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**DAIKIN**



Marine type  
Container Refrigeration Unit

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Service Manual · Parts List

Optional Functions

**LXE10D-A12R**

**DAIKIN INDUSTRIES, LTD.**

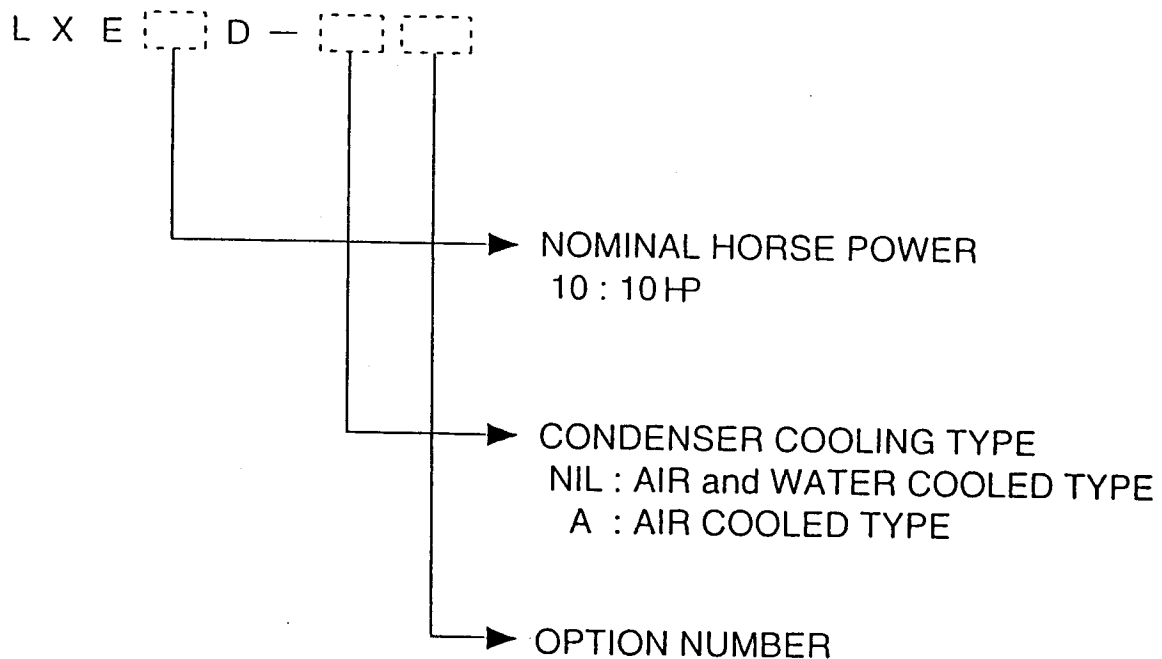
TR99-05

This manual describes only the items different from those of the standard machine.

For the items not described in this manual, refer to the following document.

- Service Guide, Services
- Service Manual (Operation)
- Parts List
- Operation Manual of Personal Computer Software
- Compressor Dismantling and Assembly Manual

### Denomination of Model Name



Note) "R" GIVEN AFTER OPTION NUMBER STANDS FOR "REVISION" AND IT IS GIVEN FOR THE UNIT WHICH IS SPECIALLY MODIFIED.

## Covered Models

This Service Guide describes only the items different from those of the standard machine regarding the features and operation of LXE10D-A12R

Name of models	LXE10D-A(Standard)	LXE10D-A12R
Cooling system of condenser	Specifically used for air cooling system	
Reheat coil	Provided	Not provided
400V class power cable & plug	Provided	Not provided
Lever of voltage selector	Provided	Not provided (Contactor of voltage selector have already been set to 200V class.)

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# SAFETY PRECAUTIONS

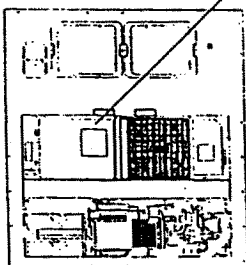
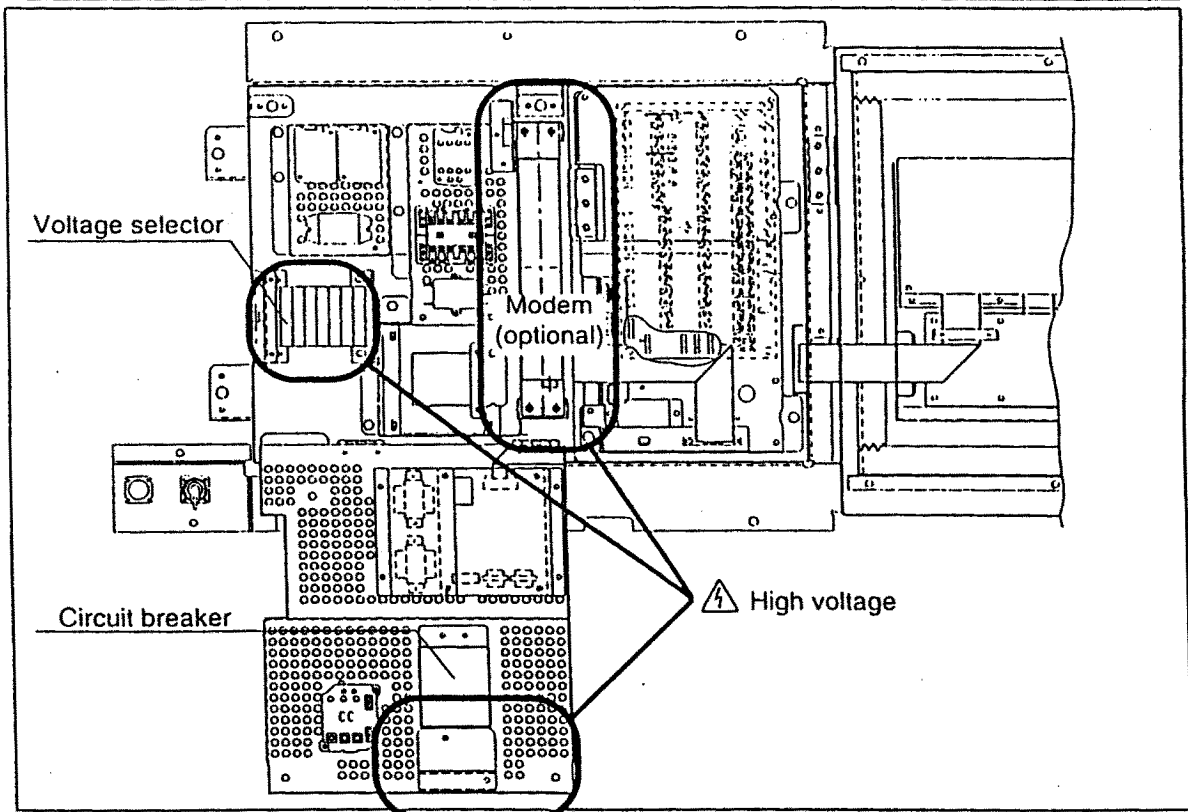
Always observe the following points before operating or inspecting a unit.

## DANGER

Always turn off the main power supply of the facility before disconnecting the power plug. 

Be sure to unplug the power cord before inspecting the inside of control box.

\* Because the high voltage remains at the voltage selector, the circuit breaker and the optionally provided modem even though the circuit breaker in the control box is turned off. 



