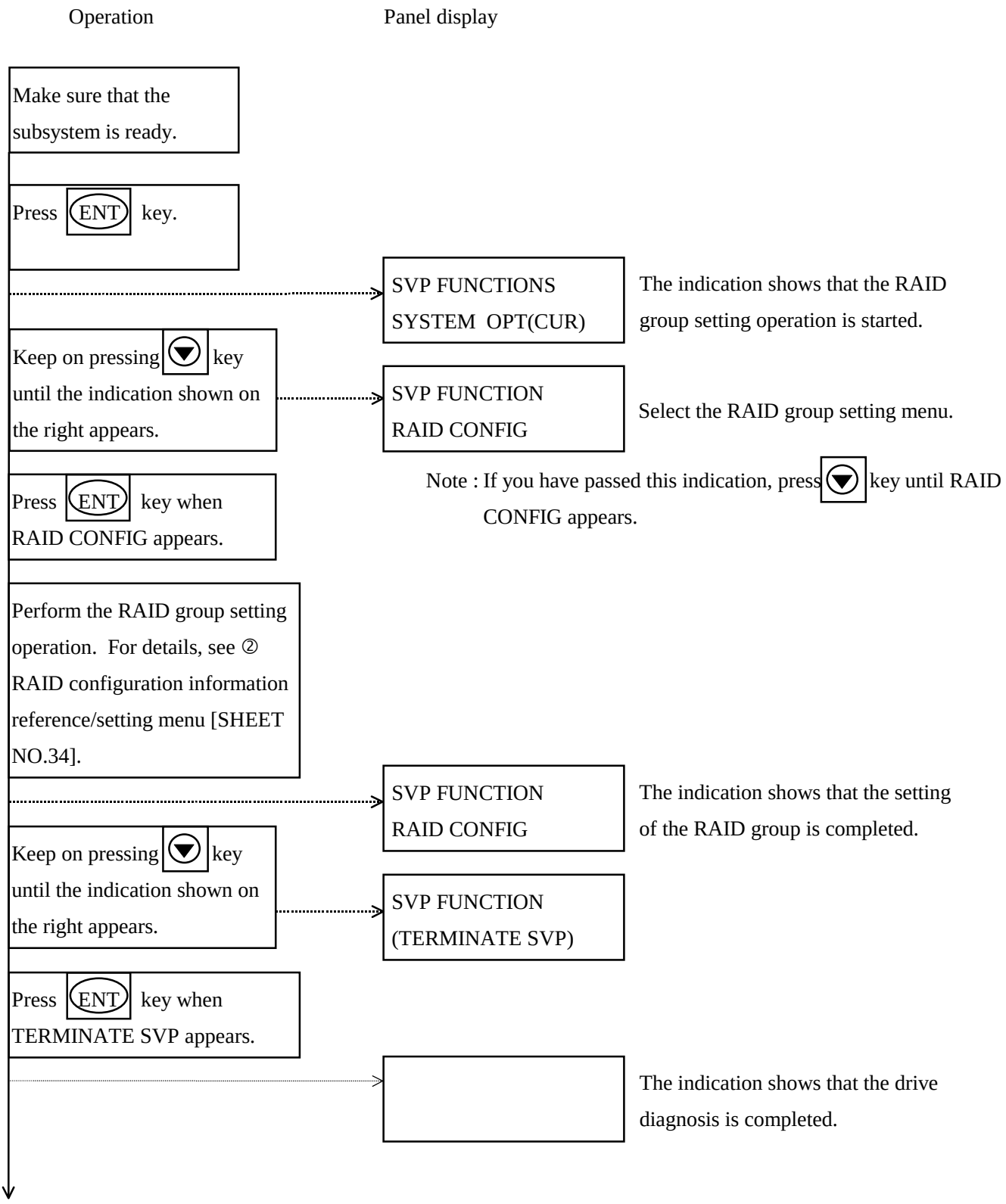
This function can be used when the subsystem is ready.

(During this operation, READ/WRITE command issued from the host cannot be executed. When the host command is received, Not Ready is reported to the host.)



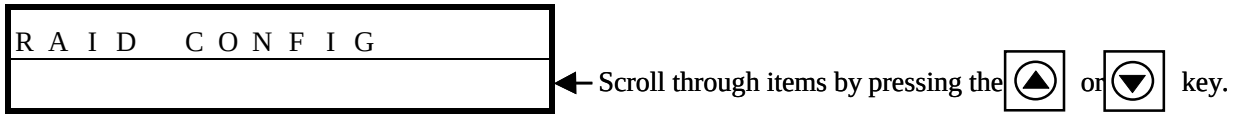
(2-1) Setting the RAID group

① Operate as described below.



② RAID configuration information reference/setting menu

(a) Panel display

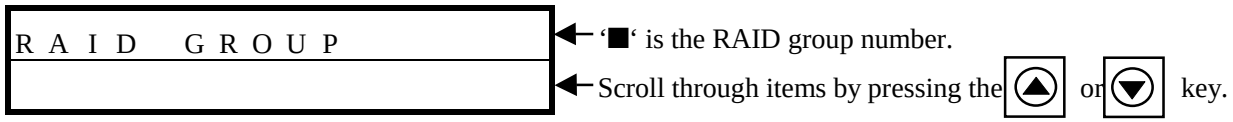


(b) Contents of the second-line indication

No.	Item indicated	Function
1	REFER	Refers the RAID configuration information
2	INSTITUTE	Adds a RAID group.
3	DELETE	Deletes all RAID groups.
4	(CANCEL)	Returns to the preceding menu (SVP function selection menu).
5	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-1 RAID configuration information referring procedures

(a) Panel display (RAID defining information)



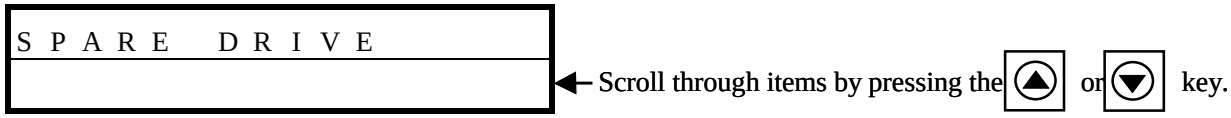
(b) Contents of the second-line indication (when RAID is defined)

No.	Item indicated	Description
1	RAID0	RAID level
	RAID1	
	RAID5	
2	PORT=■,WIDTH=■	Port number, width
3	ROW=■,DEPTH=■	Row number, depth

(c) Contents of the second-line indication (when RAID is not defined)

No.	Item indicated	Description
1	NOT DEFINED	Indicates that the RAID is not defined.

(d) Panel display (spare disk information)



(e) Contents of the second-line indication

No.	Item indicated	Function
1		Installed/not installed status
	PORT=■,ROW=■	Port and row numbers (when installed)
	NOT EXIST	Message indicating the not installed status (when not installed)
2		Status when installed
	ON STANDBY	Unused status
	USED BY P■,R■	Recovery data of the drive indicated by the port and row numbers is being held.
3	(CANCEL)	Returns to the preceding menu (RAID function selection menu).
4	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-2 Procedures for adding a RAID group

(a) Panel display (RAID defining information)

■ is the RAID group number.

← Scroll through items by pressing the ▲ or ▼ key.

(b) Contents of the second-line indication

No.	Item indicated	Description
1	ALL RAID5	The maximum configuration range (ports and rows) of the subsystem in use is defined as the RAID5, RAID1, or RAID0 group.
2	ALL RAID1	
3	ALL RAID0	
4	(CANCEL)	Returns to the preceding menu (RAID function selection menu).
5	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

(c) Key operation/miscellaneous

When the adding pattern is selected (i.e. the target pattern is displayed on the second line and the ENT key is pressed), the following indication appears to prompt the confirmation before actually adding the RAID group:

← '■■■'=[ALL] or [R=n] (n: Row number).

← Scroll through items by pressing the ▲ or ▼ key.

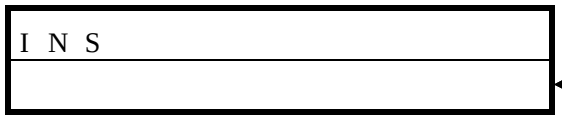
Contents of the second-line indication

No.	Item indicated	Function
1	YES	Adds a RAID group.
2	(CANCEL)	Does not add a RAID group but returns to the preceding (pattern selection) screen.
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

• When the confirmation is received, the following indication appears to indicate that addition is being executed:

← '■■■'=[ALL] or [R=n] (n: Row number).

• When RAID group addition is complete, the following indication appears:



← Scroll through items by pressing the ▲ or ▼ key.

Contents of the second-line indication

No.	Item indicated	Function
1	(CANCEL)	Returns to the RAID function selection menu.
2	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-3 Procedures for deleting all RAID groups

(a) Panel display

← Scroll through items by pressing the ▲ or ▼ key.

Contents of the second-line indication

No.	Item indicated	Function
1	YES	Deletes all RAID groups.
2	(CANCEL)	Returns to the preceding menu (RAID function selection menu).
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

- When deletion of all RAID groups is received, the following indication appears to indicate that deletion is being executed:

D E L A L L R A I D ?
E X E C U T I N G

- When deletion is completed, the following indication appears:

D E L R A I D C M P

← Scroll through items by pressing the  or  key.

Contents of the second-line indication

No.	Item indicated	Function
1	(CANCEL)	Returns to the preceding menu (RAID function selection menu).
2	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

(2-2) LU setting

Following procedures are used to set, delete, refer, or format the LU.

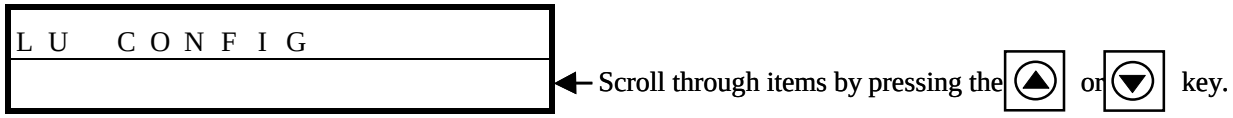
This function can be used when the subsystem is ready.

① Operate as described below.

Operation	Panel display	
Make sure that the subsystem is ready.		
Press (ENT) key.	SVP FUNCTION SYSTEM OPT(CUR)	The indication shows that the LU setting operation is started.
Keep on pressing (▼) key until the indication shown on the right appears.	SVP FUNCTION LU CONFIG	Select the LU setting menu.
Perform the LU setting operation. For details, see ② LU configuration information reference/setting menu. [SHEET NO.40]	Note: If you have passed this indication, keep on pressing (▼) key until LU CONFIG appears.	
	SVP FUNCTION LU CONFIG	The indication shows that the LU setting is completed.
Keep on pressing (▼) key until the indication shown on the right appears.	SVP FUNCTION (TERMINATE SVP)	
Press (ENT) key when TERMINATE SVP appears.		
		The indication disappears to show that the LU setting is completed.

② LU configuration information reference/setting menu

(a) Panel display

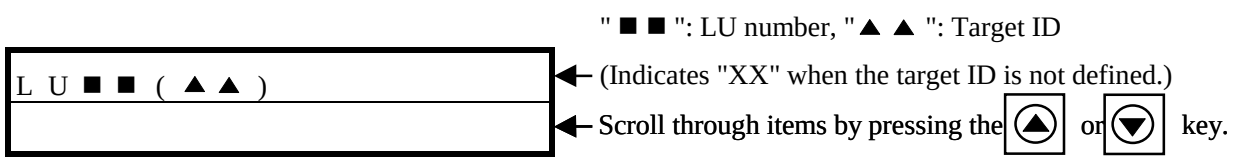


(b) Contents of the second-line indication

No.	Item indicated	Function
1	REFER	Refers the LU configuration information.
2	INSTITUTE	Adds an LU.
3	DELETE	Deletes all LUs.
4	FORMAT	Formats an LU.
5	(CANCEL)	Returns to the preceding menu (SVP function selection menu).
6	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-1 Procedures for referring the LU configuration information

(a) Panel display

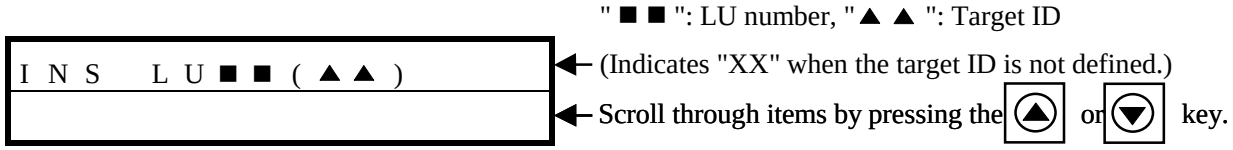


(b) Contents of the second-line indication (when the LU is defined)

No.	Item indicated	Description
1	RAID (GP=■, CLV=■)	RAID group number and RAID level
2	START P=■, CR=■	Port number and row number of the starting drive
3	CAPA=■■■■■■■■■■	Capacity (in blocks)
4	STAGING=■■■■■	Amount of staging for read-in-advance
5		LU status
	ST=UNFORMAT	Unformatted
	ST=NORMAL	Normal
	ST=DETACHED	Detached
	ST=REGRESSED	Regressed
6	(CANCEL)	Returns to the preceding menu (LU function selection menu).
7	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-2 Procedures for adding an LU

(a) Panel display (specifications of a RAID group and its capacity)



(b) Contents of the second-line indication

No.	Item indicated	Description
1	G=0 ALL CAPA	All of the free capacity in the RAID group are defined as the object LU (indicated on the first line).Alternatively, the LU with the specified capacity is defined in the concerned RAID group. (The capacity is indicated in blocks.)
	G=0 C=□□□□□□□□□□	
	G=1 ALL CAPA	
	G=1 C=□□□□□□□□□□	
	G=2 ALL CAPA	
	G=2 C=□□□□□□□□□□	
	G=3 ALL CAPA	
	G=3 C=□□□□□□□□□□	
2	(CANCEL)	Returns to the preceding menu (LU function selection menu).
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

(c) Panel display (specification of host block size)

H - B L O C K S I Z E ?

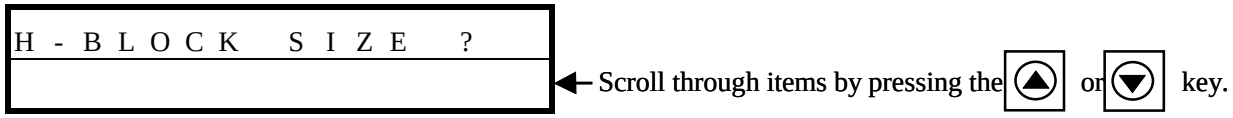
← Scroll through items by pressing the  or  key.

(d) Contents of the second-line indication

No.	Item indicated	Description
1	512B	Selects a host block size.
	520B	
2	(CANCEL)	Returns to the preceding menu (LU function selection menu).
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

(c) Key operation/miscellaneous

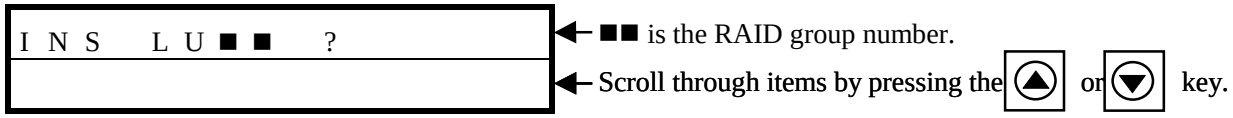
- When the adding pattern is selected (i.e. the target pattern is displayed on the second line and the RETURN key is pressed), the following indication appears to prompt the selection of a host block size.



Contents of the second-line indication

No.	Item indicated	Function
1	512B	Selects 512 bytes.
2	520B	Selects 520 bytes.
3	(CANCEL)	Returns to the preceding (pattern selection) screen.
4	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

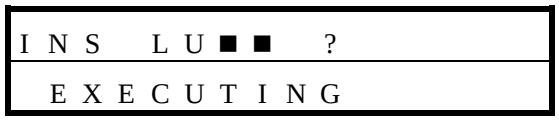
- When a host block size is selected, the following indication appears to prompt the confirmation before actually adding the LU:



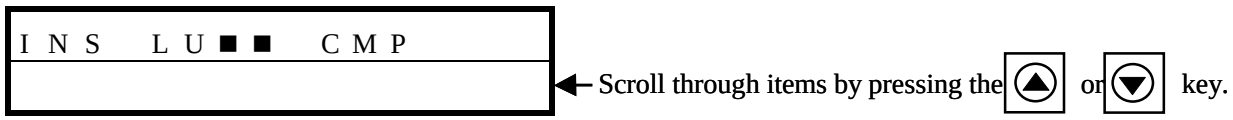
Contents of the second-line indication

No.	Item indicated	Function
1	YES	Adds an LU.
2	(CANCEL)	Returns to the pattern selection screen.
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

- When the confirmation is received, the following indication appears to indicate that the addition is being executed:



- When LU addition is completed, the following indication appears :

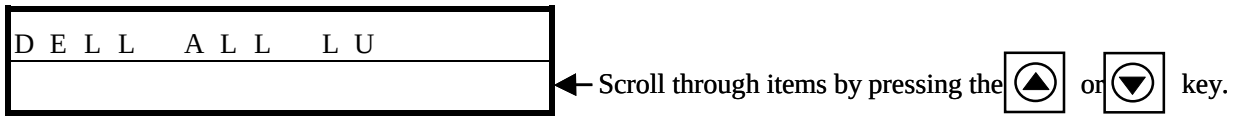


Contents of the second-line indication

No.	Item indicated	Function
1	(CANCEL)	Returns to the LU function selection menu.
2	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-3 Procedures for deleting all LUs

(a) Panel display



Contents of the second-line indication

No.	Item indicated	Function
1	YES	Deletes all LUs.
2	(CANCEL)	Returns to the preceding menu (LU function selection menu).
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

(c) Key operation/miscellaneous

- When confirmation on deletion is received, the following indication appears to indicate that the deletion is being executed:

D E L L A L L L U
E X E C U T I N G

- When the deletion is completed, the following indication appears:

D E L L L U C M P
E X E C U T I N G

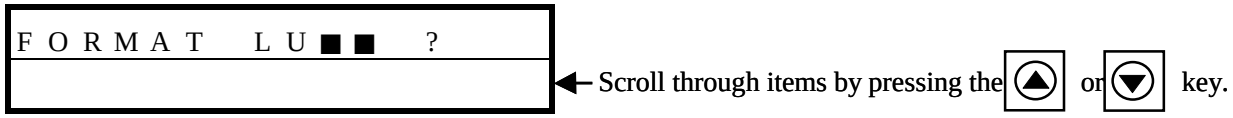
← Scroll through items by pressing the ▲ or ▼ key.

