



TECHNICAL & SERVICE MANUAL

R410A Outdoor unit [model names]

PUHZ-RP8YHA

PUHZ-RP10YHA

[Service Ref.] PUHZ-RP8YHA PUHZ-RP10YHA



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1-1. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R410A

Use new refrigerant pipes.

In case of using the existing pipes for R22, be careful with the followings.

- Change flare nut to the one provided with this product. Use a newly flared pipe.
- · Avoid using thin pipes.

1

Make sure that the inside and outside of refrigerant piping is clean and it has no contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc.

In addition, use pipes with specified thickness.

Contamination inside refrigerant piping can cause deterioration of refrigerant oil etc.

Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Leave elbow joints, etc. in their packaging.)

If dirt, dust or moisture enter into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Use ester oil, ether oil or alkylbenzene oil (small amount) as the refrigerant oil applied to flares and flange connections.

If large amount of mineral oil enter, that can cause deterioration of refrigerant oil etc.

Charge refrigerant from liquid phase of gas cylinder.

If the refrigerant is charged from gas phase, composition change may occur in refrigerant and the efficiency will be lowered.

Do not use refrigerant other than R410A.

If other refrigerant (R22 etc.) is used, chlorine in refrigerant can cause deterioration of refrigerant oil etc.

Use a vacuum pump with a reverse flow check valve.

Vacuum pump oil may flow back into refrigerant cycle and that can cause deterioration of refrigerant oil etc.

Use the following tools specifically designed for use with R410A refrigerant.

The following tools are necessary to use R410A refrigerant.

Tools for R410A				
Gauge manifold	Flare tool			
Charge hose	Size adjustment gauge			
Gas leak detector	Vacuum pump adaptor			
Torque wrench	Electronic refrigerant			
	charging scale			

Keep the tools with care.

If dirt, dust or moisture enter into refrigerant cycle, that can cause deterioration of refrigerant oil or malfunction of compressor.

Do not use a charging cylinder.

If a charging cylinder is used, the composition of refrigerant will change and the efficiency will be lowered.

Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.

[1] Cautions for service

- (1) Perform service after collecting the refrigerant left in unit completely.
- (2) Do not release refrigerant in the air.
- (3) After completing service, charge the cycle with specified amount of refrigerant.
- (4) When performing service, install a filter drier simultaneously. Be sure to use a filter drier for new refrigerant.

[2] Additional refrigerant charge

When charging directly from cylinder

- · Check that cylinder for R410A on the market is syphon type.
- · Charging should be performed with the cylinder of syphon stood vertically. (Refrigerant is charged from liquid phase.)



[3] Service tools

Use the below service tools as exclusive tools for R410A refrigerant.

No.		Specifications			
1	Gauge manifold	·Only for R410A			
		·Use the existing fitting specifications. (UNF1/2)			
		·Use high-tension side pressure of 5.3MPa·G or over.			
2	Charge hose	·Only for R410A			
		·Use pressure performance of 5.09MPa·G or over.			
3	Electronic scale				
(4)	Gas leak detector	Use the detector for R134a, R407C or R410A.			
5	Adaptor for reverse flow check	·Attach on vacuum pump.			
6	Refrigerant charge base				
7	Refrigerant cylinder	·Only for R410A Top of cylinder (Pink)			
		Cylinder with syphon			
8	Refrigerant recovery equipment				

1-2. CHANGED POINT

- Precautions when reusing existing R22 refrigerant pipes
- (1) Flowchart



Connecting a new air conditioner to existing R22 refrigerant pipes

- ① Flare the pipe for the use with R410A refrigerant.
- Use the flare nut attached to indoor and outdoor unit of the new air conditioner only.
- ⁽²⁾ When reusing existing R22 refrigerant pipes of which gas pipe is ϕ 28.58mm and, in addition, when the outdoor unit is installed to lower position than the indoor unit, be sure to change the setting of the DIP SW8-1 on the controller circuit board of the outdoor unit to ON.

* This is to increase the speed of refrigerant passing in the gas pipe so that refrigerant oil can smoothly flow in the system.

- Use a different-diameter joint or brazing for the connection.
- ③ When reusing standard-size existing R22 refrigerant pipes.

The pipes can be reused with pipe length restriction described on 12-1.

(2) Cautions for refrigerant piping work

New refrigerant R410A is adopted for replacement inverter series. Although the refrigerant piping work for R410A is same as for R22, exclusive tools are necessary so as not to mix with different kind of refrigerant. Furthermore as the working pressure of R410A is 1.6 time higher than that of R22, their sizes of flared sections and flare nuts are different.

①Thickness of pipes

Because the working pressure of R410A is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 0.7mm or below.)

0	1 0		
Nominal	Outside	Thickne	ss (mm)
dimensions	diameter (mm)	R410A	R22
1/4"	6.35	0.8	0.8
3/8"	9.52	0.8	0.8
1/2"	12.70	0.8	0.8
5/8"	15.88	1.0	1.0
3/4"	19.05	-	1.0
7/8"	22.20	—	1.0
1"	25.40	-	1.0
1"-1/8"	28.58	_	1.0

Diagram below: Piping diameter and thickness

②Dimensions of flare cutting and flare nut

The component molecules in HFC refrigerant are smaller compared to conventional refrigerants. In addition to that, R410A is a refrigerant, which has higher risk of leakage because of its working pressure higher than that of other refrigerants. Therefore, to enhance airtightness and intensity, flare cutting dimension of copper pipe for R410A have been specified separately from the dimensions for other refrigerants as shown below. The dimension B of flare nut for R410A also have partly been changed to increase intensity as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R410A below. For 1/2" and 5/8", the dimension B changes.

1/2"

5/8"

3/4'

Use torque wrench corresponding to each dimension.





26.0

29.0 *

Flare cutting dimensions

0			
Nominal	Outside	Dimensio	on A (+0 -0.4)
dimensions	diameter	R410A	R22
1/4"	6.35	9.1	9.0
3/8"	9.52	13.2	13.0
1/2"	12.70	16.6	16.2
5/8"	15.88	19.7	19.4
3/4"	19.05	_	23.3

Flare nut dimensions Nominal Dimension B Outside diameter dimensions R410A R22 1/4" 6.35 17.0 17.0 3/8 9.52 22.0 22.0

12.70

15.88

19.05

*36.0mm for indoor unit of RP4, 5 and 6

(mm)

24.0

27.0

36.0

③Tools for R410A (The following table shows whether conventional tools can be used or not.)

(mm)

	9			
Tools and materials	Use	R410A tools	Can R22 tools be used?	Can R407C tools be used?
Gauge manifold	Air purge and refrigerant charge	Tool exclusive for R410A	×	×
Charge hose	Operation check and the two above	Tool exclusive for R410A	×	×
Gas leak detector	Gas leak check	Tool for HFC refrigerant	×	0
Refrigerant recovery equipment	Collection of refrigerant	Tool exclusive for R410A	×	×
Refrigerant cylinder	Refrigerant charge	Tool exclusive for R410A	×	×
Applied oil	Apply to flared section	Ester oil and alkylbenzene oil (minimum amount)	×	Ester oil: O Alkylbenzene oil: minimum amount
Safety charger	Prevent compressor malfunction when charging refrigerant by spraying liquid refrigerant	Tool exclusive for R410A	×	×
Charge valve	Prevent gas from blowing out when detaching charge hose	Tool exclusive for R410A	×	×
Vacuum pump	Vacuum drying and air purge	Tools for other refrigerants can be used if equipped with adop- ter for reverse flow check	△ (Usable if equipped with adopter for rever- se flow)	△ (Usable if equipped with adopter for rever- se flow)
Flare tool	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)	△ (Usable by adjusting flaring dimension)
Bender	Bend the pipes	Tools for other refrigerants can be used	0	0
Pipe cutter	Cut the pipes	Tools for other refrigerants can be used	0	0
Welder and nitrogen gas cylinder	Weld the pipes	Tools for other refrigerants can be used	0	0
Refrigerant charging scale	Charge refrigerant	Tools for other refrigerants can be used	0	0
Vacuum gauge or thermis-	Check the degree of vacuum. (Vacuum	Tools for other refrigerants	0	0
tor vacuum gauge and	valve prevents back flow of oil and refri-	can be used		
vacuum valve	gerant to thermistor vacuum gauge)			
Charging cylinder	Charge refrigerant	Tool exclusive for R410A	×	—

 \times : Prepare a new tool. (Use the new tool as the tool exclusive for R410A.)

 \triangle : Tools for other refrigerants can be used under certain conditions.

○: Tools for other refrigerants can be used.

COMBINATION OF INDOOR AND OUTDOOR UNITS

2-1. 1:1 SYSTEM

Indoor unit	Outdoor unit			
	PUHZ-RP-YHA			
	8	10		
PEH-RP·MYA	0	0		

2-2. SYNCHRONIZED TWIN, TRIPLE AND QUADRUPLE SYSTEM

(1) Synchronized twin (50:50)

	Outdoor unit			
Indoor unit	PUHZ-RP-YHA			
	8	10		
PLA-RP4AA X 2	0			
PLA-RP5AA X 2		0		
PEAD-RP4EA X 2	0			
PEAD-RP5EA X 2		0		
PEAD-RP4GA X 2	0			
PKA-RP4FAL X 2	0			
PCA-RP4GA X 2	0			
PCA-RP5GA X 2		0		

(2) Synchronized triple (33:33:33)

	Outdoor unit		
Indoor unit	PUHZ-RP·YHA		
	8	10	
PLA-RP2.5AA X 3	0		
PLA-RP3AA 🗙 3		0	
PEAD-RP2.5EA X 3	0		
PEAD-RP3EA X 3		0	
PEAD-RP2.5GA X 3	0		
PEAD-RP3GA X 3		0	
PKA-RP2.5FAL X 3	0		
PKA-RP3FAL X 3		0	
PCA-RP2.5GA X 3	0		
PCA-RP3GA X 3		0	

(3) Synchronized quadruple (25:25:25:25)

	Outdoor unit		
Indoor unit	PUHZ-RP-YHA		
	8	10	
PLA-RP2AA X 4	0		
PLA-RP2.5AA X 4		0	
PEAD-RP2EA X 4	0		
PEAD-RP2.5EA X 4		0	
PEAD-RP2.5GA X 4		0	
PKA-RP2GAL X 4	0		
PKA-RP2.5FAL X 4		0	
PCA-RP2GA X 4	0		
PCA-RP2.5GA X 4		0	

2-3. MULTI DISTRIBUTION PIPE (OPTION)

	Ratio of distributing	Part No.	
Synchronized twin	50:50	MSDD-50WR-E	
Synchronized triple	33:33:33	MSDT-111R-E	
Synchronized quadruple	25:25:25:25	MSDF-1111R-E	

3 FEATURES



CHARGELESS SYSTEM PRE-CHARGED REFRIGERANT IS SUPPLIED FOR PIPING LENGTH AT SHIPMENT. (Max.30m)

The refrigerant circuit with LEV(Linear Expansion Valve) and accumulator always control the optimal refrigerant level regardless of the length (30m max. and 5m min.) of piping. The additional refrigerant charging work during installation often causes problems. Heretofore it is completely eliminated. This unique system improves the quality and reliability of the work done. It also helps to speed up the installation time.

SPECIFICATIONS

4

Service Ref.				PUHZ-RP8YHA		PUHZ-RP10YHA		
Function			Cooling	Heating	Cooling	Heating		
<u></u>	no oitr <i>i</i>			Btu/h	64,800	76,400	75,000	92,100
Ca	pacity			kW	19.0(10.0~22.4)	22.4(10.0~25.0)	22.0(12.5~28.0)	27.0(15.7~31.5)
Tot	al input			kW	6.76	6.98	7.83	8.41
	Power su	oply (phase, cycle, v	voltage)			3-ph, 50Hz, 380-4	00-415V (4wires)	
		Running current		A	10.0	10.4	11.5	12.4
	External f	inish				Munsell 3	Y 7.8/1.1	
	Refrigera	nt control				Linear Expa	nsion Valve	
	Compress	sor				Herr	netic	
		Model				ANV47	FFBMT	
		Motor output		kW	4.	.5	5.	.5
		Starter type				Line	start	
		Protection devices				HP switch, LP switc	h, Discharge thermo	
F	- Crankcase heater W		W		-	-		
Ę	Heat exchanger			Plate fin coil				
JR (Fan	n Fan(drive) × No.			Propeller fan × 1			
Q		Fan motor output kW		0.635				
B	Airflow			m³/min(CFM)	150(5,300)			
15	Defrost method			Reverse cycle				
0	Noise leve	el	Cooling	dB	55 58		8	
			Heating	dB	56 58		8	
	Dimensio	ns	W	mm(in.)		900(35	5-7/16)	
			D	mm(in.)		750(29	-17/32)	
			Н	mm(in.)		1,798(7)	0-25/32)	
	Weight			kg(lbs)	198(436)			
	Refrigera	nt				R4′	10A	
		Charge		kg(lbs)	10.5(23.1)			
	Oil (Model)			L	2.30(MEL56)			
NG	Pipe size O.D. Liquid		Liquid	mm(in.)	9.52(3/8) 12.7(1/2)		(1/2)	
ЪР			Gas	mm(in.)	25.4	4(1)	28.58((1-1/8)
ÅT	Connection method Indoor side Outdoor si		le		Fla	red		
ER/			side		Flared &	Brazing		
RIG 1	Between	the indoor &	Height dif	ference		Max.	40m	
逆 outdoor unit Piping ler			igth	Max. 80m				

 Notes1. Rating Conditions (ISO T1)
 Cooling : Indoor
 : D.B. 27°C(80°F), W.B. 19°C(66°F)
 Outdoor
 : D.B. 35°C(95°F), W.B. 24°C(75°F)

 Heating : Indoor
 : D.B. 20°C(68°F)
 Outdoor
 : D.B. 7°C(45°F), W.B. 6°C(43°F)
 Refrigerant piping length (one way) : 5m (16ft)

2. Guaranteed operating range

		Indoor	Outdoor					
Cooling	Upper limit	D.B. 35°C, W.B. 22.5°C	D.B. 46°C					
	Lower limit	D.B. 19°C, W.B. 15°C	D.B5°C					
Lipoting	Upper limit	D.B. 28°C	D.B. 21°C, W.B. 15°C					
Heating	Lower limit	D.B. 17°C	D.B20°C, W.B20°C					

3. Guaranteed voltage 342~457V, 50Hz

4. Above data based on indicated voltage Indoor Unit 1 phase 230V 50Hz Outdoor Unit 3 phase 400V 50Hz

5. Refer to the service manual of indoor unit for the indoor unit's specifications.

6. The total input is of twin combination of 4-way cassette.

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5-1. ELECTRICAL PARTS SPECIFICATIONS

Outdoor unit Parts name	PUHZ-RP8YHA	PUHZ-RP10YHA										
FUSE (FUSE1,2)	250V	15A										
FUSE (FUSE3,4)	250V	6.3A										
Solenoid Valve (Four-way Valve)	VT6	0100										
Solenoid Valve Coil (Four-way Valve) 21S4	LB (DM50	64)G461)										
Linear Expansion Valve (LEV-A)	HAM- (0~480	BD32 Pulse)										
Linear Expansion Valve Coil (LEV-A)	DC	12V										
Solenoid Valve <bypass valve=""></bypass>	VF20	0100										
Solenoid Valve Coil <bypass valve=""> (SV)</bypass>	L	02										
Reactor (DCL)	2.7mH	1 25A										
High Pressure Switch (63H)	OFF 3.60 ON 2.80	OFF 3.60+0.2MPa ON 2.80±0.15MPa										
Low Pressure Switch (63L)	OFF -0.03 ON 0.05	3±0.03MPa 5±0.04MPa										
Fan Motor (MF)	6P 63: PA6Y	5W ×1 635-T										
Thermistor (Outdoor Pipe) (TH3, TH32)	0℃/15kΩ 10℃/9.6kΩ 20℃/6.3kΩ	25°C/5.4ka 30°C/4.3ka 40°C/3.0ka										
Thermistor (Discharge) (TH4)	20°C/250ka 30°C/160ka 40°C/104ka 50°C/70ka 60°C	C/48ka 70°C/34ka 80°C/24ka 90°C/15ka 100°C/13ka										
Thermistor (Outdoor2-PhasePipe) (TH6)	0°C/15ka 10°C/9.6ka 20°C/6.3ka	25°C/5.4ka 30°C/4.3ka 40°C/3.0ka										
Thermistor (Outdoor) (TH7)	0℃/15kჲ 10℃/9.6kჲ 20℃/6.3kჲ	25°C/5.4ka 30°C/4.3ka 40°C/3.0ka										
Terminal Block (Power Supply) (TB1)	5 (L1, L2, I	P _3, N,⊕)										
Terminal Block (Indoor / Outdoor) (TB2)	3 (S1, S	P -2, S3)										
Main Smoothing Capacitor (CB1, CB2)	2200//I	7 400V										
Rush Current Protect Resister (RS)	16Ω	30W										
Motor Compressor (MC)	ANV47	FFBMT										

5-2. COMPRESSOR TECHNICAL DATA

		(at 20°C)
Unit		PUHZ-RP8, 10YHA
Compressor n	nodel	ANV47FFBMT
Winding Resistance	U-V	0.72
	U-W	0.72
(Ω)	W-V	0.72

