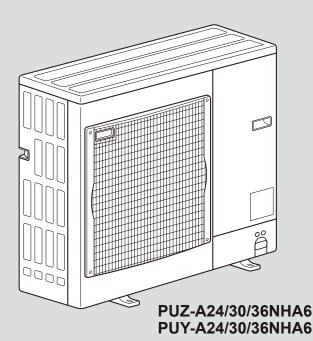


SPLIT-TYPE, HEAT PUMP AIR CONDITIONERS SPLIT-TYPE, AIR CONDITIONERS

SERVICE MANUAL R410A

Outdoor unit	
[Model Name]	[Service Ref.]
PUZ-A18NHA6	PUZ-A18NHA6
PUZ-A24NHA6	PUZ-A24NHA6
PUZ-A30NHA6	PUZ-A30NHA6
PUZ-A36NHA6	PUZ-A36NHA6
PUZ-A42NHA6	PUZ-A42NHA6
PUZ-A18NHA6-BS	PUZ-A18NHA6-BS
PUZ-A24NHA6-BS	PUZ-A24NHA6-BS
PUZ-A30NHA6-BS	PUZ-A30NHA6-BS
PUZ-A36NHA6-BS	PUZ-A36NHA6-BS
PUZ-A42NHA6-BS	PUZ-A42NHA6-BS
PUY-A12NHA6	PUY-A12NHA6
PUY-A12NHA6 PUY-A18NHA6	PUY-A12NHA6 PUY-A18NHA6
PUY-A18NHA6	PUY-A18NHA6
PUY-A18NHA6 PUY-A24NHA6	PUY-A18NHA6 PUY-A24NHA6
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS PUY-A18NHA6-BS	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS PUY-A18NHA6-BS
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS PUY-A18NHA6-BS PUY-A24NHA6-BS	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS PUY-A18NHA6-BS PUY-A24NHA6-BS
PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS PUY-A18NHA6-BS PUY-A24NHA6-BS PUY-A30NHA6-BS	PUY-A18NHA6 PUY-A24NHA6 PUY-A30NHA6 PUY-A36NHA6 PUY-A42NHA6 PUY-A12NHA6-BS PUY-A18NHA6-BS PUY-A24NHA6-BS PUY-A30NHA6-BS



August 2015

No. OCH577 REVISED EDITION-A

Revision:

- Updated the table in "1. REFERENCE MANUAL" in REVISED EDITION-A.
- Some descriptions have been modified.
- Please void OCH577.

Notes:

- This manual describes service data of the outdoor units only.
- RoHS compliant products have <G> mark on the spec name plate.

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PARTS CATALOG (OCB577)	

Mr.SLIM

1 REFERENCE MANUAL

INDOOR UNIT

Model name	Service Ref.	Service manual No.
PLA-A12/18/24/30/36/42BA6	PLA-A12/18/24/30/36/42BA6	OCH581 OCB581
PCA-A24/30/36/42KA6	PCA-A24/30/36/42KA6.TH	OCH585 OCB585
PCA-A24/30/36KA4 PCA-A42KA5	PCA-A24/30/36KA4.TH PCA-A42KA5.TH	OCH501 OCB501
PKA-A12/18HA6	PKA-A12/18HA6	OCH580 OCB580
PKA-A24/30/36KA6	PKA-A24/30/36KA6.TH	OCH584 OCB584
PEA-A12/18AA6	PEA-A12/18AA6	HWE0807
PEAD-A24/30/36/42AA5	PEAD-A24/30/36/42AA5	HWE14030

2 SAFETY PRECAUTION

2-1. ALWAYS OBSERVE FOR SAFETY

Before obtaining access to terminal, all supply circuits must be disconnected.

Preparation before the repair service.

• Prepare the proper tools.

• Prepare the proper protectors.

• Provide adequate ventilation.

- After stopping the operation of the air conditioner, turn off the power-supply breaker.
- Discharge the condenser before the work involving the electric parts.

Precautions during the repair service.

- Do not perform the work involving the electric parts with wet hands.
- Do not pour water into the electric parts.
- Do not touch the refrigerant.
- Do not touch the hot or cold areas in the refrigerating cycle.
- When the repair or the inspection of the circuit needs to be done without turning off the power,

exercise great caution not to touch the live parts.

2-2. 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 following:

- Be sure to clean the pipes and make sure that the insides of the pipes are clean.
- Change flare nut to the one provided with this product. Use a newly flared pipe.
- Avoid using thin pipes.

Make sure that the inside and outside of refrigerant piping is clean and it has no contaminants such as sulfur, oxides, dirt, shaving particles, etc, which are hazard to refrigerant cycle. In addition, use pipes with specified thickness.

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

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

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

The refrigerant oil applied to flare and flange connections must be ester oil, ether oil or alkylbenzene oil in a small amount.

If large amount of mineral oil enters, 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		

Handle tools with care.

If dirt, dust or moisture enters 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.

Use the specified refrigerant only.

Never use any refrigerant other than that specified. Doing so may cause a burst, an explosion, or fire when the unit is being used, serviced, or disposed of. Correct refrigerant is specified in the manuals and on the

spec labels provided with our products.

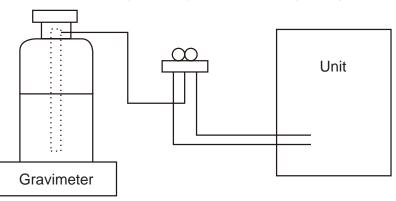
We will not be held responsible for mechanical failure, system malfunction, unit breakdown or accidents caused by failure to follow the instructions.

[1] Cautions for service

- (1) Perform service after recovering 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 a 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.	Tool name	Specifications
1	Gauge manifold	· Only for R410A
		· Use the existing fitting specifications.
		· 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	_
0	Refrigerant cylinder	· Only for R410A · Top of cylinder (Pink)
		· Cylinder with syphon
8	Refrigerant recovery equipment	_

2-3. 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 times higher than that of R22, their sizes of flared sections and flare nuts are different.

 $\ensuremath{\textcircled{}}$ Thickness of pipes

Since the working pressure of R410A is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 7/256 in [0.7 mm] or below.)

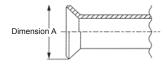
Diagram	below:	Piping	diameter	and	thickness
Diagram	001011.	i ipilig	alamotor	unu	1110111000

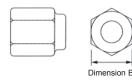
Nominal	Outside	Thickness	: in [mm]			
dimensions (in)	diameter (mm)	R410A	R22			
1/4	6.35	1/32 [0.8]	1/32 [0.8]			
3/8	9.52	1/32 [0.8]	1/32 [0.8]			
1/2	12.70	1/32 [0.8]	1/32 [0.8]			
5/8	15.88	5/128 [1.0]	5/128 [1.0]			
3/4	19.05	-	5/128 [1.0]			

2 Dimensions 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 its working pressure is higher than that of other refrigerants. Therefore, to enhance air tightness and strength, flare cutting dimension of copper pipe for R410A has been specified separately from the dimensions for other refrigerants as shown below. The dimension B of flare nut for R410A also has partly been changed to increase strength as shown below. Set copper pipe correctly referring to copper pipe flaring dimensions for R410A below. For 1/2 and 5/8 inch pipes, the dimension B changes. Use torque wrench corresponding to each dimension.

F





Flare cutting dimensions

Nominal	Outside	Dimension A $\begin{pmatrix} +0\\ -0.4 \end{pmatrix}$			
dimensions (in)	diameter (mm)		R22 (mm)		
1/4	6.35	11/32-23/64 [9.1]	9.0		
3/8	9.52	1/2-33/64 [13.2]	13.0		
1/2	12.70	41/64-21/32 [16.6]	16.2		
5/8	15.88	49/64-25/32 [19.7]	19.4		
3/4	19.05		23.3		

-lare r	nut	dimension	s
---------	-----	-----------	---

	Nominal	Outside	Dimensio				
	dimensions (in)	diameter (mm)	R410A (in [mm])	R22(mm)			
1	1/4	6.35	43/64 [17.0]	17.0			
1	3/8	9.52	7/8 [22.0]	22.0			
1	1/2	12.70	1-3/64 [26.0]	24.0			
1	5/8	15.88	1-9/64 [29.0]	27.0			
1	3/4	19.05		36.0			

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

Tools and materials	Use	R410A tools	Can R22 tools be used?
Gauge manifold	Air purge, refrigerant charge	Tool exclusive for R410A	×
Charge hose	and operation check	Tool exclusive for R410A	×
Gas leak detector	Gas leak check	Tool for HFC refrigerant	×
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, ether oil and 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)
Flare tool	Flaring work of piping	Tools for other refrigerants can be used by adjusting flaring dimension	△ (Usable by adjusting flaring dimension)
Bender	Bend the pipes	Tools can be used for other refrigerants	0
Pipe cutter	Cut the pipes	Tools can be used for other refrigerants	0
Welder and nitrogen gas cylinder	Weld the pipes	Tools can be used for other refrigerants	0
Refrigerant charging scale	Refrigerant charge	Tools can be used for other refrigerants	0
Vacuum gauge or thermis-	Check the degree of vacuum. (Vacuum	Tools can be used for other	0
tor vacuum gauge and	valve prevents back flow of oil and refri-	refrigerants	
vacuum valve	gerant to thermistor vacuum gauge)	-	
Charging cylinder	Refrigerant charge	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.

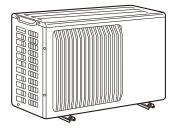
 \bigcirc : Tools for other refrigerants can be used.

2-4. LOW AMBIENT COOLING

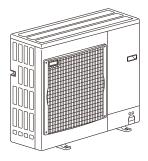
Precautions for low ambient cooling

- If the outdoor temperature is 23°F or lower during cooling operation, install an optional air guide to prevent wind from blowing into the outdoor unit.
- Install the outdoor unit in a location where wind will not blow onto the back of the unit.
- To prevent damage to the parts, be sure to install the unit, turn on the main power, and perform service in an environment where the ambient temperature is 0 °F or higher.
- In order to protect the compressor and electrical components, do not turn off the circuit breaker if the unit is installed in an environment where the ambient temperature is 0°F or lower.
- It needs at least 4hr standby to operation in order to warm the electrical parts.
- Note: During cooling operation under low ambient temperature, the bottom fan motor of A42N stops occasionally. This is an intended feature, not a malfunction.

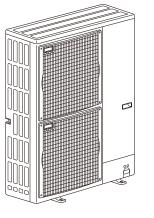
3 FEATURES



PUZ-A18NHA6 PUZ-A18NHA6-BS PUY-A12/18NHA6 PUY-A12/18NHA6-BS



PUZ-A24/30/36NHA6 PUZ-A24/30/36NHA6-BS PUY-A24/30/36NHA6 PUY-A24/30/36NHA6-BS



PUZ-A42NHA6 PUZ-A42NHA6-BS PUY-A42NHA6 PUY-A42NHA6-BS

CHARGELESS SYSTEM PRE-CHARGED REFRIGERANT IS SUPPLIED FOR PIPING LENGTH AT SHIPMENT. (Maximum 100 ft [30 m] (A42)/ Maximum 70 ft [21 m] (A12–36))

The refrigerant circuit with LEV(Linear Expansion Valve) and accumulator always control the optimal refrigerant level regardless of the length (A42: 100 ft [30 m] maximum/ A12–36: 70 ft [20 m] maximum and 16 ft [5 m] minimum) of piping. The additional refrigerant charging work during installation often causes problems.

It is completely eliminated by chargeless system. 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.			PUZ-A18NHA6	PUZ-A24NHA6	PUZ-A30NHA6	PUZ-A36NHA6	PUZ-A42NHA6		
_	1		PUZ-A18NHA6-BS	PUZ-A24NHA6-BS	PUZ-A30NHA6-BS	PUZ-A36NHA6-BS	PUZ-A42NHA6-BS		
Power supply					Single				
	Cycle		60 Hz						
	Voltage				208/230 V				
MCA		A	13	18	25	25	26		
MOCP		A	20	30	40	40	40		
Breaker size A		15	25	30	30	30			
External finish				Munsell 3Y 7.8/1.1					
Heat exchanger					Plate fin coil				
Defrost method					Reverse cycle				
Crankcase he	eater	kW			-				
Compressor					Hermetic	1			
	Model		SNB130FQCM1	TNB220FLHM	TNB220FLHM	TNB220FLHM	ANB33FCTMT		
	Motor output	kW	0.9	1.3	1.3	1.3	2.5		
	R.L.A.		12	12	12	12	20		
	L.R.A.		14	14	17.5	17.5	27.5		
	Starter type				Inverter				
an	Fan(drive) × No.		Propeller fan × 1	Propeller fan × 1	Propeller fan × 1	Propeller fan × 1	Propeller fan × 2		
	Fan motor output	kW	0.040	0.075	0.075	0.075	0.086 + 0.086		
	Fan motor	F.L.A.	0.35	0.75	0.75	0.75	0.40 + 0.40		
	Airflow	m³/min	34	55	55	55	100		
		CFM	1200	1940	1940	1940	3530		
Sound level	Cooling	dB	48	48	48	48	51		
	Heating	dB	47	50	50	50	55		
Protection de	evices		HP switch	HP switch	HP switch	HP switch	HP switch		
			Comp.shell thermo	Comp.shell thermo	Comp.shell thermo	Comp.shell thermo	Comp.shell thermo		
Dimension	W	mm	800	950	950	950	950		
	D	mm	300+23	330+30	330+30	330+30	330+30		
	Н	mm	600	943	943	943	1350		
	W	in	31-1/2	37-12/32	37-12/32	37-12/32	37-12/32		
	D	in	11-13/16 + 7/8	13 + 1-3/16	13 + 1-3/16	13 + 1-3/16	13 + 1-3/16		
	Н	in	23-5/8	37-1/8	37-1/8	37-1/8	53-5/32		
Veight		kg	41	75	75	75	114		
-		lb	91	165	165	165	251		
Refrigerant					R410A				
	Charged	kg	1.7	3.0	3.0	3.0	4.5		
		lb	3 + 12/16	6 + 10/16	6 + 10/16	6 + 10/16	10		
	Control				Linear expansion valve				
	Oil	Model			Ether (FV50S)				
	Charged	L	0.65	0.87	0.87	0.87	1.4		
		ΟZ	20	28	28	28	45		
Refrigerant	Pipe size OD	mm	6.35	9.52	9.52	9.52	9.52		
piping	Liquid	in	1/4	3/8	3/8	3/8	3/8		
	Pipe size OD	mm	12.7	15.88	15.88	15.88	15.88		
	Gas	in	1/2	5/8	5/8 5/8 5/8				
	Connection method				Flared				
	Connection method	Outdoor			Flared				
	Height difference	m			Maximum 30				
	IU - OU	ft			Maximum 100				
	Piping length	m	Maximum 30 Maximum 50 Maximum 50 Maximum 50			Maximum 50			
	i iping iengui								

Service Ref.			PUY-A12NHA6	PUY-A18NHA6	PUY-A24NHA6 PUY-A24NHA6-BS	PUY-A30NHA6	PUY-A36NHA6 PUY-A36NHA6-BS	PUY-A42NHA6 PUY-A42NHA6-BS
			PUY-A12NHA6-BS	PUY-A18NHA6-BS	PUY-A24NHA6-B5	PUY-A30NHA6-BS	PUY-A36NHA6-BS	PU1-A42NHA6-B5
Power supply	Phase				Sin	igle		
	Cycle				60	Hz		
	Voltage				208/2	230 V		
MCA		A	13	13	18	25	25	26
MOCP		A	15	20	30	40	40	40
Breaker size		A	15	15	25	30	30	30
External finis	h				Munsell 3	BY 7.8/1.1		
Heat exchan	ger				Plate	fin coil		
Defrost meth	od					-		
Crankcase h	eater	kW				-		
Compressor					Herr	netic		
	Model		SNB130FQCM1	SNB130FQCM1	TNB220FLHM	TNB220FLHM	TNB220FLHM	ANB33FCTMT
	Motor output	kW	0.9	0.9	1.3	1.3	1.3	2.5
	R.L.A.		12	12	12	12	12	20
	L.R.A.		14	14	14	17.5	17.5	27.5
	Starter type					erter		
Fan	Fan (drive) × No.		Propeller fan × 1	Propeller fan × 2				
	Fan motor output	kW	0.040	0.040	0.075	0.075	0.075	0.086 + 0.086
	Fan motor	F.L.A.	0.35	0.35	0.75	0.75	0.75	0.40 + 0.40
	Airflow	m³/min	34	34	55	55	55	100
		CFM	1200	1200	1940	1940	1940	3530
Sound level	Cooling	dB	46	48	48	48	48	51
	Heating	dB	-	_	_	_	-	-
Protection de	evices		HP switch Comp shell thermo	HP switch Comp shell thermo	HP switch Comp.shell thermo	HP switch Comp shell thermo	HP switch Comp shell thermo	HP switch
Dimension	W	mm	800	800	950	950	950	950
Dimension	D	mm	300+23	300+23	330+30	330+30	330+30	330+30
	Н	mm	600	600	943	943	943	1350
	Ŵ	in	31-1/2	31-1/2	37-12/32	37-12/32	37-12/32	37-12/32
	D	in	11-13/16 + 7/8	11-13/16 + 7/8	13 + 1-3/16	13 + 1-3/16	13 + 1-3/16	13 + 1-3/16
	H	in	23-5/8	23-5/8	37-1/8	37-1/8	37-1/8	53-5/32
Weight		kg	37	40	74	74	74	112
roigin		lb	82	89	163	163	163	247
Refrigerant		10				10A		
	Charged	kg	1.3	1.7	3.0	3.0	3.0	4.5
	3	lb	2 +14/16	3 + 12/16	6 + 10/16	6 + 10/16	6 + 10/16	10
	Control					ansion valve		
	Oil	Model			Ether (F			
	Charged	L	0.65	0.65	0.87	0.87	0.87	1.4
	3	oz	20	20	28	28	28	45
Refrigerant	Pipe size OD	mm	6.35	6.35	9.52	9.52	9.52	9.52
piping	Liquid	in	1/4	1/4	3/8	3/8	3/8	3/8
	Pipe size OD	mm	12.7	12.7	15.88	15.88	15.88	15.88
	Gas	in	1/2	1/2	5/8	5/8	5/8	5/8
	Connection method	Indoor			Fla	red		
	Connection method				Fla			
	Height difference	m	Maximum 30	Maximum 30				
	IU - OU	ft	Maximum 100	Maximum 100				
	Piping length	m	Maximum 50	Maximum 50	Maximum 69	Maximum 69	Maximum 69	Maximum 69
		ft	Maximum 165	Maximum 165	Maximum 225	Maximum 225	Maximum 225	Maximum 225

5

5-1. REFILLING REFRIGERANT CHARGE (R410A: oz, kg)

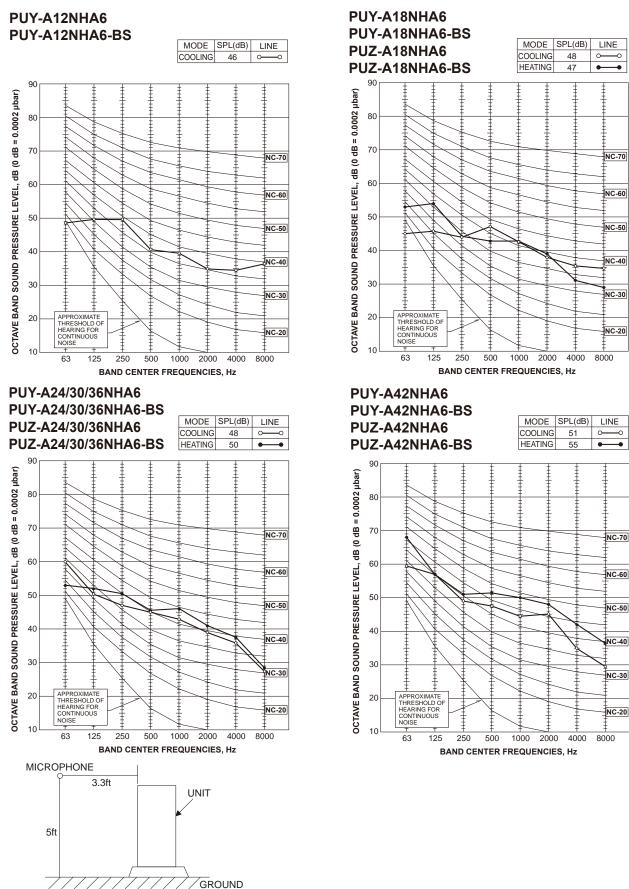
Service Ref.									Pip	ing lengt	h (one w	vay)									
	50 ft	60 ft	70 ft	80 ft	90 ft	100 ft	110 ft	120 ft	130 ft	140 ft	150 ft	160 ft	165 ft	170 ft	180 ft	190 ft	200 ft	210 ft	220 ft	225 ft	Factory
	15 m	18 m	21 m	24 m	27 m	30 m	33 m	37 m	40 m	43 m	46 m	49 m	50 m	52 m	55 m	58 m	61 m	64 m	67 m	69 m	charged
PUY-A12NHA6	42 oz	44 oz	46 oz	47 oz	48 oz	49 oz	50 oz	51 oz	52 oz	53 oz	54 oz	55 oz	56 oz	-	_	-	-	-	_	-	46 oz
PUY-A12NHA6-BS	1.2 kg	1.2 kg	1.3 kg	1.3 kg	1.4 kg	1.4 kg	1.4 kg	1.4 kg	1.5 kg	1.5 kg	1.5 kg	1.6 kg	1.6 kg	-	-	-	-	-	_		1.3 kg
PUY-A18NHA6	56 oz	58 oz	60 oz	61 oz	62 oz	63 oz	64 oz	65 oz	66 oz	67 oz	68 oz	69 oz	70 oz	-	-	-	-	-	-	-	60 oz
PUY-A18NHA6-BS	1.6 kg	1.6 kg	1.7 kg	1.7 kg	1.8 kg	1.8 kg	1.8 kg	1.8 kg	1.9 kg	1.9 kg	1.9 kg	2.0 kg	2.0 kg	-	-	-	-	-	-	-	1.7 kg
PUY-A24NHA6	94 oz	100 oz	106 oz	109 oz	112 oz	115 oz	118 oz	121 oz	124 oz	127 oz	130 oz	133 oz	134.5 oz	136 oz	139 oz	142 oz	145 oz	148 oz	151 oz	154 oz	106 oz
PUY-A24NHA6-BS	2.7 kg	2.8 kg	3.0 kg	3.1 kg	3.2 kg	3.3 kg	3.3 kg	3.4 kg	3.5 kg	3.6 kg	3.7 kg	3.8 kg	3.8 kg	3.9 kg	3.9 kg	4.0 kg	4.1 kg	4.2 kg	4.3 kg	4.4 kg	3.0 kg
PUY-A30NHA6	94 oz	100 oz	106 oz	109 oz	112 oz	115 oz	118 oz	121 oz	124 oz	127 oz	130 oz	133 oz	134.5 oz	136 oz	139 oz	142 oz	145 oz	148 oz	151 oz	154 oz	106 oz
PUY-A30NHA6-BS	2.7 kg	2.8 kg	3.0 kg	3.1 kg	3.2 kg	3.3 kg	3.3 kg	3.4 kg	3.5 kg	3.6 kg	3.7 kg	3.8 kg	3.8 kg	3.9 kg	3.9 kg	4.0 kg	4.1 kg	4.2 kg	4.3 kg	4.4 kg	3.0 kg
PUY-A36NHA6	94 oz	100 oz	106 oz	109 oz	112 oz	115 oz	118 oz	121 oz	124 oz	127 oz	130 oz	133 oz	134.5 oz	136 oz	139 oz	142 oz	145 oz	148 oz	151 oz	154 oz	106 oz
PUY-A36NHA6-BS	2.7 kg	2.8 kg	3.0 kg	3.1 kg	3.2 kg	3.3 kg	3.3 kg	3.4 kg	3.5 kg	3.6 kg	3.7 kg	3.8 kg	3.8 kg	3.9 kg	3.9 kg	4.0 kg	4.1 kg	4.2 kg	4.3 kg	4.4 kg	3.0 kg
PUY-A42NHA6	132 oz	136 oz	142 oz	148 oz	154 oz	160 oz	163 oz	166 oz	169 oz	172 oz	175 oz	178 oz	179.5 oz	181 oz	184 oz	187 oz	190 oz	193 oz	196 oz	199 oz	160 oz
PUY-A42NHA6-BS	3.7 kg	3.9 kg	4.0 kg	4.2 kg	4.4 kg	4.5 kg	4.6 kg	4.7 kg	4.8 kg	4.8 kg	4.9 kg	5.0 kg	5.1 kg	5.1 kg	5.2 kg	5.3 kg	5.4 kg	5.4 kg	5.5 kg	5.6 kg	4.5 kg
PUZ-A18NHA6	56 oz	58 oz	60 oz	62 oz	64 oz	66 oz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60 oz
PUZ-A18NHA6-BS	1.6 kg	1.6 kg	1.7 kg	1.8 kg	1.8 kg	1.9 kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7 kg
PUZ-A24NHA6	94 oz	100 oz	106 oz	112 oz	118 oz	124 oz	130 oz	136 oz	142 oz	148 oz	154 oz	160 oz	166 oz	-	-	-	-	-	-	-	106 oz
PUZ-A24NHA6-BS	2.7 kg	2.8 kg	3.0 kg	3.2 kg	3.3 kg	3.5 kg	3.7 kg	3.9 kg	4.0 kg	4.2 kg	4.4 kg	4.5 kg	4.7 kg	-	-	-	-	-	-	-	3.0 kg
PUZ-A30NHA6	94 oz	100 oz	106 oz	112 oz	118 oz	124 oz	130 oz	136 oz	142 oz	148 oz	154 oz	160 oz	166 oz	-	-	-	-	-	-		106 oz
PUZ-A30NHA6-BS	2.7 kg	2.8 kg	3.0 kg	3.2 kg	3.3 kg	3.5 kg	3.7 kg	3.9 kg	4.0 kg	4.2 kg	4.4 kg	4.5 kg	4.7 kg	-	-	-	-	-	-	-	3.0 kg
PUZ-A36NHA6	94 oz	100 oz	106 oz	112 oz	118 oz	124 oz	130 oz	136 oz	142 oz	148 oz	154 oz	160 oz	166 oz	-							106 oz
PUZ-A36NHA6-BS	2.7 kg	2.8 kg	3.0 kg	3.2 kg	3.3 kg	3.5 kg	3.7 kg	3.9 kg	4.0 kg	4.2 kg	4.4 kg	4.5 kg	4.7 kg	-	-	-	-	-	-	-	3.0 kg
PUZ-A42NHA6	132 oz	136 oz	142 oz	148 oz	154 oz	160 oz	166 oz	172 oz	178 oz	184 oz	190 oz	196 oz	202 oz	-	_			-	_		160 oz
PUZ-A42NHA6-BS	3.7 kg	3.9 kg	4.0 kg	4.2 kg	4.4 kg	4.5 kg	4.7 kg	4.9 kg	5.0 kg	5.2 kg	5.4 kg	5.6 kg	5.7 kg	-	-	-	-	-	-	-	4.5 kg

For pipes longer than 70 or 100 ft, additional charge is required.

5-2. COMPRESSOR TECHNICAL DATA

_				(at 68°F [20°C])
Service Ref.		PUZ-A18NHA6 PUZ-A18NHA6-BS PUY-A12/18NHA6 PUY-A12/18NHA6-BS	PUZ-A24/30/36NHA6 PUZ-A24/30/36NHA6-BS PUY-A24/30/36NHA6 PUY-A24/30/36NHA6-BS	PUZ-A42NHA6 PUZ-A42NHA6-BS PUY-A42NHA6 PUY-A42NHA6-BS
Compressor model		SNB130FQCM1	TNB220FLHM	ANB33FCTMT
Mindian Desistence	U-V	0.640	0.880	0.302
Winding Resistance (Ω)	U-W	0.640	0.880	0.302
	W-V	0.640	0.880	0.302

5-3. NOISE CRITERION CURVES



OCH577A

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5-4. STANDARD OPERATION DATA

5-4-1. Heat pump

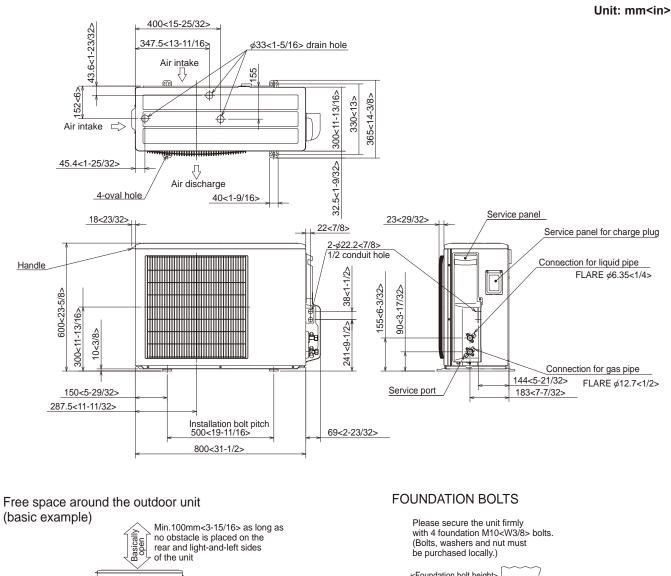
	ntative matching		PKA-A	18446	PKA-A	24646	PKA-A	.30KA6	PKA-A	.36KA6	ΡΙ Δ-Δ	42BA6	
Mode			COOLING	HEATING	COOLING	HEATING	COOLING	HEATING	COOLING	HEATING	COOLING	HEATING	
Total	Capacity	BTU/h	18,000	19,000	24,000	26,000	30,000	32,000	34,200	37,000	42,000	45,000	
Total	Input	W	2,240	1,970	2,270	2,330	4,130	3,150	5,030	3,610	4,600	4,450	
	Indoor unit model											,	
			PKA-A	18HA6	PKA-A	24KA6	РКА-А	30KA6	РКА-А	36KA6	PLA-A42BA6		
	Phase	Sin	•		gle	Sin	igle		igle	Single			
.±	Cycle	60	Hz	60	Hz	60	Hz	60	Hz	60	Hz		
sircu	Voltage		23) V	23	0 V	23	0 V	23	0 V	23	0 V	
cal o	Current		0.3	3 A	0.3	6 A	0.3	6 A	0.5	7 A	1.00 A	0.94 A	
lectri	Voltage Current US Outdoor unit model		PUZ-A1	8NHA6	PUZ-A2	24NHA6	PUZ-A3	30NHA6	PUZ-A3	36NHA6	PUZ-A4	12NHA6	
ш	Phase		Sin	gle	Sin	gle	Sin	igle	Sin	igle	Sir	igle	
	Cycle		60	Hz	60	Hz	60	Hz	60	Hz	60	Hz	
	Voltage		230) V	230 V		23	0 V	23	0 V	230 V		
	Current		9.8 A	8.8 A	9.4 A	10.4 A	18.1 A	14.0 A	21.7 A	15.6 A	20.4 A	21.5 A	
	Discharge pressure	MPa	3.01	3.03	2.78	2.89	3.08	3.04	3.23	2.95	2.83	2.93	
	Suction pressure	MPa	0.77	0.64	0.92	0.68	0.77	0.64	0.74	0.63	0.82	0.69	
	Discharge temperature	°C	80.1	83.7	73.9	77.9	81.2	81.4	88.1	80.7	73.4	80.3	
Refrigerant circuit	Condensing temperature	°C	49.9	50.8	46.9	48.5	50.8	50.8	52.8	49.3	47.5	47.5	
	Suction temperature	°C	3.8	-1.1	12.1	0.4	3.3	-1.5	2.3	-2.0	4.9	0.3	
	Ref. Pipe length	m	7.6	7.6	7.6	7.6	7.6 7.6		7.6	7.6	7.6	7.6	
iger	Discharge pressure	PSIG	437	439	403	419	447	441	468	428	410	425	
Ref	Suction pressure	PSIG	112	93	133	99	117	93	107	91	120	100	
	Discharge temperature	°F	176	183	165	172	178	179	191	177	164	177	
	Condensing temperature	°F	122	123	116	119	123	123	127	121	118	118	
	Suction temperature	°F	39	34	54	33	38	29	36	28	40	33	
	Ref. Pipe length	ft	25	25	25	25	25	25	25	25	25	25	
Indoor	Intake air temperature DB	°C	26.7	21.1	26.7	21.1	26.7	21.1	26.7	21.1	26.7	21.1	
side	Intake air temperature WB	°C	19.4	15.6	19.4	15.6	19.4	15.6	19.4	15.6	19.4	15.6	
	Discharge air temperature DB	°C	11.3	45.4	14.1	39.2	12.3	43.4	12.3	42.9	12.9	41.9	
Outdoor	Intake air temperature DB	°C	35	8.3	35	8.3	35	8.3	35	8.3	35	8.3	
side	Intake air temperature WB	°C	23.9	6.1	23.9	6.1	23.9	6.1	23.9	6.1	23.9	6.1	
Indoor	Intake air temperature DB	°F	80	70	80	70	80	70	80	70	80	70	
side	Intake air temperature WB	°F	67	60	67	60	67	60	67	60	67	60	
	Discharge air temperature DB	°F	52	114	57	103	54	110	54	109	55	107	
Outdoor	Intake air temperature DB	°F	95	47	95	47	95	47	95	47	95	47	
side	Intake air temperature WB	°F	75	43	75	43	75	43	75	43	75	43	
SHF			0.68	_	0.77	_	0.70	_	0.70	-	0.71	_	
BF			0.08	-	0.09	-	0.09	-	0.09	-	0.15	-	

5-4-2. Cooling only

	ntative matching		PKA-A12HA6	PKA-A18HA6	PKA-A24KA6	PKA-A30KA6	PKA-A36KA6	PLA-A42BA6
			COOLING				COOLING	
Mode	0	DTU		COOLING	COOLING	COOLING		COOLING
Total	Capacity	BTU/h	12,000	18,000	24,000	30,000	34,200	42,000
	Input	W	1,190	2,240	2,270	4,130	5,030	4,600
	Indoor unit model		PKA-A12HA6	PKA-A18HA6	PKA-A24KA6	PKA-A30KA6	PKA-A36KA6	PLA-A42BA6
	Phase		Single	Single	Single	Single	Single	Single
Ŧ	Cycle	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz	
ircui	Voltage		230 V					
alc	Current		0.33 A	0.33 A	0.36 A	0.36 A	0.57 A	1.00 A
Electrical circuit	Outdoor unit model		PUY-A12NHA6	PUY-A18NHA6	PUY-A24NHA6	PUY-A30NHA6	PUY-A36NHA6	PUY-A42NHA6
ш	Phase		Single	Single	Single	Single	Single	Single
	Cycle		60 Hz					
	Voltage		230 V					
	Current	5.3 A	9.8 A	9.4 A	18.1 A	21.7 A	20.4 A	
	Discharge pressure	MPa	2.87	3.01	2.78	3.08	3.23	2.83
	Suction pressure	MPa	1.00	0.77	0.92	0.77	0.74	0.82
	Discharge temperature	°C	69.0	80.1	73.9	81.2	88.1	73.4
ij	Condensing temperature	°C	48.6	49.9	46.9	50.8	52.8	47.5
circu	Suction temperature	°C	12.5	3.8	12.1	3.3	2.3	4.9
Refrigerant circuit	Ref. Pipe length	m	7.6	7.6	7.6	7.6	7.6	7.6
iger	Discharge pressure	PSIG	416	437	403	447	468	410
Refi	Suction pressure	PSIG	145	112	133	117	107	120
	Discharge temperature	°F	156	176	165	178	191	164
	Condensing temperature	°F	119	122	116	123	127	118
	Suction temperature	°F	55	39	54	38	36	40
	Ref. Pipe length	ft	25	25	25	25	25	25
la de en	Intake air temperature DB	°C	26.7	26.7	26.7	26.7	26.7	26.7
Indoor side	Intake air temperature WB	°C	19.4	19.4	19.4	19.4	19.4	19.4
	Discharge air temperature DB	°C	14.6	11.3	14.1	12.3	12.3	12.9
Outdoor	Intake air temperature DB	°C	35	35	35	35	35	35
side	Intake air temperature WB	°C	23.9	23.9	23.9	23.9	23.9	23.9
	Intake air temperature DB	°F	80	80	80	80	80	80
Indoor side	Intake air temperature WB	°F	67	67	67	67	67	67
	Discharge air temperature DB	°F	58	52	57	54	54	55
Outdoor	Intake air temperature DB	°F	95	95	95	95	95	95
side	Intake air temperature WB	°F	75	75	75	75	75	75
SHF			0.81	0.68	0.77	0.70	0.70	0.71
BF			0.08	0.08	0.09	0.09	0.09	0.15

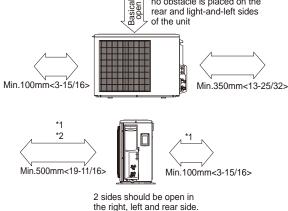
OUTLINES AND DIMENSIONS

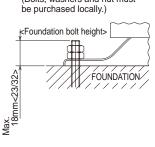
PUZ-A18NHA6-BS



PUY-A12/18NHA6

PUY-A12/18NHA6-BS





PIPING-WIRING DIRECTION

Piping and wiring connection can be made from the rear direction only.

Minimum installation space for outdoor unit

*1 In the place where short cycle tends to occur, cooling and heating capacity and power consumption might get lowered 10%.