Contents of the second-line indication

No.	Item indicated	Function
1	(CANCEL)	Returns to the preceding menu (LU function selection menu).
2	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

②-4 Procedures for formatting the LU

(a) Panel display

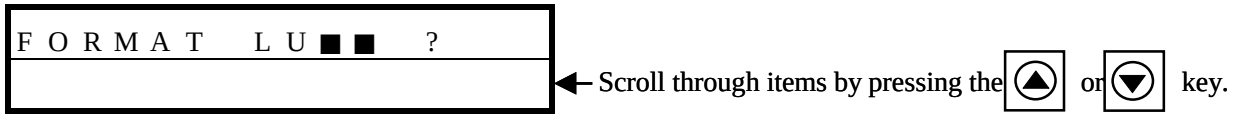


(b) Contents of the second-line indication

No.	Item indicated	Description
1	LU■■(▲▲) : FORM LU■■(▲▲) : UNFORM	Defined LU and its formatted status (FORM: Formatted, UNFOM: Unformatted) ■■ LU number, ▲▲ Target ID ("XX" is indicated when the target ID is not defined.)
2	(CANCEL)	Returns to the preceding menu (LU function selection menu).
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

(c) Key operation/miscellaneous

- When the LU to be formatted is selected, the following indication appears to prompt the confirmation before actually formatting the LU:



Contents of the second-line indication

No.	Item indicated	Function
1	YES	Formats the LU.
2	(CANCEL)	Does not format the LU but returns to the preceding (LU selection) screen.
3	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

- When confirmation on formatting is received, the following indication appears to indicate that the formatting is being executed:

- When the formatting is completed, the following indication appears:

Contents of the second-line indication

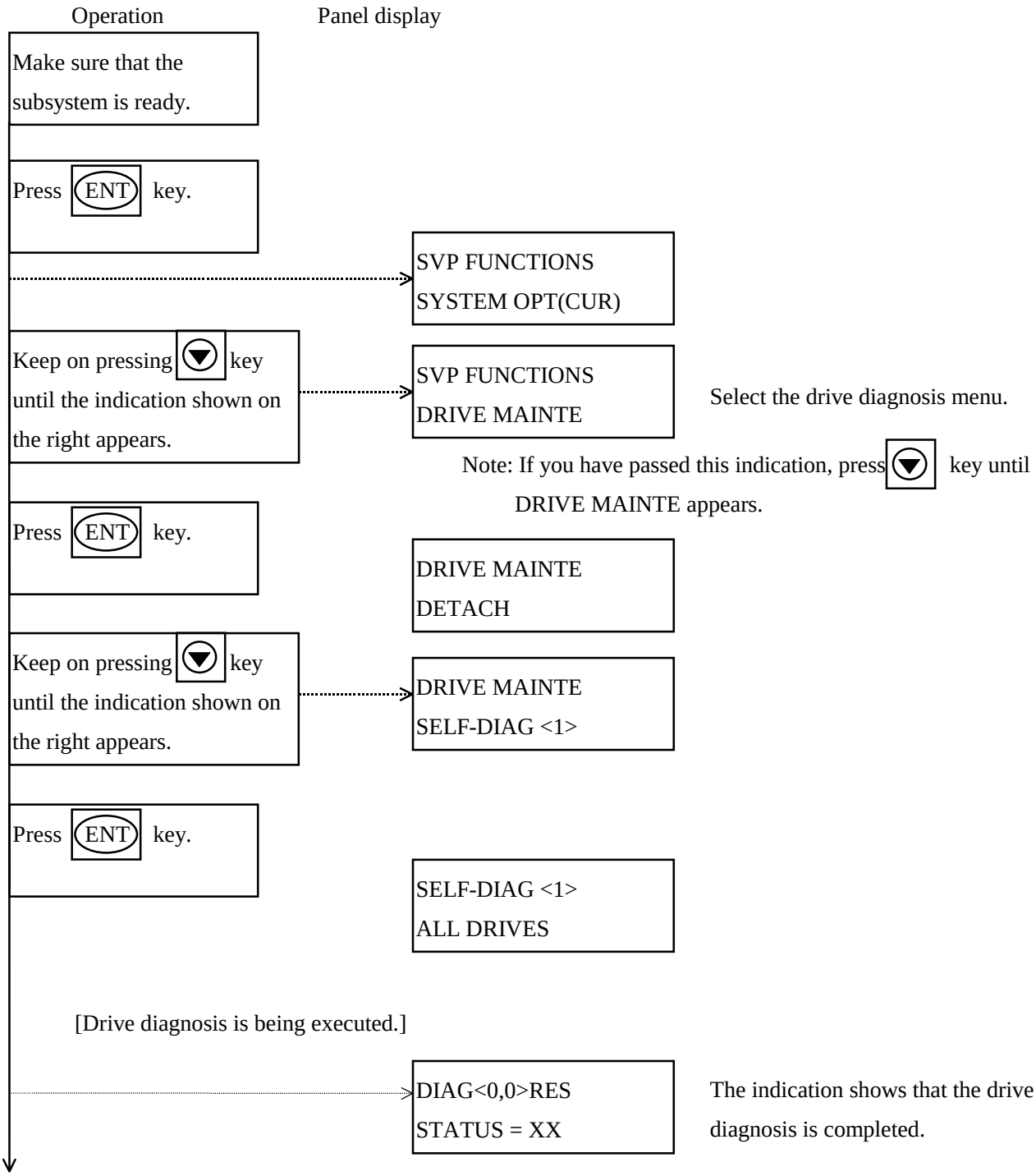
No.	Item indicated	Function
1	(CANCEL)	Returns to the preceding (LU function selection) screen.
2	(TERMINATE SVP)	Terminates the SVP operation from the service panel.

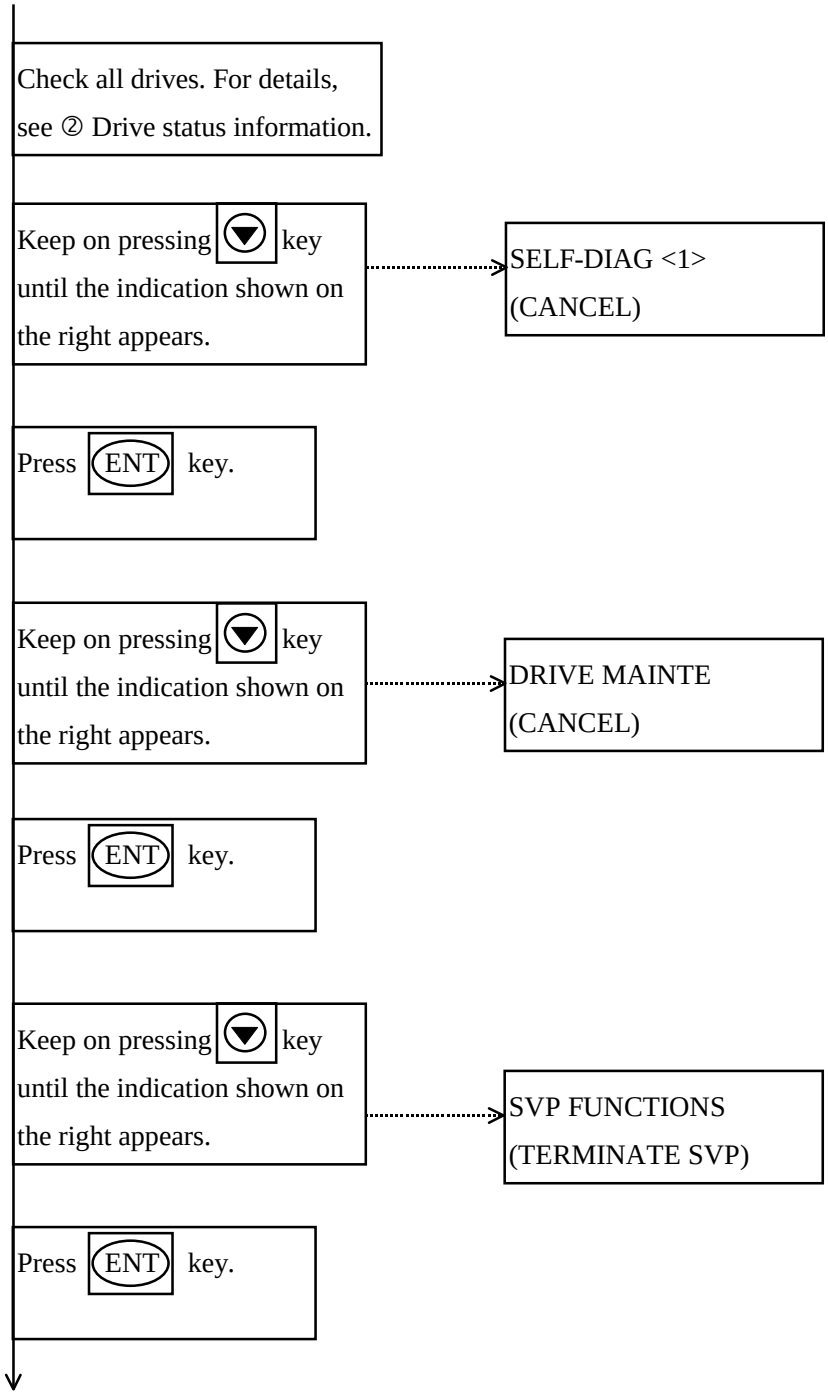
Note: Execute LU formatting for each LU that has been set.

4.8 Checking the offline operation.

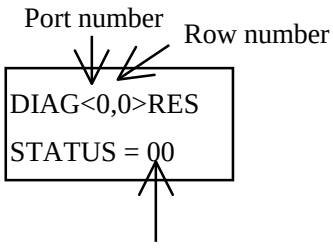
Follow the procedure described below to check the offline operation.

1. Make sure that the power is on.
2. After opening the front cover, execute the drive diagnosis using the LCD and the ten key as instructed below, and make sure that the diagnosis is terminated normally on each of all drives.

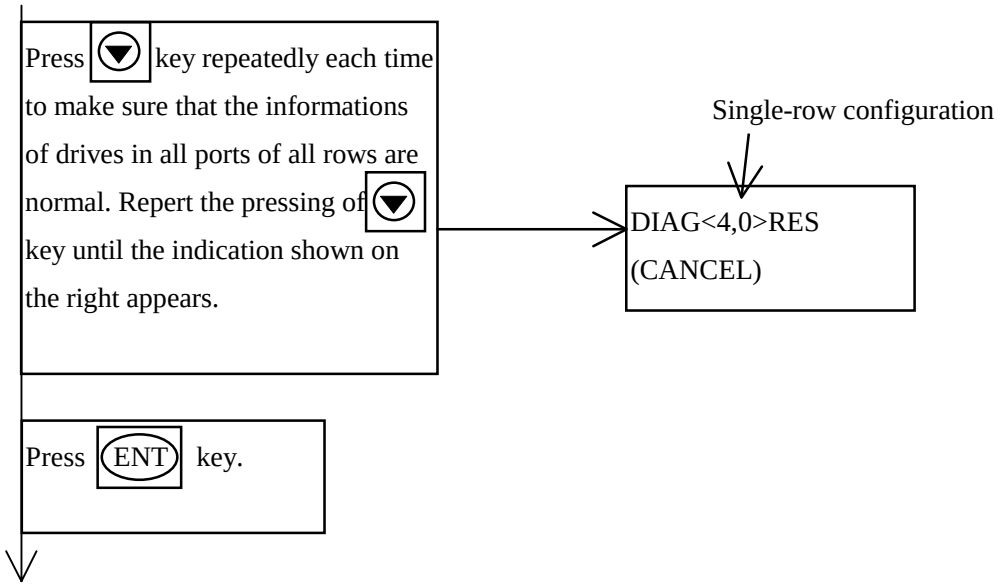




② Drive status information



	Status information	Description
Normal	STATUS = 00	
Abnormal	STATUS = 02	Drive Check Condition
	STATUS = 22	Drive I/F Time Out
	STATUS = 80	Hardware Error



3. Turn off the main switch to make sure that power can be turned off normally.

4.9 Connecting the Host SCSI Cable

1. Connect the SCSI cable and set the terminator according to the examples of the system construction (See Figure 4.9.1 and 4.9.2)

SCSI IN	: Connects the SCSI cable from the host or from the SCSI OUT of the other SCSI unit.
SCSI OUT	: Connects the SCSI cable to the terminator or the other SCSI unit.

*1 The opposite combination of SCSI OUT and SCSI IN(upper side : SCSI IN, lower side : SCSI OUT) can also be used.

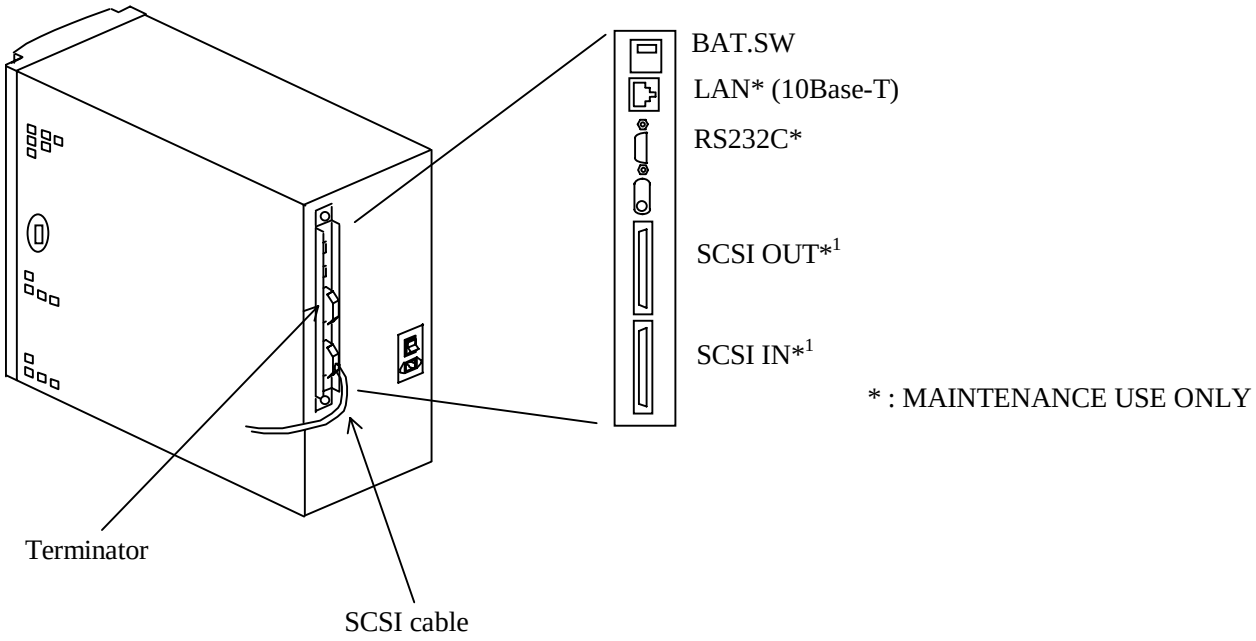


Figure 4.9.1 SCSI cable connection

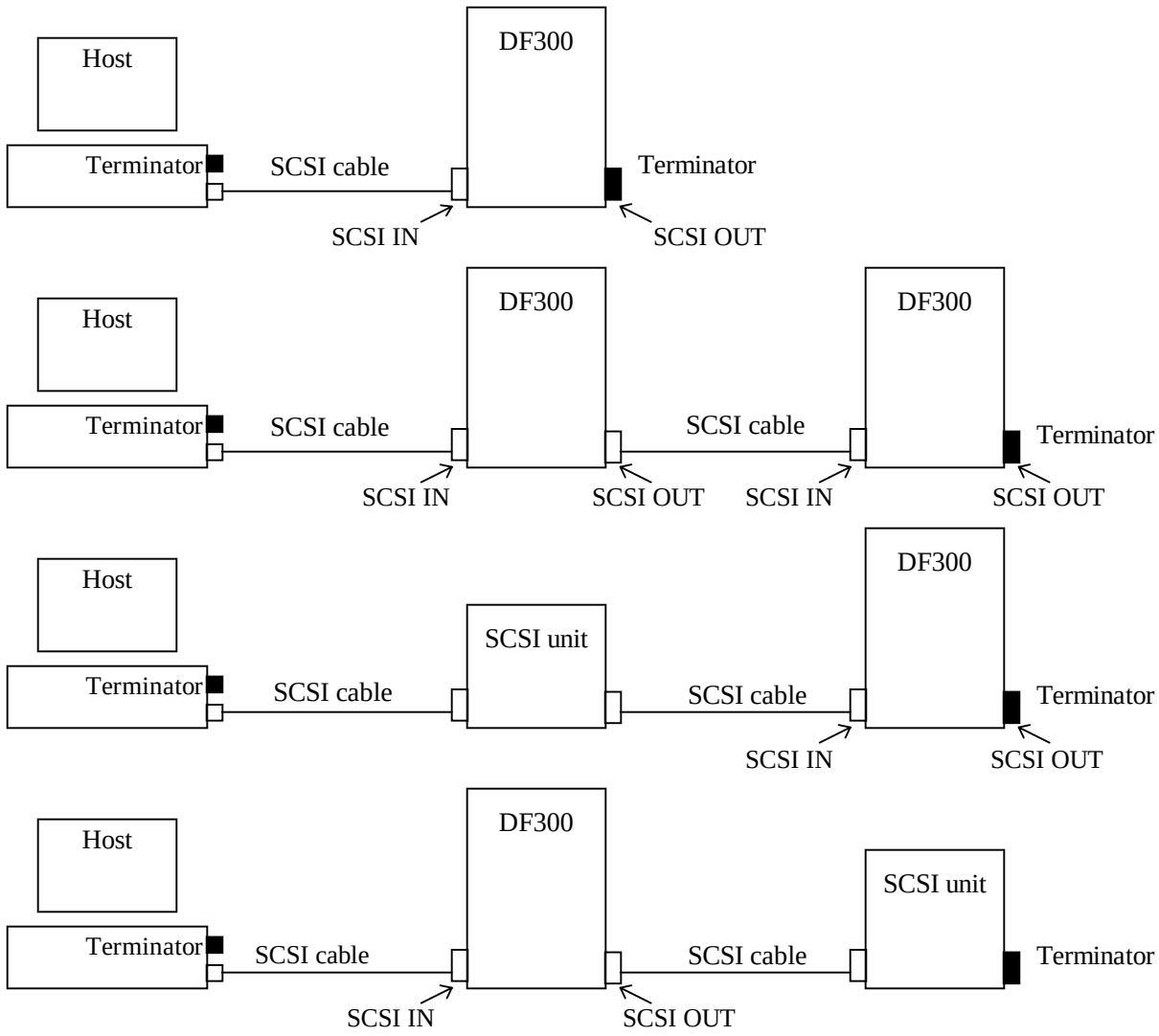


Figure 4.9.2 System construction

5. Installing the Optional Features

5.1 Installing a CACHE ASSY

Adding a cache on the CTL ASSY will increase its its capacity. The cache capacity is expandable up to 64 Mbytes by adding an 8-, 16-, 32-Mbytes CACHE ASSY.

Note1) When the cache assemblies are to be inserted into the cache slots, add them in the order of cache slots

#0 and #1.

(1) Tools

Phillips screwdriver (no. 2)

(2) Procedures

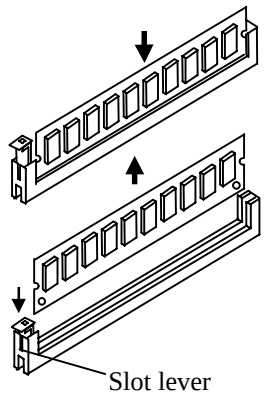
1. Turn off the power according to the procedures of " Parts Replacement 2.1(1) ".

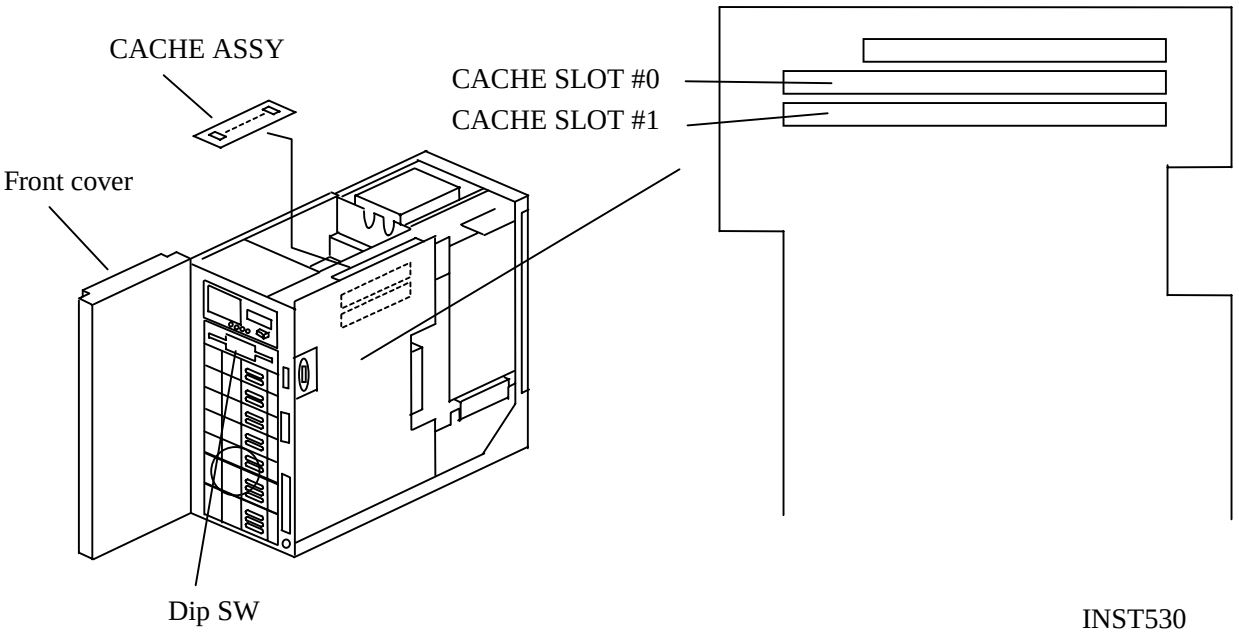
(Note : If you don't turn off the power normally, user data will get into danger of data lost. So never fail to follow the procedures).