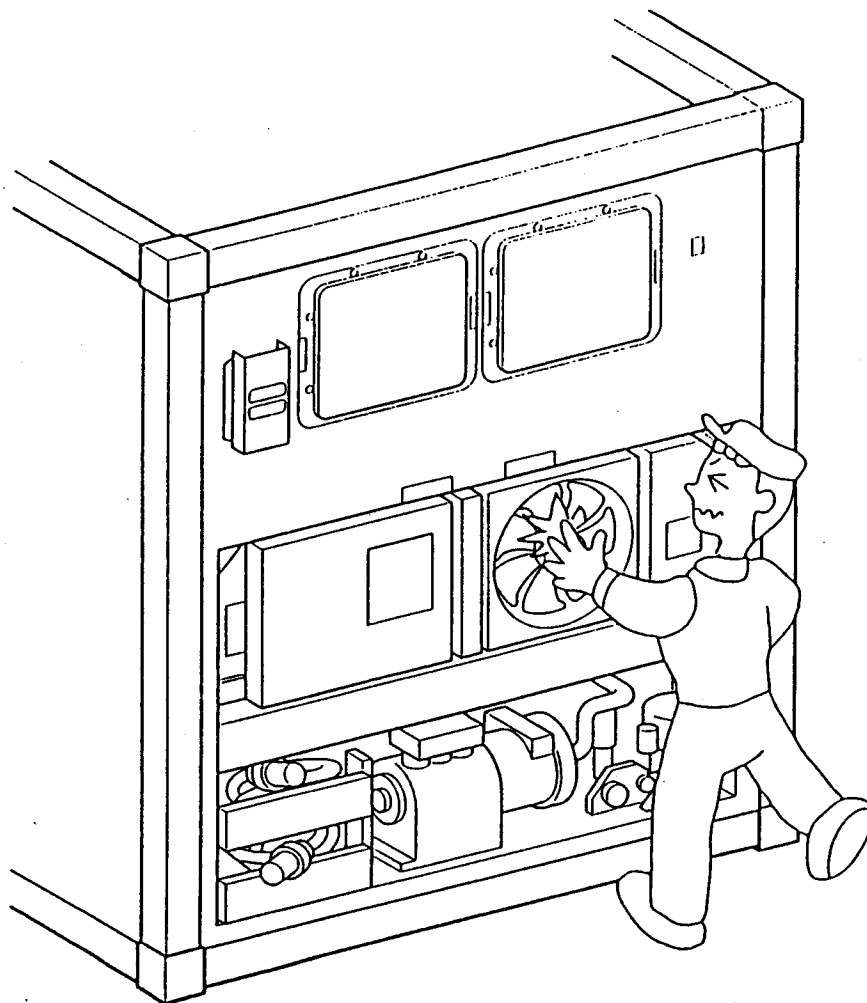
 **WARNING**

Do not touch the condenser fan during electricity being applied.

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



- At air-cooled operation : Condenser fan may start and stop automatically for the refrigerant high pressure control.
- At water-cooled operation : Condenser fan may start and stop automatically for cooling of the control box.

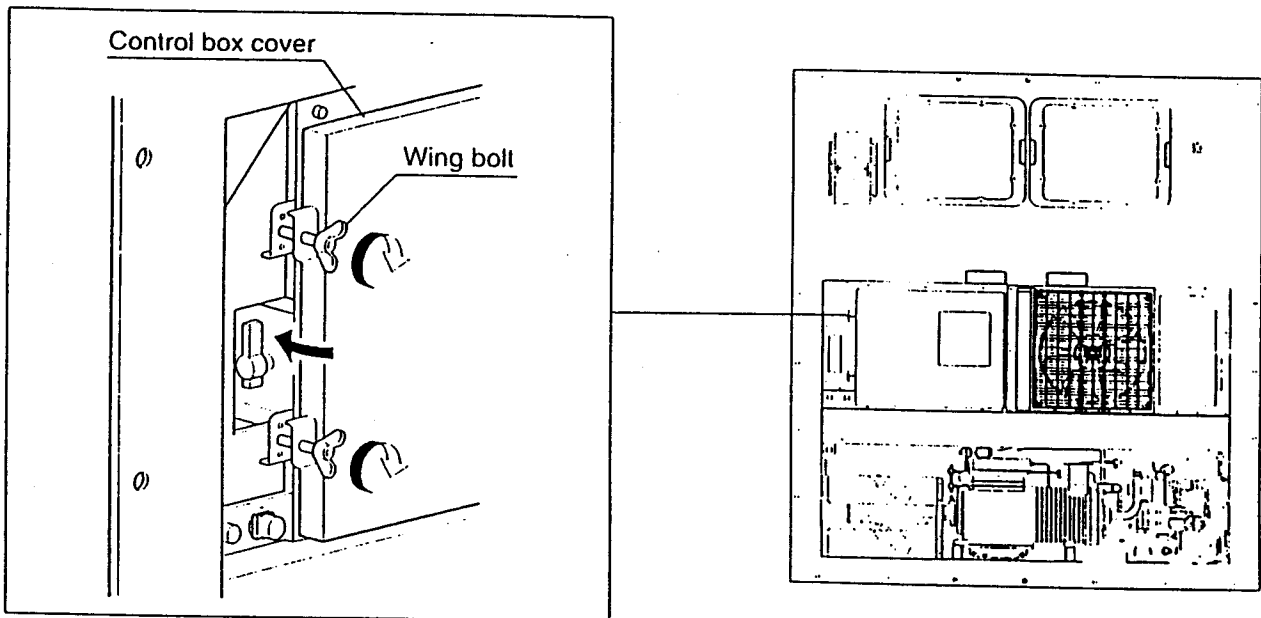




## CAUTION

Before starting the unit, connect the power plug and run the generator.

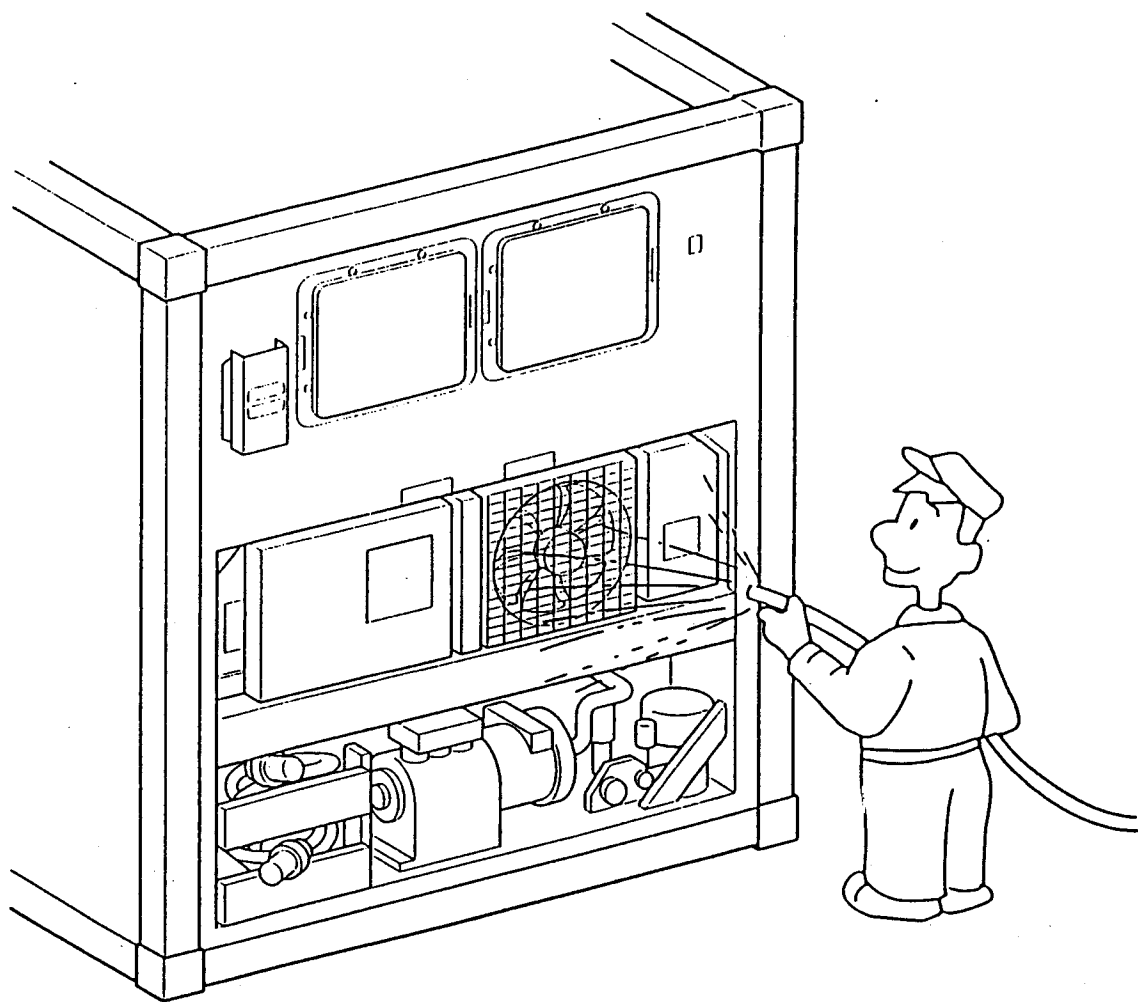
Securely close the control box cover.  
Otherwise, it will cause water ingress.





