

July 2006

No.OC359

REVISED EDITION-A

SERVICE MANUAL

R410A

Outdoor unit

[model names]

[Service Ref.]

PUHZ-P100VHA

PUHZ-P100VHA.UK

PUHZ-P125VHA

PUHZ-P125VHA.UK

PUHZ-P140VHA

PUHZ-P140VHA.UK

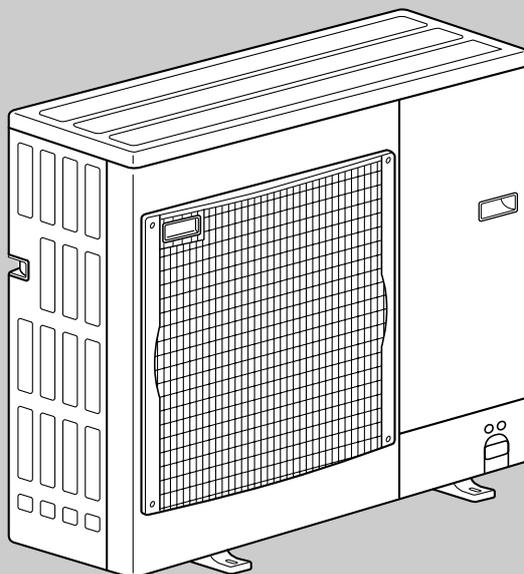
Revision:

- RoHS PARTS LIST is added.
- Some descriptions have been modified.

- Please void OC359.

Note:

- This manual describes only service data of the outdoor units.
- RoHS compliant products have <G> mark on the spec name plate.
- For servicing of RoHS compliant products, refer to the RoHS Parts List.



PUHZ-P100VHA.UK

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1-1. INDOOR UNIT'S SERVICE MANUAL

| Model name | Service Ref. | Service Manual No. |
|--|--|--------------------|
| PLA-RP50/60/71AA | PLA-RP50/60/71AA.UK | OC335 |
| PLA-RP100/125/140AA2 | PLA-RP100/125/140AA2.UK | OC357 |
| PCA-RP50/60/71GA PCA-RP100/125/140GA | PCA-RP50/60/71GA PCA-RP100/125/140GA | OC328 |
| PKA-RP50GAL | PKA-RP50GAL | OC330 |
| PKA-RP60/71/100FAL | PKA-RP60/71/100FAL | OC331 |
| PEAD-RP50/60/71/125/140EA PEAD-RP100EA2 | PEAD-RP50/60/71/125/140EA.UK PEAD-RP100EA2.UK | HWE05210 |
| PEAD-RP60/71/100GA | PEAD-RP60/71/100GA.UK | HWE05060 |

1-2. TECHNICAL DATA BOOK

Manual No. OCS06

2-1. CAUTIONS RELATED TO NEW REFRIGERANT

Cautions for units utilizing refrigerant R410A

Use new refrigerant pipes.

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

- 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 contamination such as sulfur hazardous for use, oxides, dirt, shaving particles, etc. In addition, use pipes with specified thickness.

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

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

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

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

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

Charge refrigerant from liquid phase of gas cylinder.

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

Do not use refrigerant other than R410A.

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

Use a vacuum pump with a reverse flow check valve.

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

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

The following tools are necessary to use R410A refrigerant.

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

Keep the tools with care.

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

Do not use a charging cylinder.

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

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

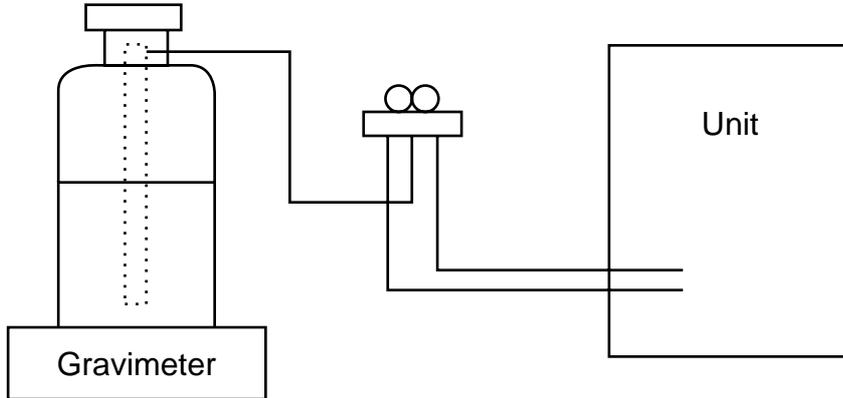
[1] Cautions for service

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

[2] Additional refrigerant charge

When charging directly from cylinder

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



[3] Service tools

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

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

(2) Cautions for refrigerant piping work

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

① Thickness of pipes

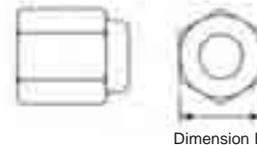
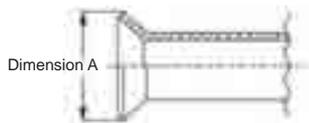
Because the working pressure of R410A is higher compared to R22, be sure to use refrigerant piping with thickness shown below. (Never use pipes of 0.7mm or below.)

Diagram below: Piping diameter and thickness

| Nominal dimensions | Outside diameter (mm) | Thickness (mm) | |
|--------------------|-----------------------|----------------|-----|
| | | R410A | R22 |
| 1/4" | 6.35 | 0.8 | 0.8 |
| 3/8" | 9.52 | 0.8 | 0.8 |
| 1/2" | 12.70 | 0.8 | 0.8 |
| 5/8" | 15.88 | 1.0 | 1.0 |
| 3/4" | 19.05 | — | 1.0 |

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



Flare cutting dimensions (mm)

| Nominal dimensions | Outside diameter | Dimension A ($\begin{smallmatrix} +0 \\ -0.4 \end{smallmatrix}$) | |
|--------------------|------------------|--|------|
| | | R410A | R22 |
| 1/4" | 6.35 | 9.1 | 9.0 |
| 3/8" | 9.52 | 13.2 | 13.0 |
| 1/2" | 12.70 | 16.6 | 16.2 |
| 5/8" | 15.88 | 19.7 | 19.4 |
| 3/4" | 19.05 | — | 23.3 |

Flare nut dimensions (mm)

| Nominal dimensions | Outside diameter | Dimension B | |
|--------------------|------------------|-------------|------|
| | | R410A | R22 |
| 1/4" | 6.35 | 17.0 | 17.0 |
| 3/8" | 9.52 | 22.0 | 22.0 |
| 1/2" | 12.70 | 26.0 | 24.0 |
| 5/8" | 15.88 | 29.0 * | 27.0 |
| 3/4" | 19.05 | — | 36.0 |

*36.0mm for indoor unit of RP100, 125 and 140

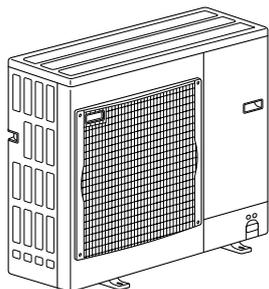
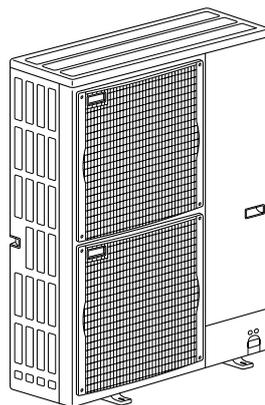
③ Tools for R410A (The following table shows whether conventional tools can be used or not.)

| Tools and materials | Use | R410A tools | Can R22 tools be used? | Can R407C tools be used? |
|--|---|--|--|--|
| Gauge manifold | Air purge and refrigerant charge | Tool exclusive for R410A | × | × |
| Charge hose | Operation check and the two above | Tool exclusive for R410A | × | × |
| Gas leak detector | Gas leak check | Tool for HFC refrigerant | × | ○ |
| Refrigerant recovery equipment | Collection of refrigerant | Tool exclusive for R410A | × | × |
| Refrigerant cylinder | Refrigerant charge | Tool exclusive for R410A | × | × |
| Applied oil | Apply to flared section | Ester oil and alkylbenzene oil (minimum amount) | × | Ester oil: ○ 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 adopter for reverse flow check | △ (Usable if equipped with adopter for reverse flow) | △ (Usable if equipped with adopter for reverse flow) |
| Flare tool | Flaring work of piping | Tools for other refrigerants can be used by adjusting flaring dimension | △ (Usable by adjusting flaring dimension) | △ (Usable by adjusting flaring dimension) |
| Bender | Bend the pipes | Tools for other refrigerants can be used | ○ | ○ |
| Pipe cutter | Cut the pipes | Tools for other refrigerants can be used | ○ | ○ |
| Welder and nitrogen gas cylinder | Weld the pipes | Tools for other refrigerants can be used | ○ | ○ |
| Refrigerant charging scale | Charge refrigerant | Tools for other refrigerants can be used | ○ | ○ |
| Vacuum gauge or thermistor vacuum gauge and vacuum valve | Check the degree of vacuum. (Vacuum valve prevents back flow of oil and refrigerant to thermistor vacuum gauge) | Tools for other refrigerants can be used | ○ | ○ |
| Charging cylinder | Charge refrigerant | Tool exclusive for R410A | × | — |

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

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

○ : Tools for other refrigerants can be used.

**PUHZ-P100VHA.UK****PUHZ-P125VHA.UK
PUHZ-P140VHA.UK****CHARGELESS SYSTEM****PRE-CHARGED REFRIGERANT IS SUPPLIED FOR PIPING LENGTH AT SHIPMENT.****(Max.30m(PUHZ-P125/P140))**

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

4

SPECIFICATIONS

| Service Ref. | | | | PUHZ-P100VHA.UK | | | | |
|-----------------------------------|--------------------------------------|------------------|--|-------------------------------|-------------------|---------|--|--|
| Mode | | | | Cooling | | Heating | | |
| OUTDOOR UNIT | Power supply (phase, cycle, voltage) | | | Single, 50Hz, 230V | | | | |
| | Running current | | A | 12.26 | | 12.62 | | |
| | Max. current | | A | 28 | | | | |
| | External finish | | | Munsell 5Y 7/1 | | | | |
| | Refrigerant control | | | Linear Expansion Valve | | | | |
| | Compressor | | | Hermetic | | | | |
| | Model | | | TNB220FLDM | | | | |
| | Motor output | | kW | 2.3 | | | | |
| | Starter type | | | Line start | | | | |
| | Protection devices | | | HP switch Discharge thermo | | | | |
| | Crankcase heater | | W | — | | | | |
| | Heat exchanger | | | Plate fin coil | | | | |
| | Fan | Fan(drive) × No. | | | Propeller fan × 1 | | | |
| | | Fan motor output | | kW | 0.060 | | | |
| | | Airflow | | m ³ /min(CFM) | 60(2120) | | | |
| | Defrost method | | | Reverse cycle | | | | |
| | Noise level | Cooling | | dB | 50 | | | |
| | | Heating | | dB | 54 | | | |
| | Dimensions | W | | mm(in.) | 950(37-3/8) | | | |
| | | D | | mm(in.) | 330+30(13+1-3/16) | | | |
| H | | mm(in.) | 943(37-1/8) | | | | | |
| Weight | | kg(lbs) | 75(165) | | | | | |
| Refrigerant | | | R410A | | | | | |
| Charge | | kg(lbs) | 2.7(6.0) | | | | | |
| Oil (Model) | | L | 0.87(MEL56) | | | | | |
| Pipe size O.D. | Liquid | | mm(in.) | 9.52(3/8) | | | | |
| | Gas | | mm(in.) | 15.88(5/8) | | | | |
| Connection method | | | Indoor side Outdoor side Flared | | | | | |
| Between the indoor & outdoor unit | | | Height difference Piping length Max. 30m Max. 50m | | | | | |

| Service Ref. | | | | PUHZ-P125VHA.UK | | PUHZ-P140VHA.UK | | |
|--------------------------------------|------------------|---------|--|-------------------|-------|-----------------|-------------|--|
| Mode | | | | Cooling | | Heating | | |
| Power supply (phase, cycle, voltage) | | | | Single 50Hz, 230V | | | | |
| Running current | | A | 17.37 | | 16.74 | | 22.48 21.31 | |
| Max. current | | A | 28 | | | | 29.5 | |
| External finish | | | Munsell 5Y 7/1 | | | | | |
| Refrigerant control | | | Linear Expansion Valve | | | | | |
| Compressor | | | Hermetic | | | | | |
| Model | | | ANV33FDDMT | | | | | |
| Motor output | | kW | 2.5 | | 2.9 | | | |
| Starter type | | | Line start | | | | | |
| Protection devices | | | HP switch Discharge thermo | | | | | |
| Crankcase heater | | W | — | | | | | |
| Heat exchanger | | | Plate fin coil | | | | | |
| Fan | Fan(drive) × No. | | | Propeller fan × 2 | | | | |
| | Fan motor output | | kW | 0.060+0.060 | | | | |
| | Airflow | | m ³ /min(CFM) | 100(3,530) | | | | |
| Defrost method | | | Reverse cycle | | | | | |
| Noise level | Cooling | | dB | 51 | | 52 | | |
| | Heating | | dB | 55 | | 56 | | |
| Dimensions | W | | mm(in.) | 950(37-3/8) | | | | |
| | D | | mm(in.) | 330+30(13+1-3/16) | | | | |
| | H | | mm(in.) | 1,350(53-1/8) | | | | |
| Weight | | kg(lbs) | 123(271) | | | | | |
| Refrigerant | | | R410A | | | | | |
| Charge | | kg(lbs) | 4.5(9.9) | | | | | |
| Oil (Model) | | L | 1.40(MEL56) | | | | | |
| Pipe size O.D. | Liquid | | mm(in.) | 9.52(3/8) | | | | |
| | Gas | | mm(in.) | 15.88(5/8) | | | | |
| Connection method | | | Indoor side Outdoor side Flared | | | | | |
| Between the indoor & outdoor unit | | | Height difference Piping length Max. 30m Max. 50m | | | | | |

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

| Service Ref. | Piping length (one way) | | | | | Factory charged |
|-----------------|-------------------------|-----|-----|-----|-----|-----------------|
| | 10m | 20m | 30m | 40m | 50m | |
| PUHZ-P100VHA.UK | 2.6 | 2.7 | 3.3 | 3.9 | 4.5 | 2.7 |
| PUHZ-P125VHA.UK | 4.3 | 4.4 | 4.5 | 5.1 | 5.7 | 4.5 |
| PUHZ-P140VHA.UK | 4.3 | 4.4 | 4.5 | 5.1 | 5.7 | 4.5 |

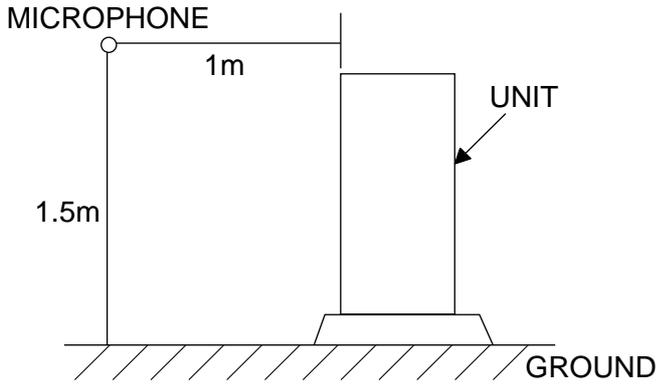
Longer pipe than 20 or 30m, additional charge is required.

5-2. COMPRESSOR TECHNICAL DATA

(at 20°C)

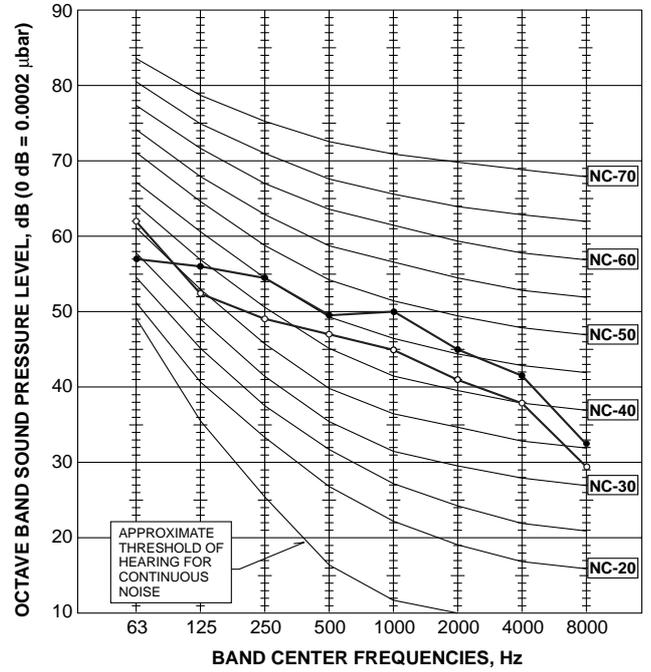
| Unit | | PUHZ-P100VHA.UK | PUHZ-P125,140VHA.UK |
|------------------------------------|-----|-----------------|---------------------|
| Compressor model | | TNB220FLDM | ANV33FDDMT |
| Winding Resistance (Ω) | U-V | 0.88 | 0.266 |
| | U-W | 0.88 | 0.266 |
| | W-V | 0.88 | 0.266 |

5-3. NOISE CRITERION CURVES



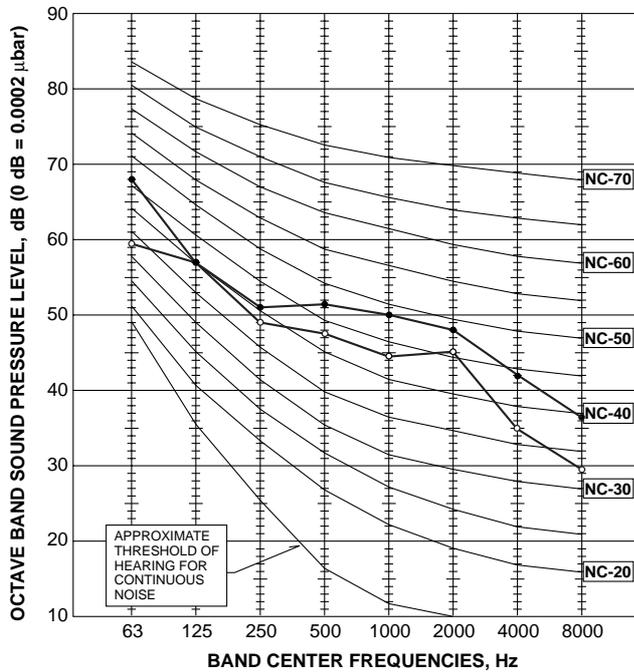
PUHZ-P100VHA.UK

| MODE | SPL(dB) | LINE |
|---------|---------|------|
| COOLING | 50 | ○—○ |
| HEATING | 54 | ●—● |



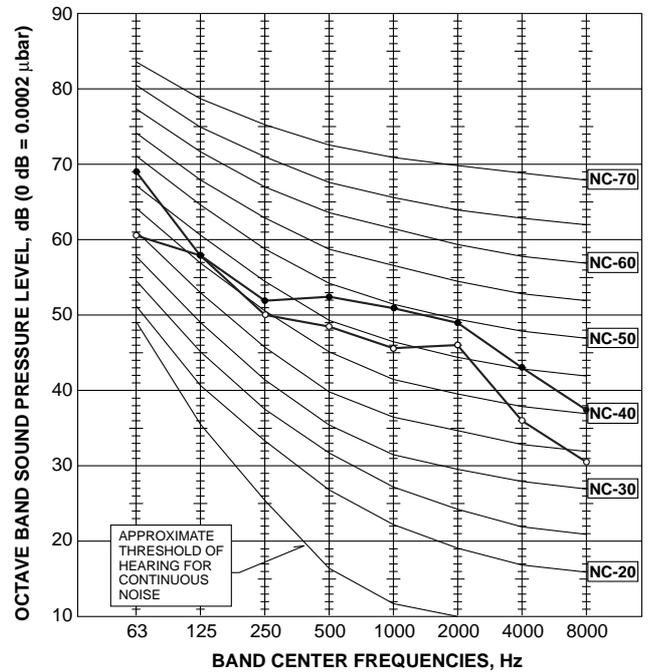
PUHZ-P125VHA.UK

| MODE | SPL(dB) | LINE |
|---------|---------|------|
| COOLING | 51 | ○—○ |
| HEATING | 55 | ●—● |



PUHZ-P140VHA.UK

| MODE | SPL(dB) | LINE |
|---------|---------|------|
| COOLING | 52 | ○—○ |
| HEATING | 56 | ●—● |



5-4. STANDARD OPERATION DATA

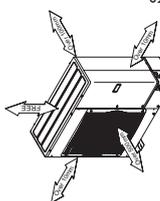
| Representative matching | | | PLA-RP100AA2 | | PLA-RP125AA2 | | PLA-RP140AA2 | | |
|-------------------------|---------------------------|-------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|------|
| Mode | | | Cooling | Heating | Cooling | Heating | Cooling | Heating | |
| Total | Capacity | W | 9,400 | 11,200 | 12,300 | 14,000 | 13,600 | 16,000 | |
| | Input | kW | 3.12 | 3.28 | 4.09 | 4.11 | 5.21 | 4.98 | |
| Electrical circuit | Indoor unit | | PLA-RP100AA2 | | PLA-RP125AA2 | | PLA-RP140AA2 | | |
| | Phase , Hz | | 1 , 50 | | 1 , 50 | | 1 , 50 | | |
| | Volts | V | 230 | | 230 | | 230 | | |
| | Input | kW | 0.18 | | 0.18 | | 0.18 | | |
| | Amperes | A | 0.92 | | 0.92 | | 0.92 | | |
| | Outdoor unit | | PUHZ-P100VHA | | PUHZ-P125VHA | | PUHZ-P140VHA | | |
| | Phase , Hz | | 1 , 50 | | 1 , 50 | | 1 , 50 | | |
| | Volts | V | 230 | | 230 | | 230 | | |
| | Current | A | 12.26 | 12.62 | 17.37 | 16.74 | 22.48 | 21.31 | |
| Refrigerant circuit | Discharge pressure | MPa (kgf/cm ²) | 2.84 (29.0) | 2.34 (23.9) | 2.68 (27.3) | 2.56 (26.1) | 2.79 (28.5) | 2.75 (28.1) | |
| | Suction pressure | MPa (kgf/cm ²) | 0.94 (9.6) | 0.61 (6.2) | 0.86 (8.8) | 0.66 (6.7) | 0.79 (8.1) | 0.64 (6.5) | |
| | Discharge temperature | °C | 79.3 | 68.5 | 69.5 | 70.6 | 73.7 | 86.7 | |
| | Condensing temperature | °C | 47.9 | 40.1 | 45.6 | 43.9 | 47.2 | 46.7 | |
| | Suction temperature | °C | 15.4 | -2.3 | 7.7 | -0.2 | 5.0 | -0.9 | |
| | Ref. pipe length | m | 5 | 5 | 5 | 5 | 5 | 5 | |
| Indoor side | Intake air temperature | D.B. | °C | 27 | 20 | 27 | 20 | 27 | 20 |
| | | W.B. | °C | 19 | 15 | 19 | 15 | 19 | 15 |
| | Discharge air temperature | D.B. | °C | 13.5 | 42.5 | 12.3 | 45.5 | 11.4 | 49.6 |
| Outdoor side | Intake air temperature | D.B. | °C | 35 | 7 | 35 | 7 | 35 | 7 |
| | | W.B. | °C | 24 | 6 | 24 | 6 | 24 | 6 |
| SHF | | | 0.80 | — | 0.75 | — | 0.72 | — | |
| BF | | | 0.06 | — | 0.05 | — | 0.05 | — | |

The unit of pressure has been changed to MPa based on international SI system.
The conversion factor is : 1(MPa)=10.2(kgf/cm²)

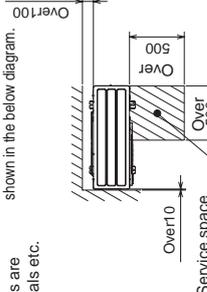
OUTDOOR UNIT
PUHZ-P100VHA.UK

Unit : mm

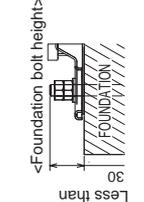
1 FREE SPACE (Around the unit)
The diagram below shows a basic example. Explanation of particular details are given in the installation manuals etc.



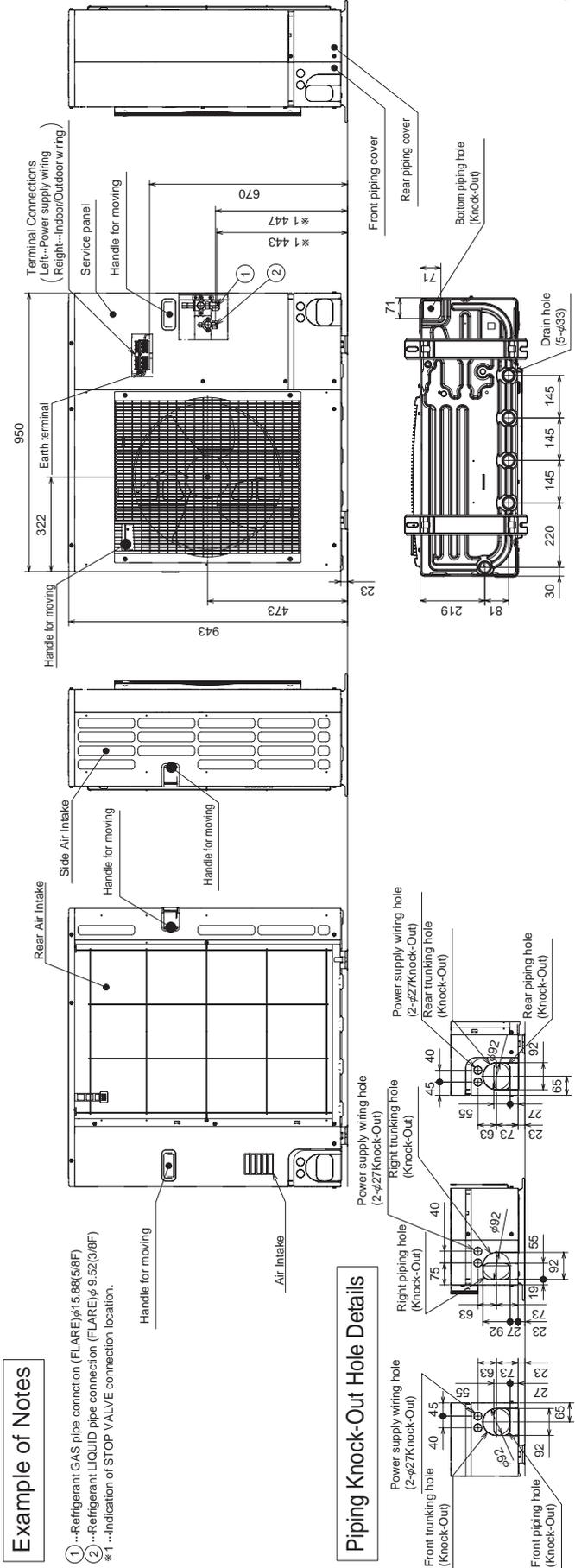
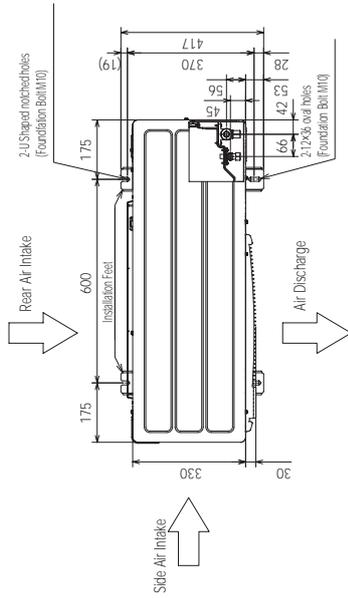
2 SERVICE SPACE
Dimensions of space needed for service access are shown in the below diagram.



3 FOUNDATION BOLTS
Please secure the unit firmly with 4 foundation (M10) bolts. (Bolts and washers must be purchased locally.)



4 PIPING-WIRING DIRECTIONS
Piping and wiring connections can be made from 4 directions: FRONT, Right, Rear and Below.



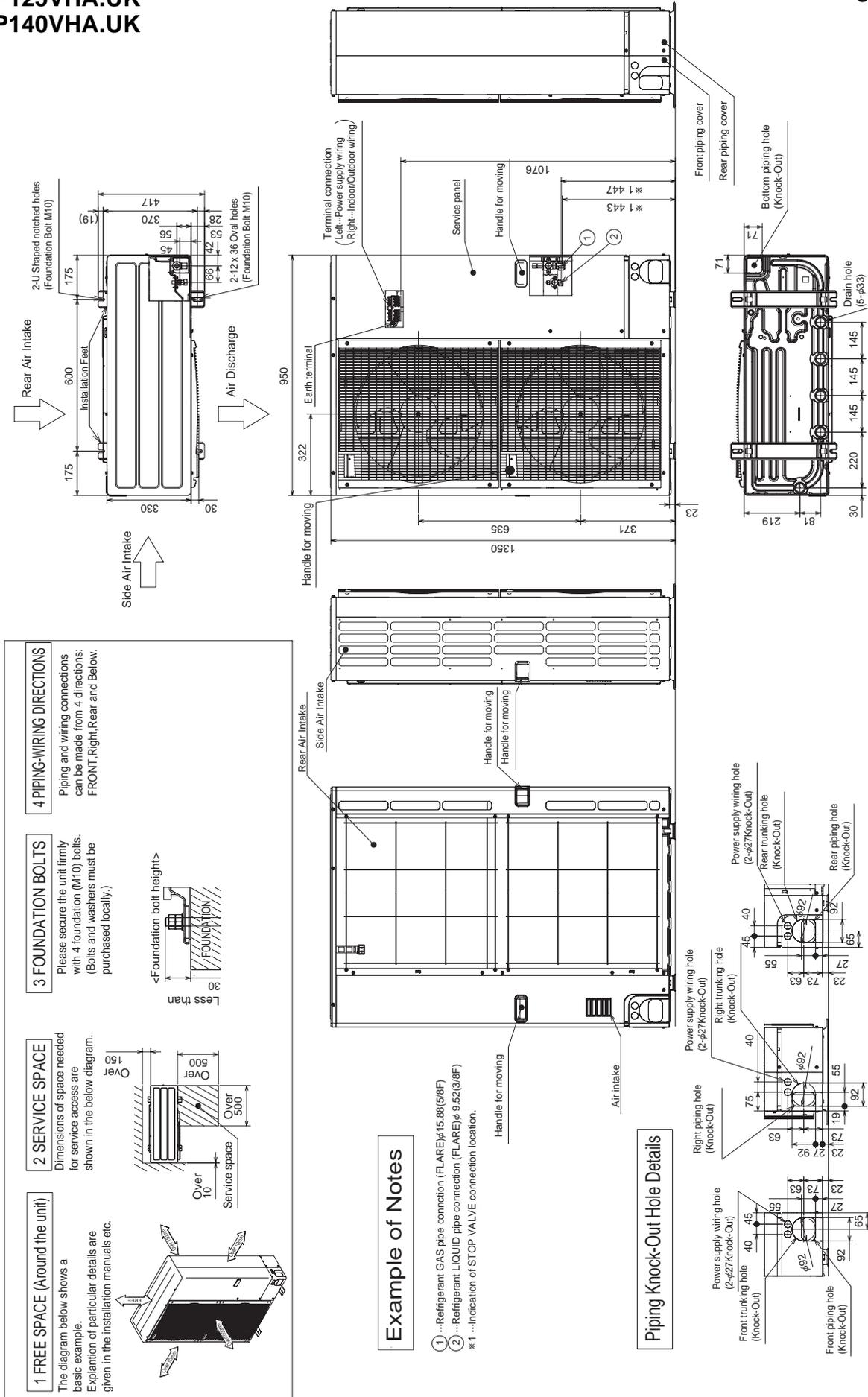
Example of Notes

- ① ...Refrigerant GAS pipe connection (FLARE)φ15.88(5/8F)
- ② ...Refrigerant LIQUID pipe connection (FLARE)φ 9.52(3/8F)
- *1 ...Indication of STOP VALVE connection location.

Piping Knock-Out Hole Details

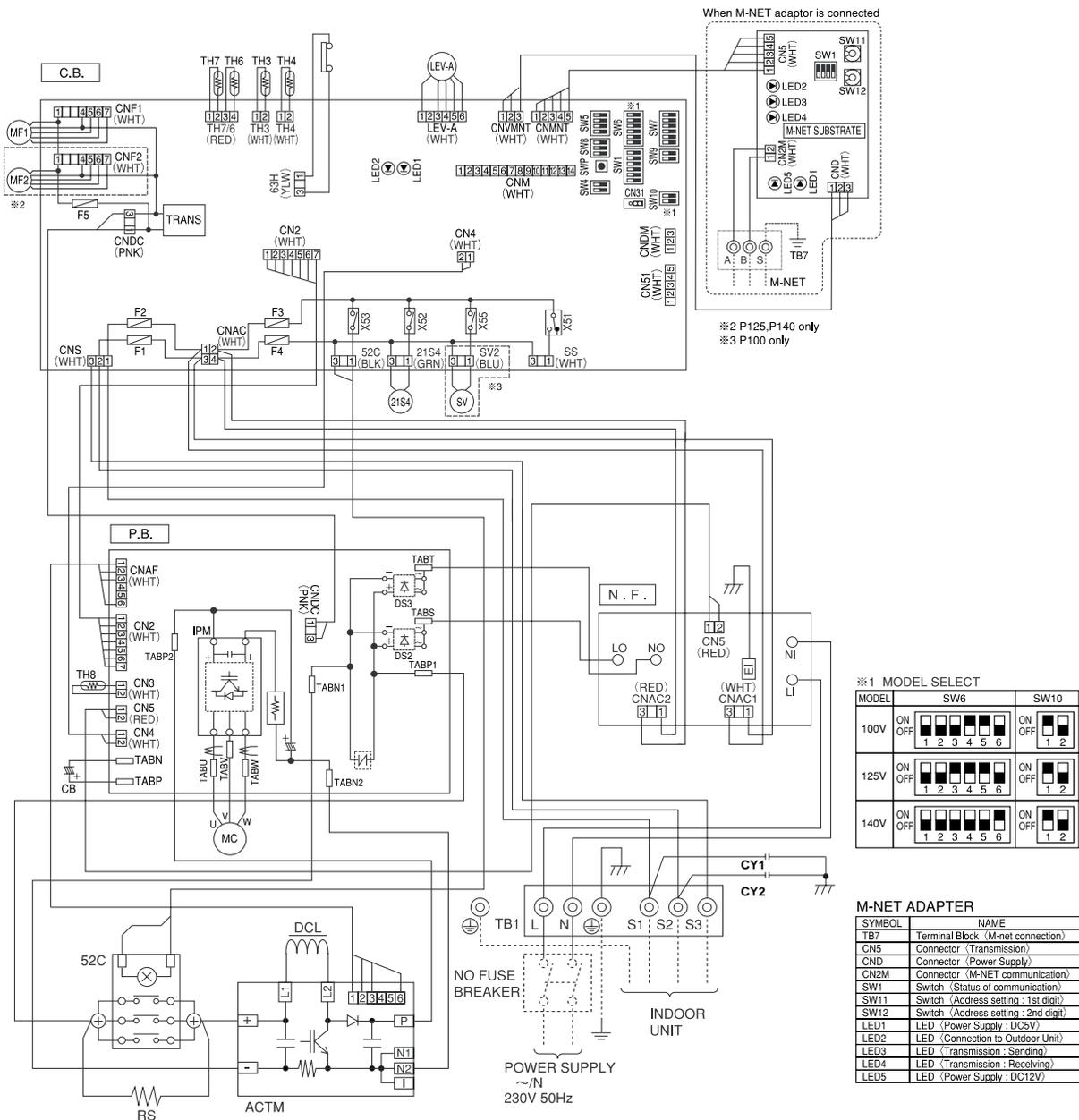
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK

Unit : mm



PUHZ-P100VHA.UK PUHZ-P125VHA.UK PUHZ-P140VHA.UK

| SYMBOL | NAME | SYMBOL | NAME | SYMBOL | NAME |
|------------|---|------------|---|-----------|---|
| TB1 | Terminal Block (Power Supply, Indoor/Outdoor) | TABN1/N2/N | Connection Terminal (DC Voltage) | SW9 | Switch |
| MC | Motor for Compressor | CN2~5 | Connector | SW10 | Switch (Model Select) |
| MF1 (MF2) | Fan Motors | CNDC | Connector | SWP | Switch (Pump Down) |
| 21S4 | Solenoid Valve (Four-Way Valve) | CNAC | Connector | CN31 | Connector (Emergency Operation) |
| SV | Solenoid Valve (Bypass Valve) | DS2,3 | Diode Bridge | LED1,LED2 | Light Emitting Diodes (Operation Inspection Indicators) |
| 63H | High Pressure Switch | IPM | Power Module | CN2 | Connector |
| TH3 | Thermistor (Outdoor Pipe) | N.F. | Noise Filter Circuit Board | CNAC | Connector |
| TH4 | Thermistor (Discharge) | L/L/O | Connection Lead (L-Phase) | CNDC | Connector |
| TH6 | Thermistor (Outdoor 2-Phase Pipe) | N/I/O | Connection Lead (N-Phase) | CNS | Connector |
| TH7 | Thermistor (Outdoor) | EI | Connection Terminal (Ground) | CNF1 | Connector |
| TH8 | Thermistor (Heat Sink) | CNAC1/2 | Connector | CNF2 | Connector |
| LEV-A | Electronic Expansion Valve | CN5 | Connector | 52C | Connector |
| DCL | Reactor | C.B. | Controller Circuit Board | 21S4 | Connector |
| 52C | 52C Relay | F1~4 | Fuse (T6.3AL250V) | SS | Connector (Connection for Option) |
| RS | Rush Current Protect Resistor | SW1 | Switch (Forced Defrost, Defect History Record Reset, Refrigerant Address) | SV2 | Connector |
| ACTM | Active Filter Module | SW4 | Switch (Test Operation) | CNM | Connector (A-Control Service Inspection Kit) |
| CB | Main Smoothing Capacitor | SW5 | Switch (Function Switch) | CNMNT | Connector (Connected to Optional M-NET Adapter Board) |
| CY1, CY2 | Capacitor | SW6 | Switch (Model Select) | CNVMNT | Connector (Connected to Optional M-NET Adapter Board) |
| P.B. | Power Circuit Board | SW7 | Switch (Function Setup) | CNDM | Connector (Connected for Option (Contact Input)) |
| TABU/V/W | Connection Terminal (U/V/W-Phase) | SW8 | Switch | | |
| TABS/T | Connection Terminal (L/N-Phase) | | | | |
| TABP1/P2/P | Connection Terminal (DC Voltage) | | | | |



8-1. FIELD ELECTRICAL WIRING (power wiring specifications)

| | | | |
|--|---|---------------------------|---------------------------|
| Outdoor unit model | | P100, 125V | P140V |
| Outdoor unit power supply | | ~N (single), 50 Hz, 230 V | ~N (single), 50 Hz, 230 V |
| Outdoor unit input capacity Main switch (Breaker) | | 32 A | 40 A |
| Wiring Wire No. x size (mm ²) | Outdoor unit power supply | 2 x Min. 4 | 2 x Min. 6 |
| | Outdoor unit power supply earth | 1 x Min. 4 | 1 x Min. 6 |
| | Indoor unit-Outdoor unit | 3 x 1.5 (Polar) | 3 x 1.5 (Polar) |
| | Indoor unit-Outdoor unit earth | 1 x Min. 1.5 | 1 x Min. 1.5 |
| | Remote controller-Indoor unit | 2 x 0.3 (Non-polar) | 2 x 0.3 (Non-polar) |
| Circuit rating | Outdoor unit L-N (single) | AC 230 V | AC 230 V |
| | Outdoor unit L1-N, L2-N, L3-N (3 phase) | AC 230 V | AC 230 V |
| | Indoor unit-Outdoor unit S1-S2 | AC 230 V | AC 230 V |
| | Indoor unit-Outdoor unit S2-S3 | DC 24 V | DC 24 V |
| | Remote controller-Indoor unit | DC 12 V | DC 12 V |

*1. A breaker with at least 3 mm contact separation in each poles shall be provided. Use non-fuse breaker (NF) or earth leakage breaker (NV).

*2. Refer to 8-3.

*3. The 10 m wire is attached in the remote controller accessory.

