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# ダイキン 海上コンテナ冷凍装置

**DAIKIN**

Marine type

Container Refrigeration Unit

サービスガイド・パーツリスト  
Service manual・Parts list

Model

**LXE10CA-2**

**ダイキン工業株式会社**  
**DAIKIN INDUSTRIES, LTD.**

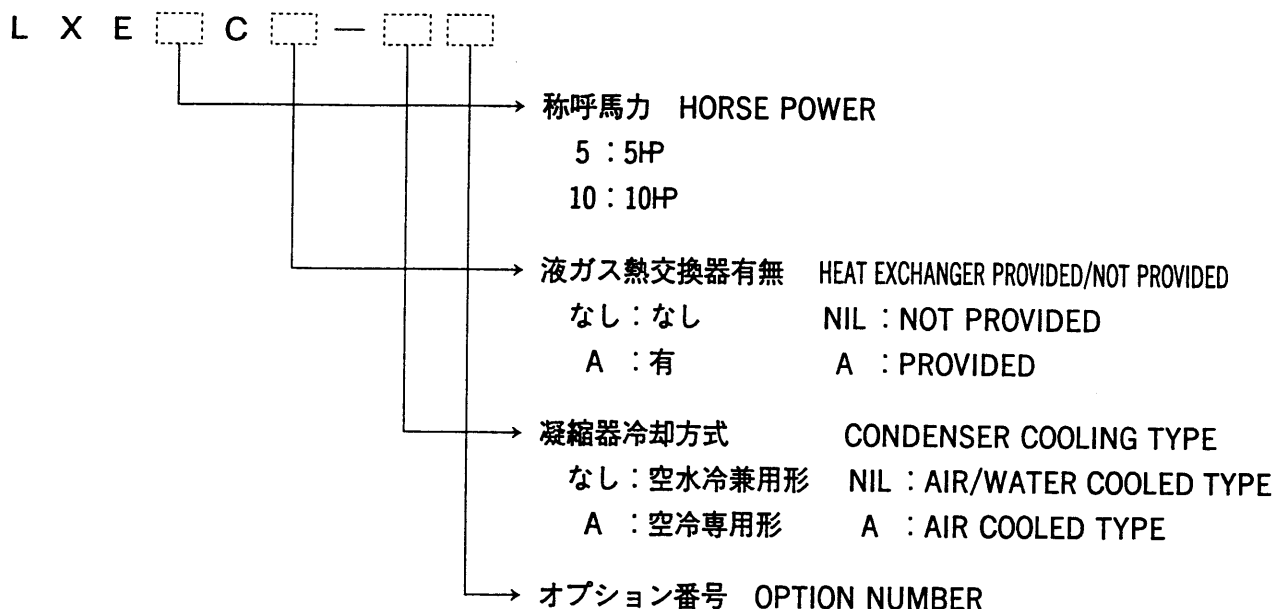
TR97-20A

本書は標準機と異なる箇所のみ記載しておりますので、本書に記載なき事項は別途発行のサービスガイド（TR94—01）及びパーツリスト（TR94—03）を併せて参照下さい。

The parts which are different from that of the standard model only are described in this manual. Regarding the items which are not described in this manual, refer to Service Manual (TR94—02) and Parts List (TR94—03) as well.

機種名について

NOMENCLATURE OF MODEL NAME



注) オプション番号の後にRがつく機種は、改造機で、特別な仕様を加えられていることを意味します。

NOTE) 1. "R" GIVEN AFTER OPTION NUMBER STANDS FOR "REVISE" AND IT IS GIVEN FOR THE UNIT WHICH IS SPECIALLY MODIFIED.

機種と電子コントローラの組合せは下記のようになります。

The combination of models and electronic controllers is as follows.

機種名 Model name	コントローラ Controller
LXE5C-1	DECOSIII
LXE5C-XX	DECOSIIIa
LXE10C(-A)	DECOSIII
LXE10CA(-A)	DECOSIIIa

機種名の中のXXは、LXE5C-1以外の20フィート用ユニットを示します。

"XX" of model name indicates unit for 20 feet units excepting LXE5C-1.

## 掲載機種

このサービスガイドは、LXE10CA-2 の特長、機能、および取扱いについて(標準機と異なる箇所のみ) 掲載しております。

機種名	LXE10CA-2	LXE10CA-*	LXE10CA-A *
凝縮器冷却方式	空水冷兼用型 (水凝縮器付き)	空水冷兼用型 (水凝縮器付き)	空冷専用型
除湿機能有無	あり	なし	

機種名の中の“\*”は“2”以外のオプション番号を示します。

## Relevant models

This manual describes the features, functions, and operation of the container LXE10CA-2.

(The items which are different from that of the standard products only are described in this manual.)

Model	LXE10CA-2	LXE10CA-*	LXE10CA-A *
Condenser cooling type	Air/water cooled type	Air/water cooled type	Air cooled type
Dehumidity function	Some	None	

“\*” of model name indicates option number excepting “2”.

## Contents

### Safety precautions

. Danger .....	7
. Warning .....	8

### Chapter for maintenance and repair

1. Main specifications .....	11
2. Name of components .....	12
2.1 Outside .....	12
2.2 Inside .....	13
2.3 Control box .....	14
3. Operation .....	15
3.1 Basic operation procedure of electronic controller .....	15
3.1.1 Indication panel .....	15
3.1.2 Panel operation .....	16
3.1.3 Dehumidity control setting .....	17
3.2 Ventilator .....	20
4. Piping diagram .....	21
5. Dehumidity operation LAMP .....	22
6. Electric wiring diagram .....	23
6.1 Schematic wiring diagram .....	23
6.2 Actual wiring diagram .....	25
7. Operation pressure and running current .....	26
8. Dehumidity operation .....	27
9. Set values of functional and protective devices .....	30
10. Electronic Controller .....	31
10.1 Operation procedure .....	31
10.2 Back-up correspondence for humidity sensor abnormality .....	31
10.3 Replacement and initialization .....	31
11. PTI (pretrip inspection) .....	33

### Chapter for Parts List

. Parts related with the casing (Outside) .....	35
. Parts related with the casing (Inside) .....	37
. Parts related with piping .....	41
. Control box .....	43
. Parts related with name plate .....	47

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# **Safety Precautions**

Before operating, inspecting or repairing, observe the following items.

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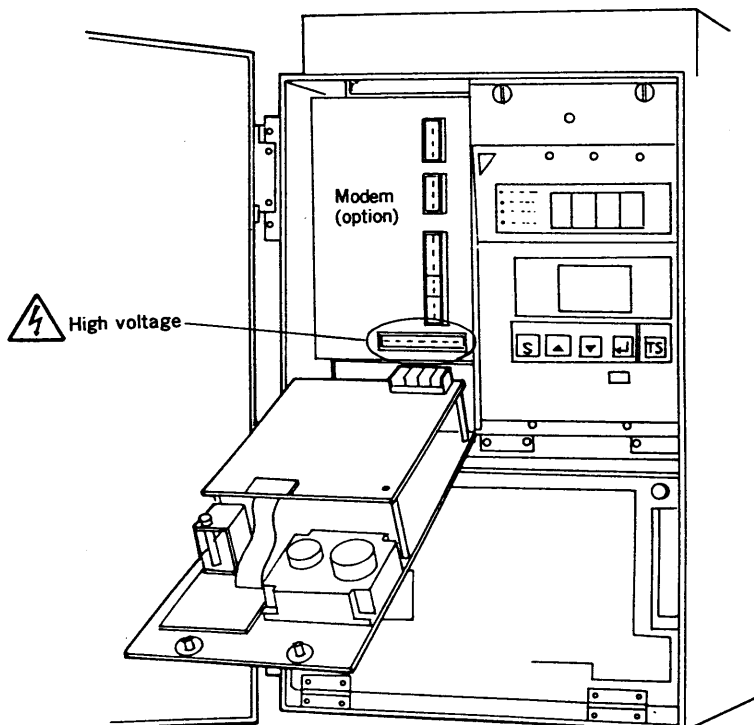
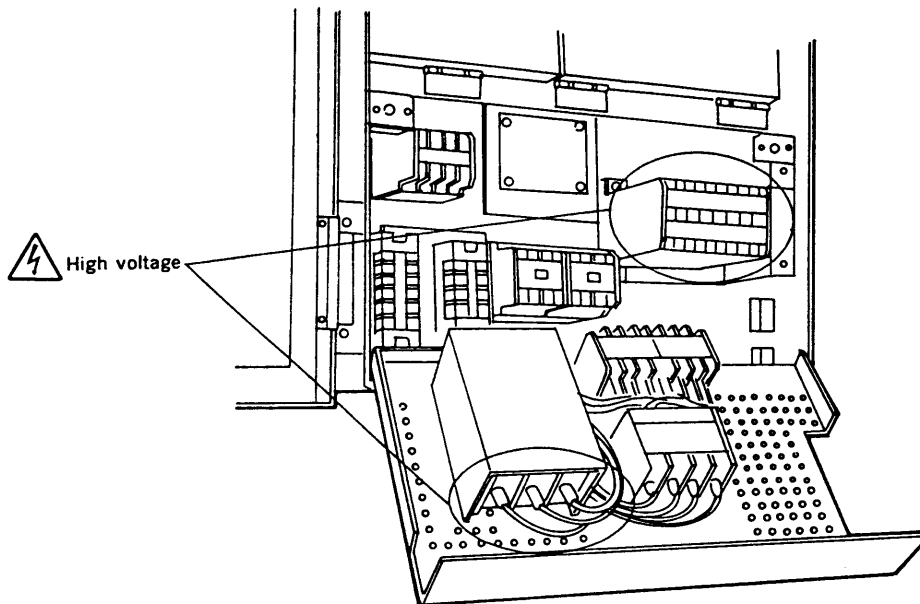
# DANGER

Before disconnecting the power plug, be sure to turn off the power supply.



Before inspecting the inside of the control box, be sure to turn off the main power supply.

※Because the high voltage remains applied to the voltage selector, the circuit breaker and the optionally provided modem even though the circuit breaker in the control box is turned off.





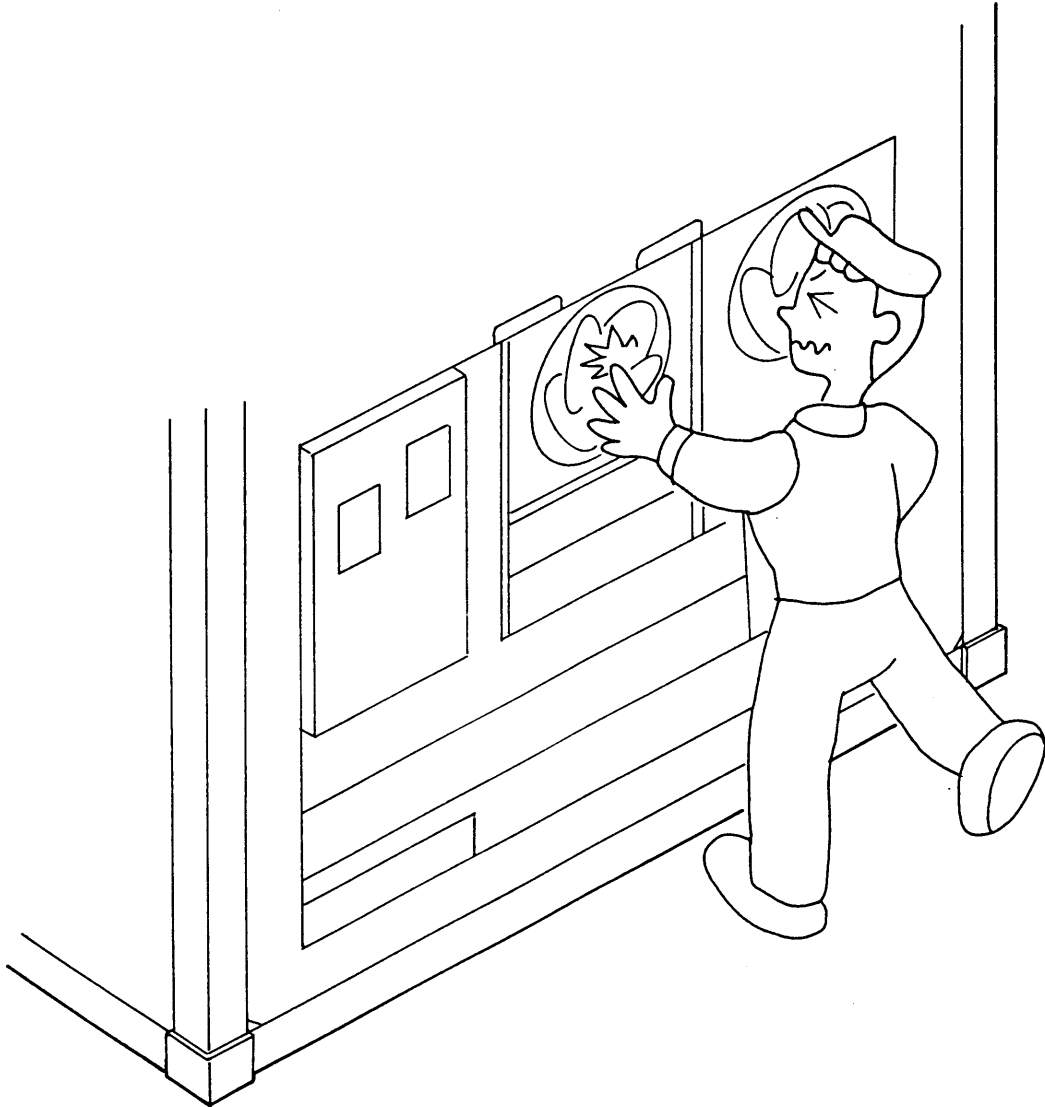
# **WARNING**

**Be sure not to touch the condenser fan(s) during electricity being applied.**



Before removing condenser fan cover, turn of circuit breaker and disconnect power plug.

Condenser fan may start/stop automatically for refrigerant high pressure control.