## CAUTION

Wash the refrigeration unit with fresh water before PTI.  
Carefully flush the air-cooled condenser by fresh water since  
much salt sticks to it.







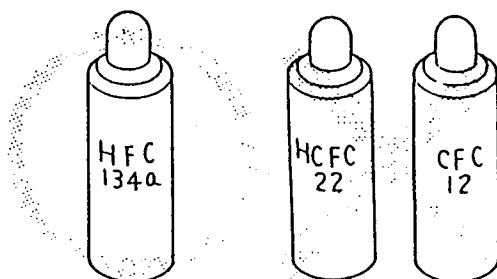
## CAUTION

### Refrigerant and refrigerating machine oil

Charge only refrigerant HFC 134a to the unit.

Never attempt to use any other refrigerant (CFC12, HCFC22, etc) on the refrigeration unit.

If any other refrigerant not specified is charged, it may cause the troubles to the unit.



Use only Daikin specified oil (Castrol Icematic SW46) when replacing the refrigerating machine oil.

If any other refrigerating machine oil not specified is charged, it may cause the troubles to the unit.



CASTROL  
ICEMATIC  
SW46

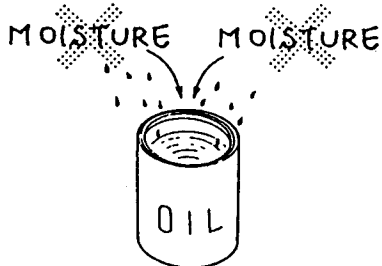


SUNISO  
3GS-D1

Open the oil can, just before charging the oil, and use all the oil whose can is opened once.

Do not leave the opened can as it is for 5 hours or longer to avoid moisture ingress.

If any refrigerating machine oil which absorbs much moisture is used, it may cause the troubles to the unit.



Use only exclusive tools for HFC134a.(gauge manifold, charging cylinder, etc)  
Do not use any tools for CFC12 or HCFC22.

Service ports with quick joints for exclusive use of HFC134a are provided in the refrigeration unit to avoid refrigerant and refrigerating machine oil of a different kind entering into the refrigeration circuit. (Refer to section 7.2)

The charging hose and service port are not interchangeable with those of previous model(s).

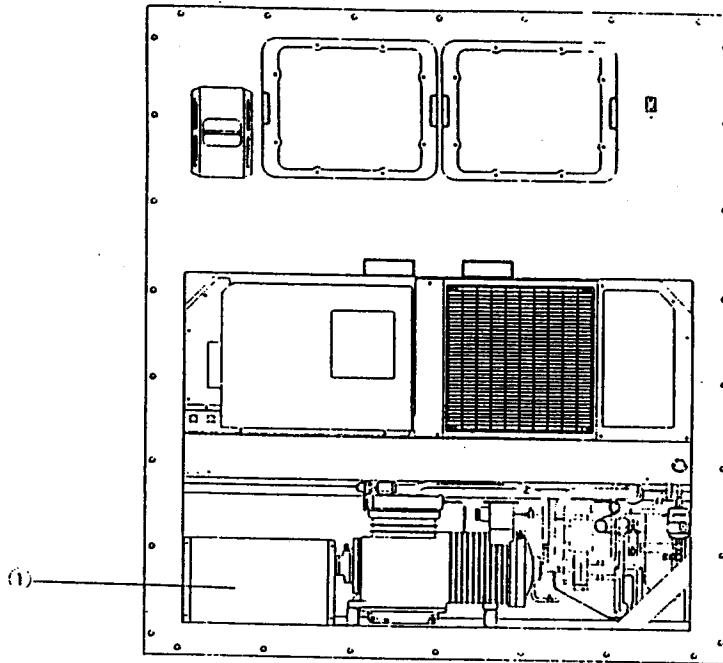
## 1. DATA OF REFRIGERATION UNIT

### 1.1 Main specification

Item		Model	LXE10D-A12R
Condenser cooling system		Air-cooled type	
Controller		DECOS III b	
Power supply		Single voltage AC 3-phase 200V class 50Hz : 200V 60Hz : 200V/220V/230V	
Compressor		Semi-hermetic type (Output: 5.5kW)	
Evaporator		Finned coil type	
Air-cooled condenser		Finned coil type	
Water-cooled condenser		Receiver	
Fan		Direct motor driven type propeller fan	
Fan motor		Three-phase squirrel-cage induction motor	
Defrosting	System	Hot-gas defrosting system	
	Initiation	Dual timer or manual switch	
	Termination	Evaporator outlet pipe temperature measured by a defrosting termination detecting thermostat.	
Refrigerant flow control		Electronic expansion valve	
Capacity control		Hot gas bypass control with modulating control valve	
Protective safe devices		Circuit breaker, PT/CT board (for over current protection), compressor thermal protector, fan-motor thermal protector, high-pressure switch, fusible safety plug, fuse (10A) × 5	
Refrigerant (charged amount)		R134a : 4.4kg/9.7 (lbs)	
Refrigeration oil (charged amount)		CASTROL ICEMATIC SW46: 3.6 ( ℓ )	
Unit weight		Approx. 650 (kg)/1433 (lbs)	

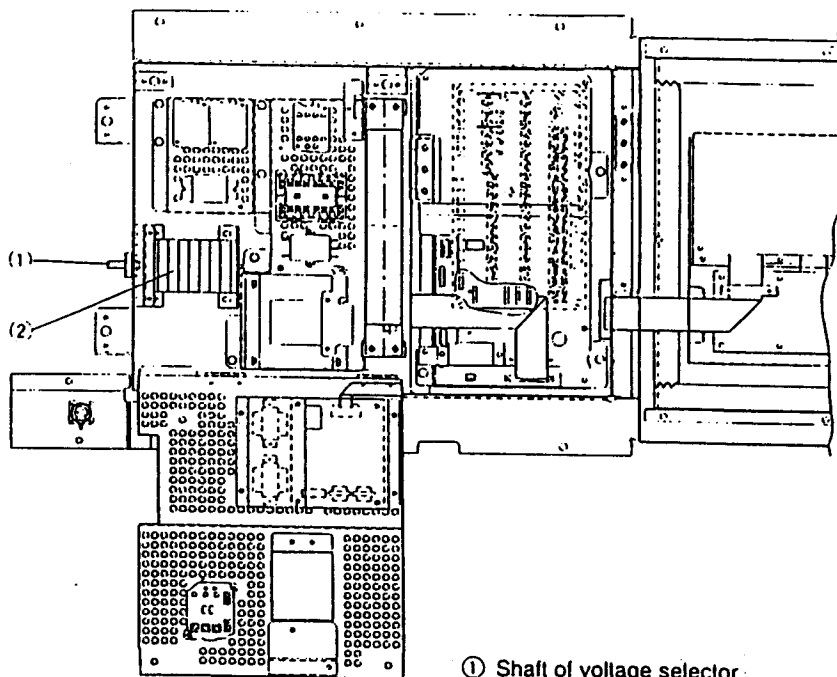
## 1.2 Name of components

### ● Outside



(1) Storage space for power cable (200V class)