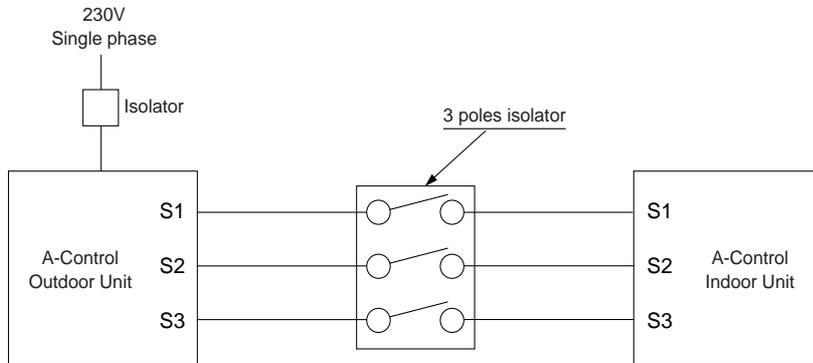
*4. The figures are NOT always against the ground.

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

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

2. Power supply cords and Indoor/Outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 245 IEC 57)

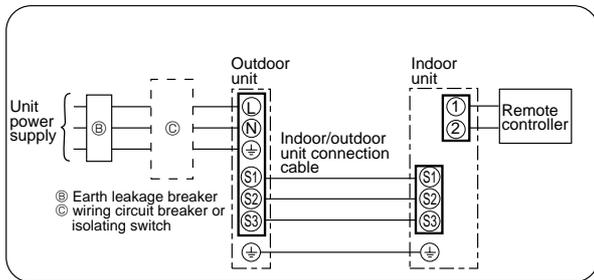
3. Install an earth longer than other cables.



Warning:

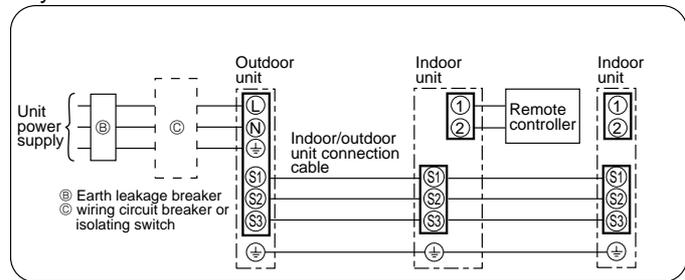
In case of A-control wiring, there is high voltage potential on the S3 terminal caused by electrical circuit design that has no electrical insulation between power line and communication signal line. Therefore, please turn off the main power supply when servicing. And do not touch the S1, S2, S3 terminals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

1:1 system

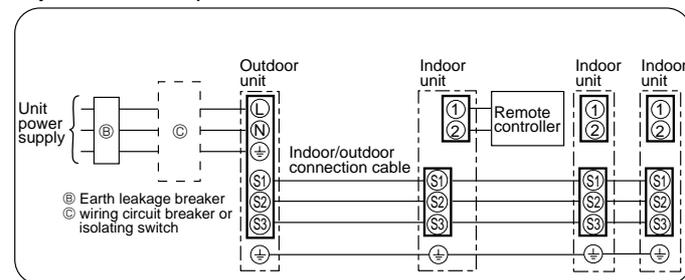


Synchronized twin and triple system Electrical wiring

• Synchronized twin



• Synchronized triple



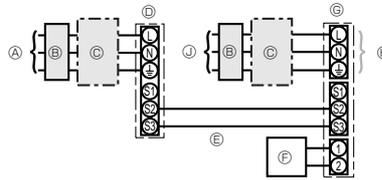
8-2. SEPARATE INDOOR UNIT/ OUTDOOR UNIT POWER SUPPLIES

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

1:1 System

<For models without heater>

* The optional indoor power supply terminal kit is required.



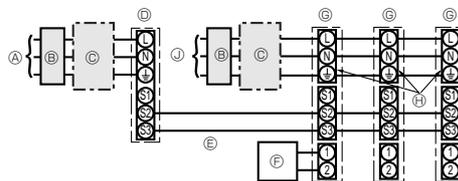
- Ⓐ Outdoor unit power supply
- Ⓑ Earth leakage breaker
- Ⓒ Wiring circuit breaker or isolating switch
- Ⓓ Outdoor unit
- Ⓔ Indoor unit/outdoor unit connecting cords
- Ⓕ Remote controller
- Ⓖ Indoor unit
- Ⓗ Option
- Ⓙ Indoor unit power supply

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

Simultaneous twin/triple system

<For models without heater>

* The optional indoor power supply terminal kits are required.



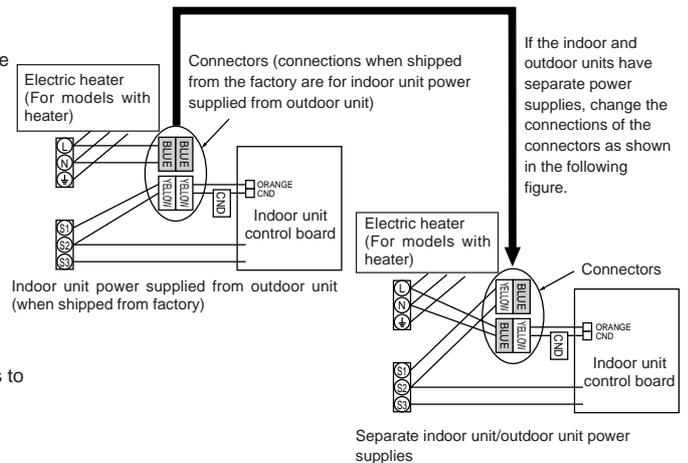
- Ⓐ Outdoor unit power supply
- Ⓑ Earth leakage breaker
- Ⓒ Wiring circuit breaker or isolating switch
- Ⓓ Outdoor unit
- Ⓔ Indoor unit/outdoor unit connecting cords
- Ⓕ Remote controller
- Ⓖ Indoor unit
- Ⓗ Option
- Ⓙ Indoor unit power supply

* 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 at the below. If the optional indoor power supply terminal kit is used, 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.

| | Indoor unit specifications | | | | | | | | |
|---|---|----|---|--|---|-----|---|---|--|
| Indoor power supply terminal kit (option) | Required | | | | | | | | |
| Indoor unit electrical box connector connection change | Required | | | | | | | | |
| Label affixed near each wiring diagram for the indoor and outdoor units | Required | | | | | | | | |
| Outdoor unit DIP switch settings (when using separate indoor unit/outdoor unit power supplies only) | <table border="1" style="display: inline-table;"> <tr> <td>ON</td> <td></td> <td></td> <td>3</td> </tr> <tr> <td>OFF</td> <td>1</td> <td>2</td> <td></td> </tr> </table> (SW8) | ON | | | 3 | OFF | 1 | 2 | |
| ON | | | 3 | | | | | | |
| OFF | 1 | 2 | | | | | | | |

* There are three types of labels (labels A, B, and C). Affix the appropriate labels to the units according to the wiring method.



| | | |
|---|--------------------------------|------------------------|
| Indoor unit model | RP35~140 | |
| Indoor unit power supply | ~/N (single), 50 Hz, 230 V | |
| Indoor unit input capacity | | |
| Main switch (Breaker) | *1 | 16 A |
| Wiring Wire No. x size (mm ²) | Indoor unit power supply | 2 × Min. 1.5 |
| | Indoor unit power supply earth | 1 × Min. 1.5 |
| | Indoor unit-Outdoor unit | *2 2 × Min. 0.3 |
| | Indoor unit-Outdoor unit earth | - |
| Circuit rating | Remote controller-Indoor unit | *3 2 × 0.3 (Non-polar) |
| | Indoor unit L-N | *4 AC 230 V |
| | Indoor unit-Outdoor unit S1-S2 | *4 - |
| | Indoor unit-Outdoor unit S2-S3 | *4 DC24 V |
| | Remote controller-Indoor unit | *4 DC12 V |

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

*2. Max. 120 m

*3. The 10 m wire is attached in the remote controller accessory. Max. 500 m

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

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

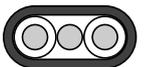
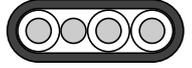
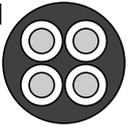
2. Power supply cords and indoor unit/outdoor unit connecting cords shall not be lighter than polychloroprene sheathed flexible cord. (Design 245 IEC 57)

3. Install an earth longer than other cables.

8-3. INDOOR – OUTDOOR CONNECTING CABLE

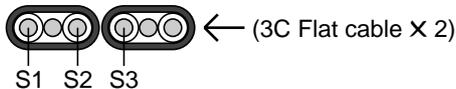
The cable shall not be lighter than design 245 IEC or 227 IEC.

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

| Cross section of cable | Wire size (mm ²) | Number of wires | Polarity | L(m) *5 |
|---|------------------------------|-----------------|--|----------------------|
| Round  | 2.5 | 3 | Clockwise : S1-S2-S3 | (50) *1 |
| Flat  | 2.5 | 3 | Not applicable (Because center wire has no cover finish) | Not applicable *2 |
| Flat  | 1.5 | 4 | From left to right : S1-Open-S2-S3 | (45) *3 |
| Round  | 2.5 | 4 | Clockwise : S1-S2-S3-Open Connect S1 and S3 to the opposite angle | 60 *4 |

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

*2 : In the flat cables are connected as this picture, they can be used up to 80m.



*3 : In case of regular polarity connection (S1-S2-S3), wire size is 1.5mm².

*4 : In case of regular polarity connection (S1-S2-S3).

*5 : Mentioned cable length is just a reference value.

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

| Outdoor power supply | Wire No. × Size (mm ²) | | |
|--------------------------------|------------------------------------|-----------------|----------------------------------|
| | Max. 45m | Max. 50m | Max. 80m |
| Indoor unit-Outdoor unit | 3 × 1.5 (polar) | 3 × 2.5 (polar) | 3 × 2.5 (polar) and S3 separated |
| Indoor unit-Outdoor unit earth | 1 × Min. 1.5 | 1 × Min. 2.5 | 1 × Min. 2.5 |

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

| Indoor/Outdoor separate power supply | Wire No. × Size (mm ²) |
|--------------------------------------|------------------------------------|
| | Max. 120m |
| Indoor unit-Outdoor unit | 2 × Min. 0.3 |
| Indoor unit-Outdoor unit earth | — |

* The optional indoor power supply terminal kit is necessary

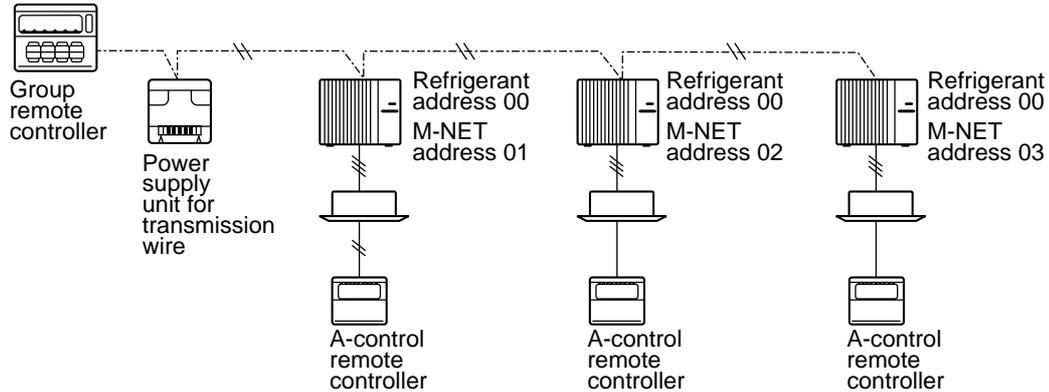
Be sure to connect the indoor-outdoor connecting cables directly to the units (no intermediate connections). Intermediate connections can lead to communication errors if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.

(If an intermediate connection is necessary, be sure to take measures to prevent water from entering the cables.)

8-4. M-NET WIRING METHOD

(Points to notice)

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

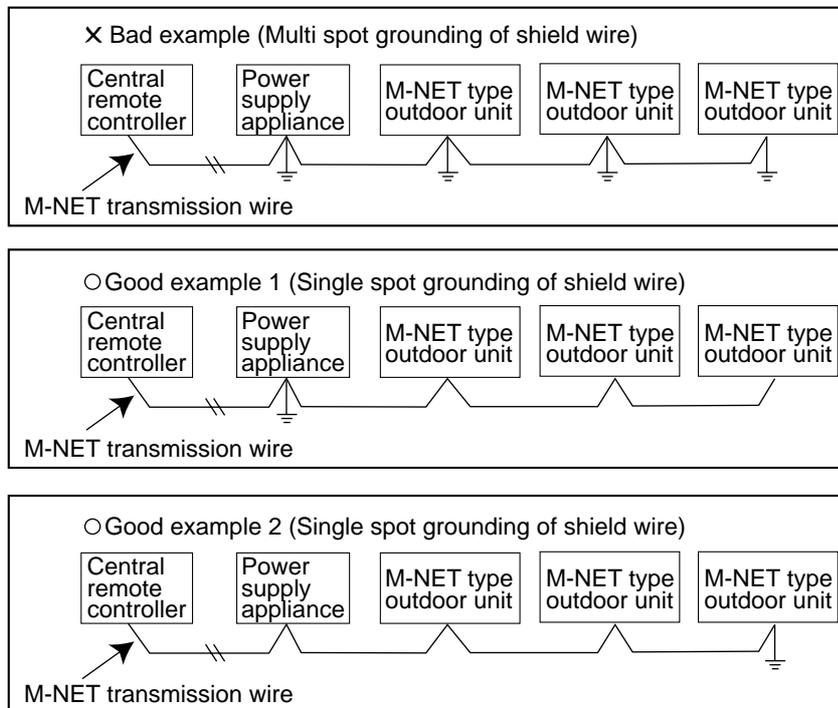


It would be ok if M-NET wire (non-polar, 2-cores) is arranged in addition to the wiring for A-control.

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

“Ed” error will appear on the LED display of outdoor unit.

“0403” error will appear on the central-control remote controller.

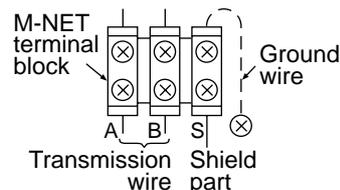


If there are more than two grounding spots on the shield wire, noise may enter into the shield wire because the ground wire and shield wire form one circuit and the electric potential difference occurs due to the impedance difference among grounding spots. In case of single spot grounding, noise does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

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

● M-NET wiring

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



8-4-1. M-NET address setting

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

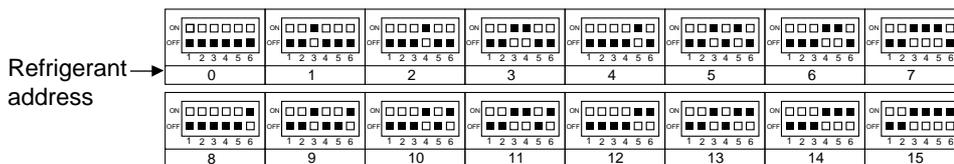
Address number can be set by using rotary switches (SW11 for ones digit and SW12 for tens digit), which is located on the M-NET board of outdoor unit. (Factory setting: all addresses are set to "0".)

<Setting example>

| M-NET Address No. | | 1 | 2 | ~ | 50 |
|-------------------|-----------------|---|---|---|----|
| Switng setting | SW11 ones digit | | | ~ | |
| | SW12 tens digit | | | ~ | |

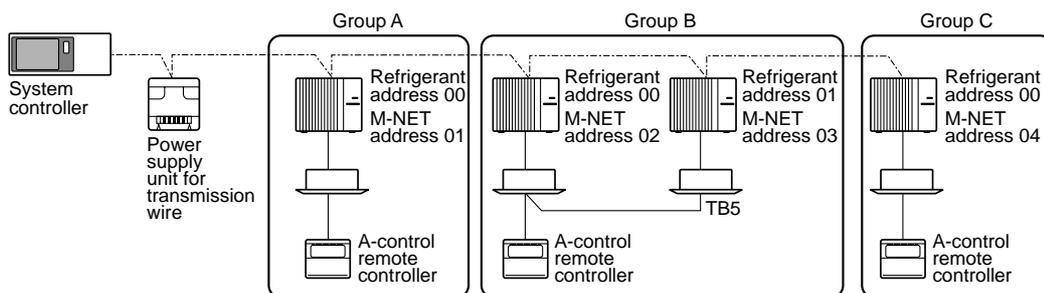
8-4-2. Refrigerant address setting

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

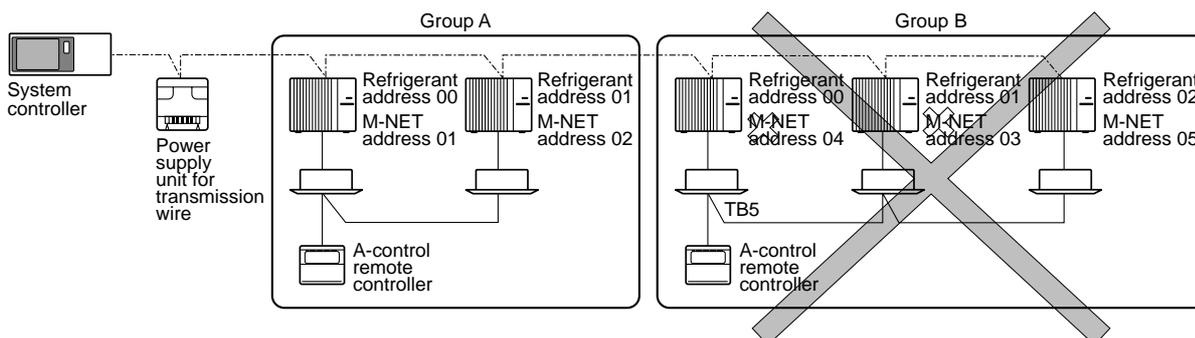


8-4-3. Regulations in address settings

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



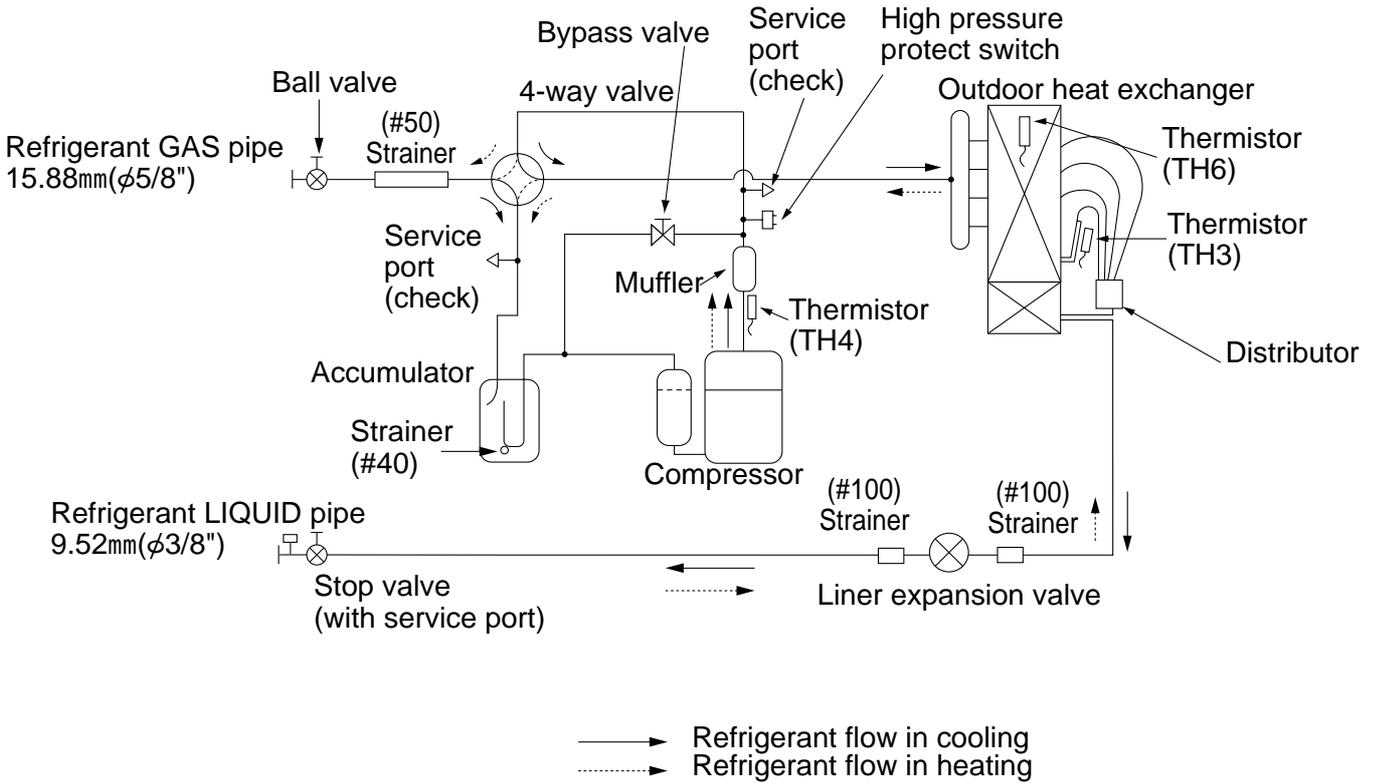
* Refrigerant addresses can be overlapped if they are in the different group.



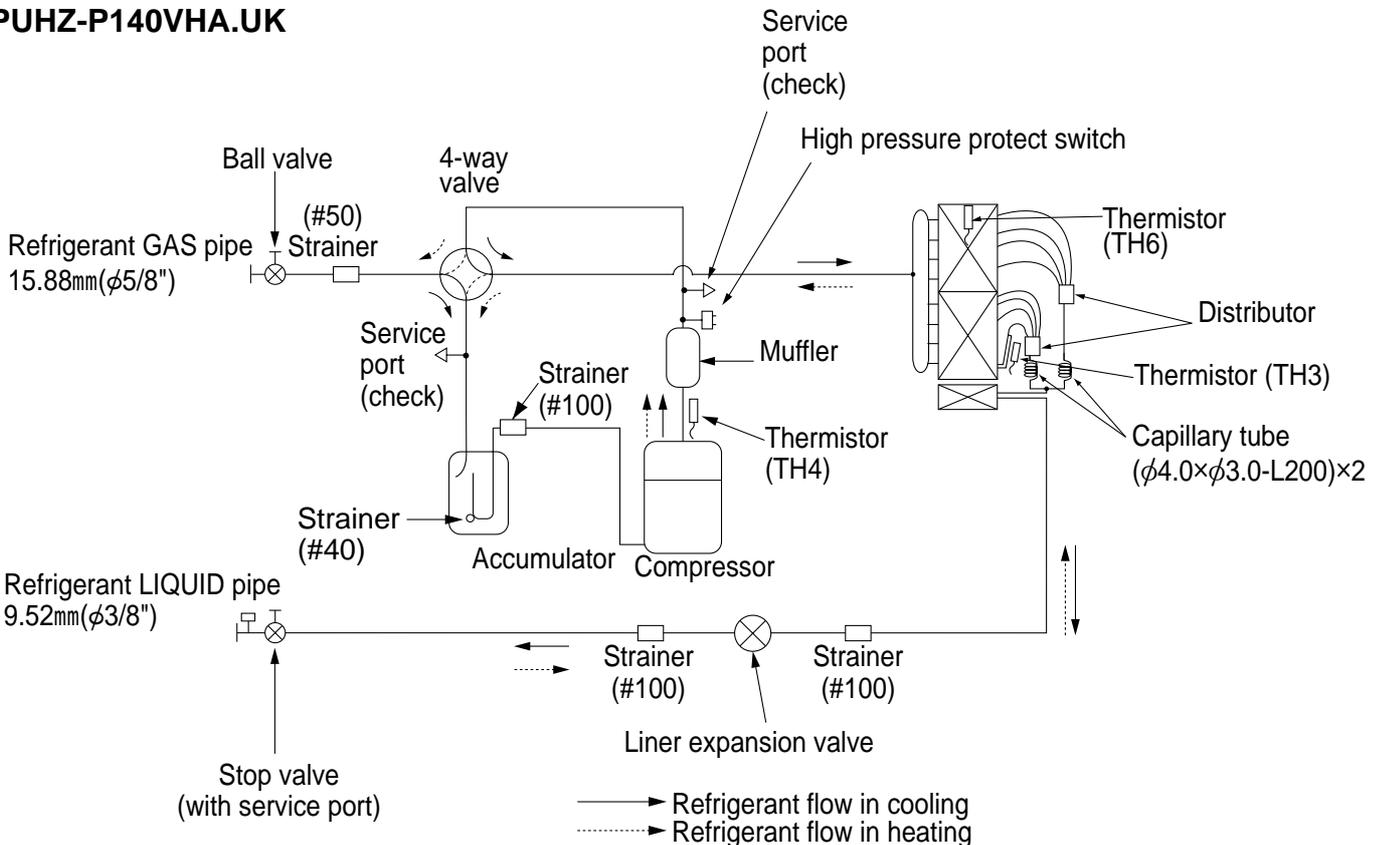
* In group B, M-NET address of the outdoor unit whose refrigerant address is "00" is not set to the minimum in the group. As "3" is right for this situation, the setting is wrong. Taking group A as a good sample, set the minimum M-NET address in the group for the outdoor unit whose refrigerant address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

PUHZ-P100VHA.UK

Unit : mm



PUHZ-P125VHA.UK
PUHZ-P140VHA.UK



1. Refrigerant collecting (pump down)

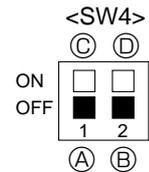
Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

- ① Turn on the power supply (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.
- ② After the liquid stop valve is closed, set the SWP switch on the control board of the outdoor unit to ON. The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and refrigerant collecting operation begins. LED1 and LED2 on the control board of the outdoor unit are lit.
 - *Set the SWP switch (push-button type) to ON in order to perform refrigerant collecting operation only when the unit is stopped. However, refrigerant collecting operation cannot be performed until compressor stops even if the unit is stopped. Wait three minutes until compressor stops and set the SWP switch to ON again.
- ③ Because the unit automatically stops in about two to three minutes after the refrigerant collecting operation (LED1 is not lit and LED2 is lit), be sure to quickly close the gas stop valve.
 - *In case the outdoor unit is stopped when LED1 is lit and LED2 is not lit, open the liquid stop valve completely, and then repeat step ② three minutes later.
 - *If the refrigerant collecting operation has been completed normally (LED1 is not lit and LED2 is lit), the unit will remain stopped until the power supply is turned off.
- ④ Turn off the power supply (circuit breaker.)

2. 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 no problem with product because the linear expansion pipe is just moving to adjust opening pulse.
- There may be a knocking sound around the machine room for several seconds after compressor starts operating, but this is no problem with product because the check valve, itself, generates the sound because pressure difference is small in the refrigerant circuit.



- Ⓐ Stop Ⓒ operation
- Ⓑ Cooling Ⓓ Heating

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

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

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

| Unit conditions at service | Error code | Actions to be taken for service (summary) |
|---|---------------|--|
| The inferior phenomenon is 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 inferior phenomenon according to "10-5. Troubleshooting by inferior phenomena". |
| The inferior phenomenon 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 and etc. Re-check the symptom, and check the installation environment, refrigerant amount, weather when the inferior phenomenon occurred, matters related to wiring and etc. ②Reset error code logs and restart the unit after finishing service. ③There is no abnormality concerning of parts such as electrical component, controller board, remote controller and etc. |
| | Not logged | ①Re-check the abnormal symptom. ②Conduct trouble shooting and ascertain the cause of the inferior phenomenon according to "10-5. Troubleshooting by inferior phenomena". ③Continue to operate unit for the time being if the cause is not ascertained. ④There is no abnormality concerning of parts such as electrical component, controller board, remote controller and 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(L, N) on the outdoor unit by 500V Merger and check that it is 1.0MΩ or over.

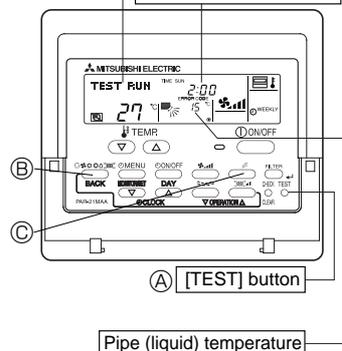
*Don't use 500V Merger to indoor/outdoor connecting wire terminal block(S1, S2, S3) and remote controller terminal block (1, 2). This may cause malfunction.

- Make sure that test run switch (SW4) is set to OFF before turning on power supply.
- Turn on power supply twelve hours before test run in order to protect compressor.
- For specific models which requires higher ceiling settings or auto-recovery feature from power failure, make proper changes of settings referring to the description of "Selection of Functions through Remote Controller".

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

"TEST RUN" and the currently selected operation mode are displayed alternately.

Displays the remaining test run time.



Operating procedures

| | |
|---|---|
| 1. Turn on the main power supply. | While the room temperature display on the remote controller is "PLEASE WAIT", the remote controller is disabled. Wait until "PLEASE WAIT" disappears before using remote controller. "PLEASE WAIT" appears for about 2 minutes after power supply is turned on. *1 |
| 2. Press (A) [TEST] button twice. | The [TEST RUN] appears on the screen. |
| 3. Press (B) [OPERATION SWITCH] button. | Cooling mode: Check if cool air blows and water is drained. Heating mode: Check if warm air blows. (It takes a little while until warm air blows.) |
| 4. Press (C) [AIR DIRECTION] button. | Check for correct motion of auto-vanes. |
| 5. Check the outdoor unit fan for correct running. | The outdoor unit features automatic capacity control to provide optimum fan speeds. Therefore, the fan keeps running at a low speed to meet the current outside air condition unless it exceeds its available maximum power. Then, in actuality, the fan may stop or run in the reverse direction depending on the outside air, but this does not mean malfunction. |
| 6. Press the [ON/OFF] button to reset the test run in progress. | |
| 7. Register the contact number. | |

- In case of test run, the OFF timer will be activated, and the test run will automatically stop after two hours.
- The room temperature display section shows the pipe temperature of indoor units during the test run.
- Check that all the indoor units are running properly in case of simultaneous twin and triple operation. Malfunctions may not be displayed regardless of incorrect wiring.

*1 After turning on the power supply, the system will go into start up mode, "PLEASE WAIT" will blink on the display section of the room

temperature, and lamp(green) of the remote controller will flash.

As to INDOOR BOARD LED, LED1 will be lit up, LED2 will either be lit up in case the address is 0 or turned off in case the address is not 0. LED3 will blink.

As to OUTDOOR BOARD LED, LED1(green) and LED2(red) will light up. (After the start up mode of the system finishes, LED2(red) will be turned off.)

In case OUTDOOR BOARD LED is digital display, and will be displayed alternately every second.

- If one of the above operations doesn't function correctly, the causes written below should be considered. Find causes from the symptoms.

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

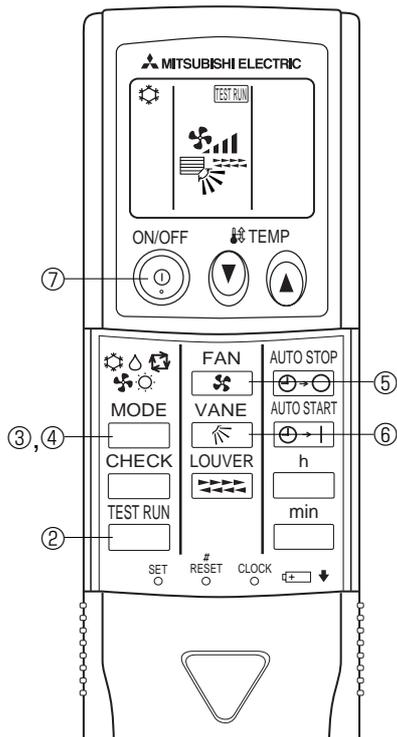
| Symptoms in test run mode | | Cause |
|---|--|--|
| Remote Controller Display | OUTDOOR BOARD LED Display <-> indicates digital display. | |
| Remote controller displays "PLEASE WAIT", and cannot be operated. | After "startup" is displayed, only green lights up. <00> | • After power is turned on, "PLEASE WAIT" is displayed for 2 minutes during system startup. (Normal) |
| After power is turned on, "PLEASE WAIT" is displayed for 3 minutes, then error code is displayed. | After "startup" is displayed, green(once) and red(once) blink alternately. <F1> | • Incorrect connection of outdoor terminal block (L1, L2, L3 and S1, S2, S3.) |
| No display appears even when remote controller operation switch is turned on. (Operation lamp does not light up.) | After "startup" is displayed, green(once) and red(twice) blink alternately. <F3, F5, F9> | • Outdoor unit's safeguard installation connector is open. |
| | After "startup" is displayed, green(twice) and red(once) blink alternately. <EA, Eb> | • Incorrect wiring between the indoor and outdoor unit (Polarity is wrong for S1, S2, S3.) • Remote controller transmission wire short. |
| Display appears but soon disappears even when remote controller is operated. | After "startup" is displayed, only green lights up. <00> | • There is no outdoor unit of address 0. (Address is other than 0.) • Remote controller transmission wire open. |
| | After "startup" is displayed, only green lights up. <00> | • After canceling function selection, operation is not possible for about 30 seconds. (Normal) |

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

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

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

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



Test run [for wireless remote controller]

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

- ① Turn on the main power to the unit.
- ② Press the  button twice continuously.
(Start this operation from the status of remote controller display turned off.)
A  and current operation mode are displayed.
- ③ Press the  () button to activate **COOL** mode, then check whether cool air is blown out from the unit.
- ④ Press the  () button to activate **HEAT** mode, then check whether warm air is blown out from the unit.
- ⑤ Press the  button and check whether strong air is blown out from the unit.
- ⑥ Press the  button and check whether the auto vane operates properly.
- ⑦ Press the ON/OFF button to stop the test run.

Note:

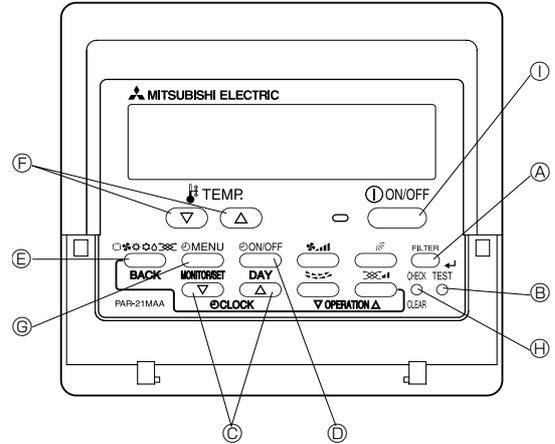
- Point the remote controller towards the indoor unit receiver while following steps ② to ⑦.
- It is not possible to run the in FAN, DRY or AUTO mode.

10-3. HOW TO PRECEED "SELF-DIAGNOSIS"

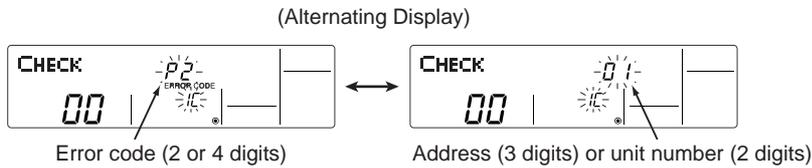
10-3-1. When a Problem Occurs During Operation

If a problem occurs in the air conditioner, the indoor and outdoor units will stop, and the problem is shown in the remote controller display.

[CHECK] and the refrigerant address are displayed on the temperature display, and the error code and unit number are displayed alternately as shown below.



- ① (If the outdoor unit is malfunctioning, the unit number will be "00".)
- ② In the case of group control, for which one remote controller controls multiple refrigerant systems, the refrigerant address and error code of the unit that first experienced trouble (i.e., the unit that transmitted the error code) will be displayed.
- ③ To clear the error code, press the **ON/OFF** button.



When using remote-/local-controller combined operation, cancel the error code after turning off remote operation. During central control by a MELANS controller, cancel the error code by pressing the **ON/OFF** button.

10-3-2. Self-Diagnosis During Maintenance or Service

Since each unit has a function that stores error codes, the latest check code can be recalled even if it is cancelled by the remote controller or power is shut off.

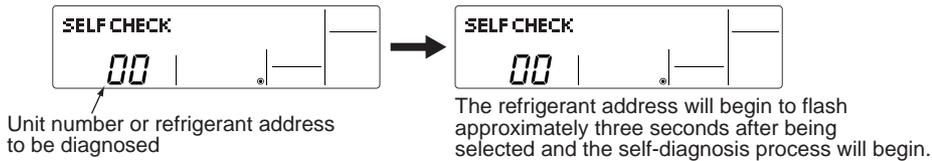
Check the error code history for each unit using the remote controller.

- ① Switch to self-diagnosis mode.

- ② Press the **CHECK** button twice within three seconds. The display content will change as shown below.

- ② Set the unit number or refrigerant address you want to diagnose.

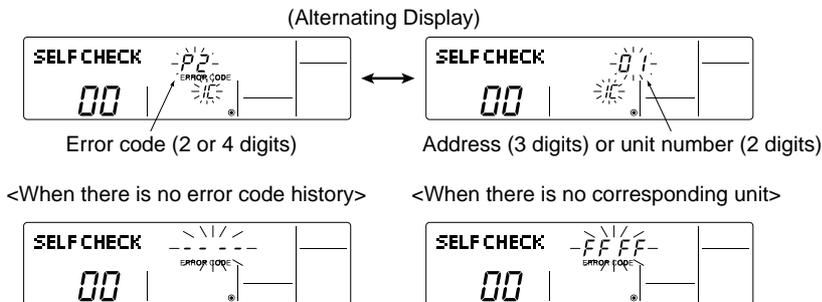
- ③ Press the [TEMP] buttons (**▽** and **△**) to select the desired number or address. The number (address) changes between [01] and [50] or [00] and [15].



- ③ Display self-diagnosis results.

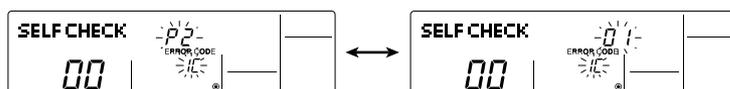
<When there is error code history>

(For the definition of each error code, refer to the indoor unit's installation manual or service handbook.)



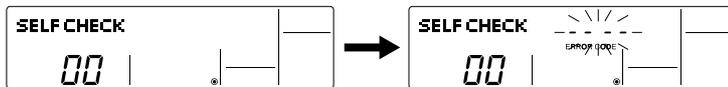
- ④ Reset the error history.

Display the error history in the diagnosis result display screen (see step ③).



- ④ Press the **ON/OFF** button twice within three seconds. The self-diagnosis address or refrigerant address will flash.

When the error history is reset, the display will look like the one shown below. However, if you fail to reset the error history, the error content will be displayed again.

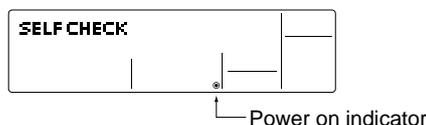


- ⑤ Cancel self-diagnosis. Self-diagnosis can be cancelled by the following two methods.
 - ④ Press the **CHECK** button twice within three seconds. → Self-diagnosis will be cancelled and the screen will return to the previous state in effect before the start of self-diagnosis.
 - ⑤ Press the **ON/OFF** button. → Self-diagnosis will be cancelled and the indoor unit will stop.

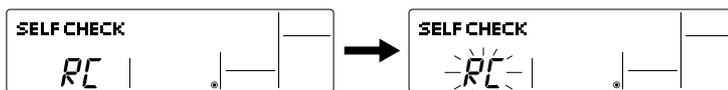
10-3-3. Remote Controller Diagnosis

If the air conditioner cannot be operated from the remote controller, diagnose the remote controller as explained below.

- ① First, check that the power-on indicator is lit. If the correct voltage (DC12 V) is not supplied to the remote controller, the indicator will not light. If this occurs, check the remote controller's wiring and the indoor unit.

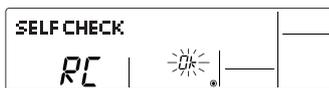


- ② Switch to the remote controller self-diagnosis mode.
 - ④ Press the **CHECK** button for five seconds or more. The display content will change as shown below.
 - ④ Press the **FILTER** button to start self-diagnosis.



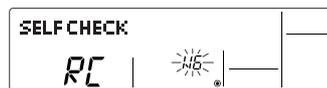
③ Remote controller self-diagnosis result

[When the remote controller is functioning correctly]



Check for other possible causes, as there is no problem with the remote controller.

[When the remote controller malfunctions]
(Error display 1) "NG" flashes. → The remote controller's transmitting-receiving circuit is defective.



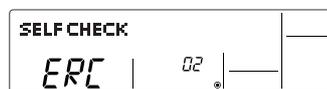
The remote controller must be replaced with a new one.

[Where the remote controller is not defective, but cannot be operated.]
(Error display 2) [E3], [6833] or [6832] flashes. → Transmission is not possible.



There might be noise or interference on the transmission path, or the indoor unit or other remote controllers are defective. Check the transmission path and other controllers.

(Error display 3) "ERC" and the number of data errors are displayed. → Data error has occurred.



The number of data errors is the difference between the number of bits sent from the remote controller and the number actually transmitted through the transmission path. If such a problem is occurring, the transmitted data is affected by noise, etc. Check the transmission path.