2. Remove the cover. (See Subsection 4.2.2.)
3. Add or replace the CACHE ASSY.
4. Attach the cover. (See Subsection 4.2.2.)
5. Set Dip SW 4,6.
6. Change the configuration information.
   (SeeSHEET NO.17)
7. Set Dip SW 4,6. as a normal condition.
   (See Figure 4.7.1)
8. Close the front cover. (See Subsection 4.2.1.)

Installation
Hold by both edges and push it in.

Removing
Push the slot levers,grasp by both edges and pull up.





5.2 Installing a Redundant AC/DC Power Supply

⚠ Warning

Only the maintenance personal should operate this maintenance.

The operation by the user is prohibited absolutely.

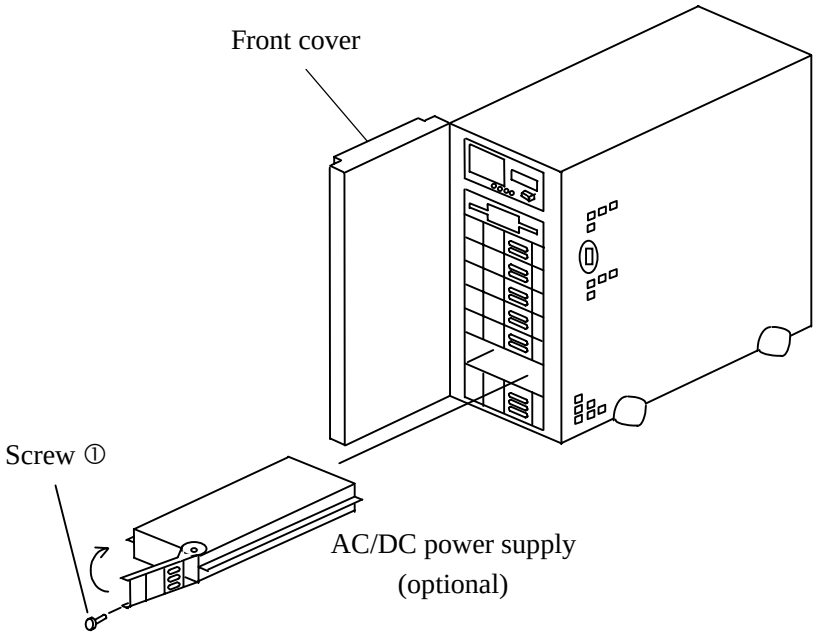
Using a redundant AC/DC power supply will allow the unit to continue operations if the basic AC/DC power supply fails.

(1) Tools

Not required

(2) Procedures

1. Turn off the power according to the procedures of " Parts Replacement 2.1(1) ".
   (not indispensable, but recommanded to do)
   (Note : If you don't turn off the power normally, user data will get into danger of data lost. So never fail to follow the procedures).
2. Open the front cover. (See Subsection 4.2.1.)
3. Insert the redundant AC/DC power supply into the specified location. Press the handle in the direction of an arrow (→).
4. Tighten the screw ①.
5. Close the front cover. (See Subsection 4.2.1.)
6. Press the "1" side of the main switch.
7. Verify the normal operation by the lighting of the LED (green).



5.3 Installing a LAN ASSY

(1) Tools

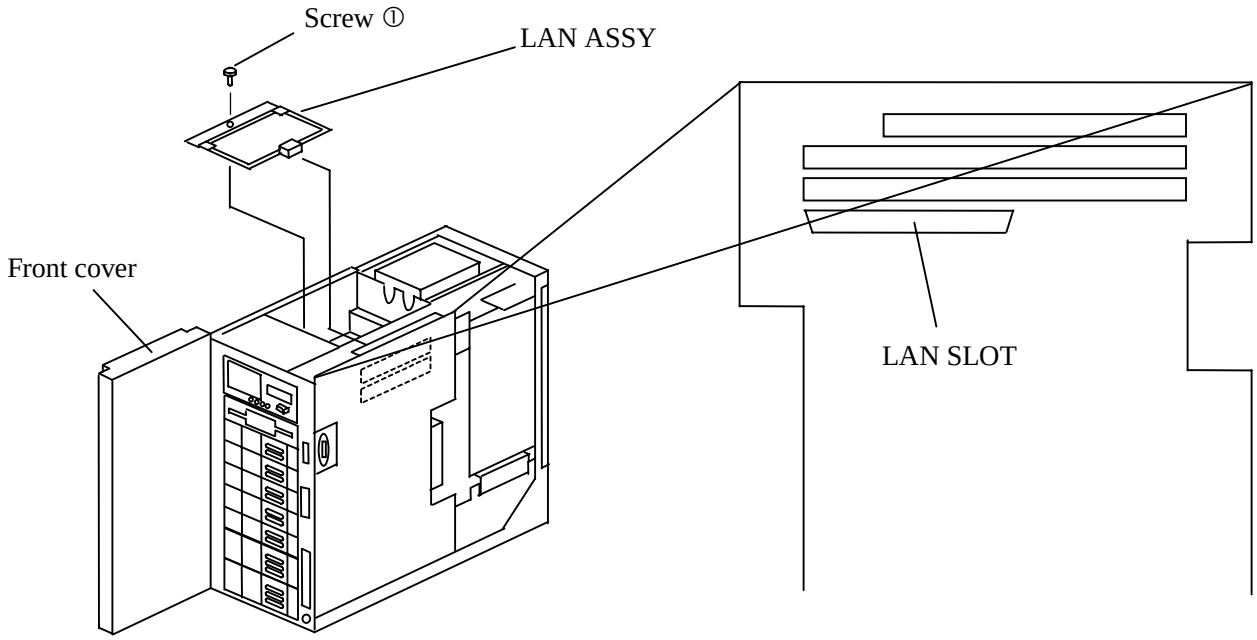
Philips screwdriver(No.2)

(2) Procedures

1. Turn off the power according to the procedures of " Parts Replacement 2.1(1) ".

(Note : If you don't turn off the power normally, user data will get into danger of data lost. So never fail to follow the procedures).

2. Remove the cover. (See Subsection 4.2.2.)
3. Install the LAN ASSY in the CTL ASSY and fix it to the frame with a screw ① (M3 ×5 bind screw).
4. Attach the cover. (See Subsection 4.2.2.)
5. Set Dip SW 4,6.(See Figure 5.1)
6. Change the configuration information.(See next page.)
7. Set Dip SW 4,6. as a normal condition.(See Figure 4.7.2)
7. Close the front cover. (See Subsection 4.2.1.)



① Setting of LAN connection

(a) Panel display

C O N N E C T L A N

← The display is changed by using the keys [↑] and [↓] of the ten-key pad.

↑

Display start position ×2 (The content which is set at present is displayed.
A * mark is displayed at the beginning of the content which is set at present.)

(b) Displayed content

#	Displayed message	Description
1	CONNECT	Connected to LAN
2	NOT CONNECT	Not connected to LAN

② Setting of IP address

(a) Panel display

I P A D D R E S S ? ? ? . ? ? ? . ? ? ? . ? ? ?

← A symbol "???" indicates a current value. (000 to 255)

(b) Keying and others

1. The cursor display position can be changed by using the keys [←] and [→].
2. "." is skipped both during cursor movement and at the time of input.
3. Each input must be left-justified for each "." with zeros added at the head.
4. The input value is determined by pressing the return (enter) key.
5. When the input value is not correct, the current value is restored and displayed again.
6. When the input value is set, the screen is returned to the initial menu selection.

DF300 Disk Subsystem

Desktop Type

Maintenance Section

HITACHI

REVISION CONTROL LIST

Correction Code AD : **Added** CH : **Changed** CR : **Corrected** DL : **Deleted**

REV.	Date	DRW.	CHKD.	APPD.	Sheet No.	Description	Code
0	Jul.13.'95	K.Numata	M.Sato	H.Iwasaki	All	Issued	
1	Sep.29.'95	K.Numata	M.Sato	H.Iwasaki	6	Note	AD
2	Mar.15,'96	A.Kano			6	(1) 1, 2 and 3	CH
					10	Table; STATUS = 08, 10, 20 and 21	DL

1. Periodic Maintenance

The periodic maintenance items of the subsystem are shown in Table 1.

Table 1. Periodic Maintenance Items

No.	Operation item	Frequency	Standard operation time	Reference to
1	Check of Fans	Once/year	5 minutes	Item 2
2	Cleaning the Front cover and the Rear Panel	Once/year*	5 minutes	Item 3
3	Replacement of the Battery	Once/2 years	20 minutes	Item 4
4	Confirmation of off-line operation	Once/year	5 minutes	Item 5

* : Clean the front cover periodically depending on the environmental condition of the customer.

2. Check of Fans

<Check of the Fan ASSY>

1. Make sure that the fan on the back of the subsystem are rotating.

<Check of the Power unit Fan>

1. Make sure that the Power unit Fan on the back of the subsystem is rotating.

<Check of the In Box Fan>

1. Make sure that the In Box Fan on the back of the subsystem is rotating.

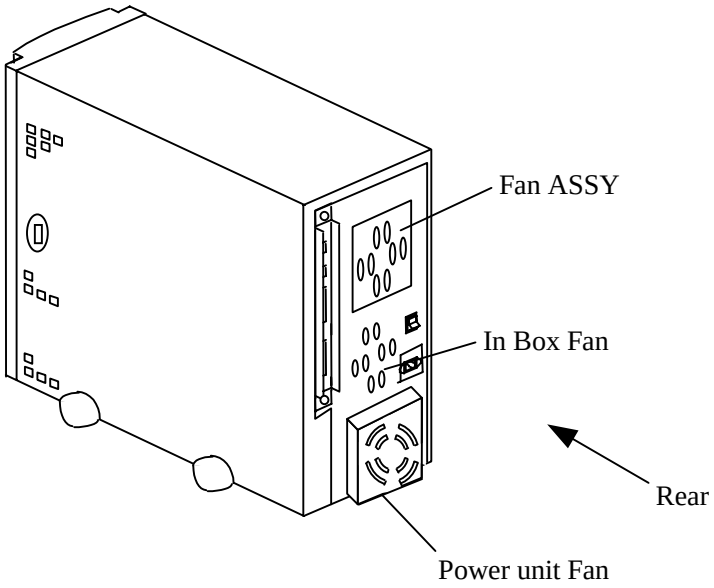


Figure 2 Check of Fans

3. Cleaning the Front cover and the Rear Panel

1. Clean the outer surface of the front cover.
2. Operate the key and pull the right side of the front cover toward you to open it.
3. Clean the inside of the front cover.
4. Slowly press the front cover toward the opposite side gently and operate the key to close it.
5. Clean the back of the subsystem.

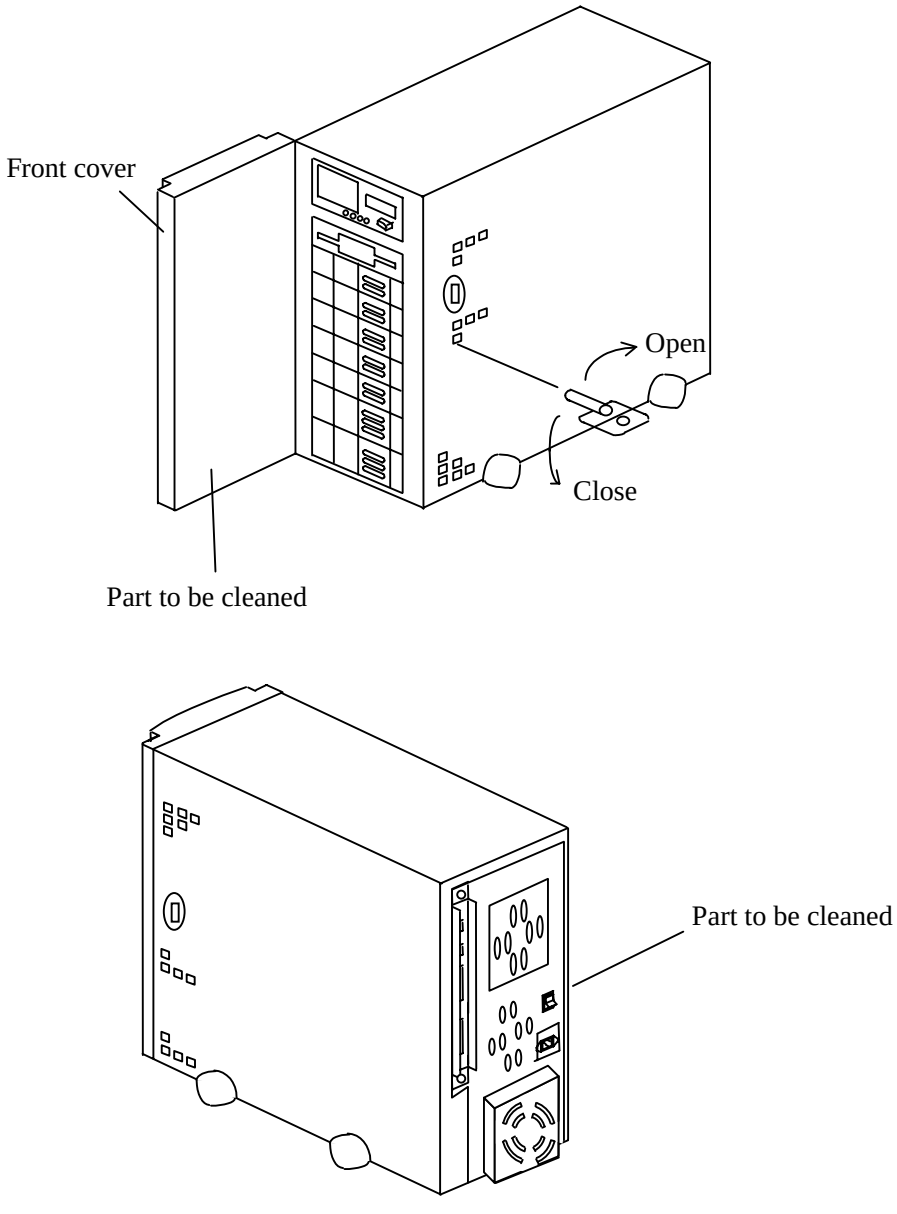


Figure 3 Cleaning the Front cover and the Rear Panel

4. Replacement of the Battery

Tool : Philips screwdriver (No.2)

(1) Removal procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Open the front cover. (See Subsection 3.1 of "Parts Replacement".)
3. Remove the I/F ADAPTER ASSY. (See Subsection 10 of "Parts Replacement".)
4. Remove the cover. (See Subsection 3.2 of "Parts Replacement of the DF300 desktop type".)
5. Remove the connector (P130) from the battery.
6. Pull up and remove the battery.

(2) Reinstallation procedures

1. Reinstall the battery in the reverse order of removal.

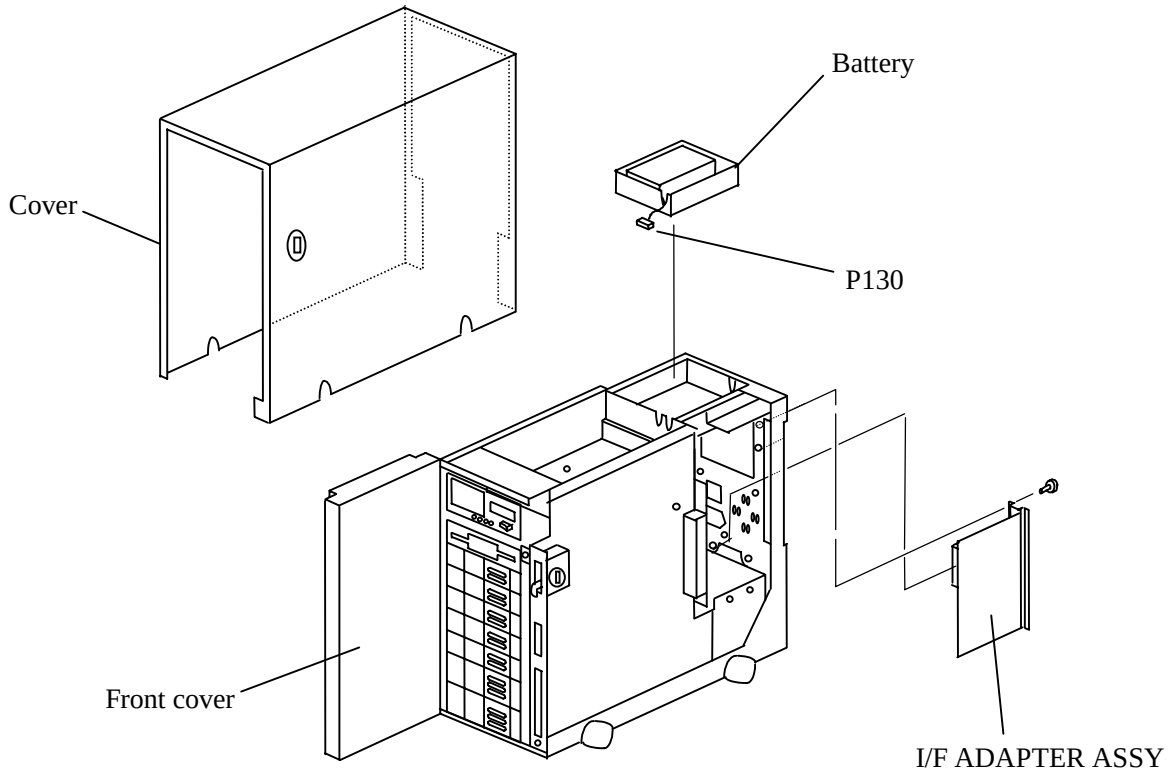


Figure 4 Replacement of the Battery

Note) The lead-acid battery is a precious resource which can be recycled.

When a part is to be replaced or a used product is to be discarded, take out the lead-acid battery to get it

recycled.

5. Confirmation of Off-line Operation

(1) Make sure that the switch (on the back of the equipment) is off and connect the AC cable.

(2) Turn the AC power on.