### ● Inside of the control box

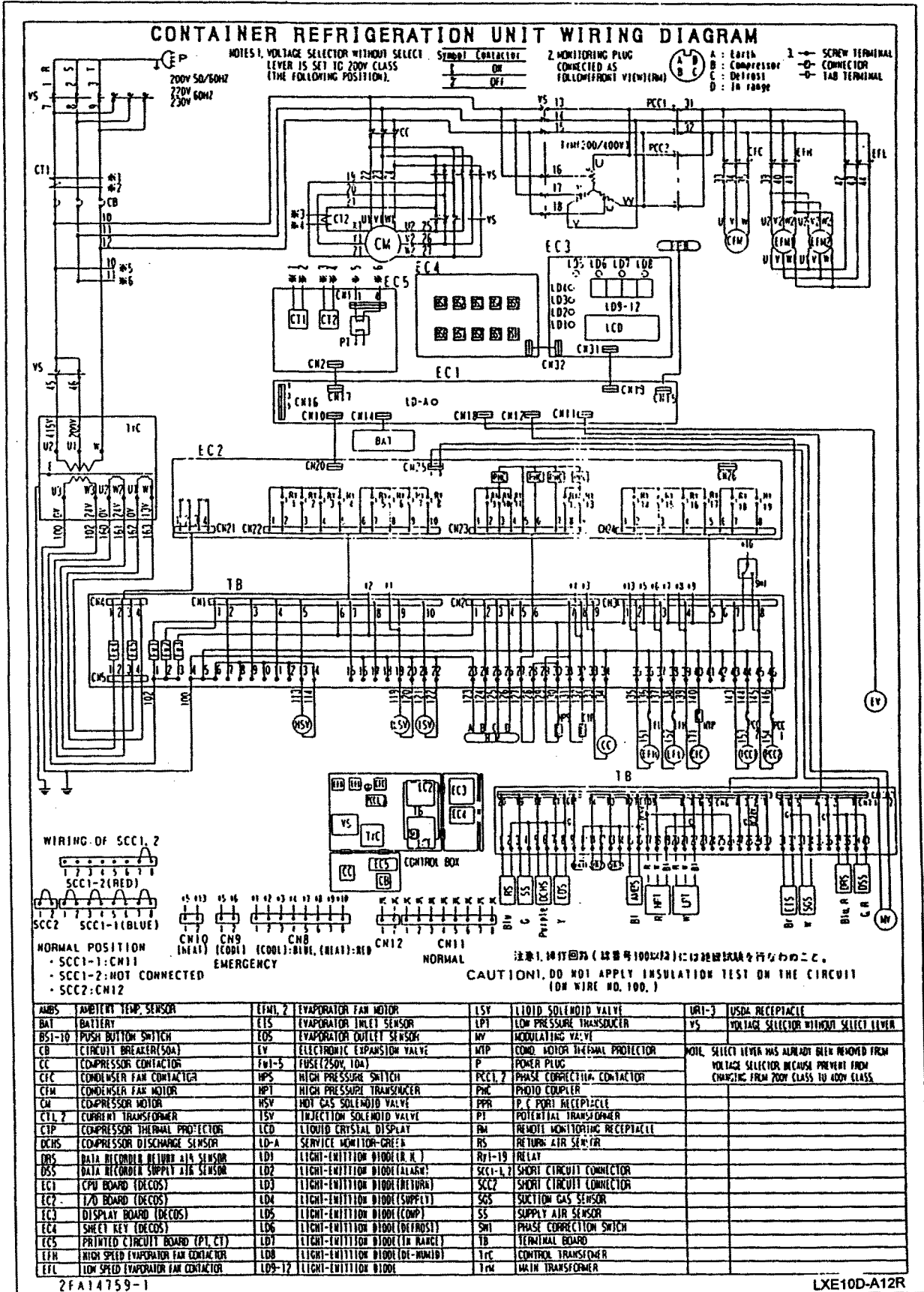


(1) Shaft of voltage selector  
(2) Voltage selector without select lever

## CAUTION

Do not turn the shaft of voltage selector with using tools like monkey wrench.

### 1.3 Schematic wiring diagram



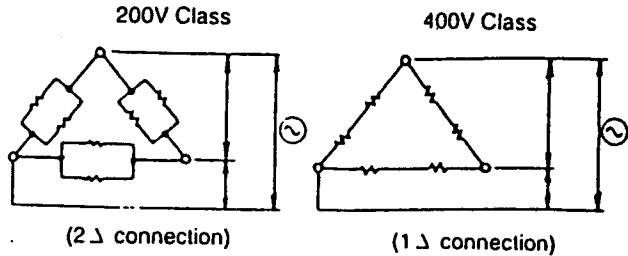


## 2. VOLTAGE SELECTION SYSTEM (Change-over for 200V/400V class)

### (1) Voltage selection system

Since the compressor motor is a dual voltage type and the fan motor is a transformer operated type, supply power is changed by the voltage selector lever with multi-contact cam switch which fits the wiring connections to the transformer for the control circuit and to each motor with its supply voltage. The internal wiring of the dual voltage compressor is as shown in the right.

(Machine for 200V/400V dual power supply)

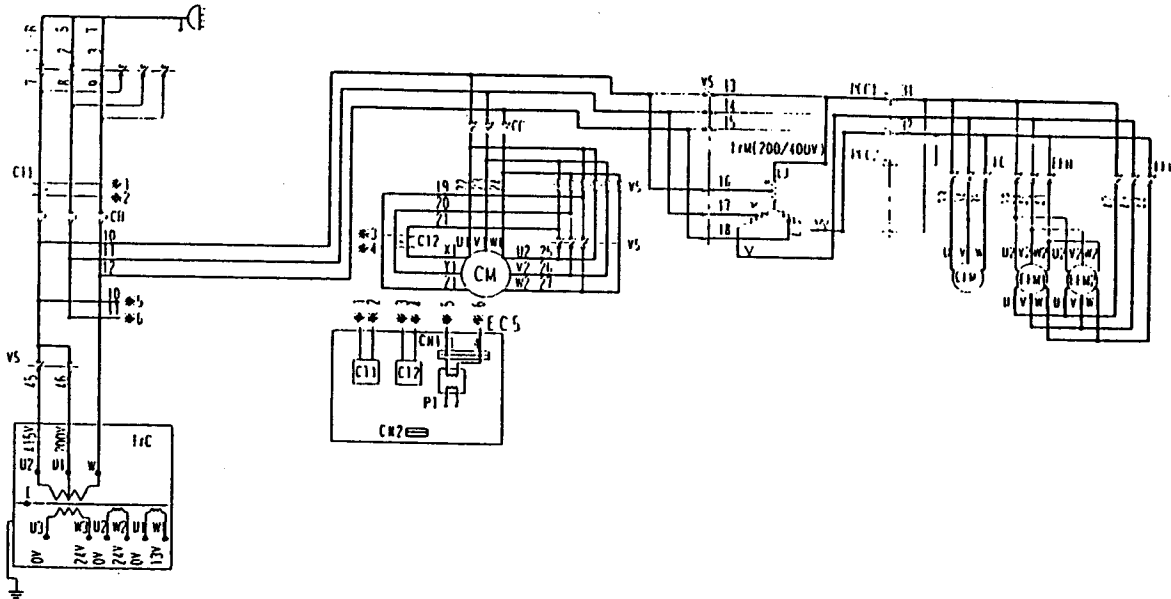


But LXE10D-A12R doesn't have the select lever of voltage selector. The contacts of voltage selector are locked at the position of 200V class.