When the number of data errors is "02":
Transmission data from remote controller 
Transmission data on transmission path 

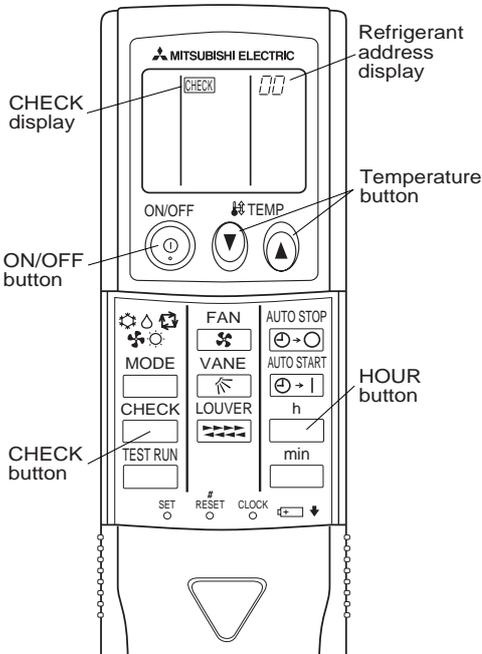
- ④ To cancel remote controller diagnosis
 - ④ Press the **CHECK** button for five seconds or more. Remote controller diagnosis will be cancelled, "PLEASE WAIT" and operation lamp will flash. After approximately 30 seconds, the state in effect before the diagnosis will be restored.

10-3-4. Malfunction-diagnosis method by wireless remote controller

<In case of trouble during operation>

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

<Malfunction-diagnosis method at maintenance service>

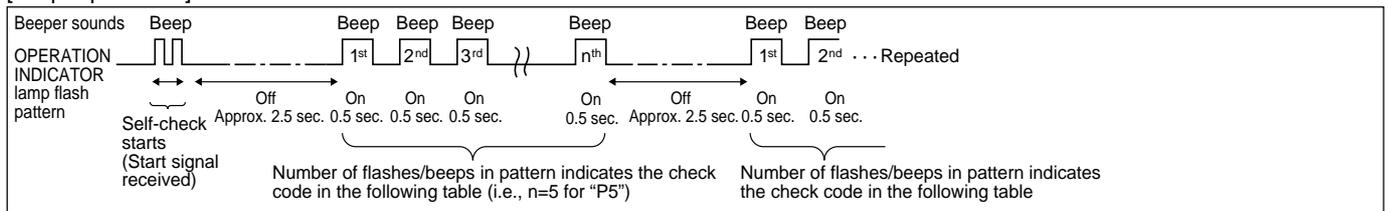


[Procedure]

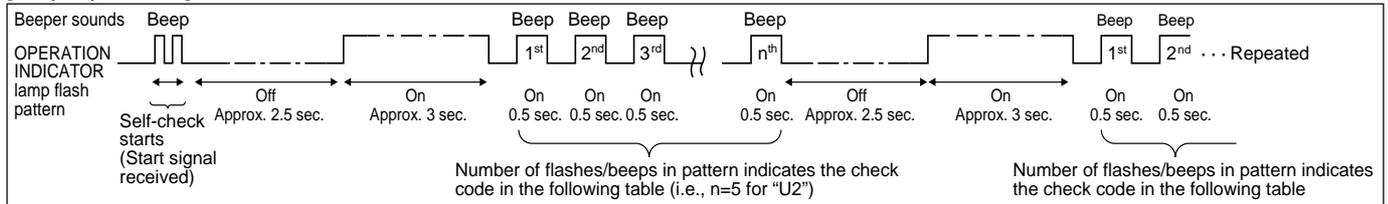
1. Press the CHECK button twice.
 - "CHECK" lights, and refrigerant address "00" flashes.
 - Check that the remote controller's display has stopped before continuing.
2. Press the temperature   buttons.
 - Select the refrigerant address of the indoor unit for the self-diagnosis.
 - Note: Set refrigerant address using the outdoor unit's DIP switch (SW1). (For more information, see the outdoor unit installation manual.)
3. Point the remote controller at the sensor on the indoor unit and press the HOUR button.
 - If an air conditioner error occurs, the indoor unit's sensor emits an intermittent buzzer sound, the operation light flashes, and the error code is output. (It takes 3 seconds at most for error code to appear.)
4. Point the remote controller at the sensor on the indoor unit and press the ON/OFF button.
 - The check mode is cancelled.

- Refer to the following tables for details on the check codes.

[Output pattern A]



[Output pattern B]



[Output pattern A] Errors detected by indoor unit

| Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp flashes (Number of times) | Wired remote controller Check code | Symptom | Remark |
|--|---------------------------------------|---|--|
| 1 | P1 | Intake sensor error | As for indoor unit, refer to indoor units service manual. |
| 2 | P2 | Pipe (TH2) sensor error | |
| | P9 | Pipe (TH5) sensor error | |
| 3 | E6,E7 | Indoor/outdoor unit communication error | |
| 4 | P4 | Drain sensor error | |
| 5 | P5 | Drain pump error | |
| 6 | P6 | Freezing/Overheating safeguard operation | |
| 7 | EE | Communication error between indoor and outdoor units | |
| 8 | P8 | Pipe temperature error | |
| 9 | E4, E5 | Remote controller signal receiving error | |
| 10 | - | - | |
| 11 | - | - | |
| 12 | Fb | Indoor unit control system error (memory error, etc.) | |
| - | E0, E3 | Remote controller transmission error | |
| - | E1, E2 | Remote controller control board error | |

[Output pattern B] Errors detected by unit other than indoor unit (outdoor unit, etc.)

| Wireless remote controller Beeper sounds/OPERATION INDICATOR lamp flashes (Number of times) | Wired remote controller Check code | Symptom | Remark |
|--|---------------------------------------|---|--|
| 1 | E9 | Indoor/outdoor unit communication error (Transmitting error) (Outdoor unit) | For details, check the LED display of the outdoor controller board. |
| 2 | UP | Compressor overcurrent interruption | |
| 3 | U3,U4 | Open/short of outdoor unit thermistors | |
| 4 | UF | Compressor overcurrent interruption (When compressor locked) | |
| 5 | U2 | Abnormal high discharging temperature/49C worked/ insufficient refrigerant | |
| 6 | U1,Ud | Abnormal high pressure (63H worked)/Overheating safeguard operation | |
| 7 | U5 | Abnormal temperature of heat sink | |
| 8 | U8 | Outdoor unit fan safeguard stop | |
| 9 | U6 | Compressor overcurrent interruption/Abnormal of power module | |
| 10 | U7 | Abnormality of super heat due to low discharge temperature | |
| 11 | U9,UH | Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit/Current sensor error | |
| 12 | - | - | |
| 13 | - | - | |
| 14 | Others | Other errors (Refer to the technical manual for the outdoor unit.) | |

*1 If the beeper does not sound again after the initial two beeps to confirm the self-check start signal was received and the OPERATION INDICATOR lamp does not come on, there are no error records.

*2 If the beeper sounds three times continuously "beep, beep, beep (0.4 + 0.4 + 0.4 sec.)" after the initial two beeps to confirm the self-check start signal was received, the specified refrigerant address is incorrect.

10-4. SELF-DIAGNOSIS ACTION TABLE

<Abnormalities detected when the power is put on>

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

| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|---|---|--|
| None | — | <p>① No voltage is supplied to terminal block(TB1) of outdoor unit. a) Power supply breaker is put off. b) Contact failure or disconnection of power supply terminal c) Open phase (L or N phase)</p> <p>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 :Disconnection of connector TABT or TABS</p> <p>③ Electric power is not supplied to outdoor controller circuit board. a) Disconnection of connector (CNDC)</p> <p>④ Open circuit of rush current protect resistor (RS).</p> <p>⑤ Disconnection of reactor (DCL)</p> <p>⑥ Disconnection of outdoor noise filter circuit board or parts failure in outdoor noise filter circuit board</p> <p>⑦ Defective outdoor power circuit board</p> <p>⑧ Defective outdoor controller circuit board</p> | <p>① Check following items. a) Power supply breaker b) Connection of power supply terminal block. (TB1) c) Connection of power supply terminal block. (TB1)</p> <p>② Check following items. a) Connection of power supply terminal block. (TB1) b) Connection of terminal on outdoor power circuit board. Disconnection of connector TABT or TABS. Refer to 10-9.</p> <p>③ Check connection of the connector (CNDC) on the outdoor controller circuit board. Check connection of the connector CNDC on the outdoor power circuit board Refer to 10-9.</p> <p>④ Check resistance value of rush current protect resistor (RS).</p> <p>⑤ Check connection of reactor. (DCL) Check connection of "L1" and "L2" on the active filter module.(ACTM) Refer to 10-9.</p> <p>⑥ a) Check connection of outdoor noise filter circuit board. b) Replace outdoor noise filter circuit board. Refer to 10-9.</p> <p>⑦ Replace outdoor power circuit board.</p> <p>⑧ Replace controller board (When items above are checked but the units can not be repaired.)</p> |
| F5 (5201) | <p>63H connector open Abnormal if 63H connector circuit is open for three minutes continuously after power supply. 63H: High-pressure switch</p> | <p>① Disconnection or contact failure of 63H connector on outdoor controller circuit board</p> <p>② Disconnection or contact failure of 63H</p> <p>③ 63H is working due to defective parts.</p> <p>④ Defective outdoor controller circuit board</p> | <p>① Check connection of 63H connector on outdoor controller circuit board. Refer to 10-9.</p> <p>② Check the 63H side of connecting wire.</p> <p>③ Check continuity by tester. Replace the parts if the parts are defective.</p> <p>④ Replace outdoor controller circuit board.</p> |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|--|--|---|
| EA (6844) | <p>Indoor/outdoor unit connector mis-wiring, excessive number of units (4 units or more)</p> <p>1. Outdoor controller circuit board can automatically check the number of connected indoor units. Abnormal if the number cannot be checked automatically due to mis-wiring of indoor/outdoor unit connecting wire and etc. after power is turned on for 4 minutes.</p> <p>2. Abnormal if outdoor controller circuit board recognizes the number of connected indoor units as "4 units or more".</p> | <p>① Contact failure or mis-wiring of indoor/outdoor unit connecting wire</p> <p>② Diameter or length of indoor/outdoor unit connecting wire is out of specified capacity.</p> <p>③ 4 or more indoor units are connected to one outdoor unit.</p> <p>④ Defective transmitting receiving circuit of outdoor controller circuit board</p> <p>⑤ Defective transmitting receiving circuit of indoor controller board</p> <p>⑥ Defective indoor power board</p> <p>⑦ Two or more outdoor units have refrigerant address "0" . (In case of group control)</p> <p>⑧ Noise has entered into power supply or indoor / outdoor unit connecting wire.</p> | <p>① Check disconnection or looseness or polarity of indoor/outdoor unit connecting wire of indoor and outdoor units.</p> <p>② Check diameter and length of indoor/outdoor unit connecting wire. Total wiring length: 80m (including wiring connecting each indoor unit and between indoor and outdoor unit) Also check if the connection order of flat cable is S1, S2, S3.</p> <p>③ Check the number of indoor units that are connected to one outdoor unit. (If EA is detected)</p> <p>④~⑥ Put 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.</p> |
| Eb (6845) | <p>Mis-wiring of indoor/outdoor unit connecting wire (converse wiring or disconnection)</p> <p>Outdoor controller circuit board can automatically set the unit number of indoor units. Abnormal if the indoor unit number can not be set within four minutes after power on because of mis-wiring (converse wiring or disconnection) of indoor/outdoor unit connecting wire.</p> | <p>① Contact failure or mis-wiring of indoor/outdoor unit connecting wire</p> <p>② Diameter or length of indoor/outdoor unit connecting wire is out of specified capacity.</p> <p>④ Defective transmitting receiving circuit of outdoor controller circuit board.</p> <p>⑤ Defective transmitting receiving circuit of indoor controller board</p> <p>⑥ Defective indoor power board.</p> <p>⑦ Two or more outdoor units have refrigerant address "0" . (In case of group control)</p> <p>⑧ Noise has entered into power supply or indoor/outdoor unit connecting wire.</p> | <p>⑦ Check if refrigerant addresses (SW1-3 to SW1-6 on outdoor controller circuit board) are overlapping in case of group control system.</p> <p>⑧ Check transmission path, and remove the cause.</p> <p>※ The descriptions above, ①-⑧, are for EA, Eb and EC.</p> |
| EC (6846) | <p>Start-up time over</p> <p>The unit can not finish start-up process within four minutes after power on.</p> | <p>① Contact failure of indoor/ outdoor unit connecting wire</p> <p>② Diameter or length of indoor/ outdoor unit connecting wire is out of specified capacity.</p> <p>⑦ Two or more outdoor units have refrigerant address "0" . (In case of group control)</p> <p>⑧ Noise has entered into power supply or indoor/outdoor unit connecting wire.</p> | |

<Abnormalities detected while unit is operating>

| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|--|---|---|
| U1 (1302) | <p>Abnormal high pressure (High-pressure switch 63H worked) Abnormal if high-pressure switch 63H worked (*) during compressor operation. ※ 4.15 MPa</p> <p>63H: High-pressure switch</p> | <p>① Short cycle of indoor unit ② Clogged filter of indoor unit ③ Decreased airflow caused by dirt of indoor fan ④ Dirt of indoor heat exchanger ⑤ Locked indoor fan motor ⑥ Malfunction of indoor fan motor ⑦ Defective operation of stop valve (Not full open) ⑧ Clogged or broken pipe ⑨ Locked outdoor fan motor ⑩ Malfunction of outdoor fan motor ⑪ Short cycle of outdoor unit ⑫ Dirt of outdoor heat exchanger ⑬ Decreased airflow caused by defective inspection of outside temperature thermistor (It detects lower temperature than actual temperature.) ⑭ Disconnection or contact failure of connector (63H) on outdoor controller board ⑮ Disconnection or contact failure of 63H connection ⑯ Defective outdoor controller board ⑰ Defective action of linear expansion valve ⑱ Malfunction of fan driving circuit</p> | <p>①~⑥ Check indoor unit and repair defectives.</p> <p>⑦ Check if stop valve is full open.</p> <p>⑧ Check piping and repair defectives. ⑨~⑫ Check outdoor unit and repair defectives.</p> <p>⑬ Check the inspected temperature of outside temperature thermistor on LED display. (SW2 on A-Control Service Tool : Refer to 10-10.)</p> <p>⑭~⑯ Put the power off and check F5 is displayed when the power is put again. When F5 is displayed, refer to "Judgment and action" for F5.</p> <p>⑰ Check linear expansion valve. Refer to 10-6. ⑱ Replace outdoor controller board.</p> |
| U2 (1102) | <p>Abnormal high discharging temperature (1) Abnormal if discharge temperature thermistor (TH4) exceeds 125°C or 110°C continuously for 5 minutes. Abnormal if condenser/evaporator temperature thermistor (TH5) exceeds 40°C during defrosting and discharge temperature thermistor (TH4) exceeds 110°C.</p> <p>(2) Abnormal if discharge super heat (Cooling: TH4 – TH5 / Heating: TH4 – TH6) increases. All the conditions in A or B are detected simultaneously for 10 minutes continuously after 6 minutes past from compressor start-up (including the thermostat indication or recovery from defrosting). <Condition A> • Heating mode • When discharge super heat is less than 70 deg. • When the TH6 temp is more than the value obtained by TH7 – 5 deg. • When the condensing temp of TH5 is less than 35°C.</p> <p><Condition B> • During comp operation (Cooling and Heating) • When discharge super heat is less than 80 deg in Cooling. • When discharge super heat is less than 90 deg in Heating. • When condensing temp of TH6 is more than –40°C. (In Cooling only.)</p> | <p>① Over-heated 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</p> | <p>① Check intake super heat. Check leakage of refrigerant. Charge additional refrigerant. ② Check if stop valve is full open. ③④ Put the power off and check if U3 is displayed when the power is put again. When U3 is displayed, refer to "Judgement and action" for U3. ⑤ Check linear expansion valve. Refer to 10-6.</p> |



| Error Code | Meaning of error code and detection method | Case | Judgment and action | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|-------------|----------------------------------|--|-----------------|--------|------|-----|---------------------------|-----------------|---------------|-----|-----------------------------------|-----------------|---------------|-----|----------------------|-----------------|---------------|-----|------------------------|-----------------|----------------|
| U3 (5104) | Open/short circuit of discharge temperature thermistor (TH4) Abnormal if open (3°C or less) or short (217°C or more) is detected during compressor operation. (Detection is inoperative for 10 minutes of compressor starting process and for 10 minutes after and during defrosting.) | ① Disconnection or contact failure of connector (TH4) on the outdoor controller circuit board. ② Defective thermistor ③ Defective outdoor controller circuit board | ① Check connection of connector (TH4) on the outdoor controller circuit board. Check breaking of the lead wire for thermistor (TH4). Refer to 10-9. ② Check resistance value of thermistor (TH4) or temperature by microcomputer. (Thermistor/TH4: Refer to 10-6.) (SW2 on A-Control Service Tool: Refer to 10-10.) ③ Replace outdoor controller board. | | | | | | | | | | | | | | | | | | | | | | |
| U4 (TH3:5105) (TH6:5107) (TH7:5106) (TH8:5110) | Open/short of outdoor unit thermistors (TH3, TH6, TH7, and TH8) Abnormal if open or short is detected during compressor operation. Open detection of thermistors TH3 and TH6 is inoperative for 10 seconds to 10 minutes after compressor starting and 10 minutes after and during defrosting. *Check which unit has abnormality in its thermistor by switching the mode of SW2. (PAC-SK52ST) (Refer to 10-10.) | ① Disconnection or contact failure of connectors <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td style="padding: 5px;">Outdoor controller circuit board: TH3,TH6/TH7</td> <td rowspan="2" style="font-size: 3em; vertical-align: middle;">)</td> </tr> <tr> <td style="padding: 5px;">Outdoor power circuit board: CN3</td> </tr> </table> ② Defective thermistor ③ Defective outdoor controller circuit board | Outdoor controller circuit board: TH3,TH6/TH7 |) | Outdoor power circuit board: CN3 | ① Check connection of connector (TH3,TH6/TH7) on the outdoor controller circuit board. Check connection of connector (CN3) on the outdoor power circuit board. Check breaking of the lead wire for thermistor (TH3,TH6,TH7,TH8). Refer to 10-9. ② Check resistance value of thermistor (TH3,TH6,TH7,TH8) or check temperature by microcomputer. (Thermistor/TH3,TH6,TH7,TH8: Refer to 10-6.) (SW2 on A-Control Service Tool: Refer to 10-10.) ③ Replace outdoor controller circuit board. *Emergency operation is available in case of abnormalities of TH3, TH6 and TH7. Refer to 10-8. | | | | | | | | | | | | | | | | | | | |
| Outdoor controller circuit board: TH3,TH6/TH7 |) | | | | | | | | | | | | | | | | | | | | | | | | |
| Outdoor power circuit board: CN3 | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Thermistors</th> <th rowspan="2">Open detection</th> <th rowspan="2">Short detection</th> </tr> <tr> <th>Symbol</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td>TH3</td> <td>Thermistor <Outdoor pipe></td> <td>- 40°C or below</td> <td>90°C or above</td> </tr> <tr> <td>TH6</td> <td>Thermistor <Outdoor 2-phase pipe></td> <td>- 40°C or below</td> <td>90°C or above</td> </tr> <tr> <td>TH7</td> <td>Thermistor <Outdoor></td> <td>- 40°C or below</td> <td>90°C or above</td> </tr> <tr> <td>TH8</td> <td>Thermistor <Heat sink></td> <td>- 27°C or below</td> <td>102°C or above</td> </tr> </tbody> </table> | | | | Thermistors | | Open detection | Short detection | Symbol | Name | TH3 | Thermistor <Outdoor pipe> | - 40°C or below | 90°C or above | TH6 | Thermistor <Outdoor 2-phase pipe> | - 40°C or below | 90°C or above | TH7 | Thermistor <Outdoor> | - 40°C or below | 90°C or above | TH8 | Thermistor <Heat sink> | - 27°C or below | 102°C or above |
| Thermistors | | Open detection | Short detection | | | | | | | | | | | | | | | | | | | | | | |
| Symbol | Name | | | | | | | | | | | | | | | | | | | | | | | | |
| TH3 | Thermistor <Outdoor pipe> | - 40°C or below | 90°C or above | | | | | | | | | | | | | | | | | | | | | | |
| TH6 | Thermistor <Outdoor 2-phase pipe> | - 40°C or below | 90°C or above | | | | | | | | | | | | | | | | | | | | | | |
| TH7 | Thermistor <Outdoor> | - 40°C or below | 90°C or above | | | | | | | | | | | | | | | | | | | | | | |
| TH8 | Thermistor <Heat sink> | - 27°C or below | 102°C or above | | | | | | | | | | | | | | | | | | | | | | |
| U5 (4230) | Abnormal temperature of heat sink Abnormal if heat sink thermistor(TH8) detects temperature indicated below. P100-140VHA.....84°C | ① The outdoor fan motor is locked. ② Failure of outdoor fan motor ③ Air flow path is clogged. ④ Rise of ambient temperature ⑤ Defective thermistor ⑥ Defective input circuit of outdoor power circuit board ⑦ Failure of outdoor fan drive circuit | ①② Check outdoor fan. ③ Check air flow path for cooling. ④ Check if there is something which causes temperature rise around outdoor unit. (Upper limit of ambient temperature is 46°C.) Turn off power, and on again to check if U5 is displayed within 30 minutes. If U4 is displayed instead of U5, follow the action to be taken for U4. ⑤ Check resistance value of thermistor (TH8) or temperature by microcomputer. (Thermistor/TH8: Refer to 10-6.) (SW2 on A-Control Service Tool: Refer to 10-10.) ⑥ Replace outdoor power circuit board. ⑦ Replace outdoor controller circuit board. | | | | | | | | | | | | | | | | | | | | | | |
| U6 (4250) | Abnormality of power module Check abnormality by driving power module in case overcurrent is detected. (UF or UP error condition) | ① Outdoor stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power circuit board | ① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U•V•W phase) to compressor. Refer to 10-9 (Outdoor power circuit board). ④ Check compressor referring to 10-6. ⑤ Replace outdoor power circuit board. | | | | | | | | | | | | | | | | | | | | | | |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|---|--|---|
| U8 (4400) | <p>Abnormality in the outdoor fan motor The outdoor fan motor is considered to be abnormal if the rotational frequency of fan motor is abnormal when detected during operation. Fan motor rotational frequency is abnormal if;</p> <ul style="list-style-type: none"> • 100 rpm or below detected continuously for 15 seconds at 20°C or more outside air temperature • 50 rpm or below or 1500 rpm or more detected continuously for 1 minute. | <ul style="list-style-type: none"> ① Failure in the operation of the DC fan motor ② Failure in the outdoor circuit controller board | <ul style="list-style-type: none"> ① Check or replace the DC fan motor. ② Check the voltage of the outdoor circuit controller board during operation. ③ Replace the outdoor circuit controller board. (when the failure is still indicated even after performing the remedy ① above.) |
| U9 (4220) | <p>Abnormality such as overvoltage or voltage shortage and abnormal synchronous signal to main circuit</p> <p>Abnormal if any of followings are detected during compressor operation;</p> <ul style="list-style-type: none"> • Decrease of DC bus voltage to 310V • Instantaneous decrease of DC bus voltage to 200V • Increase of DC bus voltage to 400V • Decrease of input current of outdoor unit to 0.5A only if operation frequency is more than or equal to 40Hz or compressor current is more than or equal to 5A. | <ul style="list-style-type: none"> ① Decrease of power supply voltage ② Disconnection of compressor wiring ③ Defective 52C ④ Defective ACT module ⑤ Defective ACT module drive circuit of outdoor power circuit board ⑥ Disconnection or loose connection of CNAF ⑦ Defective 52C drive circuit of outdoor controller circuit board ⑧ Disconnection or loose connection of CN5 on the outdoor power circuit board. ⑨ Disconnection or loose connection of CN2 on the outdoor power circuit board. | <ul style="list-style-type: none"> ① Check the facility of power supply. ② Correct the wiring (U•V•W phase) to compressor. Refer to 10-9 (Outdoor power circuit board). ③ Replace 52C. ④ Replace ACT module. ⑤ Replace outdoor power circuit board. ⑥ Check CNAF wiring. ⑦ Replace outdoor controller circuit board. ⑧ Check CN5 wiring on the outdoor power circuit board. Refer to 10-9. ⑨ Check CN2 wiring on the outdoor power circuit board. Refer to 10-9. |
| Ud (1504) | <p>Over heat protection Abnormal if outdoor pipe thermistor (TH3) detects 70°C or more during compressor operation.</p> | <ul style="list-style-type: none"> ① Defective outdoor fan (fan motor) or short cycle of outdoor unit during coling operation. ② Defective outdoor pipe thermistor (TH3) ③ Defective outdoor controller board | <ul style="list-style-type: none"> ① Check outdoor unit air passage ②③ Put the power off and on again to check the error code. If U4 is displayed, follow the U4 processing direction. |
| UF (4100) | <p>Compressor overcurrent interruption (When compressor locked) Abnormal if overcurrent of DC bus or compressor is detected within 30 seconds after compressor starts operating.</p> | <ul style="list-style-type: none"> ① Stop valve is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective compressor ⑤ Defective outdoor power board | <ul style="list-style-type: none"> ① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U•V•W phase) to compressor. Refer to 10-9 (Outdoor power circuit board). ④ Check compressor. Refer to 10-6. ⑤ Replace outdoor power circuit board. |
| UH (5300) | <p>Compressor current sensor error or input current error Abnormal if compressor current sensor detects -1.5A to 1.5A during compressor operation. (This error is ignored in case of test run mode.) It's abnormal for 38A the input current or 10 seconds continuousnes 34A or more.</p> | <ul style="list-style-type: none"> ① Disconnection of compressor wiring ② Defective circuit of current sensor on outdoor power circuit board | <ul style="list-style-type: none"> ① Correct the wiring (U•V•W phase) to compressor. Refer to 10-9 (Outdoor power circuit board). ② Replace outdoor power circuit board. |
| UL (1300) | <p>Abnormal low pressure Abnormal if the following conditions are detected for continuousness 3 minutes after compressor starts heating operating for 10 minutes. (However, it becomes this abnormal detection disregard at the compressor driving time after it turns on power after 30 minutes totaling.) TH7-TH3\leq4°C TH5-Indoor room temperature\leq2°C</p> <p>Thermistor TH3:Outdoor liquid pipe temperature TH5:Indoor cond./eva. Temperature TH7:Outdoor temperature</p> | <ul style="list-style-type: none"> ① Stop valve of outdoor unit is closed during operation. ② Leakage or shortage of refrigerant ③ Malfunction of linear expansion valve | <ul style="list-style-type: none"> ① Check stop valve. ② Check intake super heat. Check leakage of refrigerant. Charge additional refrigerant. ③ Check linear expansion valve. Refer to 10-6. |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|----------------|--|--|--|
| UP (4210) | <p>Compressor overcurrent interruption Abnormal if overcurrent DC bus or compressor is detected after compressor starts operating for 30 seconds.</p> | <p>① Stop valve of outdoor unit is closed. ② Decrease of power supply voltage ③ Looseness, disconnection or converse of compressor wiring connection ④ Defective fan of indoor/outdoor units ⑤ Short cycle of indoor/outdoor units ⑥ Defective input circuit of outdoor controller board ⑦ Defective compressor</p> | <p>① Open stop valve. ② Check facility of power supply. ③ Correct the wiring (U•V•W phase) to compressor. Refer to 10-9 (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. * 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.</p> |
| E0 or E4 | <p>Remote controller transmission error(E0)/signal receiving error(E4) ① Abnormal if main or sub remote controller can not receive normally any transmission from indoor unit of refrigerant address "0" for three minutes. (Error code : E0) ② Abnormal if sub remote controller could not receive for any signal for two minutes. (Error code: E0)</p> <p>① Abnormal if indoor controller board can not receive normally any data from remote controller board or from other indoor controller board for three minutes. (Error code: E4) ② Indoor controller board cannot receive any signal from remote controller for two minutes. (Error code: E4)</p> | <p>① Contact failure at transmission wire of remote controller ② 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. ③ Mis-wiring of remote controller. ④ Defective transmitting receiving circuit of remote controller ⑤ Defective transmitting receiving circuit of indoor controller board of refrigerant address "0". ⑥ Noise has entered into the transmission wire of remote controller.</p> | <p>① Check disconnection or looseness of indoor unit or transmission wire of remote controller. ② Set one of the remote controllers "main". If there is no problem with the action above. ③ Check wiring of remote controller. • Total wiring length: max.500m (Do not use cablex 3 or more) • The number of connecting indoor units: max.16units • The number of connecting remote controller: max.2units</p> <p>When it is not the above-mentioned problem of ①-③ ④ Diagnose remote controllers. a) When "RC OK" is displayed, Remote controllers have no problem. Put the power off, and on again to check. If abnormality generates again, replace indoor controller board. b) When "RC NG" is displayed, Replace remote controller. c) When "RC E3" is displayed, d) When "ERC 00-06" is displayed, [c),d)→Noise may be causing abnormality.] * If the unit is not normal after replacing indoor controller board in group control, indoor controller board of address "0" may be abnormal.</p> |
| E1 or E2 | <p>Abnormality of remote controller control board ① Abnormal if data cannot be normally read from the nonvolatile memory of the remote controller control board. (Error code: E1) ② Abnormal if the clock function of remote controller cannot be normally operated. (Error code: E2)</p> | <p>① Defective remote controller.</p> | <p>① Replace remote controller.</p> |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|----------------------------|---|---|--|
| E3 or E5 | Remote controller transmission error(E3)/signal receiving error(E5) ① Abnormal if remote controller could not find blank of transmission path for six seconds and could not transmit. (Error code: E3) ② 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. (Error code: E3) ① Abnormal if indoor controller board could not find blank of transmission path. (Error code: E5) ② 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. (Error code: E5) | ① Two remote controller are set as "main." (In case of 2 remote controllers) ② Remote controller is connected with two indoor units or more. ③ Repetition of refrigerant address. ④ Defective transmitting receiving circuit of remote controller. ⑤ Defective transmitting receiving circuit of indoor controller board. ⑥ Noise has entered into transmission wire of remote controller. | ① 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. Put 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. |
| E8 (6840) | Indoor/outdoor unit communication error (Signal receiving error) (Outdoor unit) (1) Abnormal if outdoor controller circuit board could not receive anything normally for three minutes. | ① Contact failure of indoor/outdoor unit connecting wire. ② Defective communication circuit of outdoor controller circuit board. ③ Defective communication circuit of indoor controller board ④ Noise has entered into indoor/outdoor unit connecting wire. | ① Check disconnection or looseness of indoor/outdoor unit connecting wire of indoor or outdoor units. ②~④ Put the power off, and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality 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 controller circuit board has transmitted "1". (2) Abnormal if outdoor controller circuit board could not find blank of transmission path for three minutes. | ① Indoor/ outdoor unit connecting wire has contact failure. ② Defective communication circuit of outdoor controller circuit board. ③ Noise has entered power supply. ④ Noise has entered indoor/ outdoor unit connecting wire. | ① Check disconnection or looseness of indoor/outdoor unit connecting wire. ②~④ Put the power off, and on again to check. Replace outdoor controller circuit board if abnormality is displayed again. |
| EF (6607 or 6608) | Non defined error code This code is displayed when non defined error code is received. | ① Noise has entered transmission wire of remote controller. ② Noise has entered indoor/ outdoor unit connecting wire. ③ Outdoor unit is not a series of power-inverter. ④ Model name of remote controller is PAR-S25A. | ①② Put the power off, and on again to check. Replace indoor controller board or outdoor controller circuit board if abnormality is displayed again. ③ Replace outdoor unit with power-inverter type outdoor unit. ④ Replace remote controller with MA remote controller. |
| Ed (0403) | Serial communication error 1. Abnormal if serial communication between outdoor controller circuit board and outdoor power circuit board is defective. | ① Breaking of wire or contact failure of connector CN2 between the outdoor controller circuit board and the outdoor power circuit board. ② Breaking of wire or contact failure of connector CN4 between the outdoor controller circuit board and the outdoor power circuit board. ③ Defective communication circuit of outdoor power circuit board ④ Defective communication circuit of outdoor controller circuit board for outdoor power circuit board | ①② 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. | ① Breaking of wire or contact failure of connector between outdoor controller circuit board and M-NET board ② Contact failure of M-NET board power supply line ③ Noise has entered into M-NET transmission wire. | ① Check disconnection, looseness, or breaking of connection wire between outdoor controller circuit board (CNMNT) and M-NET board (CN5). ② Check disconnection, looseness, or breaking of connection wire between outdoor controller circuit board (CNMNT) and M-NET board (CND). ③ Check M-NET transmission wiring method. |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|------------|---|---|---|
| P8 | <p>Abnormality of pipe temperature <Cooling mode> Detected as abnormal when the pipe temperature is not in the cooling range 3 minutes later of compressor start and 6 minutes later of the liquid or condenser/evaporator pipe is out of cooling range. Note 1) It takes at least 9 min. to detect. Note 2) Abnormality P8 is not detected in drying mode. Cooling range : Indoor pipe temperature (TH2 or TH5) – intake temperature (TH1) ≤ -3 deg TH: Lower temperature between: liquid pipe temperature and condenser/evaporator temperature</p> <p><Heating mode> When 10 seconds have passed after the compressor starts operation and the hot adjustment mode has finished, the unit is detected as abnormal when condenser/evaporator pipe temperature is not in heating range within 20 minutes.</p> <p>Note 3) It takes at least 27 minutes to detect abnormality. Note 4) It excludes the period of defrosting (Detection restarts when defrosting mode is over) Heating range : 3 deg ≤ (Condenser/ Evaporator temperature(TH5) – intake temperature(TH1))</p> | <p>① Slight temperature difference between indoor room temperature and pipe <liquid or condenser / evaporator> temperature thermistor</p> <ul style="list-style-type: none"> • Shortage of refrigerant • Disconnected holder of pipe <liquid or condenser / evaporator> thermistor • Defective refrigerant circuit <p>② Converse connection of extension pipe (on plural units connection)</p> <p>③ Converse wiring of indoor/outdoor unit connecting wire (on plural units connection)</p> <p>④ Defective detection of indoor room temperature and pipe <condenser / evaporator> temperature thermistor</p> <p>⑤ Stop valve is not opened completely.</p> | <p>①~④ Check pipe <liquid or condenser / evaporator> temperature with room temperature display on remote controller and outdoor controller circuit board. Pipe <liquid or condenser / evaporator> temperature display is indicated by setting SW2 of outdoor controller circuit board as follows.</p> <p>(Conduct temperature check with outdoor controller circuit board after connecting 'A-Control Service Tool(PAC-SK52ST)')</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Temperature display of indoor liquid pipe Indoor 1</p> </div> <div style="text-align: center;"> <p>Temperature display of indoor condenser/evaporator pipe Indoor 1</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Temperature display of indoor liquid pipe Indoor 2</p> </div> <div style="text-align: center;"> <p>Temperature display of indoor condenser/evaporator pipe Indoor 2</p> </div> </div> <p style="text-align: center; font-size: small;">A-Control Service Tool SW2 setting</p> <p>②③ Check converse connection of extension pipe or converse wiring of indoor/outdoor unit connecting wire.</p> |

<M-NET communication error>

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

| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|------------|--|---|--|
| A0 (6600) | <p>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.</p> | <p>① There are two or more same address of controller of outdoor unit, indoor unit, FRESH MASTER, or LOSSNAY.</p> <p>② Noise has entered into transmission signal and signal was transformed.</p> | <p>Search the unit with same address as abnormality occurred. If the same address is found, shut of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more after the address is corrected, and put the power on again. Check transmission wave form or noise on transmission wire.</p> |
| A2 (6602) | <p>Hard ware 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.</p> | <p>① Error is detected if wave form is transformed when wiring works of transmission wire of outdoor unit, indoor unit, FRESH MASTER or LOSSNAY are done, or polarity is changed with the power on and transmission data collide each other.</p> <p>② Defective transmitting receiving circuit of transmission processor</p> <p>③ Transmission data is changed by the noise on transmission.</p> | <p>① If the works of transmission wire is done with the power on, shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again.</p> <p>② Check transmission wave form or noise on transmission wire.</p> |
| A3 (6603) | <p>BUS BUSY 1. Over error by collision damage Abnormal if transmitting is not possible for 8-10 minutes continuously because of collision of transmission. 2. Data could not reach transmission wire for 8-10 minutes continuously because of noise or etc. Note) The address and attribute displayed at remote controller indicate the controller that detected abnormality.</p> | <p>① Transmission processor could not transmit because short cycle voltage of noise and the like have entered into transmission wire continuously.</p> <p>② 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.</p> <p>③ Transmission are mixed with others and occupation rate on transmission wire rose because of defective repeater (a function to connector or disconnect transmission of control and central control system) of outdoor unit, then abnormality is detected.</p> | <p>① Check if transmission wire of indoor unit, FRESH MASTER, LOSSNAY, or remote controller is not connected to terminal block for central control (TB7) of outdoor unit.</p> <p>② Check if transmission wire of indoor unit, FRESH MASTER or LOSSNAY is not connected to terminal block for transmission wire of outdoor unit.</p> <p>③ Check if terminal block for transmission wire (TB3) and terminal block for central control (TB7) is not connected.</p> <p>④ Check transmission wave form or noise on transmission wire.</p> |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|--|---|--|
| A6 (6606) | <p>Communication error with communication processor Defective communication between unit processor and transmission processor Note) The address and attribute display at remote controller indicate the controller that detected abnormality.</p> | <p>① Data of transmission processor or unit processor is not transmitted normally because of accidental trouble such as noise or thunder surge. ② Address forwarding from unit processor is not transmitted normally because of defective transmission processor hardware.</p> | <p>Shut of the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. System returns normally if abnormality was accidental malfunction. If the same abnormality generates again, abnormality-generated controller may be defective.</p> |
| A7 (6607) | <p>NO ACK signal 1. Transmitting side controller detects abnormal if a message was transmitted but there is no reply (ACK) that a message was received. Transmitting side detects abnormality every 30 seconds, six times continuously. Note) The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK).</p> <p>2. If displayed address or attribute is outdoor unit, Indoor unit detects abnormality when indoor unit transmitted to outdoor unit and there was no reply (ACK).</p> <p>3. If displayed address or attribute is indoor unit, Remote controller detects abnormality when remote controller transmitted to indoor unit and there was no reply (ACK).</p> | <p>Common factor that has no relation 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 distance200m • Remote controller line ..(12m) 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 Diameter.....1.25mm² or more ④ Extinction of transmission wire voltage and signal is caused by over-numbered units. ⑤ Accidental malfunction of abnormality-detected controller (noise, thunder surge) ⑥ Defective of abnormality-generated controller</p> <p>① Contact failure of transmission wire of outdoor unit or indoor unit ② Disconnection of transmission connector (CN2M) of outdoor unit ③ Defective transmitting receiving circuit of outdoor unit or indoor unit</p> <p>① During group operation with indoor unit of multi- refrigerant system, if remote controller transmit to indoor unit while outdoor unit power supply of one refrigerant system is put off or within two minutes of restart, abnormality is detected. ② Contact failure of transmission wire of remote controller or indoor unit ③ Disconnection of transmission connector (CN2M) of indoor unit ④ Defective transmitting receiving circuit of indoor unit or remote controller</p> | <p>Always try the followings when the error "A7" occurs.</p> <p>① Shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. If 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.</p> <p>If there were some trouble of ①-⑤ above, repair the defective, then shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSSNAY at the same time for two minutes or more, and put the power on again. • If there was no trouble with ①-⑤ above in single refrigerant system (one outdoor unit), controller of displayed address or attribute is defective. • If there was no trouble with ①-⑤ above in different refrigerant system (two or more outdoor units), judge with ⑥.</p> <p>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 that is equipped with group setting of different refrigerant system.</p> <p>If there was no trouble with ①-⑥ above, replace the controller board of displayed address or attribute. If the unit does not return normally, multi-controller board of outdoor unit may be defective (repeater circuit). Replace multi-controller board one by one to check if the unit returns normally.</p> |

Continued to the next page.