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## **Chapter for operation and service work**

(The items which are different from that of the standard products only are described in this manual)

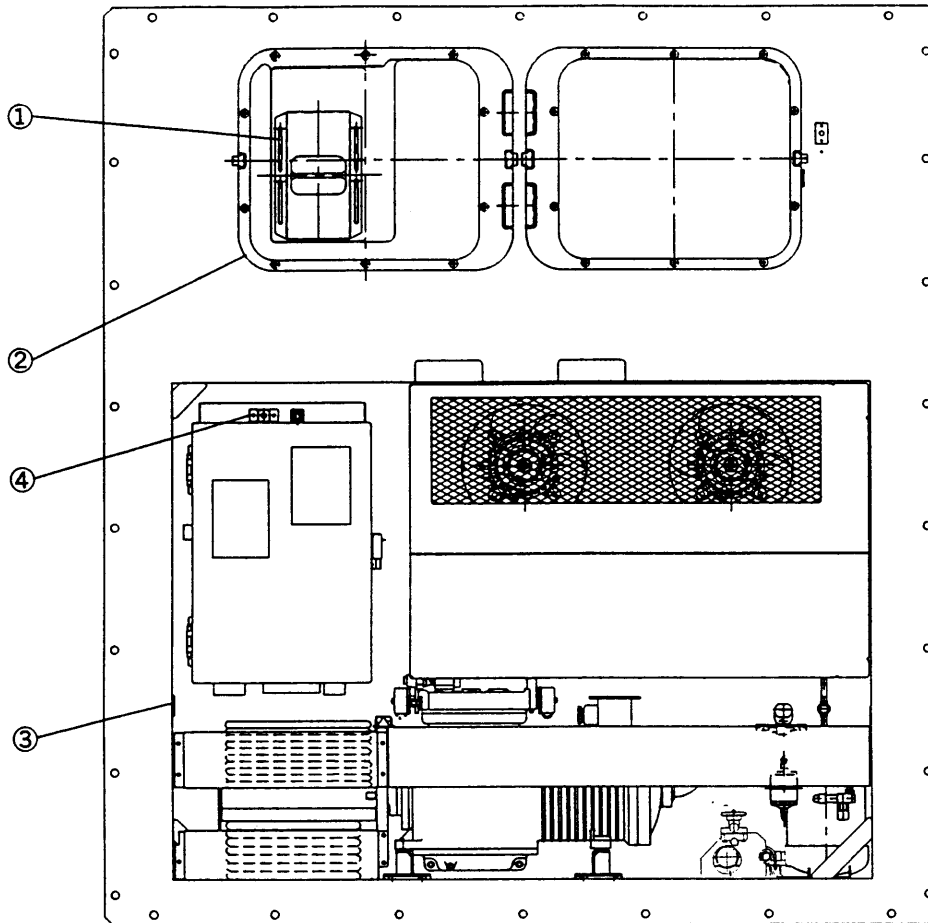
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## 1. Main specifications

Item	Specifications	
Condenser cooling system	Air/water-cooled type	
Controller	DECOSIIIa	
Power supply	AC 3-phase 200V 50Hz, 200V/220V/230V 60Hz 380V/400V/415V 50Hz, 440V/460V 60Hz (Dual voltage system with voltage selector) (Within $\pm 10\%$ of the voltage change breadth)	
Compressor	Semi-hermetic type compressor (Output: 5.5kW)	
Evaporator	Cross-finned coil type	
Air-cooled condenser	Cross-finned coil type	
Water-cooled condenser	Shell and coil type	
For condenser and evaporator fan	Propeller type directly driven by motor	
For condenser and evaporator fan motor	Three-phase squirrel-cage induction motor	
Defrosting	System	Hot-gas defrost system
	Initiation	Timer or manual switch
	Termination	Piping temperature of the evaporator outlet detected by a thermister
Refrigerant control	Thermostatic expansion valve	
Capacity control	Hot gas bypass control with modulating control valve Compressor cylinder unloader	
Dehumidity control	ON-OFF control with again heat heater (only chilled mode)	
Protective safe devices	Circuit breaker, PT/CT board (for over current protection and reverse divine). Compressor thermal protector, fan-motor thermal protector, high-pressure switch, fusible safety plug, fuse (10A)×5	
Refrigerant (charged amount)	HFC134a: 5.0 (kg)×11.0 (lbs)	
Refrigeration oil (charged amount)	CASTROL ICEMATIC SW46: 4.0 (ℓ)	
Unit weight	Approx. 670 (kg)/ 1477 (lbs)	

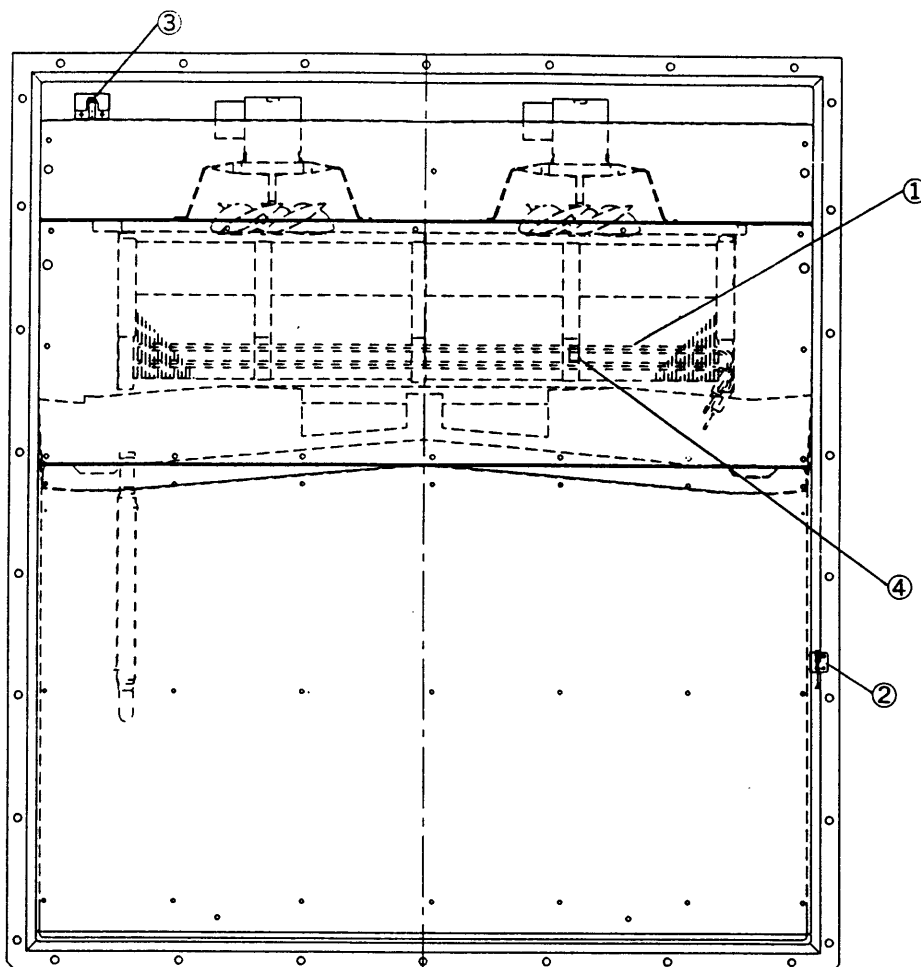
## 2. Name of components

### 2.1 Outside



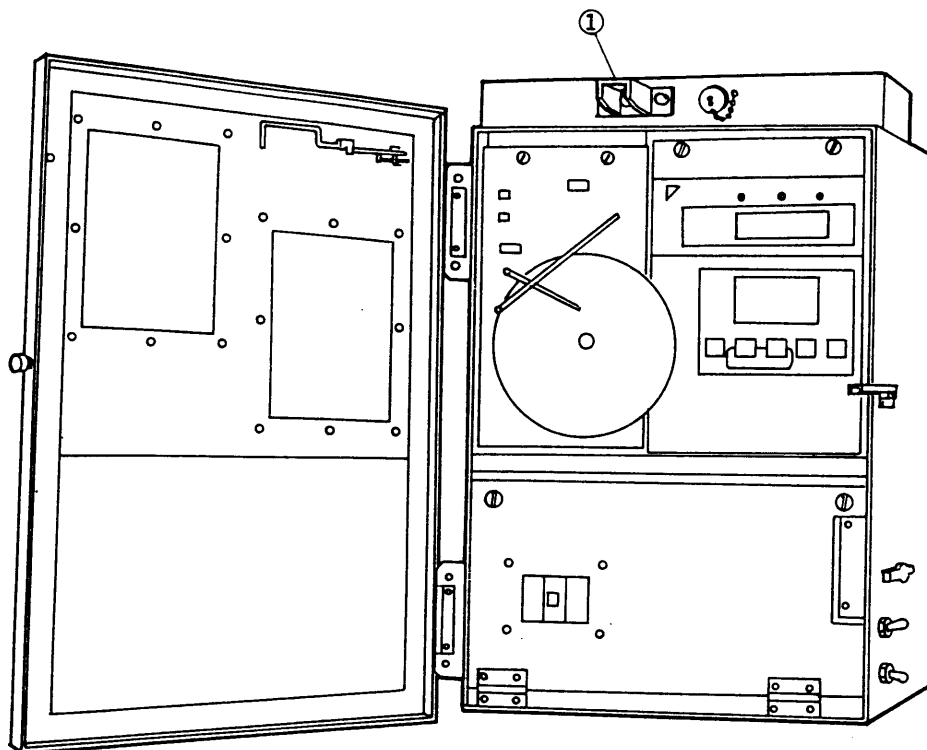
- ① Ventilator
- ② Accesspanel
- ③ Thermometer check point  
{ The thermometer is used to measure the internal supply air }  
temperature and internal CO<sub>2</sub> concentration
- ④ Dehumidification operation lamp

## 2.2 Inside

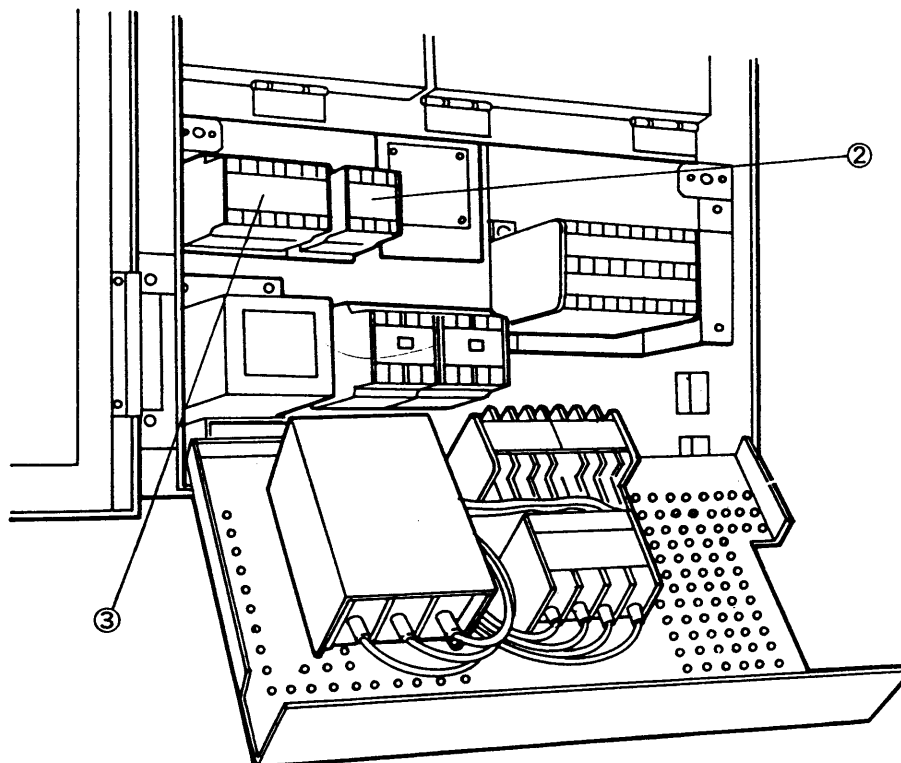


- ① Electric heater (For reheating)
- ② Supply sensor, and supply sensor for recorder (SS, RSS)
- ③ Humidity sensor
- ④ Electric heater thermostat

### 2.3 Control box



① Red

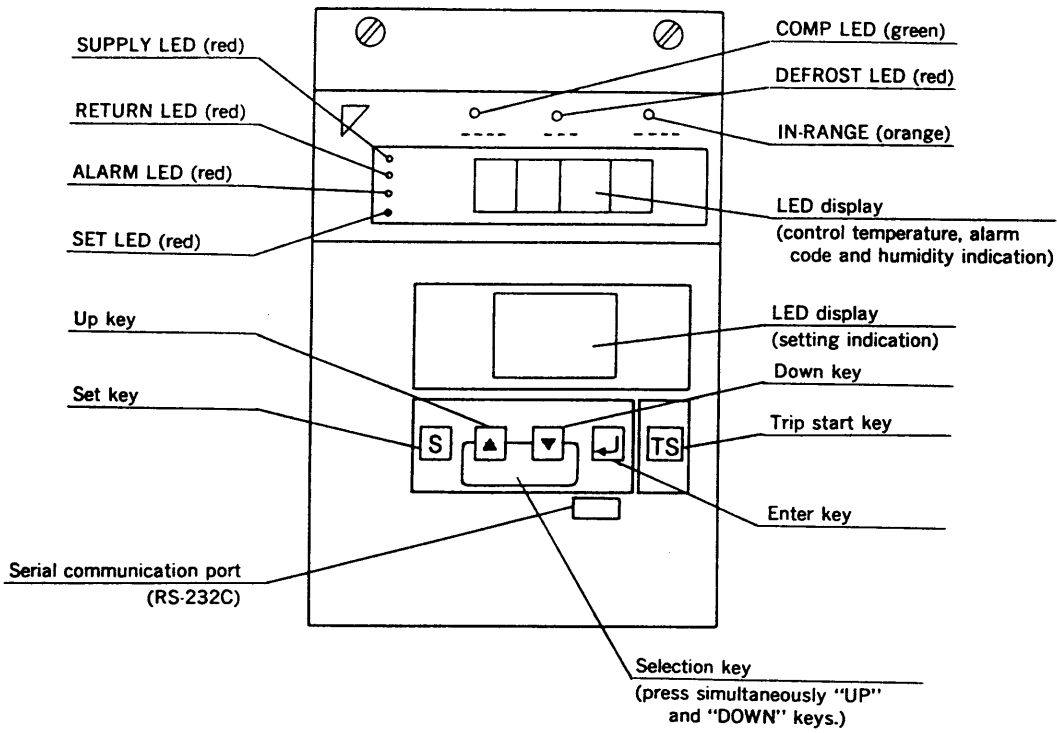


- ① Dehumidification operation lamp (DHuL)
- ② Electric heater contactor (EHC)
- ③ Phase sequence contactor (PCC1. 2)