5-3. NOISE CRITERION CURVES



PUHZ-RP8YHA PUHZ-RP10YHA

6

Unit : mm



WIRING DIAGRAM

7





C B. Controller Circuit Board FUSE3.KISF4 FUSE (6.3 A) SW1 Switch (Forced Defrost, Defect History Record BW4 Switch (Function Switch) SW5 Switch (Function Switch) SW6 Switch (Function Switch) SW8 Switch (Function Switch) SW9 Switch (Function Switch) SW9 Switch (Function Switch) SW9 Switch (Function Switch) SW9 Switch (Function Switch) SW10 Switch (Function Switch) SW2 Connector CNAC Connector CNAC Connector CNAC Connector CNAS Connector CNA CONNECT CON	SYMBOL	NAME
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CNS Connector 2154 Connector 2154 Connector SV2 Connector SS Connector CNDC Connector CNA Connector CN32 Connector CN331 Connector CN332 Connector CN334 Connector CS34 Connector EV-A Connector 63H Connector 1143 Connector TH32 Connector CNM Connector CNM Connector CNM Connector CNM Connector Consector Consec	CNAC	Connector
CNDC Connector SY2 Connector SS Connector CN2 Connector CN31 Connector CN32 Connector CN332 Connector CN332 Connector CN332 Connector CA332 Connector SH Connector G34 Connector TH3 Connector TH4 Connector TH4 Connector TH4 Connector CNM Connector TH3 Connector CNM Connector / Connector Oponal MET Adapter Boar CNMNT Connector / Connection Oponal MET Adapter Boar CNMNT Connector / Connection for Option CNDM Connector / Connection for Option CNDM Connector / Connection for Option CNDS1 Connector / Connection for Option CNDS1 Connector / Connection for Option CNDS1 Connector / Connection for Option	CNS	Connector
2154 Connector SY2 Connector SS Connector CN2 Connector CN31 Connector CN32 Connector CN33 Connector CN33 Connector C3H Connector C3H Connector C3H Connector C3H Connector C3H Connector C1H3 Connector C1H3 Connector C1H3 Connector C1H3 Connector CNMNT Connector CNMNT Connector (A Control Service Inspection Kit) CNMNT Connector (Connectio Optional M NET Adget Boar CN3S Connector (Connection for Option) CNSS Connector (Connection for Option) CNS Connector (Connection for Option)	CNDC	Connector
SV2 Cannector SS Cannector (Connection for Option) CN2 Connector CN31 Connector CN331 Connector CA332 Connector CA333 Connector EV-A Connector 634 Connector 634 Connector 1714 Connector TH32 Connector TH32 Connector CNM Connector CNM Connector TH32 Connector CNM Connector (A control Service Inspection Kit) CNWNT Connector (Connet to Opional MET Adgier Baar CNMNT Connector (Connet to Opional MET Adgier Baar CNSS Connector (Connetion for Option) CNSS Connector (Connetion for Option) CNS1 Connector (Connetion for Option) CNS1 Connector (Connetion for Option) CNS1 Connector (Connetion for Option)	21S4	Connector
SS Connector Connection for Option) CN2 Connector CON331 Connector CN331 Connector CON331 Connector CN332 Connector CON331 Connector GBH Connector CON332 Connector G3H Connector CON332 Connector F13 Connector CON17 CON17 TH32 Connector CON17 CON17 CNM Connector CON17 CON184 CON184 CNMM Connector CON184 CON184 CON184 CNMM Connector CON184 CON184 CON184 CNMNT Connector Connector Connector Con100 CNSS Connector Connector Connector Con100 CON100 CNSS Connector Connector Con100 <	SV2	Connector
CN2 Connector CN4 Connector CN331 Connector CN332 Connector EEV.A Connector 63H Connector 63H Connector 17H3 Connector 17H3 Connector 17H3 Connector 17H3 Connector 17H3 Connector CNW Connector Connecto Connecto Aconal MET Adger Bar CNWNIT Connector Connecto Connecto Aconal MET Adger Bar CNMS Connector Connecto Tor Option CNSS Connector Connection for Option CNS Connector Connection for Option	SS	Connector (Connection for Option)
CN4 Connector CN331 Connector CN322 Connector EV-A Connector 63H Connector 63L Connector 7H3 Connector 11H7.6 Connector 11H32 Connector CNM Connector CNM Connector Connector Service Inspection Kit. CNM Connector Connect to Opional MET Adapter Barc CNMNT Connector Connection Opional MET Adapter Barc CNMS Connector Connection for Opion CNS Connector Connection for Opion	CN2	Connector
CN331 Connector CN332 Connector EV-A Connector G3H Connector G3L Connector TH3 Connector TH3 Connector TH32 Connector TH32 Connector TH32 Connector CNM Connector CNM Connector (A Control Service Inspection Kit) CNVMNT Connector Connect to Qual MET Adgre Baar CM3S Connector (Connect to Qual MET Adgre Baar CM3S Connector (Connect to Connect to Connector) CNDM Connector (Connect to Connect to Co	CN4	Connector
CN332 Connector LEV-A Connector 63H Connector 63L Connector 1H3 Connector 1H4 Connector 1H42 Connector 1H42 Connector 1H42 Connector 1H32 Connector (A Control Service Inspection Kit) CNM Connector (Connect to Optional M-NET Adapter Board CNMNT Connector (Connect to Optional M-NET Adapter Board CNMNT Connector (Connect to Optional M-NET Adapter Board CNMST Connector (Connect to Optional M-NET Adapter Board CNSS Connector (Connect to Optional M-NET Adapter Board CNSS Connector (Connect to Optional M-NET Adapter Board CNSS Connector (Connect to Optional CNST Connector (Connect to no Optiona) CNST LEO (Operation Inspection Indicators)	CN331	Connector
LEV-A Connector G3H Connector G3H Connector G3L Connector TH3 Connector TH3 Connector TH42 Connector TH76 Connector TH32 Connector CNNM Connector CNMM Connector (A Control Service Inspection Kit) CNMNT Connector Connect to Opional MET Adapter Boar CNMNT Connector Connection Opional MET Adapter Boar CNSS Connector (Connection Opional MET Adapter Boar CNSS Connector (Connection Opional MET Adapter Boar CNSS Connector (Connection for Option) CNS Connector (Connection for Option) CNS1 Connector (Connection for Option) CNS1 Connector (Sonnection Indicators)	CN332	Connector
63H Connector 63L Connector TH3 Connector TH4 Connector TH32 Connector TH32 Connector CNW Connector (A Control Service Inspection Kit) CNW Connector (Connect to Optional M-NET Adapter Board CNMNT Connector (Connect to Optional M-NET Adapter Board CN3S Connector (Connection for Optiona) CNDM Connector (Connection for Optiona) CNSI Connector (Connection for Optiona) CN51 Connector (Despection Infectors)	LEV-A	Connector
63L Connector TH3 Connector TH4 Connector TH7.6 Connector TH3.2 Connector CNM Connector / A Control Service Inspection Kit. CNM Connector (Connect to Opional M NET Adapter Board CNMNT Connector (Connect to Opional M NET Adapter Board CNMSS Connector (Connect to Opional M NET Adapter Board CNSS Connector (Connect to nor Opiona) CNSS Connector (Connection for Opiona) CNS1 Connector (Connection for Opiona) CHS1 Connector (Sonte Inspection Indicators)	63H	Connector
TH3 Connector TH4 Connector TH32 Connector TH32 Connector CNW Connector CNW Connector CNWNII Connector CMAS Connector CANS Connector CNS Connector CNS Connector CNS Connector CNS Connector CONDI Connector CONDI Connector CONS Connector Connector Connector CONDI Connector Connector Connector CONDI Connector	63L	Connector
TH4 Connector TH7/6 Connector TH32 Connector CNM Connector (A Control Service Inspection Kit) CNVMNT Connector (Connect to Optional M-NET Adapter Board CNMNT CONDENT Connector (Connect to Optional M-NET Adapter Board CNASS CANNET Connector (Connect to Optional M-NET Adapter Board CNASS CANNEC Connector (Connection for Optiona) CNDM Connector (Connection for Optiona) CNS1 Connector (Connection Inspection Indicators)	TH3	Connector
TH7:6 Connector TH3:2 Connector CNM Connector (A Control Service Inspection Kit) CNVMNT Connector (Connectio Opional M-ET Adgree Boar CMNNT Connector (Connection for Option) CNDM Connector (Connection for Option) CNDM Connector (Connection for Option) CNDM Connector (Connection for Option) CNDS1 Connector (Connection Indicators)	TH4	Connector
TH32 Connector CNM Connector (A Control Service Inspection Kit) CNVMNT Connector (Connet to Opional M-NET Adapter Baar CNMNT Connector (Connet to Opional M-NET Adapter Baar CMNNT Connector (Connet to Opional M-NET Adapter Baar CNSS Connector (Connection for Option) CNDM Connector (Connection for Option) CNS1 Connector (Connection for Option) CMS1 Connector Inspection Indicators)	TH7/6	Connector
CNM Connector Cannet to Optional MET Adapte Boar CNVMNT Connect to Optional MET Adapte Boar CNMNT Connector (Connect to Optional MET Adapte Boar CNSS Connector (Connect to Optional MET Adapte Boar CNSS Connector (Connect to Optional MET Adapte Boar CNSS Connector (Connect to Optional) CNS Connector (Connect to Optiona) CNS1 Connector (Connect to To Optiona) CNS1 Connector (Connect to To Optiona) CNS1 LED (Source to Inspection Indicators)	TH32	Connector
CNVMNT Connector Connect to Optional M NET Adapter Board CNMNT Connector Connect to Optional M-NET Adapter Board CN3S Connector Connection for Option CNDM Connector (Connection for Option) CNDM Connector (Connection for Option) CN51 Connector (Connection for Option) CD1 LED LED (Operation Inspection Indicators)	CNM	Connector (A Control Service Inspection Kit)
CNNNT Connector (Connect to Optional NNET Adapter Board CN3S Connector (Connection for Option) CNDM Connector (Connection for Option) CN51 Connector (Connection for Option) LED LED (LED (Connection Indicators)	CNVMNT	Connector (Connect to Optional M-NET Adapter Board)
CN3S Connector (Connection for Option) CNDM Connector (Connection for Option) CN51 Connector (Connection for Option) LED1/ED2 LED (Operation Inspection Indicators)	CNMNT	Connector (Connect to Optional M-NET Adapter Board)
CNDM Connector (Connection for Option) CN51 Connector (Connection for Option) LED1LED2 LED (Operation Inspection Indicators)	CN3S	Connector (Connection for Option)
CN51 Connector (Connection for Option) LED1.LED2 LED (Operation Inspection Indicators)	CNDM	Connector (Connection for Option)
LED1 LED2 LED (Operation Inspection Indicators)	CN51	Connector (Connection for Option)
The booten indicate as	LED1.LED2	LED (Operation Inspection Indicators)

* 1 MODEL SELECT												
MODEL	SW6	SW8	SW10									
RP8Y	ON OFF 1 2 3 4 5 6		ON OFF									
RP10Y	ON OFF 1 2 3 4 5 6	ON OFF 1 2 3										

M-NET ADAPTER

SYMBOL	NAME
TB7	Terminal Block : M-NET connection
CN5	Connector (Transmission)
CND	Connector (Power Supply)
CN2M	Connector (M-NET communication)
SW1	Switch (Status of communication)
SW11	Switch (Address setting:1st digit)
SW12	Switch (Address setting:2nd digit)
LED1	LED (Power Supply:DC5V)
LED2	LED (Connection to Outdoor Unit)
LED3	LED (Transmission:Sending)
LED4	LED (Transmission:Receiving)
LED5	LED (Power Supply:DC12V)

WIRING SPECIFICATIONS FOR 220V-240V 50Hz (INDOOR - OUTDOOR CONNECTING CABLE)

The cable shall not be lighter than design 245 IEC or 227 IEC.

When cable length is 30m or more.

Use one cable for S1 and S2 and another for S3 as shown in the picture.



wire size : cable length 50m : 4mm² cable length 80m : 6mm²

The cable length may vary depending on the condition of installation, humidity or materials, etc.

Cross section of cable	Wire size (mm²)	Number of wires	Polarity	L(m) * 5
Round	2.5	3	Clockwise : S1-S2-S3	(30) * 1
Flat	2.5	3	Not applicable (Because center wire has no cover finish)	Not applicable * 2
Flat	1.5	4	From left to right : S1-Open-S2-S3	(18) * 3
Round	2.5	4	Clockwise : S1-S2-S3-Open Connect S1 and S3 to the opposite angle	30 * 4

*1 : In case that cable with stripe of yellow and green is available.

*2 : In the flat cables are connected as this picture, they can be used up to 30m.

- *3 : In case of regular polarity connection (S1-S2-S3), wire size is 1.5mm².
- *4 : In case of regular polarity connection (S1-S2-S3).
- *****5 : Mentioned cable length is just a reference value.

It may be different depending on the condition of installation, humidity or materials, etc.

Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections).

Intermediate connections can lead to communication errors if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point. (If an intermediate connection is necessary, be sure to take measures to prevent water from entering the cables.)

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9-1. FIELD ELECTRICAL WIRING (POWER WIRING SPECIFICATIONS) PUHZ-RP•YHA

	Models (Out	tdoor unit)	RP8	RP10						
Οι	utdoor unit	Phase	3N~(3ph 4wires)							
Pc	ower supply	Frequency & Voltage	50Hz, 380	-400-415V						
In	out capacity		20	20						
Ма	ain switch/Breaker	Outdoor unit (A)	32	32						
	Outdoor unit	Mine Nie	4	4						
	Power supply	wire No.	4	4						
ing	Indoor unit/Outdo	or unit connecting	Cable length 50 m : 3 × 4 (Polar)							
Vir	Wire No. × size	e (mm ²)	Cable length 80	m : 3 × 6 (Polar)						
ſ	Remote controller-ir	ndoor unit connecting	Cable 2	C × 0.69						
	Wire No. × size	e (mm ²)	This wire is accessor	y of remote controller						
			(Wire length: 1	0m, Non-polar)						
Co	ontrol circuit ratir	ng	Indoor unit-Outdoor unit: S	S1-S2 AC220V-230V-240V						
			6	S2-S3 DC24V						
			Remote controller-Indoor unit: DC14V							

Check items

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- 1. Wiring size must comply with the applicable local and national code.
- 2. Be careful about choosing the installation location for the earth leakage breaker and how it is installed as the initial electric current may cause it to malfunction.
- 3. Power supply cords and indoor unit / Outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (design 254 IEC 57)

1:1 system



Synchronized twin, triple and quadruple system Electrical wiring

• Synchronized twin



Synchronized triple



Synchronized quadruple



9-2. M-NET WIRING METHOD

(Points to notice)

- (1) Outside the unit, transmission wires should stay away from electric wires in order to prevent electromagnetic noise from making an influence on the signal communication. Place them at intervals of more than 5cm. Do not put them in the same conduit tube.
- (2) Terminal block (TB7) for transmission wires should never be connected to 220~240V power supply. If it is connected, electronic parts on M-NET p.c. board may be burn out.
- (3) Use 2-core x 1.25mm² shield wire (CVVS, CPEVS) for the transmission wire. Transmission signals may not be sent or received normally if different types of transmission wires are put together in the same multi-conductor cable. Never do this because this may cause a malfunction.



It would be ok if M-NET wire (non-polar, 2-cores) is arranged in addition to the wiring for A-control.

(4) Ground only one of any appliances through M-NET transmission wire (shield wire). Communication error may occur due to the influence of electromagnetic noise.

"Ed" error will appear on the LED display of outdoor unit. "0403" error will appear on the central-control remote controller.



If there are more than two grounding spots on the shield wire, noise may enter into the shield wire because the ground wire and shield wire form one circuit and the electric potential difference occurs due to the impedance difference among grounding spots. In case of single spot grounding, noise does not enter into the shield wire because the ground wire and shield wire do not form one circuit.

To avoid communication errors caused by noise, make sure to observe the single spot grounding method described in the installation manual.

• M-NET wiring

- (1) Use 2-core x 1.25mm² shield wire for electric wires.
- (Excluding the case connecting to system controller.)
- (2) Connect the wire to the M-NET terminal block.Connect one core of the transmission wire (non-polar) to A terminal and the other to B. Peel the shield wire, twist the shield part to a string and connect it to S terminal.
- (3) In the system which several outdoor units are being connected, the terminal (A, B, S) on M-NET terminal block should be individually wired to the other
 - outdoor unit's terminal, i.e. A to A, B to B and S to S.In this case, choose one of those outdoor units and drive a screw to fix an ground wire on the plate as shown on the right figure.

9-2-1. M-NET address setting

In A-control models, M-NET address and refrigerant address should be set only for the outdoor unit. Similar to Free Combo system, there is no need to set the address of outdoor unit and remote controller. To construct a central control system, the setting of M-NET address should be conducted only upon the outdoor unit. The setting range should be 1 to 50 (the same as that of the indoor unit in Free Combo system), and the address number should be consecutively set in a same group.

<Setting example

Address number can be set by using rotary switches (SW11 for ones digit and SW12 for tens digit), which is located on the M-NET p.c. board of outdoor unit. (Factory setting: all addresses are set to "0".)

e>	M-NET Add	dress No.	1	2	50				
	Switng setting	SW11 ones digit	202 202		1903 1903				
	setting	SW12 tens digit							

9-2-2. Refrigerant address setting

In case of multiple grouping system (multiple refrigerant circuits in one group), indoor units should be connected by remote controller wiring (TB5) and the refrigerant address needs to be set. Leave the refrigerant addresses to "00" if the group setting is not conducted. Set the refrigerant address by using DIP SW1-3 to -6 on the outdoor controller circuit board. [Factory setting: all switches are OFF. (All refrigerant addresses are "00".)]



9-2-3. Regulations in address settings

In case of multiple grouping system, M-NET and refrigerant address settings should be done as explained in the above section. Set the lowest number in the group for the outdoor unit whose refrigerant address is "00" as its M-NET address.



* Refrigerant addresses can be overlapped if they are in the different group.



* In group B, M-NET address of the outdoor unit whose refrigerant address is "00" is not set to the minimum in the group. As "3" is right for this situation, the setting is wrong. Taking group A as a good sample, set the minimum M-NET address in the group for the outdoor unit whose refrigerant address is "00".



10 REFRIGERANT SYSTEM DIAGRAM

PUHZ-RP8YHA PUHZ-RP10YHA



CAPACITY CURVES

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Note : These diagrams show the case where the operation frequency of a compressor is fixed.

12-1. 1:1 SYSTEM

(1) Pipe length

<Table 1> Maximum pipe length (RP8-RP10)

Liquid	OD		<i>ø</i> 9	.52			ø1	2.7		¢15.88							
pipe	Thick-		+0	0			+0	0		±1 0							
(mm)	ness		iu				10	.0				.0					
gas	OD	ø19.05	ø22.2	ø25.4	ø28.58	ø19.05	ø22.2	ø25.4	ø28.58	ø22.2	ø25.4	ø28.58	ø31.75				
pipe	Thick-	+1 O	+1.0	+1.0	+1.0	+1.0	+1.0	+1.0	+1.0	+1 O	+1.0	+1.0	+1.0				
(mm)	ness	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0				
		_	_	Manualation				_					***				
				Normal piping	Osw			0	Osw	Δ		<u>∆</u> sw	*2∆sw				
RP8		20m	50m	70m*1	70m	20m	50m	70m	70m	50m	50m	50m	50m				
		[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]				
					_			_	Manual states								
				0	0			0	Normal piping	Δ			*2∆				
IRP10		20m	50m	70m	70m	20m	50m	/ 0m	70m*1	50m	50m	50m	50m				
		[20m]	[30m]	[30m]	[30m]	[[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]				

Note : The maximum pipe length is 80m in case of new piping.
*1 Be sure to use hard (tempered) one for pipe over φ22.2.(Do not use soft (annealed) one.)
*2 When using φ31.75 pipe, the outdoor temperature range (dry-bulb temperature) for heating operation is -11 to +21°C.



(2) Adjusting the amount of refrigerant

Check additional refrigerant charging amount referring to table 7 when the liquid pipe diameter is larger than the standard size, and table 2 when the pipe of the standard diameter is used.

<Table 2>

	Outdoor unit	permitted	At time of shipping		Amount of additional refrigerant charge (kg)										
		pipe length	(Kg)	30 m and less	31-40 m and less	41-50 m and less	51-60 m and less	61-70 m and less	71-80 m and less						
	RP8	80m or less	10.5	No additional	0.9 kg	1.8 kg	2.7 kg	3.6 kg	The additional charge						
ĺ	RP10	0011 01 1655	10.5	charge necessary	1.2 kg	2.4 kg	3.6 kg	4.8 kg	the following formula.						



(3) Capacity correction

Cooling and heating capacity is lowered according to the piping length. Capacity can be obtained by referring to the following capacity curves.

When the diameter of the gas pipe is smaller than the standard size, cooling capacity is lowered comparing to the operation using the standard diameter pipe.

The lowered capacity can be obtained by referring to the capacity curves for gas pipe which is one or two size smaller than standard size.

Corrected pipe length (m) = actual pipe length (m) + number of bends \times 0.3 (m)

1. Capacity curves 1 <Standard size>



2. Capacity curves 2 < When the gas pipe's diameter is one-size-smaller than the standard





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12-2. SYNCHRONIZED TWIN, TRIPLE AND QUADRUPLE SYSTEM

(1) Synchronized twin

Maximum pipe length (Main pipe[A]+Branch pipe diameter [B and C])

							R	P8 twin	(RP4X	2)					RP10 twin (RP5X2)											
Main pipe	Liquid p	oipe		<i>∲</i> 9.52				¢12.7				¢15.88				<i>ø</i> 9	.52			ø1	2.7		ø15.88			
(mm)[A]] Gas pipe		¢19.05	φ22.2	ø25.4	ø28.58	ø19.05	φ22.2	ø25.4	ø28.58	ø22.2	ø25.4	¢28.58	ø31.75	ø19.05	<i>\$</i> 22.2	¢25.4	ø28.58	¢19.05	<i>\$</i> 22.2	ø25.4	ø28.58	ø22.2	ø25.4	ø28.58	ø31.75
	Liquid pipe	<i>\$</i> 6.35			1 /									_/												
	Gas pipe	ø12.7																								
Branch	Liquid pipe	<i>φ</i> 9.52	20m		Normal piping	Osw			0	Osw	∆ 50m	∆ 50m	∆sw	*2 ∆ sw	20m		0	0			0	Normal piping		∆ 50m		*2 ∆
pipe	Gas pipe	¢15.88	[20m]	[30m]	70m*1 [30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	70m*1 [30m]	[20m]	[20m]	[20m]	[20m]
[mm] [B_C]	Liquid pipe	<i>φ</i> 9.52	20m		0 70m	O sw	20m		0 70m	O sw	 50m		∆ _{sw}	*2 ∆ sw	20m		0	0			0 70m	0 70m		∆ 50m		*2∆
[0, 0]	Gas pipe	¢19.05	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]
	Liquid pipe	ø12.7	20m		0 70m	O sw	20m		0 70m	O sw		∆ 50m	∆sw	*2 ∆ sw	20m		0	0	20m		0 70m	0 70m			∆ 50m	*2∆
	Gas pipe	¢19.05	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]

*1 The maximum pipe length is 80m in case of new pipping. *2 When using ϕ 31.75 pipe, the outdoor temperature range (dry-bulb temperature) for heating operation is -11 to +21°C.

(2) Synchronized triple

Maximum pipe length (Main pipe [A] + Branch pipe [B, C and D])

		RP8 triple (RP2.5X3)						_				RP10 triple (RP3X3)														
Main pipe	Liquid p	oipe		ø9	.52			ø1	2.7			ø15	5.88			ø9	.52			ø1	2.7			ø15	5.88	
(mm)[A]	Gas pi	ре	¢19.05	ø22.2	¢25.4	<i>\$</i> 28.58	ø19.05	φ22.2	ø25.4	ø28.58	ø22.2	<i>φ</i> 25.4	ø28.58	φ31.75	¢19.05	ø22.2	ø25.4	ø28.58	φ19.05	<i>ф</i> 22.2	<i>φ</i> 25.4	<i>\$</i> 28.58	<i>φ</i> 22.2	<i>\$</i> 25.4	¢28.58	ø31.75
	Liquid pipe	<i>ø</i> 6.35			1 /																					
	Gas pipe	φ12.7																								
Branch	Liquid pipe	<i>\$</i> 9.52	20m		Normal piping	Osw	20m		0 70m	O sw			∆sw	*2 ∆ sw	20m		0 70m	0 70m	20m		0	Normal piping				*2∆
pipe	Gas pipe	¢15.88	[20m]	[30m]	70m*1 [30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	70m*1 [30m]	[20m]	[20m]	[20m]	[20m]
[mm]	Liquid pipe	φ9.52	20m		0	O sw	20m		0	O sw	Δ 50m	Δ 50m	∆ _{SW}	*2∆sw	20m		0	0			0	0 70m	∆ 50m	∆ 50m	∆ 50m	*2∆
[0, 0, 0]	Gas pipe	¢19.05	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]
	Liquid pipe	φ12.7	20m		0 70m	O sw	20m		0 70m	O sw			∆sw	*2 ∆ sw	20m		0 70m	0 70m	20m		0	0 70m		∆ 50m		*2∆
	Gas pipe	¢19.05	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]

*1 The maximum pipe length is 80m in case of new pipping. *2 When using ϕ 31.75 pipe, the outdoor temperature range (dry-bulb temperature) for heating operation is -11 to +21°C.