From the previous page.

| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|--|--|---|
| A7 (6607) | 4. If displayed address or attribute is remote controller, Indoor unit detects abnormality when indoor unit transmitted to remote controller and there was no reply (ACK). | <ul style="list-style-type: none"> ① During group operation with indoor unit of multi- refrigerant system, if indoor unit transmit to remote controller while outdoor unit power supply of one refrigerant system is put off or within two minutes of restart, abnormality is detected. ② Contact failure of transmission wire of remote controller or indoor unit ③ Disconnection of transmission connector (CN2M) of indoor unit ④ Defective transmitting receiving circuit of indoor unit or remote controller | Same as mentioned in “A7” of the previous page. |
| | 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). | <ul style="list-style-type: none"> ① 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 put off or within two minutes of restart, abnormality is detected. ② Contact failure of transmission wire of indoor unit or FRESH MASTER ③ Disconnection of transmission connector (CN2M) of indoor unit or FRESH MASTER ④ Defective transmitting receiving circuit of indoor unit or FRESH MASTER | |
| | 6. If displayed address or attribute is LOSSNAY, Indoor unit detects abnormality when indoor unit transmitted to LOSSNAY and there was no reply (ACK). | <ul style="list-style-type: none"> ① If the power supply of LOSSNAY is off, indoor unit detects abnormality when it transmits to LOSSNAY. ② 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 refrigerant system with LOSSNAY is put off or within two minutes of restart, abnormality is detected. ③ Contact failure of transmission wire of indoor unit of LOSSNAY ④ Disconnection of transmission connector (CN2M) of indoor unit ⑤ Defective transmitting receiving circuit of indoor unit or LOSSNAY | |
| | 7. If displayed address or attribute is nonexistent, | <ul style="list-style-type: none"> ① The unit of former address does not exist as address switch has changed while the unit was energized. ② Abnormality is detected when indoor unit transmitted because the address of FRESH MASTER and LOSSNAY are changed after sequential operation of FRESH MASTER and LOSSNAY by remote controller. | |



| Error Code | Meaning of error code and detection method | Case | Judgment and action |
|--------------|---|--|--|
| A8 (6608) | <p>M-NET•NO RESPONSE</p> <p>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, six times continuously.</p> <p>Note) The address and attribute displayed at remote controller is indicate the controller that did not reply (ACK).</p> | <p>① Transmitting condition is repeated fault because of noise and the like.</p> <p>② Extension of transmission wire voltage and signal is caused by over-range transmission wire.</p> <ul style="list-style-type: none"> • Maximum distance200m • Remote controller line ..(12m) <p>③ Extension of transmission wire voltage and signal is caused by type-unmatched transmission wire.</p> <p>Type</p> <p>With shield wire- CVVS, CPEVS</p> <p>With normal wire (no shield)- VCTF, VCTFK, CVV CVS, VVR, VVF, VCT</p> <p>Diameter.....1.25mm² or more</p> <p>④ Accidental malfunction of abnormality-generated controller</p> | <p>① Check transmission wave form or noise on transmission wire.</p> <p>② Shut off the power supply of outdoor unit and indoor unit and FRESH MASTER or LOSS-NAY at the same time for two minutes or more, and put the power on again. If malfunction was accidental, the unit returns to normal. If the same abnormality generates again, controller of displayed address and attribute may be defective.</p> |

10-5. TROUBLESHOOTING BY INFERIOR PHENOMENA

| Phenomena | Factor | Countermeasure |
|---|---|--|
| 1. Remote controller display does not work. | <p>①DC12V is not supplied to remote controller. (Power supply display ● is not indicated on LCD.)</p> <p>②DC12~15V is supplied to remote controller, however, no display is indicated.</p> <ul style="list-style-type: none"> • "PLEASE WAIT" is not displayed. • "PLEASE WAIT" is displayed. | <p>①Check LED2 on indoor controller board.</p> <p>(1) When LED2 is lit. Check the remote controller wiring for breaking or contact failure.</p> <p>(2) When LED2 is blinking. Check short circuit of remote controller wiring.</p> <p>(3) When LED2 is not lit. Refer to No.3 below.</p> <p>②Check the following.</p> <ul style="list-style-type: none"> • Failure of remote controller if "PLEASE WAIT" is not displayed • Refer to No.2 below if "PLEASE WAIT" is displayed. |
| 2. "PLEASE WAIT" display is remained on the remote controller. | <p>①At longest 2 minutes after the power supply "PLEASE WAIT" is displayed to start up.</p> <p>②Communication error between the remote controller and indoor unit</p> <p>③Communication error between the indoor and outdoor unit</p> <p>④Outdoor unit protection device connector is open.</p> | <p>①Normal operation</p> <p>②Self-diagnosis of remote controller</p> <p>③"PLEASE WAIT" is displayed for 6 minutes at most. in case of indoor/outdoor unit communication error. Check LED3 on indoor controller board.</p> <p>(1)When LED3 is not blinking. Check indoor/outdoor connecting wire for mis-wiring. (Converse wiring of S1 and S2, or break of S3 wiring.)</p> <p>(2)When LED3 is blinking. Indoor/outdoor connecting wire is normal.</p> <p>④Check LED display on outdoor controller circuit board. Refer to 10-10. Check protection device connector (63L and 63H) for contact failure. Refer to 10-9.</p> |
| 3. When pressing the remote controller operation switch the OPERATION display is appeared but it will be turned off soon. | <p>①After cancelling to select function from the remote controller, the remote controller operation switch will be not accepted for approx. 30 seconds.</p> | <p>①Normal operation</p> |



| Phenomena | Factor | Countermeasure |
|--|---|---|
| 4. Even controlling by the wireless remote controller no beep is heard and the unit does not start operating. Operation display is indicated on wireless remote controller. | ①The pair number settings of the wireless remote controller and indoor controller board are mismatched. | ①Check the pair number settings. |
| 5. When operating by the wireless remote controller, beep sound is heard, however, unit does not start operating. | ①No operation for 2 minutes at most after the power supply ON. ②Hand-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 centralised controller etc. since it is connected to MELANS. ③Factor of No.2 above. | ①Normal operation ②Normal operation ③Check the details of No.2 above. |
| 6. Remote controller display works normally and the unit performs cooling operation, however, the capacity cannot be fully obtained. (The air does not cool well.) | ①Refrigerant shortage ②Filter clogging ③Heat exchanger clogging ④Air duct short cycle | ①• If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. • Check pipe connections for gas leakage. ②Open suction grill and check the filter. 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. ④Remove the shield. |
| 7. Remote controller display works normally and the unit performs heating operation, however, the capacity cannot be fully obtained. | ①Linear expansion valve fault Opening cannot be adjusted well due to linear expansion valve fault. ②Refrigerant shortage ③Lack of insulation for refrigerant piping ④Filter clogging ⑤Heat exchanger clogging ⑥Air duct short cycle ⑦Bypass circuit of outdoor unit fault | ①• Discharging temperature and indoor heat exchanger temperature does not rise. Inspect the failure by checking discharging pressure. • Replace linear expansion valve. ②• If refrigerant leaks, discharging temperature rises and LEV opening increases. Inspect leakage by checking the temperature and opening. • Check pipe connections for gas leakage. ③Check the insulation. ④Open suction grill and check the filter. Clean the filter by removing dirt or dust on it. ⑤• 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. ⑥Remove the shield. ⑦Check refrigerant system during operation. |
| 8. ①For 3 minutes after temperature adjuster turns off, the compressor will not start operating even if temperature adjuster is turned on. ②For 3 minutes after temperature adjuster turns on, the compressor will not stop operating even if temperature adjuster is turned off. (Compressor stops operating immediately when turning off by the remote controller.) | ①②Normal operation (For protection of compressor) | ①②Normal operation |

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

| Diagnosis flow | Cause | Inspection method and troubleshooting |
|--|---|--|
| <pre> graph TD Start[] --> Step1[Check the display time of "PLEASE WAIT" after turning on the main power.] Step1 --> D1{How long is "PLEASE WAIT" kept being displayed on the remote controller?} D1 -- "6 minutes or more" --> Step2[Check the LED display of the outdoor controller circuit board.] D1 -- "2 to 6 minutes" --> D2{Are any error codes displayed on the remote controller?} D1 -- "2 minutes or less" --> C1[] Step2 --> D3{Are any error codes displayed on the LED?} D3 -- NO --> C2[] D3 -- YES --> C3[] D2 -- NO --> C1 D2 -- YES --> C3 </pre> | <p>• "PLEASE WAIT" will be displayed during the start-up diagnosis after turning on the main power.</p> <p>• Mis-wiring of indoor/outdoor connecting wire • Breaking of indoor/outdoor connecting wire (S3) • Defective indoor controller board • Defective outdoor controller circuit board</p> <p>• Defective indoor controller board • Defective remote controller</p> | <p>• Normal. The start-up diagnosis will be over in around 2 minutes.</p> <p>• Refer to "Self-diagnosis action table" in order to solve the trouble.</p> <p>• In case of communication errors, the display of remote controller may not match the LED display of the outdoor unit.</p> |

Symptoms: Nothing is displayed on the remote controller ①

LED display of the indoor controller board
 LED1 : ○
 LED2 : ○
 LED3 : ○

| Diagnosis flow | Cause | Inspection method and troubleshooting |
|--|--|---|
| <pre> graph TD Start(()) --> Step1[Check the voltage between S1 and S2 on the terminal block (TB4) of the indoor unit which is used to connect the indoor unit and the outdoor unit.] Step1 --> Dec1{AC 198V to AC 264V?} Dec1 -- NO --> Step2[Check the voltage among L(L3) and N on the terminal block (TB1) of the outdoor power circuit board.] Dec1 -- YES --> Step3[Check the voltage of indoor controller board (CN2D).] Step2 --> Dec2{AC 198V to AC 264V?} Dec2 -- NO --> Cause1[• Troubles concerning power supply.] Dec2 -- YES --> Step4[Check the voltage between S1 and S2 on the terminal block (TB1) of the outdoor unit which is used to connect the indoor unit and the outdoor unit.] Step4 --> Dec3{AC 198V to AC 264V?} Dec3 -- NO --> Cause2[• Bad wiring of the outdoor controller board. • The fuses on the outdoor controller circuit board are blown.] Dec3 -- YES --> Step5[Check the voltage of indoor controller board (CN2D).] Step5 --> Dec4{DC 12V to DC 16V?} Dec4 -- YES --> Cause3[• Bad wiring of the outdoor controller board. • The fuses on the outdoor controller circuit board are blown.] Dec4 -- NO --> Step6[Check the voltage of the unit after removing the indoor power board (CN2S).] Step6 --> Dec5{DC 12V to DC 16V?} Dec5 -- YES --> Cause4[• Defective indoor controller board] Dec5 -- NO --> Cause5[• Mis-wiring, breaking or poor connection of indoor/outdoor connecting wire. • Defective indoor power board] </pre> | <ul style="list-style-type: none"> • Troubles concerning power supply. • Bad wiring of the outdoor controller board. • The fuses on the outdoor controller circuit board are blown. • Bad wiring of the outdoor controller board. • The fuses on the outdoor controller circuit board are blown. • Defective indoor controller board • Mis-wiring, breaking or poor connection of indoor/outdoor connecting wire. • Defective indoor power board | <ul style="list-style-type: none"> • Check the power wiring to the outdoor unit. • Check the breaker. • Check the wiring of the outdoor unit. • Check if the wiring is bad. Check if the fuses are blown. The fuses on the outdoor controller circuit board will be blown when the indoor /outdoor connecting wire short-circuits. • Check if mis-wiring, breaking or poor contact is causing this problem. Indoor/outdoor connecting wire is polarized 3-core type. Connect the indoor unit and the outdoor unit by wiring each pair of S1, S2 and S3 on the both side of indoor/outdoor terminal blocks. • Replace the indoor controller board. • Check if there is mis-wiring or breaking of wire. • Replace the indoor power board. |

Symptoms: Nothing is displayed on the remote controller ②

LED display of the indoor controller board
 LED1 : ●
 LED2 : ○
 LED3 : ○ or ●

| Diagnosis flow | Cause | Inspection method and troubleshooting |
|---|--|---|
| <p>Check the voltage between S1 and S2 on the terminal block (TB4) of the indoor unit which is used to connect the indoor unit and the outdoor unit.</p> <p>AC 198V to AC 264V?</p> <p>NO → Check the looseness or disconnection of the indoor/outdoor connecting wire.</p> <p>YES → Check the status of the indoor controller board LED3 display.</p> <p>Not lighting. → Check the looseness or disconnection of the indoor/outdoor connecting wire.</p> <p>Blinking. → Are there looseness or disconnection of the indoor/outdoor connecting wire?</p> <p>NO → Check the refrigerant address of the outdoor unit. (SW1-3 to 1-6)</p> <p>YES → Is the refrigerant address "0"?</p> <p>NO → Is anything displayed?</p> <p>YES → Check the LED display of the outdoor unit after turning on the main power again.</p> <p>Not displayed. → Is "EA" or "Eb" displayed?</p> <p>NO → Is "E8" displayed?</p> <p>YES → Can the unit be restarted?</p> <p>NO → Can all the indoor unit be operated?</p> <p>YES → Check the voltage between S2 and S3 on the terminal block of the outdoor unit.</p> <p>DC 17V to DC 28V?</p> <p>NO →</p> <p>YES →</p> | <ul style="list-style-type: none"> • Breaking or poor contact of the indoor/outdoor connecting wire. • Normal. Only the unit which has the refrigerant address "0" supplies power to the remote controller. • Defective outdoor controller circuit board. • Defective outdoor controller circuit board. • Defective indoor controller board • Influence of electromagnetic noise. • Defective outdoor power circuit board. • Defective indoor power board. | <ul style="list-style-type: none"> • Fix the breaking or poor contact of the indoor/outdoor connecting wire. • Set the refrigerant address to "0". In case of the multiple grouping system, recheck the refrigerant address again. • Replace the outdoor controller circuit board. • Replace the outdoor controller circuit board. • Replace the indoor controller board of the indoor unit which doesn't operate. • Not abnormal. There may be the influence of electromagnetic noise. Check the transmission wire and get rid of the causes. • Replace the outdoor power circuit board. • Replace the indoor power board. |

Symptoms: Nothing is displayed on the remote controller ③

LED display of the indoor controller board
 LED1 : ●
 LED2 : ● or ●
 LED3 : —

| Diagnosis flow | Cause | Inspection method and troubleshooting |
|---|---|---|
| <pre> graph TD Start(()) --> Step1[Check the voltage of the terminal block (TB6) of the remote controller.] Step1 --> Dec1{DC 10V to DC 16V?} Dec1 -- YES --> Cause1[Defective remote controller.] Dec1 -- NO --> Dec2{Check the status of the LED2.} Dec2 -- Lighting --> Cause2[Breaking or poor contact of the remote controller wire.] Dec2 -- Blinking --> Step2[Check the status of the LED2 after disconnecting the remote controller wire from the terminal block (TB5) of the indoor unit.] Step2 --> Dec3{Check the status of the LED2.} Dec3 -- Lighting --> Cause3[The remote controller wire short-circuits.] Dec3 -- Blinking --> Cause4[Defective indoor controller board.] </pre> | <ul style="list-style-type: none"> • Defective remote controller. • Breaking or poor contact of the remote controller wire. • The remote controller wire short-circuits. • Defective indoor controller board. | <ul style="list-style-type: none"> • Replace the remote controller. • Check if there is breaking or poor contact of the remote controller wire. Check the voltage of the terminal block (TB5) connecting the remote controller wire. If it is not between DC 10V and DC16V, the indoor controller board must be defective. • Check if the remote controller wire is short-circuited. • Replace the indoor controller board. |

• Before repair

Frequent calling from customers.

| Phone Calls From Customers | How to Respond | Note | |
|-------------------------------|--|--|---|
| Unit does not operate at all. | ① The operating display of remote controller does not come on. | ① 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 microcomputer'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 Error code appears and blinks on the display of remote controller. | ③ Error code will be displayed if any protection devices of the air conditioner are actuated. What is error 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. | ① 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. | ② 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. Regular 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 "DEFROSTING" is displayed on the screen. (No air comes out of the unit.) | ④ The outdoor unit gets frosted when the outside temperature is low and the humidity is high. "DEFROSTING" 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. | |

| Phone Calls From Customers | How to Respondm | Note | |
|---|---|---|--|
| The room cannot be cooled or heated sufficiently. | ① Check the set temperature of remote controller. 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. | ① An gas escaping sound is heard sometimes. | ① 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 blower 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..... | ① The fan speed doesn't 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 microcomputer 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 doesn't 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 zero 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 blower 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. |

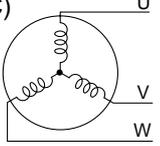
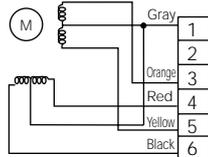
| Phone Calls From Customers | | How to Respond | Note |
|--|---|--|--|
| Something is wrong with the blower..... | ③ Air blows out for a while after HEAT operation is stopped. | ③ This is not a malfunction. The blower is operating just for cooling down the heated-up air conditioner. This will be done within one 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. | ① If the up/down vane is set to downward in COOL operation, it will be automatically set to horizontal blow by the microcomputer 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". | |
| | ② The airflow direction is changed during HEAT operation. (The airflow direction cannot be set by remote controller.) | ② 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. "DEFROSTING" will be displayed on the screen in case of ③. |
| | ③ The airflow direction doesn't 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. | |
| The air conditioner starts operating even though any buttons on the remote controller are not pressed. | ① 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". | | |
| The air conditioner stops even though any buttons on the remote controller are not pressed. | ① Check if you set ON/OFF timer. The air conditioner stops operating at the time designated if OFF timer has been set before. | | There might be a case that "CENTRALLY CONTROLLED INDICATOR" will not be displayed. |
| | 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. | | |



| 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. | Cooling; when pipes or piping joints are cooled, they get sweated and water drips down. Heating; water drips down from the heat exchanger. * Make use of optional parts "Drain Socket" and "Drain pan" if these water needs to be collected and drained out for once. | |
| The display of wireless remote controller gets dim or doesn't come on. The indoor unit doesn't 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

PUHZ-P100VHA.UK PUHZ-P125VHA.UK PUHZ-P140VHA.UK

| Parts name | Check points | | | | | | | | | | | | | | |
|---|--|---------------|---------------|---------------|---------------|-------------|---------------|------------|---------------|---------------|---------------|-------|------------|--|--|
| Thermistor (TH3) <Outdoor pipe> Thermistor (TH4) <Discharge> Thermistor (TH6) <Outdoor 2-phase pipe> Thermistor (TH7) <Outdoor> Thermistor (TH8) <Heat sink> | Disconnect the connector then measure the resistance using a tester. (Surrounding temperature 10°C ~30°C) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th></th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>TH4</td> <td>160kΩ~410kΩ</td> <td rowspan="4">Open or short</td> </tr> <tr> <td>TH3</td> <td rowspan="2">4.3kΩ~9.6kΩ</td> </tr> <tr> <td>TH6</td> </tr> <tr> <td>TH7</td> </tr> <tr> <td>TH8</td> <td>39kΩ~105kΩ</td> <td></td> </tr> </tbody> </table> | | Normal | Abnormal | TH4 | 160kΩ~410kΩ | Open or short | TH3 | 4.3kΩ~9.6kΩ | TH6 | TH7 | TH8 | 39kΩ~105kΩ | | |
| | Normal | Abnormal | | | | | | | | | | | | | |
| TH4 | 160kΩ~410kΩ | Open or short | | | | | | | | | | | | | |
| TH3 | 4.3kΩ~9.6kΩ | | | | | | | | | | | | | | |
| TH6 | | | | | | | | | | | | | | | |
| TH7 | | | | | | | | | | | | | | | |
| TH8 | 39kΩ~105kΩ | | | | | | | | | | | | | | |
| Fan motor(MF1,MF2) | Refer to next page. | | | | | | | | | | | | | | |
| Solenoid valve coil <Four-way valve> (21S4) | Measure the resistance between the terminals using a tester. (Surrounding temperature 20°C) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th colspan="2">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>P100</td> <td>P125,P140</td> <td rowspan="2">Open or short</td> </tr> <tr> <td>1500±150Ω</td> <td>1435±150Ω</td> </tr> </tbody> </table> | Normal | | Abnormal | P100 | P125,P140 | Open or short | 1500±150Ω | 1435±150Ω | | | | | | |
| Normal | | Abnormal | | | | | | | | | | | | | |
| P100 | P125,P140 | Open or short | | | | | | | | | | | | | |
| 1500±150Ω | 1435±150Ω | | | | | | | | | | | | | | |
| Motor for compressor (MC)  | Measure the resistance between the terminals using a tester. (Winding temperature 20°C) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th colspan="2">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>P100</td> <td>P125,P140</td> <td rowspan="2">Open or short</td> </tr> <tr> <td>0.88Ω</td> <td>0.266Ω</td> </tr> </tbody> </table> | Normal | | Abnormal | P100 | P125,P140 | Open or short | 0.88Ω | 0.266Ω | | | | | | |
| Normal | | Abnormal | | | | | | | | | | | | | |
| P100 | P125,P140 | Open or short | | | | | | | | | | | | | |
| 0.88Ω | 0.266Ω | | | | | | | | | | | | | | |
| Linear expansion valve (LEV-A)  | Disconnect the connector then measure the resistance using a tester. (Winding temperature 20°C) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th colspan="4">Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>Gray - Black</td> <td>Gray - Red</td> <td>Gray - Yellow</td> <td>Gray - Orange</td> <td rowspan="2">Open or short</td> </tr> <tr> <td colspan="4">46±3Ω</td> </tr> </tbody> </table> | Normal | | | | Abnormal | Gray - Black | Gray - Red | Gray - Yellow | Gray - Orange | Open or short | 46±3Ω | | | |
| Normal | | | | Abnormal | | | | | | | | | | | |
| Gray - Black | Gray - Red | Gray - Yellow | Gray - Orange | Open or short | | | | | | | | | | | |
| 46±3Ω | | | | | | | | | | | | | | | |
| Solenoid valve coil <Bypass valve> (SV) For P100 | Measure the resistance between the terminals using a tester. (Surrounding temperature 20°C) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr> <td>1450±150Ω</td> <td>Open or short</td> </tr> </tbody> </table> | Normal | Abnormal | 1450±150Ω | Open or short | | | | | | | | | | |
| Normal | Abnormal | | | | | | | | | | | | | | |
| 1450±150Ω | Open or short | | | | | | | | | | | | | | |

Check method of DC fan motor (fan motor / outdoor controller circuit board)

① Notes

- High voltage is applied to the connector (CNF1, 2) for the fan motor. Give attention to the service.
- 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 turn around.

Wiring contact check

Contact of fan motor connector (CNF1, CNF2)



Is there no contact failure? → No → Wiring recovery

↓Yes

Power supply check

Measure the voltage in the outdoor controller circuit board.

TEST POINT ① : V_{DC} (between 1 (+) and 4 (-) of the fan connector): V_{DC} DC280-380V

TEST POINT ② : V_{CC} (between 5 (+) and 4 (-) of the fan connector): V_{CC} DC15V

TEST POINT ③ : V_{SP} (between 6 (+) and 4 (-) of the fan connector): V_{SP} DC1 to 6.5V

[The voltage of V_{SP} is a value during the fan motor operation.]
[In the case that the fan motor off, the voltages is 0V.]



Is the voltage normal? → No → Trouble of the outdoor controller circuit board
Replacement of the outdoor controller circuit board

↓Yes

Fan motor position sensor signal check

Measure the voltage at the TEST POINT ④ (V_{FG}), between 7 (+) and 4 (-) of the fan connector, while slowly turning the fan motor more than one revolution.



Does the voltage repeat DC0V and DC15V? → No → Trouble of the fan motor
Replacement of the motor

↓Yes

Replacement of the outdoor controller circuit board

10-7. HOW TO CHECK THE COMPONENTS

<Thermistor feature chart>

Low temperature thermistors

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

Thermistor R0 = 15kΩ ± 3%

B constant = 3480 ± 2%

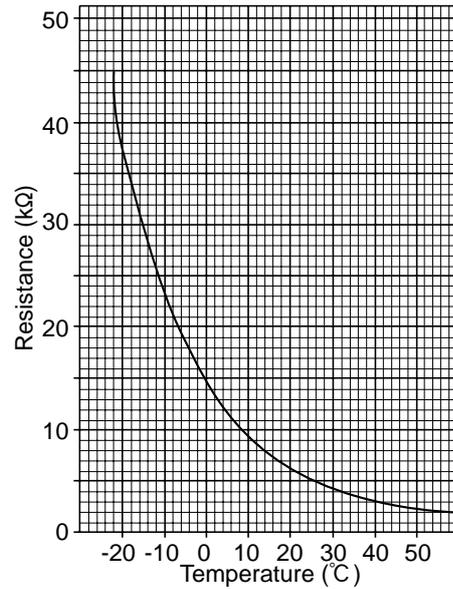
$$R_t = 15 \exp\left\{3480 \left(\frac{1}{273+t} - \frac{1}{273} \right)\right\}$$

0°C 15kΩ 30°C 4.3kΩ

10°C 9.6kΩ 40°C 3.0kΩ

20°C 6.3kΩ

25°C 5.2kΩ



Medium temperature thermistor

- Thermistor <Heat sink> (TH8)

Thermistor R50 = 17kΩ ± 2%

B constant = 4150 ± 3%

$$R_t = 17 \exp\left\{4150 \left(\frac{1}{273+t} - \frac{1}{323} \right)\right\}$$

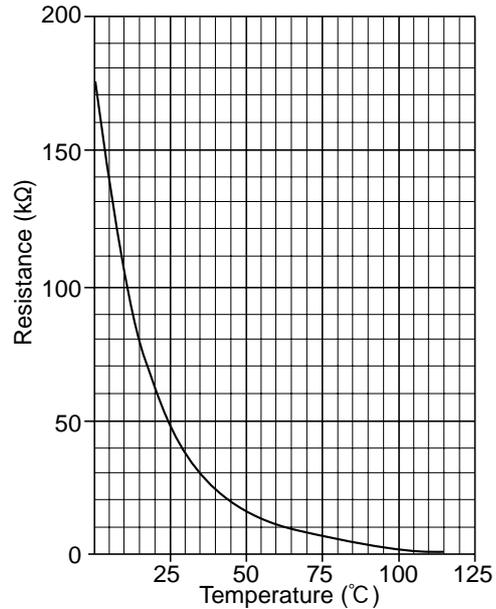
0°C 180kΩ

25°C 50kΩ

50°C 17kΩ

70°C 8kΩ

90°C 4kΩ



High temperature thermistor

- Thermistor <Discharge> (TH4)

Thermistor R120 = 7.465kΩ ± 2%

B constant = 4057 ± 2%

$$R_t = 7.465 \exp\left\{4057 \left(\frac{1}{273+t} - \frac{1}{393} \right)\right\}$$

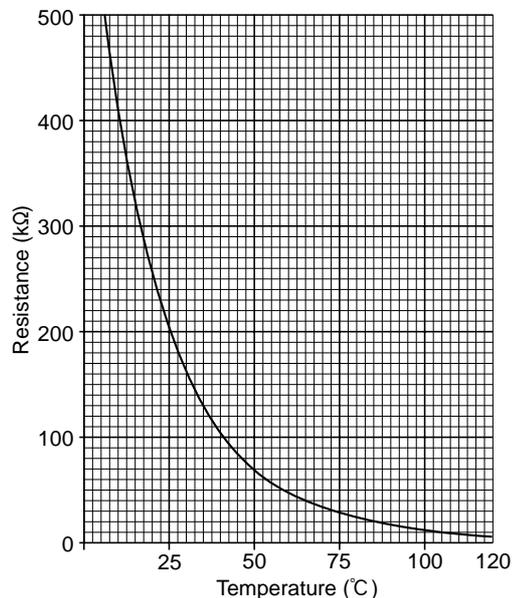
20°C 250kΩ 70°C 34kΩ

30°C 160kΩ 80°C 24kΩ

40°C 104kΩ 90°C 17.5kΩ

50°C 70kΩ 100°C 13.0kΩ

60°C 48kΩ 110°C 9.8kΩ

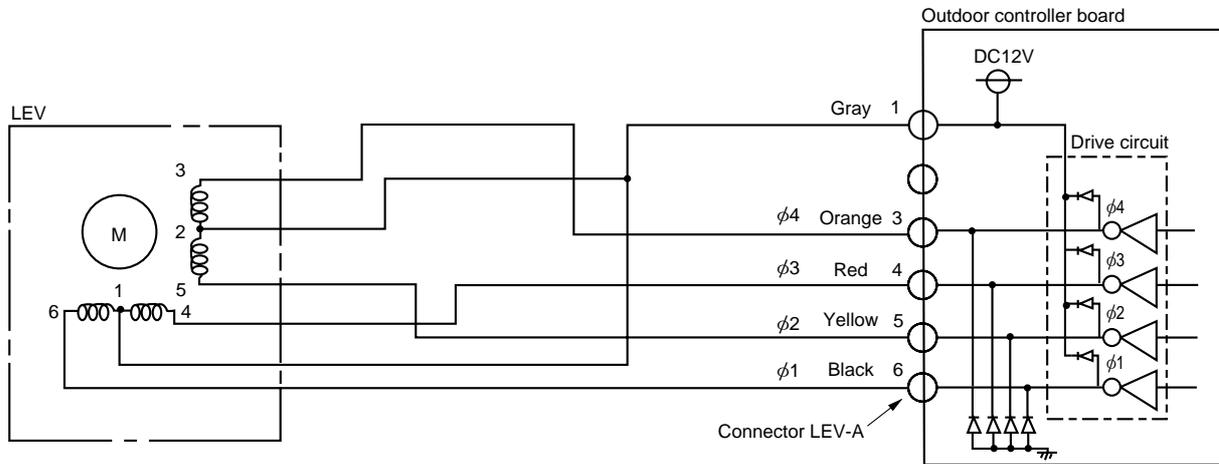


Linear expansion valve

(1) Operation summary of the linear expansion valve.

- Linear expansion valve open/close through stepping motor after receiving the pulse signal from the outdoor controller board.
- Valve position can be changed in proportion to the number of pulse signal.

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



<Output pulse signal and the valve operation>

| Output (Phase) | Output | | | | | | | |
|----------------|--------|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| $\phi 1$ | ON | ON | OFF | OFF | OFF | OFF | OFF | ON |
| $\phi 2$ | OFF | ON | ON | ON | OFF | OFF | OFF | OFF |
| $\phi 3$ | OFF | OFF | OFF | ON | ON | ON | OFF | OFF |
| $\phi 4$ | OFF | OFF | OFF | OFF | OFF | ON | ON | ON |

Opening a valve : 8 → 7 → 6 → 5 → 4 → 3 → 2 → 1 → 8

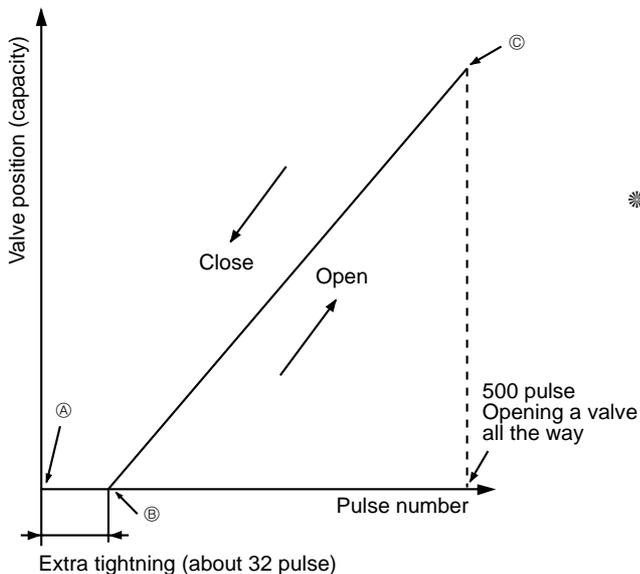
Closing a valve : 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 1

The output pulse shifts in above order.

※ 1. When linear expansion valve operation stops, all output phase become OFF.

※ When the switch is turned on, 700 pulse closing valve signal will be sent till it goes to ㉓ point in order to define the valve position. (The pulse signal is being sent for about 20 seconds.)

(2) Linear expansion valve operation



When the valve moves smoothly, there is no noise or vibration occurring from the linear expansion valve : however, when the pulse number moves from ㉔ to ㉓ or when the valve is locked, more noise can be heard than normal situation.

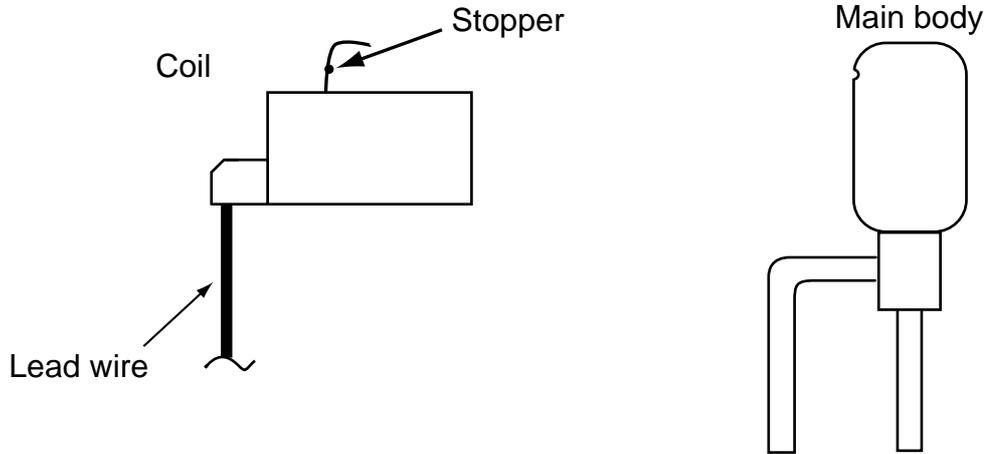
No noise is heard when the pulse number moves from ㉔ to ㉓ in case coil is burn out or motor is locked by open-phase.

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

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

<Composition>

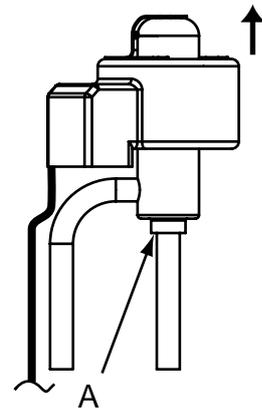
Linear expansion valve is separable into the main body and the coil as shown in the diagram below.



<How to detach the coil>

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

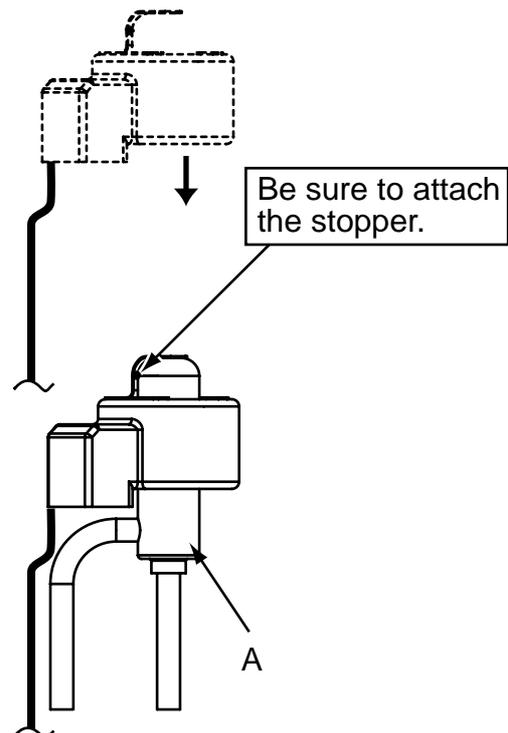
Be sure to detach the coil holding main body firmly. Otherwise pipes can bend due to pressure.



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

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

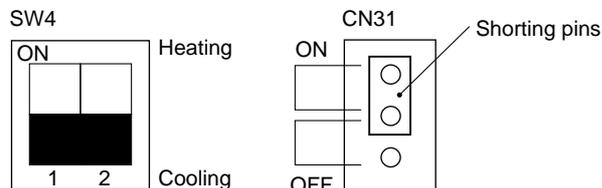
| Error code | Inspected content |
|------------|---|
| U4 | Open/short of pipe thermistor (TH3/TH6) |
| E8 | Indoor/outdoor unit communication error •Signal receiving error (Outdoor unit) |
| E9 | Indoor/outdoor unit communication error •Transmitting error (Indoor unit) |
| E0 ~ E7 | Communication error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

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

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

(3) Emergency operation procedure

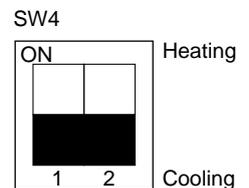
- ①Turn the main power supply off.
- ②Turn on the emergency operation switch (SWE) on indoor controller board.
- ③Set the shorting pins of emergency operation connector (CN31) on outdoor controller board to ON.
- ④Use SW4-2 on outdoor controller board to set the operation mode (cooling or heating). (SW4-1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



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

(4) Releasing emergency operation

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



※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:

| Operation data | Operation mode | | Remarks |
|---|----------------|--------|---------|
| | COOL | HEAT | |
| Intake temperature (TH1) | 27°C | 20.5°C | |
| Indoor liquid pipe temperature (TH2) | 5°C | 45°C | |
| Indoor 2-phase pipe temperature (TH5) | 5°C | 50°C | |
| Set temperature | 25°C | 22°C | |
| Outdoor fluid pipe temperature (TH3) | 45°C | 5°C | (*1) |
| Outdoor 2-phase pipe temperature (TH6) | 50°C | 5°C | (*1) |
| Outdoor air temperature (TH7) | 35°C | 5°C | (*1) |
| Temperature difference code (intake temperature - set temperature) (ΔT_j) | 5 | 5 | |
| Discharge super heat (SHd) | 30deg | 30deg | (*2) |
| Sub-cool (SC) | 5deg | 5deg | (*2) |

*1: If the thermistor temperature data is normal (not open/short), that data is loaded into the control as valid data.

If the unit enters emergency operation because TH values have become mismatched, setting the thermistors to open/short corrects the settings.

*2: If one thermistor is set to open/short, the values for each will be different.

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

| Thermistor | COOL | HEAT |
|------------|---|------|
| TH3 | 45°C | 5°C |
| TH6 | Ta | Tb |
| | Regard normal figure as effective data. | |
| TH5 | 5°C | 50°C |
| TH2 | 5°C | 45°C |

Degree of subcooling (SC)

Cooling = TH6- TH3 = Ta -45

Heating = TH5- TH2 = 50 - 45 = 5 deg.

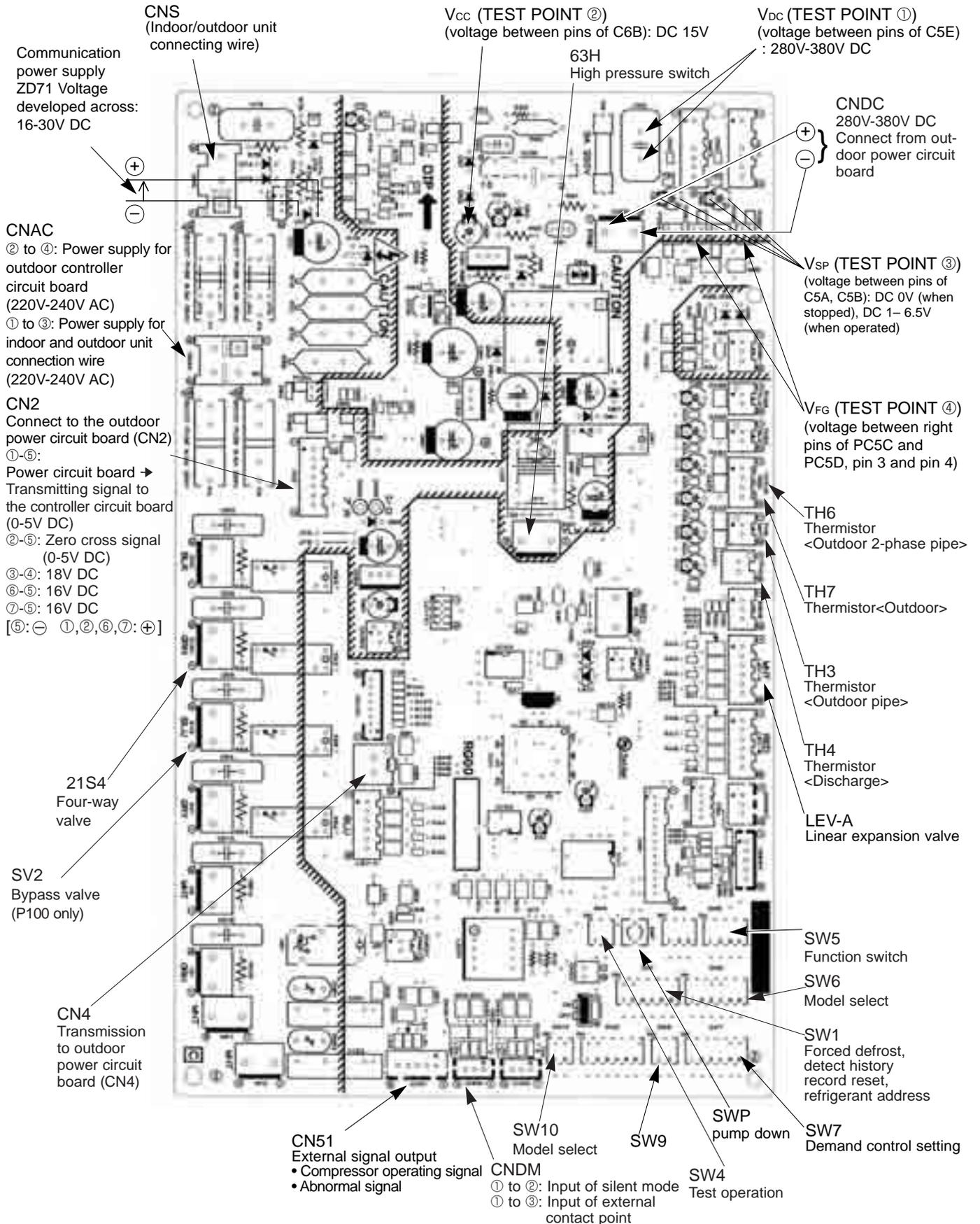
10-9. TEST POINT DIAGRAM

Outdoor controller circuit board

PUHZ-P100VHA.UK PUHZ-P125VHA.UK

PUHZ-P140VHA.UK

<CAUTION> TEST POINT ① is high voltage.