### 3. Operation

#### 3.1 Basic operations procedure of electronic controller

##### 3.1.1 Indication panel



### CAUTION

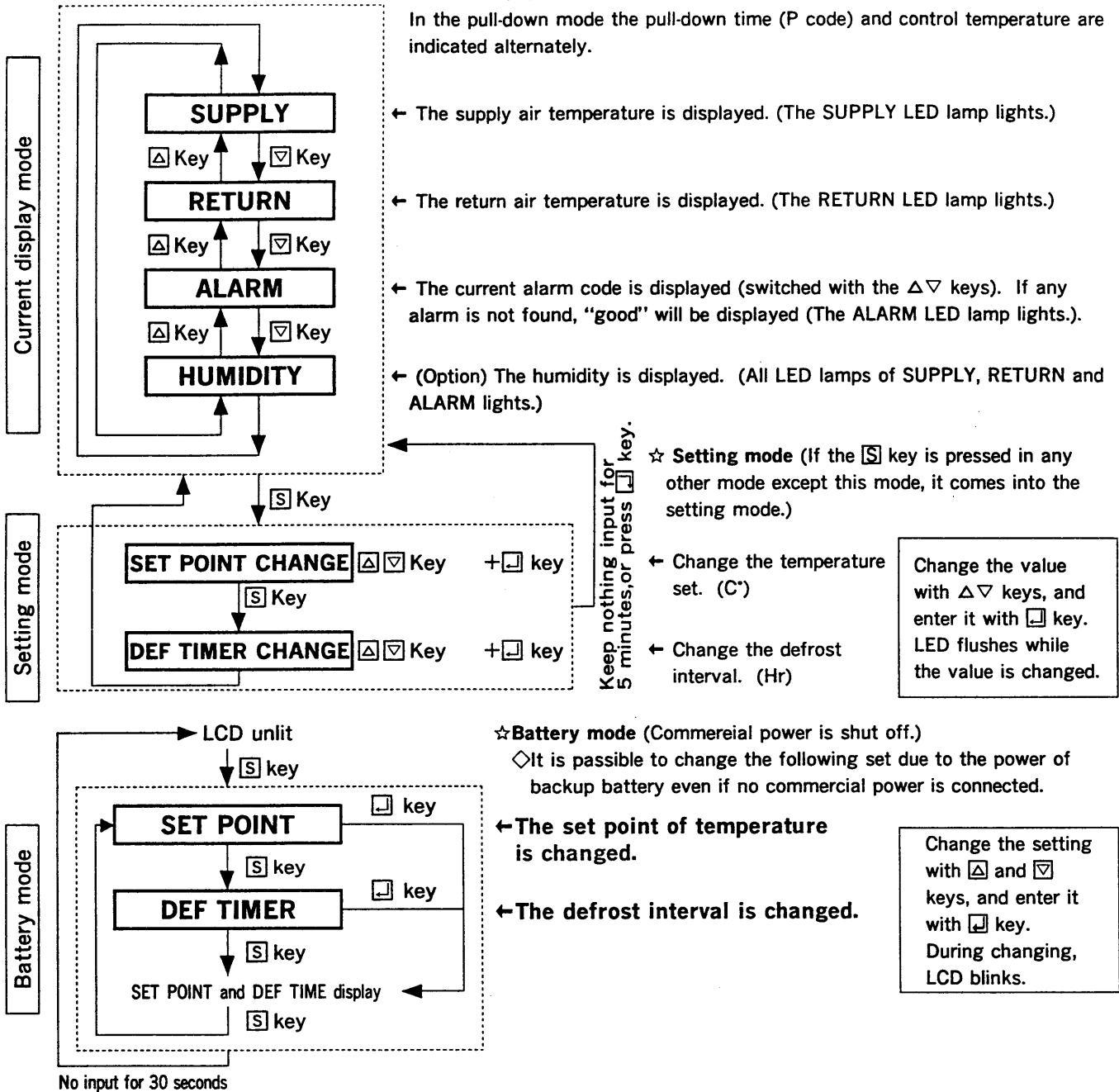
When SUPPLY, RETURN, ALARM lamps LED are turned on at the same time the display indicates Inside humidity on LED.



3.1.2 Panel operation

☆ **Current display mode** (Note: LCD displays the set temperature and defrosting interval in this mode.)

In the pull-down mode the pull-down time (P code) and control temperature are indicated alternately.



☆ **Setting mode** (If the  $\square$  key is pressed in any other mode except this mode, it comes into the setting mode.)

☆ **Battery mode** (Commercial power is shut off.)

◇ It is possible to change the following set due to the power of backup battery even if no commercial power is connected.



**CAUTION** If the ambient temperature is  $-20^{\circ}\text{C}$  or lower, the battery mode will sometimes not activate since the performance of the back-up battery drops. Since this is not a trouble, connect the commercial power supply for setting.



**CAUTION** Be sure to initialize after replacing the controller.



- Established humidity is fixed to 75% RH and not indicated.
- Only inside humidity is indicated on LED.

### 3.1.3 Dehumidity control setting

This unit is equipped with dehumidity control function. According to the cargo loaded, it is necessary to turn dehumidity control ON/OFF.

Dehumidity control can be turned ON/OFF from the controller (DECOSIIIa) display panel.

#### ●Settings

Dehumidity control is turned ON/OFF from the "dHu" item in the Option function setting mode.

Dehumidity control function	"dHu" setting	Dehumidification operation lamp
To use	on (PROVIDED)	Lit
To not use	off (NOT PROVIDED)	Out



#### CAUTION

Always turn OFF the "dHu" item for all cargos except Flower bulb.

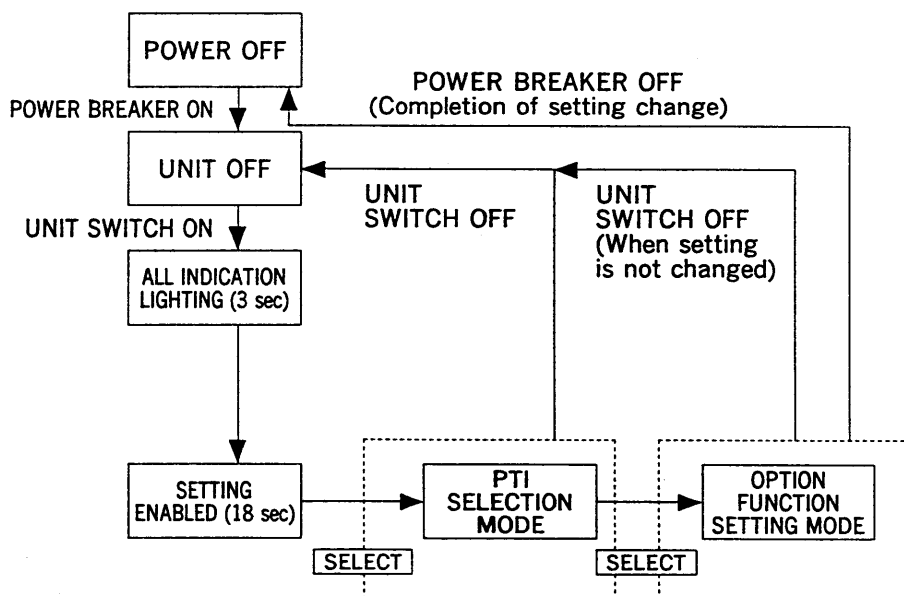


#### CAUTION

The dehumidification operation lamp does not light/go out in synch with the electric heater turning ON/OFF.

#### ●Panel operation

- ① If the unit switch is ON, turn it OFF.
- ② Turn ON the unit switch. After 3 seconds, LCD and LED light. After that within 18 seconds, press **SELECT** keys for 3 seconds or more.
- ③ Controller display PTI selection mode. Press **SELECT** keys for 3 seconds or more further. Controller display Option Function setting mode.
- ④ Press the **S** key twice. "dHu" will appear on the controller display. (For details, see the Option Function setting mode flow on the back of this page.)
- ⑤ Select "on" (provided) or "off" (not provided) with the **△** and **▽** keys.
- ⑥ Press the **□** key to fix the setting.
- ⑦ Turn off circuit breaker without fail (To fix the setting)



#### CAUTION

After changing settings, if the unit is turned OFF from the unit switch without shutting OFF power from the circuit breaker first

- The controller will not recognize the new settings. The next time the unit is turned ON from the unit switch, the controller will automatically return to the setting mode and the last updated item. (The display and all the LEDs light up when control power is activated.)
- After changing settings, always shut OFF power from the circuit breaker without fail.

Dehumidification control cannot be done by water cooled operation



**CAUTION**

If unit operate with water cooled operation on condition that “dHu” setting is “on” position, unit doesn’t operate dehumidification control but normal control automatically



**CAUTION**

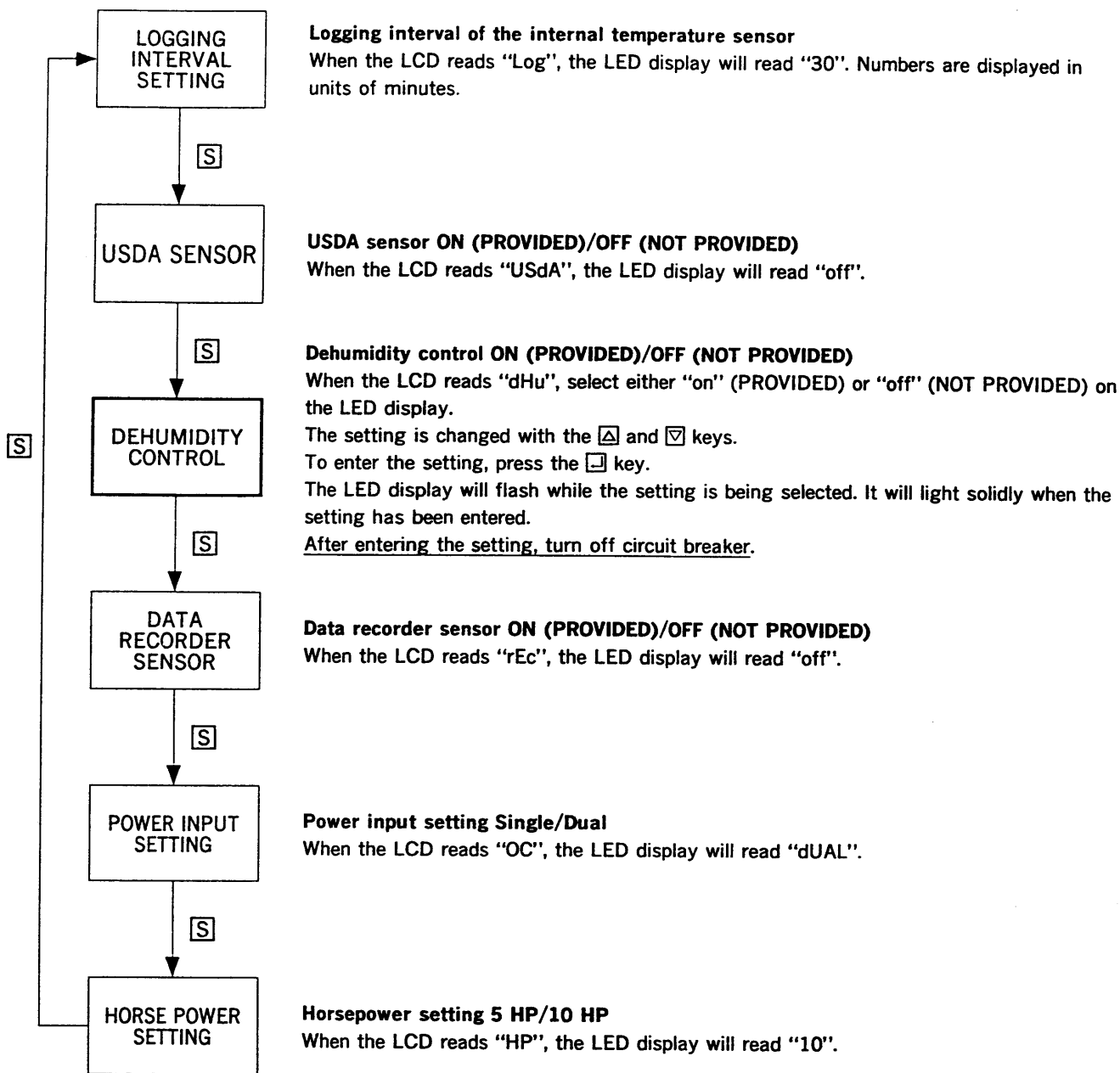
When the setting temperature is  $-3.0^{\circ}\text{C}$  or below, “dHu” setting should be “off” position.

●Option function setting mode

The following data can be checked in the Option function setting mode.

Logging interval setting (15, 30 or 60min), USDA sensor (ON/OFF), Dehumidity control (ON/OFF), Data recorder sensor (ON/OFF), Power input setting (Single/Dual), Horsepower setting (5HP/10HP)

Set dehumidity control (PROVIDED/NOT PROVIDED) before operating the unit.



(Note)

The factory setting is displayed all items except for dehumidity control.

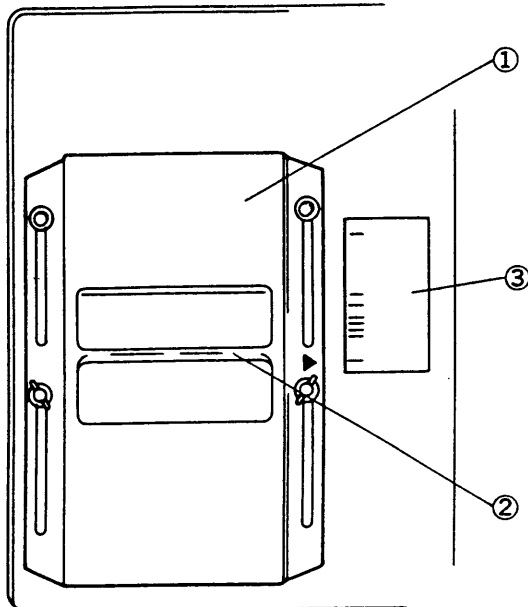
## 3.2 Ventilator

### Handling method

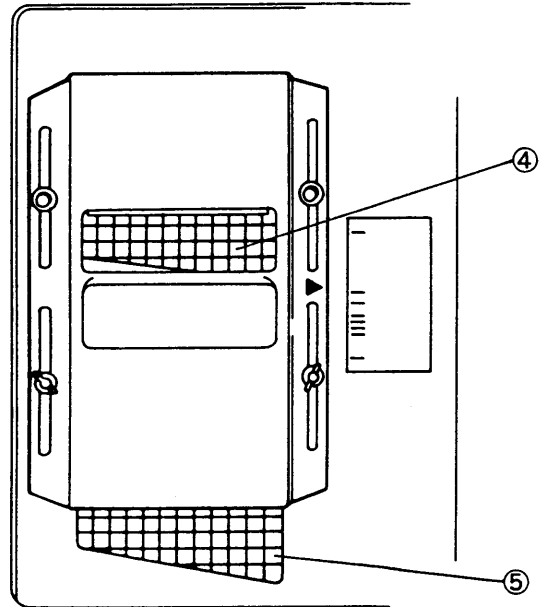
- 1) Unnecessary ventilation (Frozen mode)  
Set the handle to "CLOSE".

- 2) Necessary ventilation (chilled mode)  
Slide the handle upward.

\* Set the arrow mark of the ventilator at the graduation on the scale to adjust the ventilation as desired according to the cargo.