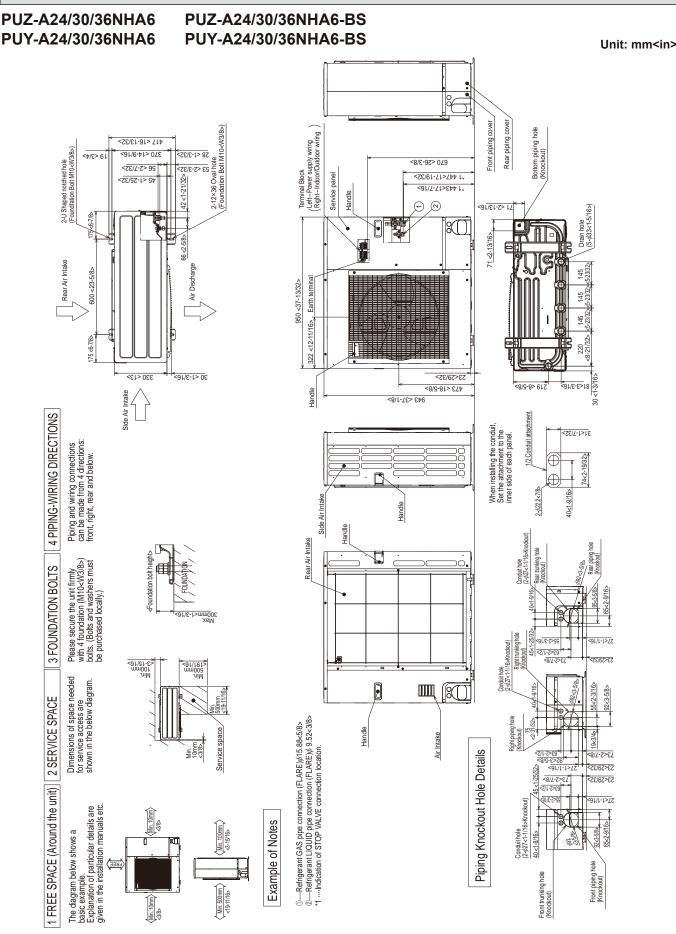
Air outlet guide (optional PAC-SG58SG-E) will help them improve.

*2 If air discharges to the wall, the surface might get stained.

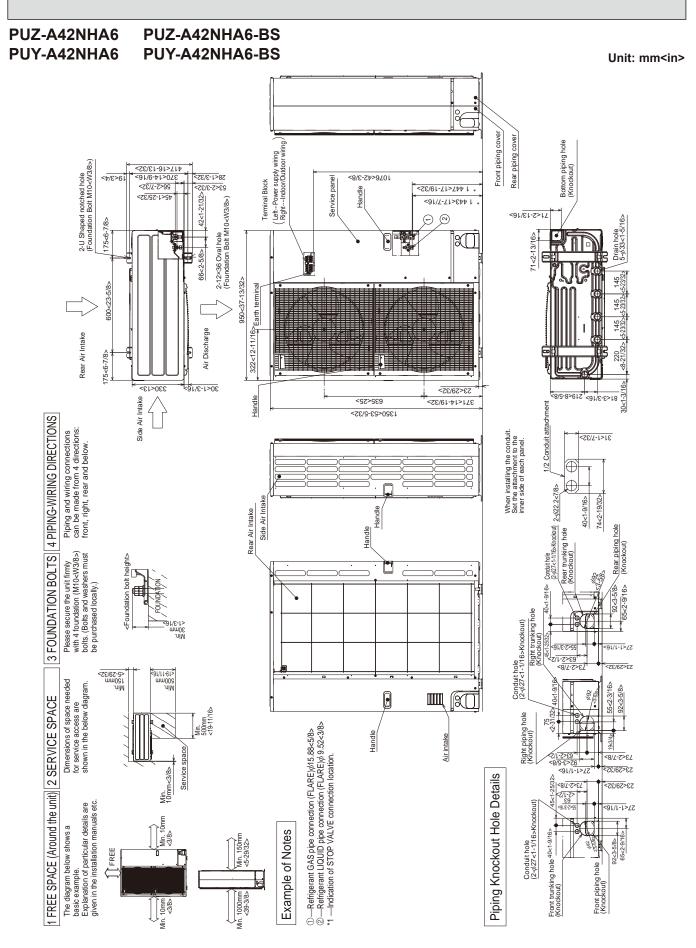
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PUZ-A18NHA6

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OCH577A



PUZ-A18NHA6 PUZ-A18NHA6-BS

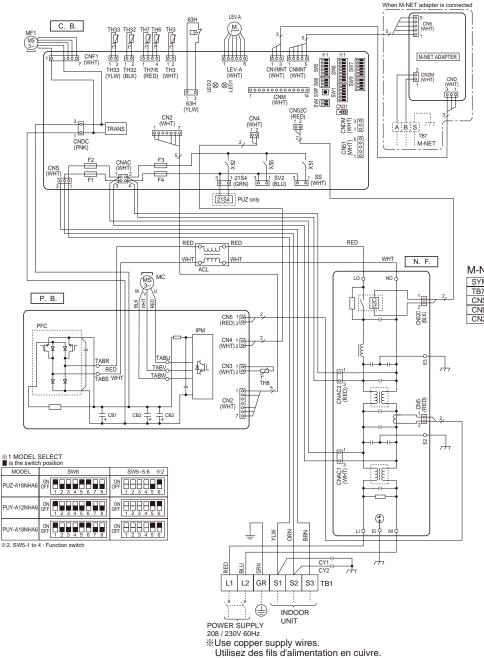
PUY-A12/18NHA6

PUY-A12/18NHA6-BS

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[LEGEND]						
SYMBOL	NAME		SYMBOL	NAME	SYMBOL	NAME
TB1	Terminal Block <power indoor="" outdoor="" supply,=""></power>		PFC	Converter	LED1,LED2	LED <operation indicators="" inspection=""></operation>
MC	Motor for Compressor		IPM	Power Module	F1,F2,F3,F4	Fuse <t6.3al250v></t6.3al250v>
MF1	Fan Motor		CB1,CB2,CB3	Main Smoothing Capacitor	SWP	Switch <pump down=""></pump>
21S4	Solenoid Valve (Four-Way Valve)	Ν	l.F.	Noise Filter Circuit Board	CN31	Connector <emergency operation=""></emergency>
63H	High Pressure Switch		LI/LO	Connection Terminal <l1-phase></l1-phase>	SS	Connector <connection for="" option=""></connection>
TH3	Thermistor <liquid></liquid>		NI/NO	Connection Terminal <l2-phase></l2-phase>	CNM	Connector <connection for="" option=""></connection>
TH6	Thermistor<2-Phase Pipe>		EI,E2,E3	Connection Terminal <ground></ground>	CNMNT	Connector
TH7	Thermistor <ambient></ambient>		52C	52C Relay		<connected adapter="" board="" m-net="" optional="" to=""></connected>
TH8	Thermistor <heat sink=""></heat>	C	.В.	Controller Circuit Board	CNVMNT	Connector
TH32	Thermistor <comp. surface=""></comp.>		SW1	Switch <manual defect="" defrost,="" history,<="" td=""><td></td><td><connected adapter="" board="" m-net="" optional="" to=""></connected></td></manual>		<connected adapter="" board="" m-net="" optional="" to=""></connected>
TH33	Thermistor <suction></suction>			Record Reset, Refrigerant Address>	CNDM	Connector <connection for="" option=""></connection>
LEV-A	Linear Expansion Valve		SW4	Switch <test operation=""></test>	CN51	Connector <connection for="" option=""></connection>
ACL	Reactor		SW5	Switch <model function="" select,="" switch=""></model>	X51,X52,X55	Relay
CY1,CY2	Capacitor		SW6	Switch <model select=""></model>		
P.B.	Power Circuit Board		SW7	Switch <function switch=""></function>		
TABR/S	Connection Terminal <l1 l2-phase=""></l1>		SW8	Switch <function switch=""></function>		
TABU/V/W	Connection Terminal <u v="" w-phase=""></u>		SW9	Switch <function switch=""></function>		



M-NET ADAPTER

SYMBOL	NAME	
TB7 Terminal Block <m-net connection<="" td=""></m-net>		
CN5 Connector <transmission></transmission>		
CND Connector <power supply=""></power>		
CN2M	Connector <m-net communication=""></m-net>	

PUZ-A24NHA6

PUZ-A24NHA6-BS PUY-A24NHA6

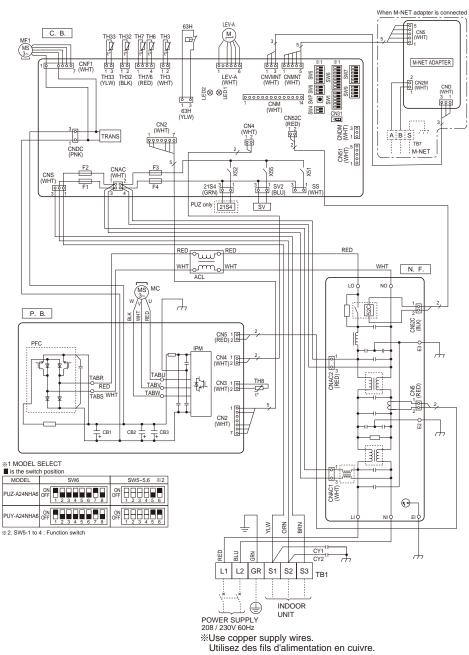
PUY-A24NHA6-BS

[LEGEND]

3	SYMBOL	NAME	Г	SYMBOL	T
Τ	Β1	Terminal Block <power indoor="" outdoor="" supply,=""></power>		TABU/V/W	Ι
Ν	IC	Motor for Compressor]	PFC	T
Ν	/IF1	Fan Motor]	IPM	Ι
2	1S4	Solenoid Valve (Four-Way Valve)		CB1,CB2,CB3	T
6	3H	High Pressure Switch	N	I.F.	T
S	SV	Solenoid Valve (Bypass Valve)		LI/LO	Ι
Τ	H3	Thermistor <liquid></liquid>]	NI/NO	Ι
Т	H6	Thermistor<2-Phase Pipe>		EI,E2,E3	Ι
Т	Ή7	Thermistor <ambient></ambient>		52C	Ι
Т	H8	Thermistor <heat sink=""></heat>] C	.В.	Ι
Т	H32	Thermistor <comp. surface=""></comp.>		SW1	
Т	H33	Thermistor <suction></suction>]		
L	EV-A	Linear Expansion Valve]	SW4	
Α	CL	Reactor]	SW5	
C	Y1,CY2	Capacitor]	SW6	Ι
P	Р.В.	Power Circuit Board		SW7	Ι
	TABR/S	Connection Terminal <l1 l2-phase=""></l1>		SW8	I

NAME		SYMBOL	NAME	
er Supply, Indoor/Outdoor>		TABU/V/W	Connection Terminal <u v="" w-phase=""></u>	_
ssor		PFC	Converter	
		IPM	Power Module	
our-Way Valve)		CB1,CB2,CB3	Main Smoothing Capacitor	
itch	Ν	I.F.	Noise Filter Circuit Board	
ypass Valve)	1	LI/LO	Connection Terminal <l1-phase></l1-phase>	
>]	NI/NO	Connection Terminal <l2-phase></l2-phase>	
se Pipe>		EI,E2,E3	Connection Terminal <ground></ground>	
ent>		52C	52C Relay	
sink>	C	.В.	Controller Circuit Board	
. Surface>		SW1	Switch <manual defect="" defrost,="" history,<="" td=""><td></td></manual>	
in>			Record Reset, Refrigerant Address>	
Valve]	SW4	Switch <test operation=""></test>	
	1	SW5	Switch <model function="" select,="" switch=""></model>	
		SW6	Switch <model select=""></model>	
rd		SW7	Switch <function switch=""></function>	
nal <l1 l2-phase=""></l1>		SW8	Switch <function switch=""></function>	

SYMBOL	NAME		
SW9	Switch <function switch=""></function>		
LED1,LED2	LED <operation indicators="" inspection=""></operation>		
F1,F2,F3,F4	Fuse <t6.3al250v></t6.3al250v>		
SWP Switch <pump down=""></pump>			
CN31	Connector <emergency operation=""></emergency>		
SS	Connector <connection for="" option=""></connection>		
CNM	Connector <connection for="" option=""></connection>		
CNMNT	Connector		
	<connected adapter="" board="" m-net="" optional="" to=""></connected>		
CNVMNT	Connector		
	<connected adapter="" board="" m-net="" optional="" to=""></connected>		
CNDM	Connector <connection for="" option=""></connection>		
CN51	Connector <connection for="" option=""></connection>		
X51,X52,X55	Relay		



M-NET ADAPTER

SYMBOL NAME					
TB7 Terminal Block <m-net connection=""></m-net>					
CN5	Connector <transmission></transmission>				
CND	ND Connector <power supply=""></power>				
CN2M Connector <m-net communication=""></m-net>					

PUZ-A30/36NHA6 PUZ-A30/36NHA6-BS **PUY-A30/36NHA6 PUY-A30/36NHA6-BS** [LEGEND] SYMBOL TB1 NAME SYMBOL NAME SYMBOL NAME Terminal Block<Power Supply, Indoor/Outdoor > P.B. Power Circuit Board SW4 Switch<Test Operation> MC Motor for Compressor TABU/V/W Connection Terminal<U/V/W-Phase> SW5 Switch<Model Select, Function Switch> MF1 Fan Motor TABS/T Connection Terminal<L1/L2-Phase> SW6 Switch<Model Select> 21S4 Solenoid Valve (Four-Way Valve) TABP1/P2 Connection Terminal<DC Voltage> SW7 Switch<Function Switch> SV Solenoid Valve (Bypass Valve) TABN1/N2 Connection Terminal<DC Voltage> SW8 Switch<Function Switch> 63H High Pressure Switch DS2, DS3 Diode Bridge SW9 Switch<Function Switch> SWF TH3 Thermistor<Liquid> IPM Power Module Switch<Pump Down> Thermistor<2-Phase Pipe> CN31 TH6 Noise Filter Circuit Board N.F Connector<Emergency Operation> LI/LO LED1,LE TH7 Thermistor<Ambient> LED<Operation Inspection Indicators> Connection Lead<L1-Phase> NI/NO TH8 Thermistor<Heat Sink> SS Connection Lead<L2-Phase> Connector<Connection for Option> TH32 Thermistor<Comp. Surface> EI, E2 Connection Terminal<Ground> CNM Connector<Connection for Option> Connector<Connected to Optional M-NET Adapter Board> TH33 Thermistor<Suction> 52C 52C Relay CNMNT C.B. Controller Circuit Boa F1,F2,F3,F4 Fuse<T6.3AL250V> LEV-A Linear Expansion Valve Controller Circuit Board CNVMN Connector<Connected to Optional M-NET Adapter Board> DCL Reactor CNDM Connector<Connection for Option> SW1 Switch<Manual Defrost, Defect History, Record CY1. CY2 CN51 Capacitor Connector<Connection for Option> Active Filter Module Reset, Refrigerant Address> ACTM X51,X52,X55 Relay When M-NET adapter is connected 5 CN5 (WHT) LEV-63H С. В. тнз (M) œ/ MF1 5 Image: bold black b 000 0000 1 3 1 5 CNVMNT CNMNT (WHT) (WHT) M-NET ADAPTER 7 (WHT) 60000 SW4SWPSW8 SW5 LMS 6MS LEV-A (WHT) $\mathbb{E}_{2}^{\mathrm{ED}}$ 1 3 63H (YLW) 3 1 999 CNM (WHT) CN31 CN52C (RED) 1 2 0 2 CN4 (WHT 1 2 CN2 (WHT) CNDM 1 1 0 ABS TRANS TB7 M-NET CN51 (WHT) 0 0 0 0 0 0 CNDC (PNK) CNAC (WHT) X52 18 12 CNS (WHT F1 F4 3 1 SS 3 1 21S4 3 1 SV2 9 (GRN) 9 (BLU) ्रिकेके 21S4 SV PUZ only ີ N. F. LOO NO M-NET ADAPTER 1 2 520 SYMBOL TB7 NAME (BLK) Terminal Block<M-net connection> P. B. CN5 CND Connector<Transmission> Connector<Power Supply> DS3 BLL CN2M Connector<M-NET communication> CNAF (WHT) CNDC (PNK) -16 8 6 DS2 WHT Ţ IPN (RED). CN2 (WHT) 318 TABP1 RED TABN1 BLK RED ∲}r E2 Ъ TH8 0 1 CN3 2(WHT) 1 CN5 2(RED) -11--1 1 CN4 2(WHT) CN5 TABN2 TABU OTABN MBW BIE CNAC1-(WHT) OTABP RED WHT BLK € Contraction Con 7 UMS 3- MC DCL CY1 CY2 BLK BLU ÷ GRN YLW ORN BRN RED RED 🕀 S1 S2 S3 TB1 P RED L1 L2 GR

BLK 🛛

N20 WHT

208 / 230V 60Hz **Use copper supply wires. Utilisez des fils d'alimentation en cuivre.

INDOOR

UNIT

POWER SUPPLY

PUZ-A42NHA6

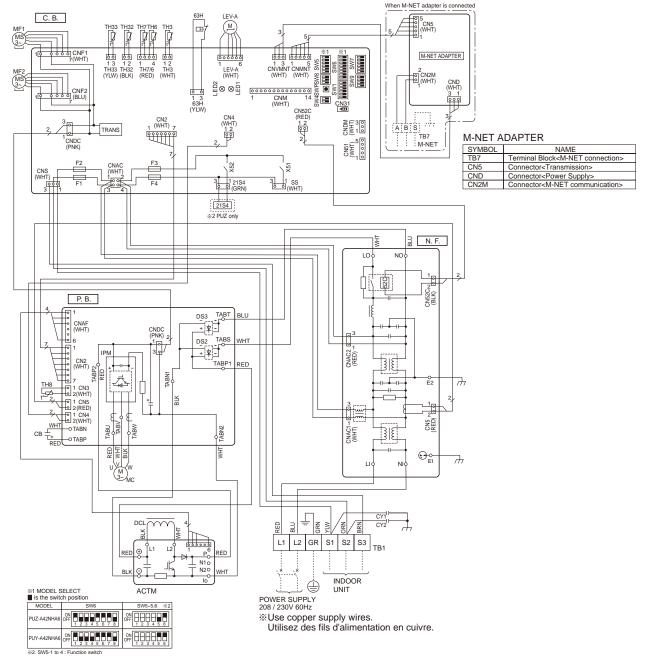
PUZ-A42NHA6-BS

PUY-A42NHA6

PUY-A42NHA6-BS

[LEGEND]

SYMBOL	NAME		SYMBOL	NAME	1	SYMBOL	NAME
TB1	Terminal Block <power indoor="" outdoor="" supply,=""></power>	P	Р.В.	Power Circuit Board		SW4	Switch <test operation=""></test>
MC	Motor for Compressor		TABU/V/W	Connection Terminal <u v="" w-phase=""></u>		SW5	Switch <model function="" select,="" switch=""></model>
MF1,MF2	Fan Motor	1	TABS/T	Connection Terminal <l1 l2-phase=""></l1>	Ιſ	SW6	Switch <model select=""></model>
21S4	Solenoid Valve (Four-Way Valve)	1	TABP1/P2/P	Connection Terminal <dc voltage=""></dc>	1 [SW7	Switch <function switch=""></function>
63H	High Pressure Switch		TABN1/N2/N	Connection Terminal <dc voltage=""></dc>		SW8	Switch <function switch=""></function>
TH3	Thermistor <liquid></liquid>		DS2, DS3	Diode Bridge		SW9	Switch <function switch=""></function>
TH6	Thermistor<2-Phase Pipe>	1	IPM	Power Module	ΙΓ	SWP	Switch <pump down=""></pump>
TH7	Thermistor <ambient></ambient>	Ν	I.F.	Noise Filter Circuit Board	ΙΓ	CN31	Connector <emergency operation=""></emergency>
TH8	Thermistor <heat sink=""></heat>	1	LI/LO	Connection Lead <l1-phase></l1-phase>	ΙΓ	LED1,LED2	LED <operation indicators="" inspection=""></operation>
TH32	Thermistor <comp. surface=""></comp.>		NI/NO	Connection Lead <l2-phase></l2-phase>	ΙΓ	SS	Connector <connection for="" option=""></connection>
TH33	Thermistor <suction></suction>	1	EI, E2	Connection Terminal <ground></ground>	ΙΓ	CNM	Connector <connection for="" option=""></connection>
LEV-A	Linear Expansion Valve	1	52C	52C Relay	ΙΓ	CNMNT	Connector <connected adapter="" board="" m-net="" optional="" to=""></connected>
DCL	Reactor	C).B.	Controller Circuit Board	ΙΓ	CNVMNT	Connector <connected adapter="" board="" m-net="" optional="" to=""></connected>
CY1, CY2	Capacitor	1	F1,F2,F3,F4	Fuse <t6.3al250v></t6.3al250v>	ΙΓ	CNDM	Connector <connection for="" option=""></connection>
ACTM	Active Filter Module	1	SW1	Switch <manual defect="" defrost,="" history,="" record<="" td=""><td></td><td>CN51</td><td>Connector<connection for="" option=""></connection></td></manual>		CN51	Connector <connection for="" option=""></connection>
СВ	Main Smoothing Capacitor	1		Reset, Refrigerant Address>		X51,X52	Relay



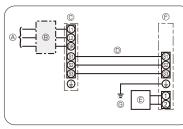
OCH577A

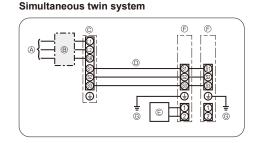
8-1. INDOOR UNIT POWER SUPPLIED FROM OUTDOOR UNIT (A-control application)

The following connection patterns are available.

The outdoor unit power supply patterns vary on models.

1:1 System





- Outdoor unit power supply
- [®] Wiring circuit breaker or isolating switch
- © Outdoor unit
- D Indoor unit/outdoor unit connecting cords
- © Remote controller © Indoor unit
- © Indoor unit earth

Note: Affix a label A that is included with the manuals near each wiring diagram for the indoor and outdoor units.

Indoor unit model	PLA-A12, 18, 24, 30 PCA-A24, 30, PKA	PLA-A36, 42 PCA-A36, 42	PEAD-A24, 30, 36, 42	PEA-A12, 18
Indoor unit power supply	-	-	-	-
Minimum circuit ampacity	1 A	2 A	2.63, 2.73, 3.30, 3.50 A	1 A
Maximum rating of overcurrent protective device	15 A	15 A	15 A	15 A

0.11								
Outdoor	unit model		A12	A18	A24	A30	A36	A42
Outdoor	unit power supply		Single, 208/230 V, 60 Hz					
Breaker size *1		15 A	15A	25A	30A	30A	30A	
Minimur	n circuit ampacity		13 A	13A	18A	25A	25A	26A
Maximum rating of overcurrent protective device		15 A	20A	30A	40A	40A	40A	
×	Outdoor unit power supply		2 × Min. AWG 14	2 × Min. AWG 14	2 × Min. AWG 12	2 × Min. AWG 10	2 × Min. AWG 10	2 × Min. AWG 10
	Outdoor unit power supply earth		1 × Min. AWG 14	1 × Min. AWG 14	1 × Min. AWG 12	1 × Min. AWG 10	1 × Min. AWG 10	1 × Min. AWG 10
irir e N	Indoor unit-Outdoor unit	*2	3 × AWG 16 (polar)					
Wiring Wire No. size	Indoor unit earth	*2	1 × Min. AWG 16					
_	Remote controller-Indoor unit	*3	2 × AWG 22 (Non-polar)					
	Outdoor unit L1-L2	*4	208/230 V AC					
ing in	Indoor unit-Outdoor unit S1-S2	*4	208/230 V AC					
Circuit rating	Indoor unit-Outdoor unit S2-S3	*4	24 V DC					
-	Remote controller-Indoor unit	*4	12 V DC					

*1. A breaker with at least 3 mm contact separation in each pole shall be provided. Use earth leakage breaker (NV).

The breaker shall be provided to ensure disconnection of all active phase conductor of the supply. Make sure that the current leakage breaker is one compatible with higher harmonics.

Always use a current leakage breaker that is compatible with higher harmonics as this unit is equipped with an inverter. The use of an inadequate breaker can cause the incorrect operation of inverter.

*2. Maximum 147 ft [45 m]

If AWG13 is used, maximum 164 ft [50 m]. If AWG13 is used and S3 is separated, maximum 262 ft [80 m].

*3. The 30 ft [10 m] wire is attached in the remote controller accessory. Maximum 1500 ft *4. The figures are NOT always against the ground.

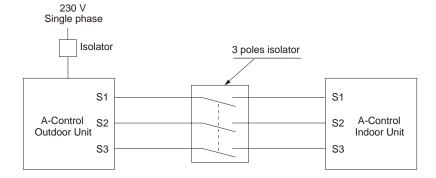
S3 terminal has 24 V DC against S2 terminal. However between S3 and S1, these terminals are NOT electrically insulated by the transformer or other device.

A Caution: Be sure to install N-Line. Without N-Line, it could cause damage to the unit.

Notes: 1.Wiring size must comply with the applicable local and national code.

2.Use copper supply wires.

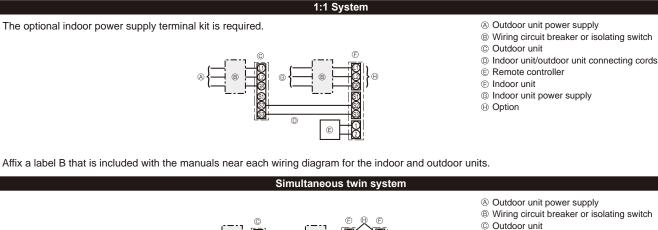
3.Use wires rated 600 V or more for the power supply cables and the indoor/outdoor unit connecting cables. 4.Install an earth longer than other cables.

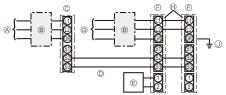


In case of A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals when the power is energized. If isolator should be used between indoor unit and outdoor unit, please use 3-pole type .

8-2. SEPARATE INDOOR UNIT/OUTDOOR UNIT POWER SUPPLIES

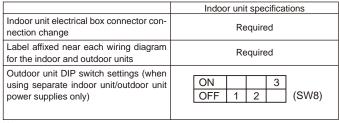
The following illustrations show available connection patterns. The outdoor unit power supply patterns vary on models.





Affix a label B that is included with the manuals near each wiring diagram for the indoor and outdoor units.

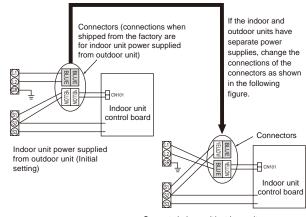
If the indoor and outdoor units have separate power supplies, refer to the table below. Change the indoor unit electrical box wiring referring to the figure in the right and the DIP switch settings of the outdoor unit control board.



Note:

There are three types of label; A, B and C.

Affix the appropriate label to the units according to the wiring method.



Separate indoor unit/outdoor unit power supplies

D Indoor unit/outdoor unit connecting cords

E Remote controller

Indoor unit earth

© Indoor unit power supply

© Indoor unit

() Option

Indoor unit model		PLA-A12, 18, 24, 30 PKA, PCA-A24, 30	PLA-A36, 42 PCA-A36, 42	PEAD-A24, 30, 36, 42	PEA-A12, 18	
Indoor unit power supply		Single 208/230 V, 60 Hz	Single 208/230 V, 60 Hz	Single 208/230 V, 60 Hz	Single 208/230 V, 60 Hz	
Minimu	m circuit ampacity		1 A	2 A	2.63, 2.73, 3.30, 3.50 A	1 A
Maximu	um rating of overcurrent protective de	vice	15 A	15 A	15 A	15 A
P Indoor unit power supply			2 × Min. AWG16	2 × Min. AWG16	-	_
S.	Indoor unit power supply earth		1 × Min. AWG16	1 × Min. AWG16	-	-
Wiring e No. × s	Indoor unit-Outdoor unit	*1	2 × AWG22 (polar)	2 × AWG22 (polar)	3 × 1.5 (polar)	3 × 1.5 (polar)
Wire h	Indoor unit earth		-	-	1 × Min.1.5	1 × Min.1.5
×	Remote controller-Indoor unit	*2	2 × AWG22 (Non-polar)	2 × AWG22 (Non-polar)	2×0.3 (Non-polar)	2 × 0.3 (Non-polar)
	Indoor unit L1-L2	*3	208/230 V AC	208/230 V AC	208/230 V AC	208/230 V AC
Circuit	Indoor unit-Outdoor unit S1-S2	*3	-	-	-	-
Circuit rating	Indoor unit-Outdoor unit S2-S3	*3	24 V DC	24 V DC	24 V DC	24 V DC
-	Remote controller-Indoor unit	*3	12 V DC	12 V DC	14 V DC	12 V DC

*1. Maximum 393 ft [120 m]

*2. The 30 ft [10 m] wire is attached in the remote controller accessory. Maximum 1,500 ft [500 m]

*3. The figures are NOT always against the ground.

Notes: 1. Wiring size must comply with the applicable local and national code.

- Use copper supply wires.
 Use wires rated 300 V or more for the power supply cables.
- 4. Install an earth longer than other cables.

8-3. INDOOR - OUTDOOR CONNECTING CABLE

	Wire No. × Size				
Outdoor power supply	Max. 147 ft [45 m]	Max. 164 ft [50 m]	Max. 262 ft [80 m]		
Indoor unit-Outdoor unit	3 × AWG16(polar)	3 × AWG13(polar)	$3 \times AWG13$ (polar) and S3 separated		

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

Indoor/Outdoor separate power supply	Wire No. × Size
	Max. 393 ft [120 m]
Indoor unit-Outdoor unit	2 × Min. AWG22

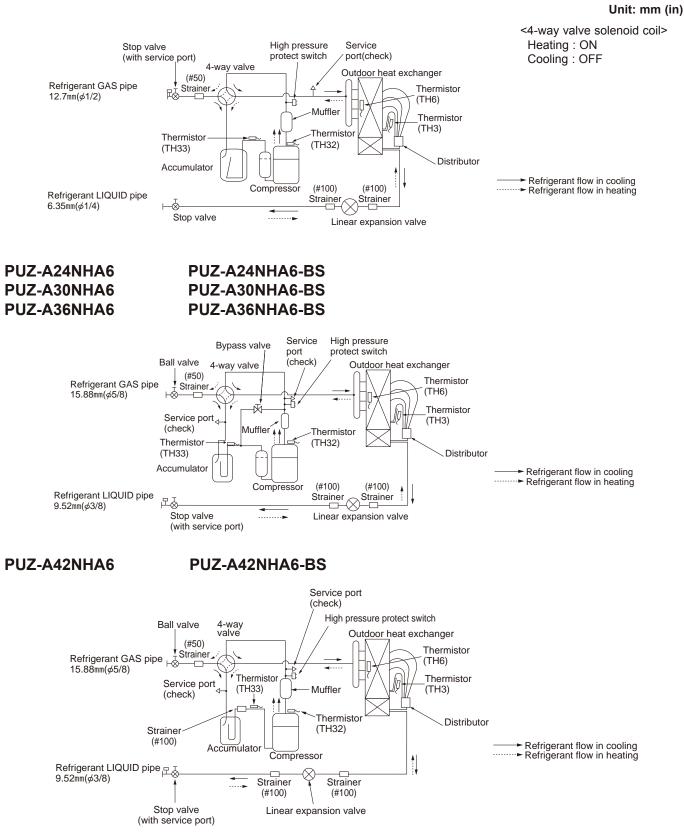
Note: The optional indoor power supply terminal kit is necessary.

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.

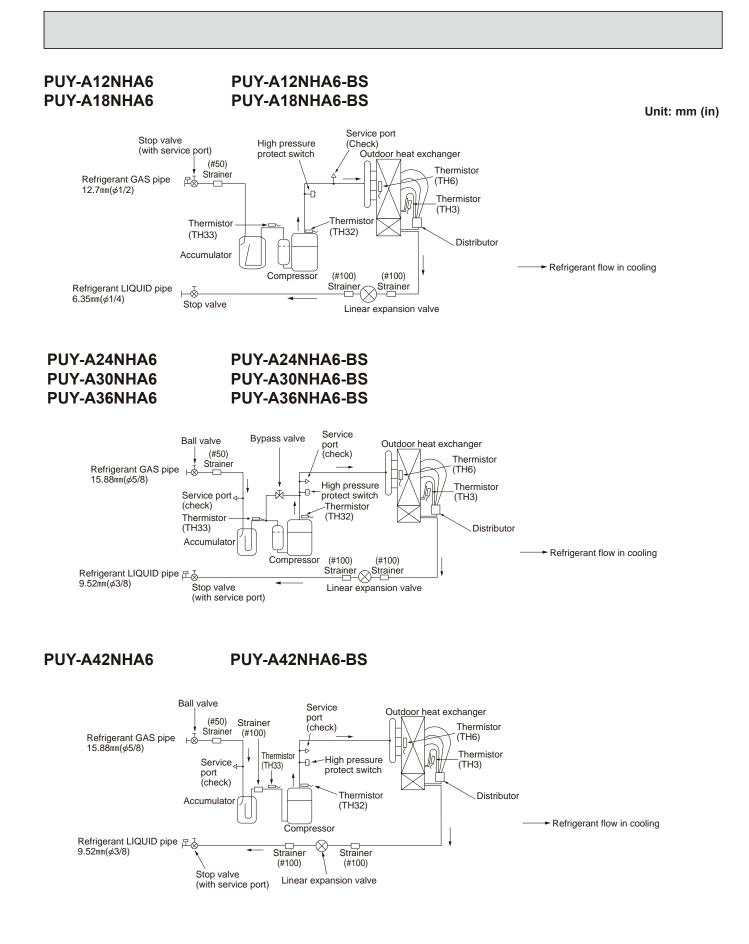
9

REFRIGERANT SYSTEM DIAGRAM

PUZ-A18NHA6 PUZ-A18NHA6-BS



OCH577A



1. Refrigerant collecting (pump down)

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

- ① 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.
 - Start-up of the indoor-outdoor communication takes about 3 minutes after the power (circuit breaker) is turned on. Start the pump-down operation 3 to 4 minutes after the power (circuit breaker) is turned ON.
- ② After the liquid stop valve is closed, set SW1-1 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
 - Only set SW1-1 to ON if the unit is stopped. However, even if the unit is stopped and SW1-1 is set to ON less than three minutes after the compressor stops, the refrigerant collecting operation cannot be performed. Wait until compressor has been stopped for three minutes and then set SW1-1 to ON again.
- ③ Because the unit automatically stops in about two to three minutes when the refrigerant collecting operation is completed (LED1 off, LED2 lit), be sure to quickly close the gas stop valve. If LED1 is lit and LED2 is off and the outdoor unit is stopped, refrigerant collection is not properly performed. Open the liquid stop valve completely, and then repeat step 2 after three minutes have passed.
- If the refrigerant collecting operation has been completed normally (LED1 off, LED2 lit), the unit will remain stopped until the power supply is turned off
- ④ Turn off the power supply (circuit breaker).
- Note that when the extension piping is very long with large refrigerant amount, it may not be possible to perform a pump-down operation.

When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.

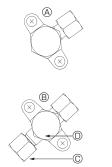
2. Refrigerant pipe airtight testing method

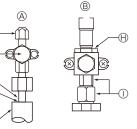
- (1) Connect the testing tools.
 - Make sure the stop valves (A) (B) are closed and do not open them.

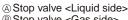
Ē F

G

- Add pressure to the refrigerant lines through the service port © of the liquid stop valve ©.
- (2) Do not add pressure to the specified pressure all at once; add pressure little by little.
 - ① Pressurize to 0.5 MPa (5 kgf/cm²G), wait 5 minutes, and make sure the pressure does not decrease.
 - ② Pressurize to 1.5 MPa (15 kgf/cm²G), wait 5 minutes, and make sure the pressure does not decrease.
 - ③ Pressurize to 4.15 MPa (41.5 kgf/cm²G) and measure the surrounding temperature and refrigerant pressure.
- (3) If the specified pressure holds for about one day and does not decrease, the pipes have passed the test and there are no leaks.
- If the surrounding temperature changes by 1°C, the pressure will change by about 0.03 MPa (0.3 kgf/cm²G). Make the necessary corrections.
- (4) If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.







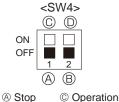
[©] Pipe cover Do not use a wrench here.

E Local pipe

- B Stop valve <Gas side>
- © Service port
- Refrigerant leakage may result. ① Use 2 wrenches here.

E Sealed, same way for gas side

- Open/Close section
- 3. 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 outdoor unit, test run can be started and finished, and its operation mode (cooling/heating) can be set up.
- ① Set the operation mode (cooling/heating) using SW4-2.
- ⁽²⁾ Turn on SW4-1 to start test run with the operation mode set by SW4-2.
- ③ Turn 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 not a problem with the product because the linear expansion valve 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 not a 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.)



10-1. TROUBLESHOOTING

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

Present and past check codes are logged, and they can be 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 trouble is reoccurring in the field, are summarized in the table below. Check the contents below before investigating details.

Unit conditions at service	Check code	Actions to be taken for service (summary)
The trouble is reoccurring.	Displayed	Judge what is wrong and take a corrective action according to "10-4. SELF-DIAGNOSIS ACTION TABLE".
	Not displayed	Conduct trouble shooting and ascertain the cause of the trouble according to "10-5. TROUBLESHOOTING OF PROBLEMS".
The trouble is not reoccurring.	Logged	 ①Consider the temporary defects such as the work of protection devices in the refrigerant circuit including compressor, poor connection of wiring, noise, etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the trouble occurred, matters related to wiring, etc. ②Reset check code logs and restart the unit after finishing service. ③There is no abnormality concerning of parts such as electrical component, controller board, remote controller, etc.
, 	Not logged	 ①Re-check the abnormal symptom. ②Conduct troubleshooting and ascertain the cause of the trouble according to "10-5. TROUBLESHOOTING OF PROBLEMS". 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 board, remote controller, etc.

10-2. CHECK POINT UNDER TEST RUN

(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 (L1, L2) on the outdoor unit by 500V Megger and check that it is 1.0MΩ or over.

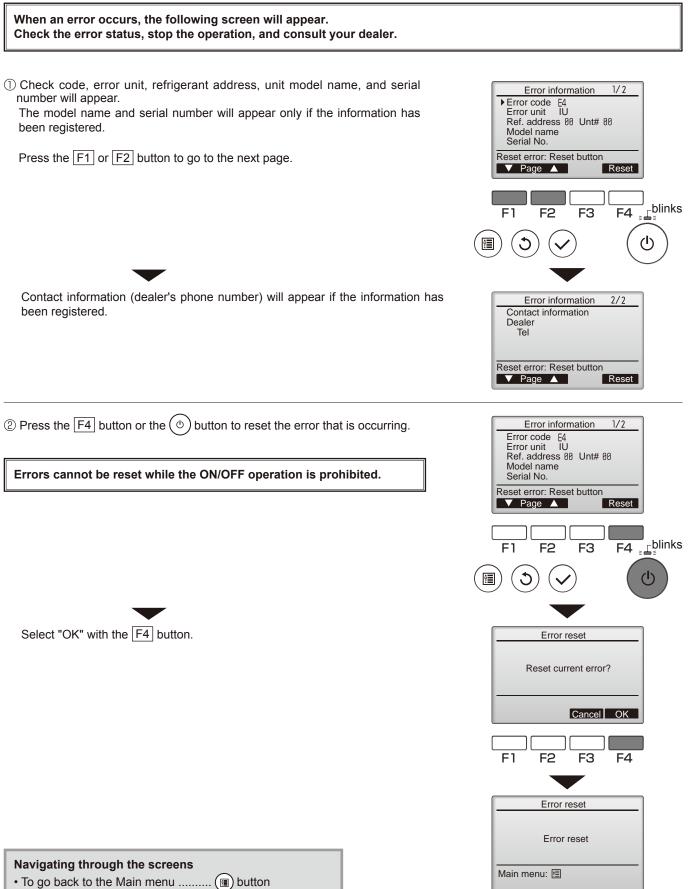
Note: Do not use 500V Megger to indoor/outdoor connecting wire terminal block (S1, S2, S3) and remote controller terminal block (1, 2). This may cause malfunction.