(3) Synchronized quadruple

Maximum pipe length (Main pipe[A]+Branch pipe [B, C, D and E])

		RP8 quadruple (RP2X4)											RP10 quadruple (RP2.5×4)													
Main pipe	Liquid p	oipe		ø9	.52			ø1	2.7			ø1	5.88			<i></i> \$9	.52			ø1	2.7			ø15	5.88	
(mm)[A]	Gas pi	ре	φ19.05	φ22.2	ø25.4	<i>ф</i> 28.58	ø19.05	ø22.2	φ25.4	<i>\$</i> 28.58	<i>φ</i> 22.2	φ25.4	ø28.58	φ31.75	ø19.05	φ22.2	<i>φ</i> 25.4	<i>\$</i> 28.58	ø19.05	<i>ф</i> 22.2	ø25.4	<i>φ</i> 28.58	ø22.2	ø25.4	<i>ф</i> 28.58	ø31.75
	Liquid pipe	¢6.35	20m	□ 50m	Normal piping	O sw	20m		0 70m	O sw			∆sw	*2∆sw 50m		1							\square			\square
	Gas pipe	φ12.7	[20m]	[30m]	70m*1 [30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]												
Branch	Liquid pipe	<i>φ</i> 9.52	20m		0	O sw	20m		0	O sw	Δ 50m	_∆	∆sw	*2 ∆ sw	20m		0 70m	0 70m	20m		0 70m	Normal piping				*2∆
pipe	Gas pipe	¢15.88	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	70m*1 [30m]	[20m]	[20m]	[20m]	[20m]
[mm]	Liquid pipe	ø9.52	20m		0	O sw	20m		0	O sw	<u>∆</u>	<u>∆</u>	∆sw	*2 ∆ sw	20m		0	0	20m		0 70m	0 70m	∆ 50m	Δ 50m	∆ 50m	*2∆
[0, 0, 0, 1]	Gas pipe	¢19.05	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]	[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]
	Liquid pipe	ø12.7		1/	1 /		1 /						1		20m		0	0 70m	20m		0 70m	0 70m				*2∆
	Gas pipe	¢19.05	\vee												[20m]	[30m]	[30m]	[30m]	[20m]	[30m]	[30m]	[30m]	[20m]	[20m]	[20m]	[20m]

*1 The maximum pipe length is 80m in case of new pipping. *2 When using ϕ 31.75 pipe, the outdoor temperature range (dry-bulb temperature) for heating operation is -11 to +21°C.





<Table 6> Lowered cooling capacity by the smaller gas pipe diameter

Dina longth	RP8 Cooling	capacity ratio	RP10 Cooling capacity ratio			
Fipellerigtri	gas pipe ϕ 22.2	gas pipe ϕ 19.05	gas pipe ϕ 25.4	gas pipe ϕ 22.2		
5m and less	100%	100%	100%	100%		
6~10m	100~96%	100~91%	100~98%	100~95%		
11~20m	96~91%	91~81%	98~94%	95~88%		
21~30m	91~86%	—	94~91%	—		
31~40m	86~83%	_	91~88%	—		
41~50m	83~80%	—	88~86%	_		

<Table 7> Additional refrigerant amount when the liquid pipe of the larger diameter is used. (Single /Simultaneous Twin / Simultaneous Triple / Simultaneous Quadruple)

Capacity	When the extension pipe length (main piping + branch piping) exceeds 20m
RP8, RP10	Additional refrigerant amount∆W(g)=(180×L₁)+(120×L₂) (90×L₃)+(30×L₄)-3000

 $L_1: \phi$ 15.88 liquid pipe (m) $L_2: \phi$ 12.7 liquid pipe (m)

L₃ : ϕ 9.52 liquid pipe (m) L₄ : ϕ 6.35 liquid pipe (m)

If the calculation produces a negative number (i.e. a "minus" charge), additional charging is not necessary. ($\Delta W \leq 0$)

<Table 8>

	Permissible total	A+B or A+C	Charge-less
Outdoor unit	piping length	or	piping length
	A+B+C+D+E	A+D or A+E	A+B+C+D+E
RP8			
PR10	80 m and less	80 m and less	30 m and less

<Table 9>

Outdoor unit	B-C or B-D or B-E or C-D or C-E or D-E	Number of pipe bends
RP8 RP10	8 m and less	Within 15

<Table 10>

ſ		pormittod	At time of chipping			A+B-	+C+D						
Outdoor unit	permitted	/kg)		Amount of additional refrigerant charge (kg)									
		pipe length	(Kg)	30 m and less	31-40 m and less	41-50 m and less	51-60 m and less	61-70 m and less	71-80 m and less				
Ī	RP8	80m or less	10.5	No additional	0.9 kg	1.8 kg	2.7 kg	3.6 kg	The additional charge				
	RP10	0011 01 1633	10.5	charge necessary	1.2 kg	2.4 kg	3.6 kg	4.8 kg	the following formula.				

- When length exceeds 70 m

When the total length of the piping exceeds 70 m, calculate the amount of additional charge based on the following requirements. Note: If the calculation produces a negative number (i.e. a "minus" charge), of if calculation results in an amount that is less than the "Additional charge amount for 70 m,"perform the additional charge using the amount shown in "Additional charge amount for 70 m." Branch piping: Liquid Branch piping: Liquid Main piping: Main piping: Amount of additional Liquid line size Liquid line size line size line size + + = ¢12.7 overall length ϕ 9.52 overall length Ø9.52 overall length *ϕ*6.35 overall length charge 3.6 (kg) 0.12 0.09 (Gas line: \$\phi 28.58) 0.06 (Gas line: \$\$\phi15.88\$) 0.02 (Gas line: \$\$\phi15.88\$) Additional charge amount RP8 3.6 kg for 70 m RP10 4.8 kg

- 1. Perform refrigerant piping connections for the indoor / outdoor unit while the outdoor unit's stopvalve is completely closed (factory setting), and then vacuumize the refrigerant lines through the service port of the outdoor unit.
- Open the stop valves of the outdoor unit completely. This will completely connects the refrigerant lines of the indoor and outdoor units.
- Handling of the stop valve is shown on the outdoor unit.

Note :

- · Apply refrigerating machine oil over the flare seat surface. Do not apply to the threaded portion.
- (It will cause the flare nut to loosen.)
- · Use two wrenches to tighten piping connection.
- · Use leak detector or soapy water to check for gas leaks after connections are completed.
- For the insulation of the connection at the indoor side, make sure to use the attached insulation materials and thoroughly follow the instruction shown in the manual.
- · Always use a non-oxidizing brazing material when brazing the pipes.

Adjusting the amount of refrigerant

Check additional refrigerant charging amount referring to the procedure ⁽²⁾ below when the liquid pipe diameter of the main piping A is larger than the standard size.

- ① When the standard diameter pipe is used for the main piping A, calculate the additional refrigerant amount by referring to <Table 2> as well as the 1:1 system.
- ② When the liquid pipe diameter of the main piping A is one size larger than the standard size:
 - When the extension pipe length (main piping + branch piping) does not exceeds 20m, adjustment of the refrigerant is not necessary (charge-less).
 - When the extension pipe length (main piping + branch piping) exceeds 20m, charge the amount of refrigerant that is obtained by the formula shown in <Table 7>.

If the calculation produces a negative number (i.e. a "minus" charge), additional charging is not necessary. Note: Apply 0 to L1 to L3 corresponding to the piping that are not used.

Correcting the capacity value

When calculating the lowered capacity by the extension pipe length, use the longest length between the indoor and the outdoor units.

Refrigerant collecting (pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

- ① Before collecting the refrigerant, first make sure that the all of the SW5 DIP switches for function changes on the control board of the outdoor unit are set to OFF. If all of the SW5 switches are not set to OFF, record the settings and then set all of the switches to OFF. Start collecting the refrigerant. After moving the unit to a new location and completing the test run, set the SW5 switches to the previously recorded settings.
- ② Supply power (circuit breaker).
 - * When power is supplied, make sure that "CENTRALLY CONTROLLED" is not displayed on the remote controller. If "CENTRALLY CONTROLLED" is displayed, the refrigerant collecting (pump down) cannot be completed normally.
- ③ After the liquid stop valve is closed, set the SWP switch on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.
 - * Set the SWP switch (push-button type) to ON in order to perform refrigerant collecting operation only when the unit is stopped. However, refrigerant collecting operation cannot be performed until compre-

ssor stops even if the unit is stopped. Wait three minutes until compressor is completely stopped and set the SWP

switch to ON again.

Unit replacement operation

 This model will automatically begin the replacement operation after it has been installed when it enters the initialization phase for normal heating or cooling. However, the unit will not automatically perform the replacement operation if it is moved to a new location where it will be used with existing R22 refrigerant piping. Under such conditions, always use the SW8-2 operations to perform the replacement operation before beginning the test operation.

Some models can perform the replacement operation only by SW8-2 operation. Refer to the outdoor unit's Installation Manual for detail.

Replacement operation procedures (When moving the unit and connecting it to existing R22 piping.)

① Supply power.

- O Set DIP switch SW8-2 on the control board of the outdoor unit to ON to start replacement operation.
 - * The replacement operation is performed using the cooling system. Cool air will flow from the indoor unit during the replacement operation.
 - * During the replacement operation, I will is displayed on the remote controller and LED1 and LED2 on the control board of the outdoor unit flash together.
- The duration of the replacement operation is determined by the length of the piping. Always perform the replacement operation for longer than the stipulated time.
 - * Always perform one of the following operations at the completion of the replacement operation. The replacement operation will end and the unit will automatically stop.

Start and finish of test run

- Operation from the indoor unit
 - Execute the test run using the installation manual for the indoor unit.
- Operation from the outdoor unit

By using the DIP switch SW4 on the control board of the outdoor unit, test run can be started and finished, and its operation mode (cooling/heating) can be set up.

①Set the operation mode (cooling/heating) using SW4-2.

Turn on SW4-1 to start test run with the operation mode set by SW4-2.

- ③Turn off SW4-1 to finish the test run.
- There may be a faint knocking sound around the machine room after power is supplied, but this is no problem with product because the linear expansion pipe is just moving to adjust opening pulse.
- There may be a knocking sound around the machine room for several seconds after compressor starts operating, but this is no problem with product because the check valve, itself, generates the sound because pressure difference is small in the refrigerant circuit.

Note: The operation mode cannot be changed by SW4-2 during test run. (To change test run mode, stop the unit by SW4-1, change the operation mode and restart the test run by SW4-1.)

④ As the unit automatically stops after two or three minutes of refrigerant collecting operation (LED1 if not lit and LED2 is lit), be sure to quickly close the gas stop valve.

If the unit stops while both LED1 and LED2 are lit, open the liquid valve completely, wait three minutes, then repeat the step $\circledast.$

 If the refrigerant collecting operation has been completed normally (LED1 and LED2 are lit), the unit will remain stopped until the power supply is turned off.

 $\ensuremath{\textcircled{}}$ 5 Turn off the power supply (circuit breaker).

- * Note that when the length of the extension piping is long, it may not be possible to perform a pump-down operation. When performing the pumpdown operation, make sure that the low pressure is lowered to near 0 MPa (gauge).
- (1)Set SW8-2 from ON to OFF. (When ending a replacement operation of less than 2 hours.)
 - Each time SW8-2 is set from OFF to ON, the replacement operation can be started. Always perform the replacement operation for longer than the stipulated time.

Required replacement operation times

Piping Length	Replacement Operation Time
0 to 20 meters	30 minutes or more
21 to 30 meters	45 minutes or more
31 to 70 meters	60 minutes or more

(2) The replacement operation will automatically stop after 2 hours. (It will end with SW8-2 still in the ON position.)

- When the replacement operation has ended automatically after 2 hours of operation, there is no need to set SW8-2 from ON to OFF; normal air conditioning operations can bestarted with the SW8-2 being set to ON.However, to repeat the replacement operation, SW8-2 will have to be returned to OFF and then set to ON.
- * If the indoor temperature is below 15 $\!\!^\circ C$, the compressor will operate intermittently but the unit is not faulty.



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13-1. TROUBLESHOOTING

<Error code display by self-diagnosis and actions to be taken for service (summary)>

Present and past error codes are logged and displayed on the wired remote controller and control board of outdoor unit. Actions to be taken for service, which depends on whether or not the inferior phenomenon is reoccurring at service, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Error code	Actions to be taken for service (summary)
The inferior phenomenon is	Displayed	Judge what is wrong and take a corrective action according to "13-4. SELF-DIAGNOSIS ACTION TABLE".
reoccurring.	Not displayed	Conduct trouble shooting and ascertain the cause of the inferior phenomenon according to "13-5. TROUBLE-SHOOTING BY INFERIOR PHENOMENA".
The inferior phenomenon is	Logged	 Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise and etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the inferior phenomenon occurred, matters related to wiring and etc. Reset error code logs and restart the unit after finishing service. There is no abnormality concerning of parts such as electrical component, controller board, remote controller and etc.
not reoccurring.	Not logged	 ①Re-check the abnormal symptom. ②Conduct trouble shooting and ascertain the cause of the inferior phenomenon according to "13-5. TROUBLE-SHOOTING BY INFERIOR PHENOMENA". ③Continue to operate unit for the time being if the cause is not ascertained. ④There is no abnormality concerning of parts such as electrical component, controller circuit board, remote controller and etc.

13-2. CHECK POINT UNDER TEST RUN

(MA remote controller)

(1) Before test run

- After installation of indoor and outdoor units, piping work and electric wiring work, re-check that there is no refrigerant leakage, loosened connections and incorrect polarity.
- Measure impedance between the ground and the power supply terminal block(L, N) on the outdoor unit by 500V Merger and check that it is 1.0MΩ or over.
- *Don't use 500V Merger to indoor/outdoor connecting wire terminal block(S1, S2, S3) and remote controller terminal block (1, 2). This may cause malfunction.
- Make sure that test run switch (SW4) is set to OFF before turning on power supply.
- Make sure that all of the SW5 switches for function changes on the control board of the outdoor unit are set to OFF. If all of the SW5 switches are not set to OFF, record the settings and then set all of the switches to OFF. And perform emergency operation. After finishing emergency operation, set the SW5 switches to the recorded settings.
- Turn on power supply twelve hours before test run in order to protect compressor.
- For specific models which requires higher ceiling settings or auto-recovery feature from power failure, make proper changes of settings referring to the description of "Selection of Functions through Remote Controller".

Make sure to read operation manual before test run. (Especially items to secure safety.)

13-2-1. Test run by remote controller



- In case of test run, the OFF timer will be activated, and the test run will automatically stop after two hours.
- The room temperature display section shows the pipe temperature of indoor units during the test run.
- Check that all the indoor units are running properly in case of simultaneous twin and triple operation. Malfunctions may not be displayed regardless of incorrect wiring.
- *1 After turning on the power supply, the system will go into startup mode, "H0" will blink on the display section of the room temperature, and lamp(red) of the remote controller will flash.
 - As to INDOOR BOARD LED, LED1 and LED2 will be lit up in case the address is 0, or turned off in case the address is not 0. LED3 will blink.
 - As to OUTDOOR BOARD LED, LED1(green) and LED2(red) will light up. (After the startup mode of the system finishes, LED2(red) will be turned off.)
- In case OUTDOOR BOARD LED is digital display, and and will be displayed alternately every second.
- If one of the above operations doesn't function correctly, the causes written below should be considered. Find causes from the symptoms.

The below symptoms are under test run mode. "startup" in the table means the display status of *1 written above.

Symptoms in test	run mode	Cauca				
Remote Controller Display	OUTDOOR BOARD LED Display < > indicates digital display.	Cause				
Remote controller displays "H0", and cannot be operated.	After "startup" is displayed, only green lights up. <00>	 After power is turned on, "H0" is displayed for 2 minutes during system startup. (Normal) 				
After power is turned on, "H0" is displayed	After "startup" is displayed, green(once) and red(once) blink alternately. <f1></f1>	 Incorrect connection of outdoor terminal block (L, N and S1, S2, S3.) 				
displayed.	After "startup" is displayed, green(once) and red(twice) blink alternately. <f3, f4,="" f9=""></f3,>	Outdoor unit's safeguard installation connector is open.				
No display appears even when remote	After "startup" is displayed, green(twice) and red(once) blink alternately. <ea. eb=""></ea.>	 Incorrect wiring between the indoor and outdoor unit (Polarity is wrong for S1, S2, S3.) Remote controller transmission wire short. 				
(Operation lamp does not light up.)	After "startup" is displayed, only green lights up. <00>	 There is no outdoor unit of address 0. (Address is other than 0.) Remote controller transmission wire burnout. 				
Display appears but soon disappears even when remote controller is operated.	After "startup" is displayed, only green lights up. <00>	 After canceling function selection, operation is not possible for about 30 seconds. (Normal) 				

*Press the remote controller's (CHECK) button twice to perform self-diagnosis. See the table below for the contents of LCD display.

LCD	Contents of inferior phenomena	LCD	Contents of inferior phenomena
P1	Abnormality of room temperature thermistor	U1~UP	Malfunction outdoor unit
P2	Abnormality of pipe temperature thermistor/Liquid	F3~F9	Malfunction outdoor unit
P4	Abnormality of drain sensor	E0~E5	Remote controller transmitting error
P5	Drain overflow protection is working.	E6~EF	Indoor/outdoor unit communication error
P6	Freezing/overheating protection is working.		No error history
P8	Abnormality of pipe temperature	FFFF	No applied unit
P9	Abnormality of pipe temperature thermistor/Cond./Eva		

See the table below for details of the LED display (LED 1, 2, 3) on the indoor controller circuit board.

LED1 (microcomputer power supply)	Lits when power is supplied.
LED2 (remote controller)	Remote controller The indoor unit should be connected to the outdoor unit with address "0" setting.
LED3 (indoor/outdoor communication)	Flash when indoor and outdoor unit are communicating.

13-2-2. Test run by outdoor unit SW4

The setting of test run (ON/OFF) and its operation mode (cooling/heating) can be set by SW4 on the controller circuit board of outdoor unit. Check that SW5-1 is set to OFF before performing test run. If SW5-1 is set to ON, turn it OFF and then perform test run. After finishing test run, set SW5-1 back to ON.

①Set operation mode(cooling or heating) by SW4-2.

②Start test run by setting SW4-1 to ON (final) with the indicated operation mode of SW4-2. 3Finish test run by setting SW4-1 to OFF (1).

- Operation mode cannot be changed by SW4-2 during test run.
- Stop test run to change operation mode by SW4-1, and restart test run by SW4-1 after the mode is changed.
- Test run automatically stops 2 hours later by 2-hour OFF timer function.
- Test run can be performed by the remote controller.
- The remote controller display of test run by outdoor unit is the same as that of test run by remote controller.





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13-3. MALFUNCTION-DIAGNOSIS METHOD BY REMOTE CONTROLLER

13-3-1. Error history of unit

(1) Wired remote controller





If there is a trouble on air conditioner, both indoor unit and outdoor unit will stop and digital display shows what was wrong.

- ① "CHECK" and refrigerant address are displayed at set temperature display. Error code and unit number are displayed at clock display alternately.
 - (If outdoor unit is malfunctioning, unit number is 00.)
- ② The refrigerant address and error code initially sent from the unit are displayed in case of group control system which one remote controller controls plural refrigerant systems.
- ③ Press the "ON/OFF" button to cancel error code. In case of central control by the controller of MELANS, cancel the error code by the controller of the MELANS, and in case of distant-handy combined operation, cancel the error code by cancelling distant operation.

<Malfunction-diagnosis method at maintenance service> Digital control has memory function that memorizes latest error code even if it is cancelled by remote controller or power is shut off, so error histories can be searched by following the procedure below.

Search error histories of each unit by remote controller.

- ① Turn to self-diagnosis mode.
 - Press the ^(f) "CHECK" button twice within three seconds, and following display appears. a) Refrigerant address for self-diagnosis
- ② Set refrigerant address number that you want to diagnose. Press the ⓒ ☜ ⓓ (temp.) button to set refrigerant address to be diagnosed.

Refrigerant address has number from 00 to 15. Three seconds after setting, lighted self-diagnosed refrigerant address begins blinking and self-diagnosis process begins.

- ③ Self-diagnosis result display
 - (1) When there is an error history.
 - (Refer to 13-4. for details of error code contents.)
 - b) Alternating display
 - c) Error code
 - d) Attribute of error search
 - e) Unit number
 - (2) When there is no error history.
 - (3) When the address does not exist.