- ① Ventilator cover  
② Handle  
③ Nameplate



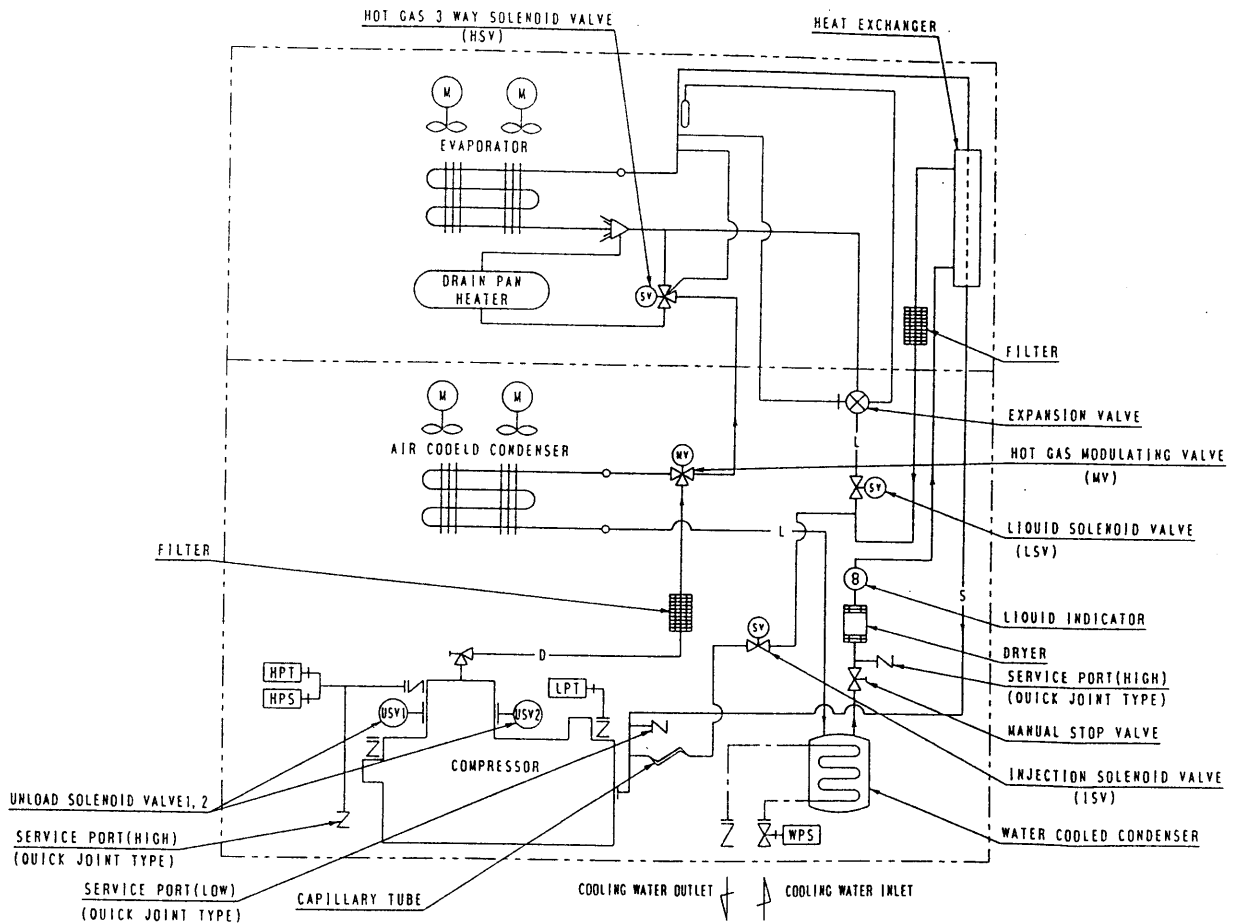
- ④ Air inlet  
⑤ Air outlet



### CAUTION

- Be sure to keep the ventilator closed during transportation of the frozen cargo.
- In case the cargo doesn't need dehumidification control, be sure to set the scale under normal open and adjust the ventilator.

4. Piping diagram



HPS	HIGH PRESSURE SWITCH
HPT	HIGH PRESSURE TRANSDUCER
LPT	LOW PRESSURE TRANSDUCER
WPS	WATER PRESSURE SWITCH

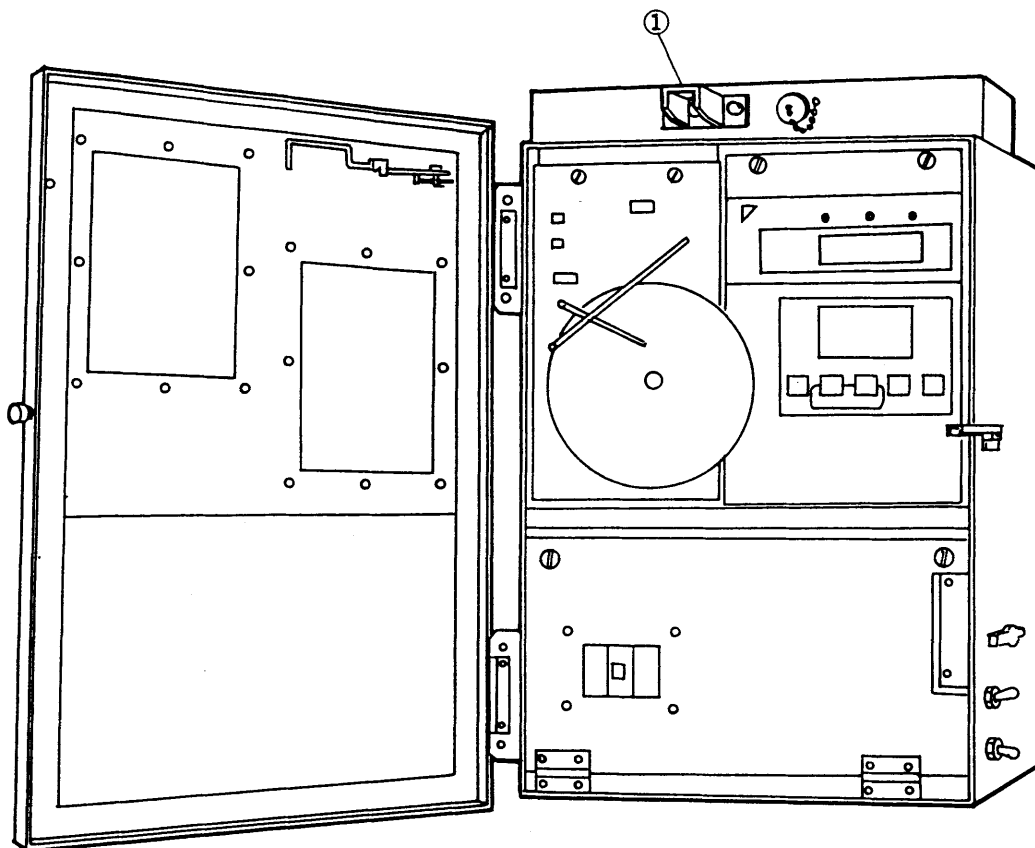
— L —	LIQUID PIPE
— S —	SUCTION PIPE
— D —	DISCHARGE PIPE
— H —	FLANGE CONNECTION
— I —	FLARE CONNECTION
- - -	WATER PIPE

## 5. Dehumidity operation LAMP

Pilot lamps on the top of control box.

If shows dehumidity control is functional or not.

- Lamps light.....When established optional function mode of controller "dHu control is runs or not" is set "ON"
- Lamps light out.....When established optional function mode of controller "dHu control is runs or not" is set "OFF"

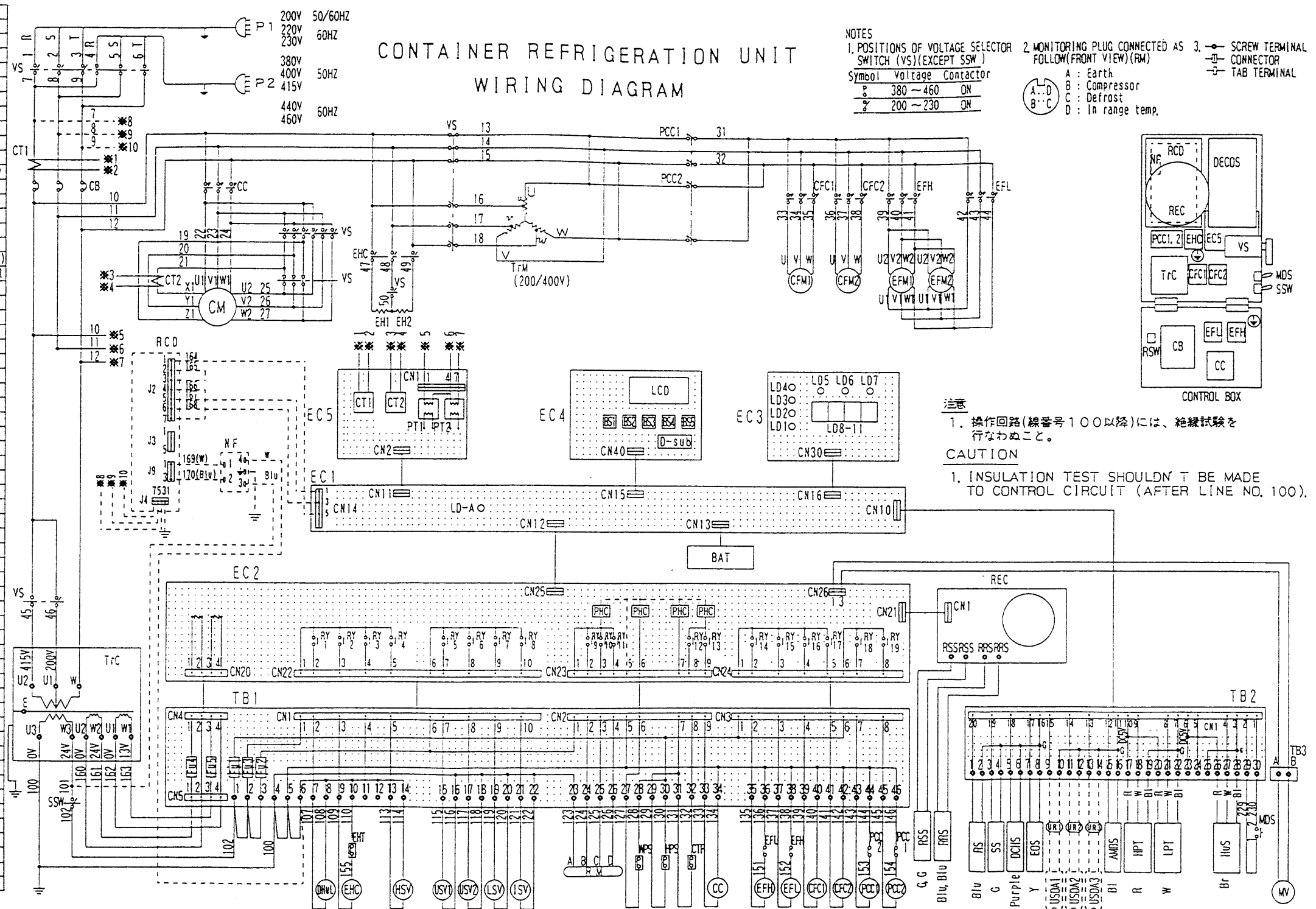


① Dehumidification operation lamp (DHuL) (Red)