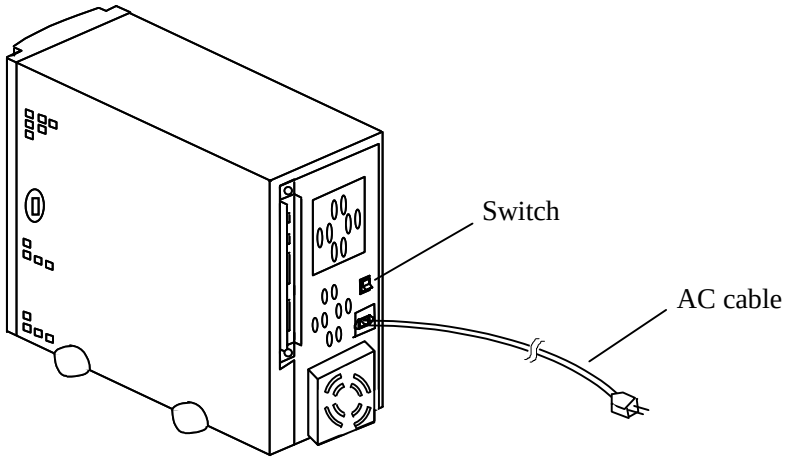


Figure 5.1 Connection of the AC cable

(3) Make sure that the battery power switch on the back of the subsystem is off and the main switch is also off, then turn the switch (on the back of the subsystem) on.

(4) Open the front cover and make sure that the DIP switches are all set to OFF (to the upper position).

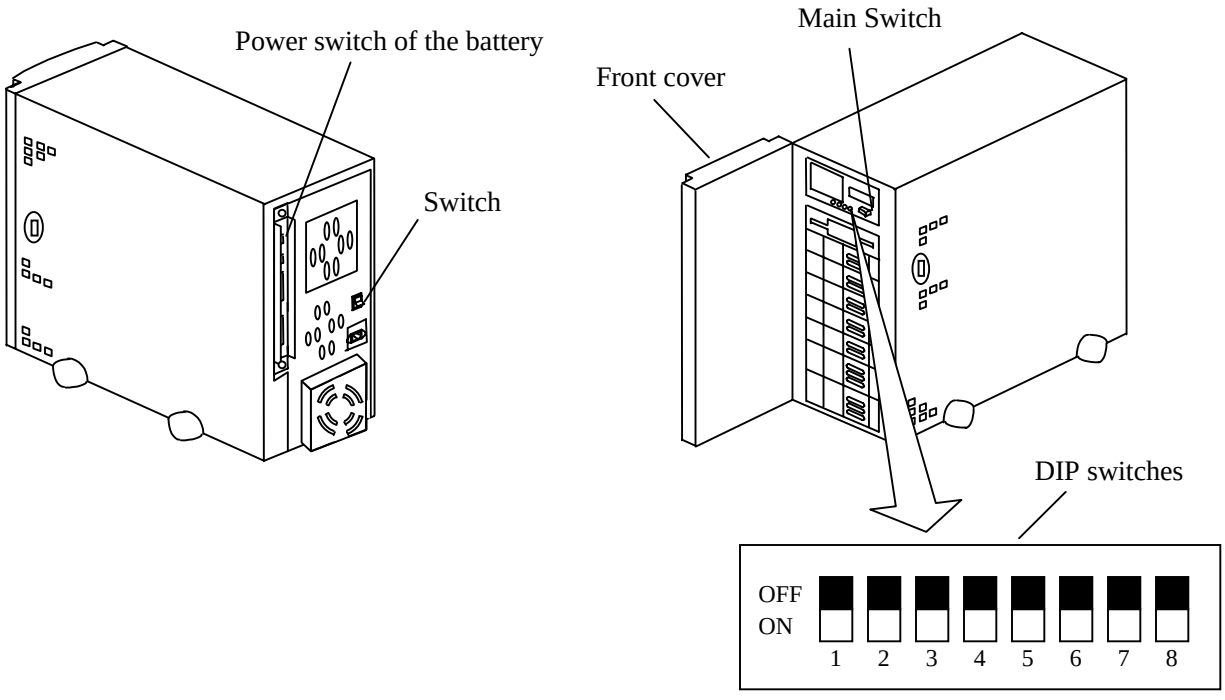


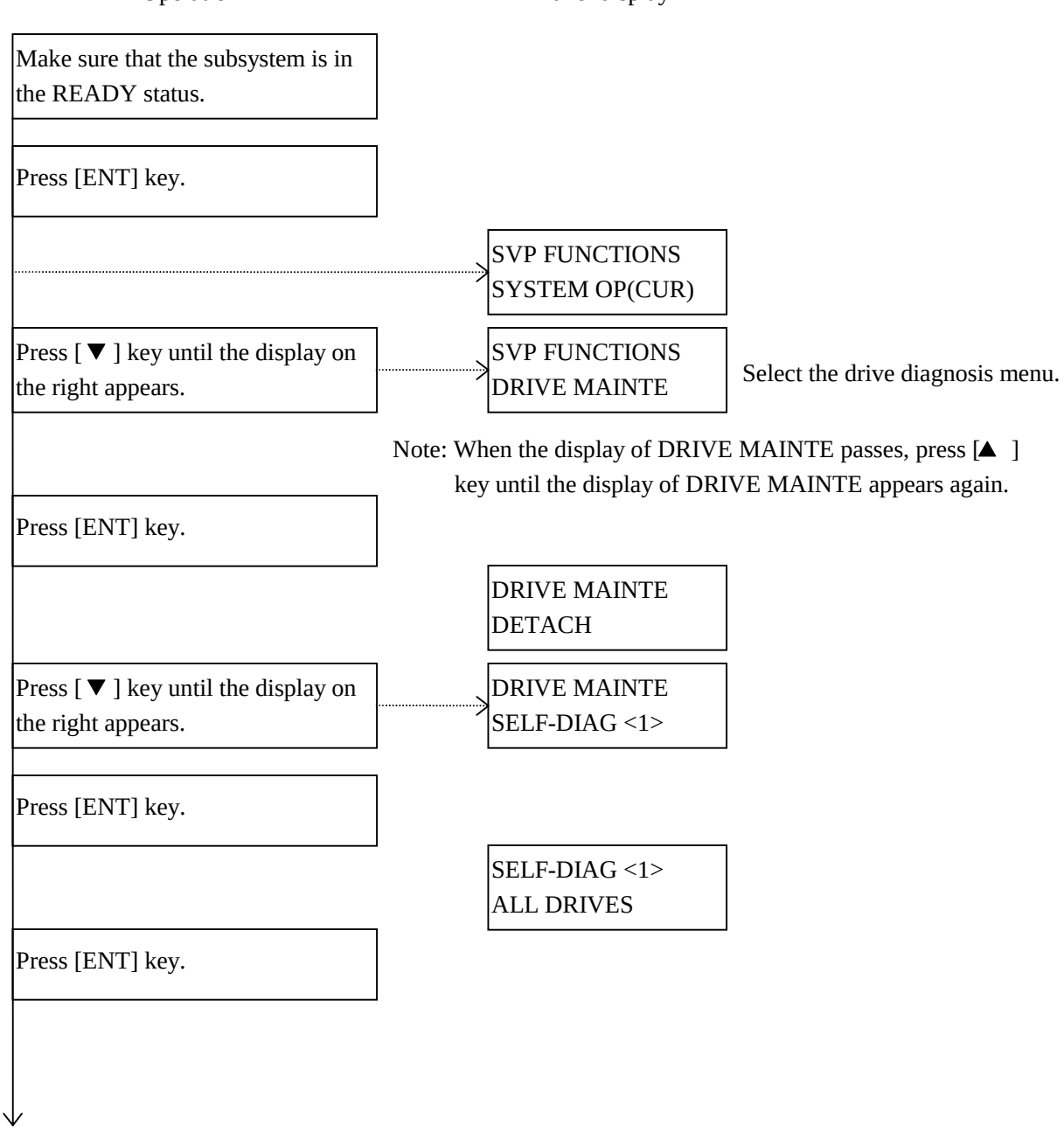
Figure 5.2 Setting of the DIP switches

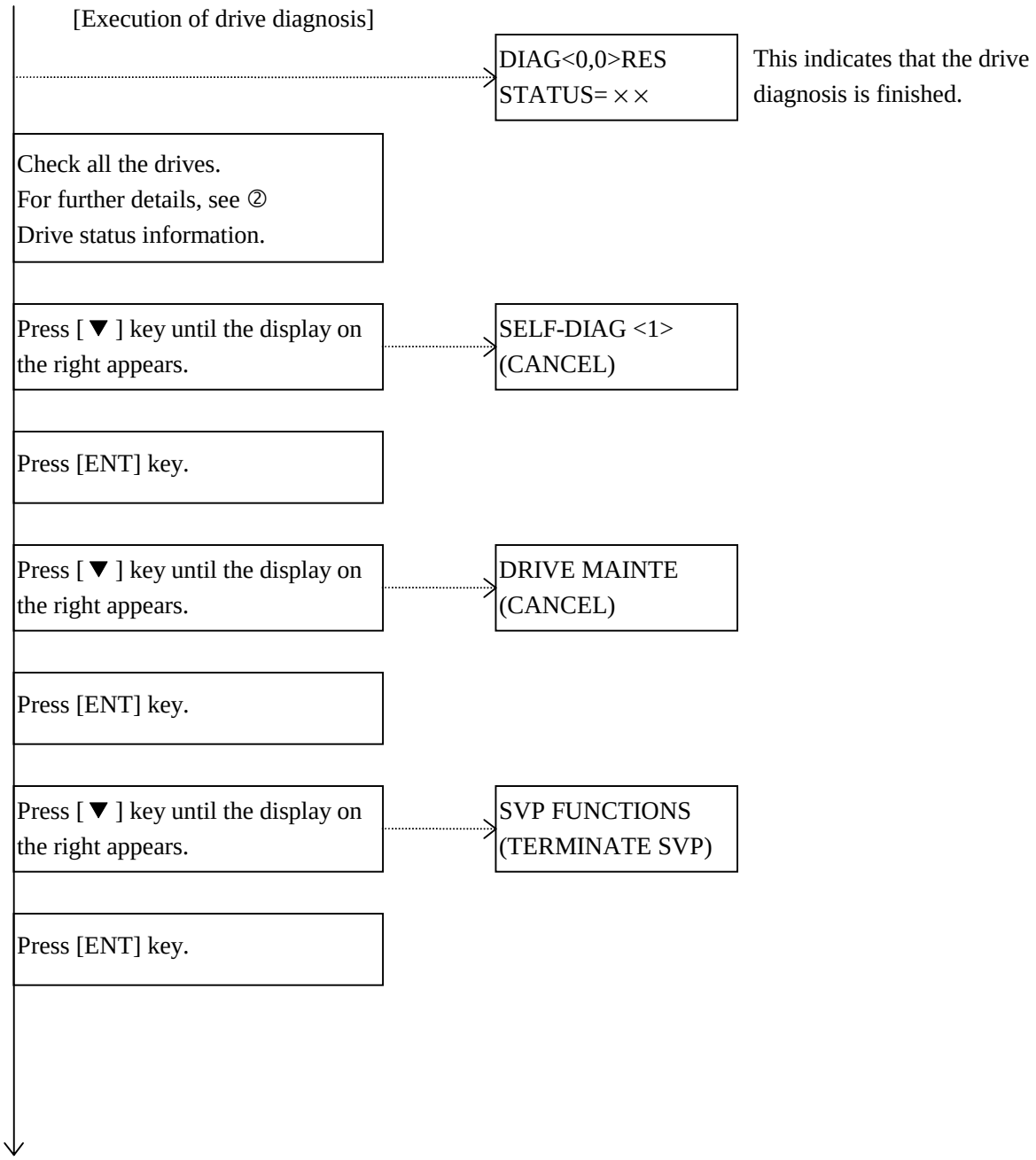
(5) Turn the main power switch on.

(6) Make sure that the subsystem enters the READY status after one to two minutes.
When the ALARM or WARNING LED turns on, refer to "Error Display".

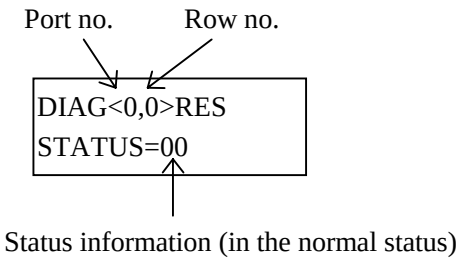
(7) Diagnose all the drives according to the procedures described below and make sure that the operations of all drives terminate normally.

① Operate the subsystem according to the procedures described below.

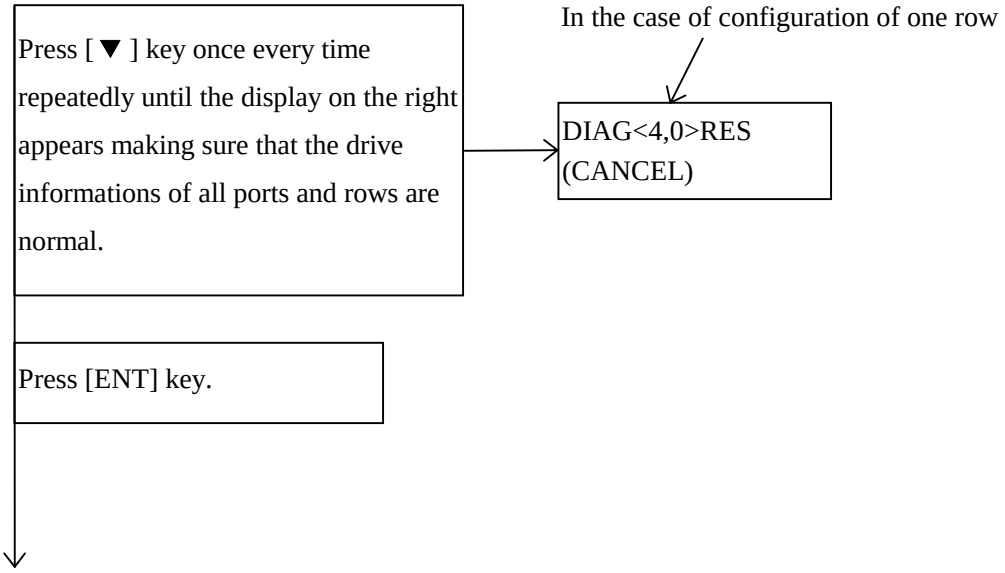




- Drive status information



	Status information	Description
Normal status	STATUS = 00	
Abnormal status	STATUS = 02	Drive Check Condition
	STATUS = 22	Drive I/F Time Out
	STATUS = 80	Hardware Error



(8) Turn the main power switch off and make sure that the power can be turned off properly.

DF300 Disk Subsystem

Desktop Type

Parts Replacement

HITACHI

CHG010

K6600930	SHEET NO.	REV NO.	3
	90/26	Mar.15.'96	

DF300 Disk Subsystem (Desktop Type) Parts Replacement

REVISION CONTROL LIST

Correction Code AD : **Added** CH : **Changed** CR : **Corrected** DL : **Deleted**

REV.	Date	DRW.	CHKD.	APPD.	Sheet No.	Description	Code
0	Jul.12.'95	K.Numata	M.Sato	H.Iwasaki	All	Issued	
1	Aug.4.'95	K.Numata	M.Sato	H.Iwasaki	15	screws① → screws	CR
						Figure 8 " ◀— "	AD
					19	Figure 12 "P200" → "FP2"	CR
					21	Slot#1/2 → Slot#0/1, SLOT#2 → SLOT#0	CR
2	Sep.29.'95	K.Numata	M.Sato	H.Iwasaki	5	Table	CH
					7	Note→⚠ **Caution**	CH
					12	6.1 (1), (2) → (1), (2)	CH
					13	6.2 (1), (2) → (3), (4)	CH
					13-1	(5), (6)	AD
					16	Note	AD
					21	(1)-6, 11	CH
3	Mar.15,'96	A.Kano			1	Sheet No.	CH
					3	4.1, 4.2, 15 and 16	AD
					5	Warning	AD
					6	All	CH
					6-1	All	AD
					8	Figure	CH
					9	All	CH
					9-1	All	AD
					12	(1) 1	CH
					13	(3) 1	DL
					13-1	(5) 1	CH
						(5) 2	AD
						(5) 6 and 7	DL
					14	(1) 1	CH
					15	(1) 1	CH
						(1) 2 and (2) 2 to 5	AD
						Figure 8; Moved to Sheet No. 15-1	CH
					15-1	Added to contain Figure 8 moved from Sheet No. 15.	AD

CHG020

REV.	Date	DRW.	CHKD.	APPD.	Sheet No.	Description	Code
3					17	(1) 1	CH
						Figure 10	CH
					17-1	All	AD
					18	(1) 1	CH
					19	(1) 1	CH
					20	(1) 1	CH
					21	(1) 1	CH
					22	Page No.	CH
					23	All	AD
					24	All	AD
					25	All	AD
					26	All	AD

1. Mechanical Construction

Figure 1 shows mechanical construction and main part locations of this subsystem

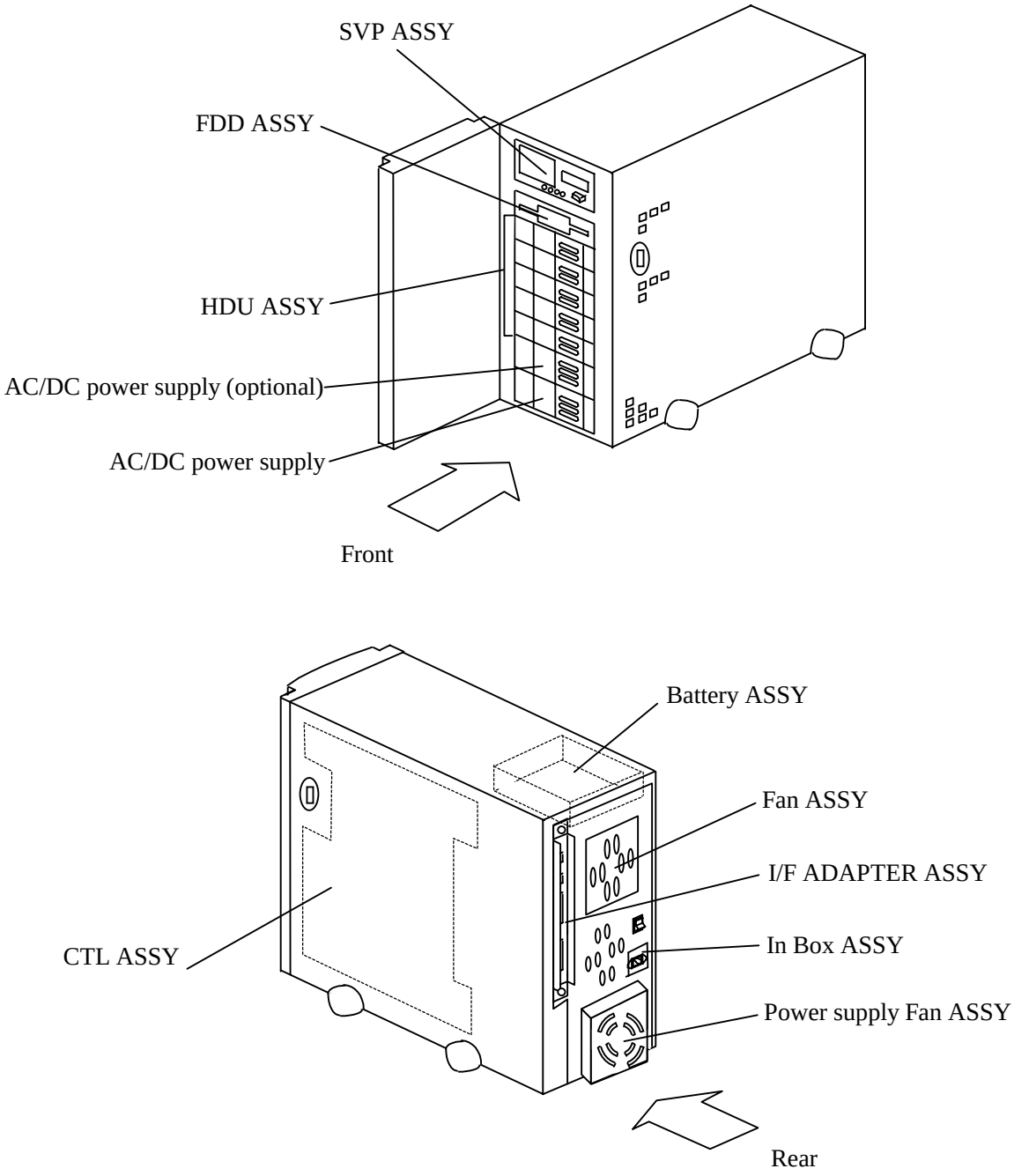


Figure 1 Mechanical Construction and Main Part Locations of DF300 Disk Subsystem(Desktop Type)

2. Maintenance Procedures

(1) Turning power on/off when replacing parts Follow the procedures described in the table below for replacing each part.