### (2) Circuit formation

#### ● 200V class

The contacts (except SSW) shown by { become closed in the sequence circuit.






## ⚠ CAUTION

LXE10D-A5R doesn't have the select of voltage selector. Select lever has already been removed from voltage selector, for the prevention of changing over from 200V class to 400V class.



### 3. G-SET OPERATION

- ① Press the G-SET key.
- ② Select "11", "12", "13", "14" or "15" (KVA) indicated on the LED by the  key or the  key, and press the  key to determine the setting, then the energy saving operation starts so that the power consumption is saved to be the selected value (KVA) or lower.
  - \* If "OFF" is pressed during the energy saving operation, the energy saving operation is canceled.
  - \* If the power supply is turned off in the G-SET mode, the mode is not canceled.
  - \* During the G-SET operation, the leftmost LCD display indicates "G".



## CAUTION

Set "11" (KVA) in G-SET mode "11" (KVA) is set in the factory sets.

Always operate the unit in the G-SET mode.

#### 4. RESET OF COMPRESSOR OPERATING TIME & INITIAL SETTING CONTROLLER

Please kindly note that this reefer refrigeration unit is added the following items on control program of Electronic controller (DECOS III b).  
Regarding to instruction of other part, please refer to standard service manual ( **TR97-09** )

① Reset of COMPRESSOR OPERATING TIME  
( Page 55 on Service manual **TR97-09** )

② Selection of unit for temperature ( pressure ) on display  
( Page 45,61 and 66 on Service manual **TR97-09** )



### CAUTION

Observe the following items when installing the new controller.



### CAUTION

Always select "dUAL" on INPUT POWER SETTING of "8. Basic function setting mode".

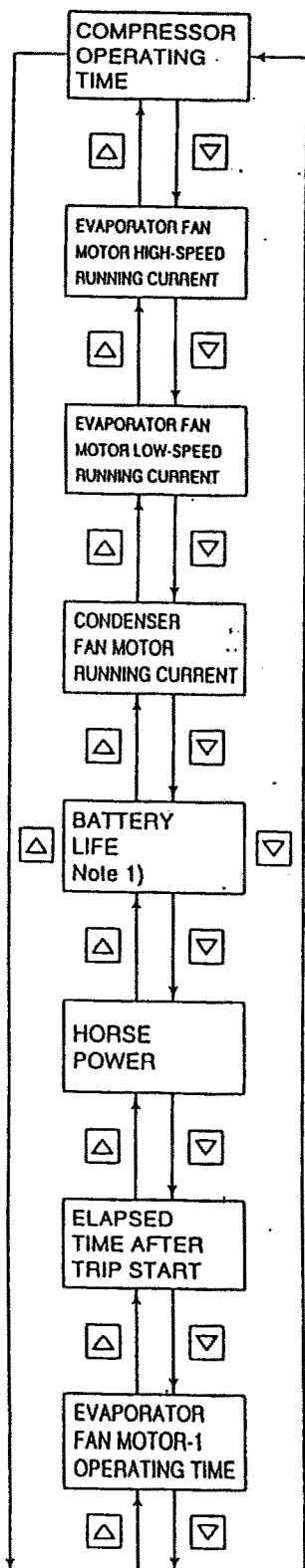
Power supply of \_\_\_\_\_ is 200V class single voltage, not dual voltage. But it is necessary to set "dUAL" at initial setting of controller.



**6-1. MANUAL CHECK SELECTION MODE**

The LED indicates the values of following items.

Compressor operating time, Evaporator fan motor high-speed running current, Evaporator fan motor low-speed running current, Condenser fan motor running current, Battery life, Horse power, Elapsed time after trip start, Evaporator fan motor running time, Condenser fan motor running time, and Controller software version



To indicate the compressor operating time:  
Press the key while the LCD indicates "CCX10H".  
The operating time is the value indicated on the LEDX10 hours.

< Reset > Press the key for 3 seconds. ←

To indicate the current value of evaporator fan motor high-speed operation :  
Press the key while the LCD indicates "EFH A", then the LED indicates the current value. (Unit : Ampere)

To indicate the current value of evaporator fan motor low-speed operation:  
Press the key while the LCD indicates "EFL A", then the LED indicates the current value. (Unit : Ampere)

To indicate the current value of condenser fan motor running current :  
Press the key while the LCD indicates "CF A", then the LED indicates the current value. (Unit : Ampere)

To indicate lithium battery service life (year and month) :  
Press the key while the LCD indicates "b-CH".  
When the battery life limit is reached, "E801" appears.  
While the LCD indicates "E801" after the battery replacement, depress the key switch for 3 seconds, then the next battery replacement data is indicated.

Note 1) This indication is used when the lithium battery is used.

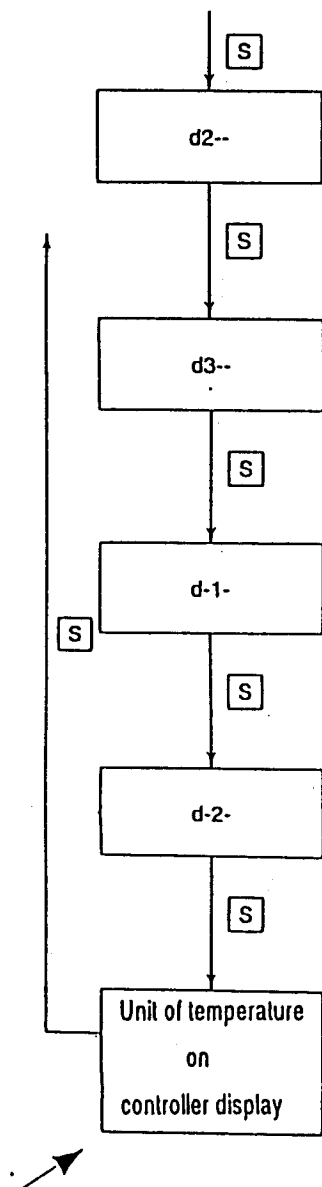
To check compressor horse power setting :  
Press the key while the LCD indicates "HP".  
"5HP" or "10HP" on the LED is the compressor horse power setting on the controller.

To indicate the elapsed time after trip start:  
Press the key while the LCD indicates "TS H", then the LED indicates the elapsed time. (Unit : Hours).  
When the key is depressed for 3 seconds while the elapsed time is indicated, the TRIP START is set, and the elapsed time display is reset to "0" (hour).

To indicate the evaporator fan motor-1 operating time:  
Press the key while the LCD indicates "EF1X10H".  
The operating time is the value indicated on the LEDX10H hours.  
When the key is depressed for 3 seconds while the evaporator fan motor-1 operation time is indicated, the evaporator fan motor-1 operating time is reset to "0" (hour)  
("EF1" is the right hand side fan motor seeing from the inside of the container.)