Outdoor noise filter circuit board
PUHZ-P100VHA.UK
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK

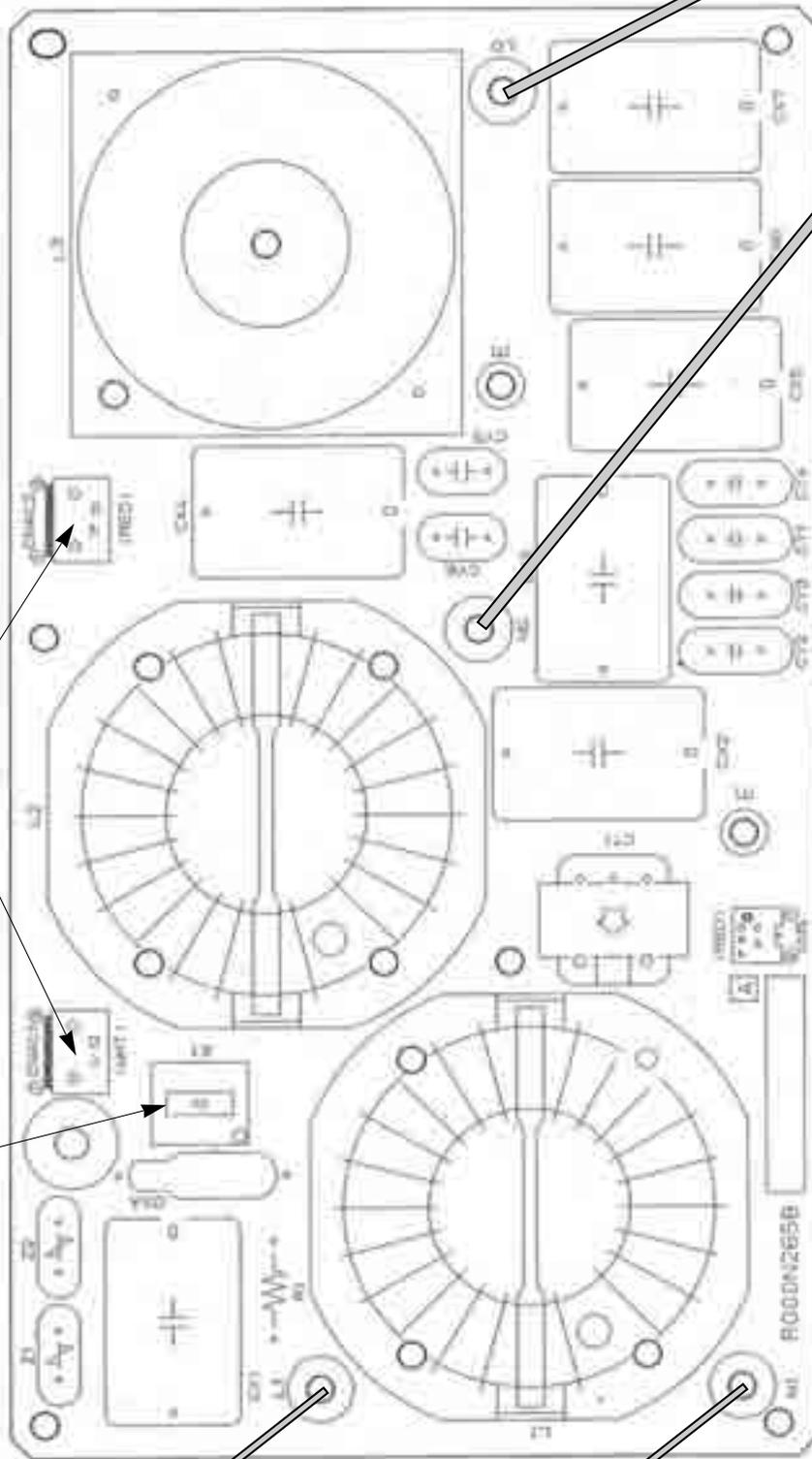
LO, NO
 Voltage of 220-240V AC is output
 (Connect to the outdoor power
 circuit board (TABS, TABT))

CNAC1, CNAC2
 220-240V AC
 (Connect to the
 outdoor controller
 circuit board
 (CNAC))

EI
 Connect to
 the earth

CN5
 Primary current
 (Connect to the
 outdoor power
 circuit board
 (CN5))

LI, NI
 Voltage of 220-240V AC is input
 (Connect to the terminal block(TB1))

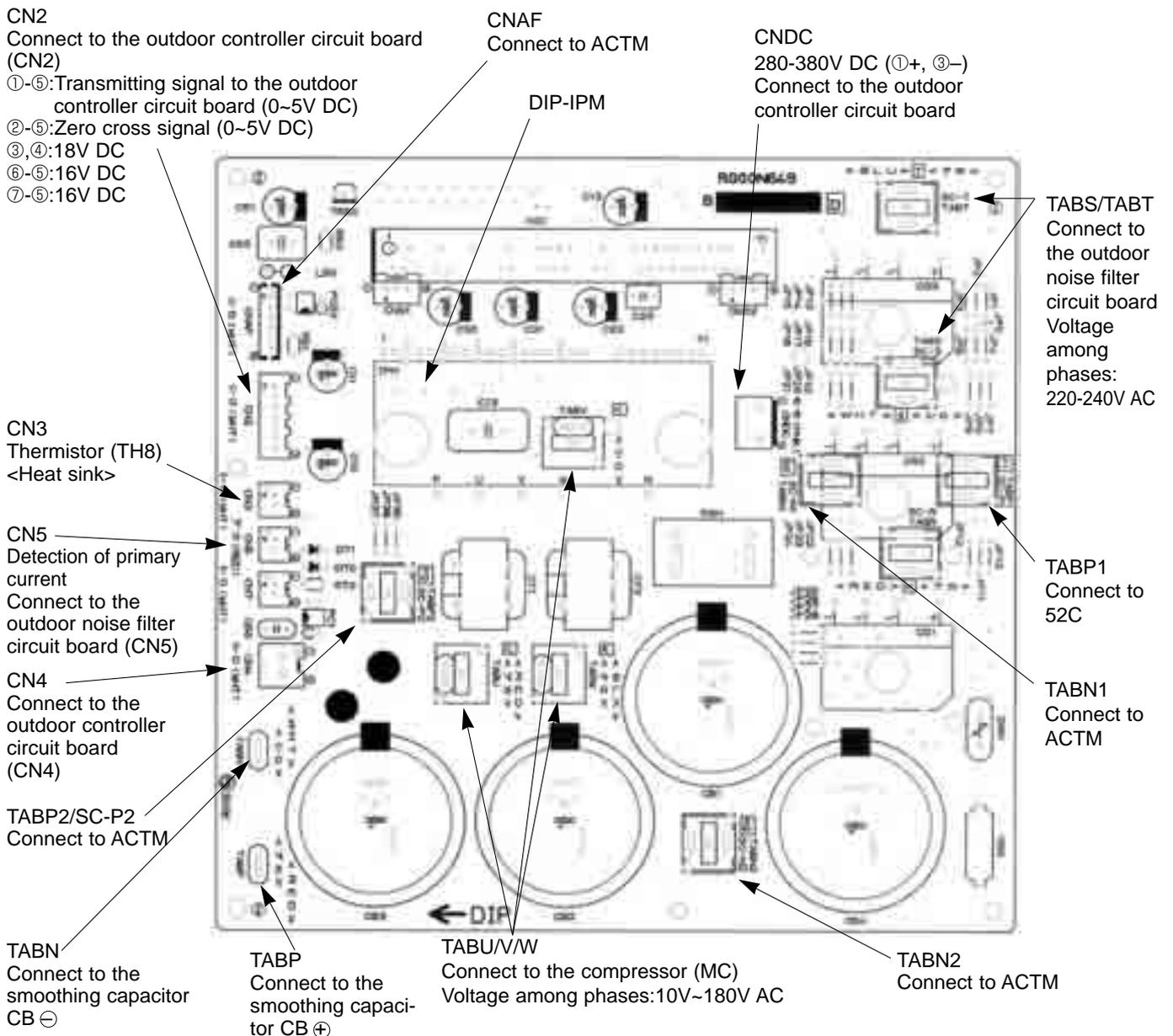


Outdoor power circuit board
PUHZ-P100VHA.UK
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK

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 (DS2, DS3)
 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



10-10. FUNCTION OF SWITCHES, CONNECTORS AND JUMPERS

(1) Function of switches

| Type of switch | Switch | No. | Function | Action by the switch operation | | Effective timing | | | |
|----------------|--------|-----|-----------------------------|---|---|---|--|----------------------|------------------|
| | | | | ON | OFF | | | | |
| Dip switch | SW1 | 1 | Compulsory defrosting | Start | Normal | When compressor is working in heating operation. * | | | |
| | | 2 | Abnormal history clear | Clear | Normal | off or operating | | | |
| | | 3 | Refrigerant address setting |  |  |  |  | When power supply ON | |
| | | 4 | |  |  |  |  | | |
| | | 5 | |  |  |  |  | | |
| | | 6 | |  |  |  |  | | |
| | | SW4 | | 1 | Test run | Operating | OFF | | Under suspension |
| | | | | 2 | Test run mode setting | Heating | Cooling | | |

Compulsory defrosting should be done as follows.

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

② Compulsory defrosting will start by the above operation ① if these conditions written below are satisfied.

- Heat mode setting
- 10 minutes have passed since compressor started operating or previous compulsory defrosting finished.
- Pipe temperature is less than or equal to 8°C.

③ Compulsory defrosting will finish if certain conditions are satisfied.

*Compulsory defrosting can be done if above conditions are satisfied when DIP SW1-1 is changed from OFF to ON.

After DIP SW1-1 is changed from OFF to ON, there is no problem if DIP SW1-1 is left ON or changed to OFF again. This depends on the service conditions.

| Type of Switch | Switch | No. | Function | Action by the switch operation | | Effective timing | | | | | | | | | | | | | |
|----------------|--------|--------------------------|-------------------------------------|--|--------------------------------------|----------------------|-------|-------|--------------------------------------|-----|-----|---------------------|----|-----|-----|-----|----|-----|--------|
| | | | | ON | OFF | | | | | | | | | | | | | | |
| Dip switch | SW5 | 1 | No function | — | — | — | | | | | | | | | | | | | |
| | | 2 | Power failure automatic recovery *1 | Auto recovery | No auto recovery | When power supply ON | | | | | | | | | | | | | |
| | | 3 | No function | — | — | — | | | | | | | | | | | | | |
| | | 4 | No function | — | — | — | | | | | | | | | | | | | |
| | SW7 *3 | 1 | Setting of demand control *2 | <table border="1"> <thead> <tr> <th>SW7-1</th> <th>SW7-2</th> <th>Power consumption (Demand switch ON)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>0% (Operation stop)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>50%</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>75%</td> </tr> </tbody> </table> | | | SW7-1 | SW7-2 | Power consumption (Demand switch ON) | OFF | OFF | 0% (Operation stop) | ON | OFF | 50% | OFF | ON | 75% | Always |
| | | SW7-1 | | SW7-2 | Power consumption (Demand switch ON) | | | | | | | | | | | | | | |
| | | OFF | OFF | 0% (Operation stop) | | | | | | | | | | | | | | | |
| | | ON | OFF | 50% | | | | | | | | | | | | | | | |
| | | OFF | ON | 75% | | | | | | | | | | | | | | | |
| | | 2 | | | | | | | | | | | | | | | | | |
| | 3 | Max Hz setting (cooling) | Max Hz(cooling) × 0.8 | Normal | Always | | | | | | | | | | | | | | |
| | 4 | Max Hz setting (heating) | Max Hz(heating) × 0.8 | Normal | Always | | | | | | | | | | | | | | |
| | 5 | Defrost Hz setting | Defrost Hz × 0.8 | Normal | Always | | | | | | | | | | | | | | |
| | 6 | No function | — | — | — | | | | | | | | | | | | | | |
| | SW8 | 1 | Use of existing pipe | Used | Not used | Always | | | | | | | | | | | | | |
| 2 | | No function | — | — | — | | | | | | | | | | | | | | |
| 3 | | No function | — | — | — | | | | | | | | | | | | | | |
| SW9 | 1 | No function | — | — | — | | | | | | | | | | | | | | |
| | 2 | No function | — | — | — | | | | | | | | | | | | | | |
| Push switch | SWP | Pump down | Start | Normal | Under suspension | | | | | | | | | | | | | | |

*1 'Power failure automatic recovery' can be set by either remote controller or this DIP SW. If one of them is set to ON, 'Auto recovery' activates. Please set "Auto recovery" basically by remote controller because all units have not DIP SW. Please refer to the indoor unit installation manual.

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

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



(2) Function of connectors and switches

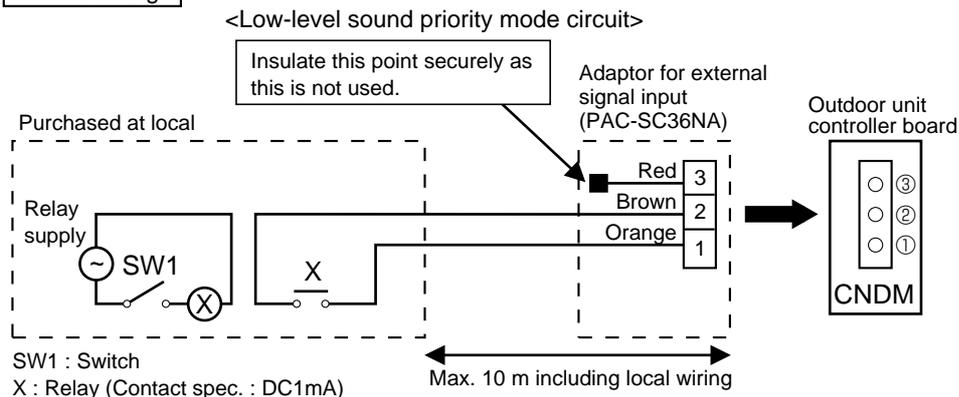
| Types | Connector Switch | Function | Action by open/ short operation | | Effective timing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|--|--|--|--------|--|--|------|------|--|--|--|-------------|-----|-------|-----|------|------|--|--|--|-------------|-----|-------|-----|------|------|--|--|--|-------------|-----|--|
| | | | Short | Open | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connector | CN31 | Emergency operation | Start | Normal | When power supply ON | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW6 SW10 | SW6-1 | Model select | <table border="1"> <tr> <td>MODEL</td> <td>SW6</td> <td>SW10</td> </tr> <tr> <td>100V</td> <td> ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> <td> ON OFF <input type="checkbox"/> <input type="checkbox"/> </td> </tr> <tr> <td></td> <td>1 2 3 4 5 6</td> <td>1 2</td> </tr> </table> <table border="1"> <tr> <td>MODEL</td> <td>SW6</td> <td>SW10</td> </tr> <tr> <td>125V</td> <td> ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> <td> ON OFF <input type="checkbox"/> <input type="checkbox"/> </td> </tr> <tr> <td></td> <td>1 2 3 4 5 6</td> <td>1 2</td> </tr> </table> <table border="1"> <tr> <td>MODEL</td> <td>SW6</td> <td>SW10</td> </tr> <tr> <td>140V</td> <td> ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </td> <td> ON OFF <input type="checkbox"/> <input type="checkbox"/> </td> </tr> <tr> <td></td> <td>1 2 3 4 5 6</td> <td>1 2</td> </tr> </table> | | MODEL | SW6 | SW10 | 100V | ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | ON OFF <input type="checkbox"/> <input type="checkbox"/> | | 1 2 3 4 5 6 | 1 2 | MODEL | SW6 | SW10 | 125V | ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | ON OFF <input type="checkbox"/> <input type="checkbox"/> | | 1 2 3 4 5 6 | 1 2 | MODEL | SW6 | SW10 | 140V | ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | ON OFF <input type="checkbox"/> <input type="checkbox"/> | | 1 2 3 4 5 6 | 1 2 | |
| | MODEL | | | | SW6 | SW10 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 100V | | | | ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | ON OFF <input type="checkbox"/> <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 1 2 3 4 5 6 | 1 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MODEL | | | | SW6 | SW10 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 125V | | | | ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | ON OFF <input type="checkbox"/> <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 1 2 3 4 5 6 | 1 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MODEL | | | | SW6 | SW10 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 140V | ON OFF <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | ON OFF <input type="checkbox"/> <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 2 3 4 5 6 | 1 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW6-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW6-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW6-4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW6-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW6-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW10-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW10-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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.
 ※ The performance is depends on the load of conditioned outdoor temperature.

How to wiring



- 1) Make the circuit as shown above with Adaptor for external signal input(PAC-SC36NA).
- 2) Turn SW1 to on for Low-level sound priority mode.
 Turn SW1 to off to release Low-level sound priority mode and normal operation.

(b) On demand control (Local wiring)

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

How to wiring

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

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

| SW7-1 | SW7-2 | Power consumption (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

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

(2) Abnormal condition

| Indication | | Error | | | |
|--------------------------|------------|---|------------------|--|-------------------------|
| Outdoor controller board | | Contents | Error code ※1 | Inspection method | Detailed reference page |
| LED1 (Green) | LED2 (Red) | | | | |
| 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.28 |
| 2 blinking | 1 blinking | Mis-wiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more) | — | 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. ④Re-check error by turning off power, and on again. | P.29 (EA) |
| | | Mis-wiring of indoor/outdoor unit connecting wire (converse wiring or disconnection) | — | | P.29 (Eb) |
| | | Startup time over | — | | P.29 (EC) |
| 2 blinking | 2 blinking | Indoor/outdoor unit communication error (signal receiving error) is detected by indoor unit. | E6 | ①Check if indoor/outdoor connecting wire is connected correctly. ②Check if noise entered into indoor/outdoor connecting wire or power supply. ③Check if noise entered into indoor/outdoor controller board. ④Re-check error by turning off power, and on again. | ※2 |
| | | Indoor/outdoor unit communication error (transmitting error) is detected by indoor unit. | E7 | | ※2 |
| | | Indoor/outdoor unit communication error (signal receiving error) is detected by outdoor unit. | — | | P.34 (E8) |
| | | Indoor/outdoor unit communication error (transmitting error) is detected by outdoor unit. | — | | P.34 (E9) |
| 3 blinking | 2 blinking | Remote controller signal receiving error is detected by remote controller. | E0 | ①Check if connecting wire of indoor unit or remote controller is connected correctly. ②Check if noise entered into transmission wire of remote controller. ③Re-check error by turning off power, and on again. | P.33 |
| | | Remote controller transmitting error is detected by remote controller. | E3 | | P.34 |
| | | Remote controller signal receiving error is detected by indoor unit. | E4 | | P.33 |
| | | Remote controller transmitting error is detected by indoor unit. | E5 | | P.34 |
| 4 blinking | 2 blinking | Error 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.34 |
| 5 blinking | 2 blinking | Serial communication error <Communication between outdoor controller board and outdoor power board> <Communication between outdoor controller board and M-NET p.c. board> | 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). ③Check M-NET communication signal. | P.34 |
| | | Communication error of high prior signal(M-NET) | A0-A8 | | P.35~ P.38 |

※1.Error code displayed on remote controller.

※2.Refer to service manual for indoor unit.



| Indication | | Error | | | |
|--|---|---|---|---|-------------------------|
| Outdoor controller board | | Contents | Error code ※1 | Inspection method | Detailed reference page |
| LED1 (Green) | LED2 (Red) | | | | |
| 3 blinking | 1 blinking | Abnormality of shell thermostat and discharging temperature (TH4) | U2 | ①Check if stop valves are open. ②Check if connectors (TH4, LEV-A) on outdoor controller board are not disconnected. ③Check if unit fills with specified amount of refrigerant. ④Measure resistance values among terminals on indoor valve and outdoor linear expansion valve using a tester. | P.30 |
| | 2 blinking | Abnormal high pressure (High pressure switch 63H worked.) | U1 | ①Check if indoor/outdoor units have a short cycle on their air ducts. ②Check if connector (63H) on outdoor controller 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.30 |
| | 3 blinking | Abnormality of outdoor fan motor rotational speed | U8 | ①Check the outdoor fan motor. ②Check if the connector of TH3 on outdoor controller board is disconnected. | P.32 |
| | | Protection from overheat operation (TH3) | Ud | | |
| | 4 blinking | Compressor over current breaking (Start-up locked) | UF | ①Check if stop valves are open. ②Check looseness, disconnection, and converse connection of compressor wiring. ③Measure resistance values among terminals on compressor using a tester. ④Check if outdoor unit has a short cycle on its air duct. | P.32 |
| | | Compressor over current breaking | UP | | P.33 |
| | | Abnormality of current sensor (P.B.) | UH | | P.32 |
| | | Abnormality of power module | U6 | | P.31 |
| | 5 blinking | Open/short of discharge thermistor (TH4) | U3 | ①Check if connectors (TH3, TH4, TH6 and TH7) on outdoor controller board and connector (CN3) on outdoor power board are not disconnected. ②Measure resistance value of outdoor thermistors. | P.31 |
| | | Open/short of outdoor thermistors (TH3, TH6, TH7 and TH8) | U4 | | P.31 |
| Open/short of outdoor thermistor (TH8) | | | | | |
| 6 blinking | Abnormality of radiator panel temperature | U5 | ①Check if indoor/outdoor units have a short cycle on their air ducts. ②Measure resistance value of outdoor thermistor(TH8). | P.31 | |
| 7 blinking | Abnormality of voltage | U9 | ①Check looseness, disconnection, and converse connection of compressor wiring. ②Measure resistance value among terminals on compressor using a tester. ③Check the continuity of contactor (52C). ④Check if power supply voltage decreases. ⑤Check the wiring of CNAF. | P.32 | |
| 4 blinking | 1 blinking | Abnormality of room temperature thermistor (TH1) | P1 | ①Check if connectors (CN20, CN21 and CN29) on indoor controller board are not disconnected. ②Measure resistance value of indoor thermistors. | ※2 |
| | | Abnormality of pipe temperature thermistor /Liquid (TH2) | P2 | | ※2 |
| | | Abnormality of pipe temperature thermistor/Condenser-Evaporator | P9 | | ※2 |
| | 2 blinking | Abnormality of drain sensor (DS) | P4 | ①Check if connector (CN31) on indoor controller board is not disconnected. ②Measure resistance value of indoor thermistors. ③Measure resistance value among terminals on drain-up machine using a tester. ④Check if drain-up machine works. ⑤Check drain function. | ※2 |
| | | Indoor drain overflow protection | P5 | | |
| | 3 blinking | Freezing (cooling)/overheating (heating) protection | P6 | ①Check if indoor unit has a short cycle on its air duct. ②Check if heat exchanger and filter is not dirty. ③Measure resistance value on indoor and outdoor fan motors. ④Check if the inside of refrigerant piping is not clogged. | ※2 |
| | 4 blinking | Abnormality of pipe temperature | P8 | ①Check if indoor thermistors (TH2 and TH5) are not disconnected from holder. ②Check if stop valve is open. ③Check converse connection of extension pipe. (on plural units connection) ④Check if indoor/outdoor connecting wire is connected correctly. (on plural units connection) | ※2 |

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

<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 error code by controlling DIP SW2 on 'A-Control Service Tool'.

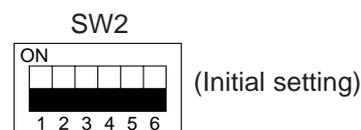
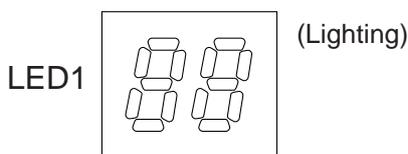
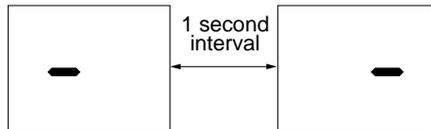
Operation indicator SW2 : Indicator change of self diagnosis

| SW2 setting | Display detail | Explanation for display | Unit |
|--|----------------|-------------------------|------|
|  | | | |

<Digital indicator LED1 working details>

(Be sure the 1 to 6 in the SW2 are set to OFF.)

- (1) Display when the power supply ON.
When the power supply ON, blinking displays by turns.
Wait for 4 minutes at the longest.
- (2) When the display lights. (Normal operation)
 - ① Operation mode display.



The tens digit : Operation mode

| Display | Operation Model |
|---------|-----------------|
| O | OFF / FAN |
| C | COOLING / DRY * |
| H | HEATING |
| d | DEFROSTING |

*C5 is displayed during replacement operation.

- ② Display during error postponement
Postponement code is displayed when compressor stops due to the work of protection device.
Postponement code is displayed while error is being postponed.

The ones digit : Relay output

| Display | Warming-up Compressor | Compressor | 4-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 | — | — | — |
| A | ON | — | ON | — |

- (3) When the display blinks
Inspection code is displayed when compressor stops due to the work of protection devices.

| Display | Contents to be inspected (During operation) |
|---------|--|
| U1 | Abnormal high pressure (63H worked) |
| U2 | Abnormal high discharging temperature, shortage of refrigerant |
| U3 | Open/short circuit of discharging thermistor(TH4) |
| U4 | Open/short of outdoor unit thermistors(TH3, TH6, TH7 and TH8) |
| U5 | Abnormal temperature of heat sink |
| U6 | Abnormality of power module |
| U8 | Abnormality in outdoor fan motor |
| Ud | Over heat protection |
| UF | Compressor overcurrent interruption (When Comp. locked) |
| UH | Current sensor error |
| UL | Abnormal low pressure |
| UP | Compressor overcurrent interruption |
| P1~P8 | Abnormality of indoor units |
| A0~A7 | Communication error of high-prior signal (M-NET) |

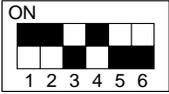
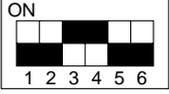
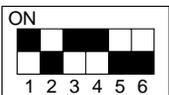
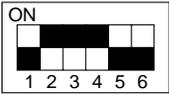
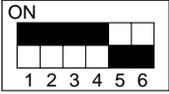
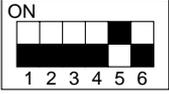
| Display | Inspection unit |
|---------|-----------------|
| 0 | Outdoor unit |
| 1 | Indoor unit 1 |
| 2 | Indoor unit 2 |
| 3 | Indoor unit 3 |

| Display | Contents to be inspected (When power is turned on) |
|---------|---|
| F5 | 63H connector(yellow) is open. |
| E8 | Indoor/outdoor communication error (Signal receiving error) (Outdoor unit) |
| E9 | Indoor/outdoor communication error (Transmitting error) (Outdoor unit) |
| EA | Mis-wiring of indoor/outdoor unit connecting wire, excessive number of indoor units (4 units or more) |
| Eb | Mis-wiring of indoor/outdoor unit connecting wire(converse wiring or disconnection) |
| EC | Startup time over |
| E0~E7 | Communication error except for outdoor unit |



| SW2 setting | Display detail | Explanation for display | Unit |
|-------------|--|--|--------------|
| | Pipe temperature / Liquid (TH3) - 40~90 | - 40~90 (When the coil thermistor detects 0°C or below, “-” and temperature are displayed by turns.) (Example) When -10°C; 0.5 secs. 0.5secs. 2 secs. -□ → 10 → □□ | °C |
| | Discharge temperature (TH4) 3~217 | 3~217 (When the discharge thermistor detects 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105°C; 0.5 secs. 0.5secs. 2 secs. □1 → 05 → □□ | °C |
| | Output step of outdoor FAN 0~10 | 0~10 | Step |
| | The number of ON / OFF times of compressor 0~9999 | 0~9999 (When the number of times is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 42500 times (425 X100 times); 0.5 secs. 0.5secs. 2 secs. □4 → 25 → □□ | 100 times |
| | Compressor integrating operation times 0~9999 | 0~9999 (When it is 100 hours or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 2450 hours (245 X10 hours); 0.5 secs. 0.5secs. 2 secs. □2 → 45 → □□ | 10 hours |
| | Compressor operating current. 0~50 | 0~50 *Omit the figures after the decimal fractions. | A |
| | Compressor operating frequency 0~225 | 0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz; 0.5 secs. 0.5secs. 2 secs. □1 → 25 → □□ | Hz |
| | LEV-A opening pulse 0~480 | 0~480 (When it is 100 pulse or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150 pulse; 0.5 secs. 0.5secs. 2 secs. □1 → 50 → □□ | Pulse |
| | 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 |
| | Operation mode on error occurring | Operation mode of when operation stops due to error is displayed by setting SW2 like below. (SW2) | Code display |



| SW2 setting | Display detail | Explanation for display | Unit |
|--|---|---|--------------|
|  | Pipe temperature / Liquid (TH3) on error occurring - 40~90 | - 40~90 (When the coil thermistor detects 0°C or below, “-” and temperature are displayed by turns.) (Example) When -15°C; 0.5 secs. 0.5secs. 2 secs. -□ → 15 → □□ ↑ | °C |
|  | Compressor temperature (TH4) or discharge temperature (TH4) on error occurring 3~217 | 3~217 (When the temperature is 100°C or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 130°C; 0.5 secs. 0.5secs. 2 secs. □1 → 30 → □□ ↑ | °C |
|  | Compressor operating current on error occurring 0~20 | 0~20 | A |
|  | Error code history (1) (latest) Alternate display of abnormal unit number and code | When no error history, “ 0 ” and “ - ” are displayed by turns. | Code display |
|  | Error code history (2) Alternate display of error unit number and code | When no error history, “ 0 ” and “ - ” are displayed by turns. | Code display |
|  | Thermostat ON time 0~999 | 0~999 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 245 minutes; 0.5 secs. 0.5secs. 2 secs. □2 → 45 → □□ ↑ | Minute |
| | Test run elapsed time 0~120 | 0~120 (When it is 100 minutes or more, the hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 105 minutes; 0.5 secs. 0.5secs. 2 secs. □1 → 05 → □□ ↑ | Minute |



| SW2 setting | Display detail | Explanation for display | Unit | | | | | | | | | | |
|----------------------------|--|---|-----------------|-----------------|--------------------|-------------------------------|----------------------------|------------------------------------|-----------------|-----------------|-------------------|-------------------------------------|--------------|
| | The number of connected indoor units | 0~3 (The number of connected indoor units are displayed.) | Unit | | | | | | | | | | |
| | Capacity setting display | Displayed as an outdoor capacity code. <table border="1"> <thead> <tr> <th>Capacity</th> <th>Code</th> </tr> </thead> <tbody> <tr> <td>P100V</td> <td>20</td> </tr> <tr> <td>P125V</td> <td>25</td> </tr> <tr> <td>P140V</td> <td>28</td> </tr> </tbody> </table> | Capacity | Code | P100V | 20 | P125V | 25 | P140V | 28 | Code display | | |
| Capacity | Code | | | | | | | | | | | | |
| P100V | 20 | | | | | | | | | | | | |
| P125V | 25 | | | | | | | | | | | | |
| P140V | 28 | | | | | | | | | | | | |
| | Outdoor unit setting information | <ul style="list-style-type: none"> The tens digit (Total display for applied setting) <table border="1"> <thead> <tr> <th>Setting details</th> <th>Display details</th> </tr> </thead> <tbody> <tr> <td>H·P / Cooling only</td> <td>0 : H·P 1 : Cooling only</td> </tr> <tr> <td>Single phase / Three phase</td> <td>0 : Single phase 2 : Three phase</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The ones digit <table border="1"> <thead> <tr> <th>Setting details</th> <th>Display details</th> </tr> </thead> <tbody> <tr> <td>Defrosting switch</td> <td>0 : Normal 1 : For high humidity</td> </tr> </tbody> </table> <p>(Example) When heat pump, three phase and defrosting (normal) are set up, "20" is displayed.</p> | Setting details | Display details | H·P / Cooling only | 0 : H·P 1 : Cooling only | Single phase / Three phase | 0 : Single phase 2 : Three phase | Setting details | Display details | Defrosting switch | 0 : Normal 1 : For high humidity | Code display |
| Setting details | Display details | | | | | | | | | | | | |
| H·P / Cooling only | 0 : H·P 1 : Cooling only | | | | | | | | | | | | |
| Single phase / Three phase | 0 : Single phase 2 : Three phase | | | | | | | | | | | | |
| Setting details | Display details | | | | | | | | | | | | |
| Defrosting switch | 0 : Normal 1 : For high humidity | | | | | | | | | | | | |
| | Indoor pipe temperature / Liquid (TH2(1)) Indoor 1 – 39~88 | – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) | °C | | | | | | | | | | |
| | Indoor pipe temperature / Cond. / Eva. (TH5(1)) Indoor 1 – 39~88 | – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) | °C | | | | | | | | | | |
| | Indoor pipe temperature / Liquid (TH2(2)) Indoor 2 – 39~88 | – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) | °C | | | | | | | | | | |
| | Indoor pipe temperature / Cond. / Eva. (TH5(2)) Indoor 2 – 39~88 | – 39~88 (When the temperature is 0°C or less, "–" and temperature are displayed by turns.) | °C | | | | | | | | | | |
| | Indoor room temperature (TH1) 8~39 | 8~39 | °C | | | | | | | | | | |



| SW2 setting | Display detail | Explanation for display | Unit |
|-------------|--|---|-------|
| | Indoor setting temperature 17~30 | 17~30 | °C |
| | Outdoor pipe temperature / Cond./ Eva. (TH6) -39~88 | -39~88 (When the temperature is 0°C or less, “-” and temperature are displayed by turns.) | °C |
| | Outdoor outside temperature (TH7) -39~88 | -39~88 (When the temperature is 0°C or less, “-” and temperature are displayed by turns.) | °C |
| | Outdoor heat sink temperature (TH8) -40~200 | -40~200 (When the temperature is 0°C or less, “-” and temperature are displayed by turns.) (When the thermistor detects 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) | °C |
| | Discharge super heat. SHd 0~255 [Cooling = TH4-TH6] [Heating = TH4-TH5] | 0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) | °C |
| | Sub cool. SC 0~130 [Cooling = TH6-TH3] [Heating = TH5-TH4] | 0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) | °C |
| | Input current of outdoor unit | 0~500 (When it is 100 or more, hundreds digit, tens digit and ones digit are displayed by turns.) | 0.1 A |
| | Targeted operation frequency 0~255 | 0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) | Hz |
| | DC bus voltage 180~370 | 180~370 (When it is 100V or more, hundreds digit, tens digit and ones digit are displayed by turns.) | V |



| SW2 setting | Display detail | Explanation for display | Unit |
|-------------|---|--|--------------|
| | <p>Capacity save 0~100</p> <p>When air conditioner is connected to M-NET and capacity save mode is demanded, "0"~"100" is displayed.</p> <p>[When there is no setting of capacity save "100" is displayed.]</p> | <p>0~100 (When the capacity is 100% hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 100%;</p> <p>0.5 secs. 0.5secs. 2 secs. </p> | % |
| | <p>Error postponement code history (2) of outdoor unit</p> | <p>Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in case of no postponement.</p> | Code display |
| | <p>Error postponement code history (3) of outdoor unit</p> | <p>Postponement code display Blinking: During postponement Lighting: Cancellation of postponement "00" is displayed in case of no postponement.</p> | Code display |
| | <p>Error code history (3) (Oldest) Alternate display of abnormal unit number and code.</p> | <p>When no error history, "0" and "-" are displayed by turns.</p> | Code display |
| | <p>Error thermistor display</p> <p>[When there is no error thermistor, "-" is displayed.]</p> | <p>3: Outdoor pipe temperature /Liquid (TH3) 6: Outdoor pipe temperature /Cond./Eva. (TH6) 7: Outdoor outside temperature (TH7) 8: Outdoor radiator panel (TH8)</p> | Code display |
| | <p>Operation frequency on error occurring 0~255</p> | <p>0~255 (When it is 100Hz or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 125Hz;</p> <p>0.5 secs. 0.5secs. 2 secs. </p> | Hz |
| | <p>Fan step on error occurring 0~10</p> | <p>0~10</p> | Step |



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



| SW2 setting | Display detail | Explanation for display | Unit | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|-------------|-----------------|---------|--------|---|----|-------------------|---------------------|----|--------------------|--------------------------|----|--|--------------------------|----|-----------------------------------|---------------------|----|-----------------------------|--|----|--------------|
| | Discharge super heat on error occurring SHd 0~255 [Cooling = TH4-TH6] [Heating = TH4-TH5] | 0~255 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 150°C; 0.5 secs. 0.5secs. 2 secs. □1 →50 →□□ | °C | | | | | | | | | | | | | | | | | | | | | |
| | Sub cool on error occurring. SC 0~130 [Cooling = TH6-TH3] [Heating = TH5-TH2] | 0~130 (When the temperature is 100°C or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 115°C; 0.5 secs. 0.5secs. 2 secs. □1 →15 →□□ | °C | | | | | | | | | | | | | | | | | | | | | |
| | Thermostat-on time until error stops 0~999 | 0~999 (When it is 100 minutes or more, hundreds digit, tens digit and ones digit are displayed by turns.) (Example) When 415 minutes; 0.5 secs. 0.5secs. 2 secs. □4 →15 →□□ | Minute | | | | | | | | | | | | | | | | | | | | | |
| | Indoor pipe temperature / Liquid (TH2 (3)) Indoor 3 -39~88 | -39~88 (When the temperature is 0°C or less, “-” and temperature are displayed by turns.) | °C | | | | | | | | | | | | | | | | | | | | | |
| | Indoor pipe temperature / Cond./ Eva. (TH5 (3)) Indoor 3 -39~88 | -39~88 (When the temperature is 0°C or less, “-” and temperature are displayed by turns.) When there is no indoor unit, “00” is displayed. | °C | | | | | | | | | | | | | | | | | | | | | |
| | U9 Error status during the Error postponement period | <table border="1"> <thead> <tr> <th>Description</th> <th>Detection point</th> <th>Display</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>—</td> <td>00</td> </tr> <tr> <td>Overvoltage error</td> <td>Power circuit board</td> <td>01</td> </tr> <tr> <td>Undervoltage error</td> <td>Controller circuit board</td> <td>02</td> </tr> <tr> <td>Input current sensor error. L₁-phase open error.</td> <td>Controller circuit board</td> <td>04</td> </tr> <tr> <td>Abnormal power synchronous signal</td> <td>Power circuit board</td> <td>08</td> </tr> <tr> <td>PFC/ ACTM errorUndervoltage</td> <td>Check CNAF wiring. Defective ACTM/ P.B.</td> <td>20</td> </tr> </tbody> </table> <p> * Display examples for multiple errors: Overvoltage (01) + Undervoltage (02) = 03 Undervoltage (02) + Power-sync signal error (08) = 0A </p> | Description | Detection point | Display | Normal | — | 00 | Overvoltage error | Power circuit board | 01 | Undervoltage error | Controller circuit board | 02 | Input current sensor error. L ₁ -phase open error. | Controller circuit board | 04 | Abnormal power synchronous signal | Power circuit board | 08 | PFC/ ACTM errorUndervoltage | Check CNAF wiring. Defective ACTM/ P.B. | 20 | Code display |
| Description | Detection point | Display | | | | | | | | | | | | | | | | | | | | | | |
| Normal | — | 00 | | | | | | | | | | | | | | | | | | | | | | |
| Overvoltage error | Power circuit board | 01 | | | | | | | | | | | | | | | | | | | | | | |
| Undervoltage error | Controller circuit board | 02 | | | | | | | | | | | | | | | | | | | | | | |
| Input current sensor error. L ₁ -phase open error. | Controller circuit board | 04 | | | | | | | | | | | | | | | | | | | | | | |
| Abnormal power synchronous signal | Power circuit board | 08 | | | | | | | | | | | | | | | | | | | | | | |
| PFC/ ACTM errorUndervoltage | Check CNAF wiring. Defective ACTM/ P.B. | 20 | | | | | | | | | | | | | | | | | | | | | | |

11-1. 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.

<Table 1> Function selections

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

*1 The functions below are available only when the wired remote controller is used. The functions are not available for floor standing models.