- Make sure that test run switch (SW4) is set to OFF before turning on power supply.
- Turn on power supply 12 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 "12. FUNCTION SETTING".

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

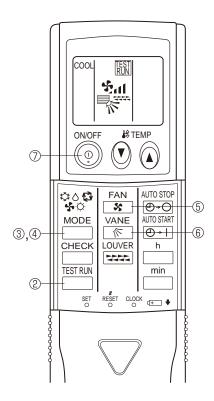
10-2-1. Test run for wired remote controller <par-30maa> <par-31maa> ① Select "Service" from the Main menu, and press the () button. Select "Test run" with the F1 or F2 button, and press the () button.</par-31maa></par-30maa>	F1 F2 F3 F4
② Select "Test run" with the F1 or F2 button, and press the button.	Test run menu > Test run Drain pump test run Service menu: III ▼ Cursor ▲ F1 F2 F3 F4 IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
Test run operation	Test run Remain 2:00
 Press the F1 button to go through the operation modes in the order of "Cool and Heat". Cool mode: Check the cold air blows out. Heat mode: Check the heat blows out. Check the operation of the outdoor unit fan. Press the van and open the Vane setting screen. 	Cool K Mode Fan F1 F2 F3 F4 (1) (1) (1) (1) (1) (1) (1) (1)
Auto vane check	Remain 2:80
Check the auto vane with the F1 F2 buttons. Press the (3) button to return to "Test run operation". Press the (4) button. When the test run is completed, the "Test run menu" screen will appear.	F_{1} F_{2} F_{3} F_{4}
The test run will automatically stop after 2 hours.	\bigcirc

<Error information>



<Checking the error information>

Main Main menu 2/3 While no errors are occurring, page 2/2 of the error information can be viewed by Restriction Energy saving Night setback selecting "Error information" from the Main menu. Errors cannot be reset from this screen. Filter information Error information Main display: 3 ▼Cursor ▲ | < Page ► ٍ_blinks F1 F2 F3 F4 1 (I) C <Error history> Service menu 1/2 Test run Input maintenance info. (1) Select "Service" from the Main menu, and press the (\checkmark) button. Function setting Check Self check Main menu: 🔊 V Cursor ▲ Select "Check" with the F1 or F2 button, and press the (\checkmark) button. F1 F2 F3 F4 ጉ 9 Ć ② Select "Error history" with the F1 or F2 button, and press the (\checkmark) button. Check menu 1/1 Error history Refrigerant volume check Refrigerant leak check Smooth maintenance Request code Service menu: 🗉 ▼ Cursor ▲ Error history 1/4**Error history** Error Unt# dd/mm/yy (3) Select "Error history" from the Check menu, and press the (\checkmark) button to view 12/04/08 12:34 EΘ 0-1 EΘ N-1 12/04/08 12:34 12:34 up to 16 error history records. E0 E0 N-1 12/94/98 0-1 12/04/08 12:34 4 records are shown per page, and the top record on the first page indicates Check menu: 🔿 Delete ▼ Page ▲ the latest error record. F1 F2 F3 F4 ტ • C Deleting the error history Error history ④ To delete the error history, press the F4 button (Delete) on the screen that Delete error history? shows error history. A confirmation screen will appear asking if you want to delete the error history. Cancel OK Press the F4 button (OK) to delete the history. Error history "Error history deleted" will appear on the screen. Error history deleted Press the (\mathfrak{I}) button to go back to the Check menu screen. Check menu: 3



Test run [for IR wireless remote controller]

Measure an impedance between the power supply terminal block on the outdoor unit and ground with a 500 V Megger and check that it is equal to or greater than 1.0 M Ω .

- $\ensuremath{\textcircled{}}$ Turn on the main power to the unit.
- 2 Press the $\prod_{rest run}$ button twice continuously.
 - (Start this operation from the turned off status of remote controller display.)
 - and current operation mode are displayed.
- ③ Press the _____ (✿ໍoゅ :) button to activate ∞∞.∞ mode, then check whether cool air blows out from the unit.
- ④ Press the ☐ (☆☆�☆☆) button to activate HEAT ☆ mode, then check whether warm air blows out from the unit.
- ⑤ Press the from the unit.
 ⑤ Press the from the unit.
- 6 Press the <u>VANE</u> button and check whether the auto vane operates properly.
- ⑦ Press the ON/OFF button to stop the test run.

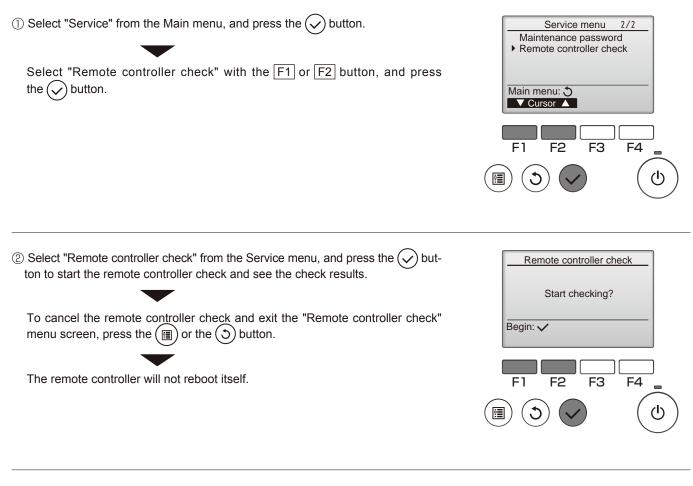
Note:

- Point the remote controller towards the indoor unit receiver while following steps (2) to (7).
- It is not possible to run in FAN, DRY or AUTO mode.

10-3. HOW TO PROCEED "SELF-DIAGNOSIS"	
	Service menu 1/2
10-3-1. Self-diagnosis <par-30maa> <par-31maa></par-31maa></par-30maa>	Test run
	Input maintenance info.
① Select "Service" from the Main menu, and press the \bigodot button.	Function setting Check
	► Self check
	Main menu: Cursor
Select "Self check" with the $[F1]$ or $[F2]$ button, and press the \checkmark button.	
	F1 F2 F3 F4
	\sim
	(Ⅲ)(↺)(✓) (↺)
(2) With the F1 or F2 button, enter the refrigerant address, and press the \checkmark button.	Self check
	Ref. address
	Select: ✓
	-Address +
Depart and unit number attribute will appear	
③ Check code, unit number, attribute will appear. "-" will appear if no error history is available.	Self check
	Ref. address 0
	Error P4 Unt #] Grp.IC
	Return: 3
	Reset
	When there is no error history
	Self check
	Ref. address 0
	Error Unt# - Grp
	Return: 3
	Reset
Resetting the error history.	Self check
Press the F4 button (Reset) on the screen that shows the error history.	Ref. address 0
	Delete error history?
A confirmation screen will appear asking if you want to delete the error history.	
	Cancel OK
Press the F4 button (OK) to delete the error history.	Self check
	Ref. address
If deletion fails, "Request rejected" will appear.	
"Unit not exist" will appear if no indoor units that are correspond to the entered	Error history deleted
address are found.	Poturo 1
	Return: 3
Navigating through the screens	
• To go back to the Main menu (III) button	
• To return to the previous screen (3) button	

10-3-2. Remote controller check <PAR-30MAA> <PAR-31MAA>

If operations cannot be completed with the remote controller, diagnose the remote controller with this function.



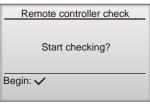
⁽³⁾ OK: No problems are found with the remote controller. Check other parts for problems.

- E3, 6832: There is noise on the transmission line, or the indoor unit or another remote controller is faulty. Check the transmission line and the other remote controllers.
- NG (ALL0, ALL1): Send-receive circuit fault. The remote controller needs replacing.
- ERC: The number of data errors is the discrepancy between the number of bits in the data transmitted from the remote controller and that of the data that was actually transmitted over the transmission line. If data errors are found, check the transmission line for external noise interference.

If the \bigcirc button is pressed after the remote controller check results are displayed, remote controller check will end, and the remote controller will automatically reboot itself.

Check the remote controller display and see if anything is displayed (including lines). Nothing will appear on the remote controller display if the correct voltage (8.5–12 V DC) is not supplied to the remote controller. If this is the case, check the remote controller wiring and indoor units.

Remote controller check results screen



10-4. SELF-DIAGNOSIS ACTION TABLE

<Abnormalities detected when the power is turned on>

		Note: Refer to	indoor unit section for code P and code E.
Check code	Abnormal point and detection method	Case	Judgment and action
		 No voltage is supplied to terminal block (TB1) of outdoor unit. a) Power supply breaker is turned off. b) Contact failure or disconnec- tion of power supply terminal c) Open phase (L1 or L2 phase) 	 ① Check following items. a) Power supply breaker b) Connection of power supply terminal block (TB1) c) Connection of power supply terminal block (TB1)
None		 ② Electric power is not charged to power supply terminal of outdoor power circuit board. a) Contact failure of power supply terminal b) Open phase on the outdoor power circuit board A12–A24N: Disconnection of connector R or S A30–A42N:Disconnection of connector TABT or TABS ③ Electric power is not supplied to outdoor controller circuit board. a) Disconnection of connector (CNDC) ④ Disconnection of reactor (DCL or ACL) 	 ② Check following items. a) Connection of power supply terminal block (TB1) b) Connection of terminal on outdoor power circuit board A12–A24N: Disconnection of connector R or S Refer to "10-9. TEST POINT DIAGRAM". A30–A42N: Disconnection of connector TABT or TABS Refer to "10-9. TEST POINT DIAGRAM". ③ Check connection of the connector (CNDC) on the outdoor controller circuit board. Check connection of the connector, LD1 and LD2 for A12–A24N and CNDC for A30–A36N on the outdoor power circuit board. Refer to "10-9. TEST POINT DIAGRAM". ④ Check connection of reactor. (DCL or ACL) A12–A24N: Check connection of "LO" and "NO" on the outdoor noise filter circuit board. Check connection of "R" and "S" on the outdoor power circuit board. A30–A42N: Check connection of "L1" and "L2" on the active filter module. (ACTM) Refer to "10-9. TEST POINT DIAGRAM".
		⑤ Disconnection of outdoor noise filter circuit board or parts fail- ure in outdoor noise filter circuit board As for A30–A42N type, it is especially needed to check the resistance RS1 on the noise fil- ter circuit board.	 (5) a) Check connection of outdoor noise filter circuit board. b) Replace outdoor noise filter circuit board. Refer to "10-9. TEST POINT DIAGRAM".
		⑥ Defective outdoor power circuit board	[®] Replace outdoor power circuit board.
		⑦ Defective outdoor controller circuit board	⑦ Replace controller board (When items above are checked but the units cannot be repaired).

heck code	Abnormal point and detection method	Case	Judgment and action
F5 (5201)	63H connector open Abnormal if 63H connector circuit is open for 3 minutes continuously after power supply. 63H: High-pressure switch	 ① Disconnection or contact failure of 63H connector on outdoor controller circuit board ② Disconnection or contact failure of 63H ③ 63H is working due to defective parts. ④ Defective outdoor controller circuit board 	 Check connection of 63H connector on outdoor controller circuit board. Refer to "10-9. TEST POINT DIAGRAM". Check the 63H side of connecting wire. Check continuity by tester. Replace the parts if the parts are defective. Replace outdoor controller circuit board.
EA (6844)	 Miswiring of indoor/outdoor unit connecting wire 1. Outdoor controller circuit board can automatically check the number of connected indoor units. Abnormal if the number cannot be checked automatically due to miswiring of indoor/outdoor unit connecting wire, etc. after power is turned on for 4 minutes. 2. Abnormal if outdoor controller circuit board recognizes excessive number of indoor units. 	 Contact failure or miswiring of indoor/outdoor unit connecting wire Diameter or length of indoor/ outdoor unit connecting wire is out of specified capacity. Excessive number of indoor units are connected to 1 indoor unit. (4 units or more) Defective transmitting receiving circuit of outdoor controller circuit board Defective transmitting receiving circuit of indoor controller board Defective indoor power board 2 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. 	 ① Check disconnection or looseness or polarity of indoor/outdoor unit connecting wire of indoor and outdoor units. ② Check diameter and length of indoor/outdoor unit connecting wire. Total wiring length: 262 ft [80 m] (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. ③ Check the number of indoor units that are connected to one outdoor unit. (If EA is detected) ④ -⑥ Turn the power off once, and on again to check. Replace outdoor controller circuit board, indoor controller board or indoor power board if abnormality occurs again.
Eb (6845)	Miswiring 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 4 minutes after power on because of miswiring (converse wiring or disconnection) of indoor/outdoor unit con- necting wire.	 Contact failure or miswiring 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 board Defective indoor power board 2 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. 	 ⑦ Check if refrigerant addresses (SW1-3 to SW1-6 on outdoor controller circuit board) are overlapping in case of group control system. ⑧ Check transmission path, and remove the cause. Note: The descriptions above, ①-⑧, are for EA, Eb and EC.
EC (6846)	Start-up time over The unit cannot finish start-up process within 4 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. 2 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>

Check code	Abnormal point and detection method	Case	Judgment and action
U1 (1302)	Abnormal point and detection method High pressure (High-pressure switch 63H operated) Abnormal if high-pressure switch 63H worked (*) during compressor operation. *602 PSIG [4.15 MPa] 63H: High-pressure switch	 Short cycle of indoor unit Clogged filter of indoor unit Decreased airflow caused by dirt of indoor fan Dirt of indoor heat exchanger Locked indoor fan motor Malfunction of indoor fan motor Defective operation of stop valve (Not full open) Clogged or broken pipe Locked outdoor fan motor Malfunction of outdoor fan motor Short cycle of outdoor unit Dereased airflow caused by defective inspection of outside temperature thermistor (It detects lower temperature than actual temperature.) Disconnection or contact failure of connector (63H) on outdoor controller board Defective outdoor controller 	 Judgment and action ()-(6) Check indoor unit and repair the defect. () Check if stop valve is fully open. (8) Check piping and repair the defect. (9)-(2) Check outdoor unit and repair the defect. (8) Check the inspected temperature of outside temperature thermistor on LED display. (SW2 on A-Control Service Tool : Refer to "10-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".) (8)-(6) Turn the power off and check F5 is displayed when the power is on again. When F5 is displayed, refer to "Judgment and action" for F5.
		board Defective action of linear expansion valve Malfunction of fan driving circuit	 ⑦ Check linear expansion valve. Refer to "10-6. HOW TO CHECK THE PARTS" and "10-7. HOW TO CHECK THE COMPONENTS". ⑧ Replace outdoor controller board.
U2 (TH32: 1132)	 High discharge temperature High comp. surface temperature (1) Abnormal if discharge temperature thermistor (TH32) exceeds 257°F [125°C] or 230°F [110°C] continuously for 5 minutes. Abnormal if condenser/evaporator temperature thermistor (TH5) exceeds 104°F [40°C] during defrosting and discharge temperature thermistor (TH32) exceeds 230°F [110°C]. (2) Abnormal if discharge superheat (Cooling: TH32–TH5 Heating: TH32–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=""></condition> Heating mode When discharge superheat is less than 126°F [70°C]. When the TH6 temp is more than the value obtained by TH7–9°F [5°C]. When the condensing temp of TH5 is less than 95°F [35°C]. <condition b=""></condition> During comp. operation (Cooling and Heating) When discharge superheat is less than 144°F [80°C] in cooling. When discharge superheat is less than 144°F [80°C] in cooling. When discharge superheat is less than 144°F [80°C] in cooling. When condensing temp of TH6 is more than -40°F [-40°C] (In cooling only). 	 ① Overheated compressor operation caused by shortage of refrigerant ② Defective operation of stop valve ③ Defective thermistor ④ Defective outdoor controller board ⑤ Defective action of linear expansion valve 	 ① Check intake superheat. Check leakage of refrigerant. ② Check if stop valve is fully open. ③ ① Turn the power off and check if U3 is displayed when the power is on again. When U3 is displayed, refer to "Judgment and action" for U3. ③ Check linear expansion valve. Refer to "10-6. HOW TO CHECK THE PARTS" and "10-7. HOW TO CHECK THE COMPONENTS".

Check code	Abnorma	al point and detection method	Case		Judg	ment and action
U3 (5104)	temperatur Abnormal if short (422°F during comp (Detection is of compress minutes afte	t circuit of outdoor unit e thermistor (TH32) open (37°F [3°C] or less) or E [217°C] or more) is detected pressor operation. s inoperative for 10 minutes sor starting process and for 10 er and during defrosting.) mistor <comp. surface=""></comp.>	 Disconnection or contact from from the outdoor controller circle board Defective thermistor Defective outdoor controller circle circuit board 	uit	outdoor controlle ing of the lead w TEST POINT DI © Check resistanc temperature by (Thermistor/TH: CHECK THE P Service Tool: R	e value of TH32 or microprocessor. 32: Refer to "10-6. HOW TO ARTS".) (SW2 on A-Control efer to "10-10. FUNCTION 5, CONNECTORS AND
U4 (TH3:5105) (TH6:5107) (TH7:5106) (TH8:5110) (TH33:5133)	(TH3, TH6, Abnormal if during comp Open detect TH6 is inope minutes afte minutes afte Note: Checc its th of SV "10-1	c of outdoor unit thermistors TH7, TH8 and TH33) open or short is detected oressor operation. tion of thermistors TH3 and erative for 10 seconds to 10 er compressor starting and 10 er and during defrosting. k which unit has abnormality in ermistor by switching the mode N2. (PAC-SK52ST) (Refer to 10. FUNCTION OF SWITCHES, INECTORS AND JUMPERS".)	 Disconnection or contact fa of connectors Outdoor controller circuit board: TH3,TH6/TH7, TH3 Outdoor power circuit boar CN3 Defective thermistor Defective outdoor controlle circuit board 	83 rd:	TH33) on the ou Check connection outdoor power of Check breaking tor (TH3,TH6,TH 9. TEST POINT © Check resistance (TH3,TH6,TH7, perature by mic (Thermistor / TH3 to "10-6. HOW (SW2 on A-Con to "10-10. FUNC CONNECTORS ③ Replace outdoo Note: Emergency of abnorma	of the lead wire for thermis- 17,TH8, TH33). Refer to "10- DIAGRAM". evalue of thermistor TH8, TH33) or check tem- roprocessor. 8, TH6, TH7, TH8, TH33 : Refer TO CHECK THE PARTS".) trol Service Tool: Refer CTION OF SWITCHES, 6 AND JUMPERS".) r controller circuit board. operation is available in case ulities of TH3, TH6, TH7 and er to "10-8. EMERGENCY
	Cumhal	Thermistors		С	Open detection	Short detection
	Symbol TH3	Nan Thermistor			F[−50°C] or below	194°F [90°C] or above
	TH6	Thermistor <2-	phase pipe>	−58°	F [−50°C] or below	194°F [90°C] or above
	TH7	Thermistor <			F [-50°C] or below	194°F [90°C] or above
	TH8 TH33	Thermistor <			F [−48°C] or below F [−50°C] or below	216°F [102℃] or above 194°F [90℃] or above
U5 (4230)	Abnormal if heat sink thermistor (TH8) detects temperature indicated below. A12, 18, 42N		temperature rise (Upper limit of a [46°C].) Turn off power, a is displayed with If U4 is displaye action to be take © Check resistand or temperature B (Thermistor/TH8 CHECK THE PA (SW2 on A-Com to "10-10. FUNC CONNECTORS © Replace outdoo	ath for cooling. a something which causes a around outdoor unit. mbient temperature is 114°F and on again to check if U5 in 30 minutes. d instead of U5, follow the en for U4. the value of thermistor (TH8) by microprocessor. B: Refer to "10-6. HOW TO		
	in case over	ule rmality by driving power module current is detected. rror condition)	 Outdoor stop valve is close Decrease of power supply v Looseness, disconnection converse of compressor w connection Defective compressor Defective outdoor power c board 	oltage or viring	 Open stop valve Check facility of Correct the wirir compressor. Ref DIAGRAM" (Out Check compress TO CHECK THE 	power supply. ng (U·V·W phase) to fer to "10-9. TEST POINT door power circuit board). sor referring to "10-6. HOW

Check code		rmal point and detection method	Case	Judgment and action
U8 (4400)	 Outdoor fan motor Abnormal if the rotational frequency of fan motor is not detected during DC fan motor operation. Fan motor rotational frequency is abnormal if; 100 rpm or below detected continuously for 15 seconds at 68°F [20°C] or more outside air temperature. 50 rpm or below or 1500 rpm or more detected continuously for 1 minute. 		 Failure in the operation of the DC fan motor Failure in the outdoor circuit controller board 	 Check or replace DC fan motor. Check the voltage of the outdoor circuit controller board during operation. Replace outdoor controller circuit board. (when the failure is still indicated even after performing the action ① above.)
	Detailed codes		st) about U9 error, turn ON SW2-1, 2 SWITCHES, CONNECTORS AND JL	
	01	Overvoltage error • Increase in DC bus voltage to A12, 18, 24N: 420 V A30, 36, 42N: 400 V	 Abnormal increase in power source voltage Disconnection of compressor wiring Defective outdoor power circuit board Compressor has a ground fault. 	 Check the field facility for the power supply. Correct the wiring (U-V-W phase) to compressor. Refer to "10-9. TEST POINT DIAGRAM" (Outdoor power circuit board). Replace outdoor power circuit board. Check compressor for electrical insulation. Replace compressor.
	02	Undervoltage error • Instantaneous decrease in DC bus voltage to 200 V	 Decrease in power source voltage, instantaneous stop. Disconnection or loose connection of CN52C on the outdoor power circuit board/ controller circuit board Defective converter drive circuit in outdoor power circuit board Defective 52C drive circuit in outdoor power circuit board Defective 52C drive circuit in outdoor power circuit board Disconnection or loose connection of CN2 on the outdoor power circuit board / controller circuit board Power circuit failure on DC supply for 18 V DC output on outdoor controller circuit board 	 Check the field facility for the power supply Check CN52C wiring. Replace outdoor power circuit board. Replace outdoor power circuit board. Check CN2 wiring. Replace outdoor controller circuit board.
U9 (4220)	04	Input current sensor error/ L1-phase open error • Decrease in input current through outdoor unit to 0.1 A only if operation frequency is more than or equal to 40 Hz or compressor current is more than or equal to 6 A.	 Defective input current detection circuit in outdoor power circuit board Defective outdoor controller circuit board 	 Replace outdoor power circuit board. Replace outdoor controller circuit board.
	08	Abnormal power synchronous signal • No input of power synchronous signal to power circuit board • Power synchronous signal of 44 Hz or less, or 65 Hz or more is detected on power circuit board.	 Disconnection or loose connection of earth wiring Defective power synchronous signal circuit in outdoor controller circuit board Defective power synchronous signal circuit in outdoor power circuit board 	 Check earth wiring. Replace outdoor controller circuit board. Replace outdoor power circuit board.
	10	 PFC error (Overvoltage/ Undervoltage/Overcurrent) (A12–24N only) PFC detected any of the following: a) Increase of DC bus voltage to 420 V. b) Decrease in PFC control voltage to 12 V DC or lower. c) Increase in input current to 47 A peak. 	 Distortion of power source voltage, noise superimposition Disconnection or loose connection of CN2 on the outdoor power circuit board/controller circuit board Defective PFC module of outdoor power circuit board 	 Check the field facility for the power supply. Check CN2 wiring. Replace outdoor power circuit board.

Check Code	Abnorm	al point and detection method	Case	Judgment and action
U9 (4220)	Detailed codes 20	 PFC/IGBT error (Undervoltage) When compressor is running, DC bus voltage stays at 310 V or lower for consecutive 10 seconds 	 Incorrect switch settings on the outdoor controller circuit board for model select Defective outdoor power circuit board Defective outdoor controller circuit board 	 ① Correction of a model select ② Replace outdoor power circuit board. ③ Replace outdoor controller circuit board.
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 board DIP Switch setting for selecting model is incorrect on the outdoor power circuit board. 	 Open stop valve. Check facility of power supply. Correct the wiring (U·V·W phase) to compressor. Refer to "10-9. TEST POINT DIAGRAM".(Outdoor power circuit board). Check compressor. Refer to "10-6. HOW TO CHECK THE PARTS". Replace outdoor power circuit board. Check that the DIP Switch setting is cor- rect on the outdoor power circuit board by referring to "Model Select" in "1) Function of switches" in "10-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS".
UH (5300)	It is abno	ensor error ormal for 38A the input current or nds continuous 34A or more.	 Defective circuit of current sensor on outdoor power circuit board Decrease of power supply voltage 	 Replace outdoor power circuit board. Check the facility of power supply.
	Abnormal [-0.03 MP	low pressure (63L worked) if 63L is worked (under -4 PSIG a]) during compressor operation. pressure switch y)	 Stop valve of outdoor unit is closed during operation. Disconnection or loose connec- tion of connector (63L) on outdoor controller board Disconnection or loose connection of 63L Defective outdoor controller board Leakage or shortage of refrigerant Malfunction of linear expansion valve 	 Check stop valve. Turn 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 "10-6. HOW TO CHECK THE PARTS".
	Abnormal pressor is	sor overcurrent interruption if overcurrent DC bus or com- detected after compressor starts for 30 seconds.	 Stop valve of outdoor unit is closed. Decrease of power supply voltage Looseness, disconnection or converse of compressor wiring connection Defective fan of indoor/outdoor units Short cycle of indoor/outdoor units Defective input circuit of outdoor controller board Defective compressor 	 ① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U·V·W phase) to compressor. Refer to "10-9. TEST POINT DIAGRAM" (Outdoor power circuit board). ④ Check indoor/outdoor fan. ⑤ Solve short cycle. ⑥ Replace outdoor controller circuit board. ⑦ Check compressor. Refer to "10-6. HOW TO CHECK THE PARTS". Note: 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.

Check code	Abnormal point and detection method	Case	Judgment and action
E0 or E4 (6831, 6834)	 Remote controller transmission error (E0)/signal receiving error (E4) Abnormal if main or sub remote controller cannot receive normally any transmission from indoor unit of refrigerant address "0" for 3 minutes. (Check code : E0) Abnormal if sub-remote controller could not receive for any signal for 2 minutes. (Check code: E0) Abnormal if indoor controller board cannot receive any data normally from remote controller board or from other indoor controller board for 3 minutes. (Check code: E4) Indoor controller board cannot receive any signal from remote controller board for 3 minutes. (Check code: E4) 	 Contact failure at transmission wire of remote controller All remote controllers are set as "sub" remote controller. In this case, E0 is displayed on remote controller, and E4 is displayed at LED (LED1, LED2) on the outdoor controller circuit board. Miswiring of remote controller Defective transmitting receiving circuit of remote controller Defective transmitting receiving circuit of indoor controller board of refrigerant address "0". Noise has entered into the transmission wire of remote controller. 	 Check disconnection or looseness of indoor unit or transmission wire of remote controller. Set one of the remote controllers "main". If there is no problem with the action above. Check wiring of remote controller. Total wiring length: max. 500 m [1640ft] (Do not use cable × 3 or more.) The number of connecting indoor units: max. 16 units The number of connecting remote controller: max. 2 units If the cause of trouble is not in above ①-③, Diagnose remote controllers. a) When "RC OK" is displayed, remote controllers have no problem. Turn the power off, and on again to check. If abnormality generates again, replace indoor controller. b) When "RC NG" is displayed, replace remote controller. c) When "RC CS" is displayed, replace remote controller. c) When "RC CG" is displayed, replace remote controller. d) When "RC NG" is displayed, replace remote controller. f) When "RC CG" is displayed, replace remote controller. f) When "RC CG" is displayed, replace remote controller. f) When "RC CG" is displayed, replace remote controller. f) When "RC CG" is displayed, replace remote controller. f) When "RC CG" is displayed, replace remote controller. f) When "RC CG" is displayed, replace remote controller.
E1 or E2	Remote controller control board ① Abnormal if data cannot be normally read from the nonvolatile memory of the remote controller control board. (Check code: E1)	① Defective remote controller	① Replace remote controller.
(6832, 6833)	② Abnormal if the clock function of remote controller cannot be normally operated. (Check code: E2)		
E3 or E5	 Remote controller transmission error (E3)/ signal receiving error (E5) Abnormal if remote controller could not find blank of transmission path for 6 seconds and could not transmit. (Check code: E3) Remote controller receives transmitted data at the same time, compares the data, and when detecting it, judges different data to be abnormal 30 continuous times. (Check code: E3) Abnormal if indoor controller board could not find blank of transmission path. (Check code: E5) Indoor controller board receives transmitted data at the same time, compares the data, and when detecting it, judges different data to be abnormal 30 continuous times. (Check code: E5) 	 2 remote controller are set as "main." (In case of 2 remote controllers) Remote controller is connected with 2 indoor units or more. Repetition of refrigerant address Defective transmitting receiving circuit of remote controller Defective transmitting receiving circuit of indoor controller board Noise has entered into transmission wire of remote controller. 	 ③ Set a remote controller to main, and the other to sub. ② Remote controller is connected with only one indoor unit. ③ The address changes to a separate setting. ④ ● ⑥ Diagnose remote controller. a) When "RC OK" is displayed, remote controllers have no problem. Turn the power off, and on again to check. When becoming abnormal again, replace indoor controller 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.
E6 (6840)	 Indoor/outdoor unit communication error (Signal receiving error) Abnormal if indoor controller board could not receive any signal normally for 6 minutes after turning the power on. Abnormal if indoor controller board could not receive any signal normally for 3 minutes. Consider the unit as abnormal under the following condition; When 2 or more indoor units are connected to an out- door unit, indoor controller board could not receive a signal for 3 minutes from outdoor controller circuit board, a signal which allows outdoor controller circuit board to transmit signals. 	 Contact failure, short circuit or miswiring (converse wiring) of indoor/outdoor unit connecting wire Defective transmitting receiv- ing circuit of outdoor controller circuit board Defective transmitting receiving circuit of indoor controller board Noise has entered into indoor/ outdoor unit connecting wire. Defective fan motor Defective rush current resistor 	 Note: Check LED display on outdoor controller circuit board. (Connect A-Control service tool (PAC-SG50ST)) Refer to EA–EC item if LED displays EA–AC. ① Check disconnecting or looseness of indoor/outdoor unit connecting wire of indoor unit or outdoor unit. Check all the units in case of twin indoor unit system. ② —④ Turn the power off, and on again to check. If abnormality generates again, replace indoor controller board or outdoor controller circuit board. ⑤ Turn the power off, and detach fan motor from connector (CNF1,2). Then turn the power on again. If abnormality is displayed, replace fan motor. If abnormality is displayed, replace fan motor. ⑥ Check RS1 on outdoor noise filter board with tester. If open is detected, replace the board. Note: Other indoor controller board may have defect in case of twin indoor unit system.

Check code	Abnormal point and detection method	Case	Judgment and action
E8 (6840)	 Indoor/outdoor unit communication error (Signal receiving error) (Outdoor unit) (1) Abnormal if outdoor controller circuit board could not receive anything nor- mally for 3 minutes. 	 Contact failure of indoor/out- door unit connecting wire Defective communication circuit of outdoor controller circuit board Defective communication circuit of indoor controller board Noise has entered into indoor/ outdoor unit connecting wire. 	 ① Check disconnection or looseness of indoor/ outdoor unit connecting wire of indoor or out- door units. ②-④ Turn the power off, and on again to check. Replace indoor controller 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 3 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. 	 ① Check disconnection or looseness of indoor/ outdoor unit connecting wire. ②-④ Turn the power off, and on again to check. Replace outdoor controller circuit board if abnormality is displayed again.
EF (6607 or 6608)	Non defined check code This code is displayed when non defined check code is received.	 Noise has entered transmission wire of remote controller. Noise has entered indoor/out- door unit connecting wire. Outdoor unit is not a power- inverter models. 	 10 Turn the power off, and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality is displayed again. 31 Replace outdoor unit with power-inverter type outdoor unit.
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 	 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.
	2. 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 control- ler circuit board (CNMNT) and M-NET board (CN5). Check disconnection, looseness, or breaking of connection wire between outdoor control- ler circuit board (CNMNT) and M-NET board (CND). Check M-NET transmission wiring method.

Check code	Abnormal point and detection method	Case	Judgment and action
P8	 Pipe temperature <cooling mode=""></cooling> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes after compressor start and 6 minutes after the liquid or condenser/evaporator pipe is out of cooling range. Note 1: It takes at least 9 minutes to detect. Note 2: Abnormality P8 is not detected in drying mode. Cooling range: Indoor pipe temperature (TH2 or TH5) – intake temperature (TH1) ≤ -5.4°F [-3°C] TH: Lower temperature between liquid pipe temperature and condenser/evaporator temperature <heating mode=""></heating> 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: 5.4°F [3°C] ≤ (Condenser/evaporator temperature (TH5) – intake temperature (TH1)) 	 evaporator> thermistor 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 2 Temperature display of indoor liquid pipe Indoor 2 Temperature display of indoor liquid pipe Indoor 2 A-Control Service Tool SW2 setting Check converse connection of extension pipe or converse wiring of indoor/outdoor unit connecting wire.

<M-NET communication error>

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

Check Code	Abnormal point 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 detected. Note: The address and attribute displayed at remote controller indicate the controller that detected abnormality.	 There are 2 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 abnormali ty occurred. If the same address is found, turn of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more after the address is corrected, and turn the power on again. Check transmission waveform or noise on transmission wire.
A2 (6602)	Hardware error of transmission processor Transmission processor intended to transmit "0", but "1" appeared on transmission wire. Note: The address and attribute display at remote controller indicate the controller that detected abnormality.	 Error is detected if waveform 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, turn off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more, and turn the power on again. Check transmission waveform or noise on transmission wire.
A3 (6603)	 BUS BUSY 1. Overtime error by collision damage Abnormal if transmitting signal 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, etc. Note: The address and attribute displayed at remote controller indicate the con- troller that detected abnormality. 	 Transmission processor could not transmit signal because short cycle voltage of noise and the like have entered into transmis- sion 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. 	 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 wire of indoor unit, FRESH MASTER or LOSSNAY is not con- nected to terminal block for transmission wire of outdoor unit.
		③ 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.	 ③ Check if terminal block for transmission wire (TB3) and terminal block for central control (TB7) are not connected. ④ Check transmission waveform or noise on transmission wire.

Check code	Abnormal point 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 lightning surge. Address forwarding from unit processor is not transmitted normally because of defective transmission processor hardware. 	Turn off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more, and turn the power on again. System returns to normal if abnormality was accidental malfunc- tion. 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 mes- sage was received. Transmitting side detects abnormality every 30 seconds, 6 times continuously. Note: The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK). 2. If displayed address or attribute is out- door unit, Indoor unit detects abnormality when indoor unit transmitted to outdoor unit and there was no reply (ACK). 	Common factor that has no rela- tion with abnormality source. (1) The unit of former address does not exist as address switch has changed while the unit was energized. (2) Extinction of transmission wire voltage and signal is caused by over-range transmission wire. • Maximum distance 656 ft [200 m] • Remote controller line (39ft [12 m]) (3) Extinction of transmission wire voltage and signal is caused by type-unmatched transmission wire. Type With shield wire- CVVS, CPEVS With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT Diameter1.25 mm ² [AWG16] or more (4) Extinction of transmission wire voltage and signal is caused by over-numbered units. (5) Accidental malfunction of abnormality-detected controller (noise, lightning surge) (6) Defective of abnormality gen- erated controller (1) Contact failure of transmission wire of outdoor unit or indoor unit (2) Defective transmitting receiving	 Always try the followings when the error "A7" occurs. ① Turn off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more, and turn 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 the cause of trouble is in ①–⑤ above, repair the defective, then turn off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more, and turn the power on again. If the cause of trouble is not in ①–⑤ above in single refrigerant system (one outdoor unit), controller of displayed address or attribute is defective. If the cause of trouble is not in ①–⑤ above in single refrigerant system (2 or more outdoor units), judge with ⑥. ⑥ 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 LOSSNAY are connected to, or the system
	3. If displayed address or attribute is indoor unit, remote controller detects abnormal- ity when remote controller transmitted to indoor unit and there was no reply (ACK).	 Derective transmitting receiving 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 turned off or within 2 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 receiving circuit of indoor unit or remote controller 	that is equipped with group setting of differ- ent refrigerant system. If the cause of trouble is not any of $O-6$ above, replace the controller board of displayed address or attribute. If the unit does not return to normal, multi-con- troller board of outdoor unit may be defective (repeater circuit). Replace multi-controller board one by one to check if the unit returns to normal.

Check code	Abnormal point and detection method	Case	Judgment and action
	4. If displayed address or attribute is remote controller, Indoor unit detects abnormality when indoor unit transmitted to remote control- ler 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 turned off or within 2 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 receiving circuit of indoor unit or remote controller 	Same as mentioned in "A7" of the previous page.
47	5. If displayed address or attribute is FRESH MASTER, Indoor unit detects abnormality when indoor unit transmitted to FRESH MASTER and there was no reply (ACK).	 During sequential operation of indoor unit and FRESH MASTER of other refrigerant system, if indoor unit transmits to FRESH MASTER while outdoor unit power supply of same refrigerant system with FRESH MASTER is turned off or within 2 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 receiving circuit of indoor unit or FRESH MASTER 	
A7 (6607)	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 LOSSNAY is turned 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 LOSSNAY while outdoor unit power supply of same refrig- erant system with LOSSNAY is turned off or within 2 min- utes of restart, abnormality is detected. Contact failure of transmis- sion wire of indoor unit of LOSSNAY 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 non- existent,	 The unit of former address does not exist as address switch has changed while the unit was energized. Abnormality is detected when indoor unit transmit- ted because the address of FRESH MASTER and LOSSNAY are changed after sequential operation of FRESH MASTER and LOSSNAY by remote controller. 	