9. OPTIONAL CONDITION SETTING MODE continued



d2-- message is displayed to indicate the total number of times of the state that the integrated time of state "above SP +2°C" reaches one hour. Select "1"hour, "2"hours, "3"hours, "4"hours, "5"hours or "10"hours on the LED while the LCD indicates "d2--". Whenever the  $\Delta$  or  $\nabla$  key is pressed, the indication of the selection from "1"hour to "10"hours changes. Press the  $\square$  key to determine the setting.

d3-- message is displayed to indicate the total number of times of the state that the integrated time of state "above SP + 3°C" reaches one hour. Select "1"hour, "2"hours, "3"hours, "4"hours, "5"hours or "10"hours on the LED while the LCD indicates "d3--". Whenever the  $\Delta$  or  $\nabla$  key is pressed, the indication of the selection from "1"hour to "10"hours changes. Press the  $\square$  key to determine the setting.

d-1- message is displayed to indicate the total number of times of the state that the integrated time of state "below SP -1°C" reaches one hour. Select "1"hour, "2"hours, "3"hours, "4"hours, "5"hours or "10"hours on the LED while the LCD indicates "d-1-". Whenever the  $\Delta$  or  $\nabla$  key is pressed, the indication of the selection from "1"hour to "10"hours changes. Press the  $\square$  key to determine the setting.

d-2- message is displayed to indicate the total number of times of the state that the integrated time of state "below SP -2°C" reaches one hour. Select "1"hour, "2"hours, "3"hours, "4"hours, "5"hours or "10"hours on the LED while the LCD indicates "d-2-". Whenever the  $\Delta$  or  $\nabla$  key is pressed, the indication of the selection from "1"hour to "10"hours changes. Press the  $\square$  key to determine the setting.

To set unit of temperature on controller display, Select "C (Celsius)" or "F (Fahrenheit)" on LED while the LCD indicates "deG C/F". Whenever the  $\Delta$  or  $\nabla$  key is pressed, the indication of "C" or "F" changes. Press  $\square$  key to determine the setting.

(Note) \*Unit of pressure is selected automatically as below, according to setting of "Unit of temperature on controller display"

Setting of temperature	Unit of pressure
C (Celsius)	kPa
F (Fahrenheit)	PSI

### 3.2.3. Other operations

#### G-SET operation

- ① Press the G-SET key.
  - ② Select "11", "12", "13", "14" or "15" (KVA) indicated on the LED by the  key or the  key, and press the  key to determine the setting, then the energy saving operation starts so that the power consumption is saved to be the selected value (KVA) or lower.
- If "OFF" is pressed during the energy saving operation, the energy saving operation is canceled.
  - If the power supply is turned off in the G-SET mode, the mode is canceled.

#### Manual defrosting operation

- ① Press the MANUAL DEFROST key
  - ② Select "ON" indicated on the LED by the  key or the  key, and press the  key to determine the setting, then the defrosting operation starts.
- Once defrosting operation starts, the operation mode is not changeable until the defrosting operation completes. If this key is pressed during the defrosting operation, it is ineffective.

#### → °C/°F conversion operation

The unit of temperature on LED & LCD display can be converted by pressing the  key as below.

[Case 1 : Unit of Temperature is Fahrenheit]

Press the  key, then temperature data are converted into Celsius for one (1) minute.

\* Unit of pressure keeps PSI, regardless of this conversion.

[Case 2 : Unit of Temperature is Celsius]

Press the  key, then temperature data are converted into Fahrenheit for one (1) minute.

\* Unit of pressure keeps kPa, regardless of this conversion.

(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.

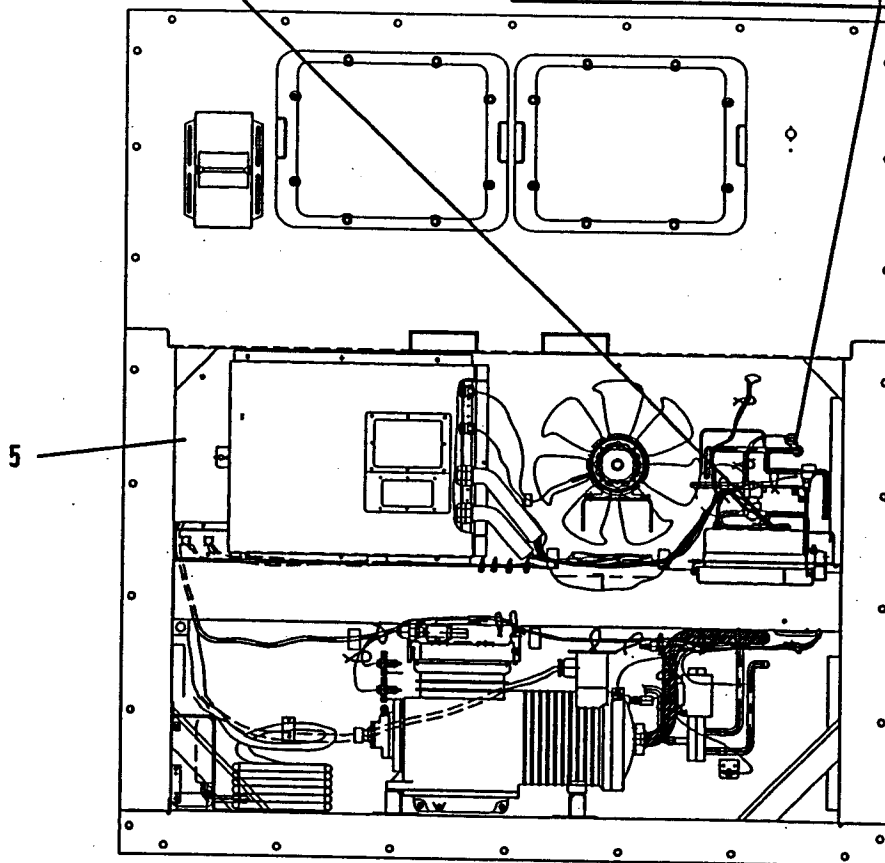
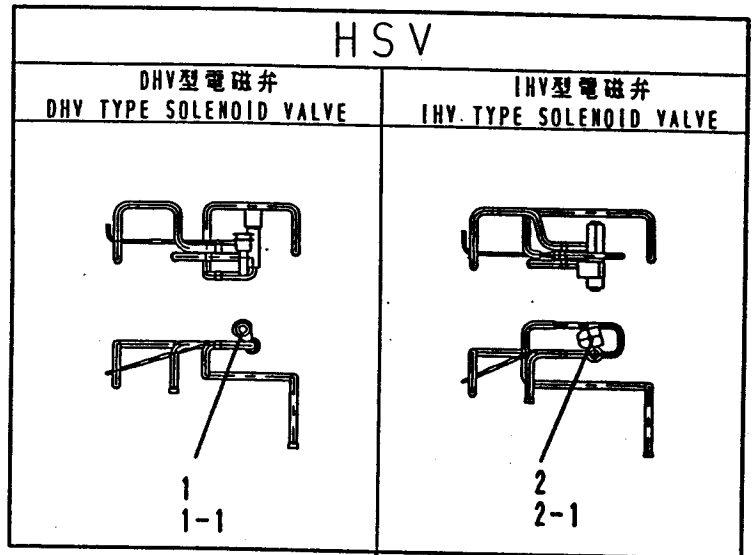
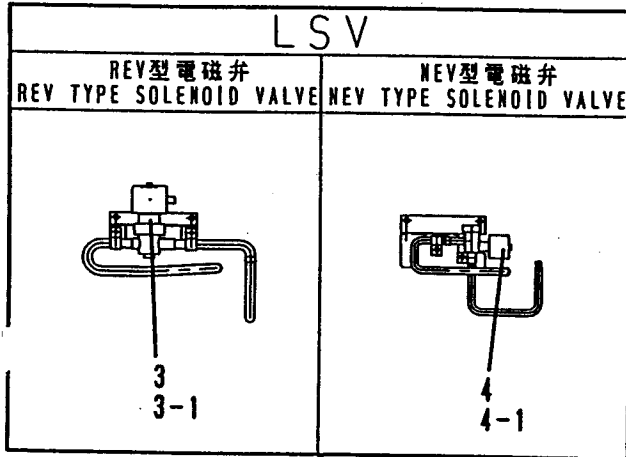
Carefully read the following cautions before using the list.