④ To cancel self-diagnosis

There are following two methods to cancel self-diagnosis: Press the ⊕ "CHECK" button twice within three seconds. →Self-diagnosis is cancelled and the display screen will return to the status before self-diagnosis. Press the ① "ON/OFF" button.

→Self-diagnosis is cancelled and indoor unit will stop. This operation is ineffectual when the operation of remote controller is prohibited.

During self-diagnosis at maintenance service, all the indoor units start performing fan operation except for the indoor unit indicating the latest error. Then outdoor units of the same refrigerant system also start performing fan operation intermittently for 3 minutes. (The fan is on for 3 seconds and then off for 5 seconds.)

The unit with error can be inspected by using this. In case unit other than indoor unit, such as outdoor unit and controller of MELANS, has an error, all the indoor units of the same refrigerant system stop fan operation and outdoor units operate intermittently for 3 minutes.

⑤ To delete error code

When something is wrong with air conditioner, error code (P1 etc.) is memorized, but error code can be deleted after termination of service.

<To delete error cord with remote controller>

- (1) Display the error cord at the self-diagnosis result display screen.
- b) Alternating display
- (2) The address for self-diagnosis will blink when the O
 O button is pressed twice within three seconds.
- (3) The display (3) shown on the left will be appeared when the error cord has been reset. Note that the error content will be redisplayed if error cord resetting is unsuccessful.
- <To delete error cord with switch of outdoor unit> Refer to "13-10. FUNCTION OF SWITCHES, CONNEC-TORS AND JUMPERS".

(2) Digital wireless remote controller

<In case of trouble during operation>

When a malfunction occurs to air conditioner, both indoor unit and outdoor unit will stop and operation lamp blinks to inform unusual stop.

<Malfunction-diagnosis method at maintenance service>

[Procedure] 1. Press the CHECK button twice. • "CHECK" lights, and refrigerant Refrigerant address "00" flashes. address display A MITSUBISHI ELECTRIC · Check that the remote controller's CHECK 88 display has stopped before continuing. CHECK display 2. Press the temperature () · Select the refrigerant address of the Temperature buttons. indoor unit for the self-diagnosis. button # TEMP ON/OFF Note: Set refrigerant address using the Į (£ O outdoor unit's DIP switch (SW1). (\blacktriangle) ON/OFF (For more information, see the button outdoor unit installation manual.) AUTO STOP FAN *** 0 0** 55 Ø→O 3. Point the remote controller at the • If an air conditioner error occurs, the MODE VANE UTO START HOUR sensor on the indoor unit and indoor unit's sensor emits an intermit-尒 Ð≁I button CHECK LOUVER h press the HOUR button. tent buzzer sound, the operation light **** flashes, and the error code is CHECK TEST RUN min output. button (It takes 3 seconds at most for error RESET CLOCK € SET O code to appear.) 4. Point the remote controller at the • The check mode is cancelled. sensor on the indoor unit and press the ON/OFF button.

* Malfunction diagnosis can be performed only for refrigerant system controlling wireless units.

Inspected unit	Error code	Beep output	Operation LED	Inspected unit	Check code	Beep output	Operation LED
	P1	beep × 1 time	1 sec. × 1 time	or	F1–F9	1 1	(0.4sec+0.4sec) × 1 time
	P2	beep × 2 times	1 sec.× 2 times	Outdo unit	U0–UP	beep beep × 1 time	
nnit	P4	beep × 4 times	1 sec.× 4 times		E6–EE	Other than above	Other than above
oor	P5	beep × 5 times	1 sec.× 5 times		No check code (normal)	No output	Lights off
Ind	P6	beep × 6 times	1 sec.× 6 times]	No check code (mistake of match- ing with refrigerant address)		
	P8	beep × 8 times	1 sec.× 8 times			ing with refrigerant deep bee address)	реер реер реер
	P9	beep × 2 times	1 sec.× 2 times				
	E4, E5	Other than above	Other than above				



13-3-2. Wired Remote controller Diagnosis

If operation can not be carried out from remote controller, try remote controller diagnosis with following process.

- First, check the electricity current marker. When correct voltage (DC12V) is not supplied to remote controller, the electricity current marker is put out. If the electricity current marker is not lighted, check the remote controller wiring and the indoor units.
 a) Electric current marker
- Transfer to remote controller diagnosis mode Hold down the
 "CHECK" button for five seconds or more, and following display appears.

 Press the
 "FILTER" button, and remote controller diagnosis will begin.
- ③ Remote controller diagnosis result
 - (1) When the remote controller is functioning correctly Check other possible causes, as there is no problem with remote controller.
 Consider the unit is normal when remote controller transmits the result of diagnosis to indoor or outdoor unit and receives the same data back.
 - (2) When remote controller has malfunction The remote controller must be replaced.
 If the transmitting-receiving circuit is defective, ['NG'] blinks.
 "NG" will be displayed when remote controller transmits

the result of diagnosis to indoor or outdoor unit, and receives no response.

When there might be other problems than diagnosed remote controller,

(3) There might be noise on transmission path or damage of other remote controllers or indoor units. Check the transmission path and other controllers. If the transmission is not possible, [E3] blinks.

"E3" will be displayed when remote controller transmits the result of diagnosis to indoor or outdoor unit and receives different data back.

- (4) The number of data errors means the difference between the number of bits sent from remote controller and the actual number of bits sent to transmission path. If the data error is displayed, noise and etc. are interfering with the transmission data. Check the transmission path.
 - If the data error has occurred, [ERC] and number of data errors are displayed.

b) Number of generated data errors (maximum 66 errors)

When the number of data errors is 02.

Transmission data from remote controller

Transmission data on transmission path ④ Cancel the remote controller diagnosis

Hold down the B "CHECK" button for five seconds or more to cancel remote controller diagnosis, then [H0] operation lamp will blink and the display screen will return to the status before remote controller diagnosis in about 30 seconds.

13-4. SELF-DIAGNOSIS ACTION TABLE

<Abnormalities detected when the power is put on>

(Note 1) Refer to indoor unit section for code P and code E.

Error Code	Meaning of error code and detection method	Case	Judgment and action
None		 No voltage is supplied to terminal block(TB1) of outdoor unit. a) Power supply breaker is put off. b) Contact failure or discon- nection of power supply terminal. c) Open phase (L2 or N phase) ② Electric power is not supplied to outdoor controller circuit board. a) Disconnection of connector (CNDC) ③ Disconnection of outdoor noise filter circuit board or parts failure in outdoor noise filter circuit board. ④ Defective outdoor controller circuit board. 	 Check following items. a) Power supply breaker b) Connection of power supply terminal block. (TB1) c) Connection of power supply terminal block. (TB1) Check connection of the connector (CNDC) on the outdoor controller circuit board. Check connection of the connector, (CNDC) the outdoor noise filter circuit board. Refer to 13-9. a) Check connection of outdoor noise filter circuit board. b) Replace outdoor noise filter circuit board. Refer to 13-9. Replace controller board (When items above are checked but the units can not be repaired.)
F3 (5202)	63L connector open Abnormal if 63L connector circuit is open for three minutes continuously after power supply. 63L: Low-pressure switch	 Disconnection or contact failure of 63L connector on outdoor controller circuit board. Disconnection or contact failure of 63L. 63L is working due to refriger- ant leakage or defective parts. Defective outdoor controller circuit board. 	 Check connection of 63L connector on outdoor controller circuit board. Refer to 13-9. Check the 63L side of connecting wire. Check refrigerant pressure. Charge additional refrigerant. Check continuity by tester. Replace the parts if the parts are defective. Replace outdoor controller circuit board.
F5 (5201)	63H connector open Abnormal if 63H connector circuit is open for three minutes continuously after power supply. 63H: High-pressure switch	 Disconnection or contact failure of 63H connector on outdoor controller circuit board. Disconnection or contact failure of 63H. 63H is working due to defective parts. Defective outdoor controller circuit board. 	 Check connection of 63H connector on outdoor controller circuit board. Refer to 13-9. Check the 63H side of connecting wire. Check continuity by tester. Replace the parts if the parts are defective. Replace outdoor controller circuit board.
F9 (4119)	 2 connector open Abnormal if both 63H and 63L connector circuits are open for three minutes continuously after power supply. 63H: High-pressure switch 63L: Low-pressure switch 	 Disconnection or contact failure of connector (63H,63L) on outdoor controller circuit board. Disconnection or contact failure of 63H, 63L. 63H and 63L are working due to defective parts. Defective outdoor controller circuit board. 	 Check connection of connector(63H,63L) on outdoor controller circuit board. Refer to 13-9. Check the 63H and 63L side of connecting wire. Check continuity by tester. Replace the parts if the parts are defective. Replace outdoor controller circuit board.

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Error Code	Meaning of error code and detection method	Case	Judgment and action
EA (6844)	 Indoor/outdoor unit connector mis-wiring, excessive number of units (4 units or more) 1. Outdoor controller circuit board can automatically check the number of connected indoor units. Abnormal if the number cannot be checked automatically due to mis-wiring of indoor/outdoor unit connecting wire and etc. after power is turned on for 4 minutes. 2. Abnormal if outdoor controller circuit board recognizes the number of connected indoor units as "5 units or more". 	 Contact failure or mis-wiring of indoor/outdoor unit connecting wire. Diameter or length of indoor/outdoor unit connecting wire is out of specified capacity. 5 or more indoor units are connected to one outdoor unit. Defective transmitting receiving circuit of outdoor controller circuit board. Defective transmitting receiving circuit of indoor controller cir- cuit board. Defective indoor power circuit board. Defective indoor power circuit board. Two or more outdoor units have refrigerant address "0" . (In case of group control) Noise has entered into power supply or indoor / outdoor unit connecting wire. 	 Check disconnection or looseness or polarity of indoor/outdoor unit connecting wire of indoor and outdoor units. Check diameter and length of indoor/outdoor unit connecting wire. Total wiring length: 80m (including wiring connecting each indoor unit and between indoor and outdoor unit) Also check if the connection order of flat cable is S1, S2, S3. Check the number of indoor units that are connected to one outdoor unit. (If EA is detected) Check. Replace outdoor controller circuit board, indoor controller circuit board or indoor power
Eb (6845)	Mis-wiring of indoor/outdoor unit connecting wire (converse wiring or disconnection) Outdoor controller circuit board can automatically set the unit number of indoor units. Abnormal if the indoor unit number can not be set within four minutes after power on because of mis-wiring (converse wiring or disconnection) of indoor/outdoor unit connecting wire.	 Contact failure or mis-wiring of indoor/outdoor unit connecting wire. Diameter or length of indoor/outdoor unit connecting wire is out of specified capacity. Defective transmitting receiving circuit of outdoor controller circuit board. Defective transmitting receiving circuit of indoor controller circuit board. Defective indoor power circuit board. Defective indoor power circuit board. Defective indoor units have refrigerant address "0" . (In case of group control) Noise has entered into power supply or indoor/outdoor unit connecting wire. 	 © Check if refrigerant addresses (SW1-3 to SW1-6 on outdoor controller circuit board) are overlapping in case of group control system. ® Check transmission path, and remove the cause. * The descriptions above, ①-®, are for EA, Eb and EC.
EC (6846)	Start-up time over The unit can not finish start-up process within four minutes after power on.	 Contact failure of indoor/ outdoor unit connecting wire. Diameter or length of indoor/ outdoor unit connecting wire is out of specified capacity. Two or more outdoor units have refrigerant address "0" . (In case of group control) Noise has entered into power supply or indoor/outdoor unit connecting wire. 	

<Abnormalities detected while unit is operating>

Error Code	Meaning of error code and detection method	Case	Judgment and action
	Abnormal high pressure (High-pressure	① Short cycle of indoor unit.	①~⑥Check indoor unit and repair defectives.
	Abnormal if high-pressure switch 63H	② Clogged filter of indoor unit. ③ Decreased airflow caused by	
	worked (3.6MPa) during compressor	dirt of indoor fan.	
	operation.	④ Dirt of indoor heat exchanger.	
	63H: High-pressure switch	 b Locked Indoor fan motor. 6 Malfunction of indoor fan motor. 	
U1 (1302)		 ⑦ Defective operation of stop valve (Not full open). 	$\ensuremath{\overline{\mathbb{O}}}$ Check if stop valve is full open.
		 ③ Clogged or broken pipe. ④ Locked outdoor fan motor. ⑩ Malfunction of outdoor fan motor. ⑪ Short cycle of outdoor unit. 	 ® Check piping and repair defectives. ® ~ [®] Check outdoor unit and repair defectives.
		 Dirt of outdoor heat exchanger. Decreased airflow caused by defective inspection of outside temperature thermistor (It detects lower temperature.) Disconnection or contact failure. 	 ⁽³⁾ Check the inspected temperature of outside temperature thermistor on LED display. (SW2 on A-Control Service Tool : Refer to page 57.)
		 bisconnector (63H) on outdoor controller circuit board. Disconnection or contact failure of 63H connection. Defective outdoor controller cir- cuit board. 	[®] ~ [®] Put the power off and check F5 is displayed when the power is put again. When F5 is displayed, refer to "Judgment and action" for F5.
		 Defective action of linear expansion valve. Malfunction of fan driving circuit. 	 ⑦ Check linear expansion valve. Refer to 13-6. ⑧ Replace outdoor controller circuit board or FAN controller circuit board.
U2 (1102)	 Abnormal high discharging temperature Abnormal if discharge temperature thermistor (TH4) exceeds 125°C or 110°C continuously for 5 minutes. Abnormal if condenser/evaporator temperature thermistor (TH5) exceeds 40°C during defrosting and discharge temperature thermistor (TH4) exceeds 110°C. Abnormal if discharge super heat (Cooling: TH4 – TH5 / Heating: TH4 – TH6) increases. All the conditions in A or B are detected simultaneously for 10 minutes continuously after 6 minutes past from compressor start-up (including the thermostat indication or recovery from defrosting). Condition A> Heating mode When discharge super heat is less than 70 deg. When the TH6 temp is more than the value obtained by TH7 – 5 deg. When the condensing temp of TH5 is less than 35°C. Condition B> During comp operation (Cooling and Heating) When discharge super heat is less than 80 deg in Cooling. When condensing temp of TH6 is more than –40°C. (In Cooling only.)	 Over-heated compressor operation caused by shortage of refrigerant. Defective operation of stop valve. Defective thermistor. Defective outdoor controller circuit board. Defective action of linear expansion valve. 	 Check intake super heat. Check leakage of refrigerant. Charge additional refrigerant. Check if stop valve is full open. Put the power off and check if U3 is displayed when the power is put again. When U3 is displayed, refer to "Judgement and action" for U3. Check linear expansion valve. Refer to 13-6.

Error Code	Meaning of error code and detection method	Case		Judgment and action		
U3 (5104)	Open/short circuit of discharge temperature thermistor (TH4) Abnormal if open (3°C or less) or short (217°C or more) is detected during compressor operation. (Detection is inoperative for 10 minutes of compressor starting process and for 10 minutes after and during defrosting.)	 Disconnection or contact failure of connector (TH4) on the outdoor controller circuit board. Defective thermistor. Defective outdoor controller circuit board. 		 Check connection of connector (TH4) on the outdoor controller circuit board. Check breaking of the lead wire for thermistor (TH4). Refer to 13-9. Check resistance value of thermistor (TH4) or temperature by microcomputer. (Thermistor/TH4: Refer to 13-6.) (SW2 on A-Control Service Tool: Refer to page 57.) Replace outdoor controller circuit board. 		
U4 (TH3, TH32) :5105 (TH6:5107) (TH7:5106) (TH8:5110)	Open/short of outdoor unit thermistors (TH3, TH32, TH6, TH7, and TH8) Abnormal if open or short is detected during compressor operation. Open detection of thermistors TH3 and TH6 is inoperative for 10 seconds to 10 minutes after compressor starting and 10 minutes after and during defrosting. *Check which unit has abnormality in its thermistor by switching the mode of SW2. (Refer to page 62.)	 ① Disconnection or contact failure of connectors. (Outdoor controller circuit board: TH3, TH32, TH6/TH7 Outdoor power circuit board: CN3 ② Defective thermistor. ③ Defective outdoor controller circuit board. 		 Check connection of connector (TH3, TH32, TH6/TH7) on the outdoor controller circuit board. Check connection of connector (CN3) on the outdoor power circuit board. Check breaking of the lead wire for thermistor (TH3, TH32, TH6,TH7,TH8). Refer to 13-9. Check resistance value of thermistor (TH3, TH32, TH6,TH7,TH8) or check temperature by microcomputer. (Themistor/TH3,TH32,TH6,TH7,TH8: Refer to13-6.) (SW2 on A-Control Service Tool: Refer to page 57.) Replace outdoor controller circuit board. *Emergency operation is available in case of abnormalities of TH3, TH32, TH6 and TH7. Refer to 13-8. 		
	Thermistors Symbol Name TH3, TH32 Thermistor <outdoor< td=""></outdoor<>	pipe>	Open detectio	Short detection		
	TH6 Thermistor <outdoor 2-ph<="" td=""><td colspan="2">hase pipe> -40°C or belo</td><td>w 90°C or ab</td><td>oove</td></outdoor>	hase pipe> -40°C or belo		w 90°C or ab	oove	
	TH7 Thermistor <outdo< td=""><td colspan="2">por> -40°C or belo</td><td>w 90°C or ab</td><td>ove</td></outdo<>	por> -40° C or belo		w 90°C or ab	ove	
	TH8 Internal thermiste	or – 35°C or belo		w 170°C or a	bove	
U5 (4230)	Abnormal temperature of heat sink Abnormal if heat sink thermistor TH8, which is built in the power module, detects temperature indicated below. RP8YHA95°C RP10YHA95°C	 The outdoor fan motor is locked. Failure of outdoor fan motor. Air flow path is clogged. Rise of ambient temperature. Defective thermistor. Defective input circuit of outdoor power circuit board. Failure of outdoor fan drive circuit. 		 Check the resistance of outdoor fan motor wiring. Refer to "13-6 HOW TO CHECK THE PART". Check air flow path for cooling. Check if there is something which causes temperature rise around outdoor unit. (Upper limit of ambient temperature is 46°C.) Turn off power, and on again to check if U5 is displayed within 30 minutes. If U4 is displayed instead of U5, follow the action to be taken for U4. Check TH8 temperature by microcomputer. (SW2 on A-Control Service Tool: Refer to page 57.) Replace outdoor controller circuit board. Replace outdoor controller circuit board. 		
	Compressor overcurrent interruption (When compressor locked) Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.	 Stop valve is closed. Decrease of power supply voltage. Looseness, disconnection or converse of compressor wiring connection. Defective compressor. Defective outdoor power circuit board. Meplace 		 Open stop valv Check facility of Correct the wiric compressor. Refer to page 5 Check compress Refer to 13-6. Replace outdoor 	e. If power supply. ing (U•V•W phase) to 52 and 53. ssor. or power circuit board.	
U6 (4250)	Abnormality of power module Check abnormality by driving power module in case overcurrent is detected.	 Outdoor stop valve is closed. Decrease of power supply voltage Looseness, disconnection or converse of compressor wiring connection. Defective compressor. Defective outdoor power circuit board. 		 Open stop valv Check facility c Correct the wir compressor. R Check compression Replace outdoor 	 'e. of power supply. ing (U•V•W phase) to tefer to 13-9. ssor referring to 13-6. or power circuit board. 	