## 6. Electric wiring diagram

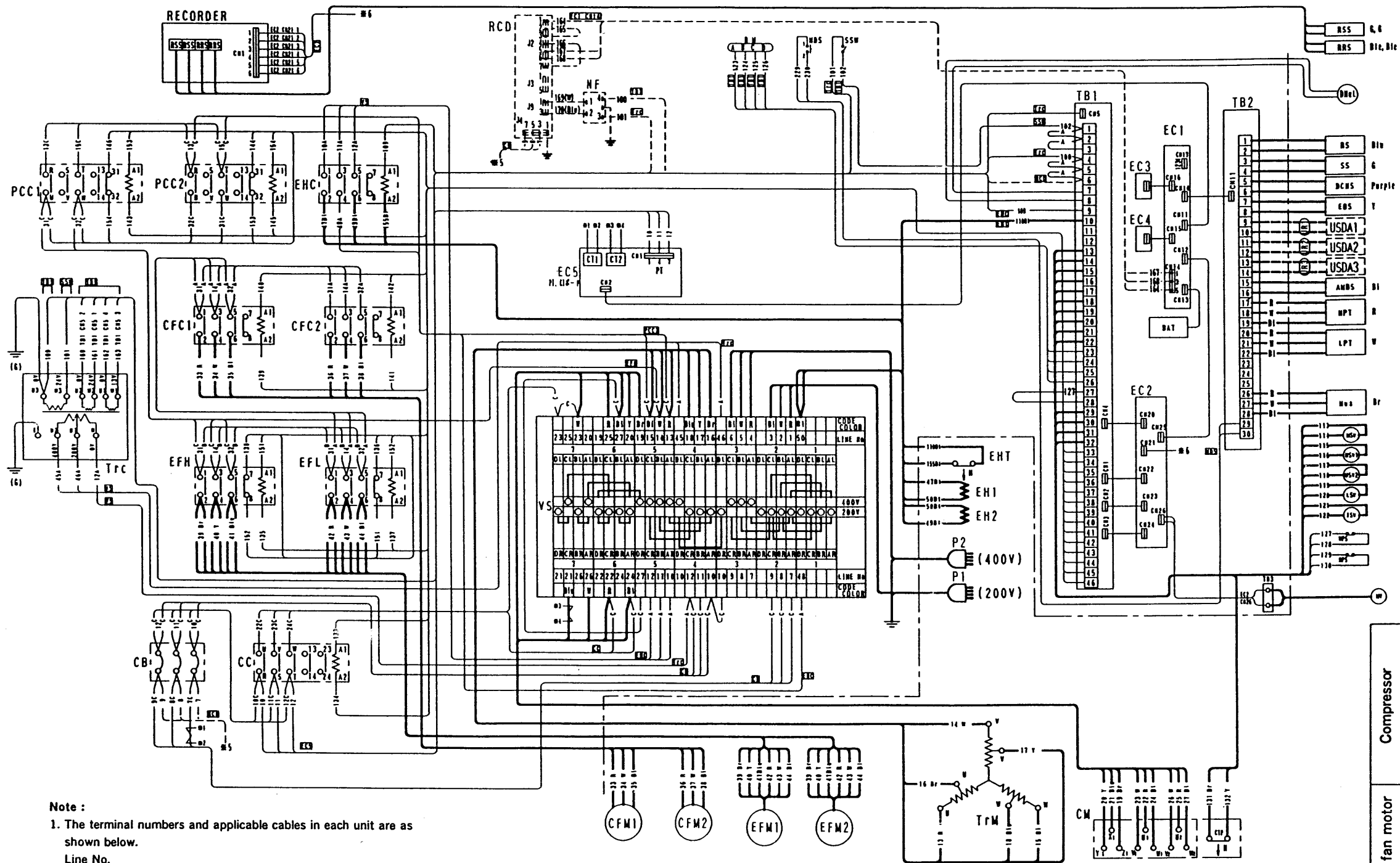
### 6.1 Schematic wiring diagram

AMBS	AMBIENT TEMP. SENSOR
BAT	BATTERY
BSI-5	PUSH BUTTON SWITCH
CB	CIRCUIT BREAKER(50A)
CC	COMPRESSOR CONTACTOR
CFC1, 2	CONDENSER FAN CONTACTOR
CFM1, 2	CONDENSER FAN MOTOR
CM	COMPRESSOR MOTOR
CT1, 2	CURRENT TRANSFORMER
CTP	COMPRESSOR THERMAL PROTECTOR
DCHS	COMPRESSOR DISCHARGE SENSOR
DHUL	DEHUMIDIFICATION OPERATION LAMP
D-sub	D-sub CONNECTOR(RS232C)
EC1	CPU BOARD (DECOS)
EC2	I/O BOARD (DECOS)
EC3	LED BOARD (DECOS)
EC4	LCD BOARD (DECOS)
EC5	PRINTED CIRCUIT BOARD (CT, PT)
EFH	HIGH SPEED EVAPORATOR FAN CONTACTOR
EFL	LOW SPEED EVAPORATOR FAN CONTACTOR
EFM1, 2	EVAPORATOR FAN MOTOR
EH1, 2	ELECTRIC HEATER
EHC	ELECTRIC HEATER CONTACTOR
EHT	ELECTRIC HEATER THERMOSTAT
EOS	EVAPORATOR OUTLET SENSOR
Fu1-5	FUSE(250V, 10A)
HPS	HIGH PRESSURE SWITCH
HPT	HIGH PRESSURE TRANSDUCER
HSV	HOT GAS SOLENOID VALVE
HvS	HUMIDITY SENSOR
ISV	INJECTION SOLENOID VALVE
LCD	LIQUID CRYSTAL DISPLAY
LD-A	SERVICE MONITOR-GREEN
LD1-11	LIGHT-EMITTING DIODE
LPT	LOW PRESSURE TRANSDUCER
LSV	LIQUID SOLENOID VALVE
MDS	MANUAL DEFROST SWITCH
MV	MODULATING VALVE
P1, 2	POWER PLUG
PCC1, 2	PHASE CORRECTION CONTACTOR
PHC	PHOTO COUPLER
PT1, 2	POTENTIAL TRANSFORMER
REC	RECORDER
RM	REMOTE MONITORING RECEPTACLE
RSS	RECORDER RETURN AIR SENSOR
RS	RETURN AIR SENSOR
RSS	RECORDER SUPPLY AIR SENSOR
RY1-19	RELAY
SS	SUPPLY AIR SENSOR
SSW	START SWITCH
TB1-3	TERMINAL BOARD
TrC	CONTROL TRANSFORMER
TrM	MAIN TRANSFORMER
USV1, 2	UNLOAD SOLENOID VALVE
VS	VOLTAGE SELECTOR
WPS	WATER PRESSURE SWITCH
OPTIONAL SPECIFICATION	
NF	NOISE FILTER
RCD	REMOTE COMMUNICATION DEVICE
URI-3	USDA RECEPTACLE
USDA1-3	USDA SENSOR





## 6.2 Actual wiring diagram



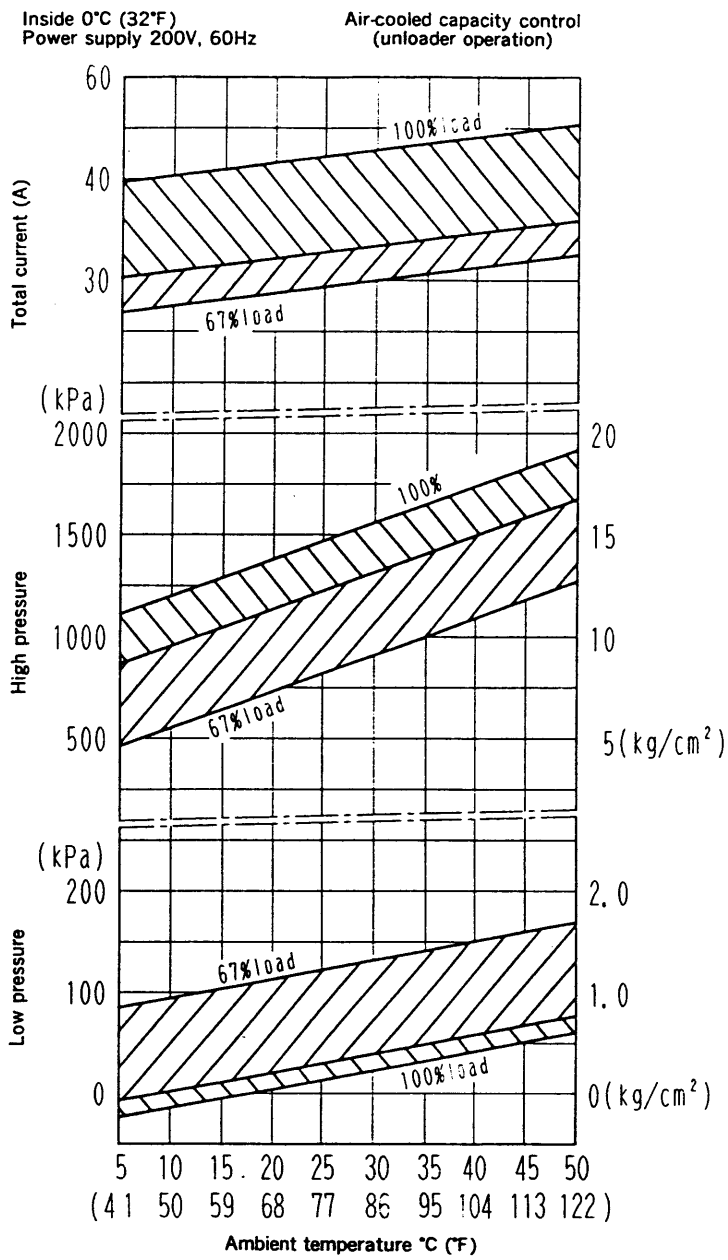
**Note :**  
 1. The terminal numbers and applicable cables in each unit are as shown below.  
 Line No.

- 101~ : UL1015 AWG16(1.25mm<sup>2</sup>) : —
- UL1015 AWG14(2.0mm<sup>2</sup>) : —A—
- UL1015 AWG12(3.5mm<sup>2</sup>) : —B—
- UL1015 AWG10(5.5mm<sup>2</sup>) : —C—
- 660V SYP 8.0mm<sup>2</sup> : —E—
- 660V SYP 0.75mm<sup>2</sup> : —

- 2. Line color  
 Bl : Black Blu : Blue Br : Brown R : Red Y : Yellow  
 W : White (G) : Green-ground P : Purple
- 3. Ground cable is VSFO. 75mm<sup>2</sup>.
- 4. — line represents the line in the box.
- 5. — line represents the external unit or junction cable.
- 6. ..... represents the optional specification.

Compressor	400V class	
	200V class	
Evaporator fan motor	LOW	
	HIGH	
Condenser fan motor		

### 7. Operation pressure and running current



	Item	Unit	Amperage
1	Condenser fan motor running current (2 mortors)	A	1.7 (AC400V)
2	Evaporator fan motor running current (2 mortors)	A	High speed 3.2 (AC400V)
			Low speed 0.9 (AC400V)
3	Electric heater running current (2 heaters)	A	1.9

### 8. Dehumidity operation

The dehumidity control is explained in this item.

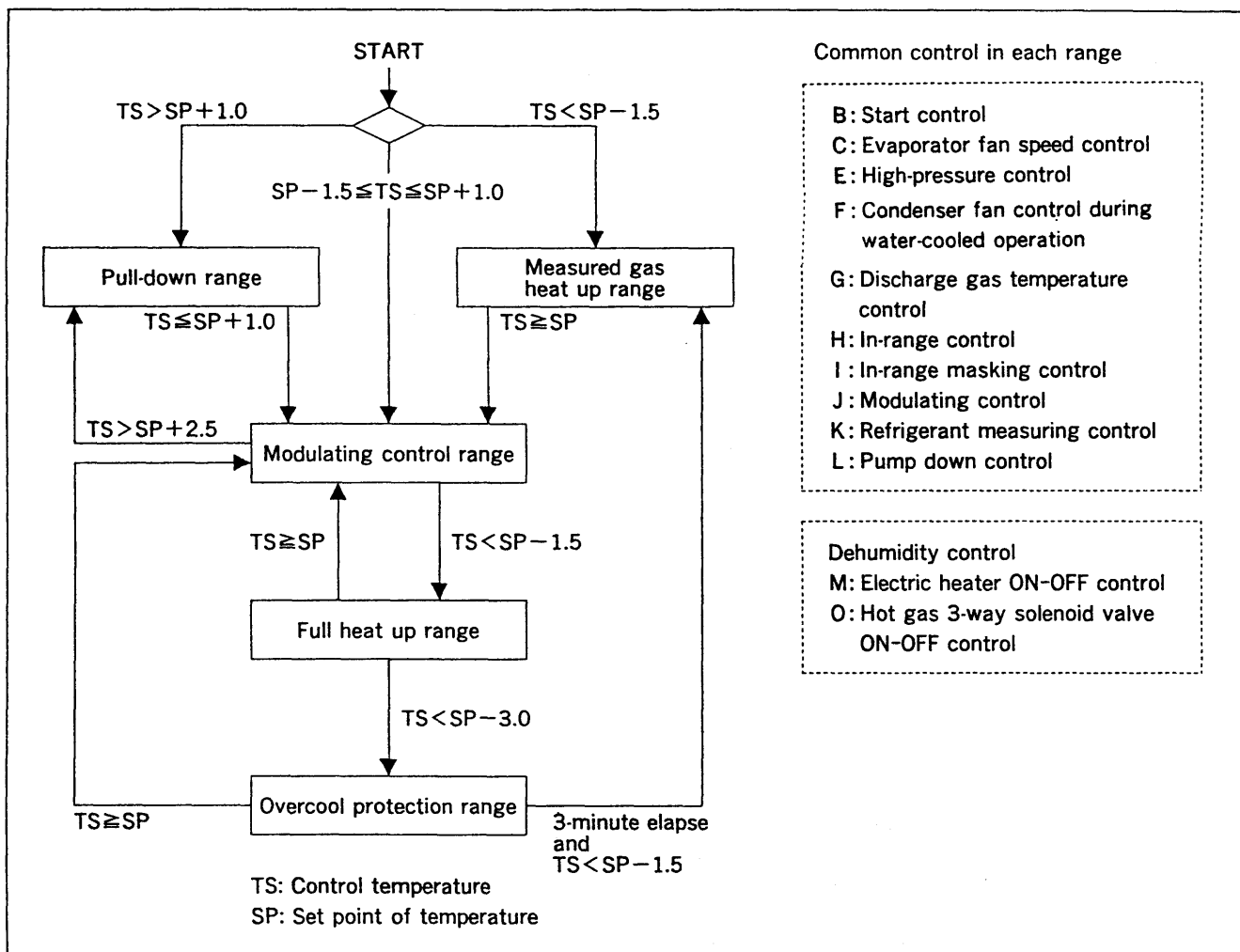
For the other temperature control refer to standard service manual.

This unit is equipped with dehumidity control function.

Dehumidity control can be turned ON/OFF from the controller (DECOSIIIa) display panel.

Dehumidity control setting	Temperature control	Dehumidity control
OFF	Normal control	Without dehumidity control
ON	Normal control	In chilled mode the following modes are automatically switched Mode 1 : Full cool (100% load) + Electric heater OFF Mode 2 : 67% unload control + Electric heater OFF Mode 3 : 67% unload control + Electric heater ON

Control state transition and common control



Operation of magnetic contactor and solenoid valve

Component name		Pull-down	Modulating control	Full heat up	Overcool protection	Measured gas heat up
Magnetic contactor	Compressor	CC	○	○	○	×
	Evaporator fan. High speed	EFH	○	○	○	○
	Evaporator fan. Low speed	EFL	×	×	×	×
	Condenser fan	CF	△	△	△	△
Solenoid valve	Liquid solenoid valve	LSV	○	○	○	×
	Injection solenoid valve	ISV	△	△	×	×
	Hot-gas 3-way solenoid valve	HSV	×	○	×	×
	Unload solenoid valve 1	USV1	△	△	○	×
	Unload solenoid valve 2	USV2	×	×	×	×
Opening, modulating valve		MV	0%	0.1~99.9%	100%	0%
						100%

Note) ○: Energized ×: Deenergized △: Depending on the control

Dehumidify control

	Control name	Control content	Operation mode			
			Frozen	Chilled	Partiol frozen	Defrost
M	Electric heater ON-OFF control	The electric heater is operated on and off to control the innied cumidity		※○		
N	Unload control	According to the required cooling capacity the compressor load rate is controlled. Load rate: 100%-67%		○		
O	Hot gas 3 way solenoid valve ON-OFF control	When the in-range lomp is turnedon, Hot gas 3 way solenoid valve is ON to improve the dehumidity performance		※○		

※ Only in the modulating control range.

**M: Electric heater ON-OFF control**

The electric heater is operated in the following condition at modulating control range only.

[The electric heater willbe in operation if]

- ① Container relative humidity is above 75%RH and control temperature is below set point.

[The electric heater will not be in operation if]

- ① Container relative humidity is below 60%RH.
- ② Control temperature is out-range.
- ③ Control temperature is above setpoint +0.5°C for 15 minutes or more.

Note) Once the electric heater is turned OFF by the trigger of ②③ above, the electric heater is not turned ON in any conditions.

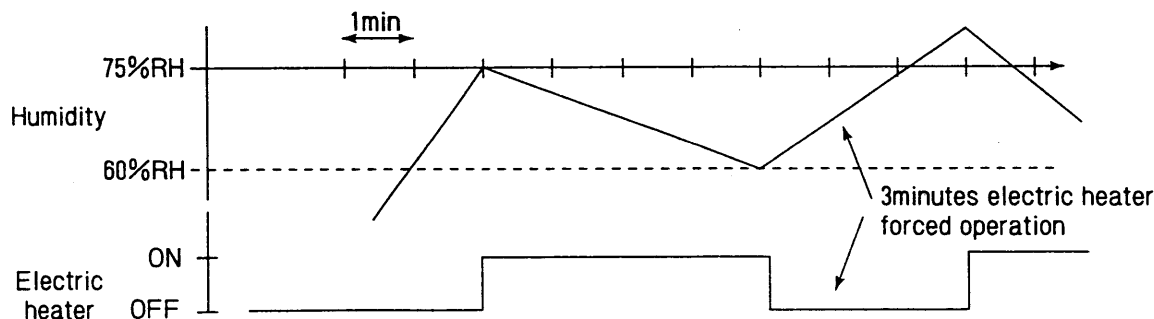
Here, if one of the following conditions is satisfied;

- the power supply is reset.
- the set point temp is changed.
- the defrosting operation is inctiated.

and then if ① above is satisfied, the electric heater is turned ON.

When the electric heater is ON, it is forcibly ON for 3 minutes (3 minutes electric heater forced operation).