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.

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パーツリスト (TR97-11) を併せて参照下さい。

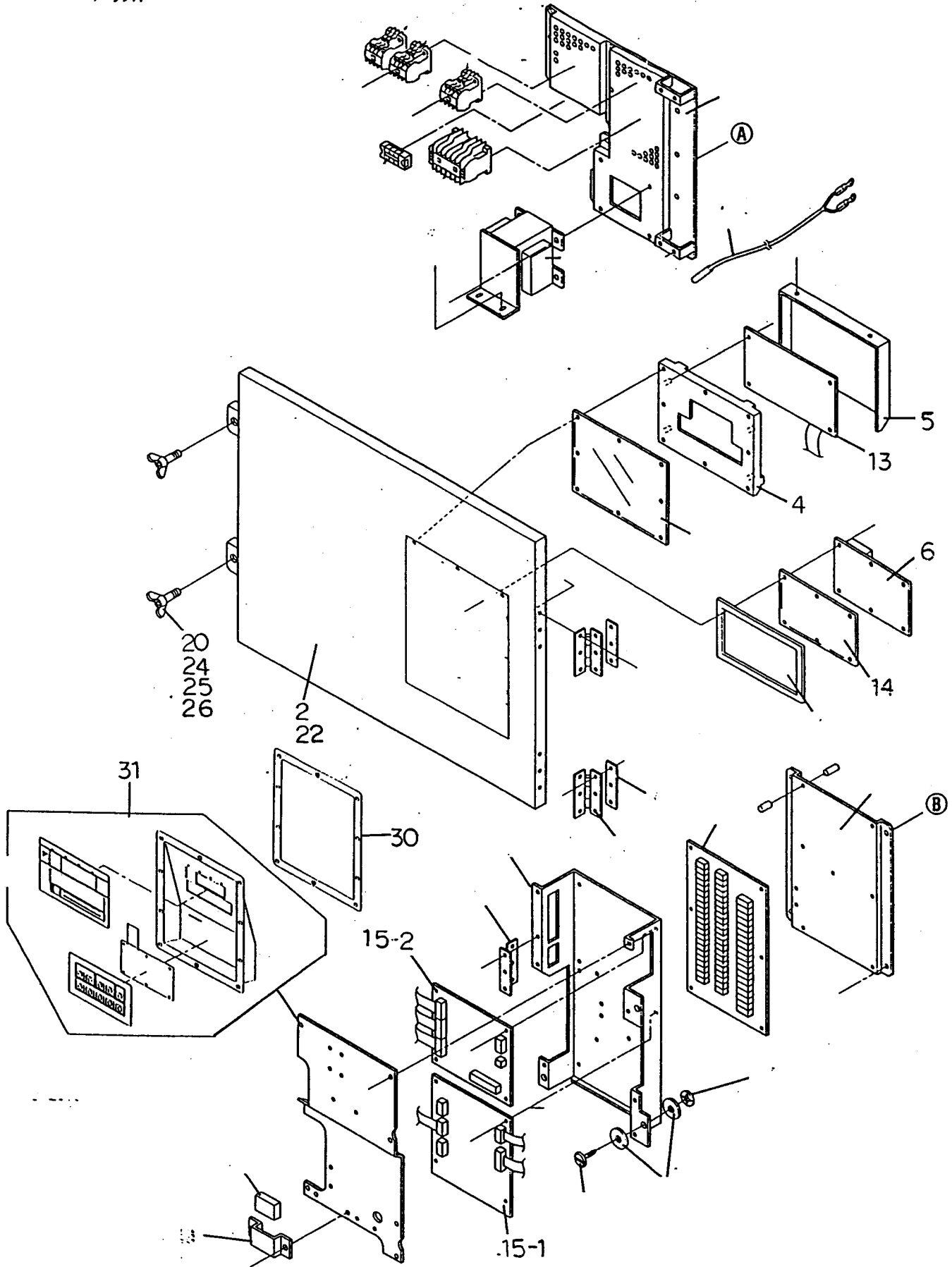
The parts which are different from that of the standard model only are described in this manual. Regarding the items which are not described in this manual, refer to Parts List (TR97-11) as well.

Parts related with the unit (outside) 1  
庫外関連部品 1

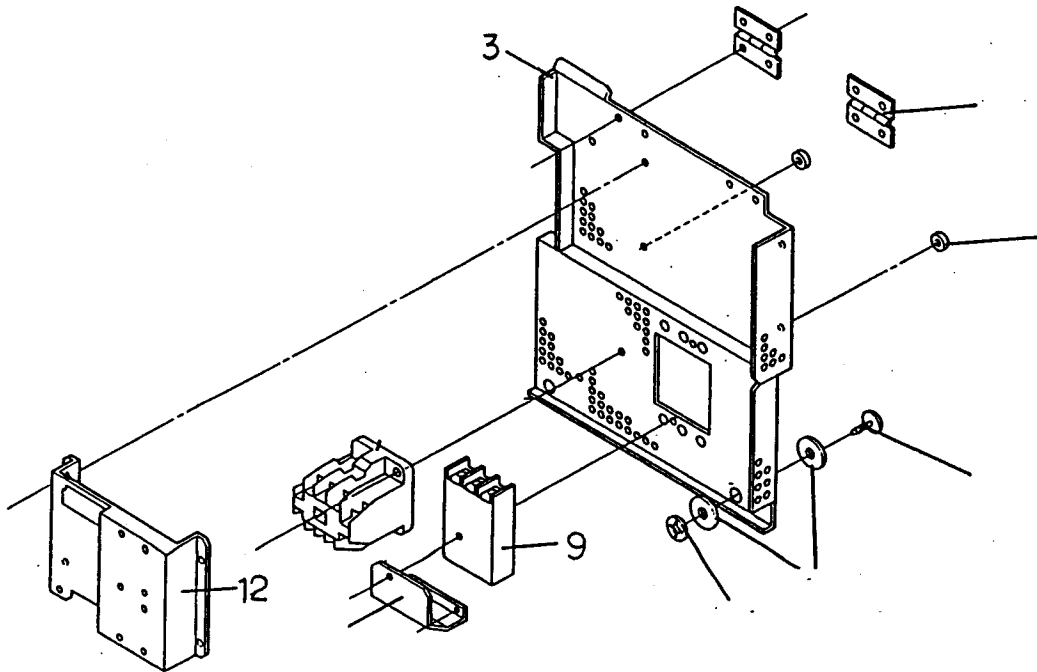
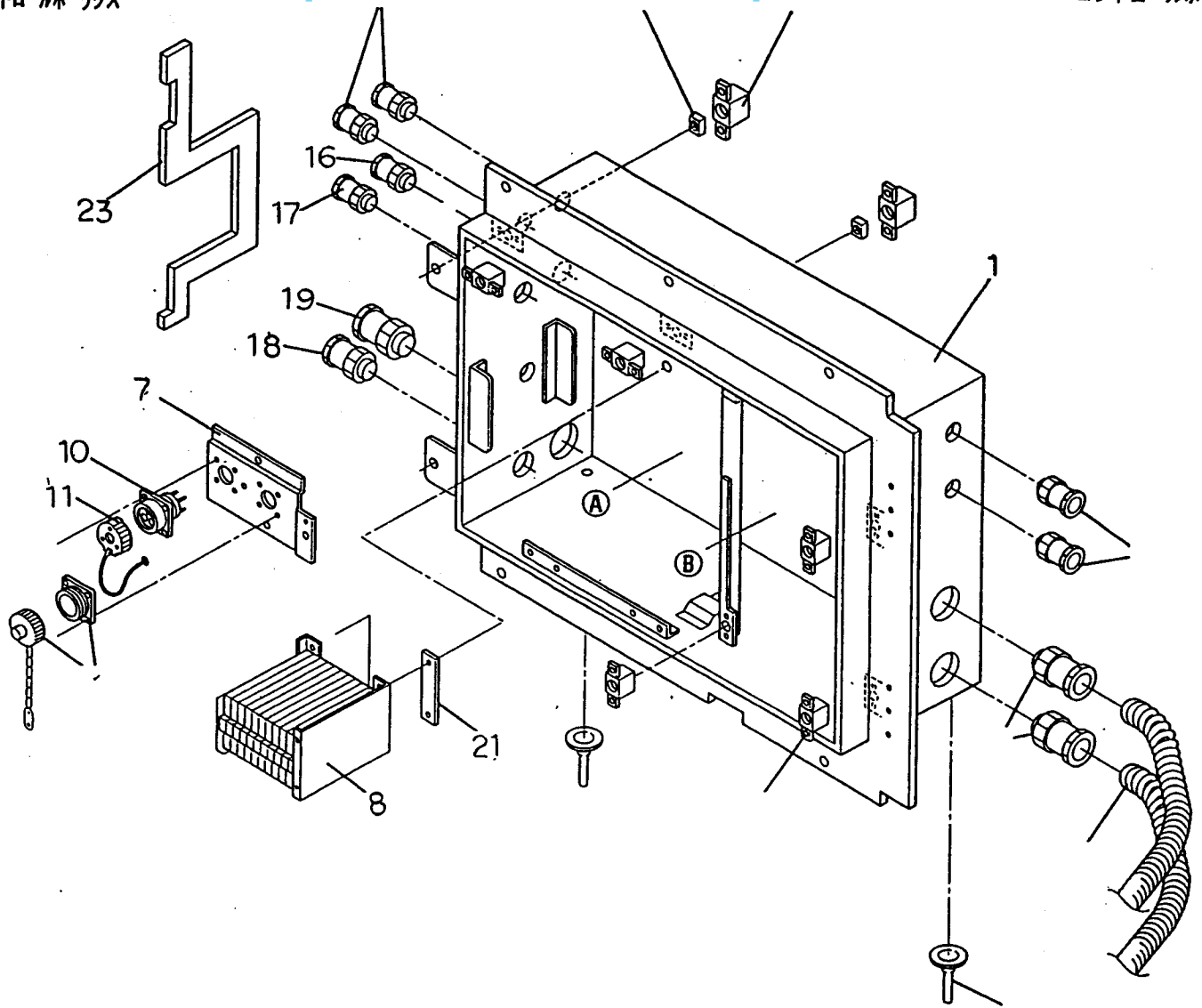