Error Code	Meaning of error code and detection method	Case	Judgment and action
	Abnormality such as overvoltage or	Decrease of power supply voltage.	① Check the facility of power supply.
U9 (4220)	 voltage shortage and abnormal synchronous signal to main circuit Abnormal if any of followings are detected during compressor operation; Instantaneous decrease of DC bus voltage to 400V. Increase of DC bus voltage to 760V. Decrease of input current of outdoor unit to 0.5A only if operation frequency is more than or equal to 40Hz or compressor current is more than or equal to 5A. 	 ② Defective 52C drive circuit of outdoor power circuit board. ③ Disconnection or loose connection of CN5 on the outdoor power circuit board or outdoor noise filter circuit board. ④ Defective ACCT of outdoor noise filter circuit board. ⑤ Disconnection or loose connection of CN2 on the outdoor power circuit board. 	 ② Replace outdoor power circuit board. ③ Check CN5 wiring on the outdoor power circuit board or outdoor noise filter circuit board. Refer to 13-9. ④ Replace outdoor noise filter circuit board. ⑤ Check CN2 wiring on the outdoor power circuit board. Refer to 13-9.
UF (4100)	Compressor overcurrent interruption (When compressor locked) Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.	 Stop valve is closed. Decrease of power supply voltage. Looseness, disconnection or converse of compressor wiring connection. Defective compressor. Defective outdoor power circuit board. 	 Open stop valve. Check facility of power supply. Correct the wiring (U•V•W phase) to compressor. Refer to page 13-9. Check compressor. Refer to 13-6. Replace outdoor power circuit board.
UH (5300)	Current sensor error Abnormal if current sensor detects –1.5A to 1.5A during compressor operation. (This error is ignored in case of test run mode.)	 Disconnection of compressor wiring. Defective circuit of current sensor on outdoor power circuit board. 	 Correct the wiring (U•V•W phase) to compressor. Refer to 13-9. Replace outdoor power circuit board.
UL (1300)	Abnormal low pressure (63L worked) Abnormal if 63L is worked (under- 0.03MPa) during compressor operation. 63L: Low-pressure switch	 Stop valve of outdoor unit is closed during operation. Disconnection or loose connection of connector (63L) on outdoor controller circuit board. Disconnection or loose connection of 63L. Defective outdoor controller cir- cuit board. Leakage or shortage of refrigerant. Malfunction of linear expansion valve. 	 Check stop valve. Q~4 Put the power off and on again to check if F3 is displayed on restarting. If F3 is displayed, follow the F3 processing direction. Correct to proper amount of refrigerant. Check linear expansion valve. Refer to 13-6.
UP (4210)	Compressor overcurrent interruption Abnormal if overcurrent DC dc bus or com- pressor is detected after compressor starts operating for 30 seconds.	 Stop valve of outdoor unit is closed. Decrease of power supply volt- age. Looseness, disconnection or converse of compressor wiring connection. Defective fan of indoor/outdoor units. Short cycle of indoor/outdoor units. Defective input circuit of out- door controller circuit board. Defective compressor. Befective outdoor power circuit board. 	 Open stop valve. Check facility of power supply. Correct the wiring (U•V•W phase) to compressor. Refer to 13-9. Check indoor/outdoor fan. Solve short cycle. Replace outdoor controller circuit board. Check compressor. Refer to 13-6. Before the replacement of the outdoor controller circuit board, disconnect the wiring to compressor from the outdoor power circuit board and check the output voltage among phases, U, V, W, during test run. No defect on board if voltage among phases (U-V, V-W and W-U) is same. Make sure to perform the voltage check with same performing frequency. Replace outdoor power circuit board.
Error Codo	Meaning of error code and detection method	Casa	ludgment and action
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Error Coue	Remote controller communication error		
E0 (No display)	 (Signal receiving error) (1) Abnormal if any signal from IC of refrigerant address "0" could not be normally received for three minutes. (2) Abnormal if sub remote controller could not receive any signal for two minutes. 	 Defective communication circuit of remote controller. Defective communication circuit board of refrigerant address "0". Noise has entered into transmission line of remote controller. All remote controllers are set as "sub" remote controller. In this case, E4 is displayed at outdoor LED, and E0 is displayed at remote controller. 	 Take actions as follows according to diagnosis result. a) When "RC OK" is displayed, remote controllers have no problem. Put the power off, and on again to check. If, "H0" is displayed for four minutes or more, replace indoor controller circuit board. b) When "RC NG" is displayed, replace remote controller. c) When "RC E3" or "ERC 00-66" is displayed, noise may be causing abnormality.
E3 (No display)	 Remote controller communication error (Transmitting error) (1) Abnormal if sub remote controller could not find blank of transmission path for six seconds. (2) Abnormal if remote controller could not finish transmitting 30 times continuously. 	 Defective communication circuit of remote controller. Noise has entered into transmission line of remote controller. Two remote controllers are set as "main." (In case of 2 remote controllers). 	 In Set a remote controller to main, and the other to sub. The descriptions above, ①-③, are for E0 and E3.
E8 (6840)	 Indoor/outdoor unit communication error (Signal receiving error) (Outdoor unit) (1) Abnormal if outdoor controller circuit board could not receive anything normally for three minutes. 	 Contact failure of indoor/out- door unit connecting wire. Defective communication circuit of outdoor controller circuit board. Defective communication cir- cuit of indoor controller circuit board. Noise has entered into indoor/ outdoor unit connecting wire. 	 Check disconnection or looseness of indoor/ outdoor unit connecting wire of indoor or out- door units. Put the power off, and on again to check. Replace indoor controller circuit board or outdoor controller circuit board if abnormal- ity is displayed again.
E9 (6841)	 Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit) (1) Abnormal if "0" receiving is detected 30 times continuously though outdoor con- troller circuit board has transmitted "1". (2) Abnormal if outdoor controller circuit board could not find blank of transmission path for three minutes. 	 Indoor/ outdoor unit connecting wire has contact failure. Defective communication circuit of outdoor controller circuit board. Noise has entered power supply. Noise has entered indoor/ out- door unit connecting wire. 	 Check disconnection or looseness of indoor/outdoor unit connecting wire. Q-4 Put the power off, and on again to check. Replace outdoor controller circuit board if abnormality is displayed again.
EF (6607 or 6608)	Non defined error code This code is displayed when non defined error code is received.	 Noise has entered transmission wire of remote controller. Noise has entered indoor/ outdoor unit connecting wire. Outdoor unit is not a series of power-inverter. Model name of remote controller is PAR-S25A. 	 ② Put the power off, and on again to check. Replace indoor controller circuit board or outdoor controller circuit board if abnormal- ity is displayed again. ③ Replace outdoor unit with power-inverter type outdoor unit. ④ Replace remote controller with MA remote controller.
Ed (0403)	Serial communication error 1.Abnormal if serial communication between outdoor controller circuit board and outdoor power circuit board is defective.	 Breaking of wire or contact failure of connector CN2 between the outdoor controller circuit board and the outdoor power circuit board. Breaking of wire or contact failure of connector CN4 between the outdoor controller circuit board and the outdoor power circuit board. Defective communication circuit of outdoor power circuit board Defective communication circuit of outdoor controller circuit board for outdoor power circuit board for outdoor power circuit board 	 ① ② Check connection of each connector CN2 and CN4 between the outdoor controller circuit board and the outdoor power circuit board. ③ Replace outdoor power circuit board. ④ Replace outdoor controller circuit board.
	 Abnormal if communication between outdoor controller circuit board and M-NET board is not available. 	 Breaking of wire or contact failure of connector between outdoor controller circuit board and M-NET board Contact failure of M-NET board power supply line Noise has entered into M-NET transmission wire. 	 Check disconnection, looseness, or breaking of connection wire between outdoor controller cir- cuit board (CNMNT) and M-NET board (CN5). Check disconnection, looseness, or breaking of connection wire between outdoor controller cir- cuit board(CNMNT) and M-NET board (CND). Refer to (4) in " 2-2. M-NET Wiring method " on Service Technical Guide for OCT04.

Error Code	Meaning of error code and detection method	Case	Judgment and action
P8	Abnormality of pipe temperature <cooling mode=""> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes later of compressor start and 6 minutes later of the liquid or condenser/evaporator pipe is out of cooling range. Note 1) It takes at least 9 min. to detect. Note 2) Abnormality P8 is not detected in drying mode. Cooling range : Indoor pipe temperature (TH2 or TH5) – intake temperature (TH1) ≦ -3 deg TH: Lower temperature between: liquid pipe temperature and condenser/ evaporator temperature <heating mode=""> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes. Note 3) It takes at least 27 minutes to detect abnormality. Note 4) It excludes the period of defrosting (Detection restarts when defrosting mode is over) Heating range : 3 deg ≦ (Condenser/ Evaporator temperature(TH5) – intake temperature(TH1))</heating></cooling>	 Slight temperature difference between indoor room temperature and pipe <liquid or condenser / evaporator> temperature thermistor.</liquid Shortage of refrigerant Disconnected holder of pipe <liquid <br="" condenser="" or="">evaporator> thermistor</liquid> Defective refrigerant circuit Converse connection of extension pipe (on plural units connection). Converse wiring of indoor/ outdoor unit connecting wire (on plural units connection). Defective detection of indoor room temperature and pipe <condenser evaporator=""> temperature thermistor.</condenser> Stop valve is not opened completely. 	 Check pipe <liquid <br="" condenser="" or="">evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board.</liquid> Pipe <liquid condenser="" evaporator="" or=""> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows.</liquid> Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool (PAC-SK52ST)'. Temperature display of indoor liquid pipe Indoor 1 Temperature display of indoor liquid pipe Indoor 2 Temperature display of indoor liquid pipe Indoor 2 Temperature display of indoor liquid pipe Indoor 2 A-Control Service Tool Temperature display of indoor condenser/ evaporator pipe Indoor 2

<M-NET communication error>

(Note) "Indoor unit" in the text indicates M-NET board in outdoor unit.

Error Code	Meaning of error code and detection method	Case	Judgment and action
A0 (6600)	Address duplicate definition This error is displayed when transmission from the units of same address is detect- ed. Note) The address and attribute displayed at remote controller indicate the con- troller that detected abnormality.	 There are two or more same address of controller of out- door unit, indoor unit, FRESH MASTER, or LOSSNAY. Noise has entered into trans- mission signal and signal was transformed. 	Search the unit with same address as abnormality occurred. If the same address is found, shut of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more after the address is cor- rected, and put the power on again. Check transmission wave form or noise on trans- mission wire.
A2 (6602)	Hard ware error of transmission processor Transmission processor intended to trans- mit "0", but "1" appeared on transmission wire. Note) The address and attribute display at remote controller indicate the con- troller that detected abnormality.	 Error is detected if wave form is transformed when wiring works of transmission wire of outdoor unit, indoor unit, FRESH MASTER or LOSSNAY are done, or polarity is changed with the power on and transmission data collide each other. Defective transmitting receiving circuit of transmission processor. Transmission data is changed by the noise on transmission. 	 If the works of transmission wire is done with the power on, shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. Check transmission wave form or noise on transmission wire.
A3 (6603)	 BUS BUSY 1. Over error by collision damage Abnormal if transmitting is not possible for 8-10 minutes continuously because of collision of transmission. 2. Data could not reach transmission wire for 8-10 minutes continuously because of noise or etc. Note) The address and attribute displayed at remote controller indicate the con- troller that detected abnormality. 	 Transmission processor could not transmit because short cycle voltage of noise and the like have entered into transmission wire continuously. Transmission quantity has increased and transmission is not possible because there was wiring mistake of terminal block for transmission wire (TB3) and terminal block for central control (TB7) in outdoor unit. Transmission are mixed with others and occupation rate on transmission wire rose because of defective repeater (a function to connector or disconnect trans- mission of control and central control system) of outdoor unit, then abnormality is detected. 	 Check if transmission wire of indoor unit, FRESH MASTER, LOSSNAY, or remote con- troller is not connected to terminal block for central control (TB7) of outdoor unit. Check if transmission wore of indoor unit, FRESH MASTER or LOSSNAY is not con- nected to terminal block for transmission wire of outdoor unit. Check if terminal block for transmission wire (TB3) and terminal block for central control (TB7) is not connected. Check transmission wire.

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Error Code	Meaning of error code and detection method	Case	Judgment and action	
A6 (6606)	Communication error with communica- tion processor Defective communication between unit processor and transmission processor Note) The address and attribute display at remote controller indicate the con- troller that detected abnormality.	 Data of transmission processor or unit processor is not transmitted normally because of accidental trouble such as noise or thunder surge. Address forwarding from unit processor is not transmitted normally because of defective transmission processor hard- ware. 	Shut of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. System returns nor- mally if abnormality was accidental malfunction. If the same abnormality generates again, abnormality-generated controller may be defec- tive.	
A7 (6607)	 NO ACK signal 1. Transmitting side controller detects abnormal if a massage was transmitted but there is no reply (ACK) that a mas- sage was received. Transmitting side detects abnormality every 30 seconds, six times continuously. Note) The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK). 	al Common factor that has no relation with abnormality source. a massage was transmitted The unit of former address no reply (ACK) that a masceived. Transmitting side The unit of former address ormality every 30 seconds, Extinction of transmission wire voltage and attribute displayed Extinction of transmission wire te controller is indicate the Maximum distance200m er that did not reply (ACK). Extinction of transmission wire Voltage and signal is caused by Check wire. Type With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV VCS, VVR, VVF, VCT Check wore and signal is caused by Or not. Ø Extinction of transmission wire Check VCTF, VCTFK, CVV CVS, VVR, VVF, VCT Diameter1.25mm² or more If there w Sciciental malfunction of abnormality-detected controller fine for t (noise, thunder surge). Defective of abnormality-generated controller. If there	 Always try the followings when the error "A7" occurs. ① Shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSS-NAY at the same time for two minutes or more, and put the power on again. If malfunction was accidental, the unit returns to normal. ② Check address switch of abnormality-generated address. ③ Check disconnection or looseness of abnormality-generated or abnormality-detected transmission wire (terminal block and connector) ④ Check if tolerance range of transmission wire is not exceeded. ⑤ Check if type of transmission wire is correct or not. If there were some trouble of ①-⑤ above, repair the defective, then shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. If there was no trouble with ①-⑤ above in single refrigerant system (one outdoor unit), controller of displayed address or attribute is defective. If there was no trouble with ①-⑤ above in different refrigerant system (ore outdoor unit) 	
A7 (6607)	 If displayed address or attribute is outdoor unit, Indoor unit detects abnormality when indoor unit transmitted to outdoor unit and there was no reply (ACK). If displayed address or attribute is indoor unit, Remote controller detects abnormality when remote controller transmitted to indoor unit and there was no reply (ACK). 	 Contact failure of transmission wire of outdoor unit or indoor unit. Disconnection of transmission connector (CN2M) of outdoor unit. Defective transmitting receiv- ing circuit of outdoor unit or indoor unit. During group operation with indoor unit of multi- refrigerant system, if remote controller transmit to indoor unit while outdoor unit power supply of one refrigerant system is put off or within two minutes of restart, abnormality is detected. Contact failure of transmission wire of remote controller or indoor unit. Disconnection of transmission connector (CN2M) of indoor unit. Defective transmitting receiv- ing circuit of indoor unit or remote controller. 	 ferent refrigerant system (two or more outdoor units), judge with [®]. [®] If address of abnormality source is the address that should not exist, there is the unit that memorizes nonexistent address information. Delete useless address information with manual setting function of remote controller. Only the system FRESH MASTER or LOSS-NAY are connected to, or the system that is equipped with group setting of different refrigerant system. If there was no trouble with ^①-[®] above, replace the controller board of displayed address or attribute. If the unit does not return normally, multi-controller board of outdoor unit may be defective (repeater circuit). Replace multi-controller board one by one to check if the unit returns normally. 	

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Error Code	Meaning of error code and detection method	Case	ludgment and action
Lifer Code	1. If displayed address or attribute is		Some as montioned in "A7" of the provinue
	4. If displayed address or attribute is remote controller, Indoor unit detects abnormality when indoor unit transmitted to remote con- troller and there was no reply (ACK).	 During group operation with indoor unit of multi- refrigerant system, if indoor unit transmit to remote controller while out- door unit power supply of one refrigerant system is put off or within two minutes of restart, abnormality is detected. Contact failure of transmission wire of remote controller or indoor unit. Disconnection of transmission connector (CN2M) of indoor unit. Defective transmitting receiv- ing circuit of indoor unit or remote controller. 	page.
A7 (6607)	5. If displayed address or attribute is FRESH MASTER, Indoor unit detects abnormality when indoor unit transmitted to FRESH MAS- TER and there was no reply (ACK).	 During sequential operation of indoor unit and FRESH MAS- TER of other refrigerant sys- tem, if indoor unit transmits to FRESH MASTER while out- door unit power supply of same refrigerant system with FRESH MASTER is put off or within two minutes of restart, abnormality is detected. Contact failure of transmission wire of indoor unit or FRESH MASTER. Disconnection of transmission connector (CN2M) of indoor unit or FRESH MASTER. Defective transmitting receiv- ing circuit of indoor unit or FRESH MASTER. 	
	6. If displayed address or attribute is LOSSNAY, Indoor unit detects abnormality when indoor unit transmitted to LOSSNAY and there was no reply (ACK).	 If the power supply of LOSS- NAY is off, indoor unit detects abnormality when it transmits to LOSSNAY. During sequential operation of indoor unit and LOSSNAY of other refrigerant system, if indoor unit transmits to LOSS- NAY while outdoor unit power supply of same refrigerant sys- tem with LOSSNAY is put off or within two minutes of restart, abnormality is detect- ed. Contact failure of transmission wire of indoor unit of LOSS- NAY. Disconnection of transmission connector (CN2M) of indoor unit. Defective transmitting receiv- ing circuit of indoor unit or LOSSNAY. 	
	7. If displayed address or attribute is nonexistent,	 The unit of former address does not exist as address switch has changed while the unit was energized. Abnormality is detected when indoor unit transmitted because the address of FRESH MASTER and LOSS- NAY are changed after sequential operation of FRESH MASTER and LOSS- NAY by remote controller. 	

-			
Error Code	Meaning of error code and detection method	Case	Judgment and action
A8 (6608)	M-NET-NO RESPONSE Abnormal if a massage was transmitted and there were reply (ACK) that massage was received, but response command does not return. Transmitting side detects abnormality every 30 seconds, six times continuously. Note) The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK).	 Transmitting condition is repeated fault because of noise and the like. Extension of transmission wire voltage and signal is caused by over-range transmission wire. Maximum distance200m Remote controller line(12m) Extension of transmission wire voltage and signal is caused by type-unmatched transmis- sion wire. Type With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT Diameter1.25mm² or more Accidental malfunction of abnormality-generated controller. 	 Check transmission wave form or noise on transmission wire. Shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSS-NAY at the same time for two minutes or more, and put the power on again. If malfunction was accidental, the unit returns to normal. If the same abnormality generates again, controller of displayed address and attribute may be defective.

13-5. TROUBLESHOOTING BY INFERIOR PHENOMENA

Phenomena	Factor	Countermeasure
1. Remote controller display does not work.	 DC12V is not supplied to remote controller. (Power supply display) is not indicated on LCD.) DC12~15V is supplied to remote controller, however, no display is indicated. "H0" is not displayed. "H0" is displayed. 	 Check LED2 on indoor controller circuit board. (1) When LED2 is lit. Check the remote controller wiring for breaking or contact failure. (2) When LED2 is blinking. Check short circuit of remote controller wiring. (3) When LED2 is not lit. Refer to No.3 below. Check the following. Failure of remote controller if "H0" is not displayed Refer to No.2 below if "H0" is displayed.
2. "H0" display is remained on the remote controller.	 ①At longest 2 minutes after the power supply "H0" is displayed to start up. ②Communication error between the remote controller and indoor unit. ③Communication error between the indoor and outdoor unit. ④Outdoor unit protection device connector is open. 	 Normal operation Self-diagnosis of remote controller "H0" is displayed for 6 minutes at most. in case of indoor/outdoor unit communication error. Check LED3 on indoor controller board. (1)When LED3 is not blinking. Check indoor/outdoor connecting wire for mis-wiring. (Converse wiring of S1 and S2, or break of S3 wiring.) (2)When LED3 is blinking. Indoor/outdoor connecting wire is normal. Check LED display on outdoor controller circuit board. Refer to page 55 and 56. Check protection device connector (63L and 63H) for contact failure. Refer to 13-9.
 When pressing the remote controller operation switch the OPERATION display is appeared but it will be turned off soon. 	①After cancelling to select function from the remote controller, the remote controller operation switch will be not accepted for approx. 30 seconds.	①Normal operation
 Even controlling by the wireless remote controller no beep is heard and the unit does not start operat- ing. Operation display is indicated on wireless remote controller. 	①The pair number settings of the wireless remote controller and indoor controller circuit board are mis- matched.	①Check the pair number settings.

	_	
Phenomena	Factor	Countermeasure
 When operating by the wireless remote controller, beep sound is heard, however, unit does not start operating. 	 No operation for 2 minutes at most after the power supply ON. Hand-held remote controller operation is prohibited. Remote controlling adaptor is connected to CN32 on the indoor controller circuit board. Hand-held remote controller operation is prohibited by centralised controller etc. since it is connected to MELANS. 	①Normal operation.②Normal operation.
	③Factor of No.2 above.	③Check the details of No.2 above.
 Remote controller display works normally and the unit performs cooling operation, however, the capacity cannot be fully obtained. (The air does not cool well.) 	 ①Refrigerant shortage. ②Filter clogging. ③Heat exchanger clogging. ④Air duct short cycle. 	 If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. Open suction grill and check the filter. Clean the filter by removing dirt or dust on it. If the filter is clogged, indoor pipe temperature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pressure. Clean the heat exchanger. Remove the shield.
7. Remote controller display works nor- mally and the unit performs heating operation, however, the capacity cannot be fully obtained.	 ①Linear expansion valve fault. Opening cannot be adjusted well due to linear expansion valve fault. ②Refrigerant shortage. ③Lack of insulation for refrigerant piping. ④Filter clogging. ⑥Heat exchanger clogging. ⑥Air duct short cycle . ⑦Bypass circuit of outdoor unit fault. 	 Discharging temperature and indoor heat exchanger temperature does not rise. Inspect the failure by checking discharging pressure. Replace linear expansion valve. If refrigerant leaks, discharging tempera ture rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. Check the insulation. Open suction grill and check the filter. Clean the filter by removing dirt or dust on it. If the filter is clogged, indoor pipe temperature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pressure. Clean the heat exchanger. Remove the shield. Check refrigerant system during operation.
 8. DFor 3 minutes after temperature adjuster turns off, the compressor will not start operating even if temperature adjuster is turned on. PFor 3 minutes after temperature adjuster turns on, the compressor will not stop operating even if temperature adjuster is turned off. (Compressor stops operating immediately when turning off by the remote controller.) 	①②Normal operation. (For protection of compressor)	①②Normal operation
9. Defective fan of outdoor units. (Not rotate)	 ①Defective fan motor (Winding open or shoot). ②Disconnection or loose connection of connector on outdoor Fan controller circuit board. ③Defective Outdoor fan controller circuit board. 	 Ocheck the winding resistance. Refer to 13-6. However, make sure to check the resistance after it gets cold enough (≦87±15°C), as there is a possibility that the temperature protector housed in the fan motor is working. Check CN2, CN5, CN6, TAB-U, TAB-V, TAB-W, TAB-W wiring. Replace outdoor fan controller circuit board.