No.	Product name	Drawing No.	Model	Turning on/off power	
				Option not provided	Option provided
1	HDU ASSY (1GB1"H)	3243084-B	DF-F300-E2C1	②	
2	HDU ASSY (2GB1"H)	3243084-C	DF-F300-E2C2	②	
3	HDU ASSY (4GB1"H)	3243084-D	DF-F300-E2C4	②	
4	Fan ASSY	3243207-A	-	①	
5	Battery	3243208-A	-	①	
6	FDD ASSY	1504029-A	-	②	
7	CTL ASSY	1504029-A	-	①	
8	I/F ADAPTER ASSY (NS-pin-latch type)	3243212-A	DF-F300-DDNSL	①	
9	I/F ADAPTER ASSY (WS-pin-lock screw type)	3243212-D	DF-F300-DDWSS	①	
10	I/F ADAPTER ASSY (WD-pin-lock screw type)	3243212-C	DF-F300-DDWDS	①	
11	SVP ASSY	3243206-A	-	①	
12	AC/DC power supply	5486141-301	DF-F300-B1D	①	②
13	In Box ASSY	5486142-304	-	①	
14					

① Turning the power on/off (See Subsection 2.1.)

② Turning the power off is unnecessary.

All the HDUs in an array are usable. Turning the power off is unnecessary when no power is supplied to the parts and its related parts that are to be replaced.

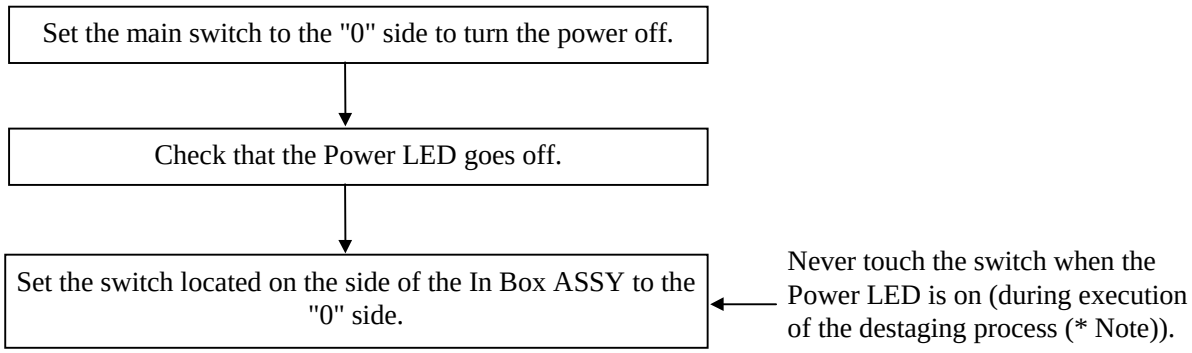
* Note: When a part which requires to turn the power off or on for replacement (marked with ①) is to be replaced, turn the power off correctly according to the instruction in Section 2.1 beforehand. Otherwise, there is a risk that the user data is destroyed.

⚠ Caution

Make sure to avoid switch malfunction or short-circuit caused by the screwdriver coming in contact with the electrically active parts during parts replacement work.

2.1 Turning Power On/Off Each String

(1) Turning the power off



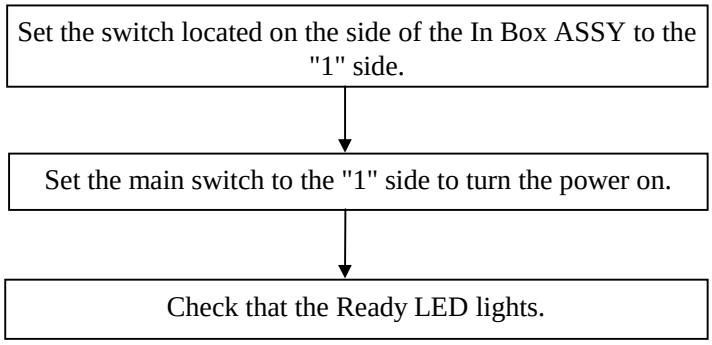
* Note:

The cache memory installed in this subsystem is controlled with a write-after method. When turning off the power, the subsystem automatically writes all the data left unwritten to the hard disk drive. (This operation is called a destaging.) The subsystem turns off the power when this process is completed. When the power is turned off according to the power failure or by the operation of the breaker, the destaging can not be performed. In this case, the subsystem enters the mode of memory backup by the battery to secure the data.

When the subsystem is left as it is in this backup mode, there is a risk that the battery is discharged and the user data is lost. Therefore, be sure to follow the power-off procedure explained above.

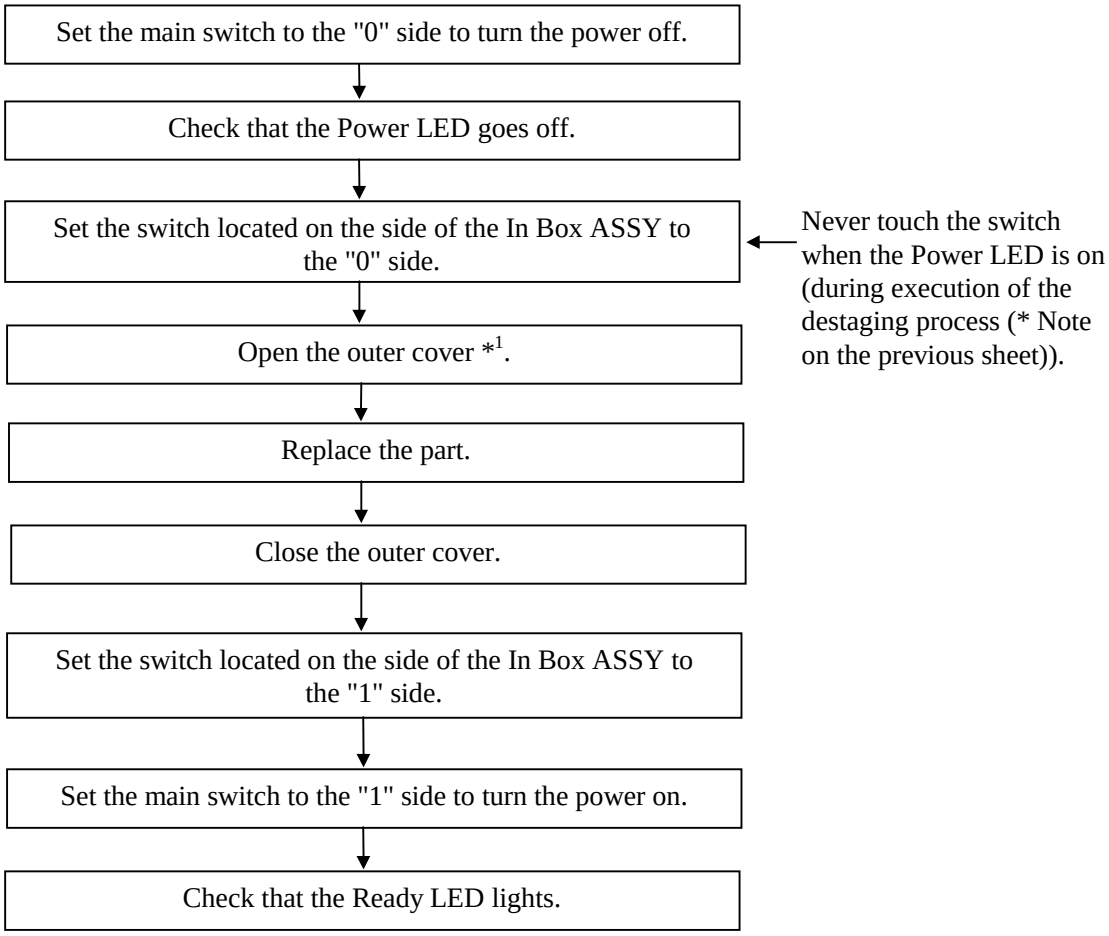
If the breaker is turned off due to power failure or by mistake before the Power LED goes off, turn the power on again according to Item (2), "Turning the power on" promptly and then execute the power-off procedure explained above.

(2) Turning the power on

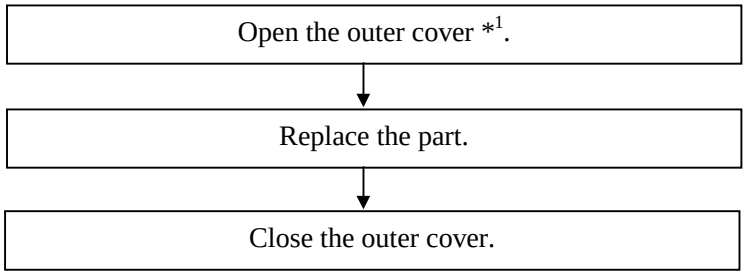


2.2 Part Replacement Procedures

(1) ① When turning power off and on is required



(2) ② When turning power off is not required



*1 Outer cover: The replacement procedure varies with the replacement portion. Refer to the corresponding replacement procedure.

3. Opening/Closing the Front Cover and Removing/Reinstalling the Cover

3.1 Opening/Closing the Front Cover

(1) Procedures of opening and closing(See Figure 3.1.)

1. Insert the key attached to the subsystem into the key hole and turn it to the direction of an arrow (counterclockwise). Then, open the front cover gently.
2. When closing, gently close the front cover. Then, turn the key to the direction of an arrow(clockwise)

⚠ Caution

Open/close the front cover gently to avoid subjecting the subsystem to any impact since it has precision components.

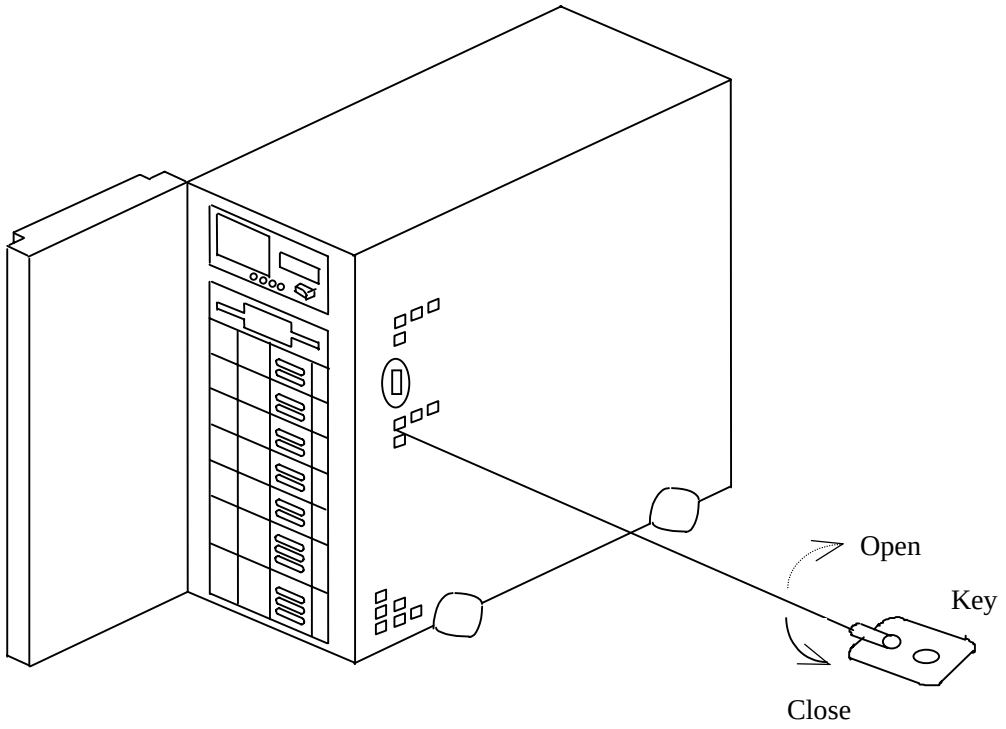


Figure 3.1 Opening/Closing of the Front Cover

3.2 Removing/Reinstalling the Cover

(1) Removal procedures (See Figure 3.2.)

1. Open the front cover. (See item 3.1.)
2. Remove the I/F ADAPTER ASSY. (See Subsection 10.)
3. Loosen five screws ①.
4. Lift up the cover and remove it.

(2) Reinstallation procedure

1. Reverse the removal procedures to reinstall the cover.

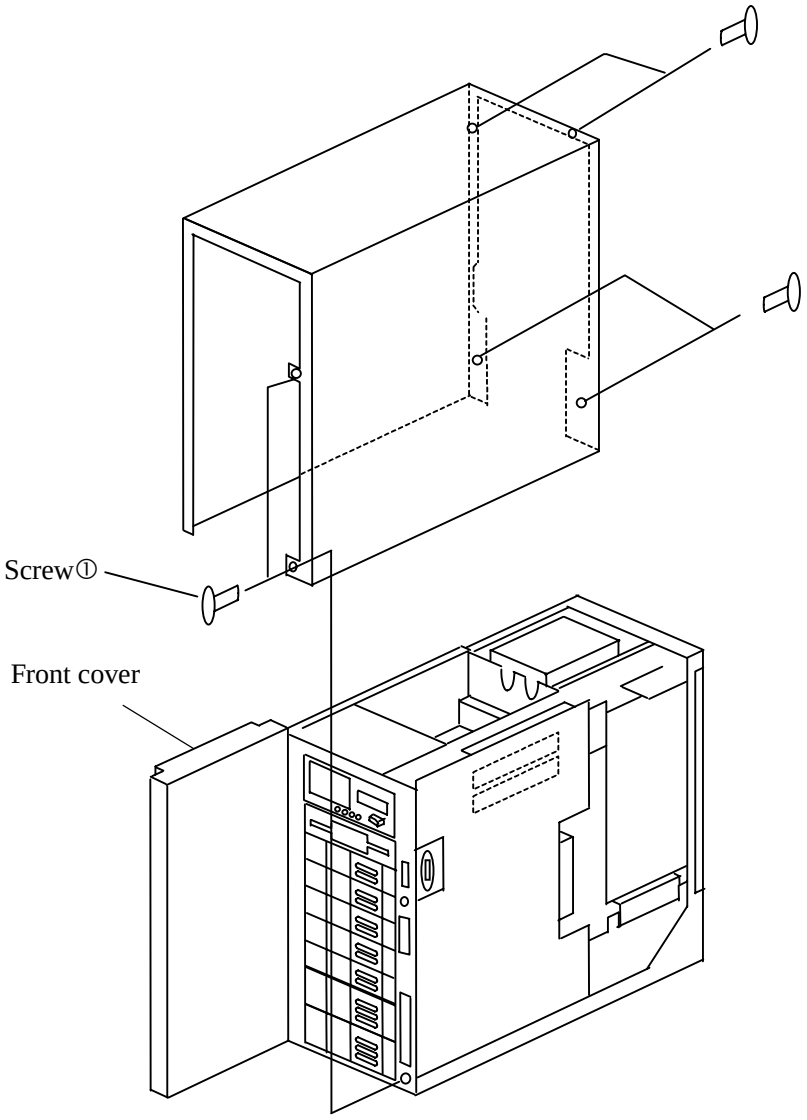


Figure 3.2 Removal/Reinstallation of the Front Cover

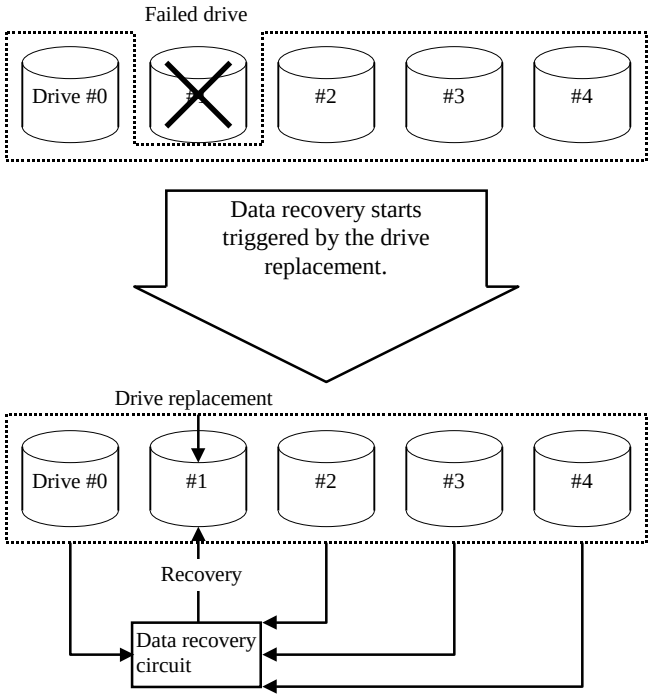
4. Replacing HDU ASSY

4.1 Procedures of Data Recovery and HDU ASSY Replacement when No Spare Disk Is Provided

4.1.1 Data recovery procedure

When a replacement drive is inserted in the drive mounting location where a failure occurred as shown in the drawing below when no spare disk is provided, data recovery of the drive is automatically executed. For specific drive demounting and mounting procedures, see Section 4.3, " HDU ASSY Replacement Procedure" and for panel display at the time of data recovery, see Section 4.1.2.

Note: When DRIVE MAINTE (RECOVER STATUS) is selected from the panel during data recovery, the progress rate (%) of the data recovery at the moment can be confirmed (to confirm the progress rate again, return the screen to the previous one and then select DRIVE MAINTE again).



The operation is continued by the drives enclosed by ⬚ in the regressed state.

When the data recovery is completed, the operation is performed by the drives enclosed by ⬚ in the state in which the regression is released.

In the following cases, the data recovery will not start automatically. An action to start the data recovery is required.

① When the drive recovery mode is set to "Manual start", the data recovery will not start automatically even if the drive is replaced.
If this occurs, it is necessary to instruct recovery from the panel. (For further details, refer to the Hitachi Disk Array Subsystem Panel Operation Manual.)

② When there are plural drives in which failures occurred, if the second faulty drive is replaced during data recovery of the first drive, the data recovery of the second drive will not start automatically.
If this occurs, it is necessary to remove and insert the second drive again after the data recovery for the first drive is completed. Or, it is necessary to instruct recovery from the panel. Select " DRIVE MAINTE (RECOVER STATUS) " and make sure that data recovery is completed normally.

4.1.2 Transition of panel display

100DXY SYS-CP-XY: Start of system area recovery

100EXY SYSRCV-XY: Completion of system area recovery

1010XY RCV-ST-XY: Start of data area recovery

1005XY DRVRCV-XY: Completion of drive recovery

1011XY RCVEND-XY: Completion of data area recovery

Note: Symbols X and Y indicated above represent the following.

X indicates port no., Y indicates row no., and XY indicates the location of the drive under recovery.

4.1.3 Confirming completion of data recovery

Select DRIVE MAINTE (RECOVER STATUS) from the panel and make sure that the data recovery is completed normally (COMP).

4.1.4 When the data recovery fails (1012XY RCVFLT-XY)

Select RECV ERR INFO from the panel and locate the faulty portion.

(1) Data recovery onto the replacement drive

(a) When the faulty portion is the replacement drive (PORTX, ROWY)

1. Replace the drive again.
2. Make sure that the data recovery is completed normally (COMP).

(b) When the faulty portion is other than the replacement drive

1. Remove and insert the replacement drive and start data recovery again.
2. Check that the data recovery is completed normally (COMP). When the data recovery is completed abnormally, it is a double failure, which cannot be recovered. Ask for an instruction. When the data recovery is completed normally, remove the failed drive (causing the system to be regressed) and replace the drive.