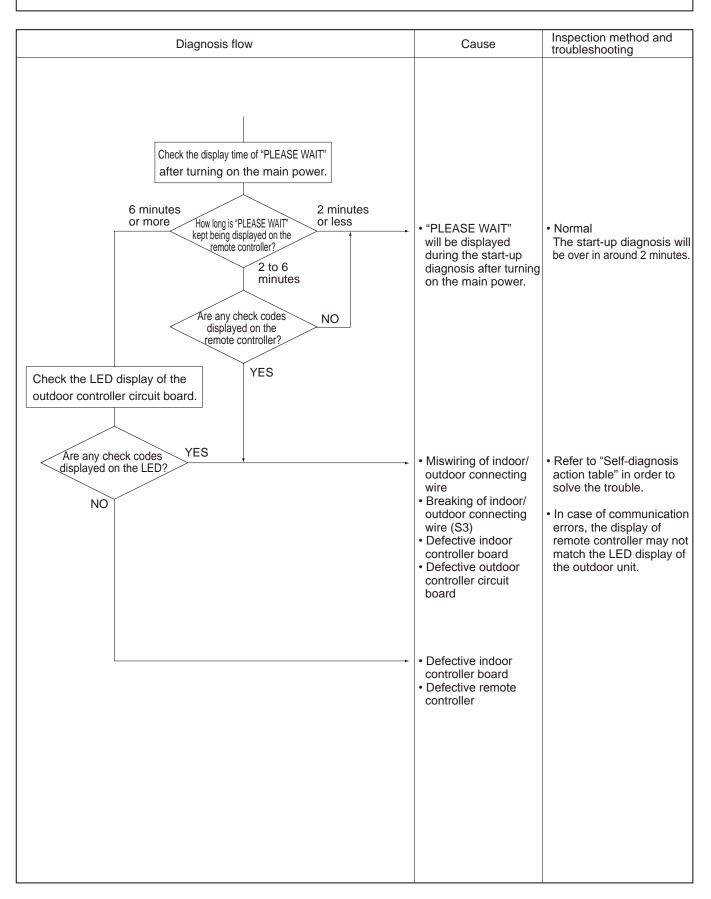
Check code	Abnormal point and detection method	Case	Judgment and action
A8 (6608)	M-NET NO RESPONSE Abnormal if a message was transmitted and there were reply (ACK) that message was received, but response command does not return. Transmitting side detects abnormality every 30 seconds, 6 times continuously. Note: The address and attribute displayed at remote controller indicate the con- troller 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 distance 656 ft [200 m] Remote controller line(39 ft [12 m]) 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 Diameter1.25 mm² [AWG16] or more Accidental malfunction of abnormality-generated controller 	 Check transmission waveform or noise on transmission wire. Turn off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for 2 minutes or more, and turn 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.

10-5. TROUBLESHOOTING OF PROBLEMS

Phenomena	Factor	Countermeasure
1. Remote controller display does not work.	 12 V DC is not supplied to remote controller. (Power supply display) is not indicated on LCD.) 12–15 V DC is supplied to remote controller, however, no display is indicated. "PLEASE WAIT" is not displayed. "PLEASE WAIT" is displayed. 	 Ocheck LED2 on indoor controller 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 phenomena No.3 below. (2) Check the following. Failure of remote controller if "PLEASE WAIT" is not displayed Refer to phenomena No.2 below if "PLEASE WAIT" is displayed.
2. "PLEASE WAIT" display is remained on the remote controller.	 ① At longest 2 minutes after the power supply "PLEASE WAIT" is displayed to start up. ② Communication error between the remote controller and indoor unit ③ Communication error between the indoor and out-door unit ④ Outdoor unit protection device connector is open. 	 Normal operation Self-diagnosis of remote controller "PLEASE WAIT" is displayed for 6 minutes at most in case of indoor/outdoor unit communication error. Check LED3 on indoor controller board. When LED3 is not blinking. Check indoor/outdoor connecting wire for miswiring. (Converse wiring of S1 and S2, or break of S3 wiring.) When LED3 is blinking. Indoor/outdoor connecting wire is normal. Check LED display on outdoor controller circuit board. Refer to "10-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS". Check protection device connector (63L and 63H) for contact failure. Refer to "10-9. TEST POINT DIAGRAM".
3. When pressing the remote controller operation switch the OPERATION display is appeared but it will be turned off soon.	① After cancelling to select function from the remote controller, the remote controller operation switch will not be accepted for approx. 30 seconds.	① Normal operation

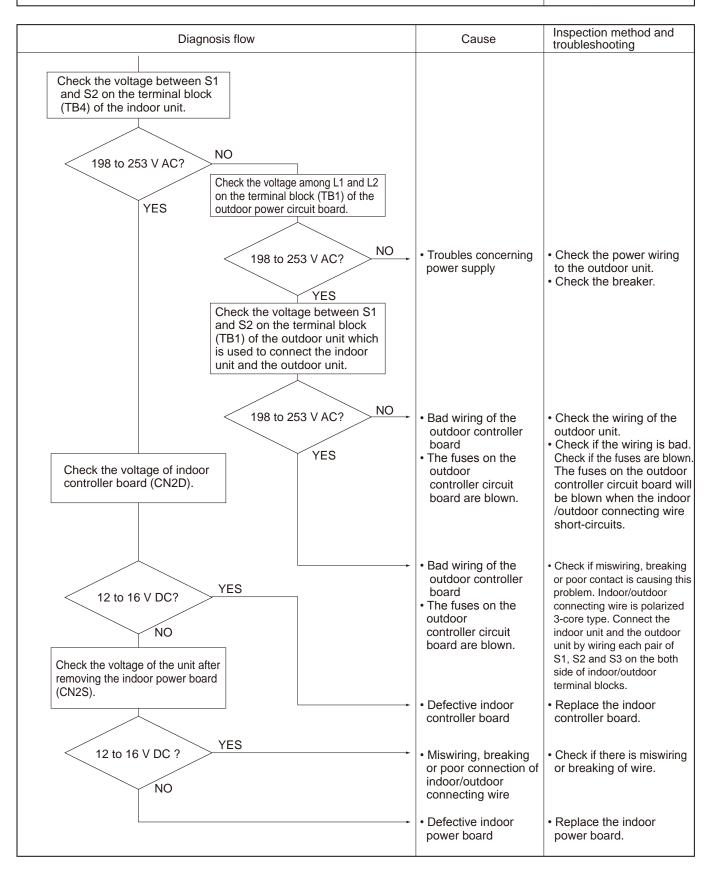
Phenomena	Factor	Countermeasure
4. Even controlling by the IR wireless remote controller no beep is heard and the unit does not start operat- ing. Operation display is indicated on IR wireless remote controller.	① The pair number settings of the IR wireless remote controller and indoor controller board are mismatched.	① Check the pair number settings.
5. When operating by the IR wireless remote controller, beep sound is	① No operation for 2 minutes at most after the power supply ON.	① Normal operation
heard, however, unit does not start operating.	 ② Hand-held remote controller operation is prohibited. Remote controlling adaptor is connected to CN32 on the indoor controller board. Hand-held remote controller operation is prohibited by centralized controller etc. since it is connected to MELANS. 	② Normal operation
	③ Refer to factor of phenomena No.2 on previous page.	③ Check the details of phenomena No.2 on previous page.
6. Remote controller display works normally and the unit performs cool- ing operation, however, the capacity cannot be fully obtained. (The air does not cool well.)	 ⑦ Refrigerant shortage ⑧ Filter clogging 	 If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. Check pipe connections for gas leakage. ② Open intake grille and check the filter.
	③ Heat exchanger clogging	Clean the filter by removing dirt or dust on it. ③ 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.
	④ Air duct short cycle	④ Remove the blockage.
 Remote controller display works normally and the unit performs heat- ing operation, however, the capacity cannot be fully obtained. 	 ① Linear expansion valve fault Opening cannot be adjusted well due to linear expansion valve fault. ② Refrigerant shortage 	 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 tempera-
	 ③ Lack of insulation for refrigerant piping ④ Filter clogging 	 ture and opening. Check pipe connections for gas leakage. Check the insulation. Open intake grill and check the filter. Clear the filter by removing dirt or dust on it. If the filter is clogged, indoor pipe tem-
	⑤ Heat exchanger clogging	perature rises and discharging pressure increases. Check if heat exchanger is clogged by inspecting discharging pres- sure. Clean the heat exchanger.
	 ⑥ Air duct short cycle ⑦ Bypass circuit of outdoor unit fault 	 ® Remove the blockage. ⑦ Check refrigerant system during operation.
 8. Tor 3 minutes after temperature adjuster turns off, the compressor will not start operating even if temperature adjuster is turned on. (a) For 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.) 	①② Normal operation (For protection of compressor)	①② Normal operation

Symptoms: "PLEASE WAIT" is kept being displayed on the remote controller.



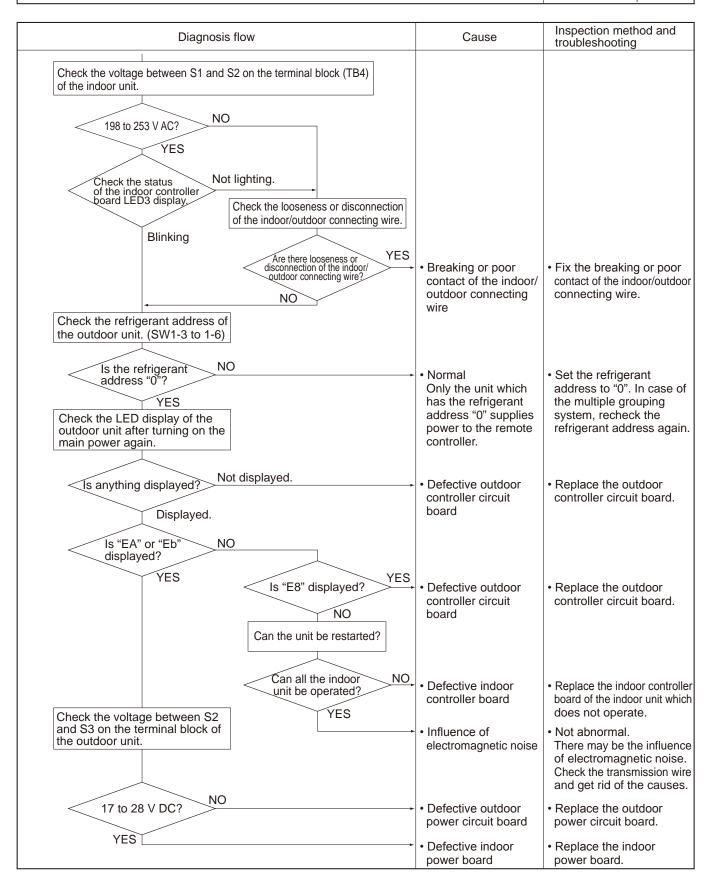
Symptoms: Nothing is displayed on the remote controller. ①

LED display of the indoor controller board LED1 : _____ LED2 : _____ LED3 : ___

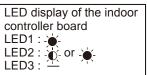


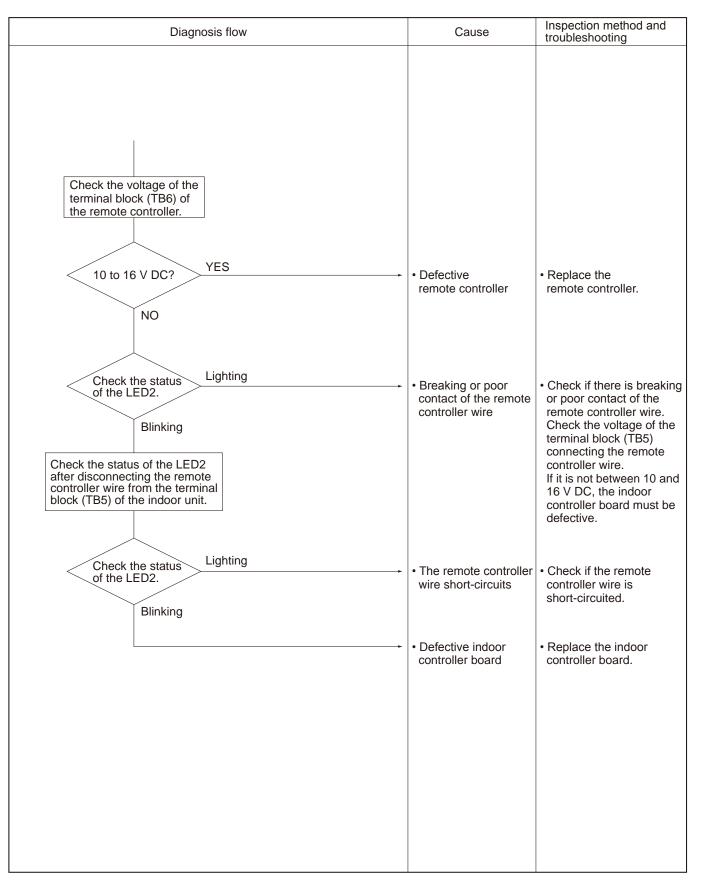
Symptoms: Nothing is displayed on the remote controller. 2

LED display of the indoor controller board LED1 : -⊶-LED2 : ⊖ LED3 : ⊖ or -☆-



Symptoms: Nothing is displayed on the remote controller. ③





Before repair Frequent calling from customers

	one Calls From Customers	How to Respond	Note
Unit does not operate at all.	① The operating display of remote controller does not come on.	 Check if power is supplied to air conditioner. Nothing appears on the display unless power is supplied. 	
	② Unit cannot be restarted for a while after it's stopped.	② Wait around 3 minutes to restart unit. The air conditioner is in a state of being protected by the microprocessor's directive. Once the compressor is stopped, the unit cannot be restarted for 3 minutes. This control is also applied when the unit is turned on and off by remote controller or thermostat.	
	③ Check code appears and blinks on the display of remote controller.	 ③ Check code will be displayed if any protection devices of the air conditioner are actuated. What is check code? 	Refer to "SELF-DIAGNOSIS ACTION TABLE". → Check if servicing is required for the error.
Remote controller	① "PLEASE WAIT" is displayed on the screen.	 Wait around 2 minutes. An automatic startup test will be conducted for 2 minutes when power is supplied to the air conditioner. "PLEASE WAIT" will be kept being displayed while that time. 	
	② "FILTER" is displayed on the screen.	 This indicates that it is time to clean the air filters. Clean the air filters. Press the FILTER button on the remote controller twice to clear "FILTER" from the display. See the operation manual that came with the product for how to clean the filters. 	Display time of "FILTER" depends on the model. Long life filter: 2500 hrs. Standard filter: 100 hrs.
	③ "STANDBY" is displayed on the screen.	③ This is displayed when the unit starts HEAT operation, when the thermostat puts the compressor in operation mode, or when the outdoor unit ends DEFROST operation and returns to HEAT operation. The display will automatically disappear around 10 minutes later. While "STANDBY" is displayed on the remote controller, the airflow amount will be restricted because the indoor unit's heat exchanger is not fully heated up. In addition to that, the up/down vane will be automatically set to horizontal blow in order to prevent cold air from directly blowing out to human body. The up/down vane will return to the setting specified by the remote controller when "STANDBY" is released.	
	④ "DEFROST" is displayed on the screen. (No air comes out of the unit.)	 The outdoor unit gets frosted when the outside temperature is low and the humidity is high. "DEFROST" indicates the DEFROST operation is being performed to melt this frost. The DEFROST operation ends in around 10 minutes (at most 15 minutes). During the DEFROST operation, the indoor unit's heat exchanger becomes cold, so the blower is stopped. The up/down vane will be automatically set to horizontal blow in order to prevent cold air from directly blowing out to human body. The display will turn into "STANDBY" when DEFROST operation ends. 	

	one Calls From Customers	How to Respond	Note
The room cannot be cooled or heated sufficiently.		The outdoor unit cannot be operated if the set temperature is not appropriate. The outdoor unit operates in the following modes. COOL: When the set temperature is lower than the room temperature. HEAT: When the set temperature is higher than the room temperature.	
		② Check if filters are not dirty and clogged. If filters are clogged, the airflow amount will be reduced and the unit capacity will be lowered. See the instruction manual that came with the product for how to clean the filters.	
		 ③ Check there is enough space around the air conditioner. If there are any obstacles in the air intake or air outlet of indoor/outdoor units, they block the airflow direction so that the unit capacity will be lowered. 	
Sound comes out from the air conditioner.		 This is not a malfunction. This is the sound which is heard when the flow of refrigerant in the air conditioner is switched. 	
	② A cracking sound is heard sometimes.	② This is not a malfunction. This is the sound which is heard when internal parts of units expand or contract when the temperature changes.	
	③ A buzzing sound is heard sometimes.	③ This is not a malfunction. This is the sound which is heard when the outdoor unit starts operating.	
	④ A ticking sound is heard from the outdoor unit sometimes.	④ This is not a malfunction. This is the sound which is heard when the fan of the outdoor unit is controlling the airflow amount in order to keep the optimum operating condition.	
	⑤ A sound, similar to water flowing, is heard from the unit.	⑤ This is not a malfunction. This is the sound which is heard when the refrigerant is flowing inside the indoor unit.	
Something is wrong with the blower	 The fan speed does not match the setting of the remote controller during DRY operation.(No air comes out sometimes during DRY operation.) 	① This is not a malfunction. During the DRY operation, the blower's ON/OFF is controlled by the microprocessor to prevent overcooling and to ensure efficient dehumidification. The fan speed cannot be set by the remote controller during DRY operation.	
	② The fan speed does not match the setting of the remote controller in HEAT operation.	 ② This is not a malfunction. 1) When the HEAT operation starts, to prevent the unit from blowing cold air, the fan speed is gradually increased from 0 to the set speed, in proportion to the temperature rise of the discharged air. 2) When the room temperature reaches the set temperature and the outdoor unit stops, the unit starts the LOW AIR operation. 3) During the HEAT operation, the DEFROST operation is performed to defrost the outdoor unit. During the DEFROST operation, the fan is stopped to prevent cold air coming out of the indoor unit. 	The up/down vane will be automatically set to horizontal blow in these cases listed up on the left (1)-3)). After a while, the up/down vane will be automatically moved according to the setting of the remote controller.

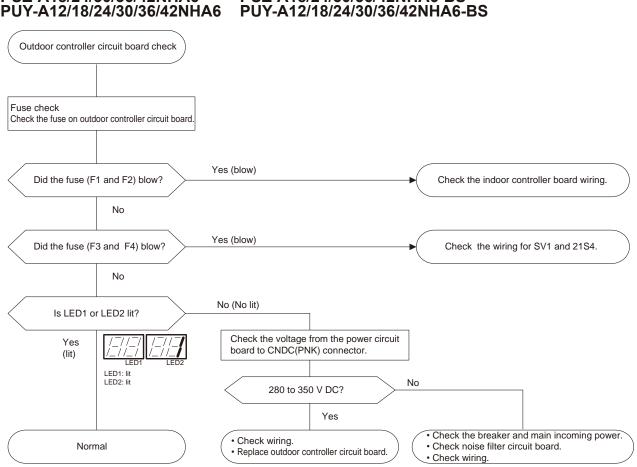
Pho	one Calls From Customers	How to Respond	Note
Something is wrong with the blower	③ Air blows out for a while after HEAT operation is stopped.	 ③ This is not a malfunction. The blower is operating just for cooling down the heated-up air conditioner. This will be done within 1 minute. This control is conducted only when the HEAT operation is stopped with the electric heater ON. 	However, this control is also applied to the models which has no electric heater.
Something is wrong with the airflow direction	① The airflow direction is changed during COOL operation.	 If the up/down vane is set to downward in COOL operation, it will be automatically set to horizontal blow by the microprocessor in order to prevent water from dropping down. "1 Hr." will be displayed on the remote controller if the up/down vane is set to downward with the fan speed set to be less than "LOW". 	
	 The airflow direction is changed during HEAT operation. (The airflow direction cannot be set by remote controller.) 	 In HEAT operation, the up/down vane is automatically controlled according to the temperature of the indoor unit's heat exchanger. In the following cases written below, the up/down vane will be set to horizontal blow, and the setting cannot be changed by remote controller. 1) At the beginning of the HEAT operation 2) While the outdoor unit is being stopped by thermostat or when the outdoor unit gets started to operate. 3) During DEFROST operation The airflow direction will be back to the setting of remote controller when the above situations are released. 	"STANDBY" will be displayed on the remote controller in case of 1) and 2). "DEFROST" will be displayed on the screen in case of 3).
	 ③ The airflow direction does not change. (Up/down vane, left/right louver) 	 3 1) Check if the vane is set to a fixed position. (Check if the vane motor connector is removed.) 2) Check if the air conditioner has a function for switching the air direction. 3) If the air conditioner doesn't have that function, "NOT AVAILABLE" will be displayed on the remote controller when "AIR DIRECTION" or "LOUVER" button is pressed. 	
	ditioner starts operating even though on the remote controller are not	 Check if you set ON/OFF timer. The air conditioner starts operating at the time designated if ON timer has been set before. 	
		② Check if any operations are ordered by distant control system or the central remote controller. While "CENTRALLY CONTROLLED INDICATOR" is displayed on the remote controller, the air conditioner is under the control of external directive.	There might be a case that "CENTRALLY CONTROLLED INDICATOR" will not be displayed.
		 ③ Check if power is recovered from power failure (black out). The units will automatically start operating when power is recovered after power failure (black out) occurs. This function is called "auto recovery feature from power ". 	
	ditioner stops even though any he remote controller are not pressed.	 Check if you set ON/OFF timer. The air conditioner stops operating at the time designated if OFF timer has been set before. Check if any operations are ordered by distant control system or the central remote controller. While "CENTRALLY CONTROLLED INDICATOR" is displayed on the remote controller, the air conditioner is under the control of external directive. 	There might be a case that "CENTRALLY CONTROLLED INDICATOR will not be displayed.

Phone Calls From Customers	How to Respond	Note
A white mist is expelled from the indoor unit.	This is not a malfunction. This may occur when the operation gets started in the room of high humidity.	
Water or moisture is expelled from the outdoor unit.	 COOL: when pipes or piping joints are cooled, they get sweated and water drips down. HEAT: water drips down from the heat exchanger. Note: Use optional parts "Drain Socket" and "Drain pan" if these water needs to be collected and drained out for once. 	
The display of IR wireless remote controller gets dim or does not come on. The indoor unit does not receive a signal from remote controller at a long distance.	Batteries are being exhausted. Replace them and press the reset button of remote controller.	

10-6. HOW TO CHECK THE PARTS PUZ-A18/24/30/36/42NHA6 PUY-A12/18/24/30/36/42NHA6 PUY-A12/18/24/30/36/42NHA6-BS

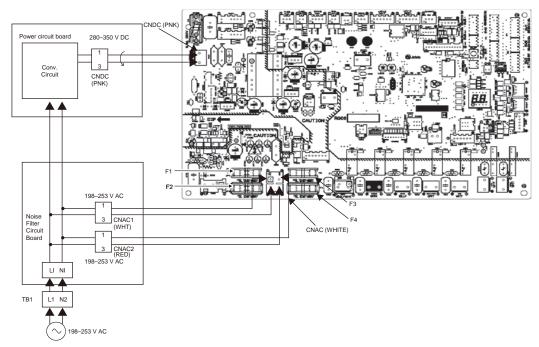
PUZ-A18/24/30/36/42NHA6-BS

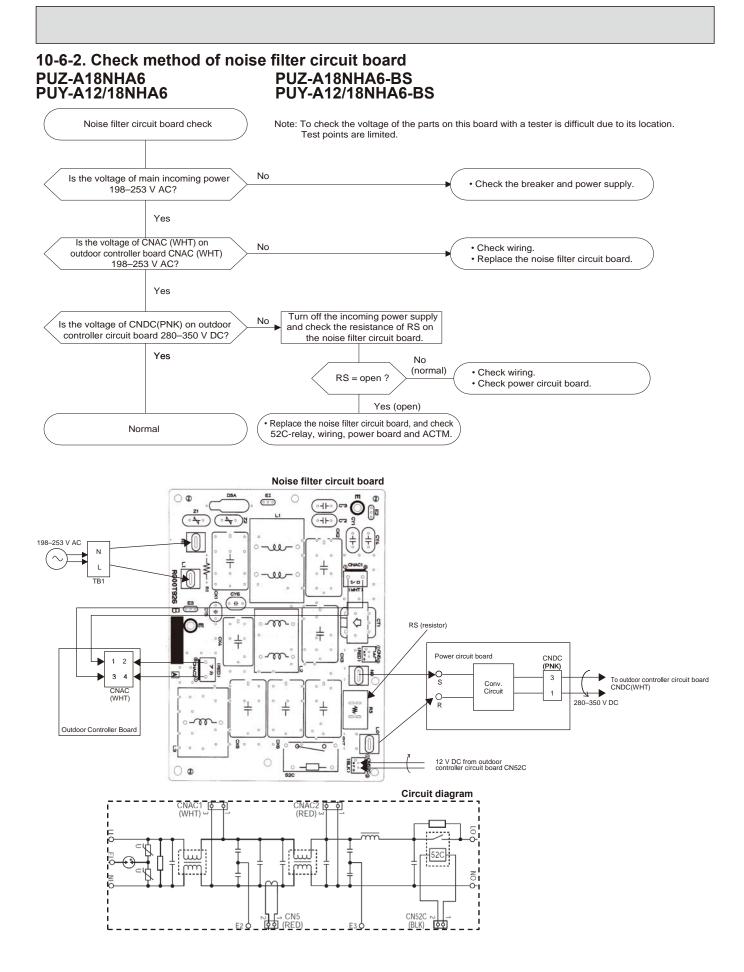
	1					
Parts name	Check points					
Thermistor (TH3) <liquid> Thermistor (TH6)</liquid>	Disconnect the connector then measure the resistance with a tester. (At the ambient temperature 50 to $86^{\circ}F$ [10 to $30^{\circ}C$])					
< 2-phase pipe>		Normal	Abnorm			
Thermistor (TH7) <ambient></ambient>	TH32	160 to 410 kΩ				
Thermistor (TH8) <heat sink=""></heat>	TH3					
Thermistor (TH32)	TH6	4.3 to 9.6 kΩ				
<comp. surface=""></comp.>	TH7		Open or s	nort		
Thermistor (TH33) <suction></suction>	TH33					
	TH8	39 to 105 kΩ				
Fan motor (MF1,MF2)	Refer to "10-6-8. C	heck method of D	C fan motor (fan mot	or/ outdoor controlle	er circuit board)".	
Solenoid valve coil <4-way valve>	Measure the resis (At the ambient te		terminals with a test ນິC])	er.		
(21S4)		Ν	ormal		Abnormal	
	A1	8–36	A	42		
	1500	± 150 Ω	2350 ± 170 Ω		Open or short	
Motor for compressor (MC) U	Measure the resistance between the terminals with a tester. (Winding temperature 68°F [20°C])					
		Normal		Abnormal		
V Loo real	A12, 18	A24, 30, 36	A42	Open or sho	rt	
W	0.320 Ω	0.880 Ω	0.266 Ω			
Linear expansion valve (LEV-A)	Disconnect the co (Winding tempera		ure the resistance w	ith a tester.		
For A12, 18	Normal			Abnormal		
(M) Brown 2	Red - White	Red - Orange	Brown - Yellow	Brown - Blue		
Drange 4		Open or short				
Yellow 5 White 6	$46 \pm 4 \Omega$					
Linear expansion valve (LEV-A)	V-A) (Winding temperature 68°F [20°C])					
For A24–42		Abnormal				
M Gray	Normal Gray - Black Gray - Red Gray - Yellow Gray - Ora		Gray - Orange			
Compose 3		46	± 3Ω		Open or short	
Red 4 Yellow 5 Black 6						
Solenoid valve coil <bypass valve=""></bypass>	Measure the resist (At the ambient ter		terminals with a test $^{\circ}$ C])	er.		
(SV)	Norma	al	Abnormal			
For A24–36 only	1450 ± 1	50 Ω	Open or short			

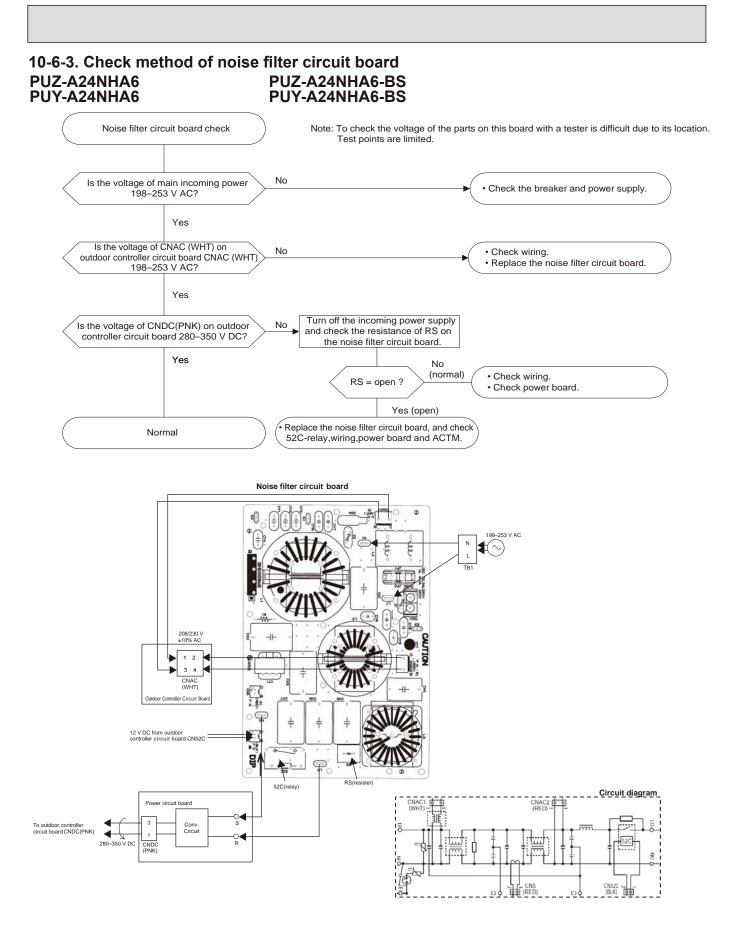


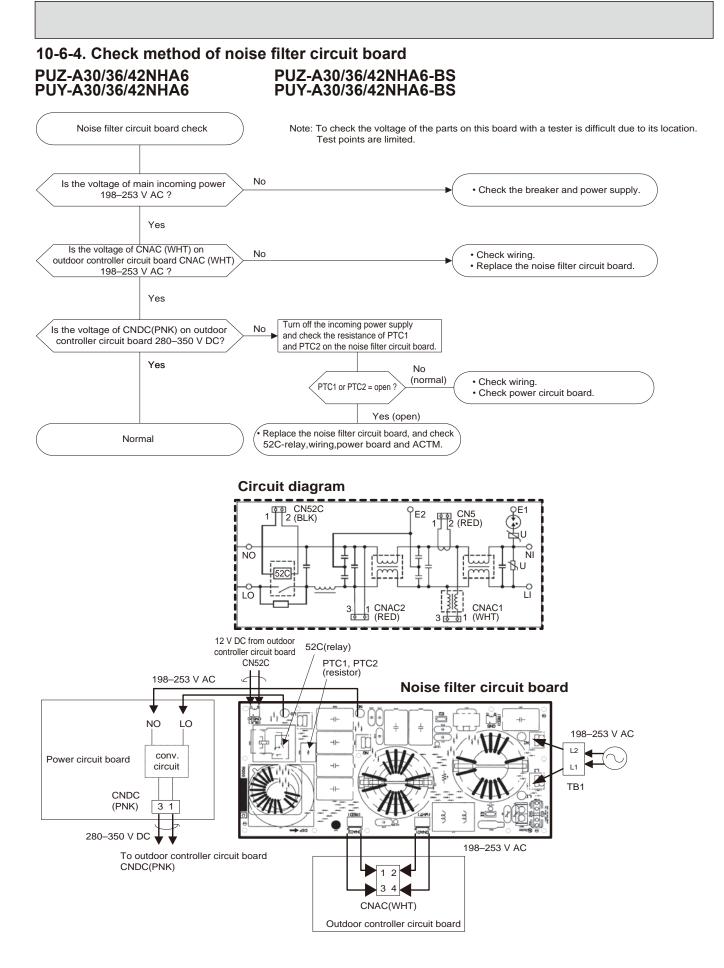
10-6-1. Check method of outdoor controller circuit board PUZ-A18/24/30/36/42NHA6 PUZ-A18/24/30/36/42NHA6-BS PUY-A12/18/24/30/36/42NHA6 PUY-A12/18/24/30/36/42NHA6-BS

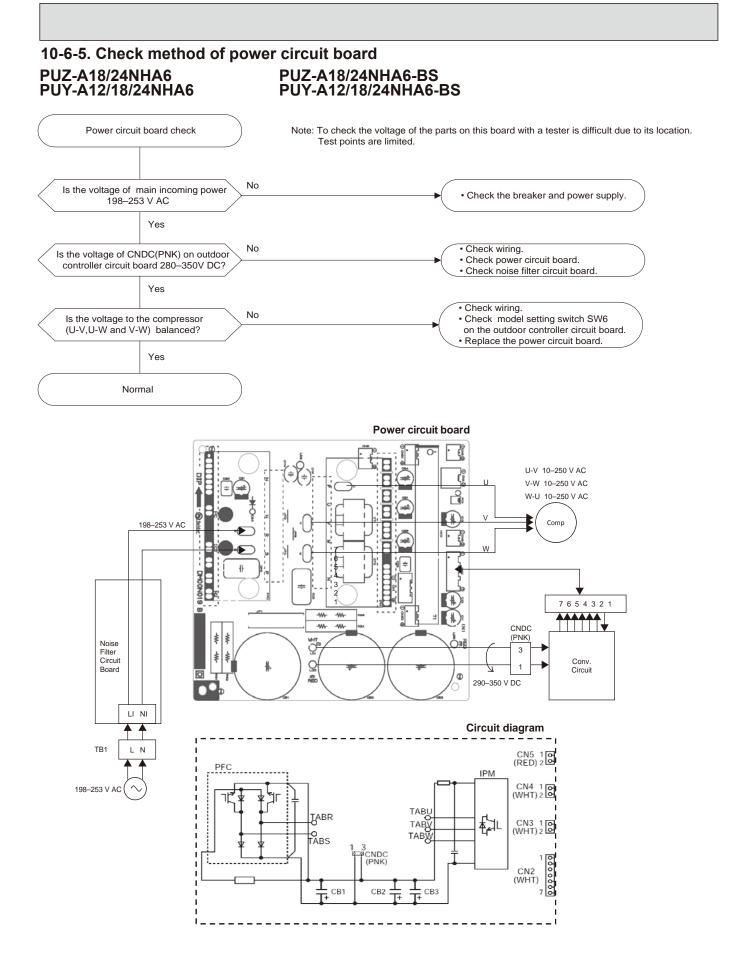
Outdoor controller circuit board

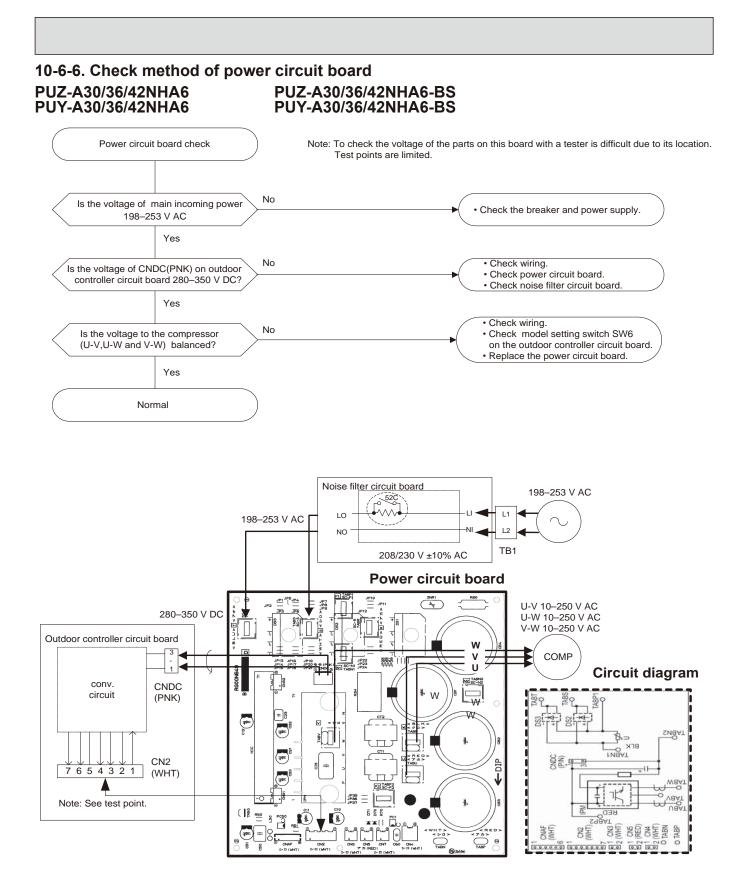


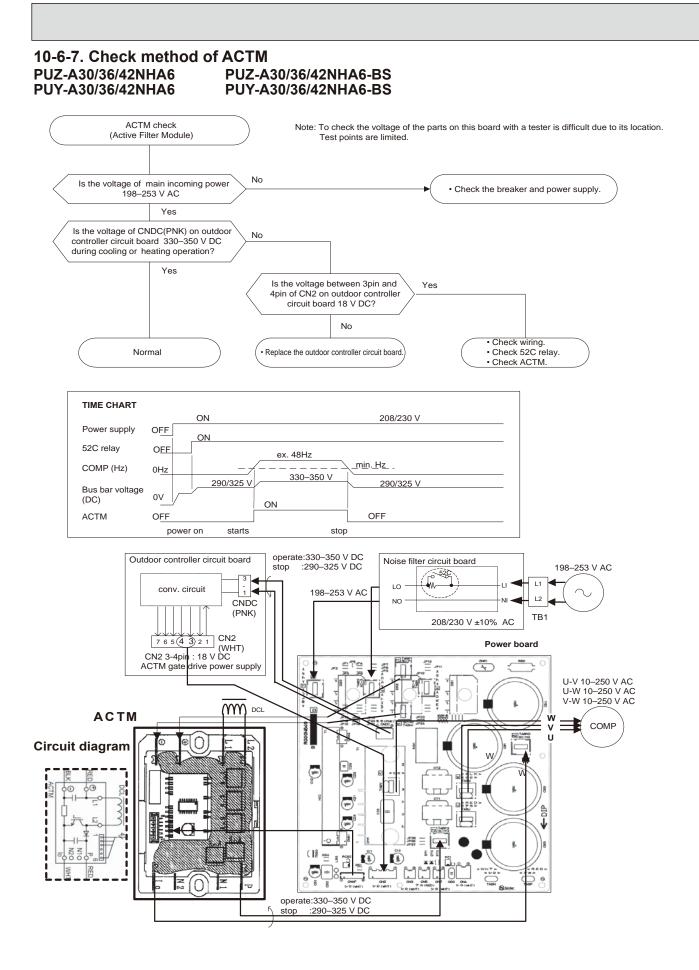










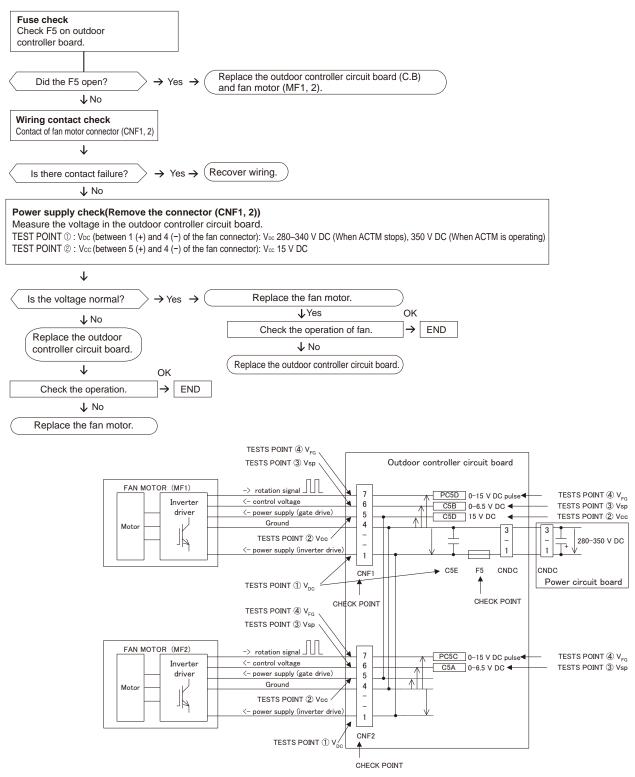


10-6-8. Check method of DC fan motor (fan motor/ outdoor controller circuit board)

① Notes

- · High voltage is applied to the connecter (CNF1, 2) for the fan motor. Pay attention to the service.
- \cdot Do not pull out the connector (CNF1, 2) for the motor with the power supply on.
- (It causes trouble of the outdoor controller circuit board and fan motor.)
- 2 Self check

Symptom : The outdoor fan cannot rotate.