13-6. HOW TO CHECK THE PARTS PUHZ-RP8YHA PUHZ-RP10YHA

Parts name	Check points						
Thermistor (TH3, TH32) <outdoor pipe=""></outdoor>	Disconnect the connector then measure the resistance using a tester. (Surrounding temperature $10^{\circ}C \sim 30^{\circ}C$)						
Thermistor (TH4)		Normal		Abnormal			
<discharge></discharge>	TH4	160kΩ~410	kΩ				
Thermistor (TH6)	TH3, TH32	4.3kΩ~9.6kΩ Open c					
 Outdoor 2-phase pipe> 	TH6			or short			
Thermistor (TH7)	TH7						
Fan motor(MF1,MF2)	Measure the resis (Winding tempera	stance between t ture 20℃)	he termi	nals using a	tester.		7
White	Relay connector	N	ormal		Abn	ormal	
	Red — Black						-
	Black — White	15	.3±0.5Ω		Open	or short	
connector is different	White — Red						
connector							_
Solenoid valve coil <four-way valve=""></four-way>	Measure the resistance between the terminals using a tester. (Surrounding temperature 20°C)				1		
(2154)	Normal			Abnormal			
	1270-1000			0.5.6.5			
	1370±1002			Open	or short		
Motor for compressor (MC)	Measure the resistance between the terminals using a tester. (Winding temperature 20°C)						
U	Normal			Abn	ormal		
V Con and	0.72Ω		Open or short		-		
W							
Linear expansion valve	Disconnect the connector then measure the resistance using a tester. (Winding temperature 20°C)						
(LEV(A))		Normal			Abnormal]
							-
Brown 2	Red - White Red	d - Orange Brown -	Yellow Br	own - Blue	Open	or short	
Orange 4							
Yellow 5 White 6	46±4Ω						
	Maggura the reai	tanaa hatwaan t	ha tarmi		tootor		
Solenoid valve coil <bypass valve=""></bypass>	(Surrounding tem	perature 20°C)					
(SV)	Norm	al		Abnormal			
	1197±	10Ω	C	pen or shor	τ		

13-7. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

Low temperature thermistors

- Thermistor < Outdoor pipe> (TH3, TH32)
- Thermistor <Outdoor 2-phase pipe> (TH6)
- Thermistor <Outdoor> (TH7)

Thermistor R0 = $15k\Omega \pm 3\%$ B constant = $3480K \pm 2\%$

_		. 1	1
Rt =1	5exp{3480	$(\frac{1}{273+t})$	273)}
0°C	15kΩ	30°C	4.3k Ω
10℃	$9.6k\Omega$	40°C	3.0k Ω
20°C	$6.3k\Omega$		
25℃	5.2k Ω		

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• Thermistor < Discharge> (TH4)
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Thermistor R120 = $7.465k\Omega \pm 2\%$ B constant = $4057K \pm 2\%$

Rt =7.	.465exp{4	$1057(\frac{1}{273+t})$	- <u>1</u> 393)}
20℃	250k Ω	70℃	34k Ω
30℃	160kΩ	30°C	24k Ω
40°C	104k Ω	90°C	17.5k Ω
50℃	70k Ω	100°C	13.0k Ω
60°C	48k Ω	110°C	9.8k Ω



Linear expansion valve

(1) Operation summary of the linear expansion valve.

• Linear expansion valve open/close through stepping motor after receiving the pulse signal from the outdoor controller circuit board.

• Valve position can be changed in proportion to the number of pulse signal.

<Connection between the indoor controller circuit board and the linear expansion valve>



<Output pulse signal and the valve operation>

Output		Output										
(Phase)	1	2	3	4	5	6	7	8				
ø1	ON	ON	OFF	OFF	OFF	OFF	OFF	ON				
<i>ø</i> 2	OFF	ON	ON	ON	OFF	OFF	OFF	OFF				
ø3	OFF	OFF	OFF	ON	ON	ON	OFF	OFF				
<i>ø</i> 4	OFF	OFF	OFF	OFF	OFF	ON	ON	ON				

(2) Linear expansion valve operation



Opening a value : $8 \rightarrow 7 \rightarrow 6 \rightarrow 5 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 8$ Closing a value : $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8 \rightarrow 1$

The output pulse shifts in above order.

- # 1. When linear expansion valve operation stops, all output phase become OFF.
 - When the switch is turned on, 700 pulse closing valve signal will be sent till it goes to
 point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)

When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valve : however, when the pulse number moves from B to O or when the valve is locked, more noise can be heard than normal situation. No noise is heard when the pulse number moves from B to O in case coil is burn out or motor is locked by open-phase.

Noise can be detected by placing the ear against the screw driver handle while putting the screw driver to the linear expansion valve.

(3) How to attach and detach the coil of linear expansion valve

<Composition>

Linear expansion valve is separable into the main body and the coil as shown in the diagram below.





<How to detach the coil>

Hold the lower part of the main body (shown as A) firmly so that the main body does not move and detach the coil by pulling it upward.

Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to pressure.



Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to pipe B. (At this time, be careful that stress is not added to lead wire and main body is not wound by lead wire.) If the stopper is not firmly attached to pipe B, coil may be detached from the main body and that can cause defective operation of linear expansion valve.

To prevent piping stress, be sure to attach the coil holding the main body of linear expansion valve firmly. Otherwise pipe may break.



13-8. EMERGENCY OPERATION

(1) When the error codes shown below are displayed on outdoor unit or microcomputer for wired remote controller or indoor unit has a failure, but no other problems are found, emergency operation will be available by setting the emergency operation switch (SWE) to ON and short-circuiting the connector (CN31) on outdoor controller circuit board.

•When following abnormalities occur, emergency operation will be available.

Error code	Inspected content
U4	Open/short of pipe thermistor (TH3, TH32/TH6)
E8	Indoor/outdoor unit communication error •Signal receiving error (Outdoor unit)
E9	Indoor/outdoor unit communication error •Transmitting error (Indoor unit)
E0 ~ E7	Communication error other than outdoor unit
Ed	Communication error between outdoor controller board and M-NET board (Serial communication error)

- (2) Check the following items and cautions for emergency operation
 - ①Make sure that there is no abnormality in outdoor unit other than the above abnormalities. (Emergency operation will not be available when error code other than the above are indicated.)
 - ②For emergency operation, it is necessary to set the emergency operation switch (SWE) on indoor controller circuit board. Refer to the electrical wiring diagram of indoor unit for how to set the indoor unit.)
 - ③During emergency operation, the air-conditioner will continuously be operated by supplying power and stopping it: It can not be turned on or off by remote control, and temperature control is not possible.
 - ④Do not perform emergency heating operation for an extended period of time: If the outdoor unit starts defrosting during this period, cold air will blow out from the indoor unit.
 - ^⑤Do not perform emergency cooling operation for more than 10 hours: Neglecting this could result in freezing the heat exchanger in indoor unit.

(3) Emergency operation procedure

①Turn the main power supply off.

Turn on the emergency operation switch (SWE) on indoor controller circuit board.

③Set the shorting pins of emergency operation connector (CN31) on outdoor controller circuit board to ON.

(Use SW4-2 on outdoor controller circuit board to set the operation mode (cooling or heating). (SW4-1 is not used.)



^⑤Turning the main power supply on will start the emergency operation.

(4) Releasing emergency operation

①Turn the main power supply off.

②Set the emergency operation switch (SWE) on indoor controller circuit board to OFF.
 ③Set the shorting pins of emergency operation connector (CN31) on outdoor controller

circuit board to OFF.

(4)Set SW4-2 on outdoor controller circuit board as shown in the right.

*If shorting pins are not set on emergency operation connector (CN31), the setting remains OFF.







Outdoor Noise filter circuit board PUHZ-RP8YHA PUHZ-RP10YHA



Outdoor Fan controller circuit board PUHZ-RP8YHA PUHZ-RP10YHA





13-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS

(1) Function of switches

Type	Switch	No	Function	Action by the s	witch operation	Effective timing			
switch	tch		T direction	ON	OFF	Enective tinning			
		1	Compulsory defrosting	Start	Normal	When compressor is working in heating operation. *			
		2	Abnormal history clear	Clear	Normal	off or operating			
		3		ON 1 2 3 4 5 6 0 1 1 2 3 4 5 6 1 1 1 1 1 1 1 1 1 1 1 1 1	ON 1 2 3 4 5 6 2 3				
Dip	SW1	4	4 — Refrigerant address setting	ON 1 2 3 4 5 6 4 5	ON 1 2 3 4 5 6 6 7				
Switch		5		ON 1 2 3 4 5 6 8 0 0 1 2 3 4 5 6	ON 1 2 3 4 5 6 10 ON 1 2 3 4 5 6 11 11	When power supply ON			
		6	6	6	6	6	ON 1 2 3 4 5 6 12 13 0N 1 2 3 4 5 6	ON 1 2 3 4 5 6 14 ON 1 2 3 4 5 6 15	
	CIA/A	1	Test run	Operating	OFF				
	3774	2	Test run mode setting	Heating	Cooling	Under suspension			

Compulsory defrosting should be done as follows.

OChange the DIP SW1-1 on the outdoor controller circuit board from OFF to ON.

 $\textcircled{Compulsory defrosting will start by the above operation} \textcircled{O} if these conditions written below are satisfied.}$

- Heat mode setting
- 10 minutes have passed since compressor started operating or previous compulsory defrosting finished.

• Pipe temperature is less than or equal to 8°C.

③Compulsory defrosting will finish if certain conditions are satisfied.

*Compulsory defrosting can be done if above conditions are satisfied when DIP SW1-1 is changed from OFF to ON. After DIP SW1-1 is changed from OFF to ON, there is no problem if DIP SW1-1 is left ON or changed to OFF again. This

depends on the service conditions.

Type of	Switch	No	Function			Action by t	he s	witch ope	ration	Effective timing
Switch	Switch	NO.	Function		ON			OFF	Ellective tilling	
		1	No function			_				—
	SW5	2	Power failure automatic recovery *1		Auto recovery			No au	to recovery	When power supply ON
		3	No function						—	_
		4	No function			—			—	—
				1	2	Low-level Sound Priority Mode	t	Cooling	Heating	
		1	Switch to "Low-level Sound Priority Mode"		OFF ON	Mode 1	Reg to s	gulate max Hz spec.	Regulate max Hz to spec.	Alwaya
Dip		2			OFF	Mode 2	Rec to s	gulate max Hz	No regulation	Aiways
switch	SW7		*2		ON	Mode 3	Onl regi to s	y TH7 ≧ 30°C ulate max Hz pec.	Regulate max Hz to spec.	
		3	No function					_	_	
		4	No function			_				_
		5	No function							_
		6	No function						_	_
		1	Use of existing pipe	ι	Jsed	or RP10Y*3		N	ot used	Always
	SW8	2	Replacement operation			Start		1	lormal	Under suspension
		3	No function						_	_
Push switch	SWI	5	Pump down			Start		١	lormal	Under suspension

*1 Power failure automatic recovery' can be set by either remote controller or this DIP SW. If one of them is set to ON, 'Auto recovery' activates. Please set "Auto recovery" basically by remote controller because all units have not DIP SW. Please refer to mode 01 in the table on 13-11.

*2 SW7-1,2 to "Low-level Sound Priority Mode" available in "Low-level Sound Priority Mode" mode only.

*3 RP10YHA is always ON.

(2) Function of connectors

Turner	Connector	Function	Action by the s	ion	Effective timing		
Types Connector		FUNCTION	Short	Open			
Connector	CN31	Emergency operation	Start	Norn	nal	When power sup	ply ON
	SW6-1						
	SW6-2		MODEL	SIME	C14/0	CINITO	-
SWG	SW6-3	Model select					
000	SW6-4		RP8Y OFF		OFF ■ ■		
	SW6-5						-
	SW6-6						
SW8	SW8-1			23450	×1 <u> </u>	3 [12]	
SW10	SW10-1						
	SW10-2						

* 1 As for SW8, see also 13-10 (1) Function of switches, as SW8 sets the replacement operation as well.

Special function

(a) Low-level sound priority mode (Local wiring)

Unit enters into Low-level sound priority mode by SW7-1, 2 and external signal input setting.

Inputting external signals to the outdoor unit decreases the outdoor unit operation sound 3 to 4 dB lower than that of usual. Adding a commercial timer or on-off switch contactor setting to the CNDM connector which is optional contactor for Demand input located on the outdoor controller circuit board enables to control compressor operation frequency. In Low-level sound priority mode, the maximum outdoor fan steps is regulated to 8 and the maximum operation frequency of the compressor is regulated to specified range in cool mode. In heating mode, the maximum compressor operation frequency is regulated to specified range.

* The performance is depends on the load of conditioned air of the room.



1) Make the circuit as shown above with Adaptor for external signal input(PAC-SC36NA).

2) Turn SW1 to on for Low-level sound priority mode.

Turn SW1 to off to release Low-level sound priority mode and normal operation.

(b) On demand control (Local wiring)

Demand control is available by external input. In this mode, the outdoor unit stops and indoor unit operates with fan mode. * The setting of SW-7 is not required for the demand control.

How to wiring

Basically, the wiring is the same.

Connect an SW 1 which is procured at field to the between Orange and Red(1 and 3) of the Adaptor for external signal input(PAC-SC36NA), and insulate the tip of the brown lead wire.

<Display function of inspection for outdoor unit> The blinking patterns of both LED1(green) and LED2(red) indicate the types of abnormality when it occurs. Types of abnormality can be indicated in details by connecting an optional part 'A-Control Service Tool (PAC-SK52ST)' to connector CNM on outdoor controller circuit board.

[Display]

(1)Normal condition

Linit condition	Outdoor control	ller circuit board	A-Control Service Tool		
	LED1 (Green)	LED2 (Red)	Error code	Indication of the display	
When the power is turned on	Lighted	Lighted	-⇔-	Alternately blinking display	
When unit stops	Lighted	Not lighted	00, etc.	Operation mode	
When compressor is warming up	Lighted	Not lighted	08, etc.		
When unit operates	Lighted	Lighted	C5, H7 etc.		

(2)Abnormal condition

Indication		Error						
Outdoor control	ler circuit board	Contents		Inspection method	Detailed			
LED1 (Green)	LED2 (Red)	Contents	code *1		page			
1 blinking 2 blinking		g Connector(63L) is open.		² 3 OCheck if connector (63L or 63H) on the outdoor controller				
		Connector(63H) is open.	F5	board is not disconnected.	P.32			
		2 connectors are open.	F9	②Check continuity of pressure switch (63L or 63H) by tester.	P.32			
2 blinking	1 blinking	Mis-wiring of indoor/outdoor unit conne- cting wire, excessive number of indoor units (5 units or more)		 ①Check if indoor/outdoor connecting wire is connected correctly. ②Check if 5 or more indoor units are connected to outdoor unit. 	P.33			
		Mis-wiring of indoor/outdoor unit co- nnecting wire (converse wiring or di- sconnection)	_	③Check if noise entered into indoor/outdoor connecting wire or power supply.	P.33			
		Startup time over		⁽⁴⁾ Re-check error by turning off power, and on again.	P.33			
	2 blinking	Indoor/outdoor unit communication error (signal receiving error) is detected by in- door unit.	E6	 ①Check if indoor/outdoor connecting wire is connected correctly. ②Check if noise entered into indoor/outdoor connecting wire or 	*2			
		Indoor/outdoor unit communication error (transmitting error) is detected by indoor unit.	E7	power supply. ③Check if noise entered into indoor/outdoor controller circuit	*2			
		Indoor/outdoor unit communication error (signal receiving error) is detected by outdoor unit.	_	board. ④Re-check error by turning off power, and on again.	P.37			
		Indoor/outdoor unit communication error (transmitting error) is detected by outdoor unit.	_		P.37			
	3 blinking	Remote controller signal receiving error is detected by remote controller.	E0	①Check if connecting wire of indoor unit or remote controller is connected correctly.				
		Remote controller transmitting error is detected by remote controller.	E3	②Check if noise entered into transmission wire of remote controller.	P.37			
		Remote controller signal receiving error is detected by indoor unit.	E4	③Re-check error by turning off power, and on again.	*2			
		Remote controller transmitting error is detected by indoor unit.	E5		*2			
	4 blinking	Error code is not defined.	EF	 ①Check if remote controller is MA remote controller(PAR-20MAA). ②Check if noise entered into transmission wire of remote controller. ③Check if noise entered into indoor/outdoor connecting wire. ④Re-check error by turning off power, and on again. 	P.37			
	5 blinking	Serial communication error <communication between="" outdoor<br="">controller board and outdoor power board> <communication between="" outdoor<br="">controller board and M-NET p.c. board></communication></communication>	Ed	 ①Check if connector (CN4) on outdoor controller circuit board and outdoor power circuit board is not disconnected. ②Check if there is poor connection of connector on outdoor controller circuit board(CNMNT and CNVMNT). 	P.37			
		Communication error of high prior	A0~A8		P.38~			
		signal(M-NET)			P.41			

*1.Remote controller displays error code.

*2.Refer to service manual for indoor unit.

Indication		Error									
Outdoor controller circuit board			Error		Detailed						
LED1 (Green)	LED2 (Red)	Contents	code *1	Inspection method	reference page						
3 blinking	1 blinking	Abnormality of shell thermostat and discharging temperature (TH4)	U2	 ①Check if stop valves are open. ②Check if connectors (TH4, LEV-A) on outdoor controller circuit board are not disconnected. ③Check if unit fills with specified amount of refrigerant. @Measure resistance values among terminals on indoor valve and outdoor linear expansion valve using a tester. 	P.34						
	2 blinking	Abnormal high pressure (High pressure switch 63H worked.)	U1	 ①Check if indoor/outdoor units have a short cycle on their air ducts. ②Check if connector (63H) on outdoor controller circuit board is not disconnected. ③Check if heat exchanger and filter is not dirty. ④Measure resistance values among terminals on linear expansion valve using a tester. 	P.34						
	4 blinking	Compressor over current breaking (Start-up locked) Compressor over current breaking Abnormality of current sensor (P.B.) Abnormality of power module	UF UP UH U6	 ①Check if stop valves are open. ②Check looseness, disconnection, and converse connection of compressor wiring. ③Measure resistance values among terminals on compressor using a tester. ④Check if outdoor unit has a short cycle on its air duct. 	P.36 P.36 P.36 P.35						
	5 blinking	Open/short of discharge thermistor (TH4) Open/short of outdoor thermistors (TH3, TH32, TH6, TH7 and TH8) Open/short of outdoor ther- mistor (TH8)	U3 U4	 OCheck if connectors (TH3, TH32, TH4, TH6 and TH7) on outdoor controller circuit board and connector (CN3) on outdoor power circuit board are not disconnected. @Measure resistance value of outdoor thermistors. 	P.35 P.35						
	6 blinking	Abnormality of heat sink temperature	U5	 Check if indoor/outdoor units have a short cycle on their air ducts. @Measure resistance value of outdoor thermistor(TH8). 	P.35						
	7 blinking	Abnormality of voltage		 ①Check looseness, disconnection, and converse connection of compressor wiring. ②Measure resistance value among terminals on compressor using a tester. ③Check if power supply voltage decreases. ④Check CN5 wiring on the outdoor power circuit board or noise filter circuit board. 	P.36						
4 blinking	1 blinking	Abnormality of room temperature thermistor (TH1)	P1	①Check if connectors (CN20, CN21 and CN29) on indoor controller circuit board	*2						
	5	Abnormality of pipe temperature thermistor /Liquid (TH2)	P2	are not disconnected.	*2						
		Abnormality of pipe temperature thermistor/Condenser-Evaporator	P9		*2						
	2 blinking	Abnormality of drain sensor (DS)	P4	OCheck if connector (CN31) on indoor controller circuit board is not disconnected.	* 2						
		Indoor drain overflow protection	P5	 @Measure resistance value of indoor thermistors. @Measure resistance value among terminals on drain-up machine using a tester. @Check if drain-up machine works. @Check drain function. 							
	3 blinking	Freezing (cooling)/overheating (heating) protection	P6	 ①Check if indoor unit has a short cycle on its air duct. ②Check if heat exchanger and filter is not dirty. ③Measure resistance value on indoor and outdoor fan motors. ④Check if the inside of refrigerant piping is not clogged. 	*2						
	4 blinking Abnormality of pipe temperature		P8	 ①Check if indoor thermistors (TH2 and TH5) are not disconnected from holder. ②Check if stop valve is open. ③Check converse connection of extension pipe. (on plural units connection) ④Check if indoor/outdoor connecting wire is connected correctly. (on plural units connection) 	*2						

*1 Error code displayed on remote controller*2 Refer to service manual for indoor unit.