4.2 HDU ASSY Replacement Procedure (See Figure 4.)

(1) Removing procedure

1. Open the front cover. (See Subsection 3.1.)
2. Make sure of the drive installing location of the message text DRVALM-XX (XX indicates the installing location) on the panel is correct and the ALARM lamp of the HDU ASSY is on.
3. Open the handle in the direction of the arrow (--->) and pull it out and remove the HDU ASSY.

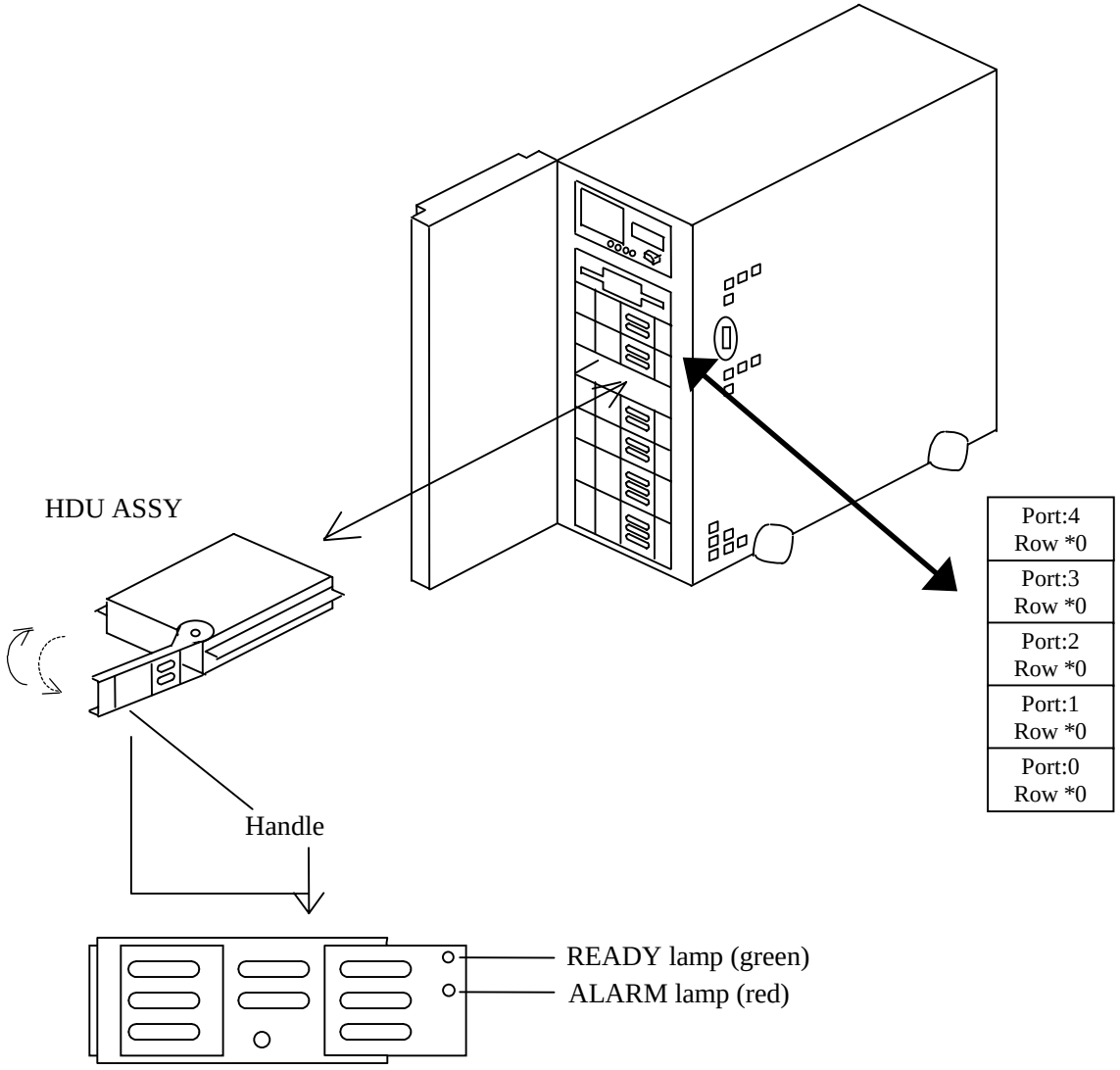
Note: Be sure to replace the HDU ASSY when the subsystem is in the ready state. (If the HDU assembly is replaced when the power of the subsystem is off, the data recovery operation will not start.)

(2) Installation procedure

1. Open the handle fully, insert the HDU ASSY in place, and rotate the handle in the direction of the arrow (->).

⚠ Caution

Do not subject the HDU ASSY to any impact or vibration since it is a precision component.



Front view of HDU ASSY

Figure 4. Replacement of HDU ASSY

5. Replacing FDD (See Figure 5.)

(1) Removing procedures

1. Open the front cover. (See Subsection 3.1.)
2. Loosen the thumbscrew and pull the FDD toward you to take out the FDD.

(2) Installation procedures

1. Hold and insert the FDD into the right place and tighten the thumbscrew.
2. Close the front cover. (See Subsection 3.1.)

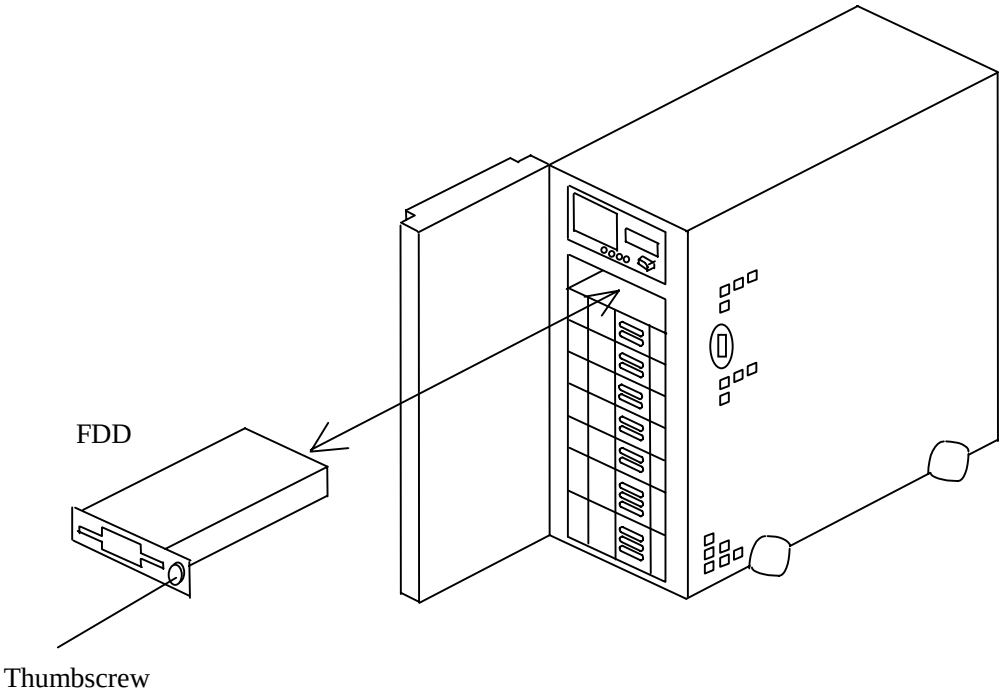


Figure 5 Replacement of FDD

6. Replacing the AC/DC Power Supply (See Figure 6.1~6.3)

Tool: Phillips screwdriver (no.2)

(1) Removing procedure for the system without the redundant power supply

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Open the front cover. (See Subsection 3.1.)
3. Loosen the screw ①. (See Figure 6.1)
4. Rotate the handle in the direction of the arrow (⇢) and take off the AC/DC power supply.

(2) Mounting procedure for the system without the redundant power supply

1. Insert the power supply in place with its handle in the open state and push it in the direction of the arrow (⟶).
2. Tighten the screw ①.
3. Close the front cover.
4. Turn the power on according to the power turning on procedure. (See Subsection 2.1.)

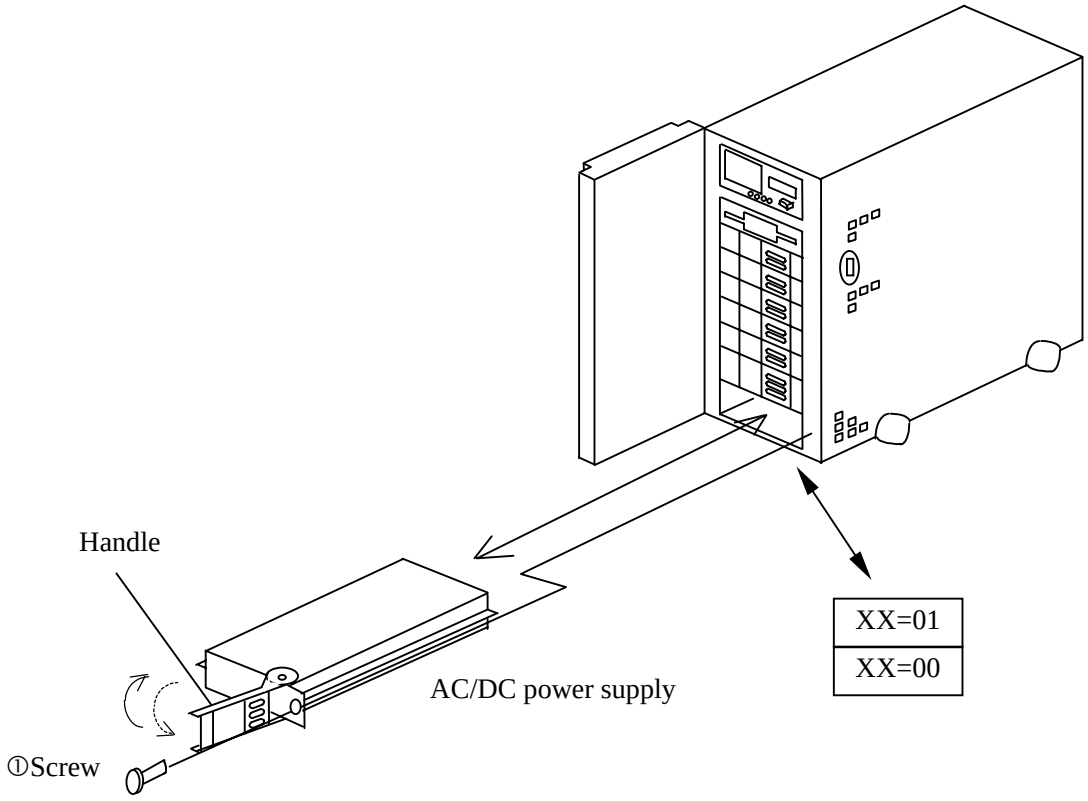


Figure 6.1 Replacement of the AC/DC Power Supply

(3) Removing procedure for the system with the redundant power supply

1. Open the front cover. (See Subsection 3.1.)
2. Loosen the screw ①.
3. Rotate the handle in the direction of the arrow (⇢) and take off the AC/DC power supply.

(4) Mounting procedure for the system with the redundant power supply

1. Insert the Power Supply in place in with its handle the open state and push it in the direction of the arrow (⟶).
2. Tighten the screw ①.
3. Close the front cover.

Note : If the equipment can be stopped, it is recommended to replace the power supply according to the procedures in Items (1) and (2) mentioned above for the case no redundant power supply is provided, even when a redundant power supply is provided.

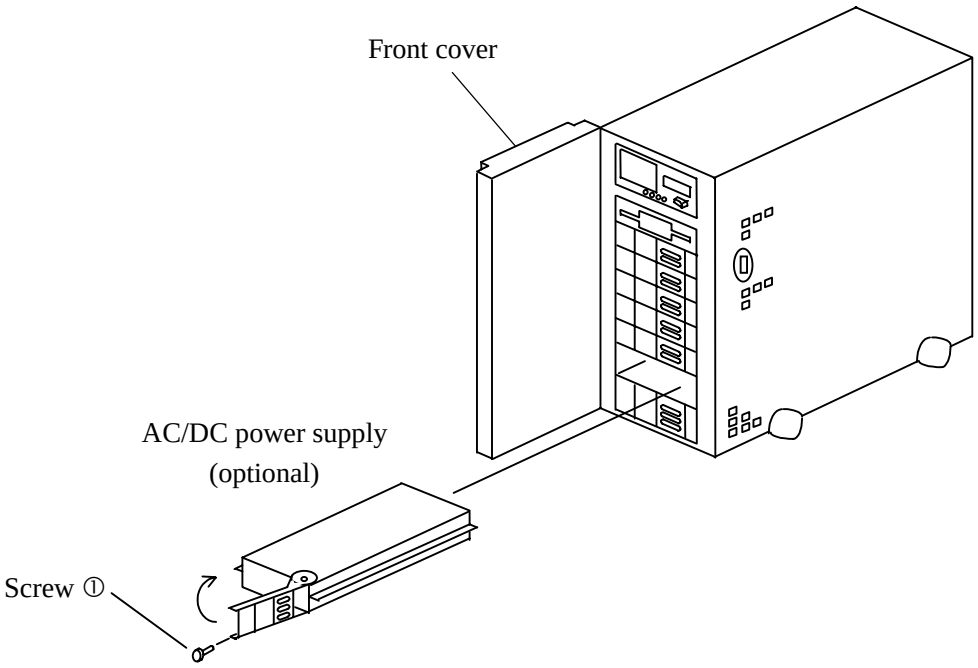


Figure 6.2 Replacement of the AC/DC Power Supply

(5) Installing procedure for the system with the power supply

1. Open the front cover. (See Subsection 3.1.)
2. Loosen screws ① securing the safety cover, and remove the cover.
3. Insert the redundant AC/DC power supply into the specified location. Press the handle in the direction of an arrow (→).
4. Tighten the screw ①.
5. Close the front cover. (See Subsection 3.1.)

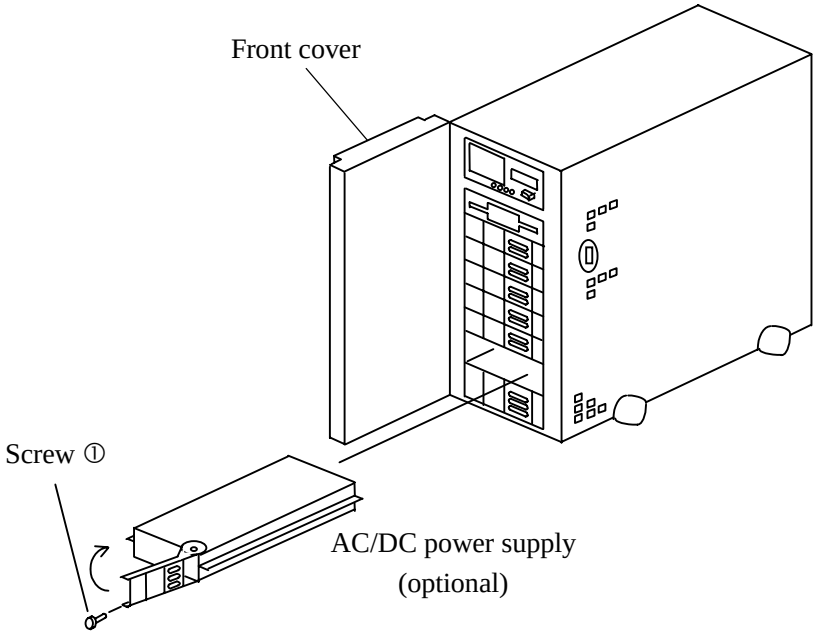


Figure 6.3 Replacement of the redundant AC/DC Power Supply

(6) Transition of panel display

I003XX PSRCV-XX ····· Completion of power supply recovery (Replacement when a redundant AC/DC power supply is installed and the power of the subsystem is kept on)

7. Replacing the SVP ASSY (See Figure 7.)

Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Open the front cover. (See Subsection 3.1.)
3. Remove the cover. (See Subsection 3.2.)
4. Loosen the screw ①.
5. Pull out the SVP ASSY toward you to remove it.

(2) Installation procedure

1. Install the SVP ASSY in the reverse order of the removing.

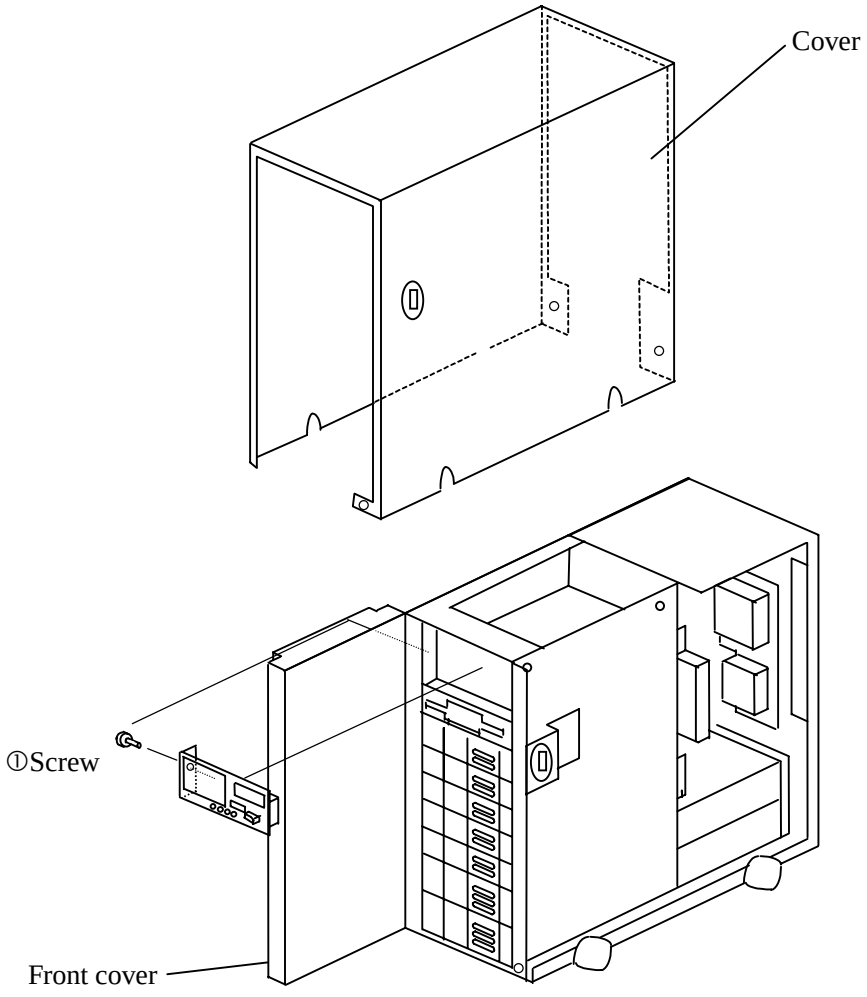


Figure 7 Replacement SVP ASSY

8. Replacing the CTL ASSY (See Figure 8.)

Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.)
2. Open the front cover. (See Subsection 3.1.)
3. Remove the I/F ADAPTER ASSY. (See Subsection 10.)
4. Remove the cover. (See Subsection 3.2.)
5. Remove the SVP ASSY. (See Subsection 7.)
6. Remove the CACHE ASSY and the memory board. When an optional LAN ASSY is installed, also remove it.
7. Disconnect the connector (P130) of the battery.
8. Remove two power supply connectors (P150, P160).
9. Loosen four screws.
10. Slide the CTL ASSY in the direction of the arrow (⟵), disconnect the connector, and remove the CTL ASSY.

(2) Installation procedure

1. Install the CTL ASSY in the reverse order of the removing .
2. Set DIP switch No. 4 and SW6 of CTL ASSY down.
3. Turn on the subsystem according to the power-on procedure explained in 2.1 (2).
4. Set the parameters.
5. After READY LED turns on, return the DIP switches to their original state.