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

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

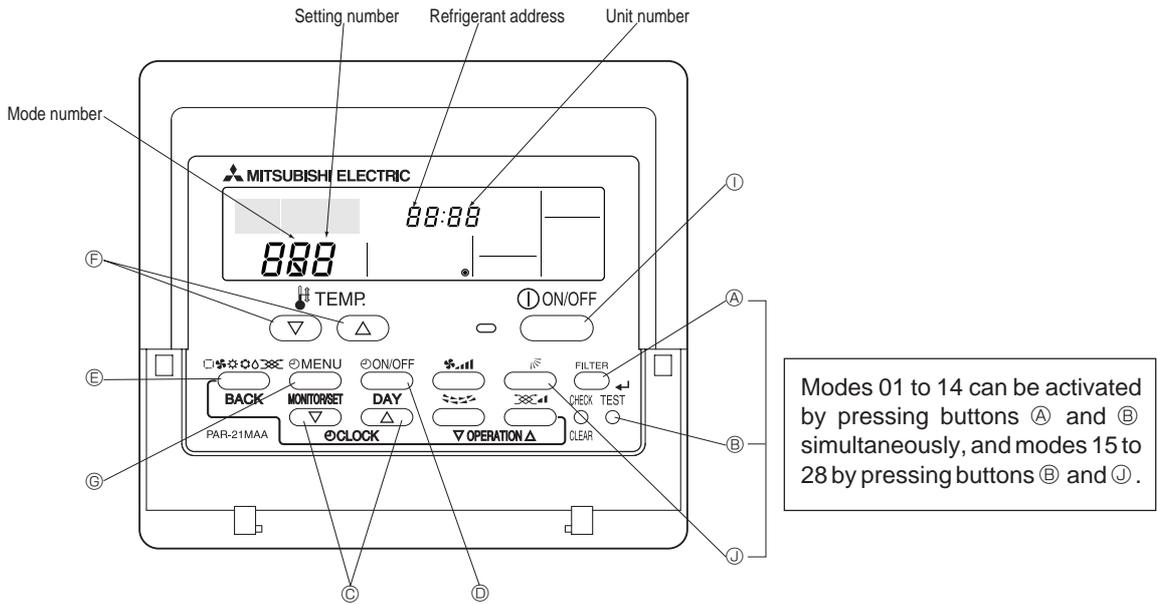
- When setting functions for an indoor unit in an independent system, set the unit number to 01 referring to ④ setting the indoor unit number.
- When setting functions for a simultaneous- Twin Triple indoor unit system, set the unit number to 01 to 03 for each indoor unit in case of selecting different functions for each unit referring to ④ setting the indoor unit number.
- When setting the same functions for an entire simultaneous Twin Triple-indoor unit system, set refrigerant address to AL (07 in case of wireless remote controller) referring to ④ setting the indoor unit number.

| Function | Settings | Mode No. | Setting No. | Initial setting (Factory setting) - : Not available | | | | | |
|--|---|----------|-------------|--|-----------------------|-------------------|--------|--------------------|----------------|
| | | | | 4-Way cassette | Ceiling concealed | Ceiling suspended | | Wall mounted | Floor standing |
| | | | | PLA-AA(2) | PEAD-EA(2) PEAD-GA | PCA-GA | PCA-HA | PKA-GAL PKA-FAL | PSA-GA |
| Filter sign | 100Hr | 07 | 1 | | | | | | |
| | 2500Hr | | 2 | ● | | ● | ● | | ● |
| | No filter sign indicator | | 3 | | ● | | | | |
| Air flow (Fan speed) | Quiet } Standard | 08 | 1 | ● | - | - | - | - | - |
| | Standard } High ceiling① | | 2 | | - | ● | - | - | - |
| | High ceiling } High ceiling② | | 3 | | - | - | - | - | - |
| No. of air outlets | 4 directions | 09 | 1 | ● | - | - | - | - | - |
| | 3 directions | | 2 | | - | - | - | - | - |
| | 2 directions | | 3 | | - | - | - | - | - |
| Optional high efficiency filter | Not supported | 10 | 1 | ● | - | ● | - | - | - |
| | Supported | | 2 | | - | - | - | - | |
| Vane setting | No vanes (Vane No.3 setting : PLA-AA(2) only) | 11 | 1 | | - | - | - | - | - |
| | Vane No.1 setting | | 2 | | - | ● | - | - | - |
| | Vane No.2 setting | | 3 | ● | - | - | - | - | - |
| Energy saving air flow (Heating mode) | Disabled | 12 | 1 | ● | - | ● | - | - | - |
| | Enabled | | 2 | | - | - | - | - | |
| Optional humidifier (PLA-AA only) | Not supported | 13 | 1 | ● | - | - | - | - | - |
| | Supported | | 2 | | - | - | - | - | |
| Vane differential setting in heating mode (cold wind prevention) | No.1 setting (TH5: 24-28°C) | 14 | 1 | | - | - | - | - | - |
| | No.2 setting (Standard, TH5:28-32°C) | | 2 | ● | - | ● | - | ● | - |
| | No.3 setting (TH5: 32-38°C) | | 3 | | - | - | - | - | - |
| Swing | Not available | 23 | 1 | | - | - | - | - | - |
| | Available | | 2 | ● | - | ● | - | ● | - |
| Set temperature in heating mode (4 deg up) | Available | 24 | 1 | ● | ● | ● | ● | ● | ● |
| | Not available | | 2 | | | | | | ● |
| Fan speed when the heating thermostat is OFF | Extra low | 25 | 1 | ● | ● | ● | ● | ● | ● |
| | Stop | | 2 | | | | | | |
| | Set fan speed | | 3 | | | | | | |
| Quiet operation mode of PLA-AA(2)(Fan speed) | Disabled (Standard) | 26 | 1 | ● | - | - | - | - | - |
| | Enabled (Quiet operation mode) | | 2 | | - | - | - | - | - |
| Fan speed when the cooling thermostat is OFF | Set fan speed | 27 | 1 | ● | ● | ● | ● | ● | ● |
| | Stop | | 2 | | | | | | |
| Detection of abnormality of the pipe temperature (P8) | Available | 28 | 1 | ● | ● | ● | ● | ● | ● |
| | Not available | | 2 | | | | | | |

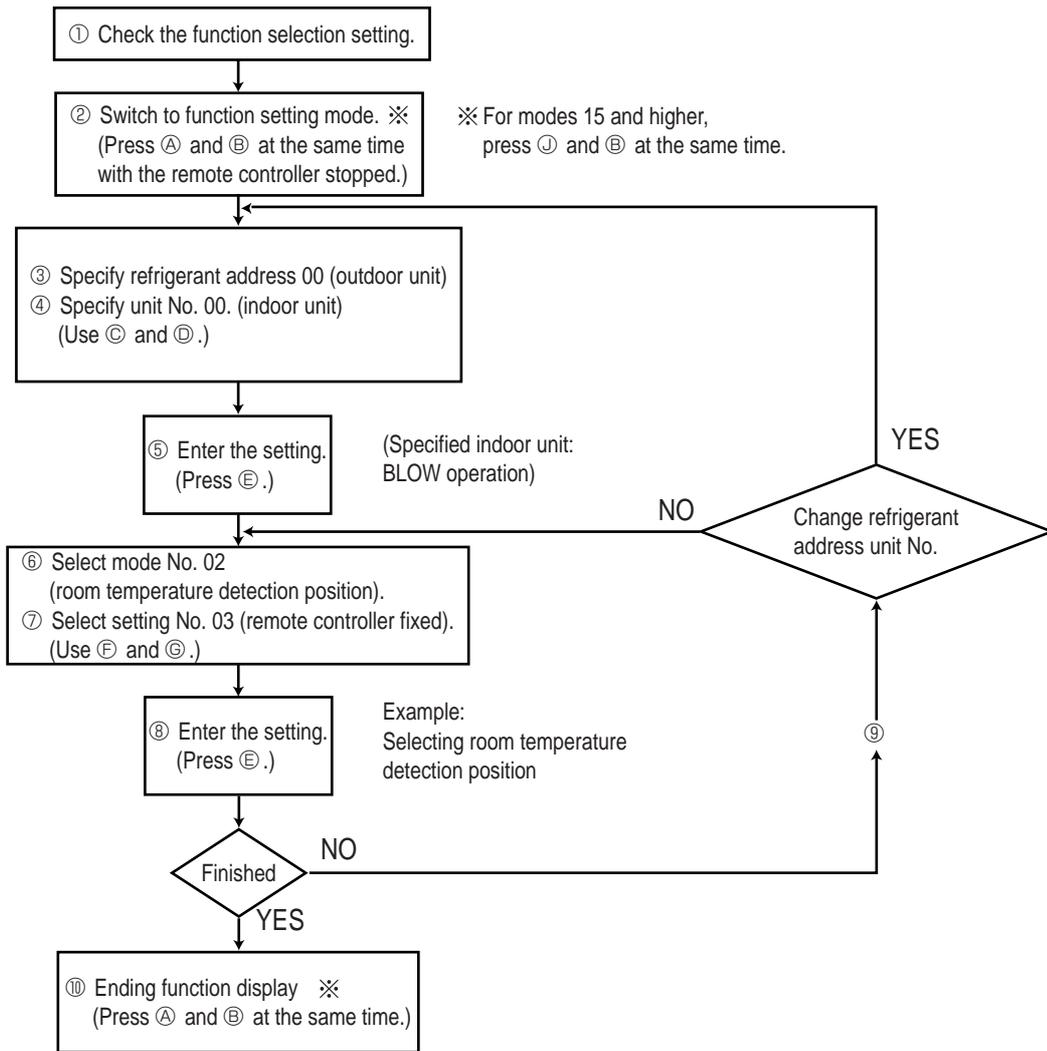
11-1-1. Selecting functions using the wired remote controller

First, try to familiarize yourself with the flow of the function selection procedure. In this section, an example of setting the room temperature detection position is given.

For actual operations, refer to steps ① to ⑩.



Selecting functions using the wired remote controller



The above procedure must be carried out only if changes are necessary.

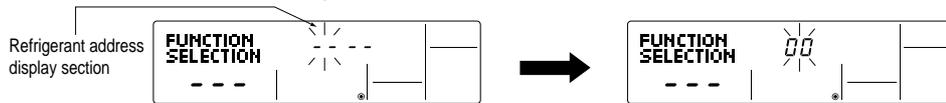
[Operating Procedure]

① Check the setting items provided by function selection.

If settings for a mode are changed by function selection, the functions of that mode will be changed accordingly. Check all the current settings according to steps ② to ⑦, fill in the "Check" column in Table 1, and then change them as necessary. For factory settings, refer to the indoor unit's installation manual.

② Switch off the remote controller.

- Ⓐ Hold down the **(FILTER)** (mode is 15 to 28) and **(TEST)** buttons simultaneously for at least two seconds. **FUNCTION SELECTION** will start to flash, and then the remote controller's display content will change as shown below.



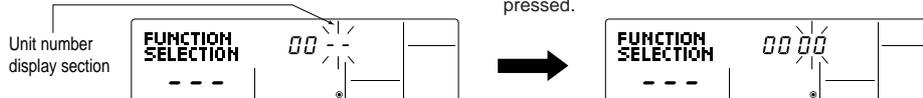
* If the unit stops after **FUNCTION SELECTION** flashed for two seconds or "88" flashes in the room temperature display area for two seconds, a transmission error may have occurred. Check to see if there are any sources of noise or interference near the transmission path.

Note

If you have made operational mistakes during this procedure, exit function selection (see step ⑩), and then restart from step ②.

④ Set the indoor unit number.

- Ⓐ Press the **(ON/OFF)** button so that "-" flashes in the unit number display area.



* To set modes 01 to 06 or 15 to 22 select unit number "00".

* To set modes 07 to 14 or 23 to 28 carry out as follows:

- To set each indoor unit individually, select "01" to "04".
- To set all the indoor units collectively, select "AL".

⑤ Confirm the refrigerant address and unit number.

- Ⓐ Press the **(MODE)** button to confirm the refrigerant address and unit number. After a while, "-" will start to flash in the mode number display area.



* "88" will flash in the room temperature display area if the selected refrigerant address does not exist in the system. Furthermore, if "F" appears and flashes in the unit number display area and the refrigerant address display area also flashes, there are no units that correspond to the selected unit number. In this case, the refrigerant address and unit number may be incorrect, so repeat steps ② and ③ to set the correct ones.

③ Set the outdoor unit's refrigerant address.

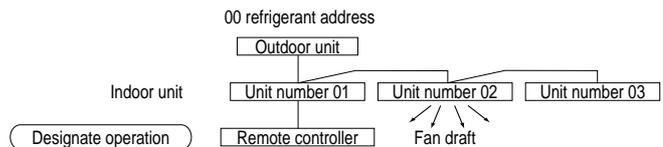
- Ⓐ Press the **(CLOCK)** buttons (**(DOWN)** and **(UP)**) to select the desired refrigerant address. The refrigerant address changes from "00" to "15". (This operation is not possible for single refrigerant systems.)

Ⓐ Press the **(CLOCK)** buttons (**(DOWN)** and **(UP)**) to select the unit number of the indoor unit for which you want to perform function selection. The unit number changes to "00", "01", "02", "03", "04" and "AL" each time a button is pressed.

Ⓐ When the refrigerant address and unit number are confirmed by pressing the

(MODE) button, the corresponding indoor unit will start fan operation. This helps you find the location of the indoor unit for which you want to perform function selection. However, if "00" or "AL" is selected as the unit number, all the indoor units corresponding to the specified refrigerant address will start fan operation.

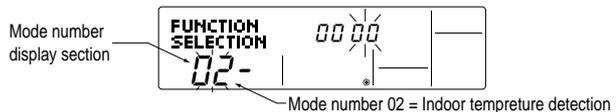
Example) When the refrigerant address is set to 00 and the unit number is 02.



* When grouping different refrigerant systems, if an indoor unit other than the one to which the refrigerant address has been set performs 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.

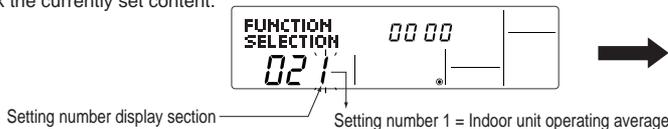
⑥ Select the mode number.

- Ⓐ Press the **(TEMP)** buttons (**(DOWN)** and **(UP)**) to set the desired mode number. (Only the selectable mode numbers can be selected.)

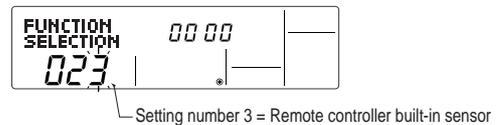


⑦ Select the setting content for the selected mode.

- Ⓐ Press the **(MENU)** button. The currently selected setting number will flash, so check the currently set content.

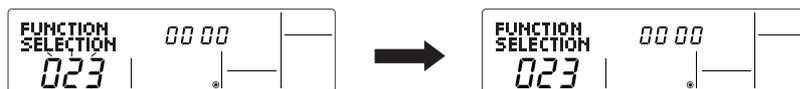


Ⓐ Press the **(TEMP)** buttons (**(DOWN)** and **(UP)**) to select the desired setting number.



⑧ Register the settings you have made in steps ③ to ⑦.

- Ⓐ Press the **(MODE)** button. The mode number and setting number will start to flash and registration starts.



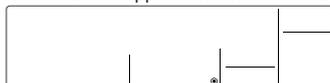
The mode number and setting number will stop flashing and remain lit, indicating the end of registration.

* If " - - " is displayed for both the mode number and setting number and "88" flashes in the room temperature display area, a transmission error may have occurred. Check to see if there are any sources of noise or interference near the transmission path.

⑨ If you wish to continue to select other functions, repeat steps ③ to ⑧.

⑩ Complete function selection.

- Ⓐ Hold down the **(FILTER)** (mode is 15 to 28) and **(TEST)** buttons simultaneously for at least two seconds. After a while, the function selection screen will disappear and the air conditioner OFF screen will reappear.



* Do not operate the remote controller for at least 30 seconds after completing function selection. (No operations will be accepted even if they are made.)

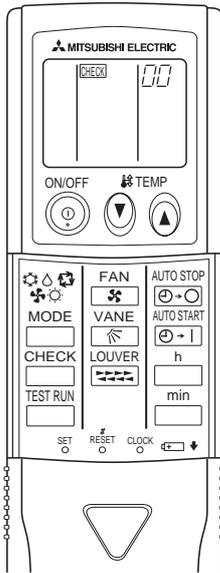
Note

If a function of an indoor unit is changed by function selection after installation is complete, make sure that a "O" mark, etc., is given in the "Check" column of Table 1 to indicate the change.

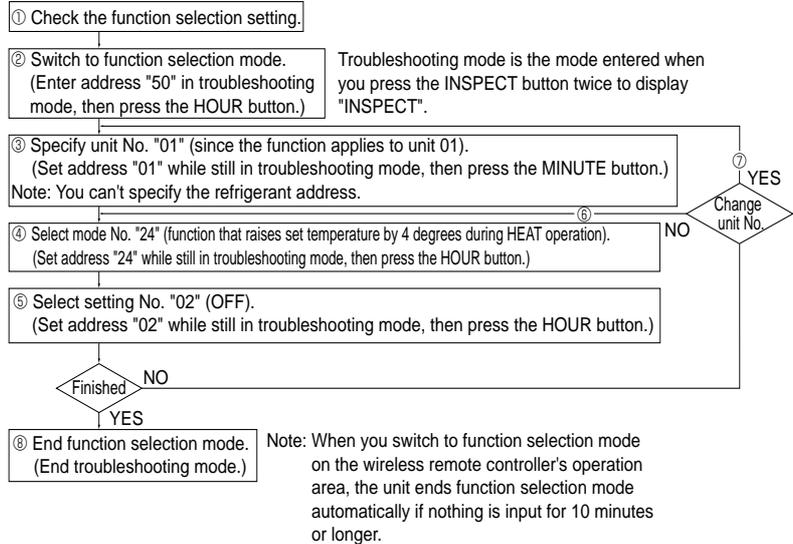
11-1-2. Selecting functions using the wireless remote controller (Type C)

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

[Flow of function selection procedure]



The flow of the function selection procedure is shown below. This example shows how to turn off the function that raises the set temperature by 4 degrees during HEAT operation . The procedure is given after the flow chart.



[Operating instructions]

① Check the function settings.

② Press the button twice continuously. → is lit and "00" blinks.

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

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

(By setting unit number with the button, specified indoor unit starts performing fan operation.

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

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

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

④ Select a mode.

Press the temp button to set a mode. Press "24" to turn on the function that raises the set temperature by 4 degree during heat operation. Direct the wireless remote controller toward the sensor of the indoor unit and press the button.

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

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

2 = 2 beeps (one second each)

3 = 3 beeps (one second each)

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

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

⑤ Select the setting number.

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

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

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

Setting number: 1 = 2 beeps (0.4 seconds each)

2 = 2 beeps (0.4 seconds each, repeated twice)

3 = 2 beeps (0.4 seconds each, repeated three times)

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

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

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

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

⑧ Complete the function settings

Press button.

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

11-2. FUNCTION SELECTION OF REMOTE CONTROLLER

The setting of the following remote controller functions can be changed using the remote controller function selection mode. Change the setting when needed.

| Item 1 | Item 2 | Item 3 (Setting content) |
|---|--|---|
| 1.Change Language ("CHANGE LANGUAGE") | Language setting to display | • Display in multiple languages is possible. |
| 2.Function limit ("FUNCTION SELECTION") | (1) Operation function limit setting (operation lock) ("LOCKING FUNCTION") | • Setting the range of operation limit (operation lock) |
| | (2) Use of automatic mode setting ("SELECT AUTO MODE") | • Setting the use or non-use of "automatic" operation mode |
| | (3) Temperature range limit setting ("LIMIT TEMP FUNCTION") | • Setting the temperature adjustable range (maximum, minimum) |
| 3.Mode selection ("MODE SELECTION") | (1) Remote controller main/sub setting ("CONTROLLER MAIN/SUB") | • Selecting main or sub remote controller * When two remote controllers are connected to one group, one controller must be set to sub. |
| | (2) Use of clock setting ("CLOCK") | • Setting the use or non-use of clock function |
| | (3) Timer function setting ("WEEKLY TIMER") | • Setting the timer type |
| | (4) Contact number setting for error situation ("CALL.") | • Contact number display in case of error • Setting the telephone number |
| 4.Display change ("DISP MODE SETTING") | (1) Temperature display °C/°F setting ("TEMP MODE °C/°F") | • Setting the temperature unit (°C or °F) to display |
| | (2) Room air temperature display setting ("ROOM TEMP DISP SELECT") | • Setting the use or non-use of the display of indoor (suction) air temperature |
| | (3) Automatic cooling/heating display setting ("AUTO MODE DISP C/H") | • Setting the use or non-use of the display of "Cooling" or "Heating" display during operation with automatic mode |

[Function selection flowchart] Refer to next page.

[1] Stop the air conditioner to start remote controller function selection mode. → [2] Select from item1. → [3] Select from item2. → [4] Make the setting. (Details are specified in item3) → [5] Setting completed. → [6] Change the display to the normal one. (End)

[Detailed setting]

[4] -1. CHANGE LANGUAGE setting

The language that appears on the dot display can be selected.

- Press the [⊕MENU] button to change the language.
- ① Japanese (JP), ② English (GB), ③ German (D), ④ Spanish (E), ⑤ Russian (RU), ⑥ Italian (I), ⑦ Chinese (CH), ⑧ French (F)

[4] -2. Function limit

(1) Operation function limit setting (operation lock)

- To switch the setting, press the [⊖ON/OFF] button.
- ① no1 : Operation lock setting is made on all buttons other than the [⊖ON/OFF] button.
- ② no2 : Operation lock setting is made on all buttons.
- ③ OFF (Initial setting value) : Operation lock setting is not made

* To make the operation lock setting valid on the normal screen, it is necessary to press buttons (Press and hold down the [FILTER] and [⊖ON/OFF] buttons at the same time for two seconds.) on the normal screen after the above setting is made.

(2) Use of automatic mode setting

When the remote controller is connected to the unit that has automatic operation mode, the following settings can be made.

- To switch the setting, press the [⊖ON/OFF] button.
- ① ON (Initial setting value) : The automatic mode is displayed when the operation mode is selected.
- ② OFF : The automatic mode is not displayed. when the operation mode is selected.

[3] Temperature range limit setting

After this setting is made, the temperature can be changed within the set range.

- To switch the setting, press the [⊖ON/OFF] button.
 - ① LIMIT TEMP COOL MODE :
The temperature range can be changed on cooling/dry mode.
 - ② LIMIT TEMP HEAT MODE :
The temperature range can be changed on heating mode.
 - ③ LIMIT TEMP AUTO MODE :
The temperature range can be changed on automatic mode.
 - ④ OFF (initial setting) : The temperature range limit is not active.
- * When the setting, other than OFF, is made, the temperature range limit setting on cooling, heating and automatic mode is made at the same time. However the range cannot be limited when the set temperature range has not changed.
- To increase or decrease the temperature, press the [TEMP (▽) or (△)] button.
 - To switch the upper limit setting and the lower limit setting, press the [TEMP (▽) or (△)] button. The selected setting will flash and the temperature can be set.
 - Settable range
Cooling/Dry mode : Lower limit: 19 °C ~ 30 °C Upper limit: 30 °C ~ 19 °C
Heating mode : Lower limit: 17 °C ~ 28 °C Upper limit: 28 °C ~ 17 °C
Automatic mode : Lower limit: 19 °C ~ 28 °C Upper limit: 28 °C ~ 19 °C

[4] -3. Mode selection setting

(1) Remote controller main/sub setting

- To switch the setting, press the [⊖ON/OFF] button.
- ① Main : The controller will be the main controller.
- ② Sub : The controller will be the sub controller.

(2) Use of clock setting

- To switch the setting, press the [⊖ON/OFF] button.
- ① ON : The clock function can be used.
- ② OFF : The clock function cannot be used.

(3) Timer function setting

- To switch the setting, press the [⊖ON/OFF] button (Choose one of the followings.).

- ① WEEKLY TIMER (initial setting on MA deluxe):
The weekly timer can be used.
- ② AUTO OFF TIMER: The auto off timer can be used.
- ③ SIMPLE TIMER (Default setting on MA smooth):
The simple timer can be used.
- ④ TIMER MODE OFF: The timer mode cannot be used.

* When the use of clock setting is OFF, the "WEEKLY TIMER" cannot be used.

(4) Contact number setting for error situation

- To switch the setting, press the [⊖ON/OFF] button.
 - ① CALL OFF : The set contact numbers are not displayed in case of error.
 - ② CALL **** * : The set contact numbers are displayed in case of error.
- CALL_ : The contact number can be set when the display is as shown on the left.

- Setting the contact numbers
To set the contact numbers, follow the following procedures.
Move the flashing cursor to set numbers. Press the [TEMP (▽) and (△)] button to move the cursor to the right (left). Press the [⊖CLOCK (▽) and (△)] button to set the numbers.

[4] -4. Display change setting

(1) Temperature display °C/°F setting

- To switch the setting, press the [⊖ON/OFF] button.
- ① °C : The temperature unit °C is used.
- ② °F : The temperature unit °F is used.

(2) Room air temperature display setting

- To switch the setting, press the [⊖ON/OFF] button.
- ① ON : The room air temperature is displayed.
- ② OFF : The room air temperature is not displayed.

(3) Automatic cooling/heating display setting

- To switch the setting, press the [⊖ON/OFF] button.
- ① ON : One of "Automatic cooling" and "Automatic heating" is displayed under the automatic mode is running.
- ② OFF : Only "Automatic" is displayed under the automatic mode.

Flowchart of Function Setting

Setting language (English)

Normal display
(Display when the air condition is not running)

Hold down the (E) button and press the (D) button for 2 seconds.

Hold down the (E) button and press the (D) button for 2 seconds.

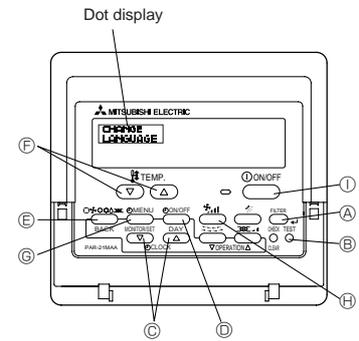
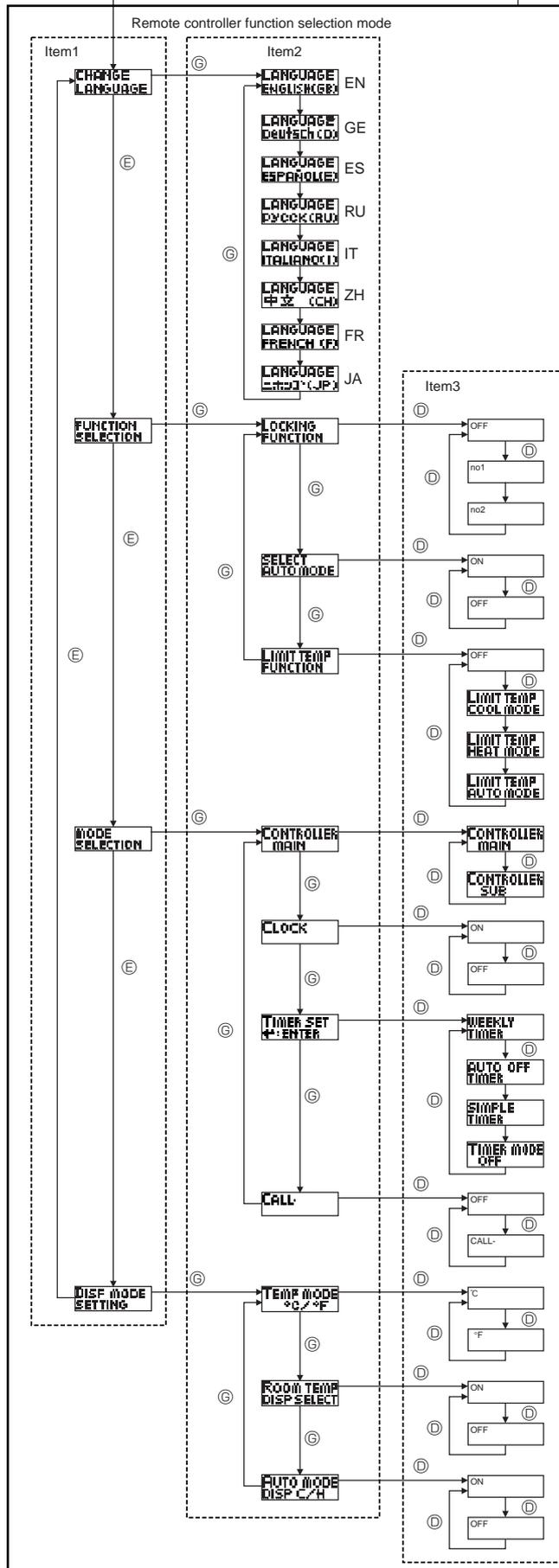
- (E) Press the operation mode button.
- (G) Press the TIMER MENU button.
- (D) Press the TIMER ON/OFF button.

Change Language

Function selection

Mode selection

Display mode setting



Operation lock setting is not used.
(Initial setting value)

Operation lock setting is except On/Off buttons.

Operation lock setting is All buttons.

The automatic mode is displayed when the operation mode is selected. (Initial setting value)

The automatic mode is not displayed when the operation mode is selected.

The temperature range limit is not active. (Initial setting value)

The temperature range can be changed on cooling/dry mode.

The temperature range can be changed on heating mode.

The temperature range can be changed on automatic mode.

The remote controller will be the main controller. (Initial setting value)

The remote controller will be the sub controller.

The clock function can be used. (Initial setting value)

The clock function can not be used.

Weekly timer can be used. (Initial setting value)

Auto off timer can be used.

Simple timer can be used.

Timer mode can not be used.

The set contact numbers are not displayed in case of error. (Initial setting value)

The set contact numbers are displayed in case of error.

The temperature unit °C is used. (Initial setting value)

The temperature unit °F is used.

Room air temperature is displayed. (Initial setting value)

Room air temperature is not displayed.

One of "Automatic cooling" and "Automatic heating" is displayed under the automatic mode is running. (Initial setting value)

Only "Automatic" is displayed under the automatic mode.

- Reduces maintenance work drastically.
 - Enables you to check operation data of the indoor and outdoor units by remote controller.
- Furthermore, use of maintenance stable-operation control that fixes the operating frequency, allows smooth inspection, even for inverter models.

Smooth Maintenance Function

Discharge temperature 64°C

● Conventional inspection work

Easy maintenance information (unit)

| Compressor | | Outdoor unit | | Indoor unit | |
|------------|--|--------------|---------------------------------|-------------|---------------------------------|
| ① | Accumulated operating time (×10 hours) | ④ | Heat exchanger temperature (°C) | ⑦ | Intake air temperature (°C) |
| ② | Number of ON/OFF times (×10 times) | ⑤ | Discharge temperature (°C) | ⑧ | Heat exchanger temperature (°C) |
| ③ | Operating current (A) | ⑥ | Outside air temperature (°C) | ⑨ | Filter operating time* (Hours) |

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

12-1.MAINTENANCE MODE OPERATION METHOD

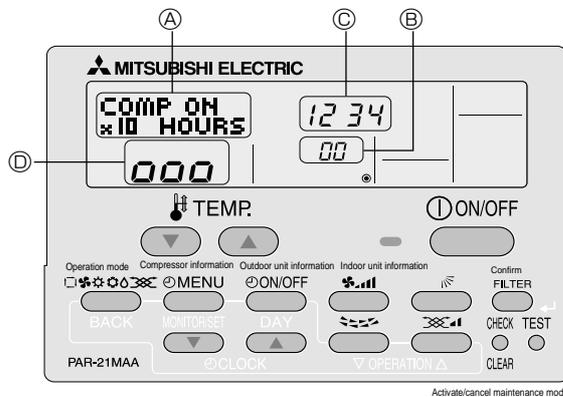
* If you are going to use 12-2. "GUIDE FOR OPERATION CONDITION", set the airflow to "High" before activating maintenance mode

● Switching to maintenance mode

Maintenance mode can be activated either when the air conditioner is operated or stopped. It cannot be activated during test run.

※ Maintenance information can be viewed even if the air conditioner is stopped.

■ Remote controller button information



(1) Press the **TEST** button for three seconds to switch to maintenance mode.

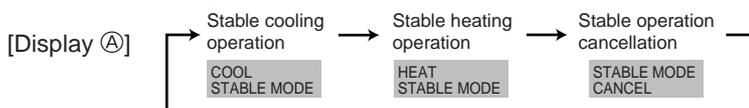
[Display A] MAINTENANCE

If stable operation is unnecessary or if you want to check the data with the air conditioner stopped, skip to step (4).

● Fixed Hz operation

The operating frequency can be fixed to stabilize operation of inverter model. If the air conditioner is currently stopped, start it by this operation.

(2) Press the **MODE** button to select the desired operation mode.



(3) Press the **FILTER** button to confirm the setting.



● **Data measurement**

When the operation is stabilized, measure operation data as explained below.

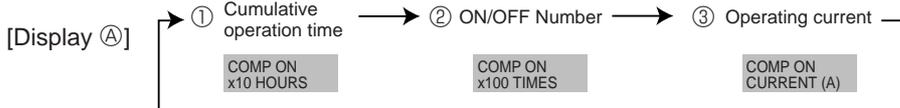
➔(4) Press the [TEMP] buttons (and) to select the desired refrigerant address.



➔(5) Select the type of data to be displayed.
After selecting, go to step (6).

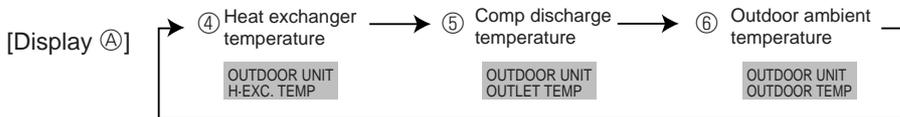
Compressor information

MENU button



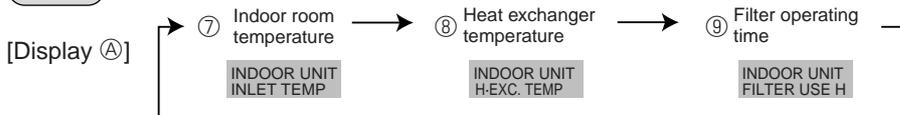
Outdoor unit information

ON/OFF button



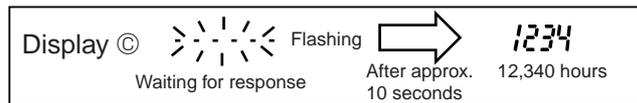
Indoor unit information

button



(6) Press the **FILTER** () button to confirm the setting.

[Display example for accumulated operating time]



(7) Data is displayed on the display (at ㉔).

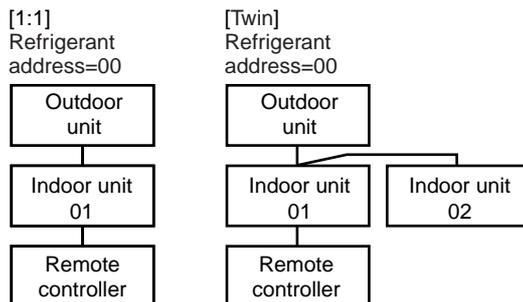
To check the data for each item, repeat steps (5) to (7).

(8) To cancel maintenance mode, press the **TEST** button for three seconds or press the ON/OFF button.

■ **Refrigerant address**

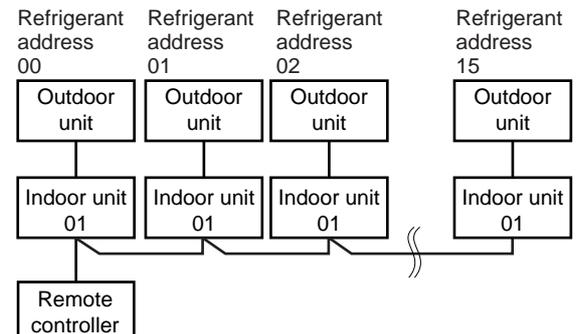
Single refrigerant system

In the case of single refrigerant system, the refrigerant address is "00" and no operation is required.
Simultaneous twin, triple and quad units belong to this category (single refrigerant system).



Multi refrigerant system (group control)

Up to 16 refrigerant systems (16 outdoor units) can be connected as a group by one remote controller. To check or set the refrigerant addresses.



12-2.GUIDE FOR OPERATION CONDITION

| Inspection item | | Result | |
|-----------------|------------------------------|---|------------------------|
| Power supply | Loose connection | Breaker | Good Retightened |
| | | Outdoor Unit | Good Retightened |
| | | Indoor Unit | Good Retightened |
| Power supply | | (Insulation resistance) | MΩ |
| | | (Voltage) | V |
| Compressor | ① Accumulated operating time | | Time |
| | ② Number of ON/OFF times | | Times |
| | ③ Current | | A |
| Outdoor Unit | Temperature | ④ Refrigerant/heat exchanger temperature | COOL °C HEAT °C |
| | | ⑤ Refrigerant/discharge temperature | COOL °C HEAT °C |
| | | ⑥ Air/outside air temperature (Air/discharge temperature) | COOL °C HEAT °C |
| | Cleanliness | Appearance | Good Cleaning required |
| | | Heat exchanger | Good Cleaning required |
| | | Sound/vibration | None Present |
| Indoor Unit | Temperature | ⑦ Air/intake air temperature (Air/discharge temperature) | COOL °C HEAT °C |
| | | ⑧ Refrigerant/heat exchanger temperature | COOL °C HEAT °C |
| | | ⑨ Filter operating time* | |
| | Cleanliness | Decorative panel | Good Cleaning required |
| | | Filter | Good Cleaning required |
| | | Fan | Good Cleaning required |
| | Heat exchanger | Good Cleaning required | |
| | Sound/vibration | None Present | |

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

| Area | Check item | Judgment | |
|-------------------|--|----------|------|
| | | Cool | Heat |
| Normal | Normal operation state | | |
| Filter inspection | Filter may be clogged. *1 | | |
| Inspection A | Performance has dropped. Detailed inspection is necessary. | | |
| Inspection B | Refrigerant amount is dropping. | | |
| Inspection C | Filter or indoor heat exchanger may be clogged. | | |

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

Check Points

Enter the temperature differences between ⑤, ④, ⑦ 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.

| Classification | Item | Result | |
|----------------|------------------------|---|----|
| Cool | Inspection | Is "D000" displayed stably on the remote controller? | |
| | Temperature difference | (⑤ Discharge temperature) – (④ Outdoor heat exchanger temperature) | °C |
| | | (⑦ Indoor intake air temperature) – (⑧ Indoor heat exchanger temperature) | °C |
| Heat | Inspection | Is "D000" displayed stably on the remote controller? | |
| | Temperature difference | (⑤ Discharge temperature) – (⑧ Indoor heat exchanger temperature) | °C |
| | | (⑧ Indoor heat exchanger temperature) – (⑦ Indoor intake air temperature) | °C |

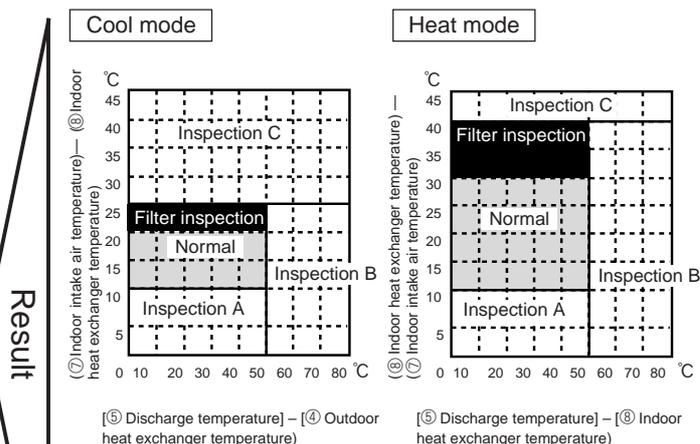
* Fixed Hz operation may not be possible under the following temperature ranges.

A) In cool mode, outdoor intake air temperature is 40 °C or higher or indoor intake air temperature is 23 °C or lower

B) In heat mode, outdoor intake air temperature is 20 °C or higher or indoor intake air temperature is 25 °C or lower

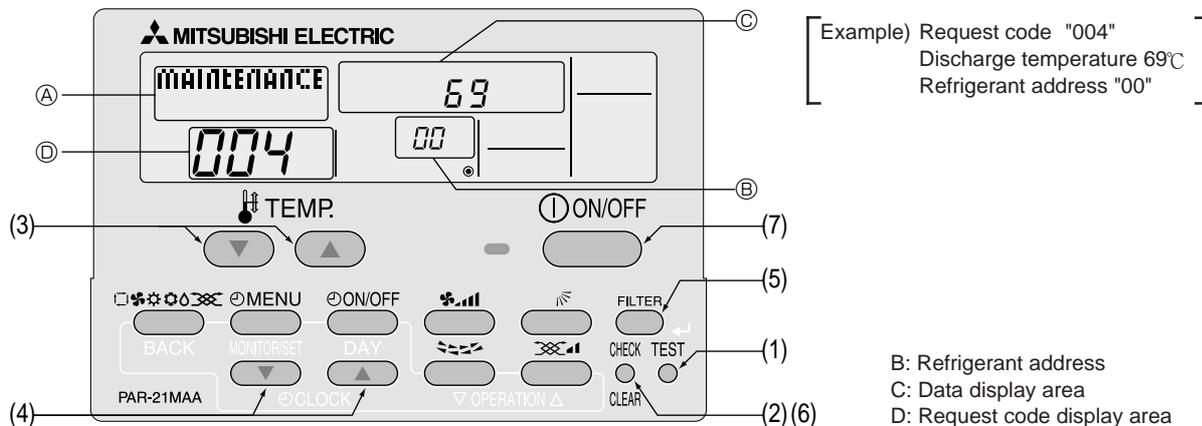
* If the air conditioner is operated at a temperature range other than the ones above but operation is not stabilized after 30 minutes or more have elapsed, carry out inspection.