- · The inverter control P.C. board is built in the fan motor of this outdoor unit.
- When F5 that is on controller board is opened, change the fan motor and outdoor controller board at the same time (F5 is impossible to change).
- · For outdoor unit, there are 2 fan motors (up and down; MF1/MF2), it is possible to connect to either CNF1 or CNF2 on the board.
- · It is abnormal when the abnormality is detected from either both fan motors or only one side.

10-7. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

Low temperature thermistors

• Thermistor <Liquid> (TH3) • Thermistor <2-phase pipe> (TH6) • Thermistor <Ambient> (TH7) • Thermistor <Suction> (TH33) Thermistor R0 = 15 kΩ ± 3% B constant = 3480 ± 2% t (°C): Rt =15exp{3480($\frac{1}{273+t} - \frac{1}{273}$)} T (°F): RT =15exp{3480($\frac{1}{273+t} - \frac{1}{273}$)} 32°F [0°C] 15 kΩ 86°F [30°C] 4.3 kΩ

50°F [10°C]	9.6 kΩ	104°F [40°C]	3.0 kΩ
68°F [20°C]	6.3 kΩ		
77°F [25℃]	5.2 kΩ		

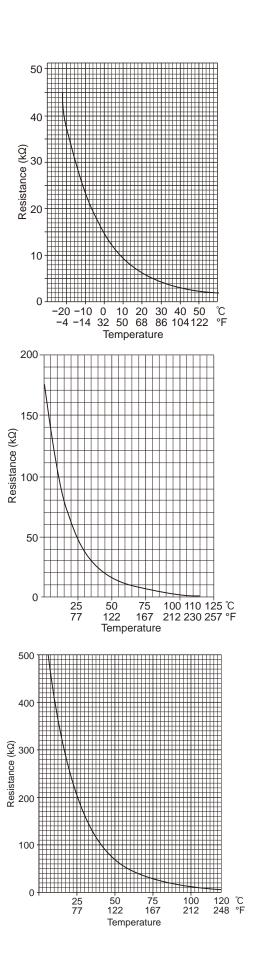
Medium temperature thermistor

• Thermistor <Heat sink> (TH8) Thermistor R50 = 17 k $\Omega \pm 2\%$ B constant = 4170 $\pm 3\%$ t (°C): Rt =17exp{4170($\frac{1}{273+t} - \frac{1}{323}$)} T (°F): RT=17exp{4170($\frac{1}{273+(T-32)/1.8} - \frac{1}{323}$)}

32°F	[0°C]	180	kΩ
	[25°C]	50	kΩ
122°F	[50°C]	17	kΩ
158°F	[70°C]	8	kΩ
194°F	[90°C]	4	kΩ

High temperature thermistor • Thermistor <Comp. surface> (TH32)

Thermistor R1 B constant = 4		kΩ ± 2%	
t (°C): Rt =7.4	65exp{4057	$7(\frac{1}{273+t}-\frac{1}{393})\}$	
T (°F): RT =7.4	465exp{405	57(<u>1</u> 273+(T- 32)/1.8	- <u>1</u> 393)}
68°F [20°C] 86°F [30°C] 104°F [40°C] 122°F [50°C] 140°F [60°C]	250 kΩ 160 kΩ 104 kΩ 70 kΩ 48 kΩ	158°F [70℃] 176°F [80℃] 194°F [90℃] 212°F [100℃] 230°F [110℃]	34 kΩ 24 kΩ 17.5 kΩ 13.0 kΩ 9.8 kΩ



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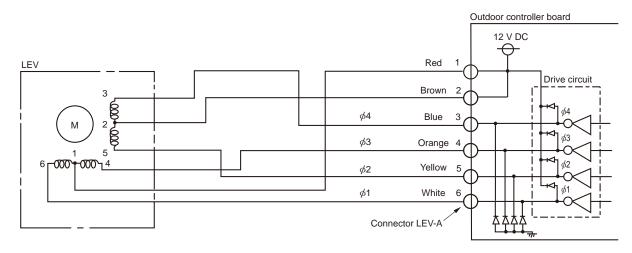
Linear expansion valve (A12, 18)

(1) Operation summary of the linear expansion valve

• Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the outdoor controller board.

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

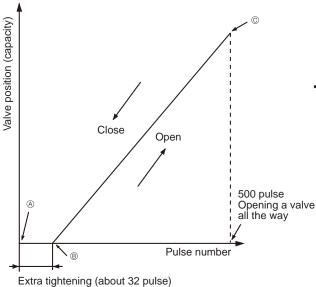
<Connection between the outdoor controller board and the linear expansion valve>



<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>ф</i> 2	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
<i>ø</i> 3	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 valve : $8 \rightarrow 7 \rightarrow 6 \rightarrow 5 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 8$ Closing a valve : $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8 \rightarrow 1$ The output pulse shifts in above order.

- When linear expansion valve operation stops, all output phases become OFF.
- When the power 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 sound or vibration occurring from the linear expansion valve; however, when the pulse number moves from (a) to (a) or when the valve is locked, sound can be heard than normal situation.

No sound is heard when the pulse number moves from (a) to (a) in case coil is burn out or motor is locked by open-phase.

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

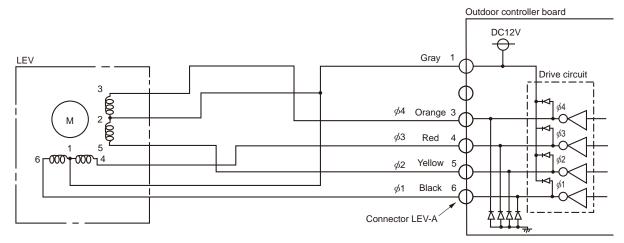
Linear expansion valve (A24, 30, 36, 42)

(1) Operation summary of the linear expansion valve

• Linear expansion valve opens/closes through stepping motor after receiving the pulse signal from the outdoor controller board.

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

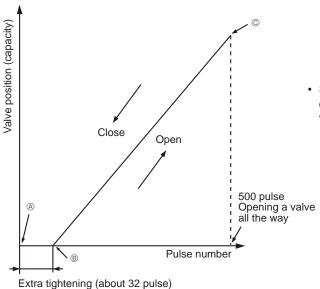
<Connection between the outdoor controller board and the linear expansion valve>



<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 valve : $8 \rightarrow 7 \rightarrow 6 \rightarrow 5 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 8$ Closing a valve : $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7 \rightarrow 8 \rightarrow 1$ The output pulse shifts in above order.

- When linear expansion valve operation stops, all output phases become OFF.

When the valve moves smoothly, there is no sound or vibration occurring from the linear expansion valve; however, when the pulse number moves from (a) to (a) or when the valve is locked, sound can be heard than normal situation.

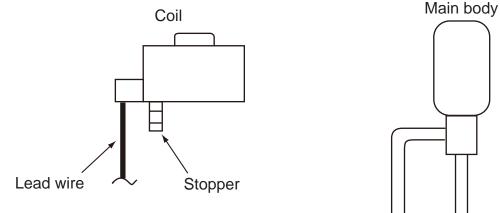
No sound is heard when the pulse number moves from \circledast to \circledast in case coil is burn out or motor is locked by open-phase.

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

(3) How to attach and detach the coil of linear expansion valve (A12, 18)

<Composition>

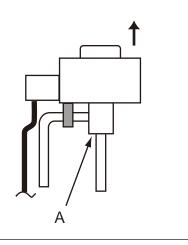
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<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.

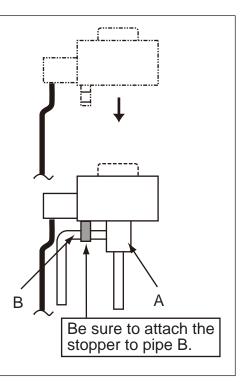
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to stress.



<How to attach the coil>

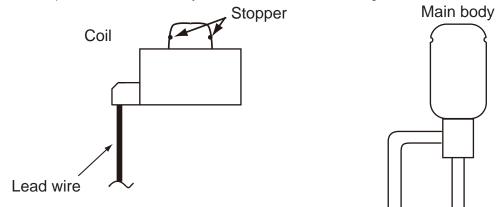
Hold the lower part of the main body (shown as A) firmly so that the main body does not move and attach the coil by inserting it downward into the main body. Then securely attach the coil stopper to pipe B. (At this time, be careful that stress is not added to lead wire and main body is not wound by 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.



(4) How to attach and detach the coil of linear expansion valve (A24, 30, 36, 42) <Composition>

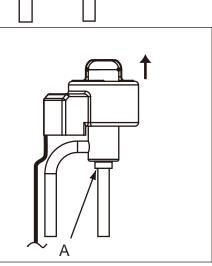
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<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.

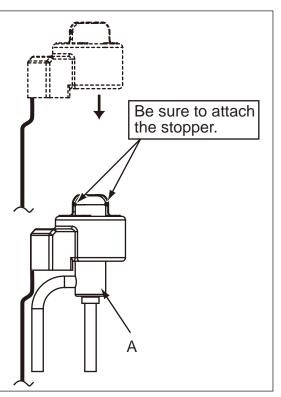
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to stress.



<How to attach the coil>

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 main body. (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 main body, 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.



10-8. EMERGENCY OPERATION

(1) When the check codes shown below are displayed on outdoor unit or microprocessor 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 board.

When following abnormalities occur, emergency operation will be available.

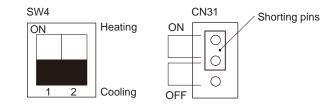
Check code	Inspected content
U4	Open/short of pipe thermistor (TH3/TH6)
E8	Indoor/outdoor unit communication error •Signal receiving error (Outdoor unit)
E9	Indoor/outdoor unit communication error •Transmitting error (Indoor unit)
E0-7	Communication error other than outdoor unit
Ed	Communication error between outdoor controller board and M-NET board (Serial communication error)

(2) Check the following items and cautions for emergency operation

- ① Make sure that there is no abnormality in outdoor unit other than the above abnormalities. (Emergency operation will not be available when check codes other than the above are indicated.)
- ② For emergency operation, it is necessary to set the emergency operation switch (SWE) on indoor controller board. Refer to the electrical wiring diagram of indoor unit for how to set the indoor unit.)
- ③ During emergency operation, the air-conditioner will continuously be operated by supplying power and stopping it: It cannot be turned on or off by remote control, and temperature control is not possible.
- ④ Do 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.
- (5) Do 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

- ① Turn the main power supply off.
- ② Turn on the emergency operation switch (SWE) on indoor controller board.
- ③ Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to ON.
- ④ Use SW4-2 on outdoor controller board to set the operation mode (cooling or heating). (SW4-1 is not used.)

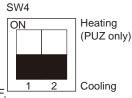


⑤ Turning the main power supply on will start the emergency operation.

(4) Releasing emergency operation

- ① Turn the main power supply off.
- 2 Set the emergency operation switch (SWE) on indoor controller board to OFF.
- ③ Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to OFF.
- ④ Set SW4-2 on outdoor controller board as shown in the right.

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



(5) Operation data during emergency operation

During emergency operation, no communication is performed with the indoor unit, so the data items needed for operation are set to the following values:

Oncertion data	Operatio	on mode	Demodre
Operation data	COOL	HEAT	Remarks
Intake temperature (TH1)	81°F [27℃]	69°F [20.5℃]	
Indoor fluid pipe temperature (TH2)	41°F [5℃]	113°F [45°C]	
Indoor 2-phase pipe temperature (TH5)	41°F [5℃]	122°F [50°C]	
Set temperature	77°F [25°C]	72°F [22°C]	
Outdoor liquid pipe temperature (TH3)	113°F [45°C]	41°F [5℃]	(*1)
Outdoor 2-phase pipe temperature (TH6)	122°F [50°C]	41°F [5℃]	(*1)
Outdoor air temperature (TH7)	95°F [35℃]	45°F [7℃]	(*1)
Outdoor suction (TH33)	41°F [5℃]	41°F [5℃]	(*2)
Temperature difference code (intake temperature−set temperature) (∆Tj)	5	5	
Discharge super heat (SHd)	54°F [30°C]	54°F [30°C]	(*2)
Sub-cool (SC)	9°F [5℃]	9°F [5℃]	(*2)

*1 If the thermistor temperature data is normal (not open/short), that data is loaded into the control as valid data. When the unit enters emergency operation and TH values are mismatched, set the thermistors to open/short. And the unit runs emergency operation with the values listed above.

*2 If one thermistor is set to open/short, the values of SHd/SC will be different from the list above.

[Example] When liquid temperature thermistor (TH3) has an open or short circuit.

Thermistor	COOL	HEAT			
TH3	113°F [45℃]	41°F [5°C]			
TH6	Та	Tb			
	Regard normal figure as effective data.				
TH4	Тс	Td			
1 114	Regard normal figure as effective data.				
TH5	41°F [5℃]	122°F [50°C]			
TH2	41°F [5℃]	113°F [45℃]			
TH33	Regard normal figure as effective data.				

Discharge superheat (SHd)

Cooling = TH4-TH6 = Tc-Ta

Heating = TH4-TH5 = Td-122°F [50°C] Degree of subcooling (SC)

Cooling = TH6-TH3 = Ta-113°F [45°C]

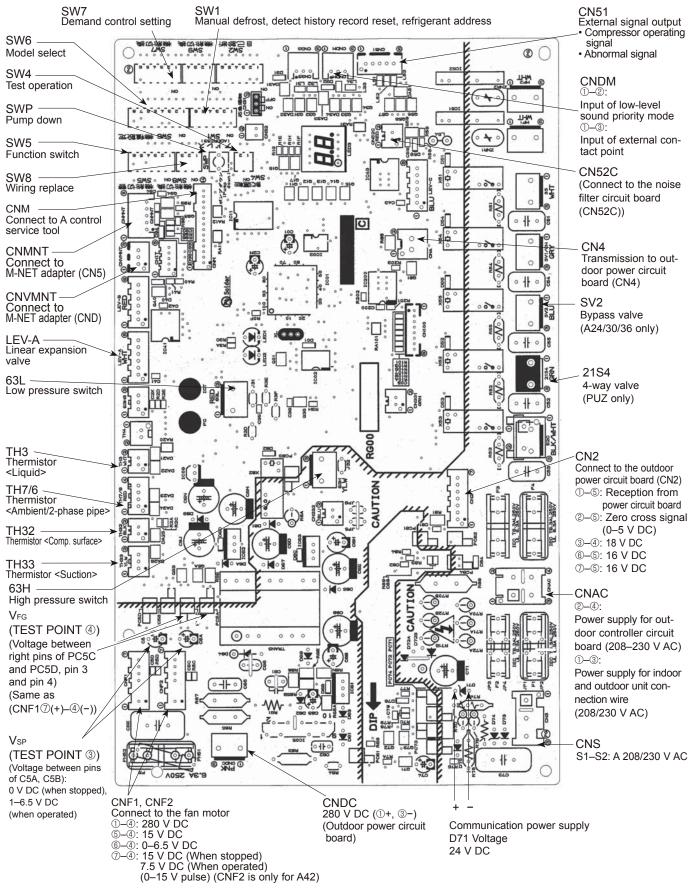
Heating = TH5-TH2 = 50° C - 45° C = 5° C

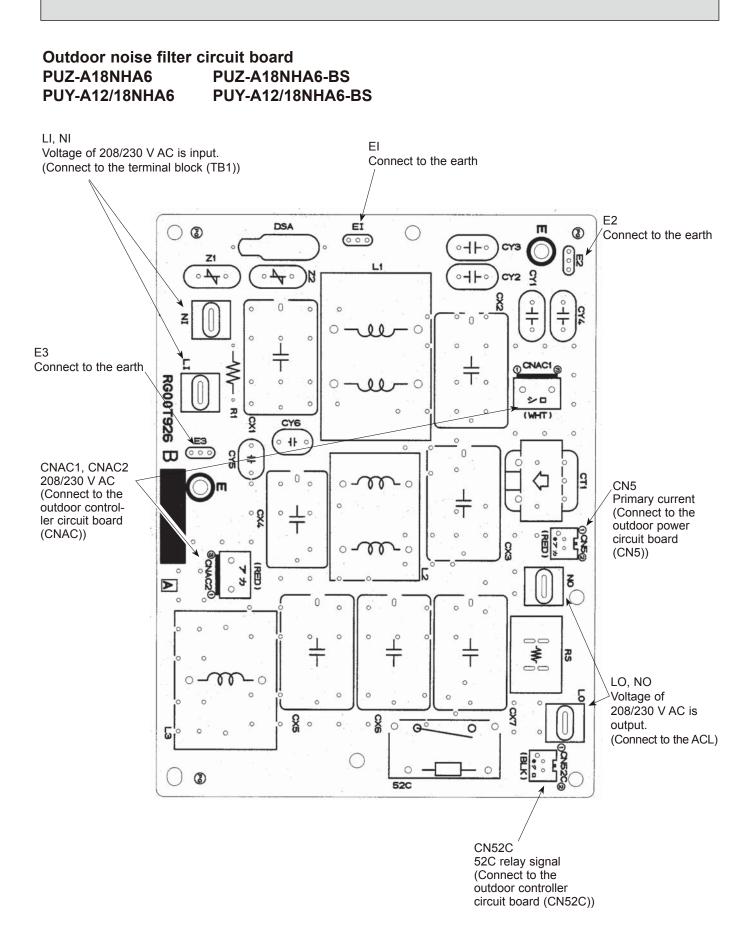
or

10-9. TEST POINT DIAGRAM Outdoor controller circuit board PUZ-A18/24/30/36/42NHA6 PUY-A12/18/24/30/36/42NHA6

<CAUTION> TEST POINT① is high voltage.

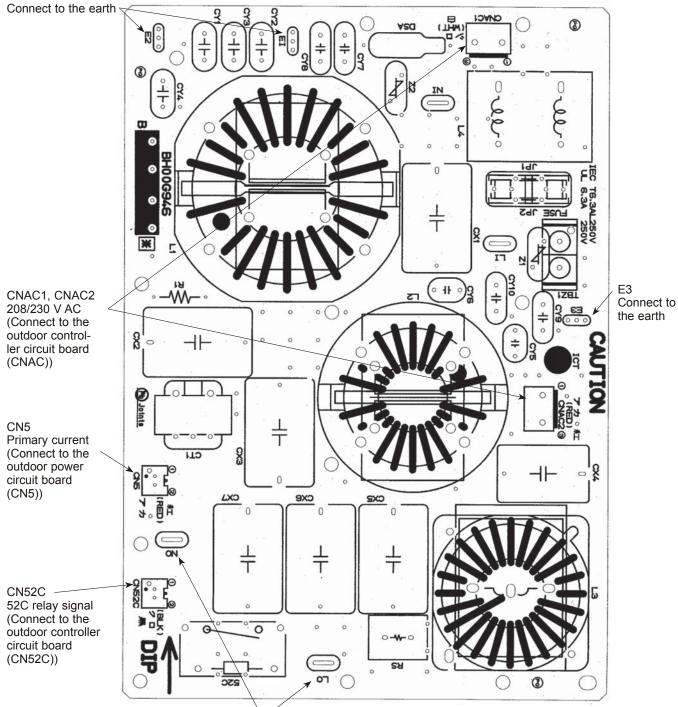
PUZ-A18/24/30/36/42NHA6-BS PUY-A12/18/24/30/36/42NHA6-BS

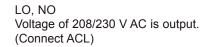


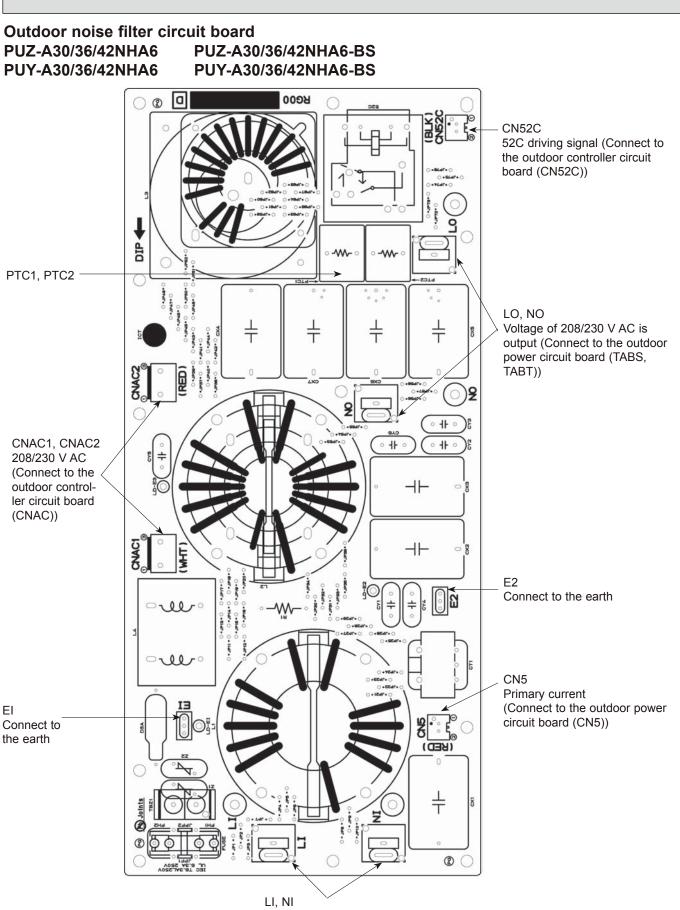


Outdoor noise filter circuit boardPUZ-A24NHA6PUZ-A24NHA6-BSPUY-A24NHA6PUY-A24NHA6-BS

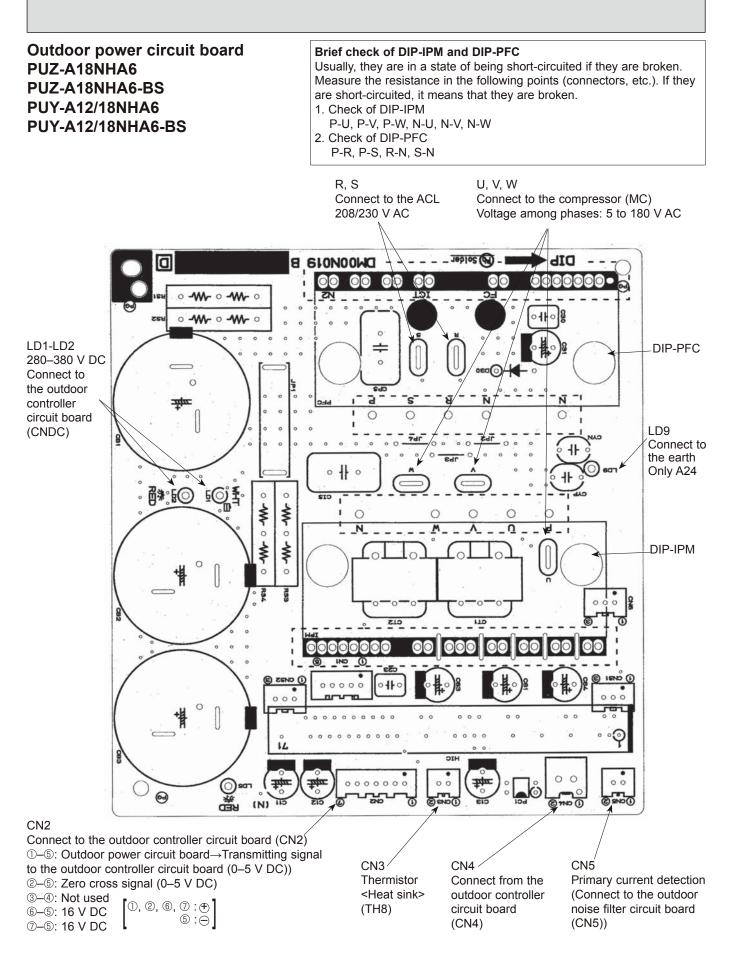
EI, E2







Voltage of 208/230 V AC is input. (Connect to the terminal block (TB1))



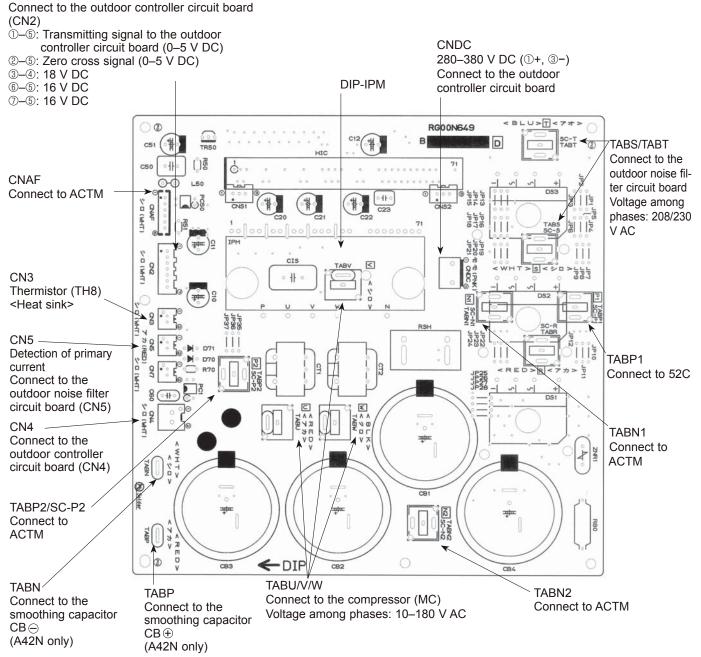
OCH577A

Outdoor power circuit board PUZ-A30/36/42NHA6 PUZ-A30/36/42NHA6-BS PUY-A30/36/42NHA6 PUY-A30/36/42NHA6-BS

Brief check of POWER MODULE

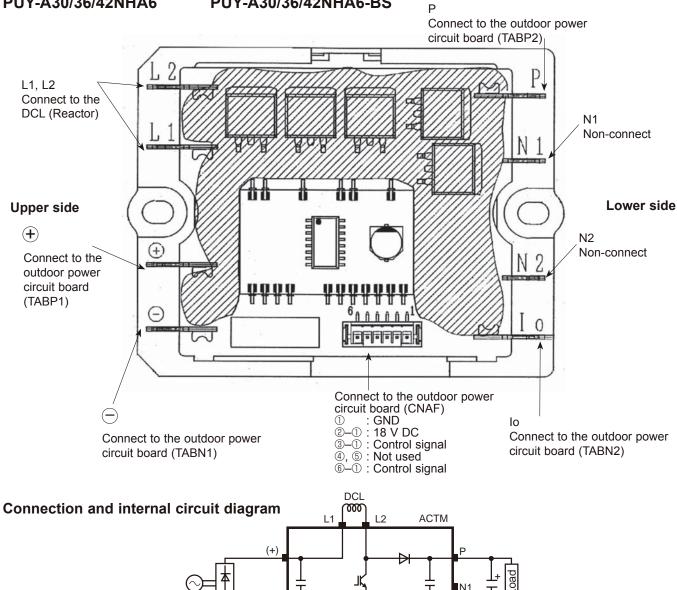
Usually, they are in a state of being short-circuited if they are broken. Measure the resistance in the following points (connectors, etc.). If they are short-circuited, it means that they are broken. 1. Check of diode bridge TABP1-TABS, TABN1-TABS, TABP1-TABT,TABN1-TABT 2. Check of DIP-IPM P-U, P-V, P-W, N-U, N-V, N-W

CN2



Active filter module PUZ-A30/36/42NHA6 PUY-A30/36/42NHA6

PUZ-A30/36/42NHA6-BS PUY-A30/36/42NHA6-BS



Tester check points of Active filter module

	Error condition	Normal value (reference)	Symptom when the unit is in trouble
(–) and lo	open	less than 1Ω	① The unit does not operate (cannot be switched ON)
	short	100 kΩ to 1 MΩ	① The breaker operates
(–) and L2	open	*1	① The unit does not operate (cannot be switched ON) ② U9 Abnormal stop (*2)
P and L2	short	100 kΩ to 1 MΩ	① The breaker operates
P and L2	open	*1	① The unit does not operate (cannot be switched ON) ② U9 Abnormal stop (*2)
Dandla	short	100 kΩ to 1 MΩ	① The breaker operates
P and lo	open	*1	① The unit does not operate (cannot be switched ON) ② U9 Abnormal stop (*2)
L2 and lo	short	100 kΩ to 1 MΩ	① The breaker operates
	open	*1	① The unit does not operate (cannot be switched ON) ② U9 Abnormal stop (*2)

N2

lo

*1 The symptom when the unit is in open error condition is described to determine open error by tester check. *2 SW2 setting ON Code "20" display

(-)

0 OFF 0000 20 0

OCH577A

10-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS

(1) Function of switches

					The black square	e (∎) indicates a switch position.	
Type of			Function	Action by the s	Effective timing		
switch	1		i unotion	ON	OFF		
		1	Manual defrost *1	Start	Normal	When compressor is operating in heating operation. *1	
		2	Abnormal history clear	Clear	Normal	Off or operating	
		3		ON 1 2 3 4 5 6 0 0 0 0 0 0 0 1 2 3 4 5 6	ON 1 2 3 4 5 6 2 3		
DIP	SW1	4		ON 1 2 3 4 5 6 4 5	ON 1 2 3 4 5 6 6 7		
switch		5	Refrigerant address setting	ON 1 2 3 4 5 6 8 0N 1 2 3 4 5 6 9	ON 1 2 3 4 5 6 10 ON 1 2 3 4 5 6 11 11	When power supply ON	
		6		ON 1 2 3 4 5 6 12 13 ON 1 2 3 4 5 6	ON 1 2 3 4 5 6 14 ON 1 2 3 4 5 6		
	CIA/A	1	Test run	Operating	OFF		
	SW4	2	Test run mode setting	Heating	Cooling	Under suspension	
		1	No function	—	_	—	
	SW8	2	No function		_	_	
		3	Separate indoor/outdoor unit power supplies	Used	Not used	When power supply ON	
Push switch	SW	/P	Pump down	Start	Normal	Under suspension	

*1 Manual defrost should be done as follows.

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

② Manual defrost will start by the above operation 1 if all these conditions written below are satisfied.

· Heat mode setting

· 10 minutes have passed since compressor started operating or previous manual defrost is finished.

· Pipe temperature is less than or equal to 46°F [8°C].

Manual defrost will finish if certain conditions are satisfied.

Manual defrost 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.	F		Actio	on by the	switch op	peration)	=====	
Switch	Switch	No. Function		ON			OFF		Effecti	ve timing	
		1	No function	_				—			
	SW5	2	Power failure automatic recovery *2	Auto recovery		No a	No auto recovery		When pow	ver supply ON	
		3,4,5	No function		_			_			
		6	Model select		Fo	llowing S	W5-6 refer	ence			
		1			SW7-1	SW7-2	Max. compre (Deman	essor freque d switch ON	ncy)		
			Setting of demand		OFF	OFF	0% (Oper	ation stop)		
			control *3		ON	OFF	5	0%		AI	ways
		2			OFF	ON	7	5%			
	SW7			N 4				NI			
	*4	-	Max. Hz setting(cooling)	Max. Hz(cooling) × 0.8				Normal			ways
			Max. Hz setting(heating)	Max. Hz(heating) × 0.8				Normal		Always	
DIP		5	No function								
switch		6	Defrost setting	For high humidity			Norma		AI	ways	
		1	No function					—			_
	SW9	2	Function switch	Valid			Normal		Always		
		3,4	No function					—			_
		1		N	IODEL	SW6	SW5-5, 6 *5	MODEL	SW6	SW5-5, 6	*5
		2				3 4 5 6 7 8	OFF 1 2 3 4 5 6	PUZ-A30NHA6	ON OFF 1 2 3 4 5 6		
		3		PUY-				PUZ-A36NHA6			388
	SW6	4	Ma lala da c	DUV		345678		PUY-A30NHA6			5 6
		5	Model select		0FF 1 2	345678	123450		123456	78	5 6
		6		PUZ-	A24NHA6 OFF	3 4 5 6 7 8	OFF 1 2 3 4 5 6	PUY-A36NHA6	OFF 1 2 3 4 5 6		5 6
		7		PUY-	A24NHA6 OFF	345678	OFF	PUZ-A42NHA6	OFF 1 2 3 4 5 6	ON 0FF	1 5 6
		8		The	black square () indicates a	switch position.	PUY-A42NHA6	OFF 1 2 3 4 5 6		
	SW5	5									
	3003	6									

*2 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 not all units have DIP SW. Please refer to the indoor unit installation manual.

*3 SW7-1,2 are used for demand control. SW7-1,2 are effective only at the demand control. (Refer to the next page: Special function (b))

*4 Please do not use SW7-3 to 6 usually. Trouble might be caused by the usage condition.

*5 SW5-1 to 4: Function switch

(2) Function of connector

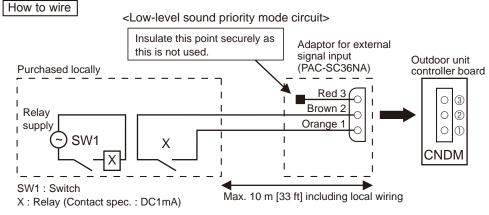
Turaca	Types Connector	Function	Action by open/	Effective timing	
Types		Function	Short	Open	Effective timing
Connector	CN31	Emergency operation	Start	Normal	When power supply ON

Special function

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

Unit enters into Low-level sound priority mode by 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 board enables to control compressor operation frequency. Note: The performance depends on the load of conditioned outdoor temperature.



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) Demand control (Local wiring)

Demand control is available by external input. In this mode, power consumption is decreased within the range of usual 0 to 100%.

How to wire

Basically, the wiring is the same as (a).

Connect an SW1 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.

It is possible to set it to the following power consumption (compared with ratings) by setting the SW7-1, 2.

SW7-1	SW7-2	Max. compressor frequency (SW1 on)
OFF	OFF	0% (Operation stop)
ON	OFF	50%
OFF	ON	75%

<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 board.