LED indications of fan operating condition (LED1 on outdoor Fan controller circuit board)

Op	Operation LED1 (Red)		1 (Red)	ed) Contents			
Normal (Stop)		nhtod	Fan stops.				
Normal	Normal (Operating)		Jilleu	Controller board is outputting waveform for fan driving.			
Operation	LED1 (Red)	Importance		Meaning of error code and detection method	Remark		
Abnormal	2 blinks	1	Abnormality	rmality of bus voltage: Abnormal if voltage is less than 200V or more than 760V.			
is detected	6 blinks	2	Abnormality	of overcurrent: Abnormal if current value of DC bus in over the cut-off point.	used for service.		

<Outdoor unit operation monitor function>

[When option part 'A-Control Service Tool(PAC-SK52ST)' is connected to outdoor controller circuit board(CNM)] Digital indicator LED1 displays 2 digit number or code to inform operation condition and the meaning of error code by controlling DIP SW2 on 'A-Control Service Tool'.

Operation indicator SW2 : Indicator change of self diagnosis



SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Pipe temperature / Liquid(TH3) - 40~90	- 40~90 (When the coil thermistor detects 0°C or below, "–" and temperature are displayed by turns.) (Example) When -10°C; 0.5 secs. 0.5 secs. 2 secs. $-\Box \rightarrow 10 \rightarrow \Box \Box$	ĉ
ON 1 2 3 4 5 6	Discharge temperature (TH4) 3~217	3~217 (When the discharge thermistor detects 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105°C; 0.5 secs. 0.5 secs. 2 secs.	Ĉ
ON 1 2 3 4 5 6	Output step of outdoor FAN 0~10	0~10	Step
ON 1 2 3 4 5 6	The number of ON / OFF times of compressor 0~9999	0~9999 (When the number of times is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 42500 times (425 ×100 times); 0.5 secs. 0.5 secs. 2 secs. $_4 \rightarrow 25 \rightarrow _$	100 times
ON 1 2 3 4 5 6	Compressor integrating operation times 0~9999	0~9999 (When it is 100 hours or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 2450 hours (245 ×10 hours); 0.5 secs. 0.5 secs. 2 secs. $2 \rightarrow 45 \rightarrow 2$	10 hours
ON 1 2 3 4 5 6	Compressor operating current. 0~50	0~50 *Omit the figures after the decimal fractions.	A
ON 1 2 3 4 5 6	Compressor operating frequency 0~225	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 125Hz; 0.5 secs. 0.5 secs. 2 secs. $\Box 1 \rightarrow 25 \rightarrow \Box \Box$	Hz
ON 1 2 3 4 5 6	LEV-A opening pulse 0~480	0~480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 150 pulse; 0.5 secs. 0.5 secs. 2 secs. \Box_1 → 50 → \Box_2	Pulse
ON 1 2 3 4 5 6	Error postponement code history (1) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in case of no postponement.	Code display
ON 1 2 3 4 5 6	Operation mode on error occurring	Operation mode of when operation stops due to error is displayed by setting SW2 like below. (SW2)	Code display

SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Pipe temperature / Liquid(TH3) on error occurring - 40~90	- 40~90 (When the coil thermistor detects 0°C or below, "–" and temperature are displayed by turns.) (Example) When -15°C; 0.5 secs. 0.5 secs. 2 secs. -□ → 15 → □□ t	Ĵ
ON 1 2 3 4 5 6	Compressor temperature (TH4) or discharge temperature (TH4) on error occurring 3~217	3~217 (When the temperature is 100°C or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130°C; 0.5 secs. 0.5 secs. 2 secs.	°
ON 1 2 3 4 5 6	Compressor operating current on error occurring 0~20	0~20	A
ON 1 2 3 4 5 6	Error code history (1) (latest) Alternate display of abnormal unit number and code	When no error history, " 0 " and "– –" are displayed by turns.	Code display
ON 1 2 3 4 5 6	Error code history (2) Alternate display of error unit number and code	When no error history, " 0 " and "– –" are displayed by turns.	Code display
	Thermostat ON time 0~999	0~999 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 245 minutes; 0.5 secs. 0.5 secs. 2 secs. $2 \rightarrow 45 \rightarrow 2$	Minute
	Test run elapsed time 0~120	0~120 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105 minutes; 0.5 secs. 0.5 secs. 2 secs. $\Box 1 \rightarrow 05 \rightarrow \Box \Box$	Minute

SW/2 sotting	Display detail	Explanation for display	Linit
SWZ setting			Unit
ON 1 2 3 4 5 6	The number of connected indoor units	0~4 (The number of connected indoor units are dis- played.)	Unit
ON 1 2 3 4 5 6	Capacity setting display	Displayed as an outdoor capacity code. Capacity Code RP8Y 40 RP10Y 50	Code display
ON 1 2 3 4 5 6	Outdoor unit setting information	 The tens digit (Total display for applied setting) Setting details Display details H·P / Cooling only 0 : H·P 1 : Cooling only Single phase / Three phase 0 : Single phase 2 : Three phase The ones digit Setting details Display details Defrosting switch 0 : Normal 1 : For high humidity (Example) When heat pump,three phase and defrosting (normal) are set up, "20" is displayed. 	Code display
ON 1 2 3 4 5 6	Indoor pipe temperature / Liquid (TH2(1)) Indoor 1 – 39~88	 - 39~88 (When the temperature is 0°C or less, "-" and temperature are displayed by turns.) 	ĉ
ON 1 2 3 4 5 6	Indoor pipe temperature / Cond. / Eva. (TH5(1)) Indoor 1 – 39~88	 - 39~88 (When the temperature is 0°C or less, "" and temperature are displayed by turns.) 	Ĵ
ON 1 2 3 4 5 6	Indoor pipe temperature / Liquid (TH2(2)) Indoor 2 - 39~88	 - 39~88 (When the temperature is 0°C or less, "" and temperature are displayed by turns.) 	Ĵ
ON 1 2 3 4 5 6	Indoor pipe temperature / Cond. / Eva. (TH5(2)) Indoor 2 - 39~88	- 39~88 (When the temperature is 0°C or less, "" and temperature are displayed by turns.)	ĉ
ON 1 2 3 4 5 6	Indoor room temperature (TH1) 8~39	8~39	Ĵ

SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Indoor setting temperature 17~30	17~30	Ĉ
ON 1 2 3 4 5 6	Outdoor pipe temperature / Cond./ Eva. (TH6) – 39~88	 – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) 	Ĉ
ON 1 2 3 4 5 6	Outdoor outside temperature (TH7) - 39~88	 - 39~88 (When the temperature is 0°C or less, "" and temperature are displayed by turns.) 	Ĉ
ON 1 2 3 4 5 6	Outdoor internal heat sink tempera- ture (TH8) - 40~200	 - 40~200 (When the temperature is 0°C or less, "" and temperature are displayed by turns.) (When the thermistor detects 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) 	Ĉ
ON 1 2 3 4 5 6	Discharge super heat. SHd 0~255 [Cooling = TH4-TH6 Heating = TH4-TH5]	0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°C
ON 1 2 3 4 5 6	Sub cool. SC 0~130 [Cooling = TH6-TH3 Heating = TH5-TH4]	0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°C
ON 1 2 3 4 5 6	Input current of outdoor unit	0~500 (When it is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.)	0.1 A
ON 1 2 3 4 5 6	Targeted operation frequency 0~255	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.)	Hz
ON 1 2 3 4 5 6	DC bus voltage 360~760	360~760 (When it is 100V or more, hundreds digit, tens digit and ones digit are displayed by turns.)	V

SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Capacity save 0~255 When air conditioner is connected to M-NET and capacity save mode is demanded, "0"~"100" is displayed. When there is no setting of capacity save "100" is displayed.	0~100 (When the capacity is 100% hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 100%; 0.5 secs. 0.5 secs. 2 secs. □1 → 00 → □□	%
ON 1 2 3 4 5 6	Error postponement code history (2) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in case of no postponement.	Code display
ON 1 2 3 4 5 6	Error postponement code history (3) of outdoor unit	Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in case of no postponement.	Code display
ON 1 2 3 4 5 6	Error code history (3) (Oldest) Alternate display of abnormal unit num- ber and code.	When no error history, "0" and "" are displayed by turns.	Code display
ON 1 2 3 4 5 6	Error thermistor display [When there is no error thermistor, "–" is displayed.	 3: Outdoor pipe temperature /Liquid (TH3, TH32) 6: Outdoor pipe temperature /Cond./Eva. (TH6) 7: Outdoor outside temperature (TH7) 8: Outdoor heat sink (TH8) 	Code display
ON 1 2 3 4 5 6	Operation frequency on error occurring 0~255	0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 secs. 0.5 secs. 2 secs. $\Box_1 \rightarrow 25 \rightarrow \Box$	Hz
ON 1 2 3 4 5 6	Fan step on error occurring 0~10	0~10	Step

SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	LEV-A opening pulse on error occurring 0~480	0~480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130 pulse; 0.5 secs. 0.5 secs. 2 secs. □1 → 30 → □□	Pulse
ON 1 2 3 4 5 6	Indoor room temperature (TH1) on error occurring 8~39	8~39	Ĉ
ON 1 2 3 4 5 6	Indoor pipe temperature / Liquid (TH2) on error occurring – 39~88	- 39~88 (When the temperature is 0°C or less, "" and temperature are displayed by turns.) (Example) When -15°C; 0.5 secs. 0.5 secs. 2 secs. $-\Box \rightarrow 15 \rightarrow \Box \Box$	Ĉ
ON 1 2 3 4 5 6	Indoor pipe temperature / Cond./ Eva. (TH5) on error occurring - 39~88	- 39~88 (When the temperature is 0°C or less, "" and temperature are displayed by turns.) (Example) When -15°C; 0.5 secs. 0.5 secs. 2 secs. -□ → 15 → □□	°C
ON 1 2 3 4 5 6	Outdoor pipe temperature / Cond./ Eva. (TH6) on error occurring - 39~88	- 39~88 (When the temperature is 0°C or less, "-" and temperature are displayed by turns.) (Example) When -15°C; 0.5 secs. 0.5 secs. 2 secs. $-\Box \rightarrow 15 \rightarrow \Box \Box$ t	Ĉ
ON 1 2 3 4 5 6	Outdoor outside temperature (TH7) on error occurring – 39~88	- 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (Example) When -15°C; 0.5 secs. 0.5 secs. 2 secs. $-\Box \rightarrow 15 \rightarrow \Box$	°C
ON 1 2 3 4 5 6	Outdoor heat sink temperature (TH8) on error occurring - 40~200	 - 40~200 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) 	°C

SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Discharge super heat on error occurring SHd 0~255 [Cooling = TH4-TH6 Heating = TH4-Th5]	0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150°C; 0.5 secs. 0.5 secs. 2 secs. □1 → 50 → □□	Ĉ
ON 1 2 3 4 5 6	Sub cool on error occurring. SC 0~130 Cooling = TH6-TH3 [Heating = TH5-TH2]	0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 115°C; 0.5 secs. 0.5 secs. 2 secs. □1 → 15 → □□	°
ON 1 2 3 4 5 6	Thermostat-on time until error stops 0~999	0~999 (When it is 100 minutes or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 415 minutes; 0.5 secs. 0.5 secs. 2 secs. $\Box 4 \rightarrow 15 \rightarrow \Box \Box$	Minute
ON 1 2 3 4 5 6	Indoor pipe temperature / Liquid (TH2 (3)) Indoor 3 – 39~88	 – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) 	Ĉ
ON 1 2 3 4 5 6	Indoor pipe temperature / Cond./ Eva. (TH5 (3)) Indoor 3 – 39~88	 - 39~88 (When the temperature is 0°C or less, "-" and temperature are displayed by turns.) When there is no indoor unit, "00" is displayed. 	°C
ON 1 2 3 4 5 6	Suspensive U9 error detail	 (1) Display timing ① During the error suspensive period, the latest suspensive error is displayed according to the table below. ② When U9 error is determined, the latest error status is displayed according to the table below, and the display is cleared (=00) by the error clearing condition. (2) Error display (2) Error display (3) Description Display (4) Normal 00 (5) Overvoltage error 01 (7) Undervoltage error 02 (7) phase interruption error 04 (8) Abnormal power synchronous signal 08 ** Display examples for multiple errors: Overvoltage (01) + Undervoltage (02) =03 Undervoltage (02) + Power-sync signal error (08) = 0A 	_

SVV2 setting	Display detail	Explanation for display	Unit	
	Controlling status of compressor	I he following code will be a help to know the operating status of unit		
		•The tens digit		
		Display Compressor operating frequency control		
		1 Primary current control		
ON		2 Secondary current control		
1 2 3 4 5 6		•The ones digit (In this digit, the total number of activated control is displayed.) Display Compressor operating frequency control 1 Preventive control for excessive temperature rise of discharge temperature	Code	
		2 Preventive control for excessive temp-	alopidy	
		erature rise of condensing temperature		
		4 Frosting preventing control 8 Preventive control for excessive temp-		
		erature rise of radiator panel		
		(Example)		
		Primary current control LED		
		Preventive control for excessive tempe-		
		rature rise of condensing temperature		
		Preventive control for excessive tempe-		
	Liquid pipe temperature (TH32) - 40~90	- 40~90 (When the temperature is 0°C or less, "-" and		
		(Example)	°C.	
1 2 3 4 5 6		When -10°C; 0.5 secs. 0.5 secs. 2 secs.		
		$-\Box \rightarrow 10 \rightarrow \Box$		
	Indoor pipe temperature / Liquid (TH2(4)) Indoor 4	 – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) 	Ĵ	
1 2 3 4 5 6	- 39~88			
	Indoor pipe temperature / (Cond./Eva.)	- 39~88		
ON	(TH5(4))	(When the temperature is 0°C or less, "" and		
	Indoor 4	temperature are displayed by turns.)	°C	
123456	- 39~00			
	Indication for performing status of unit			
	 replacement operation The ones digit Every time the unit replacement operation is performed by using SW8-2 for 2 hours, the number "1" is displayed. However, the operation less than 2 	•The ones digit 1: Performed 0: Not performed		
ON 1 2 3 4 5 6	 hours is not counted, and the number "0" is displayed. The tens digit When specified time of unit replace- ment operation has been performed by using outdoor unit, the number "1" is displayed. (The number gets back to "0" when enforming unbergets. 	 The tens digit 1: Specified time of replacement operation completed 0: Now performing replacement operation 		
	operation by using SW8-2.)			

13-11. SELECTING FUNCTIONS USING THE REMOTE CONTROLLER

Each function can be set according to necessity using the remote controller. The setting of function for each unit can only be done by the remote controller. Select function available from the table 1.

<Table 1> Function selections

(1) Functions available when setting the unit number to 00 (Select 00 referring to ④ setting the indoor unit number on 13-11-1.)
 *1 The functions below are available only when the wired remote controller is used. The functions are not available for floor standing models.

Function	Settings	Mode No.	Setting No.	Initial setting (when sent from the factory)	Remarks
Power failure	OFF	01	1		
automatic recovery	ON	01	2		The setting is
Indoor temperature	Operating indoor units		1		applied to all
detecting	(The average is considered as indoor temperature.)	02	I	U	the units in the
	Indoor unit with remote controller	02	2		same
	Remote controller's internal sensor		3		refrigerant
LOSSNAY	Not supported		1		system.
connectivity	Supported (indoor unit not equipped with outdoor air intake)	03	2		
	Supported (indoor unit equipped with outdoor air intake)		3		
Power supply	240V	04	1		
voltage	220V,230V	04	2		
Auto operating	Auto energy-saving operation ON	05	1	\bullet	
mode	Auto energy-saving operation OFF	05	2		
Frost prevention	2°C (Normal)	15	1	\bullet	
temperature	3℃	15	2		
Humidifier control	When the compressor operates, the humidifier also operates.	16	1		
	When the fan operates, the humidifier also operates.	10	2		
Change of	Standard	17	1	\bullet	
defrosting control	For high humidity		2		

(2) Functions available when setting the unit number to 01-03 or AL (07 in case of wireless remote controller)

• When setting functions for an indoor unit in an independent system, set the unit number to 01 referring to ④ setting the indoor unit number on 13-11-1.

• When setting functions for a simultaneous- Twin Triple indoor unit system, set the unit number to 01 to 03 for each indoor unit in case of selecting different functions for each unit referring to ④ setting the indoor unit number on 13-11-1.

• When setting the same functions for an entire simultaneous Twin Triple-indoor unit system, set refrigerant address to AL (07 in case of wireless remote controller) referring to ④ setting the indoor unit number on 13-11-1.

				l	nitial se	tting(wh	en sent f	from the	factory)		
						c	eiling co	oncealed	l-: Not a	vailable	
Function	Settings	Mode	Setting	4-way (Cassette	Ceiling Concealed	Ceiling Concealed	Ceiling Suspended	Wall M	ounted	Remarks
		NO.	NO.	PLA-AA (power- cassette)	PLA-AA.UK (power- cassette)	PEH-MYA	PEAD-EA PEAD-GA	PCA-GA	PKA-FAL	PKA-GAL	
Filter sign	100Hr		1								
	2500Hr	07	2								
	No filter sign indicator		3								
Fan speed	standard		1			—	—		-	—	
	High ceiling ①	08	2			—	—		_	—	
	High ceiling ⁽²⁾		3			—	—			—	
No. of air outlets	4 directions		1			—	—	—	-	—	
	3 directions	09	2				—	_			
	2 directions		3			—	—	_		_	
Installed options (high-	Not supported	10	1			—	—		-	—	
performance filter)	Supported	10	2				—				
Horizontal vane	No vanes		1			—	—			_	
setting	Equipped with vane (No.1 setting)	11	2			—	—		-	—	
	Equipped with vane (No.2 setting)		3			—	—			_	
Energy saving air	Disabled	12	1			—	—			_	
flow (Heating mode)	Enabled	12	2			—	—			—	
Direct add-on type	Not supported		1			—	—			—	
humidifier (Only for power-cassette)	Supported	13	2			_	—	-	-	_	
Swing	Not available	00	1			—	—				
Ũ	Available	23	2			—	—				
Set temperature in	Available	24	1	Ó	Ŏ			Ŏ	Ó	Ó	
heating mode 4deg-up	Not available	24	2								
Fan speed when the	Extra low		1			_					
heating thermostat is OFF	Low (4-speed model) Low (2-speed model)	25	2			—		-	-		
, , , , , , , , , , , , , , , , , , ,	Set fan speed	1 -	3			—					
Quiet operation mode of	Normal	00	1			—	—	_	_	_	
power cassette	Quiet	26	2		-	—	—	—	_	—	
Fan speed when the	Set fan speed	07	1								
cooling thermostat is OFF	Stop	21	2	-	-	_	-	-	_	-	
Detection of abnormality	Available	20	1								
of the pipe temperature (P8)	Not available	28	2								

13-11-1. Selecting functions using the wired remote controller

[Flow of function selection procedure]

The flow of function selection procedure is shown below. The flow is described in case of setting indoor temperature detecting shown in table 1 on the preceding page. Refer to procedure ① to ⑩ when actually setting functions.

Selecting functions using the wired remote controller



- Wired type ① Mode number ③ Setting number ④ Refrigerant address
 - Dunit number



For mode 01 to 13, press A and B at the same time and for mode 15 to 28, press B and J to go to function select mode.

[Operating instructions]

① Checking the function settings

If you change the setting in the function setting procedure, the contents of setting will be changed for the designated mode. Change the setting after recording all the previous setting into the checklist of table 1 by following steps ⁽²⁾ to ⁽⁷⁾. In addition, read the installation manual packed with indoor units to be informed of initial setting.

[®] Turning off the remote controller

Press the $\textcircled{\sc 0}$ FILTER and $\textcircled{\sc 0}$ TEST RUN buttons simultaneously and hold them for at least 2 seconds.

(For modes 15 and higher, press ⁽¹⁾ and ^(B) simultaneously for at least 2 seconds.) FUNCTION will start to flash. After a while, the refrigerant address display will start to flash .

③ Setting the refrigerant address No. of outdoor unit Press ◎ △ ▼ TIMER SET button to select the refrigerant address from No.00 to No.15. (Set the refrigerant address to No.00 in case of single refrigerant grouping system.)



* If the unit stops two seconds after the FUNCTION display starts to flash or [88] starts to flash in the room temperature display, a transmission problem may have occurred. Check to see if there are some sources of transmission interference (noise) nearby.

If you make a mistake during any points of this procedure, you can quit the function setting by pressing \mathbb{D} then return to step \mathbb{Q} .

④ Setting the indoor unit number

Press $\mathbb{O}(CLOCK \text{ ON OFF})$ and [--] will start to flash in the unit number display (\mathbb{N}).

Press \bigcirc \bigtriangleup \bigcirc (TIMER SET) button to select the unit number from 00, 01, 02, 03, 04, and AL.



•Set the unit number to 00 if the mode such as power failure automatic recovery, indoor temperature detecting or LOSSNAY connectivity is desired to be selected.

•Select the unit number from 01 to 04 if the function setting is desired to be done for each of them individually. •Set the unit number to AL if the function setting is desired to be done for all of units simultaneously.