* In heat mode, the operation state may vary due to frost forming on the outdoor heat exchanger.



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

- Turn on the [Monitoring the operation data]



(1) Press the **TEST** button for three seconds so that [Maintenance mode] appears on the screen (at ④).

(2) Press the **CHECK** button for three seconds to switch to [Maintenance monitor].

Note) It is not possible to switch to [Maintenance monitor] during data request in maintenance mode (i.e., while "----" is flashing) since no buttons are operative.

- Operating the service inspection monitor

[- - -] appears on the screen (at ⑤) when [Maintenance monitor] is activated.

(The display (at ⑤) now allows you to set a request code No.)

(3) Press the [TEMP] buttons (**▽** and **△**) to select the desired refrigerant address.

[Screen ⑤] → **00** ↔ **01** ↔ ↔ **15** ←

(4) Press the [CLOCK] buttons (**▽** and **△**) to set the desired request code No.

(5) Press the **FILTER** button to perform data request.

(The requested data will be displayed at ⑥ in the same way as in maintenance mode.)

Data collected during operation of the remote controller will be displayed.

The collected data such as temperature data will not be updated automatically even if the data changes.

To display the updated data, carry out step (4) again.

- Canceling the Monitoring the operation data

(6) While [Maintenance monitor] is displayed, press the **CHECK** button for three seconds to return to maintenance mode.

(7) To return to normal mode, press the **ON/OFF** button.

13-2. REQUEST CODE LIST

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

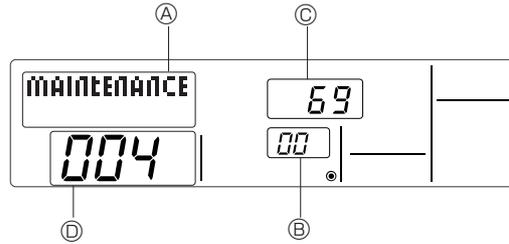
| Request code | Request content | Description (Display range) | Unit | Remarks |
|--------------|---|---|-----------|--|
| 0 | Operation state | Refer to 13-2-1. Detail Contents in Request Code. | – | |
| 1 | Compressor-Operating current (rms) | 0 – 50 | A | |
| 2 | Compressor-Accumulated operating time | 0 – 9999 | 10 hours | |
| 3 | Compressor-Number of operation times | 0 – 9999 | 100 times | |
| 4 | Discharge temperature (TH4) | 3 – 217 | ℃ | |
| 5 | Outdoor unit - Liquid pipe 1 temperature (TH3) | -40 – 90 | ℃ | |
| 6 | Outdoor unit - Liquid pipe 2 temperature | -40 – 90 | ℃ | |
| 7 | Outdoor unit-2-phase pipe temperature (TH6) | -39 – 88 | ℃ | |
| 8 | | | | |
| 9 | Outdoor unit-Outside air temperature (TH7) | -39 – 88 | ℃ | |
| 10 | Outdoor unit-Heat sink temperature (TH8) | -40 – 200 | ℃ | |
| 11 | | | | |
| 12 | Discharge super heat (SHd) | 0 – 255 | ℃ | |
| 13 | Sub-cool (SC) | 0 – 130 | ℃ | |
| 14 | | | | |
| 15 | | | | |
| 16 | Compressor-Operating frequency | 0 – 255 | Hz | |
| 17 | Compressor-Target operating frequency | 0 – 255 | Hz | |
| 18 | Outdoor unit-Fan output step | 0 – 10 | Step | |
| 19 | Outdoor unit-Fan 1 speed (Only for air conditioners with DC fan motor) | 0 – 9999 | rpm | |
| 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 | | | | |
| 22 | LEV (A) opening | 0 – 500 | Pulses | |
| 23 | LEV (B) opening | 0 – 500 | Pulses | |
| 24 | | | | |
| 25 | Primary current | 0 – 50 | A | |
| 26 | DC bus voltage | 180 – 370 | V | |
| 27 | | | | |
| 28 | | | | |
| 29 | Number of connected indoor units | 0 – 4 | Units | |
| 30 | Indoor unit-Setting temperature | 17 – 30 | ℃ | |
| 31 | Indoor unit-Intake air temperature <Measured by thermostat> | 8 – 39 | ℃ | |
| 32 | Indoor unit-Intake air temperature (Unit No. 1) <Heat mode-4-deg correction> | 8 – 39 | ℃ | "0" is displayed if the target unit is not present. |
| 33 | Indoor unit-Intake air temperature (Unit No. 2) <Heat mode-4-deg correction> | 8 – 39 | ℃ | ↑ |
| 34 | Indoor unit-Intake air temperature (Unit No. 3) <Heat mode-4-deg correction> | 8 – 39 | ℃ | ↑ |
| 35 | Indoor unit-Intake air temperature (Unit No. 4) <Heat mode-4-deg correction> | 8 – 39 | ℃ | ↑ |
| 36 | | | | |
| 37 | Indoor unit - Liquid pipe temperature (Unit No. 1) | -39 – 88 | ℃ | "0" is displayed if the target unit is not present. |
| 38 | Indoor unit - Liquid pipe temperature (Unit No. 2) | -39 – 88 | ℃ | ↑ |
| 39 | Indoor unit - Liquid pipe temperature (Unit No. 3) | -39 – 88 | ℃ | ↑ |
| 40 | Indoor unit - Liquid pipe temperature (Unit No. 4) | -39 – 88 | ℃ | ↑ |
| 41 | | | | |
| 42 | Indoor unit-Cond./Eva. pipe temperature (Unit No. 1) | -39 – 88 | ℃ | "0" is displayed if the target unit is not present. |
| 43 | Indoor unit-Cond./Eva. pipe temperature (Unit No. 2) | -39 – 88 | ℃ | ↑ |
| 44 | Indoor unit-Cond./Eva. pipe temperature (Unit No. 3) | -39 – 88 | ℃ | ↑ |
| 45 | Indoor unit-Cond./Eva. pipe temperature (Unit No. 4) | -39 – 88 | ℃ | ↑ |
| 46 | | | | |
| 47 | | | | |
| 48 | Thermostat ON operating time | 0 – 999 | Minutes | |
| 49 | Test run elapsed time | 0 – 120 | Minutes | ← Not possible to activate maintenance mode during the test run. |

| Request code | Request content | Description (Display range) | Unit | Remarks |
|--------------|--|---|------|---------|
| 50 | Indoor unit-Control state | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 51 | Outdoor unit-Control state | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 52 | Compressor-Frequency control state | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 53 | Outdoor unit-Fan control state | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 54 | Actuator output state | | — | |
| 55 | Error content (U9) | | — | |
| 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 | Outdoor unit-SW1 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 74 | Outdoor unit-SW2 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 75 | | | | |
| 76 | Outdoor unit-SW4 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 77 | Outdoor unit-SW5 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 78 | Outdoor unit-SW6 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 79 | Outdoor unit-SW7 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 80 | Outdoor unit-SW8 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 81 | Outdoor unit-SW9 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 82 | Outdoor unit-SW10 setting information | Refer to 13-2-1.Detail Contents in Request Code. | — | |
| 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-Microcomputer version information | Examples) Ver 5.01 → "0501" | Ver | |
| 91 | Outdoor unit-Microcomputer version information (sub No.) | Auxiliary information (displayed after version information) Examples) Ver 5.01 A000 → "A000" | — | |
| 92 | | | | |
| 93 | | | | |
| 94 | | | | |
| 95 | | | | |
| 96 | | | | |
| 97 | | | | |
| 98 | | | | |
| 99 | | | | |
| 100 | Outdoor unit - Error postponement history 1 (latest) | Displays postponement code. (" - " is displayed if no postponement code is present) | Code | |
| 101 | Outdoor unit - Error postponement history 2 (previous) | Displays postponement code. (" - " is displayed if no postponement code is present) | Code | |
| 102 | Outdoor unit - Error postponement history 3 (last but one) | Displays postponement code. (" - " is displayed if no postponement code is present) | Code | |

| 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 | |
| 106 | Abnormal thermistor display (TH3/TH6/TH7/TH8) | 3 : TH3 6 : TH6 7 : TH7 8 : TH8 0 : No thermistor error | Sensor number | |
| 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 | A | |
| 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 | 3 – 217 | °C | |
| 112 | Outdoor unit - Liquid pipe 1 temperature (TH3) at time of error | -40 – 90 | °C | |
| 113 | Outdoor unit - Liquid pipe 2 temperature at time of error | -40 – 90 | °C | |
| 114 | Outdoor unit-2-phase pipe temperature (TH6) at time of error | -39 – 88 | °C | |
| 115 | | | | |
| 116 | Outdoor unit-Outside air temperature (TH7) at time of error | -39 – 88 | °C | |
| 117 | Outdoor unit-Heat sink temperature (TH8) at time of error | -40 – 200 | °C | |
| 118 | Discharge super heat (SHd) at time of error | 0 – 255 | °C | |
| 119 | Sub-cool (SC) at time of error | 0 – 130 | °C | |
| 120 | Compressor-Operating frequency at time of error | 0 – 255 | Hz | |
| 121 | Outdoor unit at time of error • 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 | | | | |
| 130 | Thermostat ON time until operation stops due to error | 0 – 999 | Minutes | |
| 131 | | | | |
| 132 | Indoor - Liquid pipe temperature at time of error | -39 – 88 | °C | Average value of all indoor units is displayed if the air conditioner consists of two or more indoor units (twin, triple, quad). |
| 133 | Indoor-2-phase pipe temperature at time of error | -39 – 88 | °C | Average value of all indoor units is displayed if the air conditioner consists of two or more indoor units (twin, triple, quad). |
| 134 | Indoor at time of error • Intake air temperature <Thermostat judge temperature> | -39 – 88 | °C | |
| 135 | | | | |
| 136 | | | | |
| 137 | | | | |
| 138 | | | | |
| 139 | | | | |
| 140 | | | | |
| ~ | | | | |
| 146 | | | | |
| 147 | | | | |
| 148 | | | | |
| 149 | | | | |
| 150 | Indoor-Actual intake air temperature | -39 – 88 | °C | |
| 151 | Indoor - Liquid pipe temperature | -39 – 88 | °C | |
| 152 | Indoor-2-phase pipe temperature | -39 – 88 | °C | |

| 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-Microcomputer version information | Examples) Ver 5.01 → "0501" | Ver | |
| 191 | Indoor unit-Microcomputer 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 collect data. It is 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

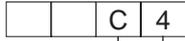


[Example) Request code "004"
Discharge temperature 69°C
Refrigerant address "00"]

B: Refrigerant address
C: Data display area
D: Request code display area

[Operation state] (Request code "0")

Data display



Relay output state
Operation mode

Operation mode

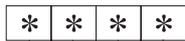
| Display | Operation mode |
|---------|----------------|
| 0 | STOP • FAN |
| C | COOL • DRY |
| H | HEAT |
| d | Defrost |

Relay output state

| 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 | | | |
| A | ON | | ON | |

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

Data display



Unit No. 4 state
Unit No. 3 state
Unit No. 2 state
Unit No. 1 state

| 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 | 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



Frequency control state ②
Frequency control state ①

Frequency control state ①

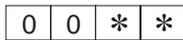
| Display | Current limit control |
|---------|--|
| 0 | No current limit |
| 1 | Primary current limit control is ON. |
| 2 | Secondary current limit control is ON. |

Frequency control state ②

| Display | Discharge temperature overheat prevention | Condensation temperature overheat prevention | Anti-freeze protection control | Heat sink temperature 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 |
| A | | Controlled | | Controlled |
| b | Controlled | Controlled | | Controlled |
| C | | | Controlled | Controlled |
| d | Controlled | | Controlled | Controlled |
| E | | Controlled | Controlled | Controlled |
| F | Controlled | Controlled | Controlled | Controlled |

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

Data display



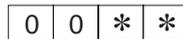
Fan step correction value by heat sink temperature overheat prevention control

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")

Data display



Actuator output state ①

Actuator output state ②

Actuator output state ①

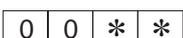
| Display | SV1 | Four-way valve | Compressor | Compressor is warming up |
|---------|-----|----------------|------------|--------------------------|
| 0 | | | | |
| 1 | ON | | | |
| 2 | | ON | | |
| 3 | ON | ON | | |
| 4 | | | ON | |
| 5 | ON | | ON | |
| 6 | | ON | ON | |
| 7 | ON | ON | ON | |
| 8 | | | | ON |
| 9 | ON | | | ON |
| A | | ON | | ON |
| b | ON | ON | | ON |
| C | | | 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")

Data display



Error content ①

Error content ②

Error content ①

● : Detected

| Display | Overvoltage error | Undervoltage error | L ₁ -phase open error | Power synchronizing signal error |
|---------|-------------------|--------------------|----------------------------------|----------------------------------|
| 0 | | | | |
| 1 | ● | | | |
| 2 | | ● | | |
| 3 | ● | ● | | |
| 4 | | | ● | |
| 5 | ● | | ● | |
| 6 | | ● | ● | |
| 7 | ● | ● | ● | |
| 8 | | | | ● |
| 9 | ● | | | ● |
| A | | ● | | ● |
| b | ● | ● | | ● |
| C | | | ● | ● |
| d | ● | | ● | ● |
| E | | ● | ● | ● |
| F | ● | ● | ● | ● |

Error content ②

● : 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 | |
|---------|---------------|---------|-------|
| | | SW7-1 | SW7-2 |
| 0 | 0% | | |
| 1 | 50% | ON | |
| 2 | 75% | | ON |
| 3 | 100% | ON | ON |

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

Data display

| | | | |
|---|---|---|---|
| 0 | 0 | 0 | * |
|---|---|---|---|

 Input state

Input state

● : Input present

| Display | Contact demand input | Silent mode input | Spare 1 input | Spare 2 input |
|---------|----------------------|-------------------|---------------|---------------|
| 0 | | | | |
| 1 | ● | | | |
| 2 | | ● | | |
| 3 | ● | ● | | |
| 4 | | | ● | |
| 5 | ● | | ● | |
| 6 | | ● | ● | |
| 7 | ● | ● | ● | |
| 8 | | | | ● |
| 9 | ● | | | ● |
| A | | ● | | ● |
| b | ● | ● | | ● |
| C | | | ● | ● |
| d | ● | | ● | ● |
| E | | ● | ● | ● |
| F | ● | ● | ● | ● |

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

| Data display | Capacity |
|--------------|----------|
| 9 | 35 |
| 10 | 50 |
| 11 | 60 |
| 14 | 71 |
| 20 | 100 |
| 25 | 125 |
| 28 | 140 |
| 40 | 200 |
| 50 | 250 |

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

Data display

| | | | |
|---|---|---|---|
| 0 | 0 | * | * |
|---|---|---|---|

 Setting information ①
Setting information ②

Setting information ①

| Display | Defrost mode |
|---------|-------------------|
| 0 | Standard |
| 1 | For high humidity |

Setting information ②

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

[Outdoor unit switch setting display (SW1 to SW10, except SW3)] Request codes: 73 to 82

0: Swich OFF 1: Swich ON

| SW1, SW2, SW6, SW7 | | | | | | Data display |
|--------------------|---|---|---|---|---|--------------|
| 1 | 2 | 3 | 4 | 5 | 6 | |
| 0 | 0 | 0 | 0 | 0 | 0 | 00 00 |
| 1 | 0 | 0 | 0 | 0 | 0 | 00 01 |
| 0 | 1 | 0 | 0 | 0 | 0 | 00 02 |
| 1 | 1 | 0 | 0 | 0 | 0 | 00 03 |
| 0 | 0 | 1 | 0 | 0 | 0 | 00 04 |
| 1 | 0 | 1 | 0 | 0 | 0 | 00 05 |
| 0 | 1 | 1 | 0 | 0 | 0 | 00 06 |
| 1 | 1 | 1 | 0 | 0 | 0 | 00 07 |
| 0 | 0 | 0 | 1 | 0 | 0 | 00 08 |
| 1 | 0 | 0 | 1 | 0 | 0 | 00 09 |
| 0 | 1 | 0 | 1 | 0 | 0 | 00 0A |
| 1 | 1 | 0 | 1 | 0 | 0 | 00 0b |
| 0 | 0 | 1 | 1 | 0 | 0 | 00 0C |
| 1 | 0 | 1 | 1 | 0 | 0 | 00 0d |
| 0 | 1 | 1 | 1 | 0 | 0 | 00 0E |
| 1 | 1 | 1 | 1 | 0 | 0 | 00 0F |
| 0 | 0 | 0 | 0 | 1 | 0 | 00 10 |
| 1 | 0 | 0 | 0 | 1 | 0 | 00 11 |
| 0 | 1 | 0 | 0 | 1 | 0 | 00 12 |
| 1 | 1 | 0 | 0 | 1 | 0 | 00 13 |
| 0 | 0 | 1 | 0 | 1 | 0 | 00 14 |
| 1 | 0 | 1 | 0 | 1 | 0 | 00 15 |
| 0 | 1 | 1 | 0 | 1 | 0 | 00 16 |
| 1 | 1 | 1 | 0 | 1 | 0 | 00 17 |
| 0 | 0 | 0 | 1 | 1 | 0 | 00 18 |
| 1 | 0 | 0 | 1 | 1 | 0 | 00 19 |
| 0 | 1 | 0 | 1 | 1 | 0 | 00 1A |
| 1 | 1 | 0 | 1 | 1 | 0 | 00 1B |
| 0 | 0 | 1 | 1 | 1 | 0 | 00 1C |
| 1 | 0 | 1 | 1 | 1 | 0 | 00 1D |
| 0 | 1 | 1 | 1 | 1 | 0 | 00 1E |
| 1 | 1 | 1 | 1 | 1 | 0 | 00 1F |
| 0 | 0 | 0 | 0 | 0 | 1 | 00 20 |
| 1 | 0 | 0 | 0 | 0 | 1 | 00 21 |
| 0 | 1 | 0 | 0 | 0 | 1 | 00 22 |
| 1 | 1 | 0 | 0 | 0 | 1 | 00 23 |
| 0 | 0 | 1 | 0 | 0 | 1 | 00 24 |
| 1 | 0 | 1 | 0 | 0 | 1 | 00 25 |
| 0 | 1 | 1 | 0 | 0 | 1 | 00 26 |
| 1 | 1 | 1 | 0 | 0 | 1 | 00 27 |
| 0 | 0 | 0 | 1 | 0 | 1 | 00 28 |
| 1 | 0 | 0 | 1 | 0 | 1 | 00 29 |
| 0 | 1 | 0 | 1 | 0 | 1 | 00 2A |
| 1 | 1 | 0 | 1 | 0 | 1 | 00 2B |
| 0 | 0 | 1 | 1 | 0 | 1 | 00 2C |
| 1 | 0 | 1 | 1 | 0 | 1 | 00 2D |
| 0 | 1 | 1 | 1 | 0 | 1 | 00 2E |
| 1 | 1 | 1 | 1 | 0 | 1 | 00 2F |
| 0 | 0 | 0 | 0 | 1 | 1 | 00 30 |
| 1 | 0 | 0 | 0 | 1 | 1 | 00 31 |
| 0 | 1 | 0 | 0 | 1 | 1 | 00 32 |
| 1 | 1 | 0 | 0 | 1 | 1 | 00 33 |
| 0 | 0 | 1 | 0 | 1 | 1 | 00 34 |
| 1 | 0 | 1 | 0 | 1 | 1 | 00 35 |
| 0 | 1 | 1 | 0 | 1 | 1 | 00 36 |
| 1 | 1 | 1 | 0 | 1 | 1 | 00 37 |
| 0 | 0 | 0 | 1 | 1 | 1 | 00 38 |
| 1 | 0 | 0 | 1 | 1 | 1 | 00 39 |
| 0 | 1 | 0 | 1 | 1 | 1 | 00 3A |
| 1 | 1 | 0 | 1 | 1 | 1 | 00 3B |
| 0 | 0 | 1 | 1 | 1 | 1 | 00 3C |
| 1 | 0 | 1 | 1 | 1 | 1 | 00 3D |
| 0 | 1 | 1 | 1 | 1 | 1 | 00 3E |
| 1 | 1 | 1 | 1 | 1 | 1 | 00 3F |

0: Swich OFF 1: Swich ON

| SW5 | | | | Data display |
|-----|---|---|---|--------------|
| 1 | 2 | 3 | 4 | |
| 0 | 0 | 0 | 0 | 00 00 |
| 1 | 0 | 0 | 0 | 00 01 |
| 0 | 1 | 0 | 0 | 00 02 |
| 1 | 1 | 0 | 0 | 00 03 |
| 0 | 0 | 1 | 0 | 00 04 |
| 1 | 0 | 1 | 0 | 00 05 |
| 0 | 1 | 1 | 0 | 00 06 |
| 1 | 1 | 1 | 0 | 00 07 |
| 0 | 0 | 0 | 1 | 00 08 |
| 1 | 0 | 0 | 1 | 00 09 |
| 0 | 1 | 0 | 1 | 00 0A |
| 1 | 1 | 0 | 1 | 00 0b |
| 0 | 0 | 1 | 1 | 00 0C |
| 1 | 0 | 1 | 1 | 00 0d |
| 0 | 1 | 1 | 1 | 00 0E |
| 1 | 1 | 1 | 1 | 00 0F |

0: Swich OFF 1: Swich ON

| SW8 | | | Data display |
|-----|---|---|--------------|
| 1 | 2 | 3 | |
| 0 | 0 | 0 | 00 00 |
| 1 | 0 | 0 | 00 01 |
| 0 | 1 | 0 | 00 02 |
| 1 | 1 | 0 | 00 03 |
| 0 | 0 | 1 | 00 04 |
| 1 | 0 | 1 | 00 05 |
| 0 | 1 | 1 | 00 06 |
| 1 | 1 | 1 | 00 07 |

0: Swich OFF 1: Swich ON

| SW4, SW9, SW10 | | Data display |
|----------------|---|--------------|
| 1 | 2 | |
| 0 | 0 | 00 00 |
| 1 | 0 | 00 01 |
| 0 | 1 | 00 02 |
| 1 | 1 | 00 03 |

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

Data display

0 0 * *

See the table on the right.

| Display | Model setting state | Display | Model setting state |
|---------|------------------------------|---------|------------------------|
| 00 | PSA-RP•GA, PSH-PGAH | 20 | |
| 01 | | 21 | PKA-RP•FAL, PKH-P•FALH |
| 02 | PEAD-RP•EA(2)/GA, PEHD-P•EAH | 22 | PCA-RP•GA, PCH-P•GAH |
| 03 | SEZ-KA•VA | 23 | |
| 04 | | 24 | |
| 05 | SLZ-KA•VA(L) | 25 | |
| 06 | PCA-RP•HA | 26 | |
| 07 | | 27 | |
| 08 | | 28 | |
| 09 | | 29 | |
| 0A | | 2A | |
| 0b | | 2b | PKA-RP•GAL, PKH-P•GALH |
| 0C | | 2C | |
| 0d | | 2d | |
| 0E | | 2E | |
| 0F | | 2F | PLA-RP•AA |
| 10 | | 30 | |
| 11 | PEA-RP•EA | 31 | PLH-P•AAH |
| 12 | MEXZ-GA•VA(L) | 32 | |
| 13 | | 33 | |
| 14 | | 34 | |
| 15 | | 35 | |
| 16 | | 36 | PLA-RP•AA2 |
| 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)

Data display

0 0 * *

See the table on the right.

| Display | Capacity setting state | Display | Capacity setting state |
|---------|------------------------|---------|------------------------|
| 00 | 12 | 10 | 112 |
| 01 | 16 | 11 | 125 |
| 02 | 22 | 12 | 140 |
| 03 | 25 | 13 | 160 |
| 04 | 28 | 14 | 200 |
| 05 | 32 | 15 | 224 |
| 06 | 36 | 16 | 250 |
| 07 | 40 | 17 | 280 |
| 08 | 45 | 18 | |
| 09 | 50 | 19 | |
| 0A | 56 | 1A | |
| 0b | 63 | 1b | |
| 0C | 71 | 1C | |
| 0d | 80 | 1d | |
| 0E | 90 | 1E | |
| 0F | 100 | 1F | |

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

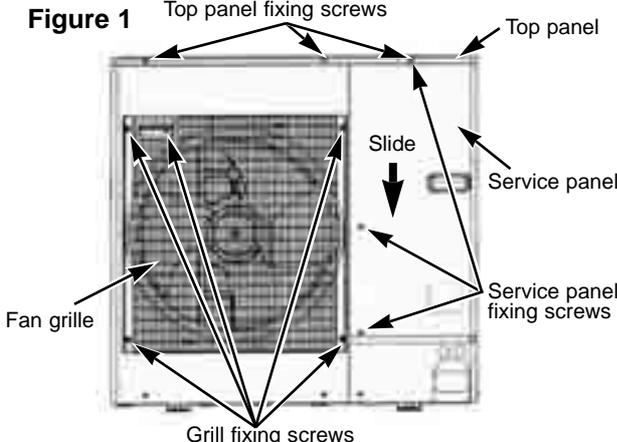
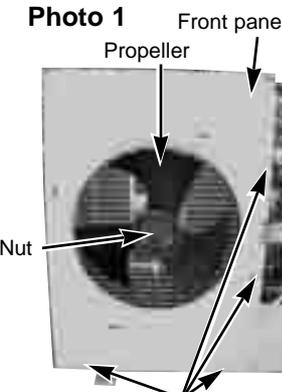
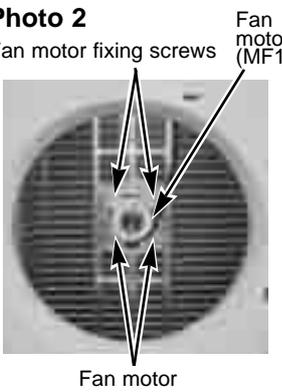
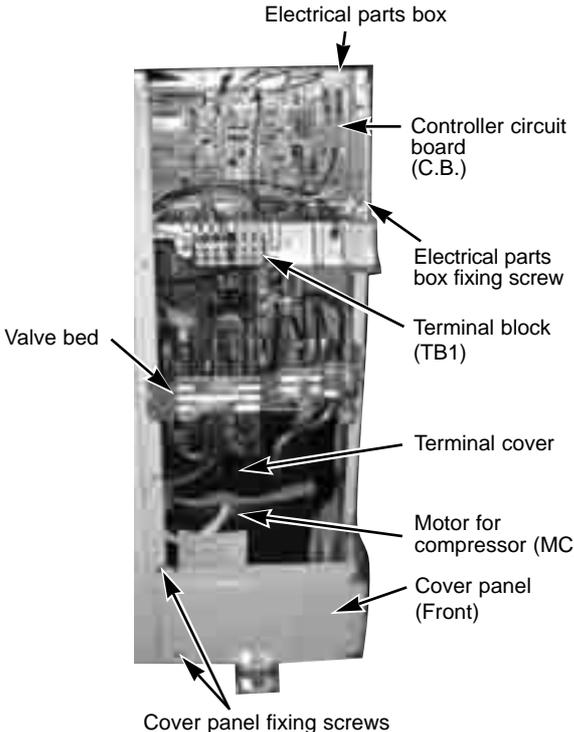
Data display

0 0 * *

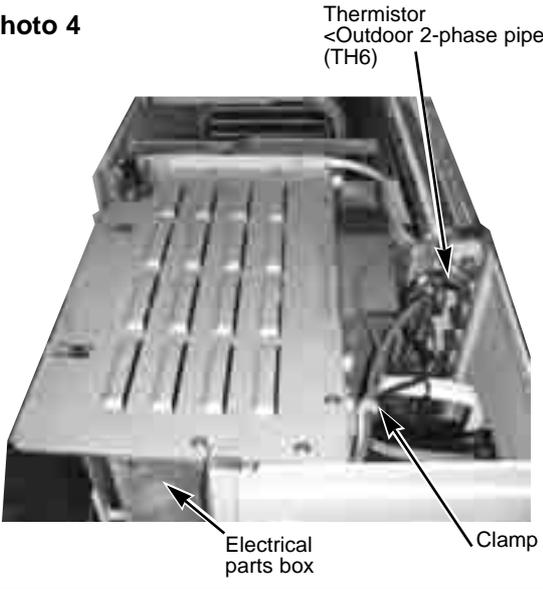
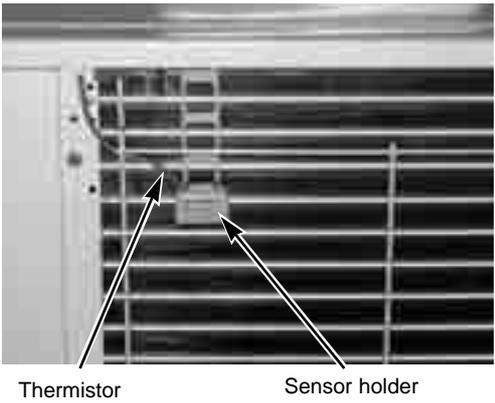
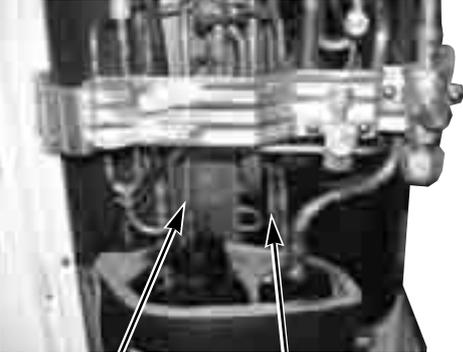
See the table on the right.

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

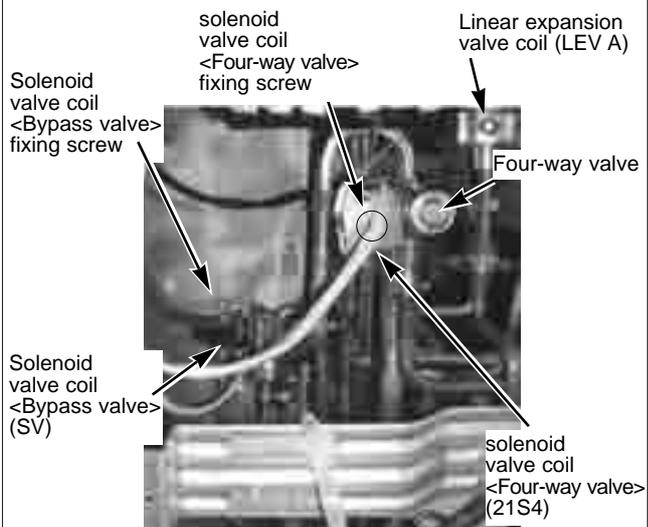
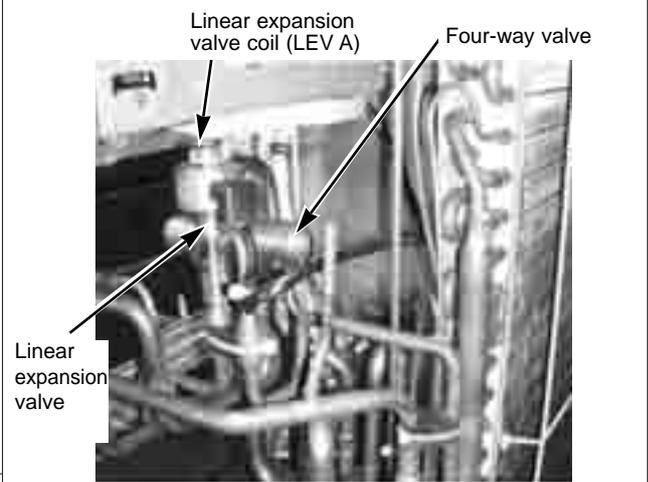
PUHZ-P100VHA.UK PUHZ-P125VHA.UK PUHZ-P140VHA.UK

| OPERATING PROCEDURE | PHOTOS & ILLUSTRATION |
|--|--|
| <p>1. Removing the service panel and top panel</p> <p>(1) Remove 3 service panel fixing screws (5 X 10) and slide the hook on the right downward to remove the service panel.</p> <p>(2) Remove screws (3 for front, 3 for rear/5 X 10) of the top panel and remove it.</p> | <p>Figure 1</p>  |
| <p>2. Removing the fan motor (MF1)</p> <p>(1) Remove the service panel. (See figure 1.)</p> <p>(2) Remove the top panel. (See figure 1.)</p> <p>(3) Remove 5 fan grille fixing screws (5 X 10) to detach the fan grille. (See figure 1.)</p> <p>(4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.)</p> <p>(5) Disconnect the connector CNF1 on controller circuit board in electrical parts box.</p> <p>(6) Remove 4 fan motor fixing screws (5 X 25) to detach the fan motor. (See photo 2.)</p> | <p>Photo 1</p>  <p>Photo 2</p>  |
| <p>3. Removing the electrical parts box</p> <p>(1) Remove the service panel. (See figure 1.)</p> <p>(2) Remove the top panel. (See figure 1.)</p> <p>(3) Disconnect the indoor/outdoor connecting wire from terminal block.</p> <p>(4) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor<Outdoor pipe>, thermistor<Discharge>, thermistor<Outdoor 2-phase pipe>, thermistor<Outdoor>, thermistor<Heat sink>, high pressure switch, four-way valve and bypass valve. Then remove a screw (4 X 8) from the valve bad to remove the lead wire. Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing></p> <ul style="list-style-type: none"> • Fan motor (CNF1) • Linear expansion valve (LEV-A) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH6/7) • Thermistor <Heat sink> (CN3) • High pressure switch (63H) • Solenoid valve coil <Four-way valve> (21S4) • Solenoid valve coil <Bypass valve> (SV2) <p>(5) Remove the terminal cover and disconnect the compressor lead wire.</p> <p>(6) Remove an electrical parts box fixing screw (4 X 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.</p> | <p>Photo 3</p>  |



| OPERATING PROCEDURE | PHOTOS |
|---|--|
| <p>4. Removing the thermistor <Outdoor 2-phase pipe> (TH6)</p> <ol style="list-style-type: none">(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 of the electrical parts box.(5) Pull out the thermistor <Outdoor 2-phase pipe> (TH6) from the sensor holder. <p>Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7), since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.</p> | <p>Photo 4</p>  <p>Thermistor <Outdoor 2-phase pipe> (TH6)</p> <p>Electrical parts box</p> <p>Clamp</p> |
| <p>5. Removing the thermistor <Outdoor> (TH7)</p> <ol style="list-style-type: none">(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 <Outdoor> (TH7) from the sensor holder. <p>Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.</p> | <p>Photo 5</p>  <p>Thermistor <Outdoor> (TH7)</p> <p>Sensor holder</p> |
| <p>6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4)</p> <ol style="list-style-type: none">(1) Remove the service panel. (See figure 1.)(2) Disconnect the connectors, TH3 (white) and TH4 (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 <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder. | <p>Photo 6</p>  <p>Thermistor <Discharge> (TH4)</p> <p>Thermistor <Outdoor pipe> (TH3)</p> |



| OPERATING PROCEDURE | PHOTOS |
|---|--|
| <p>7. Removing the solenoid valve coil <Four-way valve> (21S4), linear expansion valve coil (LEV(A)) and solenoid valve coil <Bypass valve> (SV)</p> <p>(1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.)</p> <p>[Removing the solenoid valve coil <Four-way valve>]</p> <p>(4) Remove solenoid valve coil <Four-way valve> fixing screw (M4 X 6). (5) Remove the solenoid valve coil <Four-way valve> by sliding the coil toward you. (6) Disconnect the connector 21S4 (green) on the controller board in the electrical parts box.</p> <p>[Removing the linear expansion valve coil]</p> <p>(4) Remove the linear expansion valve coil by sliding the coil upward. (5) Disconnect the connectors, LEV A (white), on the controller circuit board in the electrical parts box.</p> <p>[Removing the solenoid valve coil <Bypass valve>]</p> <p>(4) Remove the solenoid valve coil <Bypass valve> fixing screw (M4 X 6). (5) Remove the solenoid valve coil <Bypass valve> by sliding the coil upward. (6) Disconnect the connector SV2 (blue) on the controller circuit board in the electrical parts box.</p> | <p>Photo 7</p>  |
| <p>8. Removing the four-way valve</p> <p>(1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 valve bed fixing screws (4 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed. (5) Remove 3 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel. (6) Remove the solenoid valve coil <Four-way valve>. (See photo 7.) (7) Collect the refrigerant. (8) Remove the welded part of four-way valve.</p> <p>Note 1: Collect 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 (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.</p> | <p>Photo 8</p>  |
| <p>9. Removing the linear expansion valve</p> <p>(1) Remove the service panel. (See figure 1.) (2) Remove the top panel. (See figure 1.) (3) Remove the electrical parts box. (See photo 3.) (4) Remove 3 valve bed fixing screws (4 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed. (5) Remove 3 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel. (6) Remove the linear expansion valve. (See photo 7.) (7) Collect the refrigerant. (8) Remove the welded part of linear expansion valve.</p> <p>Note 1: Collect 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 linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.</p> | |

OPERATING PROCEDURE

10. Removing the bypass valve

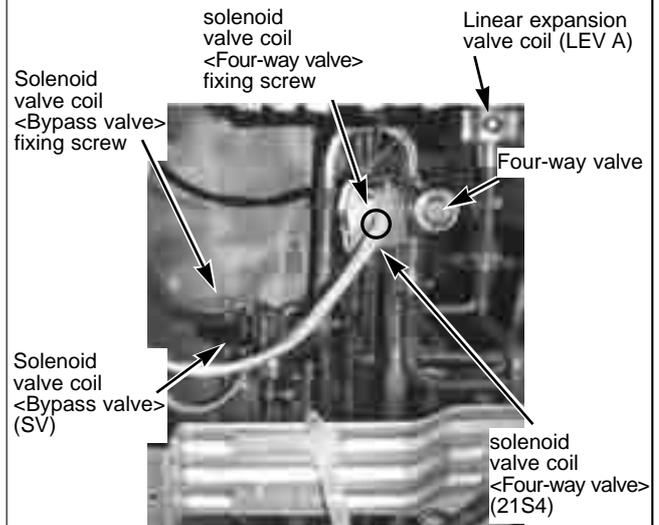
- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove the electrical parts box. (See photo 3.)
- (4) Remove 3 right side panel fixing screws (5 X 10) in the rear of the unit and remove the right side panel.
- (5) Remove the bypass valve solenoid coil. (See photo 7.).
- (6) Collect the refrigerant.
- (7) Remove the welded part of bypass valve.

Note 1: Collect refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

PHOTOS

Photo 9



11. Removing the high pressure switch (63H)

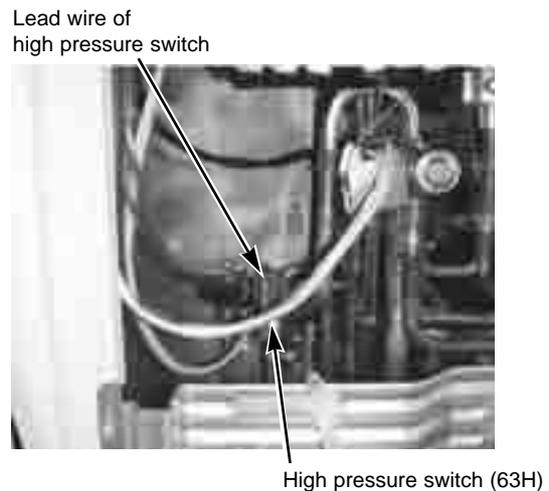
- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove the electrical parts box. (See photo 3.)
- (4) Remove 3 right side panel fixing screws (5 X 10) in the rear of the unit and remove the right side panel.
- (5) Pull out the lead wire of high pressure switch.
- (6) Collect the refrigerant.
- (7) Remove the welded part of high pressure switch.

Note 1: Collect 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 (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.

Photo 10

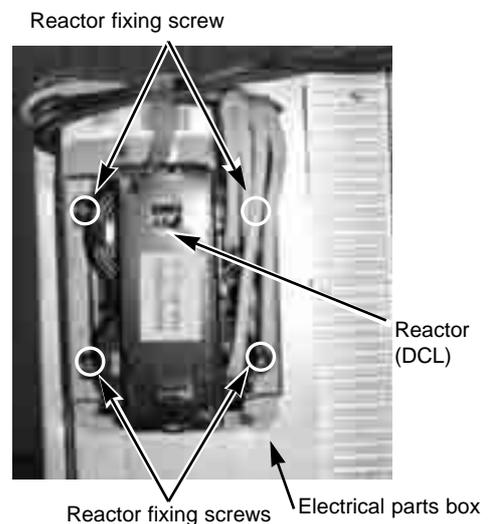


12. Removing the reactor (DCL)

- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove the electrical parts box. (See photo 3.)
- (4) Remove 4 reactor fixing screws (4 X 10) and remove the reactor.