[Display]

(1)Normal condition

	Outdoor con	troller board	A-Control Service Tool		
Unit condition	LED1 (Green)	LED2 (Red)	Check code	Indication of the display	
When the power is turned on	Lighted	Lighted	$-\Leftrightarrow-$	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

Indic				Error	
Outdoor con LED1 (Green)		Contents	Check code *1	Inspection method	Detailed reference page
1 blinking	2 blinking	Connector (63H) is open.	F5	 ①Check if connector (63H) on the outdoor controller board is not disconnected. ②Check continuity of pressure switch (63H) by tester. 	P.34
2 blinking 1 bli	1 blinking	Miswiring of indoor/outdoor unit conne- cting wire, excessive number of indoor units (4 units or more) Miswiring of indoor/outdoor unit co- nnecting wire (converse wiring or di- sconnection)		 ①Check if indoor/outdoor connecting wire is connected correctly. ②Check if 4 or more indoor units are connected to outdoor unit. ③Check if noise entered into indoor/outdoor connecting wire or power supply. 	P.34 (EA) P.34 (Eb)
		Startup time over	_	④Re-check error by turning off power, and on again.	P.34 (EC)
	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 board.	*2
		Indoor/outdoor unit communication error (signal receiving error) is detected by outdoor unit.	-		P.40 (E8)
		Indoor/outdoor unit communication error (transmitting error) is detected by outdoor unit.	-		P.40 (E9)
	3 blinking	Remote controller signal receiving error is detected by remote controller.	E0	OCheck if connecting wire of indoor unit or remote controller is connected correctly.	P.39
		Remote controller transmitting error is detected by remote controller.	E3	©Check if noise entered into transmission wire of remote controller.	P.39
		Remote controller signal receiving error is detected by indoor unit.	E4	③Re-check error by turning off power, and on again.	P.39
		Remote controller transmitting error is detected by indoor unit.	E5		P.39
	4 blinking	Check code is not defined.	EF	 ①Check if remote controller is MA remote controller (PAR-21MAA). 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.40
	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 board and outdoor power board is not disconnected. ②Check if there is poor connection of connector on outdoor controller board(CNMNT and CNVMNT). 	P.40
		Communication error of M-NET system	A0-A8	③Check M-NET communication signal.	P.41- P.44

*1 Check code displayed on remote controller

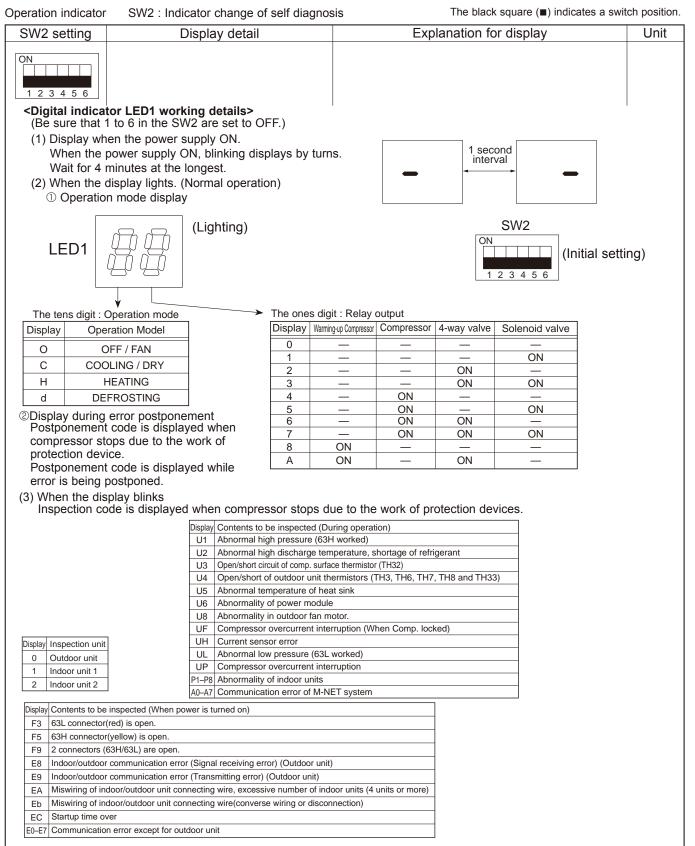
*2 Refer to the indoor unit service manual.

Indic	ation			Error	
Outdoor cor	ntroller board	Contente	Check	Increasing wethod	Detailed
LED1 (Green)	LED2 (Red)	Contents	code *1	Inspection method	referenc page
3 blinking	1 blinking	Abnormality of shell thermistor (TH32) and discharging temperature (TH4)		 OCheck if stop valves are open. OCheck if connectors (TH4, TH32, LEV-A) on outdoor controller board are not disconnected. OCheck if unit is filled with specified amount of refrigerant. Measure resistance values among terminals on indoor valve and outdoor linear expansion valve using a tester. 	P.35
	2 blinking	Abnormal high pressure (High pressure switch 63H operated.)	U1	 ①Check if indoor/outdoor units have a short cycle on their air ducts. ②Check if connector (63H) on outdoor controller 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.35
	3 blinking	Abnormality of outdoor fan motor rotational speed	U8	The outdoor fan motor.	P.37
	4 blinking	Compressor overcurrent breaking (Start-up locked)		OCheck if stop valves are open.	P.38
		Compressor overcurrent breaking	UP	 Check looseness, disconnection, and converse connection of compressor wiring. Measure resistance values among terminals on compressor using a tester. 	P.38
				Check if outdoor unit has a short cycle on its air duct.	P.38
		Abnormality of power module	U6	 Measure resistance values among terminals on compressor using a tester. Check if outdoor unit has a short cycle on its air duct. Check if connectors (TH3, TH4, TH6, TH7 and TH33) on outdoor controller board and connector (CN3) on outdoor power board are not disconnected. Check if indoor/outdoor units have a short cycle on their air ducts. Check if indoor/outdoor units have a short cycle on their air ducts. Check looseness, disconnection, and converse connection of compressor wiring. 	P.36
	5 blinking	Open/short of discharge thermistor (TH4)	U3		P.36
		Open/short of outdoor thermistors (TH3, TH6, TH7, TH8 and TH33)	U4		P.36
	6 blinking	Abnormality of heatsink temperature	U5		P.36
	7 blinking	Abnormality of voltage	U9	 OCheck looseness, disconnection, and converse connection of compressor wiring. Measure resistance value among terminals on compressor using a tester. Check the continuity of contactor (52C). Check if power supply voltage decreases. Check the wiring of CN52C. Check the wiring of CNAF. 	P.37 –38
4 blinking	4 blinking Compressor overcurrent breaking (Start-up locked) UF ①Check if stop valves are open. 2 blinking Compressor overcurrent breaking UP ①Check if stop valves are open. ②Check looseness, disconnection, and converse connection of compressor wiring. Abnormality of current sensor (P.B.) UH ③Check if outdoor unit has a short cycle on its air duct. Abnormality of power module U6 5 blinking Open/short of discharge thermistor (TH4) U3 Open/short of outdoor thermistors U4 ①Check if connectors (TH3, TH4, TH6, TH7 and TH33) on outdoor controller board and connector (CN3) on outdoor power board are not disconnected. ③Measure resistance value of outdoor thermistors. U4 ③Check if indoor/outdoor units have a short cycle on their air ducts. 6 blinking Abnormality of heatsink temperature U5 ①Check if indoor/outdoor units have a short cycle on their air ducts. 7 blinking Abnormality of voltage U9 ①Check loseness, disconnection, and converse connection of compressor wiring. ③Check the continuity of contactor (52C). ③Check the continuity of contactor (52C). ③Check the wiring of CN52C.	*2			
5	5			are not disconnected.	*2
		Abnormality of pipe temperature			
	2 blinking		P4	@Measure resistance value of indoor thermistors.	*2
		Indoor drain overflow protection	P5	Our Check if drain pump works.	
	3 blinking		P6	 Check if heat exchanger and filter is not dirty. Measure resistance value on indoor and outdoor fan motors. 	*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
	5 blinking	Abnormality of indoor con- troller board	Fb	①Replace indoor controller board.	*2
_	-	Abnormality of remote con- troller board	E1 E2	①Replace remote controller.	P.39

*1 Check code displayed on remote controller *2 Refer to the indoor unit service manual.

<Outdoor unit operation monitor function>

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



The black square (■) indicates a switch position.

		The black square (■) indicates a swi	tch position.
SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Pipe temperature/Liquid (TH3) −58 to 194	-58 to194 [-50 to 90°C] (When the coil thermistor detects 0°F or below, "–" and temperature are displayed by turns.) (Example) When -10°F; 0.5 s 0.5 s 2 s -□ → 10 → □□ t	°F [°C]
ON 1 2 3 4 5 6	Comp. Surface temperature (TH32) 37 to 327	37 to 327 [3 to 164°C] (When the discharge thermistor detects 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105°F; 0.5 s 0.5 s 2 s □1 → 05 → □□	°F [°C]
ON 1 2 3 4 5 6	Output step of outdoor FAN 0 to 10	0 to 10	Step
ON 1 2 3 4 5 6	The number of ON/OFF times of com- pressor 0 to 9999	0 to 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 s 0.5 s 2 s $14 \rightarrow 25 \rightarrow \square$	100 times
ON 1 2 3 4 5 6	Compressor integrating operation times 0 to 9999	0 to 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 s 0.5 s 2 s $2 \rightarrow 45 \rightarrow \Box$	10 hours
ON 1 2 3 4 5 6	Compressor operating current 0 to 50	0 to 50 Note: Omit the figures after the decimal fractions.	А
ON 1 2 3 4 5 6	Compressor operating frequency 0 to 255	0 to 255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns. (Example) When 125Hz; 0.5 s 0.5 s 2 s $1 \rightarrow 25 \rightarrow \square$	Hz
ON 1 2 3 4 5 6	LEV-A opening pulse 0 to 480	0 to 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 s 0.5 s 2 s $1 \rightarrow 50 \rightarrow \square$	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 as below. (SW2) ON 1 2 3 4 5 6	Code display

	1	The black square (■) indicates a swit	ch positior
SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Pipe temperature/Liquid (TH3) on error occurring -58 to 194	-58 to 194 [-50 to 90°C] (When the coil thermistor detects 0°F or below, "–" and temperature are displayed by turns.) (Example) When −15°F; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
ON 1 2 3 4 5 6	Comp. surface temperature (TH32) on error occurring 37 to 327	37 to 327 [3 to 164°C] (When the temperature is 100°F or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130°F; 0.5 s 0.5 s 2 s $1 \rightarrow 30 \rightarrow \square$	°F [°C]
ON 1 2 3 4 5 6	Compressor operating current on error occurring 0 to 50	0 to 50	A
ON 1 2 3 4 5 6	Error 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 history (2) Alternate display of error unit number and code	When no error history, " 0 " and "– –" are displayed by turns.	Code display
ON	Thermostat ON time 0 to 999	0 to 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 s 0.5 s 2 s $\square 2 \rightarrow 45 \rightarrow \square$	Minute
123456	Test run elapsed time 0 to 120	0 to 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 s 0.5 s 2 s □1 → 05 → □□	Minute

		The black square (■) indicates a swit	ch position.
SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	The number of connected indoor units	0 to 3 (The number of connected indoor units are dis- played.)	Unit
ON 1 2 3 4 5 6	Capacity setting display	CapacityCodeCapacityCodeA12N9A30N14A18N10A36N20A24N11A42N25	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 / 3 phase 0 : Single phase 2 : 3 phase The ones digit Setting details Display details Defrosting switch 0 : Normal 1 : For high humidity (Example) When heat pump, 3 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 −38 to 190	 −38 to 190 [−39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) 	°F [℃]
ON 1 2 3 4 5 6	Indoor pipe temperature/Cond./Eva. (TH5(1)) Indoor 1 −38 to 190	 −38 to 190 [−39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) 	°F [℃]
ON 1 2 3 4 5 6	Indoor pipe temperature/Liquid (TH2(2)) Indoor 2 -38 to 190	 −38 to 190 [−39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) 	°F [℃]
ON 1 2 3 4 5 6	Indoor pipe temperature/Cond./Eva. (TH5(2)) Indoor 2 −38 to 190	 −38 to 190 [−39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) 	°F [℃]
ON 1 2 3 4 5 6	Indoor room temperature (TH1) 46 to 102	46 to 102 [8 to 39°C]	°F [℃]

		The black square (■) indicates a swi	tch position.
SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Indoor setting temperature 62 to 86	62 to 86 [17 to 30°C]	°F [°C]
ON 1 2 3 4 5 6	Outdoor pipe temperature/2-phase pipe (TH6) -58 to 194	 −58 to 194 [−50 to 90°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) 	°F [°C]
ON 1 2 3 4 5 6	Outdoor outside temperature (TH7) −58 to 194	 −58 to 194 [−50 to 90°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) 	°F [°C]
ON 1 2 3 4 5 6	Outdoor heat sink temperature (TH8) −40 to 327	 -40 to 327 [-40 to 164°C] (When the temperature is 0°F or less, "-" and temperature are displayed by turns.) (When the thermistor detects 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) 	°F [°C]
ON 1 2 3 4 5 6	Discharge superheat. SHd 32 to 360 Cooling = TH32-TH6 Heating = TH32-TH5	32 to 360 [0 to 182°C] (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°F [°C]
	Sub cool. SC 32 to 266 Cooling = TH6-TH3 Heating = TH5-TH2	32 to 266 [0 to 130°C] (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°F [°C]
ON 1 2 3 4 5 6	<from (unit="" 18u*****="" no.)="" onward=""> Number of defrost cycles 0 to FFFE</from>	0 to FFFE (in hexadecimal notation) (When more than FF in hex (255 in decimal), the number is displayed in order of 16^{3} 's and 16^{2} 's, and 16^{1} 's and 16^{0} 's places. (Example) When 5000 cycles; 0.5 s $0.5 s$ $2 s9 \rightarrow C4 \rightarrow \Box$	2 cycles
ON 1 2 3 4 5 6	Input current of outdoor unit	0 to 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 to 255	0 to 255 (When it is 100 Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.)	Hz
ON 1 2 3 4 5 6	DC bus voltage 180 to 370	180 to 370 (When it is 100V or more, hundreds digit, tens digit and ones digit are displayed by turns.)	V

		The black square (■) indicates a swit	ch positior
SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	Capacity save 0 to 100 When air conditioner is connected to M-NET and capacity save mode is demanded, a value from "0" to "100" is displayed. [When there is no setting of capacity save, "100" is displayed.	0 to 100 (When the capacity is 100%, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 100%; 0.5 s 0.5 s 2 s $1 \rightarrow 00 \rightarrow \square$	%
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	Check code history (3) (Oldest) 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 thermistor display [When there is no error thermistor, ["–" is displayed.	 3: Outdoor pipe temperature /Liquid (TH3) 6: Outdoor pipe temperature /2-phase (TH6) 7: Outdoor ambient temperature (TH7) 8: Outdoor heat sink (TH8) 	Code display
ON 1 2 3 4 5 6	Operation frequency on error occurring 0 to 255	0 to 255 (When it is 100 Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125 Hz; 0.5 s 0.5 s 2 s $1 \rightarrow 25 \rightarrow \square$	Hz
ON 1 2 3 4 5 6	Fan step on error occurring 0 to 10	0 to 10	Step

		The black square (■) indicates a swi	tch position
SW2 setting	Display detail	Explanation for display	Unit
ON 1 2 3 4 5 6	LEV-A opening pulse on error occurring 0 to 480	0 to 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 s 0.5 s 2 s $1 \rightarrow 30 \rightarrow \square$	Pulse
ON 1 2 3 4 5 6	Indoor room temperature (TH1) on error occurring 46 to 102	46 to 102 [8 to 39°C]	°F [℃]
ON 1 2 3 4 5 6	Indoor pipe temperature/Liquid (TH2) on error occurring −38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) (Example) When –15°F; 0.5 s 0.5 s 2 s -□ → 15 → □□	°F [°C]
ON 1 2 3 4 5 6	Indoor pipe temperature/Cond./Eva. (TH5) on error occurring −38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) (Example) When –15°F; 0.5 s 0.5 s 2 s $-\Box \rightarrow 15 \rightarrow \Box$	°F [℃]
ON 1 2 3 4 5 6	Outdoor pipe temperature/2-phase (TH6) on error occurring −38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) (Example) When −15°F; 0.5 s 0.5 s 2 s $-\Box \rightarrow 15 \rightarrow \Box$	°F [°C]
ON 1 2 3 4 5 6	Outdoor outside temperature (TH7) on error occurring −38 to 190	-38 to 190 [-39 to 88°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) (Example) When −15°F; 0.5 s 0.5 s 2 s $-\Box \rightarrow 15 \rightarrow \Box$	°F [°C]
ON 1 2 3 4 5 6	Outdoor heat sink temperature (TH8) on error occurring −40 to 327	-40 to 327 [-40 to 164°C] (When the temperature is 0°F or less, "–" and temperature are displayed by turns.) (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.)	°F [°C]

		The black square (■) indicates	a switch positio			
SW2 setting	Display detail	Explanation for display	Unit			
ON 1 2 3 4 5 6	Discharge superheat on error occurring SHd 32 to 360	32 to 360 [0 to 182°C] (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150°F; 0.5 s 0.5 s 2 s $\Box 1 \rightarrow 50 \rightarrow \Box \Box$				
ON 1 2 3 4 5 6	Sub cool on error occurring. SC 32 to 266 [Cooling = TH6-TH3 Heating = TH5-TH2]	32 to 266 [0 to 130°C] (When the temperature is 100°F or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 115°F; $0.5 \le 0.5 \le 2 \le 11 \rightarrow 15 \rightarrow 10$				
ON 1 2 3 4 5 6	Thermostat-on time until error stops 0 to 999	0 to 999 (When it is 100 minutes or more, hundreds digit, digit and ones digit are displayed by turns.) (Example) When 415 minutes; 0.5 s 0.5 s 2 s $4 \rightarrow 15 \rightarrow 12$	Minute			
ON 1 2 3 4 5 6	Pipe temperature/Suction (TH33) −58 to 194	-58 to194 [-50 to 90°C] (When the coil thermistor detects 0°F or below, "- and temperature are displayed by turns.) (Example) When -10°F; 0.5 s 0.5 s 2 s -□ → 10 → □□	-" °F [°C]			
	U9 Error status during the Error	Description Detection point Disc				
ON	postponement period	Description Detection point Disp Normal - 0				
		Normal Overvoltage error Power circuit board 0				
1 2 3 4 5 6		Undervoltage error Controller circuit board 0.				
123456		Input current sensor error. L1 or L2-phase open error.	4			
		Abnormal power synchronous signal Power circuit board 0	8 Code			
		PEC error (A12_18_24NHA)	0 displa			
		PFC/ACTM error Check CNAF wiring. Undervoltage Defective ACTM/P.B. 2	0			
		Undervoltage Delective AC INVP.B. Display examples for multiple errors: Overvoltage (01) + Undervoltage (02) = 03 Undervoltage (02) + Power-sync signal error (08) = 0A L ₁ phase open error (04) + PFC error (10) = 14				

Explanation for display	1.1.5.24
	Unit
The 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 2 Secondary current control •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 2 Preventive control for excessive temperature rise of condensing temperature 4 Frosting preventing control 8 Preventive control for excessive temperature rise of heatsink (Example) The following controls are activated. • Primary current control LED • Preventive control for excessive temperature rise of condensing temperature	Code display
	operating status of unit. •The tens digit Display Compressor operating frequency control 1 Primary current control 2 Secondary current control 1 Primary current control 1 Preventive control for excessive temperature rise of discharge temperature 2 Preventive control for excessive temperature rise of condensing temperature 2 Preventive control for excessive temperature rise of heatsink 8 Preventive control for excessive temperature rise of heatsink (Example) The following controls are activated. • Primary current control LED • Preventive control LED

EASY MAINTENANCE FUNCTION

11-1. SMOOTH MAINTENANCE

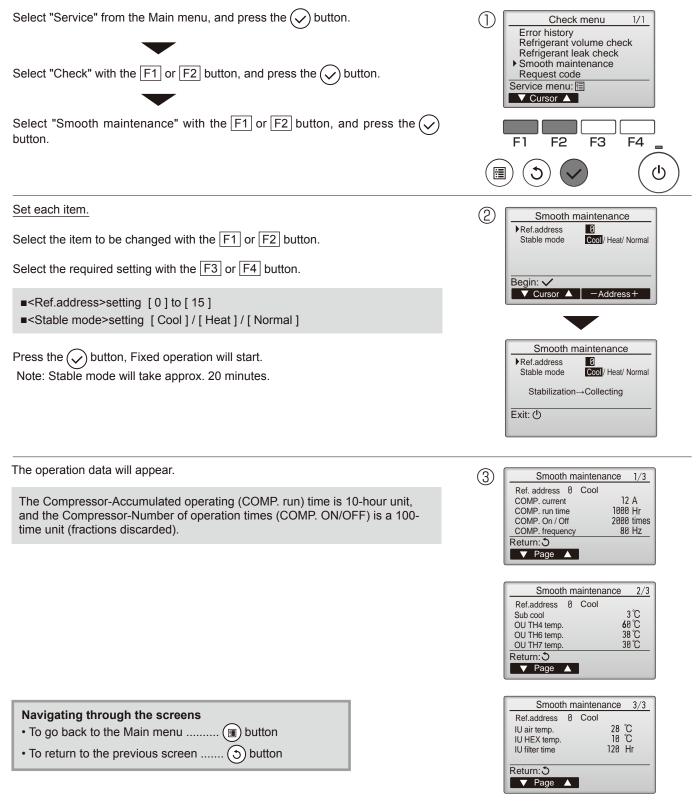
11-1-1. PAR-30MAA/PAR-31MAA

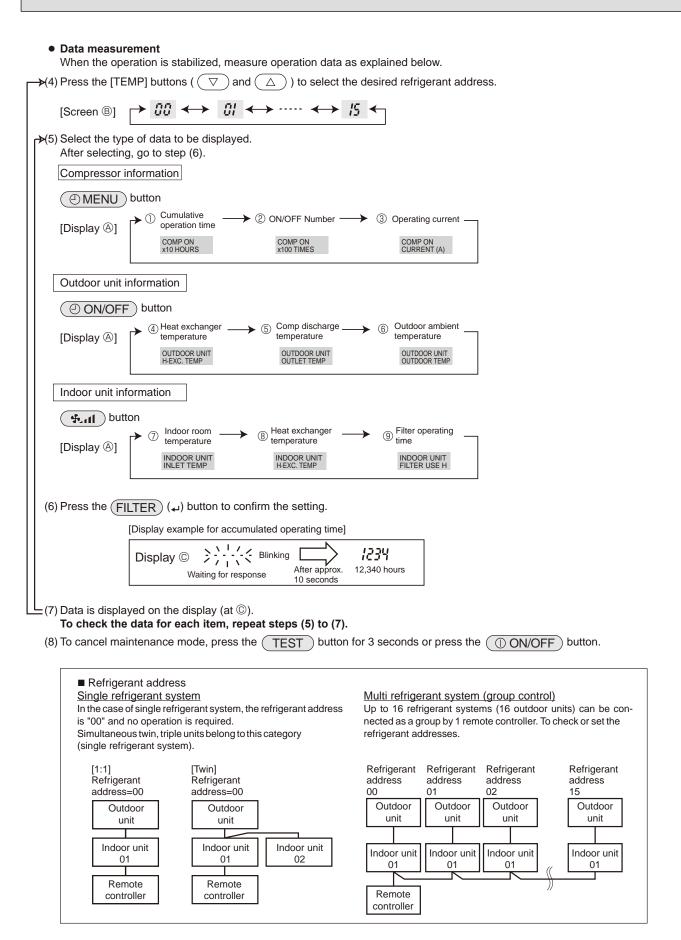
11

Maintenance data, such as the indoor/outdoor unit's heat exchanger temperature and compressor operation current can be displayed with "Smooth maintenance".

This cannot be executed during test operation.

Depending on the combination with the outdoor unit, this may not be supported by some models.





11-2.GUIDE FOR OPERATION CONDITION

		m		Res	sult		
>	-uo		Breaker	Good		Retigh	itened
lddr	Loose con- nection	Terminal block	Outdoor Unit	Good		Retigh	itened
Power supply	Loo		Indoor Unit	Good		Retigh	itened
OWe		(Insulation resista	ance)				MΩ
ď		(Voltage)					V
Com		① Accumulated o	perating time				Time
pres		② Number of ON	OFF times				Times
pies	501	③ Current					А
	e	④ Refrigerant/heat exc	hanger temperature	COOL	°F	HEAT	°F
	Temperature	⑤ Refrigerant/discharger	arge temperature	COOL	°F	HEAT	°F
Outdoor Unit	d m	6 Air/outside air t	temperature	COOL	°F	HEAT	°F
loor	Te	(Air/discharge temperature)		COOL	°F	HEAT	°F
Dutc	. <u>⊢</u>	Appearance		Good		Cleaning	required
	Cleanli- ness	Heat exchanger		Good		Cleaning	required
	n Cl	Sound/vibration		None		Pres	sent
	e	⑦ Air/intake air te	emperature	COOL	°F	HEAT	°F
	eratu	(Air/discharge t	emperature)	COOL	°F	HEAT	°F
	Temperature	⑧ Refrigerant/heat exc	changer temperature	COOL	°F	HEAT	°F
Unit	Te	Iter operating time*					Time
Indoor Unit	0	Decorative panel		Good		Cleaning	required
Inde	Jess	Filter		Good		Cleaning	required
	anlir	Fan		Good		Cleaning	required
	Cleanliness	Heat exchanger		Good		Cleaning	required
		Sound/vibration		None		Pres	sent

* The filter operating time is the time that has elapsed since the filter was reset.

Check Points

Enter the temperature differences between (5, @, ?) and (8) into the graph given below.

Operation state is determined according to the plotted areas on the graph.

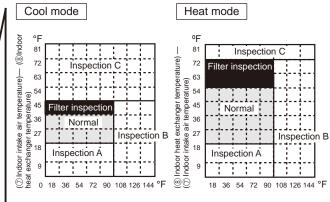
For data measurements, set the fan speed to "Hi" before activating maintenance mode.

С	Classification Item			esult
	Inspection	Is "000" displayed stably in Display D on the remote controller?	Stable	Unstable
Cool	Temperature difference	(⑤ Discharge temperature) – (④ Outdoor heat exchanger temperature)		°F
		(⑦ Indoor intake air temperature) – (⑧ Indoor heat exchanger temperature)		°F
	Inspection	Is "000" displayed stably in Display $\ensuremath{\mathbb{D}}$ on the remote controller?	Stable	Unstable
Heat	Temperature difference	(5) Discharge temperature) – (8) Indoor heat exchanger temperature)		°F
		 (1) Indoor heat exchanger temperature) – (1) Indoor intake air temperature) 		°F

Notes:

1. Fixed Hz operation may not be possible under the following temperature ranges.

- A)In cool mode, outdoor intake air temperature is 104°For higher or indoor intake air temperature is 73°F or lower.
- B)In heat mode, outdoor intake air temperature is 68 °F or higher or indoor intake air temperature is 77 °F or lower.
- 2. If the air conditioner is operated at a temperature range other than the ones above but operation is not stabilized after 30 minutes or more have elapsed, carry out inspection.
- 3. In heat mode, the operation state may vary due to frost forming on the outdoor heat exchanger.



 $[\textcircled{5} \text{ Discharge temperature}] - [\textcircled{4} \text{ Outdoor heat exchanger temperature}) }$

Area Check item		Judg	ment	
Aiva		Cool	Heat	
Normal	Normal operation state		Ĭ	
Filter inspection	Filter may be clogged.*			
Inspection A	Performance has dropped. Detailed in-			
	spection is necessary.			
Inspection B	Refrigerant amount is dropping.			
Inspection C	Filter or indoor heat exchanger may be			
	clogged.			

Note: The above judgment is just guide based on Japanese standard conditions. It may be changed depending on the indoor and outdoor temperature.

* It may be judged as "filter inspection" due to the outdoor and indoor temperature, even though it is not clogged.

Result

[[]⑤ Discharge temperature] – [⑧ Indoor heat exchanger temperature)

11-3. INITIAL SETTINGS FOR REFRIGERANT LEAKAGE DETECTION FUNCTION 11-3-1. PAR-30MAA/PAR-31MAA

Refrigerant leakage is detected after a long time.

To enable this function, the refrigerant volume must be saved (initial learning) after installation. Always operate this function in the following manners after installation.

• Always perform test run before using this function, and confirm that the air conditioner operates normally.

• To accurately detect refrigerant leaks, set the wind speed to strong, and execute this operation.

"Refrigerant leak check" is valid only with models which support the refrigerant leak check function.

(1) Select "Service" from the Main menu, and press the \bigodot button.	Check menu 1/1 Error history Refrigerant volume check
Select "Check" with the $\boxed{F1}$ or $\boxed{F2}$ button, and press the \bigcirc button.	Refrigerant leak check Smooth maintenance Request code Service menu: [2] Cursor
Select "Refrigerant leak check" with the $\boxed{F1}$ or $\boxed{F2}$ button, and press the \checkmark button.	F1 F2 F3 F4
2 Stable mode will start.	Refrigerant leak check
Press the \bigcirc button, stable mode(*) will start.	Start refrigerant leak check
*Stable mode will take approx. 20 minutes.	Approx. 20minutes
	Begin: 🗸

③ The operation data will appear.

The following value is the reference for the refrigerant volume check. If the refrigerant is leaking, "NG" will appear.

The refrigerant volume check reference value can be changed with the function selection.
Default value RP71 -: 80%
- RP50 : 70%

<Resetting the initial learning data>

•If the unit has been relocated or if refrigerant has been additionally charged, the initial learning data must be reset and learning performed again.

Refrigerant leak check

0 OK

1 OK

2 OK

NG

Check menu: 🕽 Page

Add Cond Add Cond

1/2

4 OK

5 NG

6 -

- How to reset the data:
- 1. Turn the main power OFF.
- 2. Attach the short-circuit pin for the emergency operation connector (CN31) on the outdoor controller board to the ON side.
- 3. Turn ON the test run switch (SW4-1) on the outdoor controller board.
- 4. The data will be reset when the main power is turned ON.
- 5. Turn the main power OFF.
- 6. Turn OFF the test run switch (SW4-1).
- 7. Return the short-circuit pin for the emergency operation connector (CN31) to the OFF side.

•Under the following conditions, it may not be possible to carry out stable operation or accurately detect refrigerant leaks.

- When the outdoor intake temperature is 40°C or higher, or when the indoor intake temperature is 23°C or less.
- When the indoor fan speed is not set to strong.

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FUNCTION SETTING

12-1. UNIT FUNCTION SETTING BY 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.

(1) Functions available when setting the unit number to 00 (Select 00 referring to ④ setting the indoor unit number.)

<Table 1> Function selections

12

Function	Settings	Mode No. Wired remote controller (RF thermistor)	Setting No.	•: Initial setting (when sent from the factory)	Remarks
Power failure	Not available	01	1		
automatic recovery	Available	(101)	2		The setting is
Indoor temperature	Average data from each indoor unit		1		applied to all
detecting	Data from the indoor unit with remote controllers	02	2		the units in the
Ŭ	Data from main remote controller	(—)	3		same
LOSSNAY	Not supported		1		refrigerant
connectivity	Supported (indoor unit dose not intake outdoor air through LOSSNAY)	03	2		system.
	Supported (indoor unit intakes outdoor air through LOSSNAY)	(103)	3		- /
Power supply	230V	04	1		
voltage	208V	(104)	2		
Frost prevention	2°C [36°F] (Normal)	15	1		
temperature	3°C [37°F]	(115)	2		
Humidifier control	When the compressor operates, the humidifier also operates.	16	1		
	When the fan operates, the humidifier also operates.	(116)	2		
Change of	Standard	17	1		
defrosting control	For high humidity	(117)	2		

Meaning of "Function setting"

Mode02 : indoor temperature detecting

No.	Indoor temperature(ta)=		OUTDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR	OUTDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR INDOOR		
	Ű,	Initial setting		ta=(A+B)/2	ta=A	ta=A
	Data of the sensor on the indoor unit that connected with remote controller		ta=A	ta=B	ta=A	ta=A
	Data of the sensor on main remote controller		ta=C	ta=C	ta=C	ta=C

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

When setting functions for an independent system, set the unit number to 01 relearning to (a) setting the indoor unit number.
When setting functions for a simultaneous twin 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 (a) setting the indoor unit number.
When setting the same functions for an entire simultaneous Twin-indoor unit system, set refrigerant address to AL (07 in case of IR wireless remote controller) referring to (a) setting the indoor unit number.

		Mode No.		●: Initia	I setting (Factor - : Not availab		
Function	Settings	Wired remote controller	Setting No.	4-Way cassette	Ceiling suspended Wall mounted		ounted
		(RF thermistor)		PLA-BA	PCA-KA	PKA-HA(L)	PKA-KA(L)
Filter sign	100h	07	1				
	2500h 07 2 (107) 2		2	•			
	"Clean the filter" indicator is not displayed	(107)	3				
Air flow	Quiet	08	1			-	
(Fan speed)	Standard		2	•	•	•	•
	High ceiling	(108)	3				-
No.of air outlets	4 directions		1	•	-	-	-
	3 directions	09	2		-	-	-
	2 directions	(109)	3		-	-	-
Optional high efficiency	Not supported	10	1	•	•	-	-
filter	Supported	(110)	2			-	-
Vane setting	No vanes (Vane No.3 setting : PLA only)		1			-	-
and county	Vane No.1 setting	11	2	•	•	-	-
	Vane No.2 setting	(111)	3			-	-
Optional humidifier	Not supported	13	1	•	-	-	-
(PLA only)	Supported	(113)	2		-	-	-
Vane differential setting	No.1 setting (TH5: 75-82°F (24-28°C))		1				
in heating mode	No.2 setting (Standard, TH5: 82-90°F (28-32°C))	14	2	•	•	•	•
(cold wind prevention)	No.3 setting (TH5: 90-100°F (32-38°C))	(114)	3		_		
Swing	Not available Swing \PLA-BA	23	1				
- · · · · · · · · · · · · · · · · · · ·	Available Wave air flow	(123)	2	•	•	•	•
Set temperature in heating	Available	24	1	•	•	•	•
mode (4 deg up) *1	Not available	(124)	2				
Fan speed when the	Extra low		1	•	•	•	
heating thermostat is OFF	Stop	25	2				
······································	Keeping fan speed set by remote controller	(125)	3				
Fan speed when the	Keeping fan speed set by remote controller	27	1	•	•	•	•
cooling thermostat is OFF	Stop	(127)	2				
Detection of abnormality of	Detect	28	1	•	•	•	•
the pipe temperature (P8)	Neglect	(128)	2		1		

*1. PKA-HA(L)/KA(L): 3.6°F (2°C) up.

Mode No.11

Setting No.	Settings	PLA-BA	PCA-KA
1	Vane No.3 setting No Vanes	Less smudging (Downward position than the standard)	No vane function
2	Vane No.1 setting	Standard	Standard
3	Vane No.2 setting	Less draft * (Upward position than the standard)	Less draft * (Upward position than the standard)

* Be careful of the smudge on ceiling.

PEAD-AA

Function	Settings	Mode No. Wired remote controller (RF thermistor)	Setting No.	• : Initial setting (Factory setting)
Filter sign	100h 2500h No filter sign indicator	07 (107)	1 2 3	•
External static pressure	35/50/70/100/125Pa	08 (108)	Refe	r to the right table
		10 (110)	Refer to the right table	
Set temperature in heating mode (4 deg up)	Available Not available	24 (124)	1 2	•
Fan speed during the heating thermo OFF	Extra low Stop Set fan speed	25 (125)	1 2 3	•
Fan speed during the cooling thermo OFF	Set fan speed Stop	27 (127)	1 2	•
Detection of abnormality of the pipe temperature (P8)	Available Not available	28 (128)	1 2	•

_	Setting No.		
External static	Mode No.		Initial setting
pressure	Wired remote controller		(Factory setting)
	8 (108)	10 (110)	
35Pa	2	1	
50Pa	3	1	•
70Pa	1	2	
100Pa	2	2	
125Pa	3	2	

12-1-1. Selecting functions using the wired remote controller <PAR-30MAA> <PAR-31MAA>

<Service menu>

Maintenance password is required	
 Select "Service" from the Main menu, and press the button. *At the main display, the menu button and select "Service" to make the maintenance setting. 	Main Main menu 3/3 Maintenance Initial setting ▶ Service Main display: > ✓ Cursor ▲ ♥ Page ▶
 When the Service menu is selected, a window will appear asking for the password. To enter the current maintenance password (4 numerical digits), move the cursor to the digit you want to change with the F1 or F2 button. Set each number (0 through 9) with the F3 or F4 button. Then, press the button. Note: The initial maintenance password is "9999". Change the default password as necessary to prevent unauthorized access. Have the password available for those who need it. If you forget your maintenance password, you can initialize the password to the default password "9999" by pressing and holding the F1 and F2 buttons simultaneously for three seconds on the maintenance password setting screen.	Service menu Enter maintenance password Select: ✓ Cursor > F1 F2 F3 F4 (1) (1) (1) (1) (1) (1) (1) (1)
③ If the password matches, the Service menu will appear. The type of menu that appears depends on the connected indoor units' type.	Service menu 1/2 Test run Input maintenance info. Function setting Check Self check Main menu: V Cursor
Note: Air conditioning units may need to be stopped to make certain set- tings. There may be some settings that cannot be made when the system is centrally controlled.	Service menu 2/2 Maintenance password Remote controller check

A screen will appear that indicates the setting has been saved.

Navigating through the screens
• To go back to the Main menu 🗊 button
To return to the previous screen D button

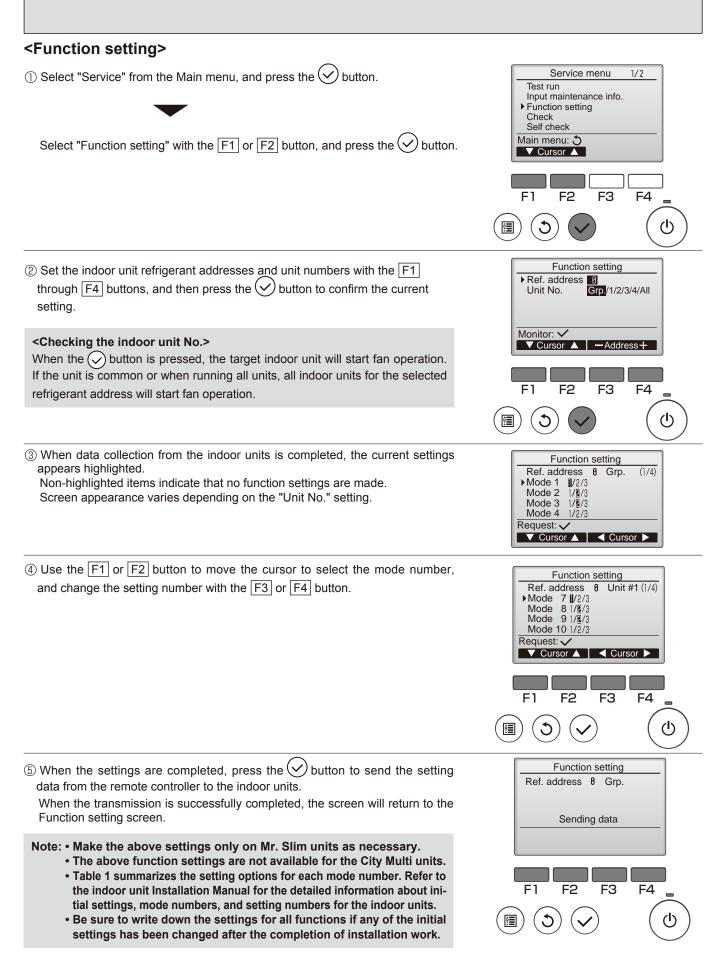
OCH577A

Main menu: う ▼ Cursor ▲

Service menu: 3

Service menu

Not available. Please stop the unit.