Control box  
コントロールボックス







Control box  
コントロールボックス

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台当たりの所要数	REMARKS 備考
1		C. box welding ass'y	C. BOX 溶接組立品	2P020981-1		1	
2	1178836	C. box cover	コントロールボックス蓋	3P031480-1		1	
3		Blind plate (2)	機器取付板 (2)	2P021378-1		1	
7		PC port fixing plate	パソコンポート固定板	4P020837-1		1	
8	634017	Cam switch (VS)	カムスイッチ (VS)	R3421041-3	7P-3CL	1	
9	0344971	Circuit breaker (CB)	ノーフェーズブレーカ (CB)	3PA37567-1	50A FA53B	1	
10	0991531	PC port connector	パソコンポートコネクタ	3P010803-1		1	
11	1270011	Personal computer port cover	パソコンポートカバー	3P010805-1		1	
12	0980788	PT/CT board	PT/CTボード	2P010906-1		1	
13	1010815	Display board	表示基板	2P010368-2		1	
15	1075526	CPU & I/O board ass'y	CPU & I/O ボード組立品	3P015006-9		1	
15-1	1080270	CPU board	CPU ボード	2P010365-5		1	
15-2	0954594	I/O board	I/O ボード	2P010367-1		1	
16	0758657	Cable gland	電線グランド	3PA37599-7	SCL-18A ケーブルコネクタ	1	
17	0758633	Cable gland	電線グランド	3PA37599-8	SCL-18B ケーブルコネクタ	1	
18	0965556	Cable gland	電線グランド	3PA37599-9	SCL-22A ケーブルコネクタ	1	
19	0966294	Cable gland	電線グランド	3PA37599-12	SCL-30B	1	
20	1170065	Wing bolt, control box cover	蝶ボルト (コントロールボックス蓋)	4P010750-1		1	
21	833012	Patch plate nut	当板ナット	R4718017-1		1	
22	1136469	Rubber gasket	パッキン (C. BOX蓋)	4P003732-1		1	
23	1460148	Packing (C. box front plate)	パッキン (C. BOX前板)	4P007341-1		1	
24	844022	Plain washer	平座金	4SK07005-12		1	
25	1136438	Insulation sheet	絶縁シート (C. BOX蓋)	4P016059-1		1	
26	1136445	Retaining ring	E形止メ輪	4P016093-1		1	
30		Membrane switch	シートキー	3P035564-1	樹脂パネル付 with resin panel	1	
31	1128949	Packing	パッキン (樹脂パネル)	3P030317-1		1	

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

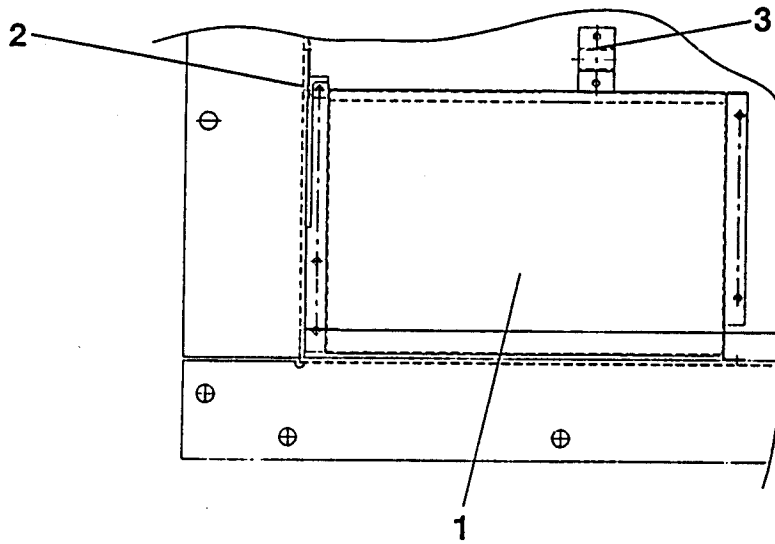
・部品番号欄が空白になっている部品は、図面番号で、指示願います。



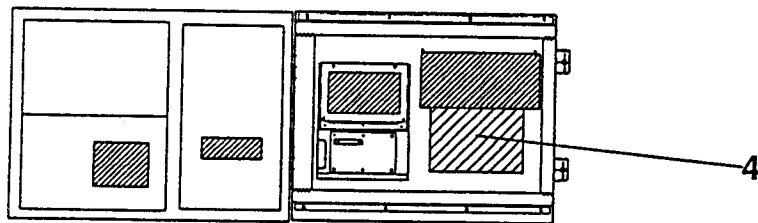
Parts related with the unit (outside)

庫外関連部品

200V級シングル電源 (200V class single voltage type)



銘板 (Name plate)



Control box (Inside)



<https://daikin-p.ru>

***DAIKIN INDUSTRIES, LTD.***

Head Office. Umeda Center Bldg., 4-12, Nakazaki-Nishi 2-chome, Kita-ku, Osaka, 530-8323 Japan.

Tel: 06-6373-4338

Fax: 03-6373-7297

Tokyo Office. Tokyo Opera City Tower 12F. 3-20-2 Nishi-Shinjuku, Shinjuku-ku, Tokyo 163-1412, Japan.

Tel: 03-5353-7860

Fax: 03-5353-7913

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