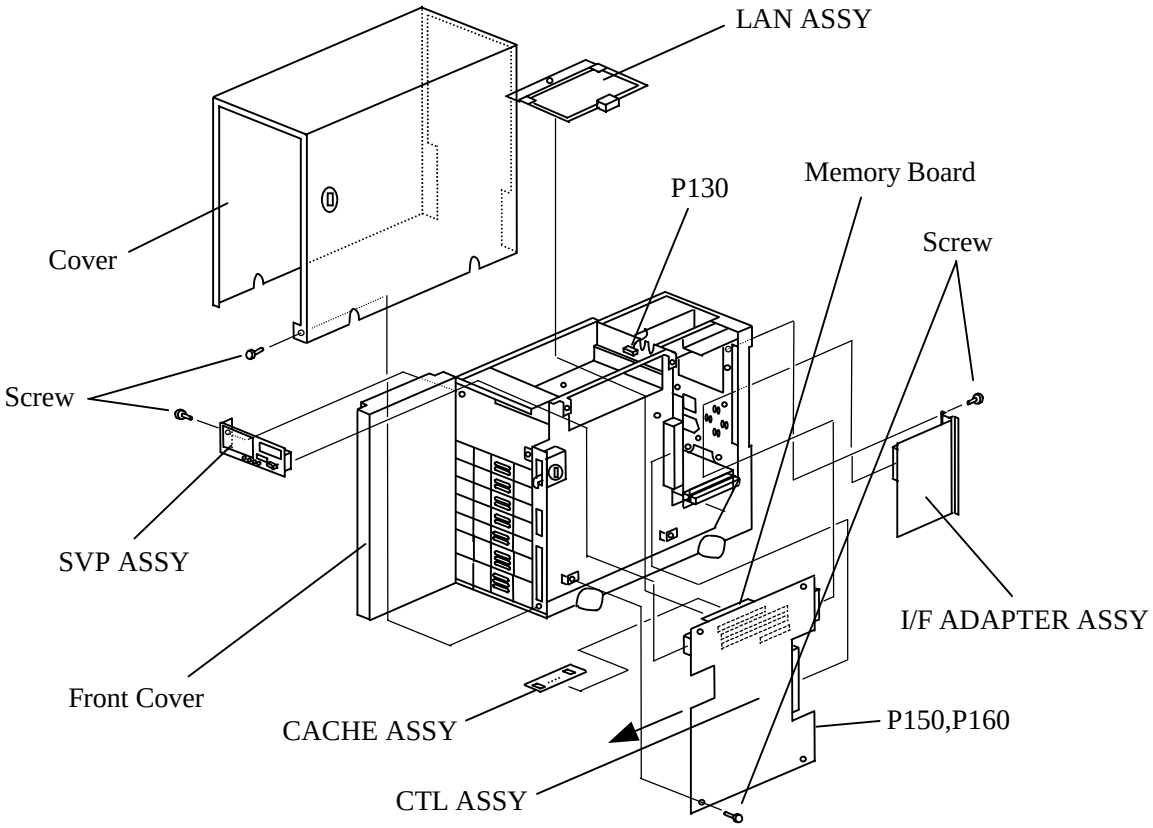


Figure 8. Replacement CTL ASSY

9. Replacing the Battery (See Figure 9.)

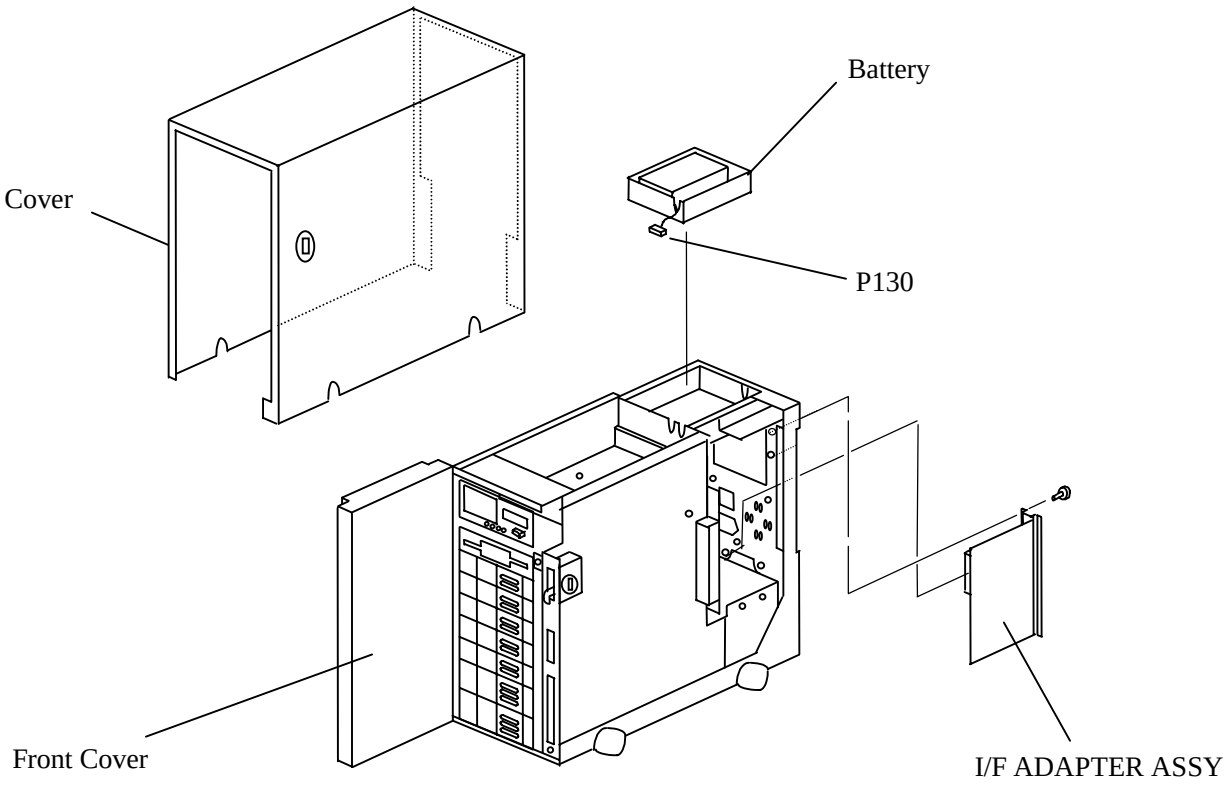
Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn the power off according to the power turning off procedure. (See Subsection 2.1.)
2. Open the front cover. (See Subsection 3.1.)
3. Remove the I/F ADAPTER ASSY. (See Subsection 10.)
4. Remove the cover. (See Subsection 3.2.)
5. Disconnect the connector (P130) of the battery.
6. Pull up and remove the battery.

(2) Installation procedure

1. Install the battery in the reverse order of the removing.



Figures 9 Replacement Battery

Note) The lead-acid battery is a precious resource which can be recycled.

When a part is to be replaced or a used product is to be discarded, take out the lead-acid battery to get it

recycled.

10. Replacing the I/F ADAPTER ASSY (See Figure 10.)

Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Remove the connected SCSI cable, terminator, LAN (optional) cable, and RS232C cable.
3. Loosen two screws ①.
4. Hold the handles (upper and lower handles), pull them toward you at the same time, and remove the I/F ADAPTER ASSY.

(2) Installation procedures

1. Before starting installation, set the jumper pin (JP1) on the I/F ADAPTER ASSY in the same way as the removed PCB.
2. Turn the battery switch on (slide it upward).
3. When the setting of the jumper pin of the I/F ADAPTER ASSY and the setting of the battery switch are finished, install the I/F ADAPTER ASSY in the reverse order of the removing.

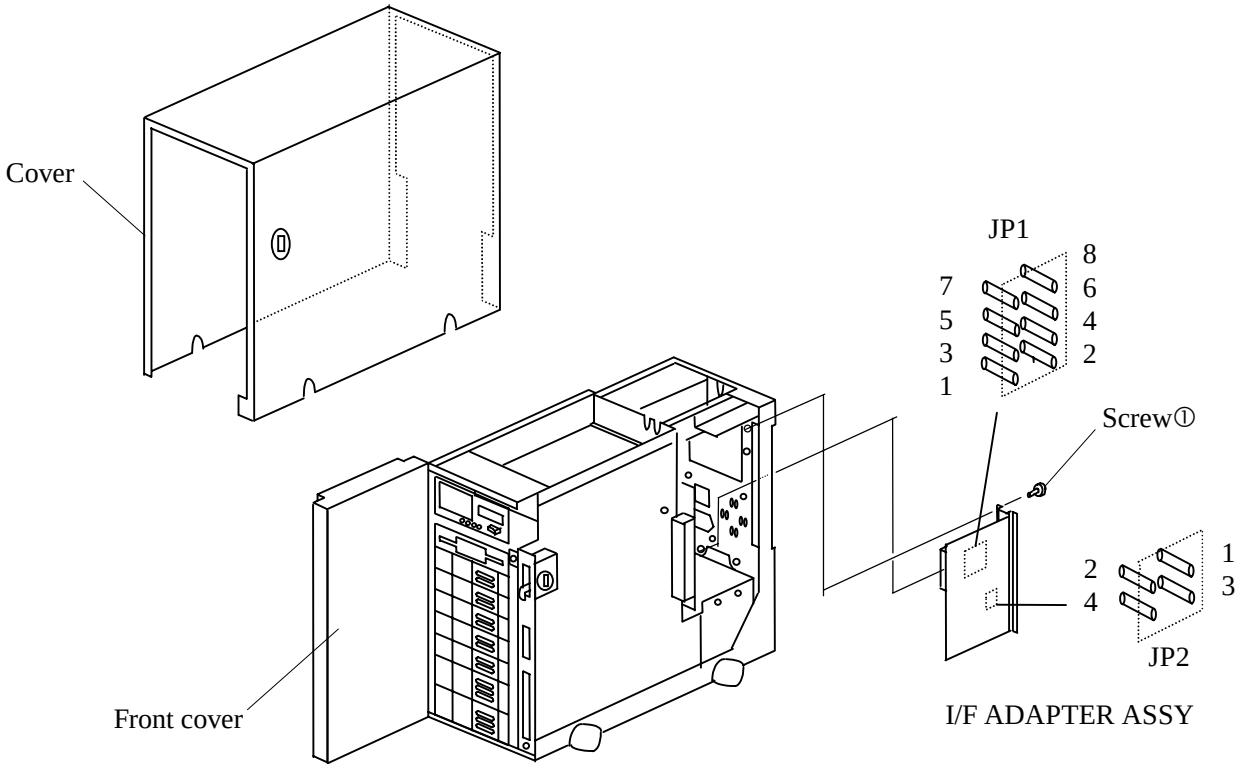
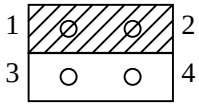
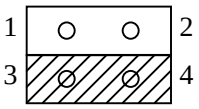
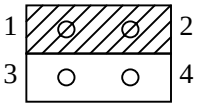
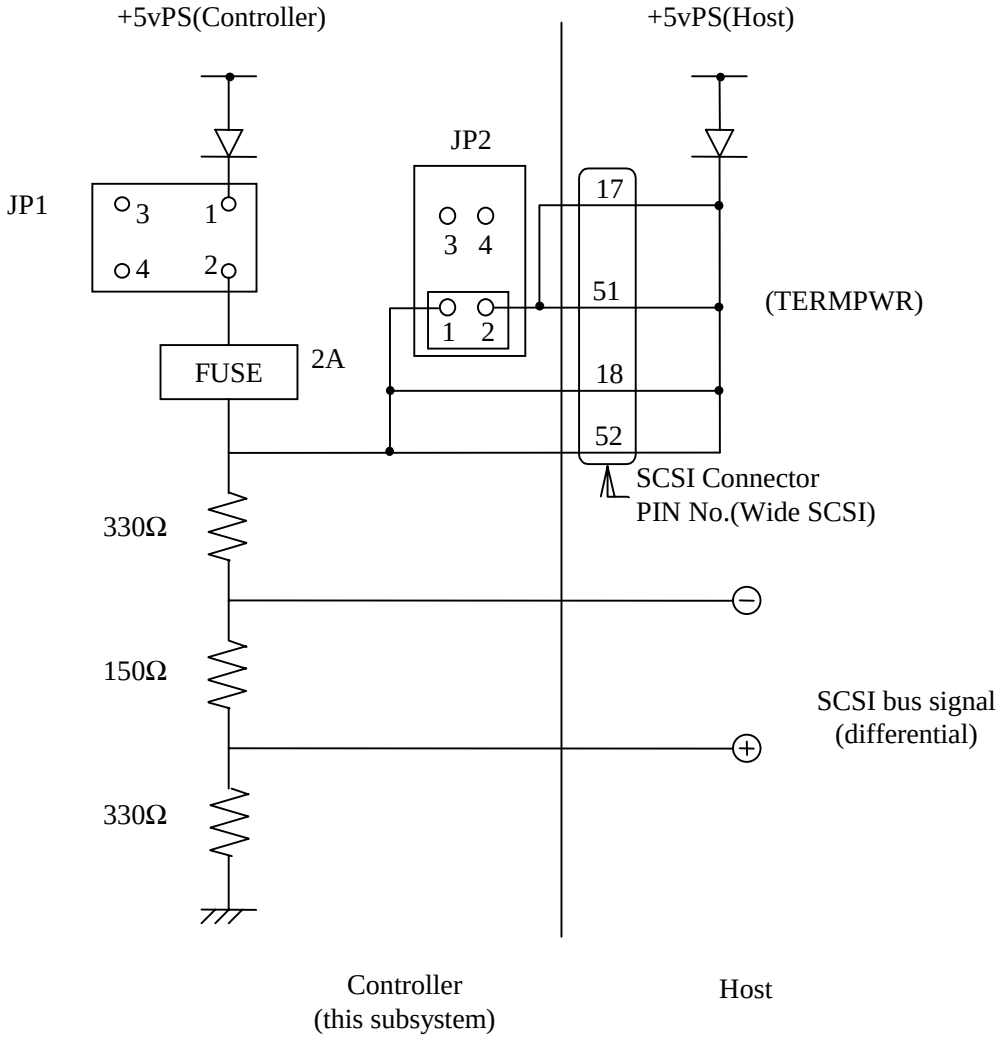


Figure 10. Replacement I/F ADAPTER ASSY

Table 10.2 Setting the Terminator Power

No.	Name	Jumper setting	Function
1	JP1	Self power supply 	Terminator power +5 VPS is supplied from the array controller and host computer. (Set at factory before shipment)
		External power supply 	Terminator power +5 VPS is supplied only from the power source of the host computer.
2	JP2*		Be sure to set this jumper with the pins 1 and 2 short-circuited.

* JP2 is equipped on I/F ADAPTER ASSY for only Wide SCSI(DRWDS, DRWSS).



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11. Replacing the Fan ASSY (See Figure 11.)

Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Remove the cover. (See Subsection 3.2.)
3. Disconnect the connector (P200) connected to the fan at the bottom of the battery.
4. Loosen the screw ① and remove the sheet metal part from the back of the fan.
5. Loosen two screws ② and remove the fan.

(2) Installation procedure

1. Install the Fan ASSY in the reverse order of the removing.

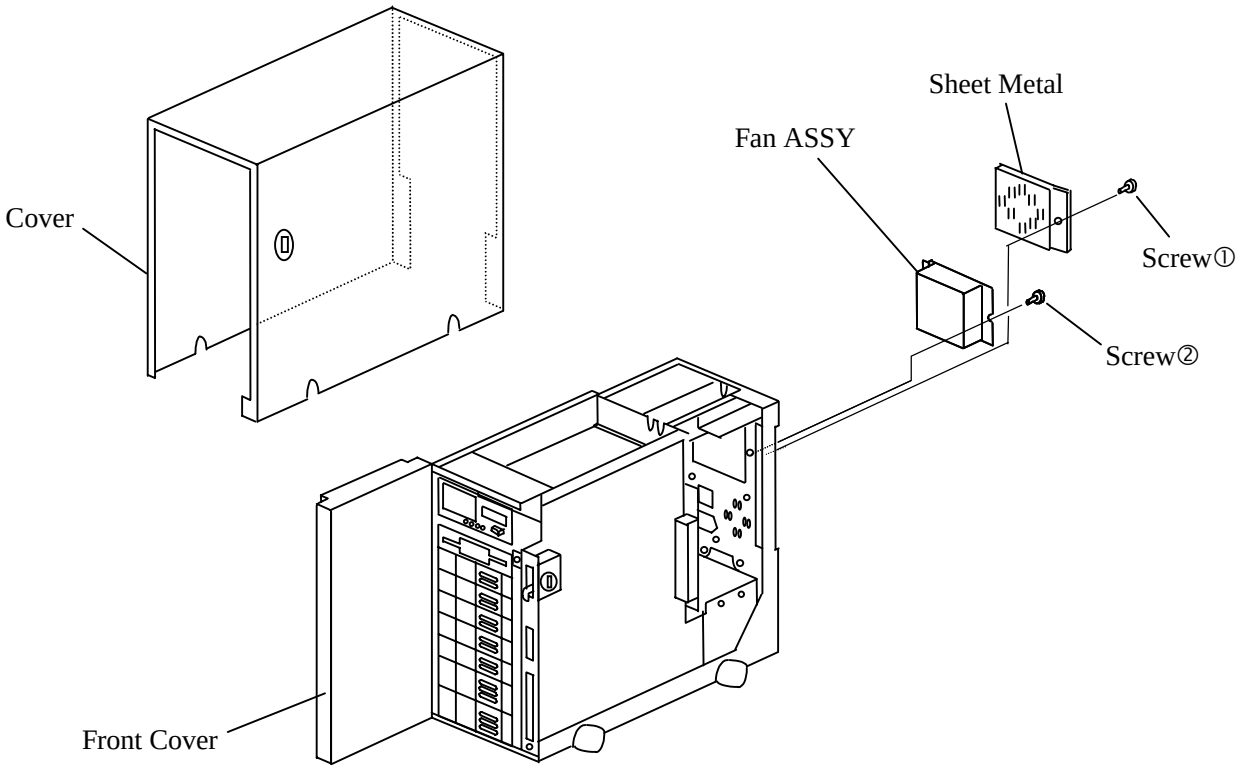


Figure 11. Replacement Fan ASSY

12. Replacing the power supply Fan ASSY fan assembly (See Figure 12.)

Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Remove the cover. (See Subsection 3.2.)
3. Disconnect the connector (FP2).
4. Loosen the screw ① and remove the power supply Fan ASSY together with the fan guard.