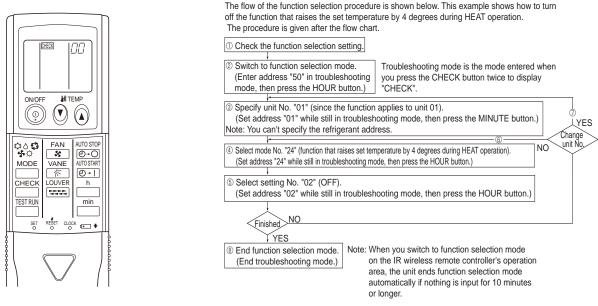


Operating Pro	cedure]
Check the setting items If settings for a mode are	provided by function selection. changed by function selection, the functions of that mode will be changed accordingly. Check all the current settings according to steps olumn in Table 1, then change them as necessary. For initial settings, refer to the indoor unit's installation manual.
	efrigerant address
	TION blinked for 2 seconds or "88" blinks in the room temperature display area for 2 seconds, a transmission error may have occurred. any sources of noise or interference near the transmission path.
	perational mistakes during this procedure, exit function selection (see step (10)), then restart from step (2).
Set the indoor unit numb Press the ON/OP area.	er. F button so that "" blinks in the unit number display F button so that "" blinks in the unit number display f button so that "" blinks in the unit numbe
	Unit number display section
To set modes 07 to 14 o To set each indoor ur To set all the indoor u Confirm the refrigerant a © Press the <u>MODE</u> number.	15 to 22, select unit number "00". (E) 23 to 28, carry out as follows: (E) it individually, select "01" to "04". (E) nits collectively, select "AL". (E) ddress and unit number. (E) button to confirm the refrigerant address and unit (E) start to blink in the mode number display area. (E) 00 refrigerant address (E) 00 refrigerant address (E)
Mode number display section	FUNCTION Image: Bit indication in the second seco
refrigerant address di spond to the selected number may be incor Select the mode number (© Press the [\$ TEMP] number.	ears and blinks in the unit number display area and the splay area also blinks, there are no units that corre- nit number. In this case, the refrigerant address and unitone to which the refrigerant address has been set to perform fan operation there may be another refrigerant address that is the same as the specified one. In this case, check the DIP switch of the outdoor unit to see whether such a refrigerant address exists.buttons (\bigtriangledown and \bigtriangleup) to set the desired modeMode number display sectionImage: Display area and blinks, there are no units that corre- there may be another refrigerant address that is the same as the specified one. In this case, check the DIP switch of the outdoor unit to see whether such a refrigerant address exists.buttons (\bigtriangledown and \bigtriangleup) to set the desired modeMode number display sectionImage: Display area and Display area and the refrigerant address has been set to perform fan operation there may be another refrigerant address that is the same as the specified one. In this case, check the DIP switch of the outdoor unit to see whether such a refrigerant address exists.
(Only the selectable n	node numbers can be selected.)
 Select the setting conter Press the	J) button. The currently selected setting number will number.
ě	number display section
	have made in steps ③ to ⑦. The mode number and setting number will stop blinking and remain lit, indicating the end of registration. In starts.
	FUNCTION 00 00 SELECTION 00 00 O23 .
	oth the mode number and setting number and "BB " blinks in the room temperature display area, a transmission error may have occurred. any sources of noise or interference near the transmission path.
If you wish to continue to	select other functions, repeat steps ③ to ⑧.
Complete function selec (a) Hold down the FILTE simultaneously for at I After a while, the func- tioner OFF screen will	R (mode is 15 to 28) and (TEST buttons ast 2 seconds. tion selection screen will disappear and the air condi-
Note: If a function of an indoor of 1 to indicate the change.	nit is changed by function selection after installation is complete, make sure that a "O" mark, etc., is given in the "Check" column of Table

12-1-2. Selecting functions using the IR wireless remote controller (Type C)

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

[Flow of function selection procedure]



[Operating instructions]

0 Check the function settings.

- ^② Press the $\overset{CHECK}{\square}$ button twice continuously. → \overrightarrow{CHECK} is lit and "00" blinks.
- Press the TEMP (a) button once to set "50". Direct the IR wireless remote controller toward the receiver of the indoor unit and press the h button.
- ③ Set the unit number.

Press the TEMP () button to set the unit number. (Press "01" to specify the indoor unit whose unit number is 01.) Direct the IR wireless remote controller toward the receiver of the indoor unit and press the mine button.

By setting unit number with the intermediate 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.

Notes:

1. 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 ping sound" may be heard. Reenter the unit number setting.
 Select a mode.

Press the TEMP 0 button to set a mode. Press "24" to turn on the function that raises the set temperature by 4 degrees during heat operation. Direct the IR wireless remote controller toward the sensor of the indoor unit and press the $\overset{h}{\square}$ button. \rightarrow The sensor-operation indicator will blink 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)

Notes:

1. 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.

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

Select the setting number.

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

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

 \rightarrow The sensor-operation indicator will blink and beeps will be heard to indicate 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 3 times)

Notes:

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

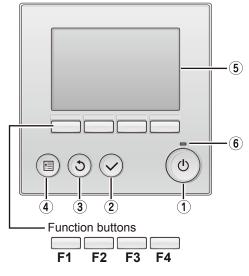
- 2. If the signal was not received by the sensor, you will not hear a beep or a "double ping sound" may be heard. Reenter the setting number.
- 6 Repeat steps 4 and 5 to make an additional setting without changing unit number.
- $\ensuremath{\mathbbmill}$ Repeat steps $\ensuremath{\mathbbmath{\mathbbmath{\mathbbmath{\mathbb S}}}}$ to $\ensuremath{\mathbbmath{\mathbb S}}$ to change unit number and make function settings on it.
- ⑧ Complete the function settings

Press () button.

Note: Do not use the IR wireless remote controller for 30 seconds after completing the function setting.

12-2. FUNCTION SELECTION OF REMOTE CONTROLLER

12-2-1. PAR-30MAA/PAR-31MAA



1 ON/OFF button

Press to turn ON/OFF the indoor unit.

2 SELECT button

Press to save the setting.

3 RETURN button

Press to return to the previous screen.

(4) MENU button

Press to bring up the Main menu.

5 Backlit LCD

Operation settings will appear.

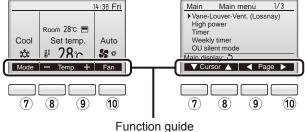
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the 0 (ON/OFF) button)

The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.

When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.

<Main display> <Main menu>



6 ON/OFF lamp

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

? Function button **F1**

Main display : Press to change the operation mode. Main menu : Press to move the cursor down.

8 Function button F2

Main display : Press to decrease temperature. Main menu : Press to move the cursor up.

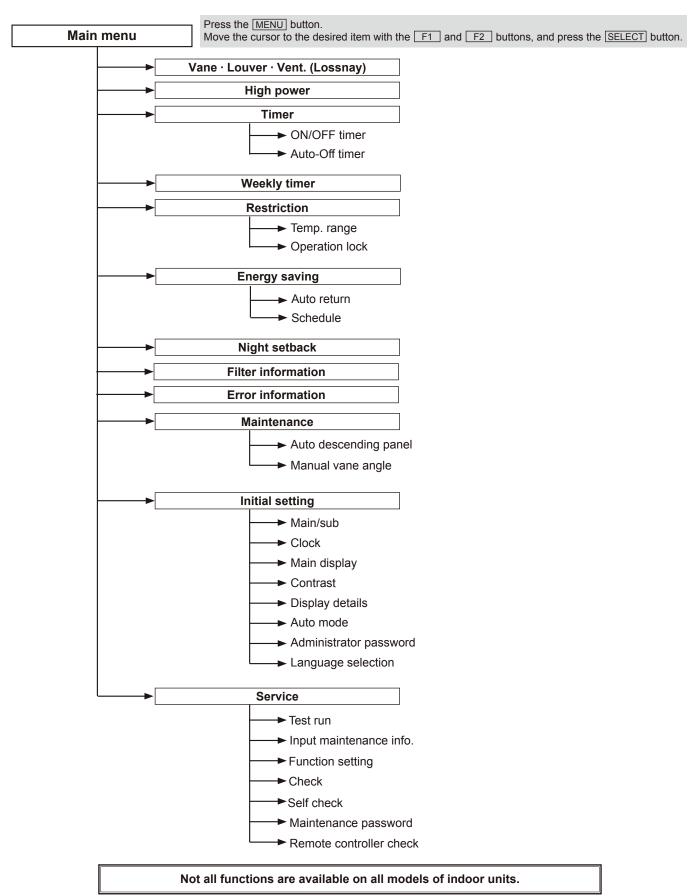
9 Function button F3

Main display : Press to increase temperature. Main menu : Press to go to the previous page.

10 Function button **F4**

Main display : Press to change the fan speed. Main menu : Press to go to the next page.

Menu structure



Main menu list

Setting and display items		Setting details			
Vane · Louver · Vent. (Lossnay)		Use to set the vane angle. • Select a desired vane setting from five different settings. Use to turn ON/OFF the louver. • Select a desired setting from "ON" and "OFF." Use to set the amount of ventilation. • Select a desired setting from "Off," "Low," and "High."			
High power		Use to reach the comfortable room temperature quickly. • Units can be operated in the High-power mode for up to 30 minutes.			
Timer	ON/OFF timer*	Use to set the operation ON/OFF times. • Time can be set in 5-minute increments.			
	Auto-Off timer	Use to set the Auto-Off time. • Time can be set to a value from 30 to 240 in 10-minute increments.			
Weekly timer*		Use to set the weekly operation ON/OFF times. • Up to 8 operation patterns can be set for each day. (Not valid when the ON/OFF timer is enabled.)			
Restriction	Temp. range	Use to restrict the preset temperature range. • Different temperature ranges can be set for different operation modes.			
	Operation lock	Use to lock selected functions. • The locked functions cannot be operated.			
Energy saving	Auto return Schedule*	Use to get the units to operate at the preset temperature after performing energy-save operation for a specified time period. • Time can be set to a value from 30 and 120 in 10-minute increments. (This function will not be valid when the preset temperature ranges are restricted.) Set the start/stop times to operate the units in the energy-save mode for each day of the week, and set the			
		 energy-saving rate. Up to 4 energy-save operation patterns can be set for each day. Time can be set in 5-minute increments. Energy-saving rate can be set to a value from 0% or 50 to 90% in 10% increments. 			
Night setback*		Use to make Night setback settings. • Select "Yes" to enable the setting, and "No" to disable the setting. The temperature range and the start/stop times can be set.			
Filter information		Use to check the filter status. • The filter sign can be reset.			
Error information		 Use to check error information when an error occurs. Check code, error source, refrigerant address, unit model, manufacturing number, contact information (dealer's phone number) can be displayed. (The unit model, manufacturing number, and contact information need to be registered in advance to be displayed.) 			
Maintenance	Auto descending panel	Auto descending panel (Optional parts) Up / Down you can do.			
	Manual vane angle	Use to set the vane angle for each vane to a fixed position.			
Initial setting	Main/Sub	When connecting two remote controllers, one of them needs to be designated as a sub controller.			
	Clock	Use to set the current time.			
	Main display	Use to switch between "Full" and "Basic" modes for the Main display. • The initial setting is "Full."			
	Contrast	Use to adjust screen contrast.			
	Display details	Make the settings for the remote controller related items as necessary. Clock: The initial settings are "Yes" and "24h" format. Temperature: Set either Celsius (°C) or Fahrenheit (°F). Room temp. : Set Show or Hide. Auto mode: Set the Auto mode display or Only Auto display.			
	Auto mode	Whether or not to use the Auto mode can be selected by using the button. This setting is valid only when indoor units with the Auto mode function are connected.			
	Administrator password	The administrator password is required to make the settings for the following items. • Timer setting • Energy-save setting • Weekly timer setting • Restriction setting • Outdoor unit silent mode setting • Night set back			
	Language selection	Use to select the desired language.			
Service	Test run	Select "Test run" from the Service menu to bring up the Test run menu. • Test run • Drain pump test run			
	Input maintenance	Select "Input maintenance Info." from the Service menu to bring up the Maintenance information screen. The following settings can be made from the Maintenance Information screen. • Model name input • Serial No. input • Dealer information input			
	Function setting	Make the settings for the indoor unit functions via the remote controller as necessary.			
	Check	Error history: Display the error history and execute "delete error history". Refrigerant leak check: Refrigerant leaks can be judged. Smooth maintenance: The indoor and outdoor maintenance data can be displayed. Request code: Details of the operation data including each thermistor temperature and error history can be checked.			
	Self check	Error history of each unit can be checked via the remote controller.			
	Maintenance password Remote controller check	Use to change the maintenance password. When the remote controller does not work properly, use the remote controller checking function to trouble-			
		shoot the problem.			

* Clock setting is required.

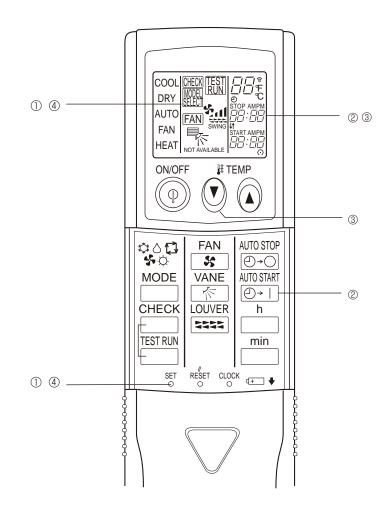
12-3. Function selection of IR wireless remote controller TEMPERATURE DISPLAY °C/°F SETTING (Change of temp mode from °F to °C)

① Press the set button with something sharp at the end. MODEL SELECT blinks.

② Press the AUTO START $<math>\bigcirc$ → | button. "°F" blinks.

③ Press the () button. "°C" blinks.

④ Press the set button with something sharp at the end. MODEL SELECT is lighted for 3 seconds, then turned off.



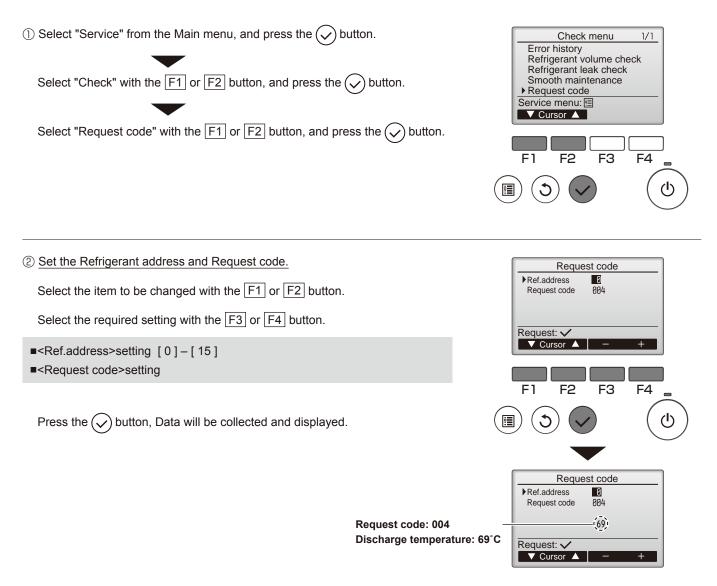
MONITORING THE OPERATION DATA BY THE REMOTE CONTROLLER

13-1. HOW TO "MONITOR THE OPERATION DATA"

13-1-1. PAR-30MAA/PAR-31MAA

13

Details on the operation data including each thermistor temperature and error history can be confirmed with the remote controller.



13-2. REQUEST CODE LIST

Certain indoor/outdoor combinations do not have the request code function; therefore, no request codes are displayed.

98 Processor Description (Display range) Unit Remains 0 Compressor-Operating current (rms) 0-500 A 1 Compressor-Operating current (rms) 0-500 100 2 Compressor-Operating current (rms) 0-500 100 3 Compressor-Operating three protocols (rms) 0-500 100 4 Dechage memory (rms) -54-184 -74 5 Oxfordor unit-Liquid play 2 incremonaux (rms) -54-184 -74 6 Oxfordor unit-Liquid play 2 incremonaux (rms) -54-184 -74 7 Oxfordor unit-Liquid play 2 incremonaux (rms) -54-184 -74 8 Oxfordor unit-Liquid play 2 incremonaux (rms) -54-184 -74 9 Oxfordor unit-Liquid play 2 incremonaux (rms) -54-184 -74 10 Oxfordor unit-Liquid play 2 incremonaux (rms) -52-184 -74 10 Oxfordor unit-Liquid play 2 incremonaux (rms) -52-184 -74 10 Oxfordor unit-Liquid play 2 incremonaux (rms) -52-184 -74 10 Ox			, , , , , , , , , , , , , , , , , , ,	,	
Image: second problem (mm) 0-50 A 2 Congressor-Anomaliad operating time 0-999 100 bres 3 Congressor-Anomaliad operating time 0-999 100 bres 4 Discharge tamperature (1H2) 37-327 17 5 Outdoor unit - Liquid ppt stremperature (1H2) 38-134 17 6 Outdoor unit - Liquid ppt stremperature (1H4) 48-134 17 7 Outdoor unit - Liquid ppt stremperature (1H4) 48-130 17 8 Suction temperature (1H3) 48-134 17 10 Outdoor unit - tessions temperature (1H3) 48-130 17 10 Outdoor unit - tessions temperature (1H3) 48-227 17 10 Outdoor unit - tessions temperature (1H3) 6-327 17 11 Bub cord (SC) 0-235 H2 10 12 Sub-cord (SC) 0-255 H2 10 13 Outdoor unit - fan august tession temperature (1H2) 0-499 10m 14 Compressor-Target operating frequency 0-425 H2	Request code	Request content	·	Unit	Remarks
2 Compressor Accumulated operating time 0-9999 10 hurse 3 Compressor Accumulated operating time 0-9999 100 lunce 4 Discharge temperature (1H3) -48-194 "F" 6 Outdoor unit - Liquid pipe temperature (1H8) -48-194 "F" 7 Outdoor unit - Liquid pipe temperature (1H8) -48-194 "F" 8 Stants temperature (1H3) -48-194 "F" 9 Outdoor unit - Liquid pipe temperature (1H7) -88-190 "F" 10 Outdoor unit comperature (1H3) -40-327 "F" 10 Outdoor unit comperature (1H3) -40-327 "F" 11 Discharge super heat (SH4) 0-527 "F" 12 Discharge super heat (SH4) 0-527 "F" 13 Subcoot ISC) 0-224 "F" 14 Outdoor unit-Fan 1 speed 0-10 Step 15 Compressor-Taget operating frequency 0-255 Hz 16 Outdoor unit-Fan 2 speed 0-10 Step 10 Outd	0	Operation state	Refer to 13-2-1. Detail Contents in Request Code.	-	
2 Compressor Accumulated operating time 0-9999 10 hurse 3 Compressor Accumulated operating time 0-9999 100 lunce 4 Discharge temperature (1H3) -48-194 "F" 6 Outdoor unit - Liquid pipe temperature (1H8) -48-194 "F" 7 Outdoor unit - Liquid pipe temperature (1H8) -48-194 "F" 8 Stants temperature (1H3) -48-194 "F" 9 Outdoor unit - Liquid pipe temperature (1H7) -88-190 "F" 10 Outdoor unit comperature (1H3) -40-327 "F" 10 Outdoor unit comperature (1H3) -40-327 "F" 11 Discharge super heat (SH4) 0-527 "F" 12 Discharge super heat (SH4) 0-527 "F" 13 Subcoot ISC) 0-224 "F" 14 Outdoor unit-Fan 1 speed 0-10 Step 15 Compressor-Taget operating frequency 0-255 Hz 16 Outdoor unit-Fan 2 speed 0-10 Step 10 Outd			1	Α	
3 Compressor Number of operation times 0.9999 100 imag 4 Discharge temperature (TH3) 37-327 YF 6 Outdoor unit- Liquid pope 1 temperature (TH3) -58-194 YF 7 Outdoor unit- Liquid pope 2 temperature (TH4) -58-190 YF 8 Suction temperature (TH3) -58-190 YF 10 Outdoor unit-Rotation at temperature (TH4) -68-194 YF 10 Outdoor unit-Rotation at temperature (TH4) -68-217 YF 10 Outdoor unit-Rotation at temperature (TH4) -68-217 YF 11 Image Image Image 12 Discharge super heat (SH4) 0-327 YF 13 Sub-cool (SC) 0-285 H2 14 Image Image Image 15 Compressor-Operating frequency 0-285 H2 16 Outdoor unit-Fan adput stepp 0-9999 Ipm YI is displayed if the air conditioner is a single-fan 16 Outdoor unit-Fan adput stepp 0-500 Pulates Ima					
1 Discharge temperature (TH32) 37-327 YF 6 Outdoor unit - Liquid ppe temperature (TH3) -68-104 YF 7 Outdoor unit - Liquid ppe temperature (TH4) -68-103 YF 8 Surion temperature (TH3) -68-103 YF 10 Outdoor unit - Liquid ppe temperature (TH4) -68-103 YF 10 Outdoor unit - Cusicia at temperature (TH4) -68-103 YF 11 Outdoor unit - Cusicia at temperature (TH4) -68-103 YF 12 Discharge super heat (SH4) 0 -40-327 YF 13 Subcool (SC) 0-324 YF - 14					
6 Outdoor unit- Liquid ppe 1 temperature (THS) -48-194 YF 6 Outdoor unit- Liquid ppe 1 temperature (THS) -48-190 YF 7 Outdoor unit-2-phase pip temperature (THS) -58-190 YF 8 Suction temperature (THS) -63-190 YF 10 Outdoor unit-Result is temperature (THS) -40-327 YF 11					
a Outdoor unit - Liquid pipe 2 temperature -40-94 P_F 7 Outdoor unit - Liquid pipe 2 temperature (THB) -58-190 P_F 0 Outdoor unit - Outside at temperature (THR) -58-190 P_F 0 Outdoor unit - Outside at temperature (THR) -40-327 P_F 10 Outdoor unit - National temperature (THR) -40-327 P_F 11 Discharge super heat (SHV) 0-327 P_F 12 Discharge super heat (SHV) 0-327 P_F 13 Subcool (SC) 0-324 P_F 14					
7 Outdoor unk-2phase pipe temperature (TH6) -58-190 9F 8 Suction temperature (TH3) -58-194 9F 10 Outdoor unk-Outside air temperature (TH7) -49-227 9F 11					
8 Suction temperature (TH33) -58-194 9 9 Outdoor unik-Quiside att temperature (TH7) -58-190 9 10 Outdoor unik-Quiside att temperature (TH7) -40-327 9 11 Outdoor unik-Quiside att temperature (TH8) -40-327 9 12 Discharge super heat (SH4) 0-327 9 13 Sub-cool (SC) 0-324 9 14					
0 Outdoor unit-Outside at temperature (TH7) -58-190 9 10 Outdoor unit-Heatsinit temperature (TH7) -48-327 9 11 Outdoor unit-Heatsinit temperature (TH8) -49-327 9 12 Dickharge super heat (SH4) 0-327 9 13 Sub-cool (SC) 0-234 9 14					
10 Outdoor unit-Heatsink temperature (TH8) -40-327 1*F 11 0 0-327 1*F 12 Discharge super heat (SH4) 0-327 1*F 13 Sub-cool (SC) 0-234 1*F 14					
11 11<	-				
12 Decharge super heat (SHd) 0-327 'F 13 Sub-cool (SC) 0-234 'F 14 'F 'F 15	-		-40-327		
13 Sub-cool (SC) 0-234 'F 14	-	Discharge super best (SHd)	0.327	٥E	
14 15 16 15 Compressor-Deprating frequency 0-255 Hz 17 Compressor-Target operating frequency 0-255 Hz 18 Outdoor unit-Fan 1 speed 0-9999 rpm 19 Outdoor unit-Fan 1 speed 0-9999 rpm 19 Outdoor unit-Fan 2 speed 0-9999 rpm 20 Uctor unit-Fan 2 speed 0-9999 rpm 21 LEV (A) opening 0-500 Putese 22 LEV (B) opening 0-500 Putese 24 25 Primary current 0-50 A 26 DC bus votage 180-370 V 27 28 Number of connected indoor units 0-4 Units 30 Indoor unit-Read interperature 82-86 'FE 31 Indoor unit-Inake air temperature 46-102 'FE 31 Indoor unit-Inake air temperature 46-102 'FE	-				
15 0 0 16 Compressor-Deprating frequency 0-255 Hz 18 Outdoor unit-Fan output step 0-10 Step 19 Outdoor unit-Fan output step 0-10 Step 19 Outdoor unit-Fan 1 speed 0-9999 rpm 10 Outdoor unit-Fan 2 speed 0-9999 rpm 10 Outdoor unit-Fan 2 speed 0-9999 rpm 11 Outdoor unit-Fan 2 speed 0-9999 rpm 12 LEV (A) opening 0-600 Putese 24 Premary current 0-50 A 25 Primary current 0-50 A 26 DC bus voltage 186-370 V 27 Indoor unit-Take air temperature 62-86 °F 28 Indoor unit-Take air temperature 62-86 °F 30 Indoor unit-Take air temperature 62-86 °F 31 Indoor unit-Take air temperature (Unit No. 1) 46-102 °F † 31 Indoor unit-T			0–234	-*F	
16 Compressor-Operating frequency 0-255 Hz 17 Compressor-Target operating frequency 0-255 Hz 18 Outdoor unit-Fan output step 0-10 Step 10 Outdoor unit-Fan 1 speed 0-9999 rpm 20 Outdoor unit-Fan 1 speed 0-9999 rpm 20 Outdoor unit-Fan 2 speed 0-9999 rpm 21 Cuttoor unit-Fan 2 speed 0-9999 rpm 21 LEV (A) opening 0-500 Pulses 22 LEV (A) opening 0-500 Pulses 23 LEV (B) opening 0-500 Pulses 24 De bas voltage 180-370 V 27 De bas voltage 180-370 V 28 Number of connected indoor units 0-4 Units 30 Indoor unit-Raike air temperature (Unit No. 1) 46-102 *F 31 Indoor unit-Inake air temperature (Unit No. 2) 46-102 *F 4eat mode-4-deg correction- 46-102 *F † 33 Indoor unit-Inake air temperature (Unit No. 2) -38-190 *F † 4eat mode-4-deg correction- 46-102 *F † 34 Indoor unit-Inake air temperature (Unit No					
17 Compressor-Target operating frequency 0-255 Hz 18 Outdoor unit-Fan 1 speed 0-9999 rpm 19 Outdoor unit-Fan 1 speed 0-9999 rpm 20 Outdoor unit-Fan 2 speed 0-9999 rpm 20 Outdoor unit-Fan 2 speed 0-9999 rpm '0' is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the air conditioner is a single-fan (by is displayed if the target unit is not present. 21 Lev (b) opening 0-4 Units 23 Indoor unit-Intake air temperature (Unit No. 1) 46-102 "F † 24 Indoor unit-Intake air temperature (Unit No. 2) 46-102 "F † 34 Indoor uni		Company Operation for a second	0.055	11-	
18 Outdoor unit-Fan output step 0-10 Step 19 Outdoor unit-Fan 1 speed 0-9899 rpm 20 Outdoor unit-Fan 2 speed 0-9899 rpm '0' is displayed if the air conditioner is a single-fan (bype. 21 Unit for air conditioners with DC fan motor) 0-9899 rpm '0' is displayed if the air conditioner is a single-fan (bype. 22 Utdoor unit-Fan 2 speed 0-500 Pulses					
19 Outdoor unit-Fan 1 speed (only for air conditioners with DC fan motor) 0-9999 rpm ''O' is displayed if the air conditioner is a single-fan type. 20 Outdoor unit-Fan 2 speed (only for air conditioners with DC fan motor) 0-9999 rpm ''O' is displayed if the air conditioner is a single-fan type. 21 EV (A) opening 0-500 Pulses - 23 LEV (B) opening 0-500 Pulses - 24					
19 (Only for air conditioners with DC fan motor) 0-9999 (pm) 20 Outdoor unit-Fan 2 speed (Only for air conditioners with DC fan motor) 0-9999 rpm "0" is displayed if the air conditioner is a single-fan type. 21 LEV (A) opening 0-500 Pulses 24 LEV (A) opening 0-500 Pulses 24 0 0-500 Pulses 25 Primary current 0-60 A 26 DC bus voltage 180-370 V 27 0 0-4 Units 28 0 1 1 29 Number of connected indoor units 0-4 Units 30 Indoor unit-Inake air temperature 62-86 1"F 31 Indoor unit-Inake air temperature (Unit No. 1) 46-102 1"F 1 31 Indoor unit-Inake air temperature (Unit No. 2) 46-102 1"F 1 4Heat mode-4-deg correction> 46-102 1"F 1 1 33 Indoor unit-Inake air temperature (Unit No. 3) 46-102 1"F 1 1 4Heat mode-4-deg correction>	18		0–10	Step	
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Chy IC (nhy for air conditioners with DC fan motor)resultype.21Image: the transmission of transmission of the transmission of transmission of the transmission of transmission o	20	Outdoor unit-Fan 2 speed	0-9999	rom	"0" is displayed if the air conditioner is a single-fan
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23 LEV (B) opening 0-500 Pulses 24	21				
1 (1) (1) (1) (2) (1) (1) (2) 25 Primary current 0-50 A 26 DC bus voltage 180-370 V 27	22	LEV (A) opening	0–500	Pulses	
25 Primary current 0-50 A 26 DC bus voltage 180-370 V 27 V V 28 V V 29 Number of connected indoor units 0-4 Units 30 Indoor unit-Intake air temperature 62-86 °F 31 Indoor unit-Intake air temperature (Unit No. 1) 46-102 °F 32 Indoor unit-Intake air temperature (Unit No. 2) 46-102 °F † 33 Indoor unit-Intake air temperature (Unit No. 2) 46-102 °F † 34 Indoor unit-Intake air temperature (Unit No. 3) 46-102 °F † 34 Indoor unit-Intake air temperature (Unit No. 4) 46-102 °F † 35 Indoor unit-Intake air temperature (Unit No. 4) 46-102 °F † 36 Indoor unit-Intake air temperature (Unit No. 4) -38-190 °F † 36 Indoor unit - Liquid pice temperature (Unit No. 2) -38-190 °F † 37 Indoor unit - Liquid pice temperature (Unit No. 2) -38-190 °F † 41 <td>23</td> <td>LEV (B) opening</td> <td>0–500</td> <td>Pulses</td> <td></td>	23	LEV (B) opening	0–500	Pulses	
26 DC bus voltage 180-370 V 27	24				
100 1	25	Primary current	0–50	A	
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34 Indoor unit-Intake air temperature (Unit No. 3) 	33		46–102	°F	1
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35 Indoor unit-Intake air temperature (Unit No. 4)	34	,	46–102	°F	 ↑
35 <heat correction="" mode-4-deg=""> 46-102 °F ↑ 36 </heat>		-			
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37 Indoor unit - Liquid pipe temperature (Unit No. 1) -38–190 °F "0" is displayed if the target unit is not present. 38 Indoor unit - Liquid pipe temperature (Unit No. 2) -38–190 °F ↑ 39 Indoor unit - Liquid pipe temperature (Unit No. 3) -38–190 °F ↑ 40 Indoor unit - Liquid pipe temperature (Unit No. 4) -38–190 °F ↑ 41	36				
38 Indoor unit - Liquid pipe temperature (Unit No. 2) -38–190 °F ↑ 39 Indoor unit - Liquid pipe temperature (Unit No. 3) -38–190 °F ↑ 40 Indoor unit - Liquid pipe temperature (Unit No. 4) -38–190 °F ↑ 41		Indoor unit - Liquid pipe temporature (Unit No. 4)	-28 100	°۲	"0" is displayed if the target unit is not present
39 Indoor unit - Liquid pipe temperature (Unit No. 3) -38–190 °F ↑ 40 Indoor unit - Liquid pipe temperature (Unit No. 4) -38–190 °F ↑ 41					
40 Indoor unit - Liquid pipe temperature (Unit No. 4) -38–190 °F ↑ 41 -38–190 °F ↑ 42 Indoor unit-Cond./Eva. pipe temperature (Unit No. 1) -38–190 °F ↑° is displayed if the target unit is not present. 43 Indoor unit-Cond./Eva. pipe temperature (Unit No. 2) -38–190 °F ↑ 44 Indoor unit-Cond./Eva. pipe temperature (Unit No. 3) -38–190 °F ↑ 44 Indoor unit-Cond./Eva. pipe temperature (Unit No. 3) -38–190 °F ↑ 45 Indoor unit-Cond./Eva. pipe temperature (Unit No. 4) -38–190 °F ↑ 45 Indoor unit-Cond./Eva. pipe temperature (Unit No. 4) -38–190 °F ↑ 46					
41					
42 Indoor unit-Cond/Eva. pipe temperature (Unit No. 1) -38–190 °F "0" is displayed if the target unit is not present. 43 Indoor unit-Cond/Eva. pipe temperature (Unit No. 2) -38–190 °F ↑ 44 Indoor unit-Cond/Eva. pipe temperature (Unit No. 3) -38–190 °F ↑ 45 Indoor unit-Cond/Eva. pipe temperature (Unit No. 4) -38–190 °F ↑ 46 47 48 Thermo ON operating time 0–999 Minutes		indoor unit - Liquid pipe temperature (Onit No. 4)	-38-190	Г	Т
43 Indoor unit-Cond./Eva. pipe temperature (Unit No. 2) -38–190 °F ↑ 44 Indoor unit-Cond./Eva. pipe temperature (Unit No. 3) -38–190 °F ↑ 45 Indoor unit-Cond./Eva. pipe temperature (Unit No. 4) -38–190 °F ↑ 46		Independent Opend /Free pine to a fill 1991 19	00,400	05	
44 Indoor unit-Cond./Eva. pipe temperature (Unit No. 3) -38–190 °F ↑ 45 Indoor unit-Cond./Eva. pipe temperature (Unit No. 4) -38–190 °F ↑ 46 47 48 Thermo ON operating time 0–999 Minutes					
45 Indoor unit-Cond./Eva. pipe temperature (Unit No. 4) -38–190 °F ↑ 46 -38–190 °F ↑ 47					
46 46 47 47 48 Thermo ON operating time 0-999 Minutes					
47 47 48 Thermo ON operating time 0-999 Minutes	-	Indoor unit-Cond./Eva. pipe temperature (Unit No. 4)	-38–190	°F	Т
48 Thermo ON operating time 0–999 Minutes					
49 Test run elapsed time 0-120 Minutes ← Not possible to activate maintenance mode during the test run.	48				
	49	Test run elapsed time	0–120	Minutes	← Not possible to activate maintenance mode during the test run.

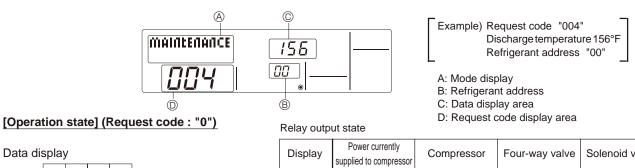
OCH577A

_				
Request code	Request content	Description (Display range)	Unit	Remarks
50		Refer to 13-2-1. Detail Contents in Request Code.	-	
51		Refer to 13-2-1.Detail Contents in Request Code.	-	
52		Refer to 13-2-1. Detail Contents in Request Code.	_	
53		Refer to 13-2-1. Detail Contents in Request Code.	-	
54	Actuator output state	Refer to 13-2-1.Detail Contents in Request Code.	-	
55	Error content (U9)	Refer to 13-2-1. Detail Contents in Request Code.	-	
56				
57				
58				
59				
60	Signal transmission demand capacity	0–255	%	
61	Contact demand capacity	Refer to 13-2-1.Detail Contents in Request Code.	_	
62	External input state (silent mode, etc.)	Refer to 13-2-1.Detail Contents in Request Code.	_	
63				
64				
65				
66				
67				
68				
69				
70	Outdoor unit-Capacity setting display	Refer to 13-2-1. Detail Contents in Request Code.	-	
71	Outdoor unit-Setting information	Refer to 13-2-1. Detail Contents in Request Code.	-	
72				
73			_	
74			_	
75				
76			_	
77			_	
78				
79				
80			_	
81			_	
82			-	
83				
84	M-NET adapter connection (presence/absence)	"0000": Not connected "0001": Connected	-	
85				
86				
87				
88				
89	Display of execution of replace/wash operation	"0000": Not washed "0001": Washed	_	
90	Outdoor unit-Microprocessor version information	Examples) Ver 5.01 → "0501"	Ver	
		Auxiliary information (displayed after		
91	Outdoor unit-Microprocessor version information (sub No.)	version information) Examples) Ver 5.01 A000 \rightarrow "A000"	-	
92				
92				
94				
95				
96				
97				
98				
99				
100	Outdoor unit - Error postponement history 1 (latest)	Displays postponement code. (" " is	Code	
L.		displayed if no postponement code is present)		
101	Outdoor unit - Error postponement history 2 (previous)	Displays postponement code. (" " is	Code	
		displayed if no postponement code is present)	0000	
102	Outdoor unit - Error postponement history 3 (last but one)	Displays postponement code. (" " is	Code	
.02		displayed if no postponement code is present)	5000	

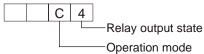
Request code	Request content	Description (Display range)	Unit	Remarks
103	Error history 1 (latest)	Displays error history. ("" is displayed if no history is present.)	Code	
104	Error history 2 (second to last)	Displays error history. ("" is displayed if no history is present.)	Code	
105	Error history 3 (third to last)	Displays error history. ("" is displayed if no history is present.)	Code	
		3 : TH3		
106	Abnormal thermistor display (TH3/TH6/TH7/TH8)	6 : TH6 7 : TH7 8 : TH8	Sensor number	
		0 : No thermistor error		
107	Operation mode at time of error	Displayed in the same way as request code "0".	-	
108	Compressor-Operating current at time of error	0–50	А	
109	Compressor-Accumulated operating time at time of error	0–9999	10 hours	
110	Compressor-Number of operation times at time of error	0–9999	100 times	
111	Discharge temperature at time of error	37–327	°F	
-		-40-194	°F	
-	Outdoor unit - Liquid pipe 1 temperature (TH3) at time of error		°F	
113	Outdoor unit - Liquid pipe 2 temperature at time of error	-40-194		
114	Outdoor unit-2-phase pipe temperature (TH6) at time of error	-38-194	°F	
115				
116	Outdoor unit-Outside air temperature (TH7) at time of error	-38-194	°F	
117	Outdoor unit-Heatsink temperature (TH8) at time of error	-40-327	°F	
118	Discharge super heat (SHd) at time of error	0–327	°F	
119	Sub-cool (SC) at time of error	0–234	°F	
120	Compressor-Operating frequency at time of error	0–255	Hz	
	Outdoor unit at time of error	0 200		
121	Fan output step	0–10	Step	
122	Outdoor unit at time of error • Fan 1 speed (Only for air conditioners with DC fan)	0–9999	rpm	
123	Outdoor unit at time of error • Fan 2 speed (Only for air conditioners with DC fan)	0–9999	rpm	"0"is displayed if the air conditioner is a single- fan type.
124				
125	LEV (A) opening at time of error	0–500	Pulses	
126	LEV (B) opening at time of error	0–500	Pulses	
127				
128				
-				
129	The second diversion of the second second second second second	0.000	Maria	
130 131	Thermo ON time until operation stops due to error	0–999	Minutes	
131	Indoor - Liquid pipe temperature at time of error	-38–190	°F	Average value of all indoor units is displayed if the air condi- tioner consists of two or more indoor units (twin triple guard)
	Indeer Cond /Eva pine temperature at time of anot			tioner consists of two or more indoor units (twin, triple, quad). Average value of all indoor units is displayed if the air condi-
133	Indoor-Cond./Eva. pipe temperature at time of error	-38-190	°F	tioner consists of two or more indoor units (twin, triple, quad).
134	Indoor at time of error • Intake air temperature < Thermostat judge temperature >	-38-190	°F	
135				
136				
137				
138				
-				
139				
140				
~				
146				
147				
148				
149				
150	Indoor-Actual intake air temperature	-38-190	°F	
151	Indoor - Liquid pipe temperature	-38-190	°F	
-	Indoor-Cond./Eva. pipe temperature	-38-190	°F	
			•	

Request code	Request content Description (Display range)		Unit	Remarks
153				
154	Indoor-Fan operating time (After filter is reset)	0–9999	1 hour	
155	Indoor-Total operating time (Fan motor ON time)	0–9999	10 hours	
156				
157	Indoor fan output value (Sj value)	0–255 Fan control data	-	For indoor fan phase control
158	Indoor fan output value (Pulsation ON/OFF)	"00 **" "**" indicates fan control data.	-	For indoor fan pulsation control
159	Indoor fan output value (duty value)	"00 **" "**" indicates fan control data.	-	For indoor DC brushless motor control
160				
161				
162	Indoor unit-Model setting information	Refer to 13-2-1 Detail Contents in Request Code.	_	
163	Indoor unit-Capacity setting information	Refer to 13-2-1 Detail Contents in Request Code.	-	
164	Indoor unit-SW3 information	Undefined	-	
165	Wireless pair No. (indoor control board side) setting	Refer to 13-2-1 Detail Contents in Request Code.	-	
166	Indoor unit-SW5 information	Undefined	-	
167				
~				
189				
190	Indoor unit-Microprocessor version information	Examples) Ver 5.01 → "0501"	Ver	
191	Indoor unit-Microprocessor version information (sub No.)	Auxiliary information (displayed after version information) Examples) Ver 5.01 A000 → "A000"	_	
192		,		
~				
764				
765	Stable operation (Heat mode)	This request code is not provided to c	collect data. It is	s used to fix the operation state.
766	Stable operation (Cool mode)	This request code is not provided to collect data. It is used to fix the operation state.		
767	Stable operation cancellation	This request code is not provided to collect data. It is used to cancel the operation state that has been fixed by request codes "765" and "766".		