When it is OFF, it is forcibly OFF for 3 minutes.



**N: Unload control**

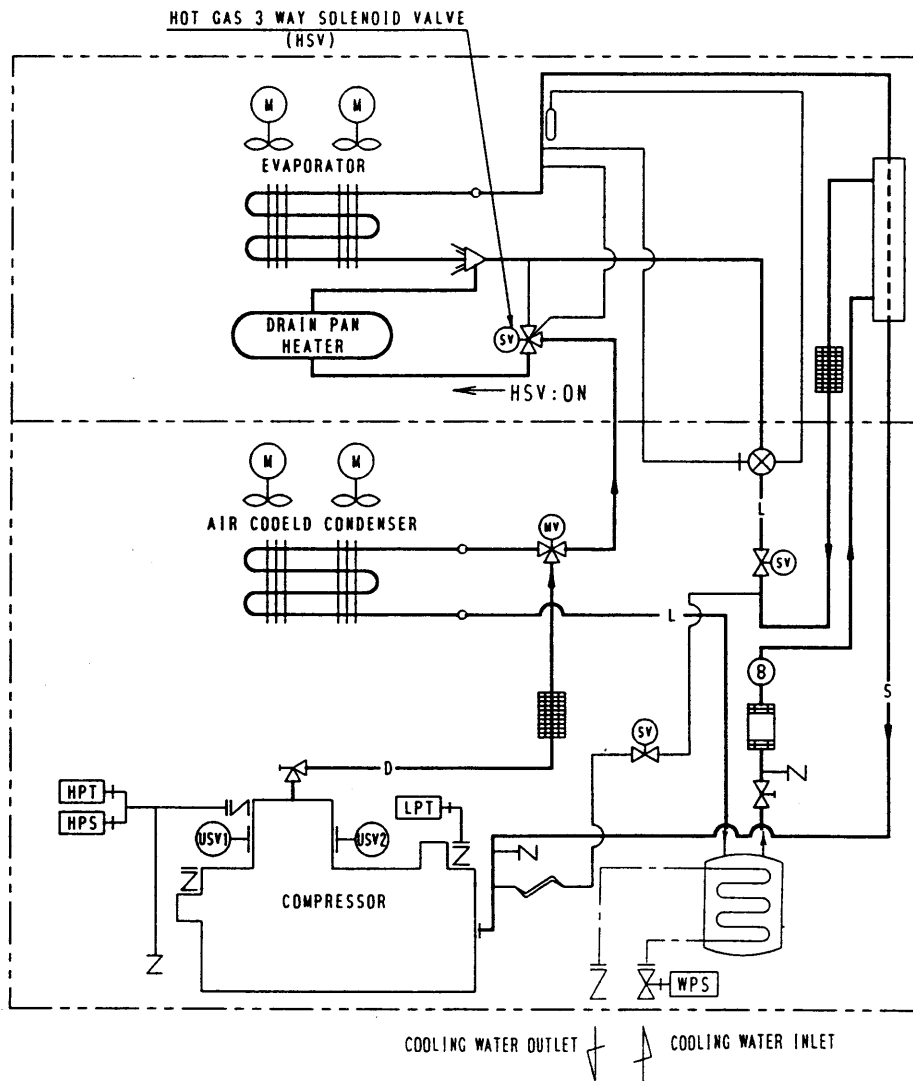
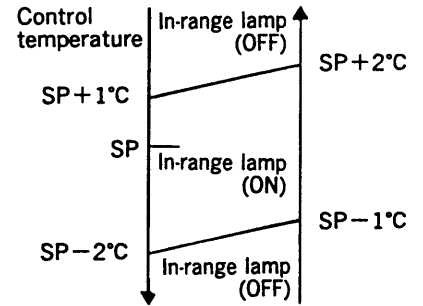
The unload control in the chilled mode executed in the modulating control range alone.  
The compressor load rate is changed to 100% or 67% load automatically.

Load rate	Control state	Condition of changing loadrate
67%	Pull-down range	$TS > 10^{\circ}\text{C}$
100%	Pull-down range	$TS \leq 10^{\circ}\text{C}$
100%→67%	Modulating control range	$TS \leq SP$
67%→100%	Modulating control range	Refer to Case1, 2 on next page

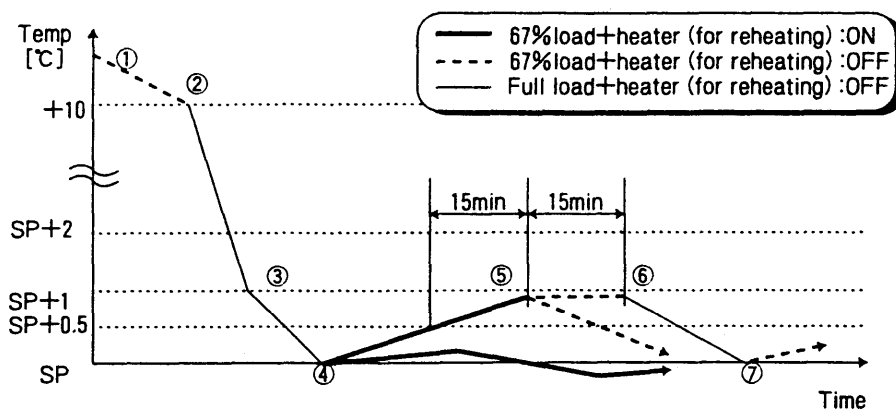
TS : control temperature  
SP : set point

**O: Hot gas 3 way solenoid valve ON-OFF control**

When the in-range lamp is turned on, Hot gas 3 way solenoid valve is ON to improve the dehumidify performance.  
When it becomes out-range, Hot gas 3 way solenoid valve is OFF.

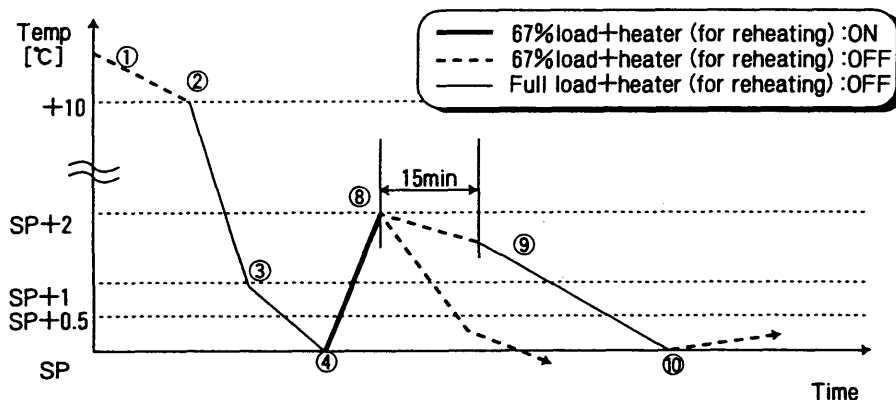


Control  
CASE 1



- ① The compressor is operated at 67% load in pull-down range when the control temperature is above +10°C.
- ② The compressor is operated at full load when the control temperature is below +10°C. (In full load of compressor, the electric heater for reheating is always OFF.)
- ③ When the control temperature is in-range, modulating control starts. At the same time, Hot gas 3 way solenoid valve (HSV) is ON to improve the dehumidify performance. (HSV is coupled with the in-range operation)
- ④ When the control temperature reaches set point, load rate of compressor is changed from 67% to full load and the electric heater is ON. (In case container relative humidity is above 75%RH.)
- ⑤ When the compressor runs at 67% load, and when the control temperature exceeds SP+0.5°C for 15 min, the electric heater is turned OFF.  
The electric heater is not turned ON unless the defrosting operation is initiated.
- ⑥ If the control temperature does not drop to SP+0.5°C or lower within 15 min after the heater stops, the compressor runs at full load.
- ⑦ When the control temperature reaches set point with the compressor being operated at full load, the load rate is changed to 67% load. (The heater keeps being OFF until next defrost operation...State of ⑤)

CASE 2



- ⑧ When the control temperature is above SP+2°C with the compressor operated at 67% load, the heater is OFF.
- ⑨ The compressor is operated at full load at the same as ⑥.
- ⑩ When the control temperature reaches set point, load rate of the compressor is changed from full load to 67% at the same as ⑦. (The heater keeps being OFF until next defrost operation...State of ⑧)

9. Set values of functional and protective devices

Device name	Funcio	Activation	Set value	Detection method	Symbol
Electronic controller	Humidity setting	OFF	60%RH	Humidity sensor	Hus
		ON	75%RH		
Electric heater	Prevention of over heating	OFF	71°C	Electric heater thermo.	EHT
		ON	49°C		



## 10. Electronic Controller

### 10.1 Operation procedure

Refer to the standard manual TR94-01 (Japanese)/TR94-02 (English) about display mode, because this mode is the same method as the existing controller.

But this controller differs from existing it in the following specifications.

- ① Do not display the control humidity set at the current display mode and the battery mode  
(In this unit, the control humidity is set by 75% RH)
- ② If dehumidify control is turned OFF, it is possible to operate as the normal unit  
(Refer to 3.1.3 Dehumidify control setting about setting method.)

### 10.2 Back-up correspondence for humidity sensor abnormality

The unit has normal control function when dehumidify control is turned OFF. Then the unit is operated normally is no relation to normal/abnormal of the following devices.

Abnormality sensor	mode	Back-up content		
		Item	Control content	
Humidity sensor	C	Electric heater	ON	When the control temperature (TS) is below set point (SP) during modulating control range, the electric heater is forcibly ON.
			OFF	The electric heater is forcibly OFF at the following conditions. <ul style="list-style-type: none"> <li>• If it is changed from in-range to out-range</li> <li>• If TS is above spt 0.5°C for 15 minutes</li> </ul>
		PF, F, DF	Normal operation	
Electric heater thermostat	EHT	All modes	Continuous operation	

C : Chilled operation, PF : Partial frozen operation, F : Frozen operation, DF : Defrost operation

### 10.3 Replacement and initialization

Refer to the standard manual TR94-01 (Japanese)/TR94-02 (English) about replacement procedure and initial setting of the controller.

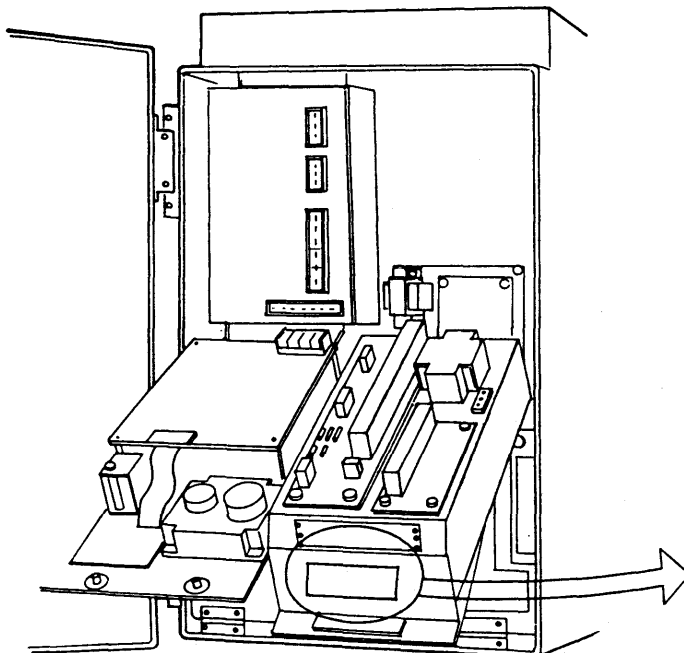


#### CAUTION

When installing the new controller, be sure to replace the latest new one (Soft ware revision no, "013 or more")

3 types of the controller for spare parts are delivered to the field

When installing the new controller, always replace the latest one (Soft ware revision no, "013 or more")



OR



SOFT WARE REVISION NO.

ソフト番号

Controller for spare parts	DECOSIII	DECOSIIIa	DECOSIIIa
Soft ware revision no	~006	007~012	013~
Initialsetting • Method • Reference manual	From the dip switches  Standar manual (TR94-01, TR94-02)	From the control panel  Supplement/Explanation of setting (TR96-04, TR96-05)	From the control panel  Same as left  This manual
Dehumidity control function • Dehumidity control setting • Unload control in chilled mode • Electric heater control correspondence for humidity sensor abnormality	Not provided  —  67-33% Automatic changeability  —	Provided  Variable  Same as left  Forciby OFF	Provided  75% RH (fixative)  100-67% Automatic changeability  ON-OFF control by back-up function
Interchangeability	Not interchangeable	Not interchangeable	Interchangeable
Incase mounting old version controller • Transporting the flower bulb • Transporting the all commodity except the flowe bulb	×  ○	△ Note1  ○	○  ○

Note1 The emergency dehumidity control is possible in the following procedure.


- Change the controller. (Always replace the proper controller after the transportation.)
- Initial setting
  - Select "on" on LED while the LCD indicates "HUS" and "ATO" in the option function setting mode.
  - Select "off" on LED while the LCD indicates "FLb" in the option condition setting mode.
  - To fix the selection, press the  key.
  - Refer to the supplement (TR96-04, TR96-05) about other procedure.
  - After changing settings, always shut OFF power from the circuit breaker without fail.
  - In this case, the dehumidification operation lamp does not light when the unit is operating.
- Set the set point and the defrost interval.
- Set the set point of humidity at 75% RH
  - The electric heater is on when the container relative humidity is above the 75% RH (set point)
  - It is off during in-range when the container relative humidity is below the 60% RH (set point - 15% RH)
- In case the control temperature does not reach the in-range. Adjust the ventilation (Closed) until being the in-range. (Watch the unit all the time)



## 11. PTI

## Container refrigeration unit inspection card

DAIKIN INDUSTRIES, LTD.