(2) Installation procedure

1. Install the power supply Fan ASSY in the reverse order of the removing.

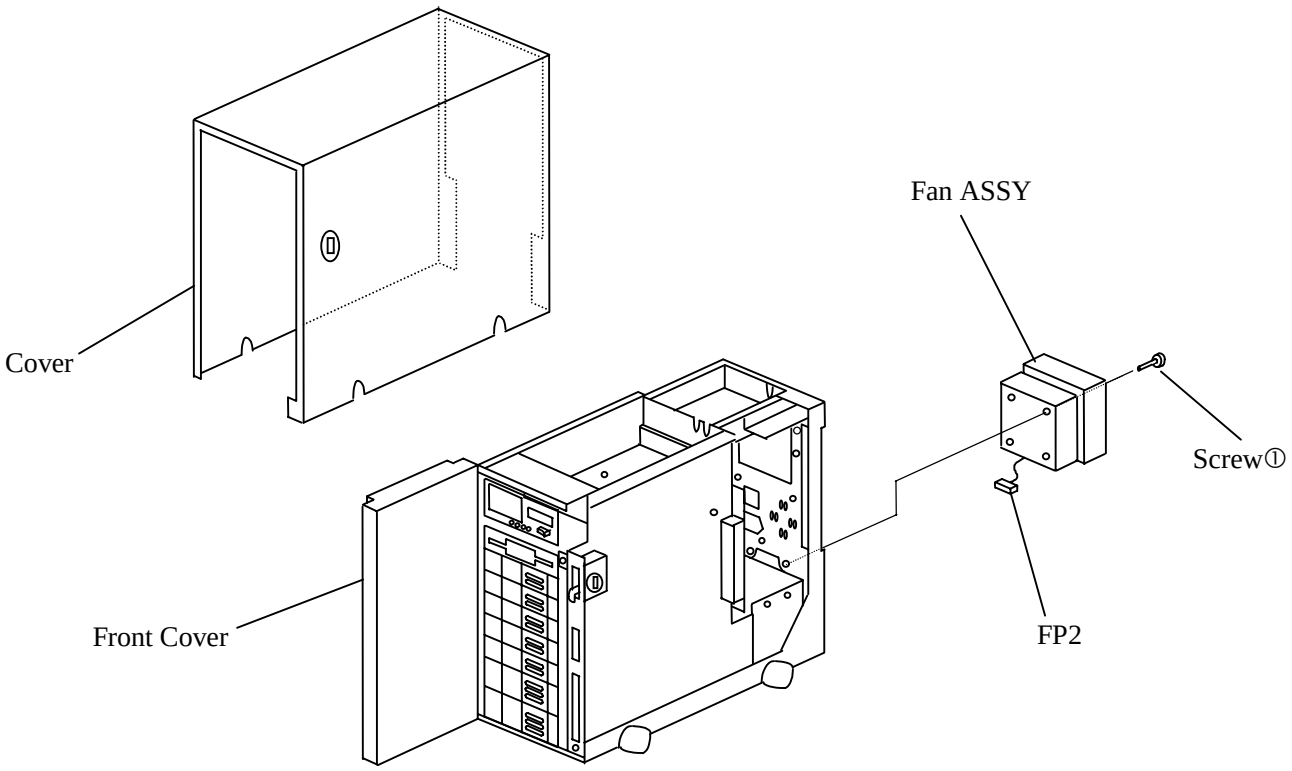


Figure 12. Replacement power supply Fan ASSY

13. Replacing the In Box ASSY (See Figure. 13.)

⚠ Warning

Do not touch inside of In Box ASSY. Electricity remains even if main switch is off.

Tool: Phillips screwdriver (No. 2)

(1) Removing procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Disconnect the power cable.
3. Remove the cover. (See Subsection 3.2.)
4. Loosen the screw ① and remove the guard (1) and the guide plate (tightened together).
5. Loosen the screw ② and remove the guard (2).
6. Disconnect the connectors (PAC, PF1).
7. Loosen the screws ③ (2 M3 screws and 1 M4 screw).
8. Remove the In Box ASSY sideways from the subsystem and remove the power supply Fan ASSY fan assembly at the same time.

(2) Installation procedure

1. Install the In Box ASSY in the reverse order of the removing.

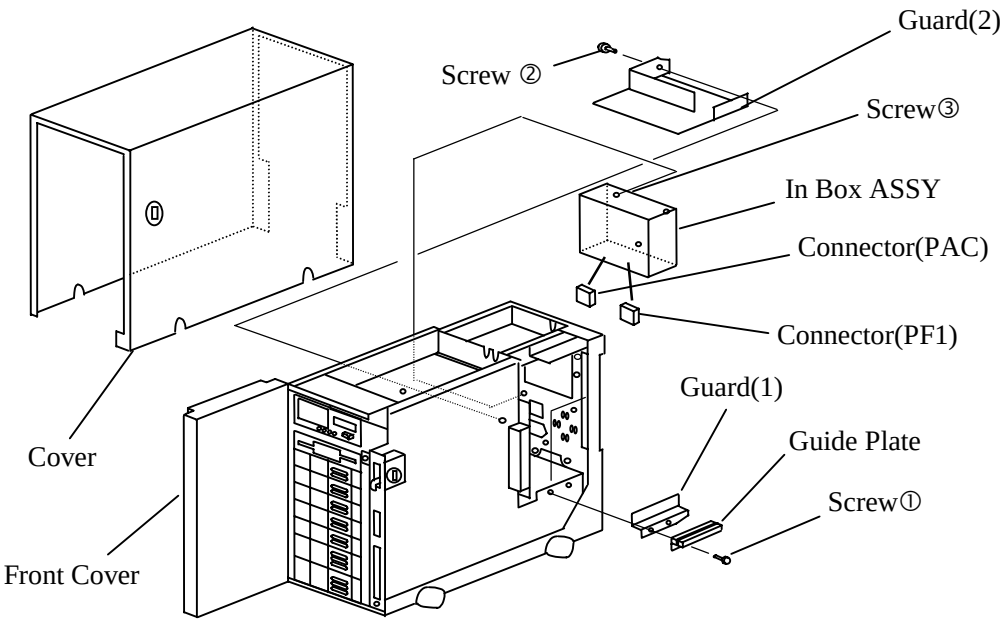


Figure 13. Replacement In Box ASSY

14. Replacing the CACHE ASSY

Note: When installing CACHE ASSIES in the cache slots, install it in the order of Cache Slot #0 and #1.

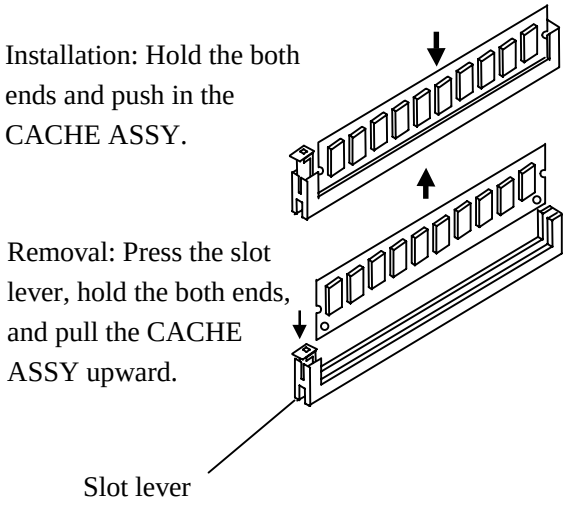
Tool: Phillips screwdriver (No. 2)

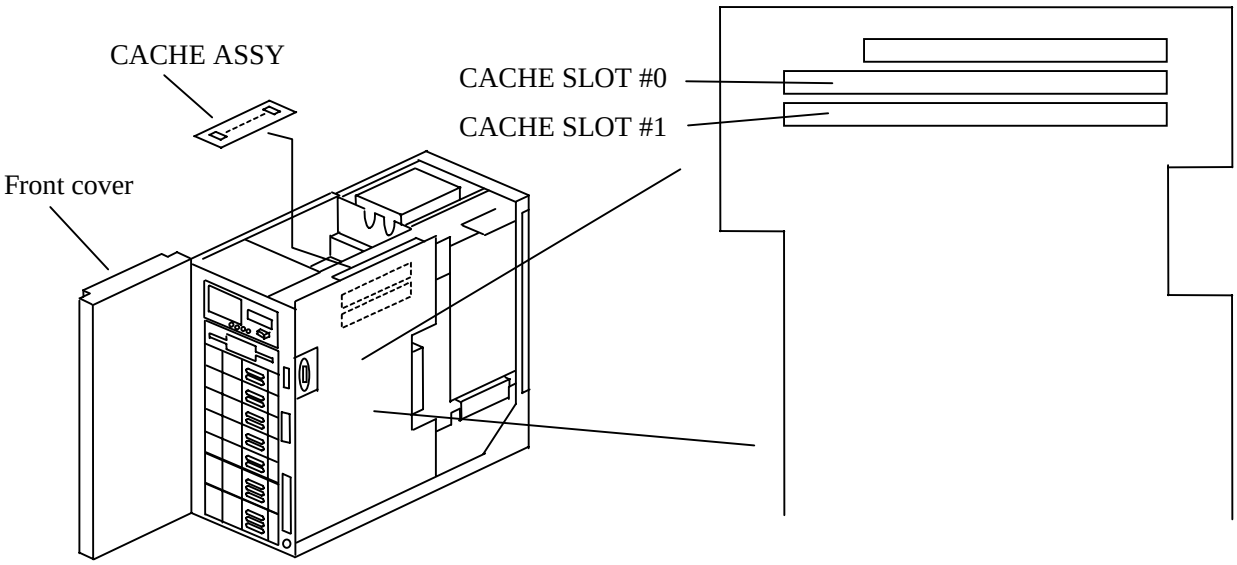
(1) Removal procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on..)
2. Remove the cover. (See Subsection 3.2.)
3. Add or replace the CACHE ASSY.
4. Attach the cover. (See Subsection 3.2.)
5. Open the front cover.
6. Slide SW4 and SW6 of the DIP switches downward.
7. Turn the power on according to the power turning on procedure.
8. Change the cache installation information from the panel. (See the next page.)
9. After the subsystem becomes ready, return the DIP switch.
10. Close the front cover.

CACHE installing example

SLOT#0 : 8MB
SLOT#1 : 4MB
} 12 MB in total





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Correspondence Table of Panel Setting for Each Cache Model

#	Model name	Part name	Setting	Remark
1	DF-F300-C14	4MB (4MB×1)	4M SINGLE	This is set for the slots (0 or 1) where caches are inserted.
2	DF-F300-C18D	8MB (8MB×1)	4M DOUBLE	This is set for the slots (0 or 1) where caches are inserted.
3	DF-F300-C116D	16MB (16MB×1)	16M SINGLE	This is set for the slots (0 or 1) where caches are inserted.
4	DF-F300-C132D	32MB (32MB×1)	16M DOUBLE	This is set for the slots (0 or 1) where caches are inserted.
5	DF-F300-C164	64MB (32MB×2)	16M DOUBLE	This is set for both of the slots (0 and 1) where caches are inserted.

① Cache slot packaging information

(a) Panel display

C A C H E C O N F I G

← The display is changed by using the keys [↑] and [↓] of the ten-key pad.

↑
Display start position

(b) Display content

#	Displayed message	Description
1	CACHE SLOT #0	Setting of cache slot #0 installation status
2	CACHE SLOT #1	Setting of cache slot #1 installation status
5	CANCEL	Return to the initial menu

② Setting of the cache slot installation status

(a) Panel display

C A C H E S L O T # *

← A * mark varies with the selected menu. (0 to 3)

←The display is changed by using the keys [↑] and [↓] of the ten-key pad.

↑
Display start position (The content which is set at present is displayed.
A * mark is displayed at the beginning of the content which is set at present.)

(b) Display content

#	Displayed message	Description
1	NOT EXIST	No cache is installed.
2	4M SINGLE	Single 4M-bit DRAM is installed.
3	4M DOUBLE	Double 4M-bit DRAMs are installed.
4	16M SINGLE	Single 16M-bit DRAM is installed.
5	16M DOUBLE	Double 16M-bit DRAMs are installed.
6	64M SINGLE	Single 64M-bit DRAMs are installed. (Not Available.)
7	64M DOUBLE	Double 64M-bit DRAMs are installed. (Not Available.)

Note: For cache slots #0 and #1 set not exist.

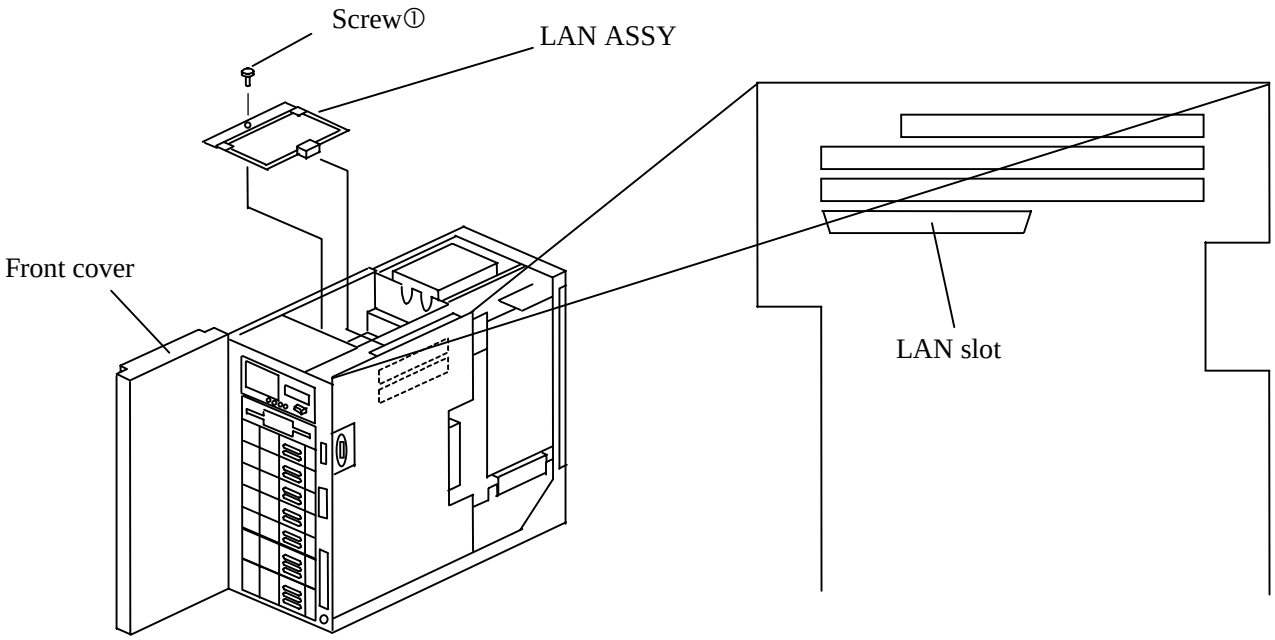
15. Replacing the LAN ASSY

(1) Tools

Philips screw driver (No. 2)

(2) Procedures

1. Turn off the subsystem following the power-off procedure explained in 2.1 (1). (Be sure to read and understand the procedure because the power is turned off improperly, user data will be destroyed. Make sure that ALARM/WARNING LED does not come on.
2. Remove the cover. (See 4.2.2.)
3. Remove two screws ① (bind screw M3 × 6), replace LAN ASSY on CTL ASSY and secure it with the screws ①.
4. Reinstall the cover. (See 4.2.2.)
5. Close the front cover. (See 4.2.1.)



① Setting of LAN connection

(a) Panel display

C O N N E C T L A N

← The display is changed by using the keys [↑] and [↓] of the ten-key pad.

↑

Display start position (The content which is set at present is displayed.
A * mark is displayed at the beginning of the content which is set at present.)

(b) Displayed content

#	Displayed message	Description
1	CONNECT	Connected to LAN
2	NOT CONNECT	Not connected to LAN

② Setting of IP address

(a) Panel display

I P A D D R E S S ? ? ? . ? ? ? . ? ? ? . ? ? ?

A symbol "???" indicates a current ← value. (000 to 255)

(b) Keying and others

1. The cursor display position can be changed by using the keys [←] and [→].
2. "." is skipped both during cursor movement and at the time of input.
3. Each input must be left-justified for each "." with zeros added at the head.
4. The input value is determined by pressing the return (enter) key.
5. When the input value is not correct, the current value is restored and displayed again.
6. When the input value is set, the screen is returned to the initial menu selection.

16. Renewal of Microprogram

This function is used to renew the microprogram stored in the drive.

① Set the Dip switch No.1 as shown in figure 16.1.

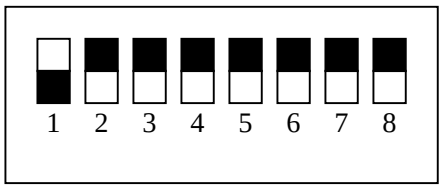


Figure 16.1 SW
Used for renewal of microprogram

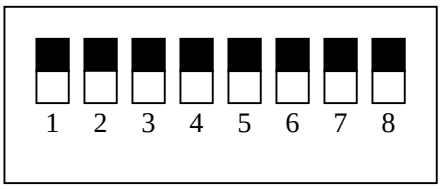
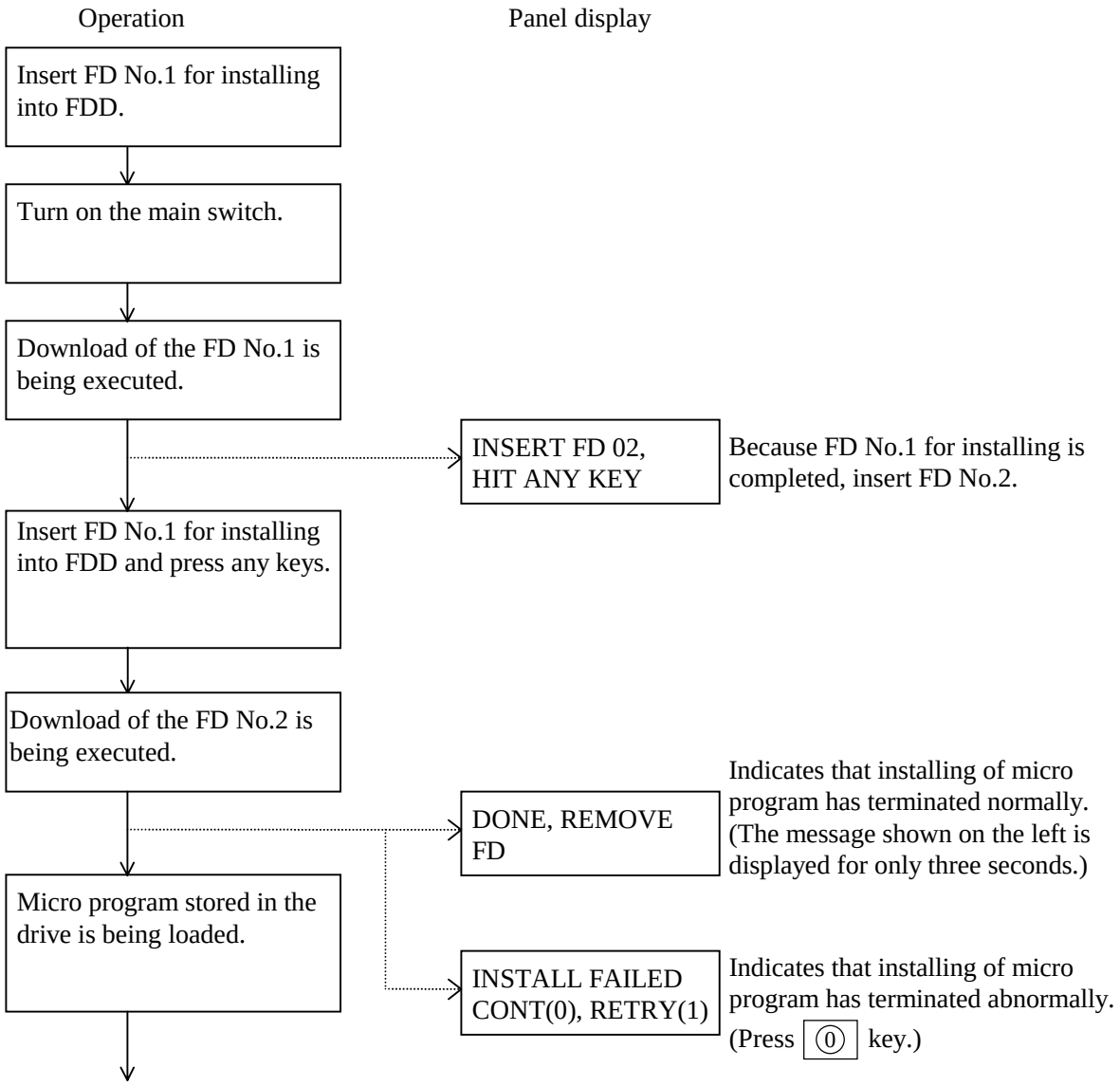


Figure 16.2 SW
Ordinary status

② Operate as described below.



The ready lamp turns on.

③Set Dip switch as shown in figure 15.2.