© Confirming the refrigerant address and indoor unit number Press © MODE button to confirm the refrigerant address and unit number.

After a while, [--] will flash in the mode number display (I).



*****If [88] appears in the room temperature display section, the selected refrigerant address does not exist in the system. Also, if [F] appears in the unit number display section, the selected unit number does not exist. Enter the correct refrigerant address and unit number at steps (2) and (3).

Designated indoor unit starts fan draft operation by pressing MODE button. Check which indoor unit is designated for function setting by doing this. In addition, all the units of the selected refrigerant address start fan draft operation if the unit number is set to 00 or AL.



*If any undesignated indoor units start fan draft operation under multiple refrigerant grouping system, refrigerant addresses may be overlapped. Reassign refrigerant addresses at the DIP switch of the outdoor unit.

In Selecting the mode number

Press (F) (TEMP) buttons to set the desired mode number. (It is possible to set the number of available mode only.)



⑦ Selecting the setting of designated mode Press [©] button, and the setting number will start to flash.

Check the current status of the setting by doing this.

Press $\ensuremath{\mathbb{E}}$ $\ensuremath{\mathbb{E}}$ $\ensuremath{\mathbb{E}}$ $\ensuremath{\mathbb{E}}$ (TEMP) button to select the setting number.



Registering the settings from steps ③ to ⑦ into memory

The mode and setting numbers (I)(I) will start to flash when the MODE button E is pressed and registration will begin. The numbers are set when the flashing stays lit.



*If [---] appears in the room temperature display as the mode/setting number, or if a flashing [88] display appears, a transmission problem may have occurred. Check to see if there are some sources of transmission interference (noise) nearby.

Registering other settings simultaneously

Repeat steps 3 to 8 to make other function settings.

Completing the function settings

Press (a) FILTER and (b) TEST RUN buttons simultaneously for at least two seconds. (For modes 15 and higher, press (d) and (b) simultaneously for at least 2 seconds.) After a while, the function selection screen will disappear and air conditioner OFF display will appear.

	l	۲	(FUNCTION)

*Do not use the remote controller for 30 seconds after completing the function setting. (Any requests will be rejected.)

13-11-2. Selecting functions using the wireless remote controller (Type C)

Functions can be selected with the wireless remote controller. Function selection using wireless remote controller is available only for refrigerant system with wireless function. Refrigerant address cannot be specified by the wireless remote controller.

[Flow of function selection procedure]



[Operating instructions]

- ① Check the function settings.
- ^② Press the \square button twice continuously. → \square CHECK) is lit and "00" blinks.

Press the temp 🕐 button once to set "50". Direct the wireless remote controller toward the receiver of the indoor unit and press the button.

Press the temp 🔇 🕼 button to set the unit number. (Press "01" to specify the indoor unit whose unit number is 01.) Direct the wireless remote controller toward the receiver of the indoor unit and press the min button.

By setting unit number with the button, specified indoor unit starts performing fan operation. Detect which unit is assigned to which number using this function. If unit number is set to AL, all the indoor units in same refrigerant system start performing fan operation simultaneously.

* If a unit number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the unit number setting.

* If the signal was not received by the sensor, you will not hear a beep or a "double beep" may be heard. Reenter the unit number setting.

④ Select a mode.

Press the temp 🕐 🏠 button to set a mode. Press "24" to turn on the function that raises the set temperature by 4 degree during heat operation. Direct the wireless remote controller toward the sensor of the indoor unit and press the indoor uni \rightarrow The sensor-operation indicator will flash and beeps will be heard to indicate the current setting number.

Current setting number: 1 = 1 beep (one second)

2 = 2 beeps (one second each)

3 = 3 beeps (one second each)

* If a mode number that cannot be recognized by the unit is entered, 3 beeps of 0.4 seconds will be heard. Reenter the mode number.

* If the signal was not received by the sensor, you will not hear a beep or a "double beep" may be heard. Reenter the mode number.

5 Select the setting number.

Press the temp () () button to select the setting number. (02: Not available)

Direct the wireless remote controller toward the receiver of the indoor unit and press the _____ button.

→ The sensor-operation indicator will flash and beeps will be heard to indicate the the setting number.

- Setting number: 1 = 2 beeps (0.4 seconds each)
 - 2 = 2 beeps (0.4 seconds each, repeated twice)
 - 3 = 2 beeps (0.4 seconds each, repeated three times)

* If a setting number that cannot be recognized by the unit is entered, the setting will turn back to the original setting.

* If the signal was not received by the sensor, you will not hear a beep or a "double beep" may be heard. Reenter the setting number.

6 Repeat steps 4 and 5 to make an additional setting without changing unit number.

⑦ Repeat steps ③ to ⑤ to change unit number and make function settings on it.

⑧ Complete the function settings

Press ON / OFF () button.

* Do not use the wireless remote controller for 30 seconds after completing the function setting.

DISASSEMBLY PROCEDURE

PUHZ-RP8YHA PUHZ-RP10YHA	lect the refrigerant before you service the refrigerant system en brazing, make sure to apply the non-oxidizing braze.
OPERATING PROCEDURE	РНОТОЅ
 1. Removing the service panel Remove 8 service panel fixing screws (5×10) (see photo 1). (2) Remove the service panel by sliding it towards you. * It is the panel to remove when you maintain the refrigerant circuit, electrical parts, and compressor. 2. Removing the rear panel Remove 7 rear panel fixing screws (5×10) (see photo 2). Remove the rear panel by sliding it towards you. * It is the panel to remove when you maintain the machine room from the rear side. 	Photo 1 (front) Front panel
 3. Removing the front panel (1) Remove 7 front panel fixing screws (5×10) (see photo 1). (2) Remove the front panel by sliding it towards you, then upward. * It is the panel to remove when you maintain the thermistor and the fan motor. 	Servis panel Servis panel fixing screw (8pcs)
	Photo 2 (rear)
	Rear guard
	Rear panel

	DUOTOO
	PHOTOS
 4. Removing the fan motor (1) Remove 10 fan guard fixing screws (5×15) (see photo 3). Fan guard by sliding it upward. Cap by pulling it upward (see photo 4). Propeller fixing nut (M16, left screw). Washer (\$\phi\$32) and the propeller from the fan motor shaft (see photo 4). Propeller holding washer (\$\phi\$40) from the fan motor shaft. 	Photo 3 Fan guard
 Note 1: Be careful not to drop any of the cap, nuts, and washers inside the unit. (2) Remove the service panel and the front panel. (3) Disconnect the relay connector of the fan motor lead wire in the electrical parts box. (4) Loosen all the clamps for the fan motor lead wire, and pull out the wire from the penetration part. (5) Remove 4 motor support fixing screws (5×15). Motor support together with the fan motor (see photo 4). Note 2: The motor support and the fan motor should be held by two people. (6) Remove 4 fan motor fixing screws (M6×16). 	Fan guard fixing screw
• Fan motor (see photo 5).	Front panel
	Propeller Cap Nut tightening torque 20±2N•m Fan motor lead wire Photo 5 Fan motor fixing screw (4pcs) Game (4pcs) Fan motor fixing screw (4pcs) Motor support


	PHOTOS
OPERATING PROCEDURE	PRUIUS
 DEERATING PROCEDURE 8. Removing the thermistor <discharges< b=""></discharges<> (1) Remove the service panel. (2) Disconnect the connector TH4 (3P, white) from the controller circuit board. (3) Loosen all the clamps for the lead wire (see photo 7). (4) Pull out the thermistor (TH4) from the sensor holder mounted on the compressor discharging pipe (see photo 8). 9. Removing the 4-way solenoid valve coil, the linear expansion valve coil, and the bypass solenoid valve coil (1) Remove the service panel. <4-way solenoid valve coil> (2) Disconnect the connector 21S4 (3P, green) from the controller circuit board. (3) Loosen all the clamps for the lead wire and cut 2 fasteners (see photo 7). (4) Remove the 4-way solenoid valve coil fixing screw (M4×6) (see photo 9). (5) Remove the 4-way solenoid valve coil by sliding it towards you (see photo 8, 9). <8pypass solenoid valve coil> (2) Disconnect the connector SV2 (3P, blue) from the controller circuit board. (3) Loosen all the clamps for the lead wire and cut 2 fasteners (see photo 7). (4) Remove the bypass solenoid valve coil fixing screw (M4×6) (see photo 9). (5) Remove the bypass solenoid valve coil fixing screw (M4×6) (see photo 7). (4) Remove the bypass solenoid valve coil by sliding it upward. <1. Loosen all the clamps for the lead wire and cut 2 fasteners (see photo 7). (5) Remove the bypass solenoid valve coil by sliding it upward. <1. Loosen all the clamps for the lead wire and cut 2 fasteners (see photo 9). (5) Remove the bypass solenoid valve coil by sliding it upward (see photo 9). (5) Remove the bypass solenoid valve coil by sliding it upward (see photo 7). (4) Remove the linear expansion valve coil by sliding it upward (see photo 9). Note) When attaching the coil, make sure to tie the lead wires with the fasteners that are equivalent to the o	<section-header></section-header>

	PHOTOS
 10. Removing the 4-way solenoid valve (1) Remove Service panel. 3 cover panel fixing screws (5×10). Cover panel (see photo 6). 4-way solenoid valve coil (see photo 8, 9). 2 valve bed support fixing screws (5×10), then valve bedsupport (see photo 9). 4 valve bed fixing screws (5×10), 4 stop valve fixing screws (5×16), then valve bed (see photo 15). (2) Collect the refrigerant. (3) Remove 4-way solenoid valve together with the pipes from 3 welded points shown in the photo 10. (4) Separate 4 welded pipes from the 4-way solenoid valve. Note 1: Collect the refrigerant without releasing it in the air. Note 2: The welded points can be accessed easily by removing the right side panel. Note 3: When installing the 4-way solenoid valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipe (non-oxidizing braze). 	<complex-block></complex-block>
 11. Removing the linear expansion valve (1) Remove Service panel. 3 cover panel fixing screws (5×10). Cover panel (see photo 6). Linear expansion valve coil (see photo 11). 2 valve bed support fixing screws (5×10), then valve bed support (see photo 9). 4 valve bed fixing screws (5×10), 4 stop valve fixing screws (5×16), then valve bed (see photo 15). (2) Collect the refrigerant. (3) Remove the linear expansion valve from 2 welded points. Note 1: Collect the refrigerant without releasing it in the air. Note 2: The welded points can be accessed easily by removing the right side panel. Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipe (non-oxidizing braze). 	<text><text><text></text></text></text>

OPERATING PROCEDURE	PHOTOS & ILLUSTRATION
 12. Removing the bypass solenoid valve (1) Remove Service panel 3 cover panel fixing screws (5×10). Cover panel (see photo 6). Bypass solenoid valve coil (see photo 9). 2 valve bed support fixing screws (5×10), then valve bed support (see photo 9). 4 valve bed fixing screws (5×10), 4 stop valve fixing screws (5×16), then valve bed (see photo 15). (2) Collect the refrigerant. (3) Remove the bypass solenoid valve from 2 welded points. Note 1: Collect the refrigerant without releasing it in the air. Note 2: The welded points can be accessed easily by removing the right side panel. 	
 13. Removing the low pressure switch and the high pressure switch (1) Remove Service panel (see photo 1). 3 cover panel fixing screws (5×10). Cover panel (see photo 6). 2 valve bed support fixing screws (5×10), then valve bed support (see photo 9). 4 valve bed fixing screws (5×10), 4 stop valve fixing screws (5×16), then valve bed (see photo 15). (3) Disconnect the lead wire for the low pressure switch or the high pressure switch (see photo 12). (4) Collect the refrigerant (5) Remove the low pressure switch or the high pressure switch from the welded part. Note 1: Collect the refrigerant without releasing it in the air. Note 2: The welded points can be accessed easily by removing the right side panel. Note 3: When installing the low / high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipe (non-oxidizing braze). 	Photo 12 Lead wire for the summary of the low pressure switch Switch Bigh pressure switch Image: Switch Switch



OPERATING PROCEDURE	PHOTOS
16. Removing the accumulator	Photo 16
(1) Remove • Service panel (see photo 1)	Fan motor
 Electrical parts box (see photo 6). 2 electrical parts box leg fixing screws (5×10), then electrical parts box legs (see photo 6). 2 lower fixing screws (5×10) of the heat sink duct. 2 screws (4×10) which hold the metal plate above the heat sink, then remove the plate. Fan guard. 3 upper fixing screws (5×10) of the heat sink duct located below the fan motor, then remove the hear sink duct (see photo 15). 	
(2) Collect the refrigerant.(3) Disengage 2 welded points of the accumulator inlet and outlet (see photo 17).	

(4) Remove 4 accumulator fixing screws (5×10), then take out the accumulator.

Note 1: Collect the refrigerant without releasing in the air.

Note 2: The welded points can be accessed easily by removing the rear panel. When servicing from the rear side, remove the rear panel first, then follow the procedure from number 2 (collecting the refrigerant) mentioned above (see photo 16). Upper heat sink duct fixing screw (3pcs)

Photo 17



<Viewed from rear side>

15 PARTS LIST



				Q'ty/set				_	Drico	
No	Dort No	Dort Name	Cussification	PUHZ		Remarks	Wining	Recom-	FI	ice
	. Fart NO.	Fait Name	Specification	RP8	RP10	(Drawing No.)	Symbol	Q'ty	Unit	Amount
				YI	IA		•,		Unit	Amount
1	R01 E01 122	MOTOR CAP		1	1					
2	R01 E05 097	NUT M16		1	1					
3	_	SUPPORT		2	2	BG02U187H03				
4	R01 E20 130	MOTOR SUPPORT		2	2					
5	T7W E26 763	FAN MOTOR		1	1		MF			
6	R01 E03 115	PROPELLER		1	1					



						Q'ty/set			Wining	Recom-	Price	
No.	P	art No	.	Part Name	Specification	PU		Remarks	Diagram	mended		
									Symbol	Q'ty	Unit	Amount
1	R01	E01	675	FAN GUARD		1	1					
2	R01	E05	662	SIDE PANEL (L)		1	1					
3	R01	E06	668	FRONT PANEL		1	1					
4	R01	E05	667	SERVICE PANEL		1	1					
5	R01	E06	658	COVER PANEL		1	1					
6		_		SEPARATOR		1	1	RG00N510G03				
7	R01	H75	202	THERMISTOR (OUTDOOR PIPE)		1	1		TH32			
8		_		HEAT SINK DUCT		1	1	RG00T950G05				
9		—		BASE		1	1	BG02Q044G08				
10		—		VALVE BED SUPPORT		1	1	BH02C038H01				
11	R01	E00	808	LEG		2	2					
12		—		SUPPORT		4	4	RG02N341H03				
13		—		VALVE BED		1	1	RG02N340G05				
14		—		SEPARATOR SUPPORT		1	1	RG02T894H03				
15		_		DRAIN DUCT		1	1	RG00T951G03				
16	R01	E74	202	THERMISTOR (OUTDOOR PIPE)		1	1		TH3			
17	R01	H76	202	THERMISTOR (OUTDOOR)		1	1		TH6,TH7			
18		_		HEAT EXCHANGER JOINT		1	1	RG02N346G10				
19	R01	E10	661	SIDE PANEL (R)		1	1					
20	R01	E07	667	REAR PANEL		1	1					
21	R01	E03	698	REAR GUARD		1	1					
22	R01	E66	408	HEAT EXCHANGER (1)		1	1					
23		_		COIL PLATE (1)		1	1	RG02N397H05				
24		—		COIL PLATE (2)		1	1	RG02N397K05				
25	R01	E39	409	HEAT EXCHANGER (2)		1	1					
26		—		TOP FRAME		1	1	RG00N473G09				
27		—		LABEL (MITSUBISHI)		1	1	DG79R130H01				
28		—		LABEL (INVERTER)		1	1	BK79C208G02				
29		_		ELECTRICAL PARTS BOX PEDESTAL		1	1	RG02T748H04				
30		—		SENSOR HOLDER		1	1	BG25V080H03				
31		_		SEPARATOR CAP		2	2	RG02T749H04				

FUNCTIONAL PARTS PUHZ-RP8YHA PUHZ-RP10YHA



						Q'ty/set			Wining	Recom-	Price	
No.	P	Part No. Part Name Spe		Specification	P0		Remarks	Diagram	mended			
						KP8 YI		(Drawing No.)	Symbol	Q'ty	Unit	Amount
1	Т97	410	741	MOTOR FOR COMPRESSOR	ANV47FFBMT	1	1		МС			
2	R01	E20	242	LINEAR EXPANSION VALVE COIL		1	1					
3	R01	E59	401	LINEAR EXPANSION VALVE		1	1		LEV			
4	R01	E06	413	CHARGE PLUG		1	1					
5	R01	E05	413	CHARGE PLUG		1	1					
6	R01	E09	410	STOP VALVE	3/8F	1						
ľ	R01	E08	410	STOP VALVE	1/2F		1					
7	R01	E00	450	STRAINER		1						
Ľ	R01	30L	450	STRAINER			1					
8	R01	E07	410	STOP VALVE	1F	1	1					
9	R01	E00	570	GASKET		1	1					
10	R01	E00	417	FRANG ASSY		1						
10	T7W	E01	417	FRANG ASSY			1					
11	R01	E01	450	STRAINER		1	1					
12	R01	E02	450	STRAINER		2	2					
13	T7W	E07	242	SOLENOID COIL (FOUR-WAY VALVE)		1	1		21S4			
14	R01	E11	403	SOLENOID VALVE (FOUR-WAY VALVE)		1	1					
15	R01	E02	490	OIL SEPARATOR		1	1					
16	T7W	E06	242	SOLENOID COIL (BYPASS VALVE)		1	1					
17	R01	E03	428	SOLENOID VALVE (BYPASS VALVE)		1	1		sv			
18	T7W	E03	208	HIGH PRESSURE SWITCH		1	1		63H			
19	R01	25T	209	LOW PRESSURE SWITCH		1	1		63L			
20	T7W	E13	440	ACCUMULATOR		1	1					
21	R01	E00	201	THERMISTOR (DISCHARGE)		1	1		TH4			
22		_		SOUND INSULATION		1	1	RG33N368G03				
23	R01	E19	425	CAPILLARY TUBE	3.0×1.0×1000	1	1					
24	R01	E20	425	CAPILLARY TUBE	3.0×1.0×300	1	1					

ELECTRICAL PARTS PUHZ-RP8YHA PUHZ-RP10YHA



						Q'ty/set					Drice		
No	No. Part No.			Part Namo	Specification	PUHZ		Remarks	Wining Diagram Svmbol	Recom-	FILLE		
NO.	Fart NO.			Fart Name	Specification	RP8	RP10	(Drawing No.)		Q'ty	Unit	Amount	
						YHA			-		onic	Amount	
1	T7W	E23	315	CONTROLLER CIRCUIT BOARD		1	1		C.B.				
2		_		CIRCUIT BOARD SUPPORT PLATE		1	1	RG02N450G10					
3	R01	E02	239	FUSE	250V 6.3A	2	2		FUSE3,4				
4	R01	E03	239	FUSE	250V 15A	2	2		FUSE1,2				
5	R01	30L	241	FUSE HOLDER		2	2						
6	T7W	E06	346	NOISE FILTER CIRCUIT BOARD		1	1		N.F.				
7	T7W	E06	716	TERMINAL BLOCK (POWER SUPPLY)	5P(L1,L2,L3,N,⊕)	1	1		TB1				
8	T7W	E22	716	TERMINAL BLOCK (INDOOR / OUTDOOR)	3P(S1,S2,S3)	1	1		TB2				
9	T7W	E05	259	REACTOR	2.7mH 25A	1	1		DCL				
10	R01	E08	233	RUSH CURRENT PROTECT RESISTOR		1	1		RS				
11	T7W	E11	313	POWER CIRCUIT BOARD		1	1		P.B.				
12		_		ELECTRICAL PARTS BOX RIGHT SIDE PLATE		1	1	RG02N349G06					
13		—		HEAT SINK		1	1	RG11N336G05					
14	T7W	E38	310	FAN CONTROLLER CIRCUIT BOARD		1	1		F.C.				
15	T7W	E03	254	MAIN SMOOTHING CAPACITOR		2	2		CB1, 2				
16		_		ELECTRICAL PARTS BOX		1	1	RG00N768G02					
17		_		WATERPROOF SHEET FOR THE ELECTRICAL PARTS		1	1	BH00C028G10					

16 OPTIONAL PARTS

Barta namo	RP8-RP10			
Faits flame	Parts No.			
Distribution pipe	Twin	MSDD-50WR-E		
	Triple	MSDT-111R-E		
	Quadruple	MSDF-1111R-E		
Joint pipe		PAC-SG73RJ-E		
		(ø9.52 → ø12.7)		
Centralized drain kit		PAC-SG92DS-E		
Air guide	Front, Rear	PAC-SG86AG-E		
	Left, Right	PAC-SG87AG-E		
Filter dryer	<i>ø</i> 9.52	PAC-SG82DR-E		
	ø12.7	PAC-SG85DR-E		
A-control interface board	Main	PAC-SK73MI-E		
	Sub	PAC-SK80SI-E		
M-NET adapter	PAC-SF60MA-E			



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