Installed ship name				Date of inspection	
Container No.				Place of inspection	
Loaded cargo				Unit Model No.	
Customer's staff				Unit No.	
Service staff				Compressor No.	
Check No.	Check point		Check method		Reference value
1	External appearance of important parts of container (doors, equipment, damaged points)		Visual		
2	Cleaning interior and exterior of container		Visual		
3	Checking the smudge of the unit (air-cooled condenser, evaporator)		Visual		
4	Checking penetration between inside and outside of unit		Visual		
5	Checking external appearance of power cable and plug		Visual		
6	Cleaning drain hose		Visual		Shall be free from clogging
7	Checking appearance of sensors		Visual		
8	Tightened condition of cable glands and monitoring receptacle		Retighten with tool		Make sure that they are firmly tightened
9	Checking condenser and evaporator fan motors for vibration and noise		Touch and listen		
10	Checking seal of liquid indicator		Check liquid indicator		Make sure that it is sealed
11	Checking for water in refrigerant		Check liquid indicator		Dry indication
12	Checking compressor oil level (operating condition)		Check oil level gauge		 (Oil level 1/4~3/4)
13	Checking operation of recorder and battery voltage		Visual		
14	Checking operation of each solenoid valve		Listen or touch each tube		
15	Checking operation of controller		Check LED and LCD		No alarm
16	Checking operation of high pressure control		Visual		Right side air cooled condenser fan to be stopped
17	Checking power supply change-over switch	Checking 200V class operation		Visual	Switch lever: horizontal
		Checking 400V class operation		Visual	Switch lever: vertical
18	Unit insulation resistance	Compressor circuit	<input type="text"/> MΩ	DC 500V megger	2MΩ or more
		Evaporator fan circuit	<input type="text"/> MΩ		
		Condenser fan circuit	<input type="text"/> MΩ		
		Electric heater circuit (option)	<input type="text"/> MΩ		
19	Checking manual defrosting operation		Manual defrost switch		
20	Checking leakage of gas and oil on refrigerant circuit (mainly at joints)		Gas leak detector		
21	Unit operating voltage		R-S <input type="text"/> V S-T <input type="text"/> V T-R <input type="text"/> V		
22	Checking operation of high pressure switch	H-CUTOUT	<input type="text"/> kg/cm <sup>2</sup>	Stop condenser fan forcedly	21kg/cm <sup>2</sup> 2060Kpa
			<input type="text"/> Kpa		
23	Checking operation of low pressure control	L-CUTOUT	<input type="text"/> cmHgV	Pump down during defrost operation	54cmHgV -72Kpa
			<input type="text"/> Kpa		
24	Ambient temperature	<input type="text"/> °C	0°C (32°F)		-18°C (-0.4°F)
	LP kg/cm <sup>2</sup> (Kpa)		<input type="text"/>		<input type="text"/>
	HP kg/cm <sup>2</sup> (Kpa)		<input type="text"/>		<input type="text"/>
	Total current		R <input type="text"/> A S <input type="text"/> A T <input type="text"/> A	R <input type="text"/> A S <input type="text"/> A T <input type="text"/> A	
	Operating time		starting → 0°C <input type="text"/> Hr <input type="text"/> min		0°C → -18°C <input type="text"/> Hr <input type="text"/> min
25	Checking automatic defrosting operation		Defrost time <input type="text"/> min		

# パーツリスト編

(標準品と異なる部品のみ記載)

## Chapter for Parts List

(The parts which are different from that of the standard products only are described in this parts list)

### パーツリスト使用上の注意

このパーツリストはダイキン海上コンテナ冷凍装置の部品を集録してあります。パーツリスト使用にあたっては、必ず次の注意事項をご一読の上使用していただくようお願いいたします。

1. 部品のご注文の際は機種名、部品番号、および部品名、形式を必ずご指定ください。

なお、部品番号欄が空白になっている部品は、図面番号で指示願います。

2. 掲載部品の範囲は、あくまでも現地にて分解修理できるところまで記載しております。

一部部品につき納期のかかるものおよびセット単位となるものもありますので、お近くのダイキンパーツセンター又はサービスステーションに相談願います。

### ORDERING INSTRUCTIONS

The parts list contains the parts of the DAIKIN Marine Type Container Refrigeration Units.

Carefully read the following cautions before using the list.

1. When ordering the parts, be sure to describe Model No., Name of part and type.

When ordering the parts No. are not shown in the PARTS NO. column, be sure to describe DWG.NO..

2. The parts shown in the list are replacement or repairing on the spot only. Certain parts require a long time of delivery or are assembled in a set, so it is advisable to contact with the nearest DAIKIN PARTS CENTRE.

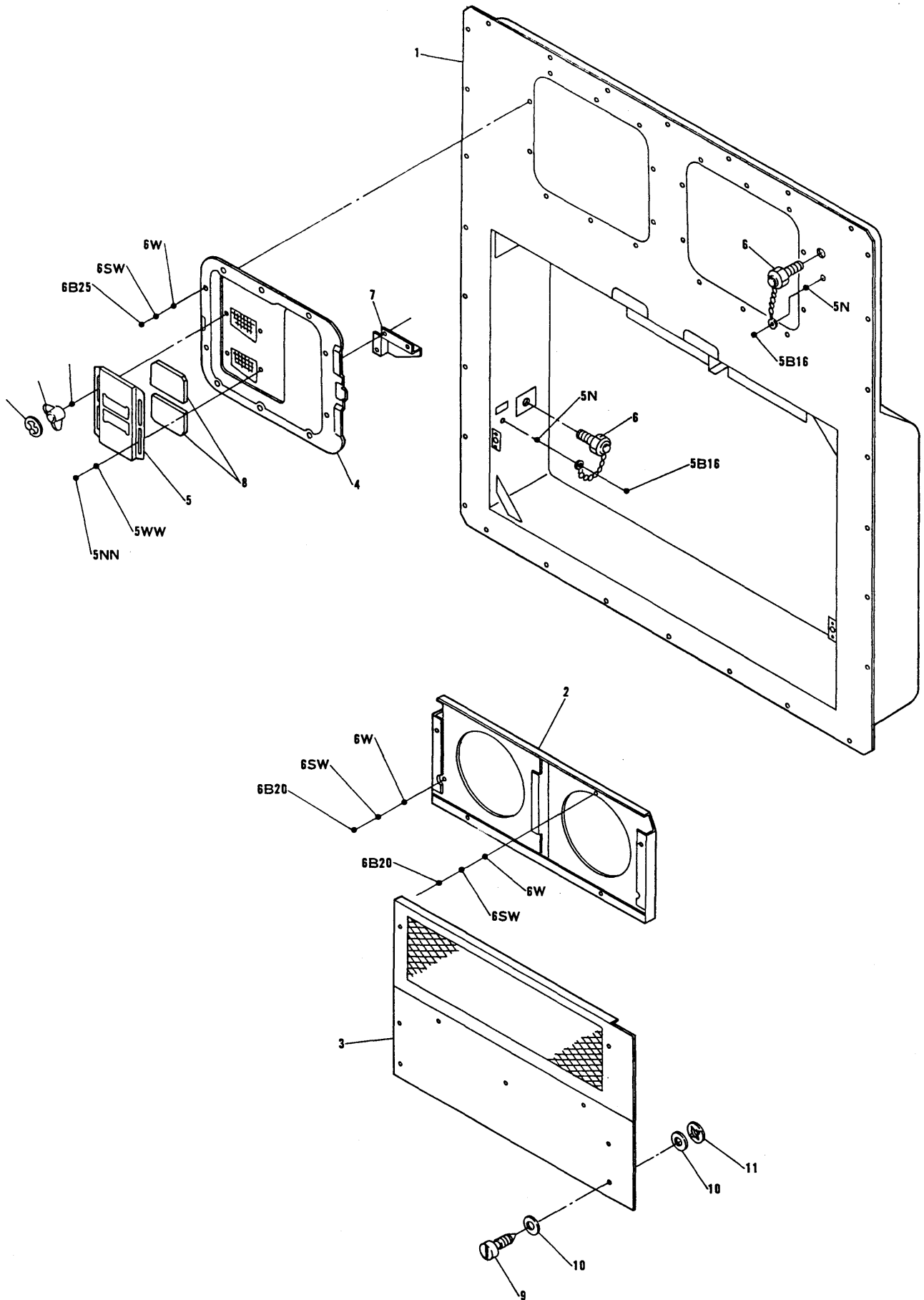


**注意** 湿度センサーは約3年で交換することを推奨します。



**CAUTION** It is recommended to replace the humidity sensor every 3 years.

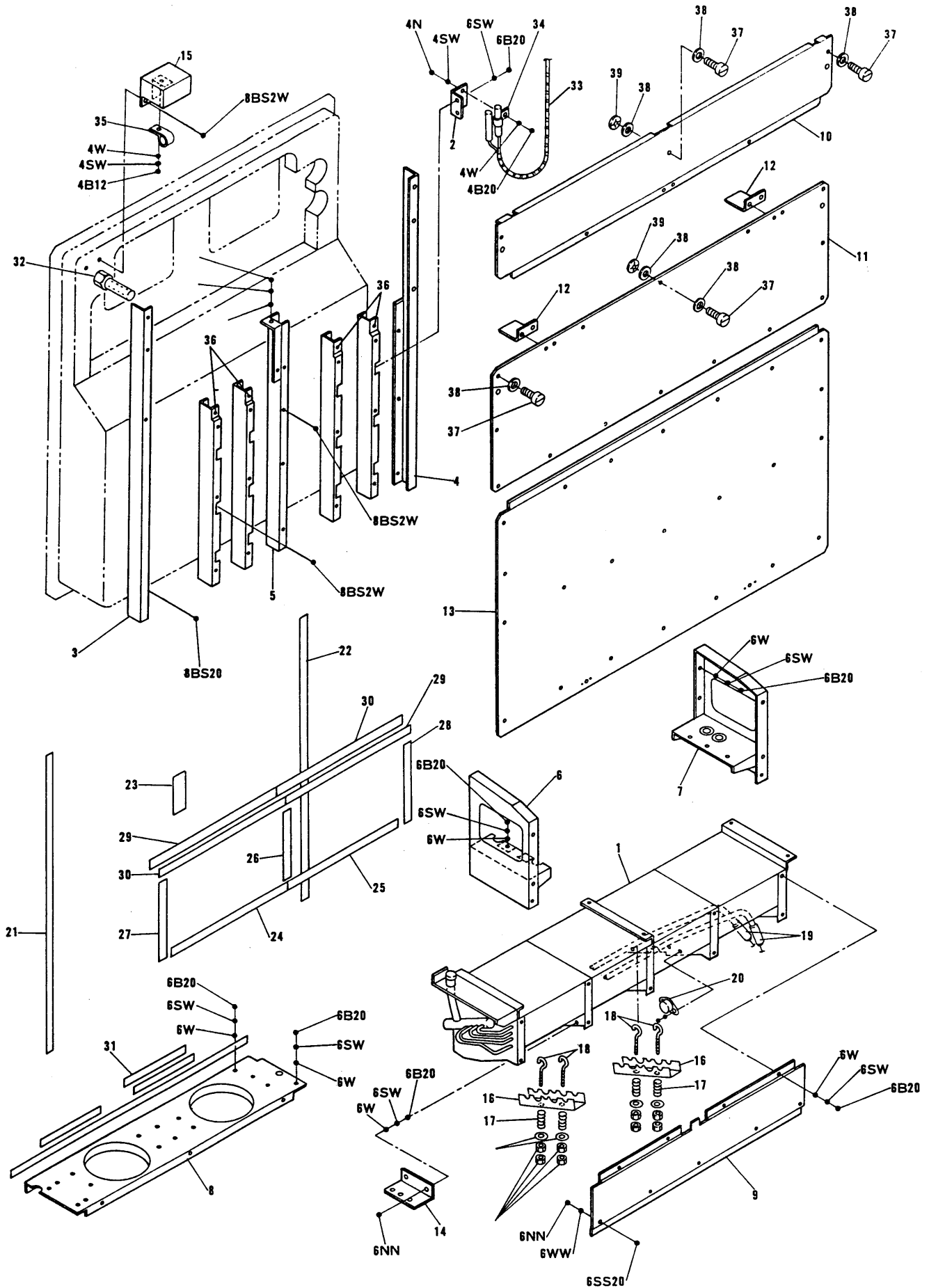
Parts related with the casing (out side)  
ケーシング関連部品(外)



Note : Regarding to "●" of this figure, refer to "List of bolts and nuts" of the end of this book.



Parts related with the casing (inside)  
ケーシング関連部品(内)



Note : Regarding to "●" of this figure, refer to "List of bolts and nuts" of the end of this book.

Parts related with the casing (inside)

ケーシング関連部品(内)

NO. 符号	PARTS NO. 部品番号	PARTS NAME	部 品 名 称	DWG. NO. 図 面 番 号	TYPE SPECIFICATION 形 式 仕 様	QTY/UNIT 1台当り所要数	REMARKS 備 考
1		Evaporator	蒸発器	2PA61774-1	CRB-LXE10CA	1	
2		Set plate, supply sensor	吹出温度センサー取付板	4P002017-1		1	
3		Side stay (left)	サイドステー(左)	3PA65245-1		1	
4		Side stay (right)	サイドステー(右)	3PA65245-2		1	
5		Stay (center)	中央ステー	3PA65243-1		1	
6		Casing frame, evaporator (left)	蒸発器枠(左)	2PA65249-1		1	
7		Casing frame, evaporator (right)	蒸発器枠(右)	2PA65248-1		1	
8		Fan guide assy (Evaporator fan)	ファンガイド組立品	3PA65244-1		1	
9		Reinforce plate, evaporator	蒸発器補強板	2PA65251-1		1	
10		Rear plate (upper)	裏板(上)	2PA65250-1		1	
11		Rear plate (middle)	裏板(中)	2P000138-1		1	
12		stopper	金具	4P000150-1		2	
13		Rear plate (lower)	裏板(下)	2PA65313-1		1	
14		Fitting plate, piping hot gas	ホットガス配管固定板	4P000003-1		1	
15		Mounting plate, RH sensor	RH センサ固定板	4P000182-1		1	
16		Heater fixture	ヒータ固定具	4P000204-1		2	
17		Coil spring, electric heater	コイルバネ(電気ヒータ)	4P000211-1		4	
18		Set metal, heater use	ヒータ取付金具	4P000208-1		4	
19		Electric heater	電気ヒータ	R3459001-5	220V, 1KW	2	
20		Electric heater thermostat	過熱防止サーモ	R3320571-3	ST-5B 71/49	1	
21		Seal packing, side duct	シールパッキン(サイドダクト)	3PA65318-1		1	
22		Seal packing, side duct	シールパッキン(サイドダクト)	3PA65318-2		1	
23		Seal packing, center stay	シールパッキン(中央ステー)	4PA65323-1		1	
24		Seal packing, rear panel lower	シールパッキン(裏板下)	3PA65320-1		1	
25		Seal packing, rear panel lower	シールパッキン(裏板下)	3PA65320-2		1	
26		Seal packing, center stay~rear panel	シールパッキン (中央ステー~裏板中央)	4PA65326-1		1	
27		Seal packing, side duct left	シールパッキン (サイドダクト左)	4PA65321-1		1	
28		Seal packing, side duct right	シールパッキン (サイドダクト右)	4PA65321-2		1	

● When ordering the parts whose No. are not shown in the PARTS NO. column, be sure to describe DWG. NO.