13-2-1. Detail Contents in Request Code



Data display



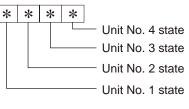
Display	Power currently supplied to compressor	Compressor	Four-way valve	Solenoid valve	
0	-	—	-	-	
1				ON	
2			ON		
3			ON	ON	
4		ON			
5		ON		ON	
6		ON	ON		
7		ON	ON	ON	
8	ON				
А	ON		ON		

Operation mode

Display	Operation mode
0 STOP • FAN	
С	COOL • DRY
Н	HEAT
d DEFROST	

[Indoor unit - Control state] (Request code : "50")

Data display



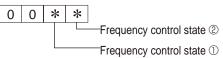
Display	State	
0	Normal	
1	Preparing for heat operation.	
2	_	
3	_	
4	Heater is ON.	
5	Anti-freeze protection is ON.	
6	Overheat protection is ON.	
7	Requesting compressor to turn OFF.	
F	There are no corresponding units.	

[Outdoor unit - Control state] (Request code : "51")

Data display			y	State
0	0	0	0	Normal
0	0	0	1	Preparing for heat operation.
0	0	0	2	Defrost

[Compressor – Frequency control state] (Request code : "52")

Data display



Display	Discharge temperature	Condensation temperature	Anti-freeze	Heatsink temperature
Display	overheat prevention	overheat prevention	protection control	overheat prevention
0				
1	Controlled			
2		Controlled		
3	Controlled	Controlled		
4			Controlled	
5	Controlled		Controlled	
6		Controlled	Controlled	
7	Controlled	Controlled	Controlled	
8				Controlled
9	Controlled			Controlled
А		Controlled		Controlled
b	Controlled	Controlled		Controlled
С			Controlled	Controlled
d	Controlled		Controlled	Controlled
E		Controlled	Controlled	Controlled
F	Controlled	Controlled	Controlled	Controlled

Frequency control state ①

	Display	Current limit control
0 No current limit		
1 Primary current limit control is C		Primary current limit control is ON.
	2	Secondary current limit control is ON.

[Fan control state] (Request code : "53")

* * Т

Data display	0	0

Fan step correction value by heatsink temperature overheat prevention control

Fan step correction value by cool condensation temperature overheat prevention control

Display	Correction value
- (minus)	- 1
0	0
1	+1
2	+2

[Actuator output state] (Request code : "54")

Т

Data display 0 0 * *

Actuator output state ①

Actuator output state 2

Actuator output state $\ensuremath{\textcircled{}}$

Display	SV1	Four-way valve	Compressor	Compressor is warming up
0				
1	ON			
2		ON		
3	ON	ON		
4			ON	
5	ON		ON	
6		ON	ON	
7	ON	ON	ON	
8				ON
9	ON			ON
Α		ON		ON
b	ON	ON		ON
С			ON	ON
d	ON		ON	ON
E		ON	ON	ON
F	ON	ON	ON	ON

Actuator output state 2

Display	52C	SV2	SS
0			
1	ON		
2		ON	
3	ON	ON	
4			ON
5	ON		ON
6		ON	ON
7	ON	ON	ON

[Error content (U9)] (Request code : "55")

0

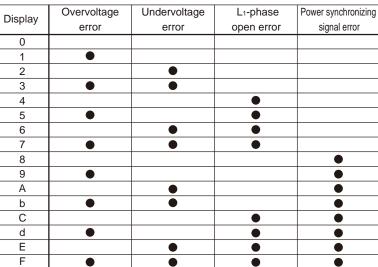
Data display 0

* * Т Error content ①

Error content ①

Error content 2





Error content 2 : Detected

•: Detected

Display	Converter Fo error	PAM error
0		
1	•	
2		
3		•

[Contact demand capacity] (Request code : "61")

Data display

0 0 0 * Setting content Setting content

	Display Setting value	Setting value	Set	ting
		Octaing value	SW7-1	SW7-2
	0	0%		
	1	50%	ON	
	2	75%		ON
	3	100%	ON	ON

[External input state] (Request code : "62")

0 0

Data display

0 * Input state

Input state				•: Input present
Display	Contact demand	Silent mode	Spare 1	Spare 2
Display	input	input	input	input
0				
1				
2		•		
3		•		
4			•	
5			•	
6		•	•	
7		•	•	
8				•
9				
A		•		•
b		•		•
С			•	•
d			•	
E		•	•	•
F		•	•	•

[Outdoor unit - Capacity setting display] (Request code : "70")

Data display	Capacity
9	12
10	18
11	24
14	30
20	36
25	42

[Outdoor unit – Setting information] (Request code : "71")

0 *

Data display 0

*

Setting information ① Setting information ②

Setting	information ①

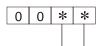
Display	Defrost mode
0	Standard
1	For high humidity

Setting information ②

Display	Single-/	Heat pump/
	3-phase	cooling only
0	Single-phase	Heat pump
1		Cooling only
2	3-phase	Heat pump
3		Cooling only

[Indoor unit – Model setting information]	(Request code : 162)
---	----------------------

Data display

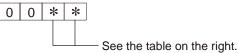


- See the table on the right.

Display	Model setting state	Display	Model setting state
00	PEAD-A-AA	20	
01	PEAD-A-AA	21	
02		22	
03		23	
04		24	
05		25	PLA-A·BA
06		26	
07		27	
08		28	
09		29	
0A		2A	
0b		2b	
0C		2C	
0d		2d	
0E		2E	
0F		2F	
10		30	PEA-A-AA
11		31	PCA-A-KA
12		32	PKA-A·HA(L)/KA(L)
13		33	
14		34	
15		35	
16		36	
17		37	
18		38	
19		39	
1A		3A	
1b		3b	
1C		3C	
1d		3d	
1E		3E	
1F		3F	

[Indoor unit – Capacity setting information] (Request code : 163)





Display	Capacity setting state	Display	Capacity setting state
00		10	42
01		11	
02		12	
03		13	
04		14	
05		15	
06	12	16	
07		17	
08		18	
09	18	19	
0A		1A	
0b	24	1b	
0C		1C	
0d	30	1d	
0E		1E	
0F	36	1F	

[Wireless pair No. (indoor control board side) setting] (Request code : 165)

Data d	display
--------	---------

0 0 * *

- See the table on the right.

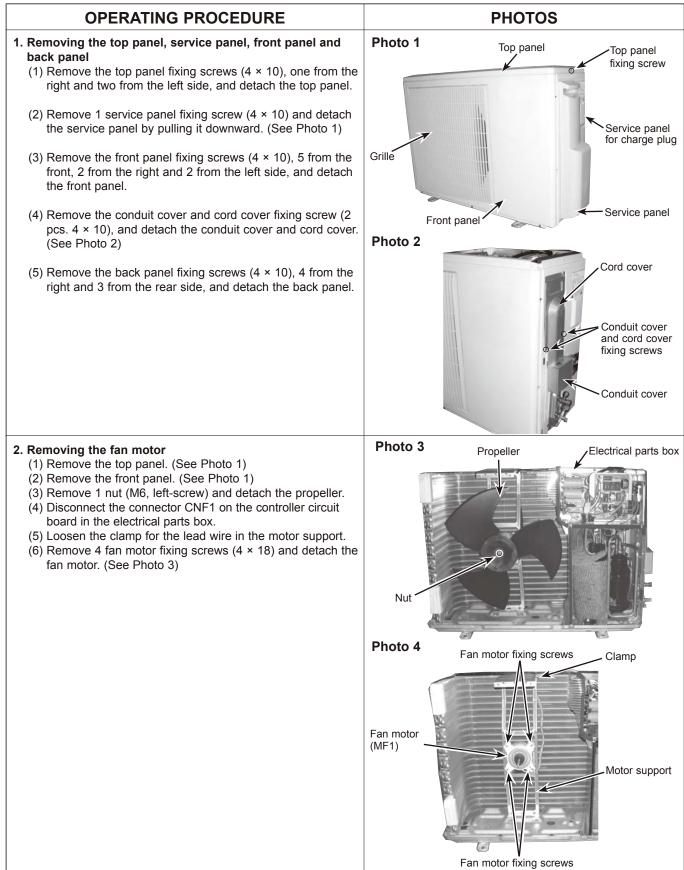
Display	Pair No. setting state
00	No. 0
01	No. 1 J41 disconnected
02	No. 2 J42 disconnected
03	No. 3 J41, J42 disconnected

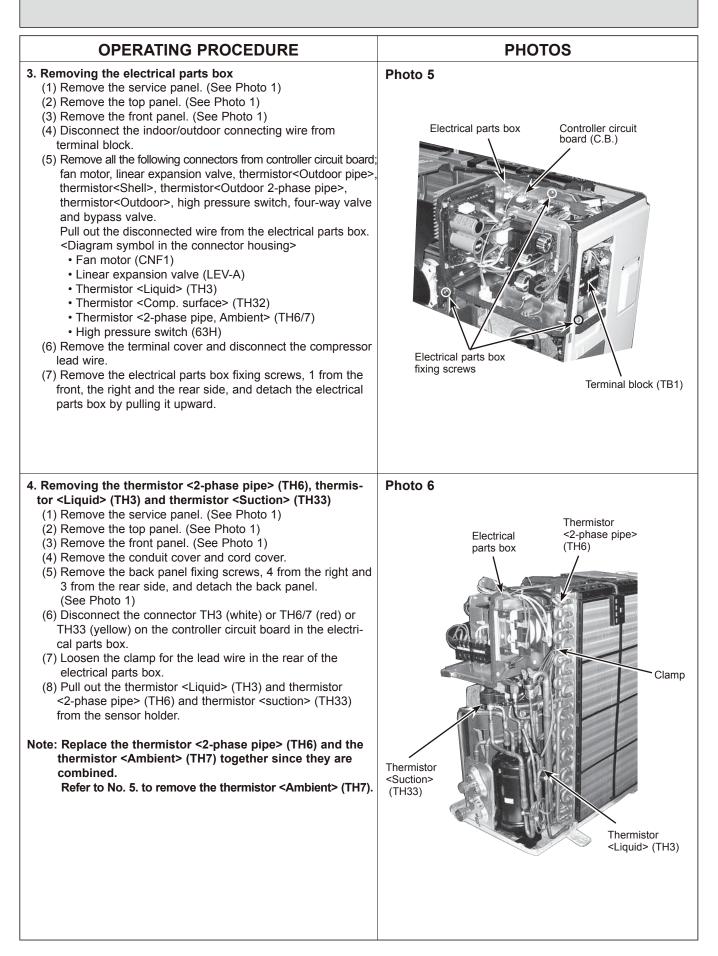
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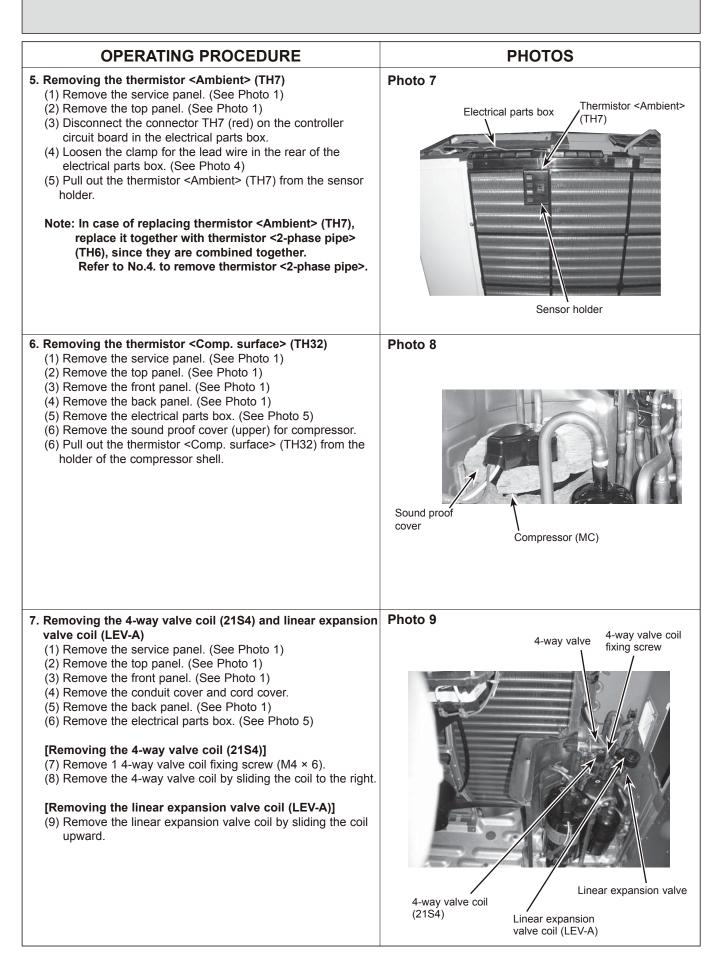
14 DISASSEMBLY PROCEDURE

PUZ-A18NHA6 PUY-A12/18NHA6

PUZ-A18NHA6-BS PUY-A12/18NHA6-BS

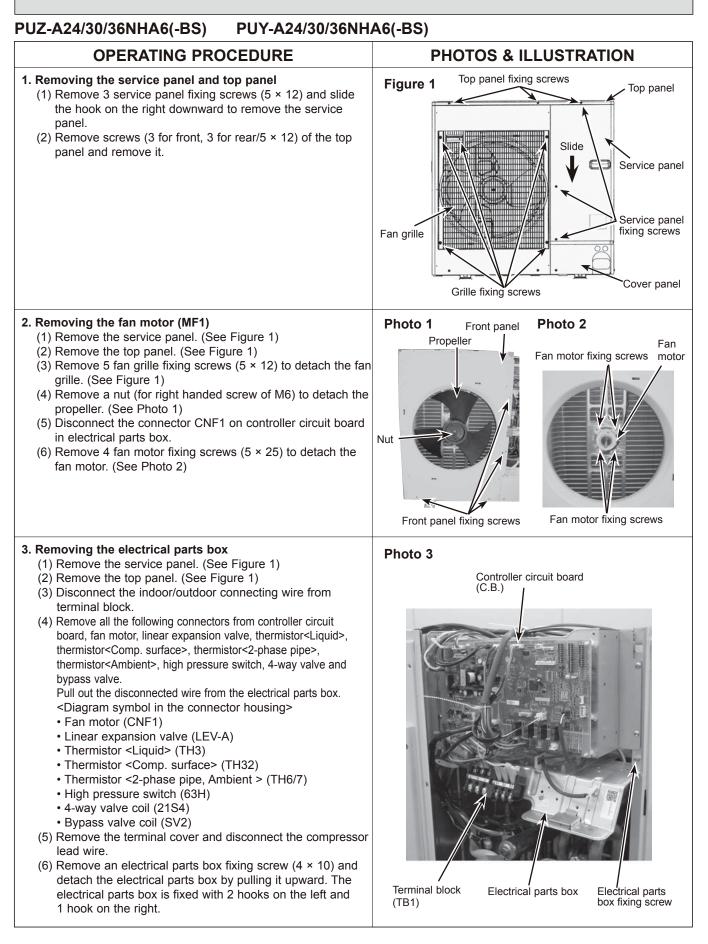




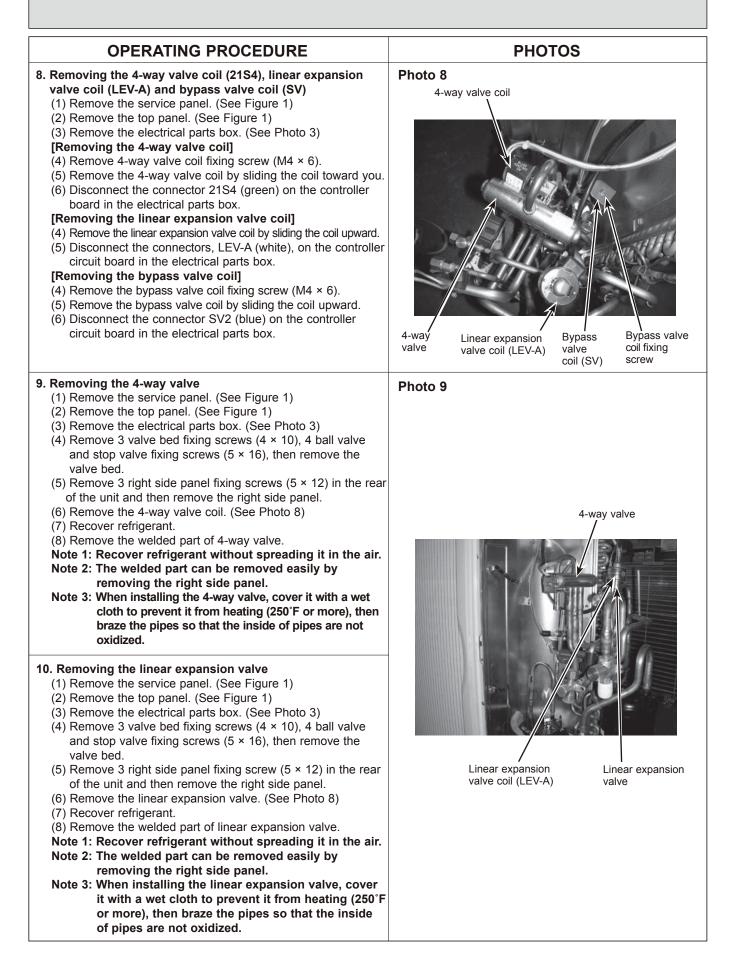


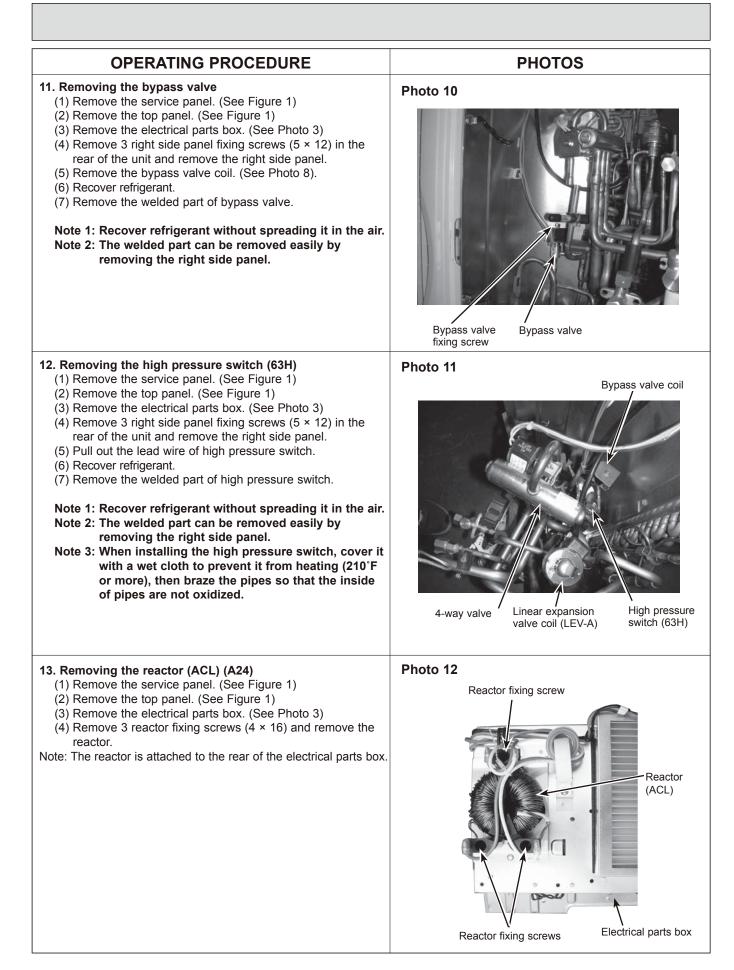
OPERATING PROCEDURE	PHOTOS
 8. Removing the 4-way valve (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the conduit cover and cord cover. (See Photo 2) (5) Remove the back panel. (See Photo 1) (6) Remove the electrical parts box. (See Photo 5) (7) Remove the 4-way valve coil (See Photo 8) (8) Recover refrigerant. (9) Remove the welded part of four-way valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the four-way valve, cover it with a wet cloth to prevent it from heating (250°F or more), then braze the pipes so that the inside of pipes are not oxidized. 	Photo 10 4-way valve description of the second sec
 9. Removing linear expansion valve Remove the service panel. (See Photo 1) Remove the top panel. (See Photo 1) Remove the front panel. (See Photo 1) Remove the conduit cover and cord cover. (See Photo 2) Remove the back panel. (See Photo 1) Remove the electrical parts box. (See Photo 5) Remove the linear expansion valve coil . (See Photo 10) Recover refrigerant. Remove the welded part of linear expansion valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the back panel. Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (250°F or more), then braze the pipes so that the inside of pipes are not oxidized. 	4-way valve coil (21S4) Linear expansion valve coil (LEV-A)
 10. Removing the high pressure switch (63H) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the conduit cover and cord cover. (See Photo 2) (5) Remove the back panel. (See Photo 1) (6) Remove the electrical parts box. (See Photo 5) (7) Pull out the lead wire of high pressure switch. (8) Recover refrigerant. (9) Remove the welded part of high pressure switch. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the back panel. Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (210°F or more), then braze the pipes so that the inside of pipes are not oxidized. 	Photo 11 High pressure switch (63H) Charge plug
 11. Removing the reactor (ACL) (1) Remove the service panel. (See Photo 1) (2) Remove the top panel. (See Photo 1) (3) Remove the front panel. (See Photo 1) (4) Remove the back panel. (See Photo 1) (5) Remove 3 reactor fixing screws (4 × 20) and remove the reactor. Note: The reactor is attached to the rear of the electrical parts box. 	Photo 12 Reactor fixing screws Reactor (ACL) Reactor fixing screws Reactor Reactor Reactor Reactor Reactor Reactor Reactor Reactor (ACL)

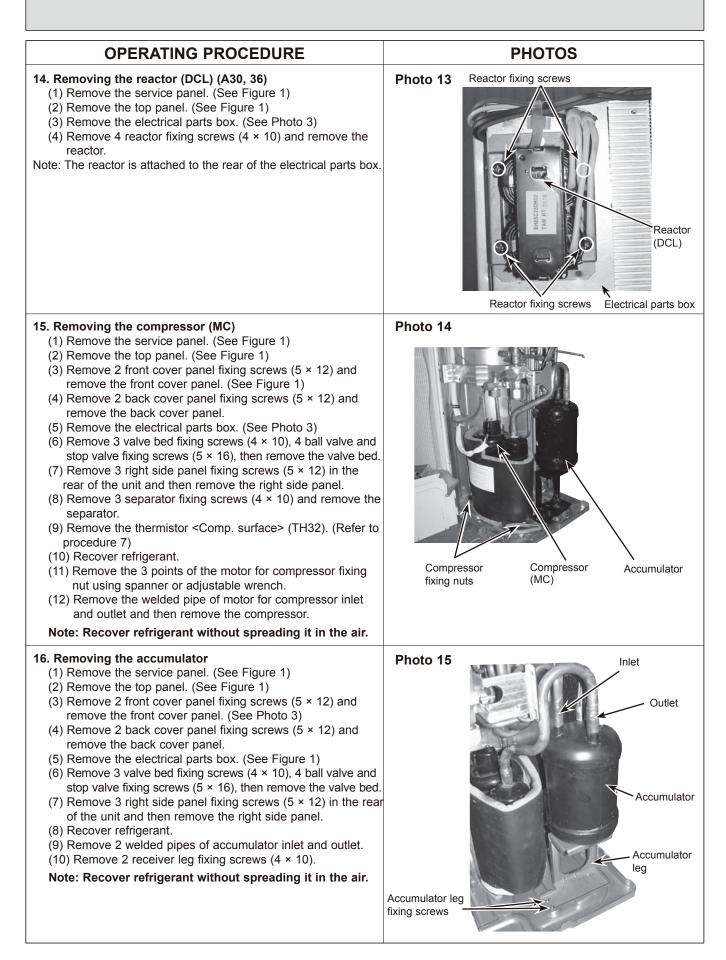
OPERATING PROCEDURE	PHOTOS
 12. Removing the compressor (MC) Remove the service panel. (See Photo 1) Remove the top panel. (See Photo 1) Remove the front panel. (See Photo 1) Remove the conduit cover and cord cover. (See Photo 2) Remove the back panel. (See Photo 1) Remove the electrical parts box. (See Photo 5) Remove 3 separator fixing screws (4 × 10) and remove the separator. Remove the thermistor <comp. surface=""> (TH32). (Refer to procedure 6)</comp.> Remove the welded pipe of motor for compressor inlet and outlet. Note: Recover refrigerant without spreading it in the air. 	Photo 13
 13. Removing the accumulator Remove the service panel. (See Photo 1) Remove the top panel. (See Photo 1) Remove the front panel. (See Photo 1) Remove the conduit cover and cord cover. (See Photo 2) Remove the back panel. (See Photo 1) Remove the electrical parts box. (See Photo 5) Remove 2 welded pipes of accumulator inlet and outlet. Remove 2 accumulator leg fixing screws (4 × 10). Remove the accumulator together with the receiver leg. Note: Recover refrigerant without spreading it in the air. 	Photo 14

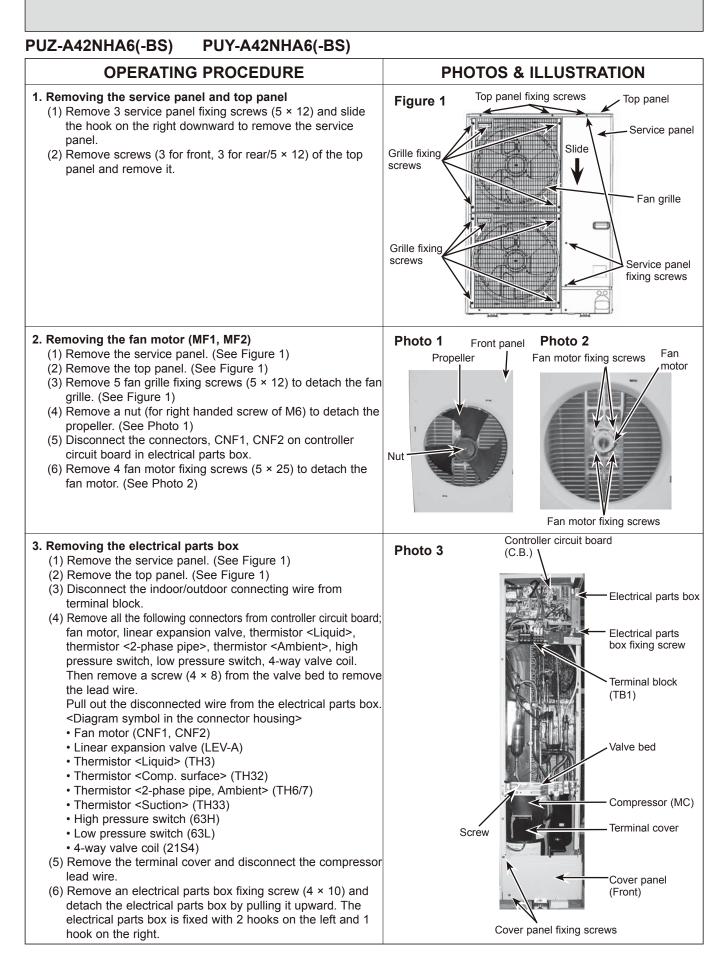


OPERATING PROCEDURE	PHOTOS
 4. Removing the thermistor <2-phase pipe> (TH6) (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <2-phase pipe> (TH6) from the sensor holder. Note: In case of replacing thermistor <2-phase pipe> (TH6), replace it together with thermistor <ambient> (TH7), since they are combined together. Refer to No.5 below to remove thermistor <ambient>.</ambient></ambient> 	Photo 4 Controller circuit board parts box (C.B.) Controller (C.B.) Controller Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Carbon Controller Controller Carbon Controller Controller Controller Controller Carbon Controller Cont
 5. Removing the thermistor <ambient> (TH7) (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 4) (5) Pull out the thermistor <ambient> (TH7) from the sensor holder.</ambient> </ambient> Note: In case of replacing thermistor <ambient> (TH7), replace it together with thermistor <2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <2-phase pipe>.</ambient> 	Photo 5
 6. Removing the thermistor <liquid> (TH3) (1) Remove the service panel. (See Figure 1) (2) Disconnect the connector TH3 (white) on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 4) (4) Pull out the thermistor <liquid> (TH3) from the sensor holder.</liquid> </liquid> 	Photo 6 CLiquid> (TH3) Thermistor CH33) Thermistor CH33)
 7. Removing the thermistor <comp. surface=""> (TH32) and thermistor <suction> (TH33)</suction></comp.> (1) Remove the service panel. (See Figure 1) (2) Disconnect the connector TH32 (black) or TH33 (yellow) on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire under the electrical parts box. (See Photo 4) (4) Pull out the thermistor <comp. surface=""> (TH32) and thermistor <suction> (TH33) from the holder of the compressor shell. (See Photo 6)</suction></comp.> 	Photo 7 Clamp Thermistor <comp. surface=""> (TH32)</comp.>





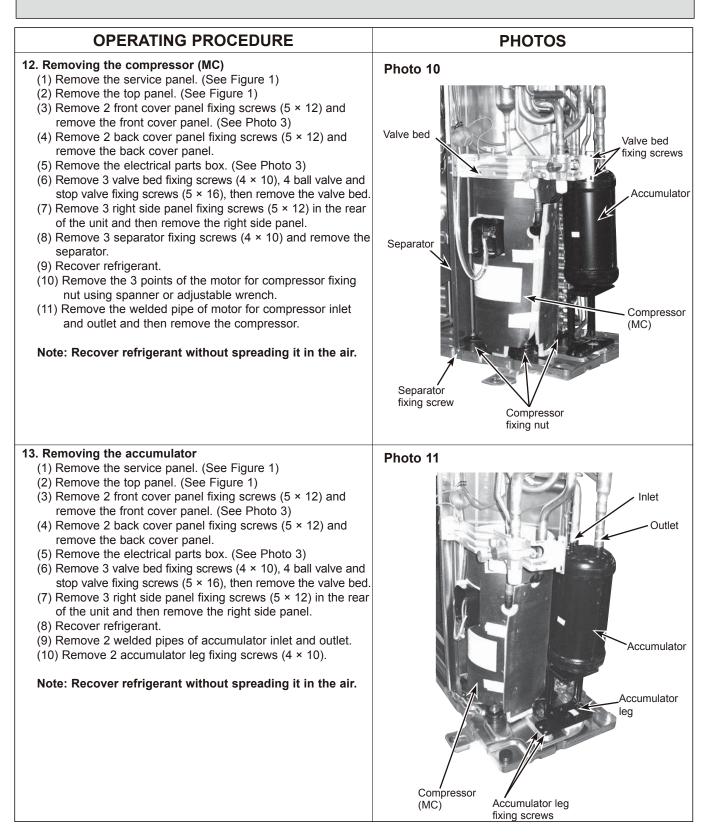




OPERATING PROCEDURE	PHOTOS
 4. Removing the thermistor <2-phase pipe> (TH6) (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connectors, TH6 and TH7 (red), on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (5) Pull out the thermistor <2-phase pipe> (TH6) from the sensor holder. Note: In case of replacing thermistor <2-phase pipe> (TH6), replace it together with thermistor <ambient> (TH7) since they are combined together.</ambient> Refer to No.5 below to remove thermistor <ambient>.</ambient> 	Photo 4 Controller Cricuit boar (C.B.)
 5. Removing the thermistor <ambient> (TH7) (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Disconnect the connector TH7 (red) on the controller circuit board in the electrical parts box. (4) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 4) (5) Pull out the thermistor <ambient> (TH7) from the sensor holder.</ambient> </ambient> Note: In case of replacing thermistor <ambient> (TH7), replace it together with thermistor <2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <2-phase pipe>.</ambient> 	Photo 5 France of thermistor Comparison of thermistor Comparison of thermistor Comparison of thermistor of thermistor Comparison of thermistor of thermistor of thermistor of thermistor of thermistor of thermistor of the the the thermistor of the the the the t
 6. Removing the thermistor <liquid> (TH3), thermistor <comp. surface=""> (TH32) and thermistor <suction> (TH33) (1) Remove the service panel. (See Figure 1)</suction></comp.></liquid> (2) Disconnect the connectors, TH3 (white), TH32 (black) and TH33 (yellow), on the controller circuit board in the electrical parts box. (3) Loosen the clamp for the lead wire in the rear of the electrical parts box. (See Photo 4) (4) Pull out the thermistor <liquid> (TH3), thermistor <comp. surface=""> (TH32) and thermistor <suction> (TH33) from the sensor holder.</suction></comp.></liquid> 	Photo 6 Thermistor <comp. surface-<br="">(TH32) Thermistor Compressor (MC)</comp.>

OPERATING PROCEDURE	PHOTOS
 Removing the 4-way valve coil (21S4) and linear expansion valve coil (LEV-A) (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) [Removing the 4-way valve coil] (3) Remove 4-way valve coil fixing screw (M4 × 6). (4) Remove the 4-way valve coil by sliding the coil toward you. (5) Disconnect the connector 21S4 (green) on the controller circuit board in the electrical parts box. [Removing the linear expansion valve coil by sliding the coil upward. (4) Disconnect the connectors, LEV-A (white), on the controller circuit board in the electrical parts box. 	
	Photo 7
 8. Removing the 4-way valve (1) Remove the service panel. (See Figure 1) (2) Remove the top panel. (See Figure 1) (3) Remove 3 valve bed fixing screws (4 × 10), 4 ball valve and stop valve bed fixing screws (5 × 16), then remove the valve bed. (4) Remove 4 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel. (5) Remove the 4-way valve coil. (See Photo 7) (6) Recover refrigerant. (7) Remove the welded part of 4-way valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the 4-way valve, cover it with a wet cloth to prevent it from heating (250°F or more), then braze the pipes so that the inside of pipes are not oxidized. 	Linear expansion valve coil (LEV-A)
 Removing linear expansion valve Remove the service panel. (See Figure 1) Remove the top panel. (See Figure 1) Remove 3 valve bed fixing screws (4 × 10), 4 ball valve and stop valve fixing screws (5 × 16), then remove the valve bed. Remove 4 right side panel fixing screws (5 × 12) in the rear of the unit and then remove the right side panel. Remove the linear expansion valve. (See Photo 7) Remove the welded part of linear expansion valve. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (250°F or more), then braze the pipes so that the inside of pipes are not oxidized. 	

OPERATING PROCEDURE	PHOTOS
 10. Removing the high pressure switch (63H) Remove the service panel. (See photo 1) Remove 3 right side panel fixing screws (5 × 12) in the rear of the unit and remove the right side panel. Pull out the lead wire of high pressure switch. Remove the welded part of high pressure switch. Note 1: Recover refrigerant without spreading it in the air. Note 2: The welded part can be removed easily by removing the right side panel. Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (210°F or more), then braze the pipes so that the inside of pipes are not oxidized. 	<image/> <section-header></section-header>
 11. Removing the reactor (DCL) and capacitor (CE) Remove the service panel. (See Figure 1) Remove the electrical parts box. (See Photo 3) Removing the reactor> Removing the capacitor> Remove 4 reactor fixing screws (4 × 10) and remove the reactor. Remove 2 capacitor band fixing screws (4 × 10) and remove the capacitor. Note: The reactor and capacitor is attached to the rear of the electrical parts box. 	<complex-block></complex-block>



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New publication, effective Aug. 2015 Specifications are subject to change without notice.