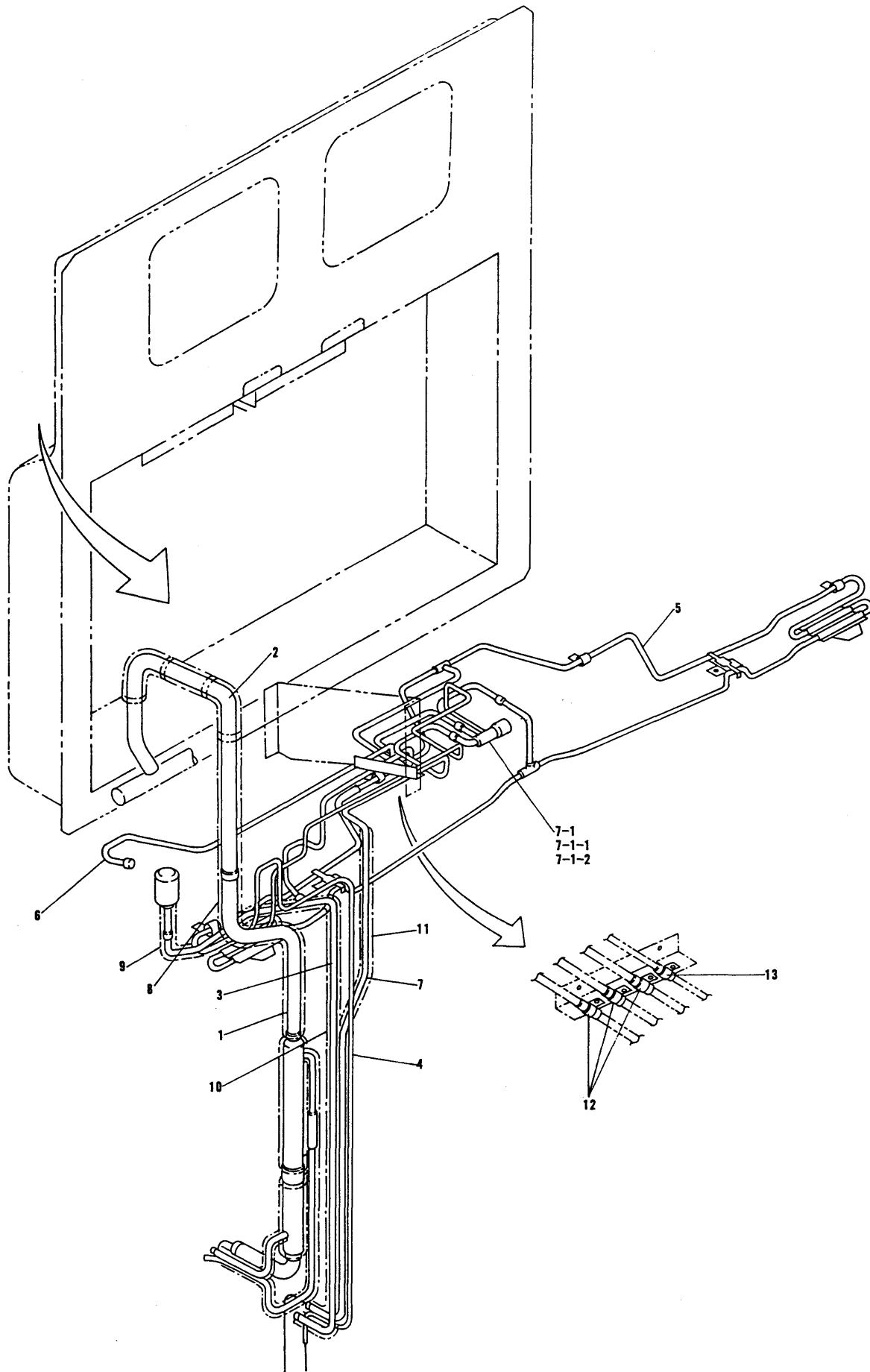
● 部品番号欄が空白になっている部品は、図面番号で指示願います。

(TR97-01)



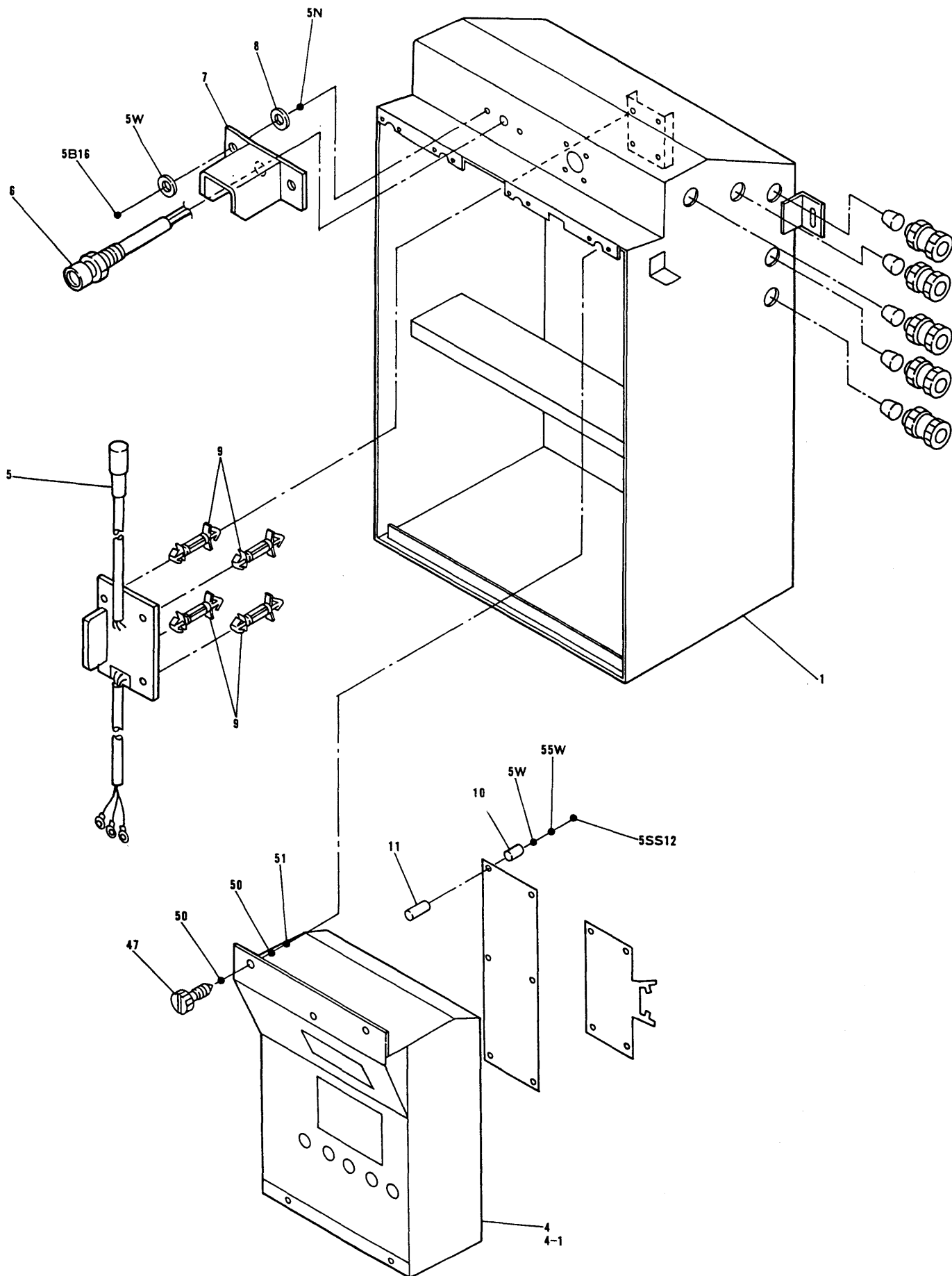




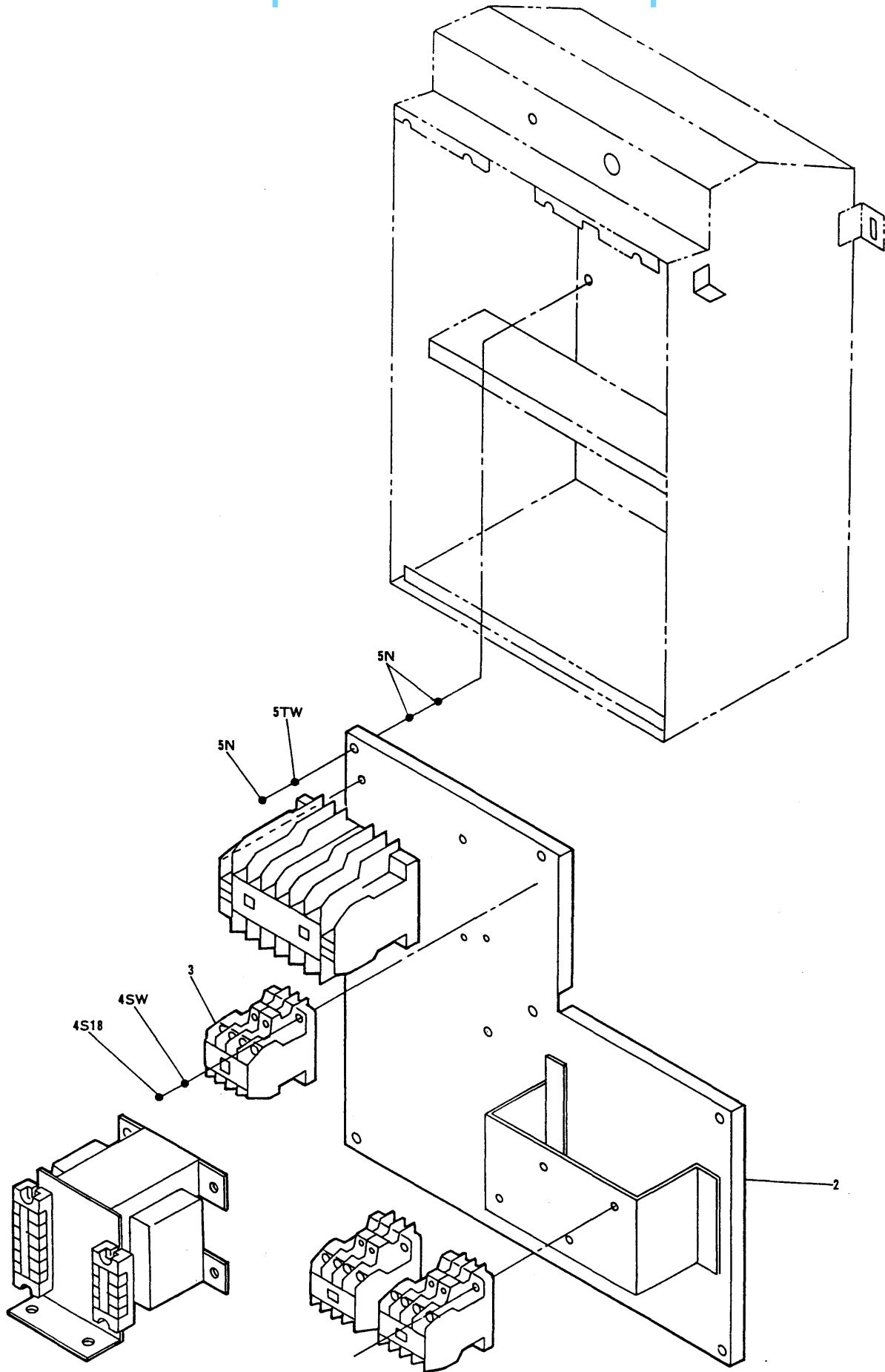


Note : Regarding to "●" of this figure, refer to "List of bolts and nuts" of the end of this book.





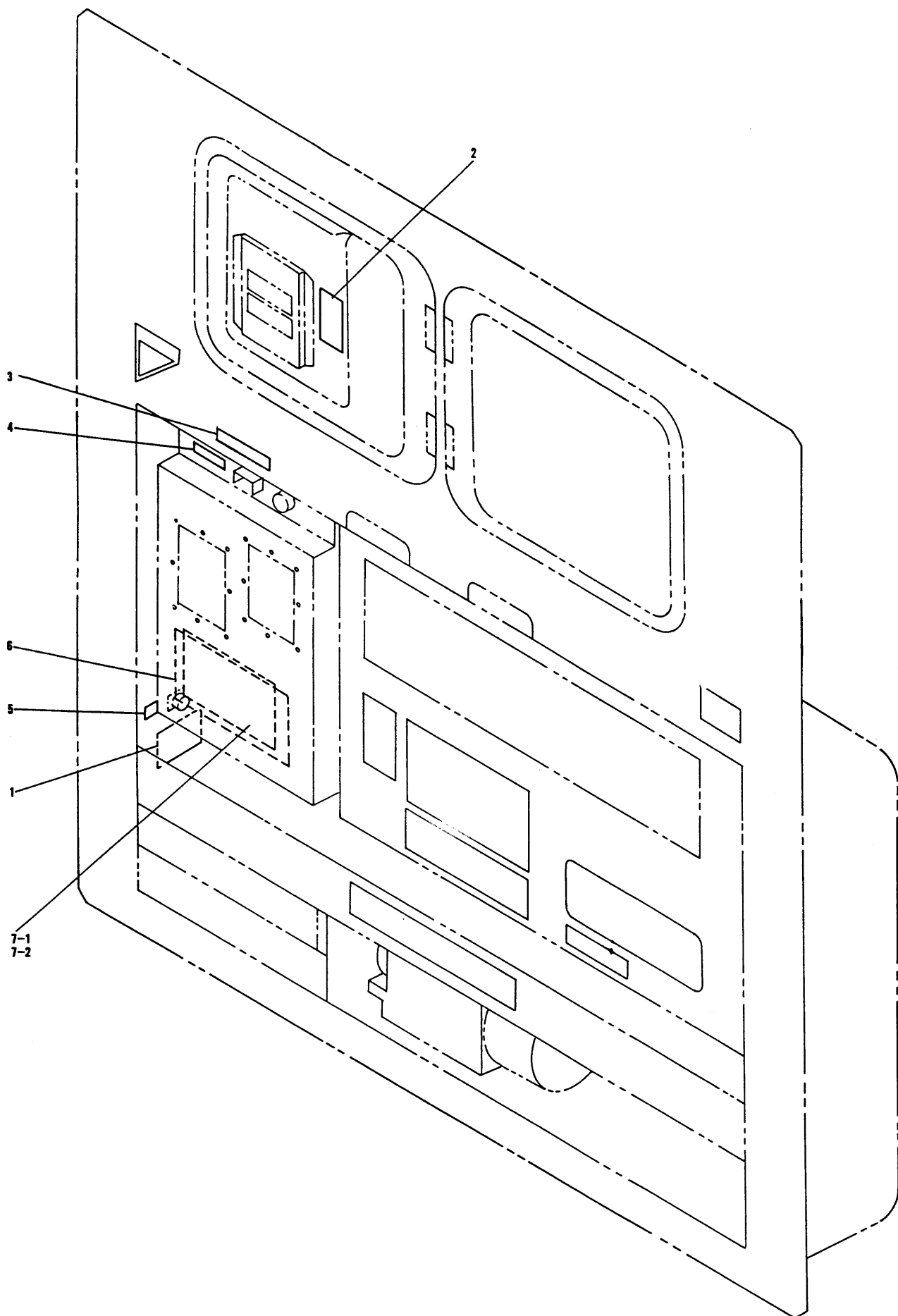
Note : Regarding to "●" of this figure, refer to "List of bolts and nuts" of the end of this book.



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