※ The reactor is attached to the rear of the electrical parts box.

Photo 11



OPERATING PROCEDURE

13. Removing the motor for compressor (MC)

- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove 2 front cover panel fixing screws (5 X 10) and remove the front cover panel. (See photo 3.)
- (4) Remove 2 back cover panel fixing screws (5 X 10) and remove the back cover panel.
- (5) Remove the electrical parts box. (See photo 3.)
- (6) Remove 3 valve bed fixing screws (4 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel.
- (8) Remove 3 separator fixing screws (4 X 10) and remove the separator.
- (9) Collect the refrigerant.
- (10) Remove the 3 points of the motor for compressor fixing nut using a spanner or a monkey wrench.
- (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor.

Note: Collect refrigerant without spreading it in the air.

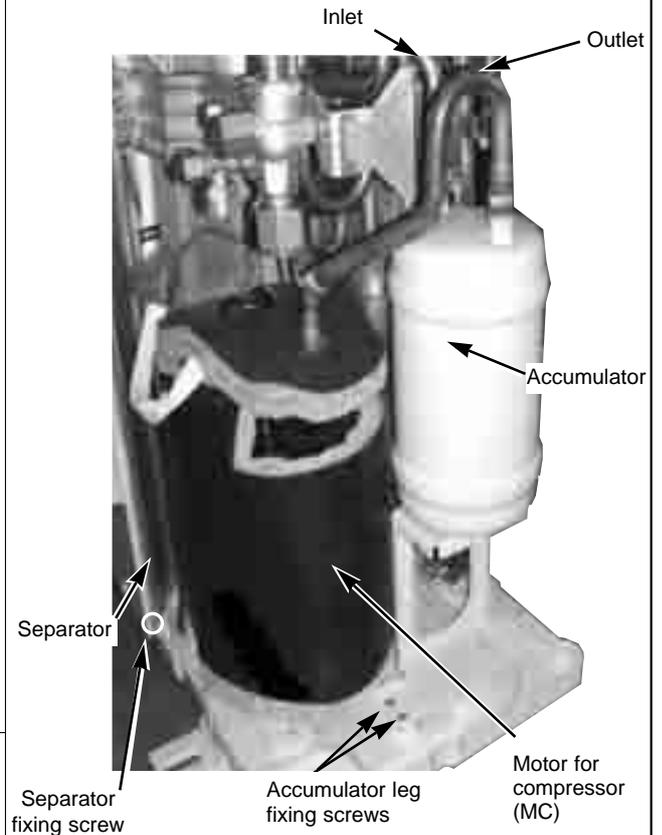
14. Removing the Accumulator

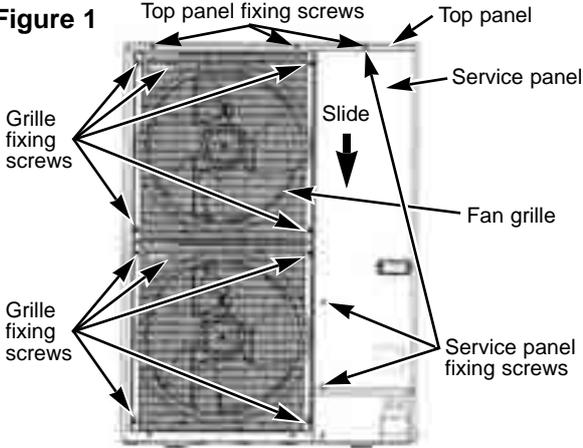
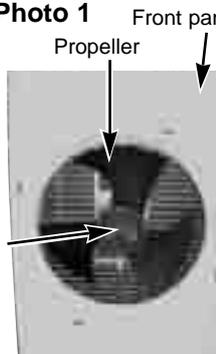
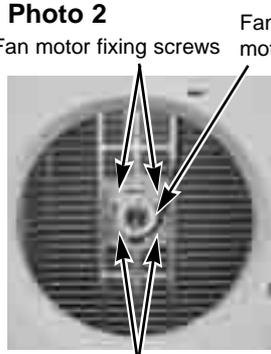
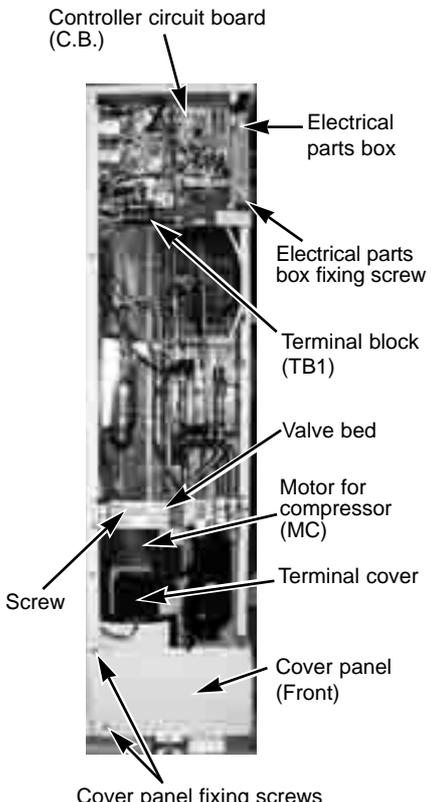
- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove 2 front cover panel fixing screws (5 X 10) and remove the front cover panel. (See photo 3.)
- (4) Remove 2 back cover panel fixing screws (5 X 10) and remove the back cover panel.
- (5) Remove the electrical parts box. (See photo 3.)
- (6) Remove 3 valve bed fixing screws (4 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel.
- (8) Collect the refrigerant.
- (9) Remove welded pipes of Accumulator inlet and outlet.
- (10) Remove 2 Accumulator leg fixing screws (4 X 10).

Note: Collect refrigerant without spreading it in the air.

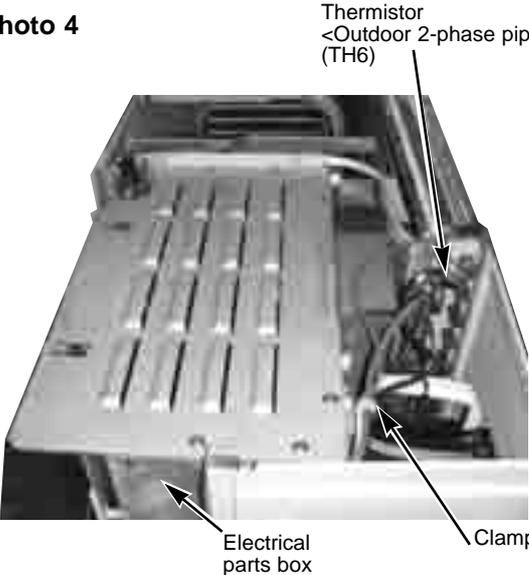
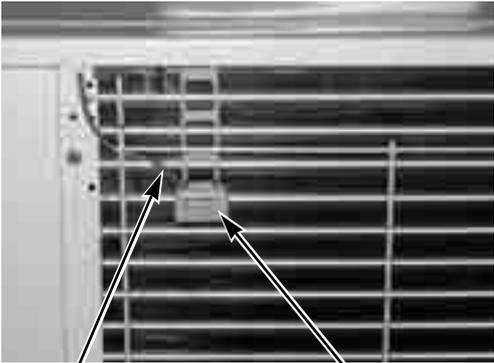
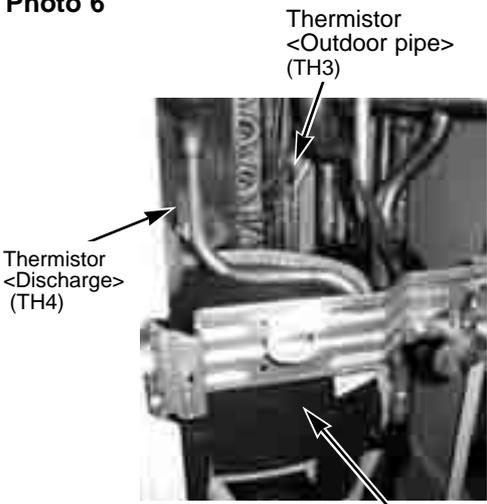
PHOTOS

Photo 12



| OPERATING PROCEDURE | PHOTOS & ILLUSTRATION |
|--|--|
| <p>1. Removing the service panel and top panel</p> <p>(1) Remove 3 service panel fixing screws (5 X 10) and slide the hook on the right downward to remove the service panel.</p> <p>(2) Remove screws (3 for front, 3 for rear/5 X 10) of the top panel and remove it.</p> | <p>Figure 1</p>  |
| <p>2. Removing the fan motor (MF1, MF2)</p> <p>(1) Remove the service panel. (See figure 1.)</p> <p>(2) Remove the top panel. (See figure 1.)</p> <p>(3) Remove 5 fan grille fixing screws (5 X 10) to detach the fan grille. (See figure 1.)</p> <p>(4) Remove a nut (for right handed screw of M6) to detach the propeller. (See photo 1.)</p> <p>(5) Disconnect the connectors, CNF1, CNF2 on controller circuit board in electrical parts box.</p> <p>(6) Remove 4 fan motor fixing screws (5 X 25) to detach the fan motor. (See photo 2.)</p> | <p>Photo 1</p>  <p>Photo 2</p>  |
| <p>3. Removing the electrical parts box</p> <p>(1) Remove the service panel. (See figure 1.)</p> <p>(2) Remove the top panel. (See figure 1.)</p> <p>(3) Disconnect the indoor/outdoor connecting wire from terminal block.</p> <p>(4) Remove all the following connectors from controller circuit board; fan motor, linear expansion valve, thermistor <Outdoor pipe>, thermistor <Discharge>, thermistor <Outdoor 2-phase pipe>, thermistor <Outdoor>, high pressure switch, solenoid valve coil <Four-way valve>.</p> <p>Then remove a screw (4 X 8) from the valve bad to remove the lead wire.</p> <p>Pull out the disconnected wire from the electrical parts box. <Diagram symbol in the connector housing></p> <ul style="list-style-type: none"> • Fan motor (CNF1, CNF2) • Linear expansion valve (LEV-A) • Thermistor <Outdoor pipe> (TH3) • Thermistor <Discharge> (TH4) • Thermistor <Outdoor 2-phase pipe, Outdoor> (TH6/7) • High pressure switch (63H) • Solenoid valve coil <Four-way valve> (21S4) <p>(5) Remove the terminal cover and disconnect the compressor lead wire.</p> <p>(6) Remove an electrical parts box fixing screw (4 X 10) and detach the electrical parts box by pulling it upward. The electrical parts box is fixed with 2 hooks on the left and 1 hook on the right.</p> | <p>Photo 3</p>  |



| OPERATING PROCEDURE | PHOTOS |
|---|--|
| <p>4. Removing the thermistor <Outdoor 2-phase pipe> (TH6)</p> <ol style="list-style-type: none">(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 <Outdoor 2-phase pipe> (TH6) from the sensor holder. <p>Note: In case of replacing thermistor <Outdoor 2-phase pipe> (TH6), replace it together with thermistor <Outdoor> (TH7) since they are combined together. Refer to No.5 below to remove thermistor <Outdoor>.</p> | <p>Photo 4</p>  <p>Thermistor <Outdoor 2-phase pipe> (TH6)</p> <p>Electrical parts box</p> <p>Clamp</p> |
| <p>5. Removing the thermistor <Outdoor> (TH7)</p> <ol style="list-style-type: none">(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 <Outdoor> (TH7) from the sensor holder. <p>Note: In case of replacing thermistor <Outdoor> (TH7), replace it together with thermistor <Outdoor 2-phase pipe> (TH6), since they are combined together. Refer to No.4 above to remove thermistor <Outdoor 2-phase pipe>.</p> | <p>Photo 5</p>  <p>Thermistor <Outdoor> (TH7)</p> <p>Sensor holder</p> |
| <p>6. Removing the thermistor <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4)</p> <ol style="list-style-type: none">(1) Remove the service panel. (See figure 1.)(2) Disconnect the connectors, TH3 (white) and TH4 (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 <Outdoor pipe> (TH3) and thermistor <Discharge> (TH4) from the sensor holder. | <p>Photo 6</p>  <p>Thermistor <Outdoor pipe> (TH3)</p> <p>Thermistor <Discharge> (TH4)</p> <p>Motor for compressor (MC)</p> |

OPERATING PROCEDURE

7. Removing the solenoid valve coil <Four-way valve> (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 solenoid valve coil <Four-way valve>]

- (3) Remove four-way valve solenoid coil fixing screw (M4 X 6).
- (4) Remove the solenoid valve coil <Four-way valve> 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]

- (3) Remove 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.

8. Removing the four-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 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed.
- (4) Remove 4 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel.
- (5) Remove the solenoid valve coil <Four-way valve>.
- (6) Collect the refrigerant.
- (7) Remove the welded part of four-way valve.

Note 1: Collect 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 (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.

9. Removing linear expansion 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 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed.
- (4) Remove 4 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel.
- (5) Remove the linear expansion valve.
- (6) Collect the refrigerant.
- (7) Remove the welded part of linear expansion valve.

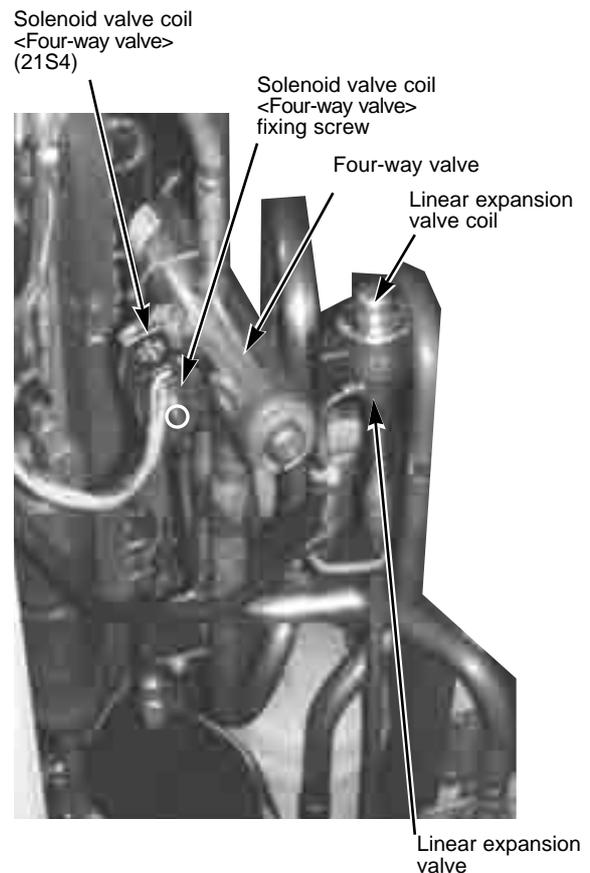
Note 1: Collect refrigerant without spreading it in the air.

Note 2: The welded part can be removed easily by removing the right side panel.

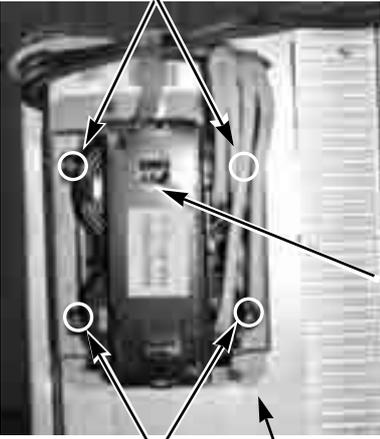
Note 3: When installing the linear expansion valve, cover it with a wet cloth to prevent it from heating (120°C or more), then braze the pipes so that the inside of pipes are not oxidized.

PHOTOS

Photo 7





| OPERATING PROCEDURE | PHOTOS |
|--|--|
| <p>10. Removing the high pressure switch (63H)</p> <ol style="list-style-type: none">(1) Remove the service panel. (See figure 1.)(2) Remove the top panel. (See figure 1.)(3) Remove 3 right side panel fixing screws (5 X 10) in the rear of the unit and remove the right side panel.(4) Pull out the lead wire of high pressure switch.(5) Collect the refrigerant.(6) Remove the welded part of high pressure switch. <p>Note 1: Collect refrigerant without spreading it in the air.</p> <p>Note 2: The welded part can be removed easily by removing the right side panel.</p> <p>Note 3: When installing the high pressure switch, cover it with a wet cloth to prevent it from heating (100°C or more), then braze the pipes so that the inside of pipes are not oxidized.</p> | <p>Photo 8</p> <p>Lead wire of high pressure switch High pressure switch (63H)</p>  |
| <p>11. Removing the reactor (DCL)</p> <ol style="list-style-type: none">(1) Remove the service panel. (See figure 1.)(2) Remove the top panel. (See figure 1.)(3) Remove the electrical parts box. (See photo 3.) <p><Removing the reactor></p> <ol style="list-style-type: none">(4) Remove 4 reactor fixing screws (4 X 10) and remove the reactor. <p>※ The reactor is attached to the rear of the electrical parts box.</p> | <p>Photo 9</p> <p>Reactor fixing screw</p>  <p>Reactor (DCL)</p> <p>Reactor fixing screws Electrical parts box</p> |

OPERATING PROCEDURE

12. Removing the motor for compressor (MC)

- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove 2 front cover panel fixing screws (5 X 10) and remove the front cover panel. (See photo 3.)
- (4) Remove 2 back cover panel fixing screws (5 X 10) and remove the back cover panel.
- (5) Remove the electrical parts box. (See photo 3.)
- (6) Remove 3 valve bed fixing screws (4 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel.
- (8) Remove 3 separator fixing screws (4 X 10) and remove the separator.
- (9) Collect the refrigerant.
- (10) Remove the 3 points of the motor for compressor fixing nut using a spanner or a monkey wrench.
- (11) Remove the welded pipe of motor for compressor inlet and outlet and then remove the compressor.

Note: Collect refrigerant without spreading it in the air.

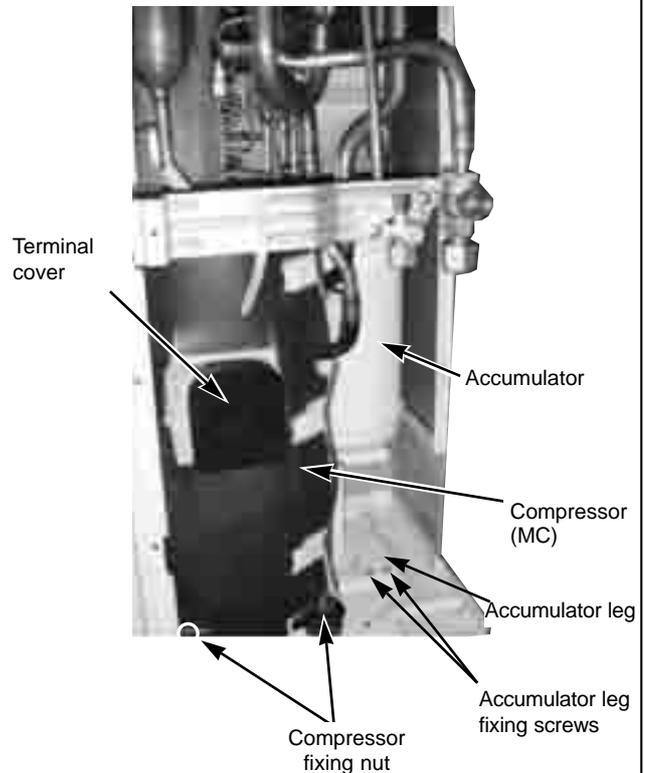
13. Removing the Accumulator

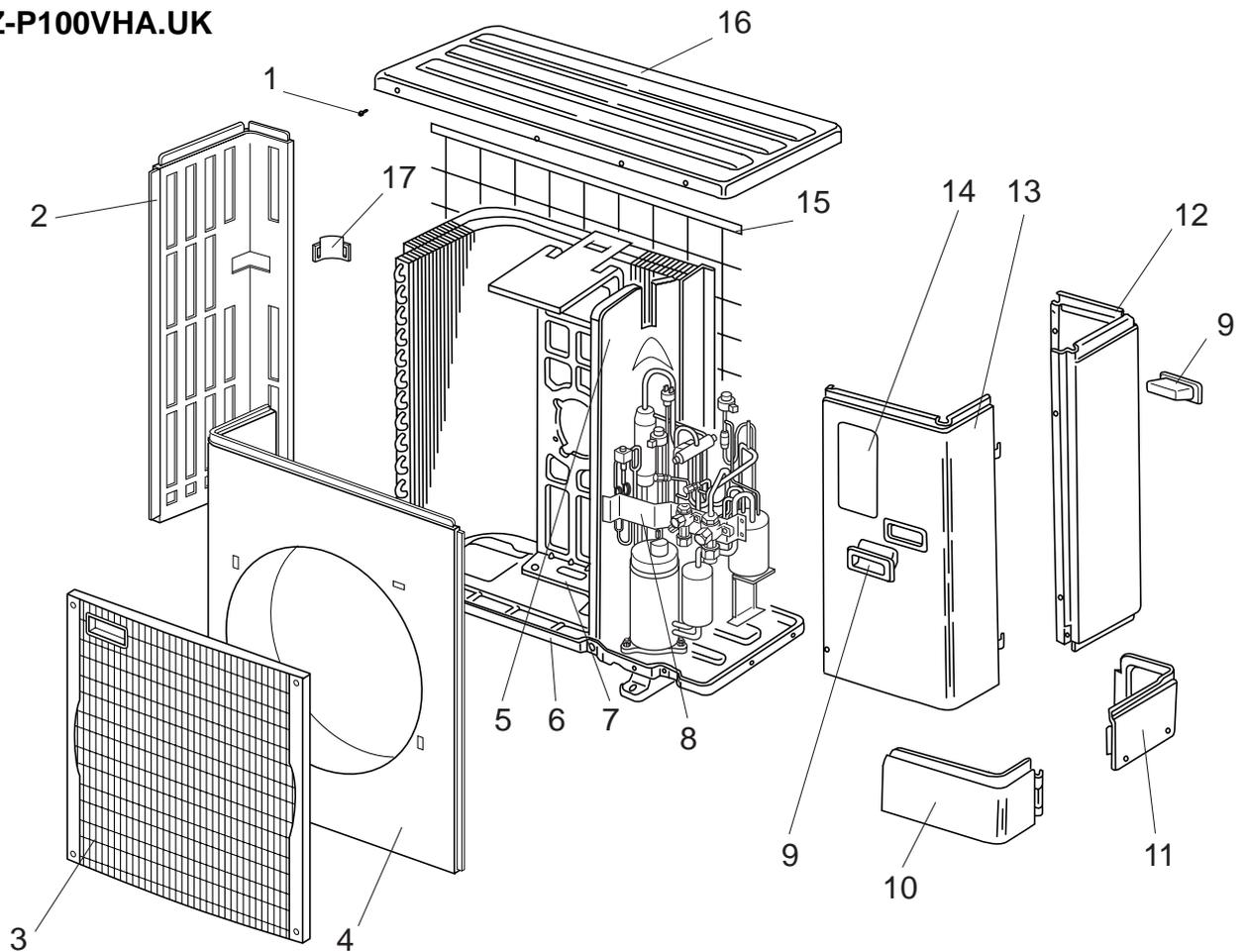
- (1) Remove the service panel. (See figure 1.)
- (2) Remove the top panel. (See figure 1.)
- (3) Remove 2 front cover panel fixing screws (5 X 10) and remove the front cover panel. (See photo 3.)
- (4) Remove 2 back cover panel fixing screws (5 X 10) and remove the back cover panel.
- (5) Remove the electrical parts box. (See photo 3.)
- (6) Remove 3 valve bed fixing screws (4 X 10) and 4 ball valve and stop valve fixing screws (5 X 16) and then remove the valve bed.
- (7) Remove 3 right side panel fixing screw (5 X 10) in the rear of the unit and then remove the right side panel.
- (8) Collect the refrigerant.
- (9) Remove welded pipes of Accumulator inlet and outlet.
- (10) Remove 2 Accumulator leg fixing screws (4 X 10).

Note: Collect refrigerant without spreading it in the air.

PHOTOS

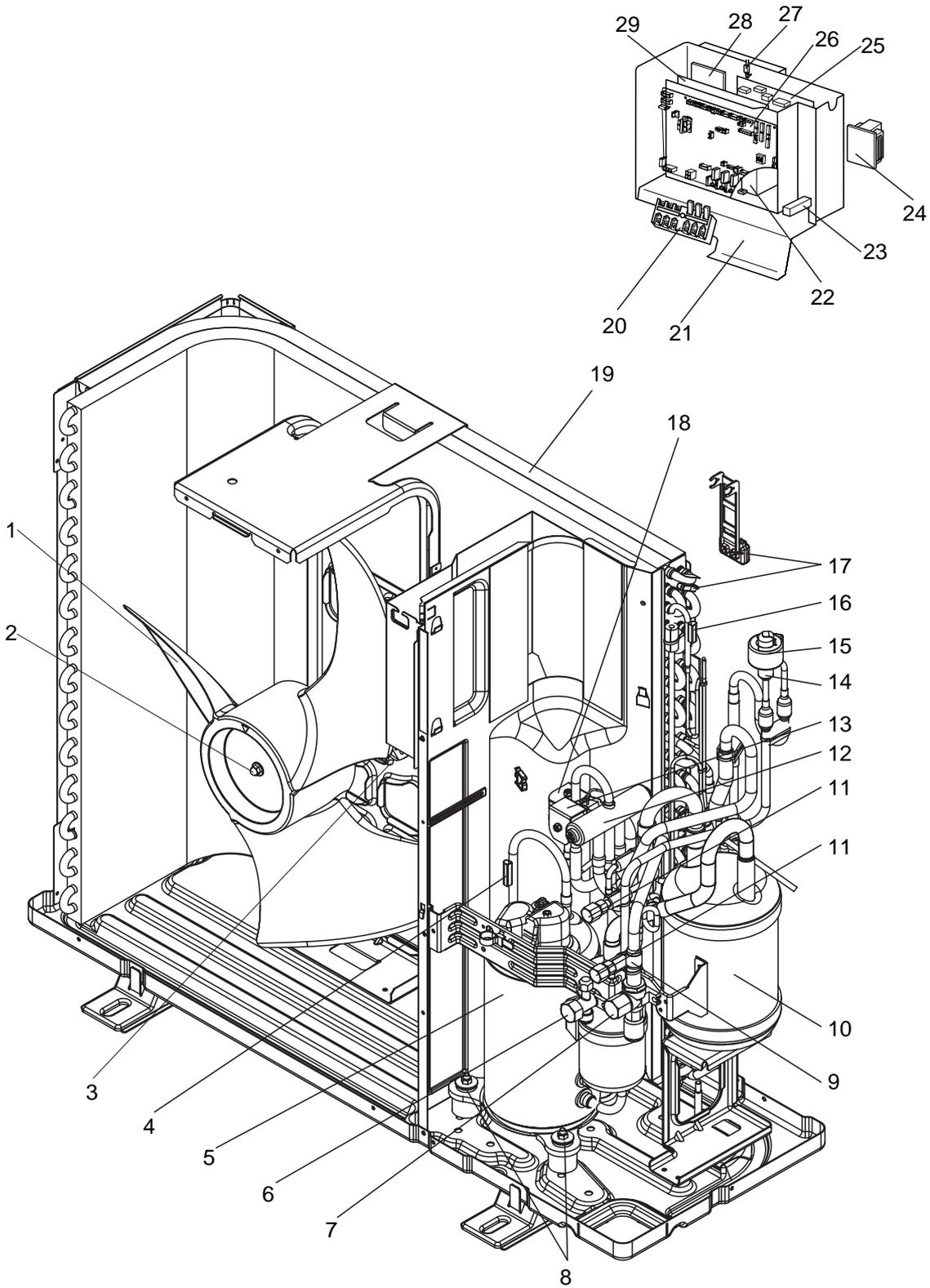
Photo 10



**STRUCTURAL PARTS
PUHZ-P100VHA.UK**


| No. | Part No. | Part Name | Specification | Q'ty/set | Remarks (Drawing No.) | Wiring Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|-------------|---------------------|---------------|-------------------------|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | PUHZ-P 100 VHA.UK | | | | Unit | Amount |
| 1 | — | F.ST SCREW | (5X10) | 31 | (DG12F536H10) | | | | |
| 2 | S70 E10 662 | SIDE PANEL (L) | | 1 | | | | | |
| 3 | S70 E20 675 | FAN GRILLE | | 1 | | | | | |
| 4 | S70 E10 668 | FRONT PANEL | | 1 | | | | | |
| 5 | — | SEPARATOR | | 1 | (BK00C456G03) | | | | |
| 6 | S70 E10 686 | BASE ASSY | | 1 | | | | | |
| 7 | S70 E10 130 | MOTOR SUPPORT | | 1 | | | | | |
| 8 | — | VALVE BED ASSY | | 1 | (BK00C493G01) | | | | |
| 9 | S70 30L 655 | HANDLE | | 2 | | | | | |
| 10 | S70 E10 658 | COVER PANEL (FRONT) | | 1 | | | | | |
| 11 | S70 E20 658 | COVER PANEL (REAR) | | 1 | | | | | |
| 12 | S70 E30 662 | SIDE PANEL (R) | | 1 | | | | | |
| 13 | S70 E30 661 | SERVICE PANEL | | 1 | | | | | |
| 14 | S70 E10 699 | LABEL | | 1 | | | | | |
| 15 | S70 E10 698 | REAR GUARD | | 1 | | | | | |
| 16 | S70 E10 641 | TOP PANEL | | 1 | | | | | |
| 17 | S70 E10 655 | HANDLE | | 1 | | | | | |

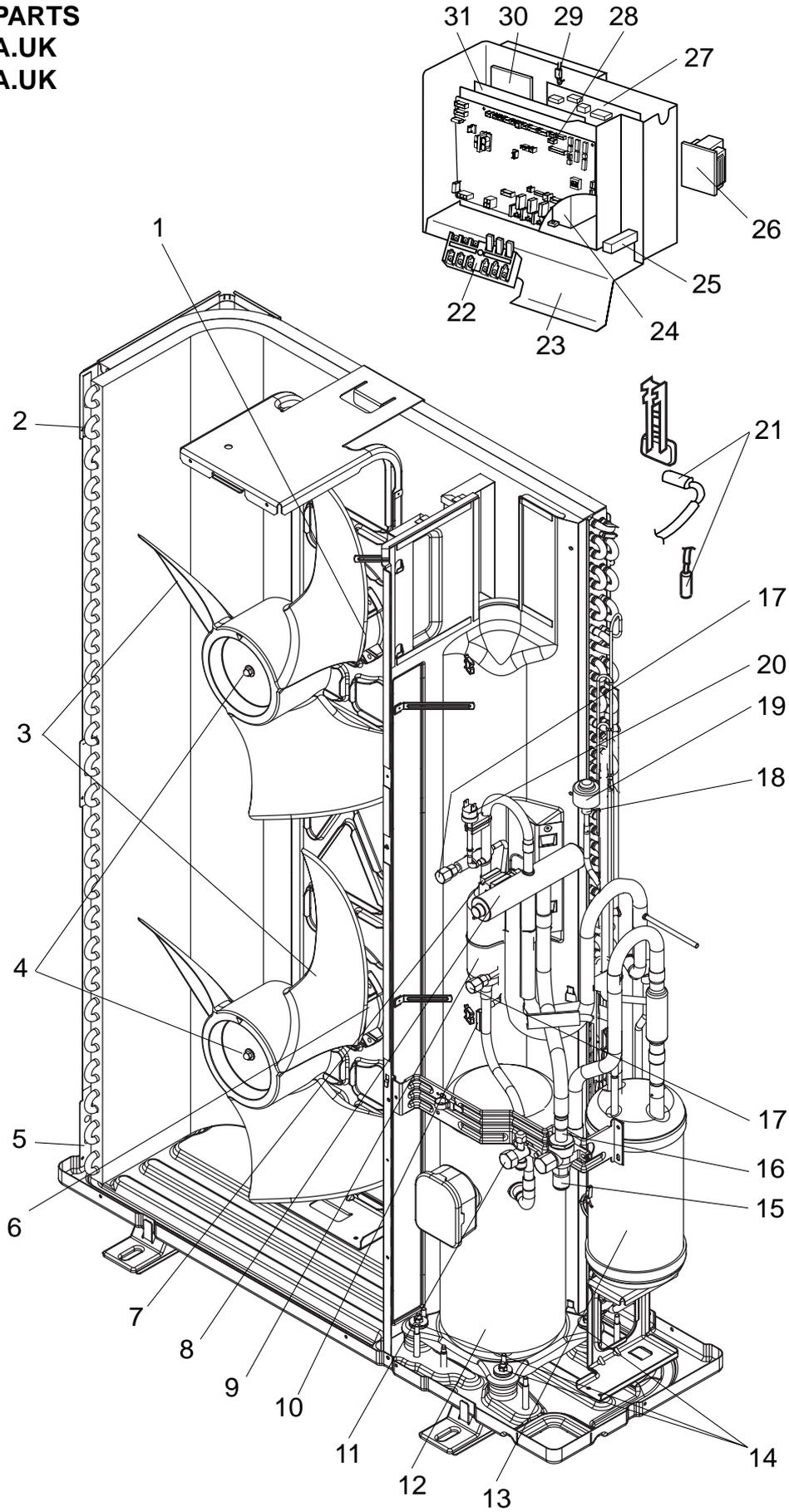
FUNCTIONAL PARTS
PUHZ-P100VHA.UK



Part numbers that are circled are not shown in the figures.

| No. | Part No. | Part Name | Specification | Q'ty/set | Remarks (Drawing No.) | Wining Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|-------------|--|--------------------|---------------|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | PUHZ-P | | | | Unit | Amount |
| | | | | 100 VHA.UK | | | | | |
| 1 | S70 K04 115 | PROPELLER FAN | | 1 | | | | | |
| 2 | S70 K01 097 | NUT | | 1 | | | | | |
| 3 | S70 E10 763 | FAN MOTOR | | 1 | | MF1 | | | |
| 4 | S70 E33 202 | THERMISTOR (DISCHARGE) | | 1 | | TH4 | | | |
| 5 | S70 E22 400 | COMPRESSOR | TNB220FLDM | 1 | | MC | | | |
| 6 | S70 500 418 | STOP VALVE | 3/8 | 1 | | | | | |
| 7 | S70 E06 411 | BALL VALVE | 5/8 | 1 | | | | | |
| 8 | S70 E01 004 | RUBBER MOUNT | | 3 | | | | | |
| 9 | S70 36L 450 | STRAINER | #50 | 1 | | | | | |
| 10 | S70 E50 440 | ACCUMULATOR | | 1 | | | | | |
| 11 | S70 E02 413 | CHARGE PLUG | | 2 | | | | | |
| 12 | S70 E04 403 | FOUR-WAY VALVE | | 1 | | | | | |
| 13 | S70 E01 242 | SOLENOID VALVE COIL <FOUR-WAY VALVE> | | 1 | | 21S4 | | | |
| 14 | S70 E80 401 | EXPANSION VALVE | | 1 | | | | | |
| 15 | S70 E81 402 | LINEAR EXPANSION VALVE COIL | | 1 | | LEV(A) | | | |
| 16 | S70 E32 202 | THERMISTOR (OUTDOOR PIPE) | | 1 | | TH3 | | | |
| 17 | S70 E31 202 | THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR) | | 1 | | TH6,7 | | | |
| 18 | S70 E02 242 | SOLENOID VALVE COIL <BYPASS VALVE> | | 1 | | SV | | | |
| 19 | S70 E50 408 | HEAT EXCHANGER | | 1 | | | | | |
| 20 | S70 E05 716 | TERMINAL BLOCK | 6P(L,N,⊕,S1,S2,S3) | 1 | | TB1 | | | |
| 21 | S70 E40 316 | CONTROL BOX ASSY | | 1 | | | | | |
| 22 | S70 410 708 | CONTACTOR | | 1 | | 52C | | | |
| 23 | S70 E10 234 | RESISTOR | | 1 | | RS | | | |
| 24 | S70 K20 259 | REACTOR | | 1 | | DCL | | | |
| 25 | S70 E10 313 | POWER CIRCUIT BOARD | | 1 | | P.B. | | | |
| 26 | S70 H00 315 | CONTROLLER CIRCUIT BOARD | | 1 | | C.B. | | | |
| 27 | S70 E30 202 | THERMISTOR (HEAT SINK) | | 1 | | TH8 | | | |
| 28 | S70 E10 233 | ACTIVE FILTER MODULE | | 1 | | ACTM | | | |
| 29 | S70 E15 346 | NOISE FILTER CIRCUIT BOARD | | 1 | | N.F. | | | |
| 30 | S70 E10 208 | HIGH PRESSURE SWITCH | | 1 | | 63H | | | |
| 31 | S70 42H 467 | MUFFLER | | 1 | | | | | |
| 32 | S70 E05 255 | MAIN SMOOTHING CAPACITOR | | 1 | | CB | | | |
| 33 | S70 282 403 | SOLENOID VALVE (BYPASS VALVE) | | 1 | | | | | |

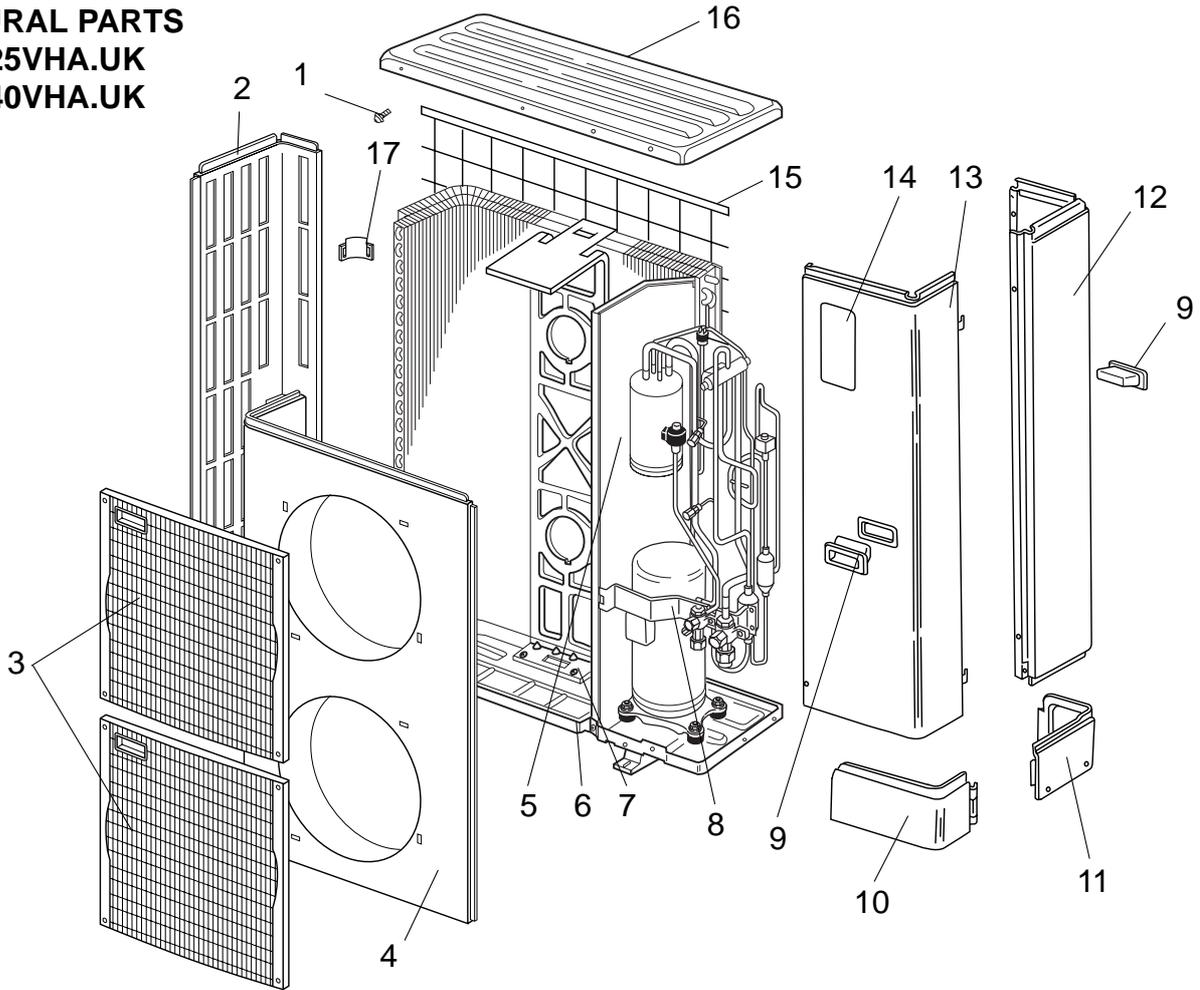
FUNCTIONAL PARTS
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK



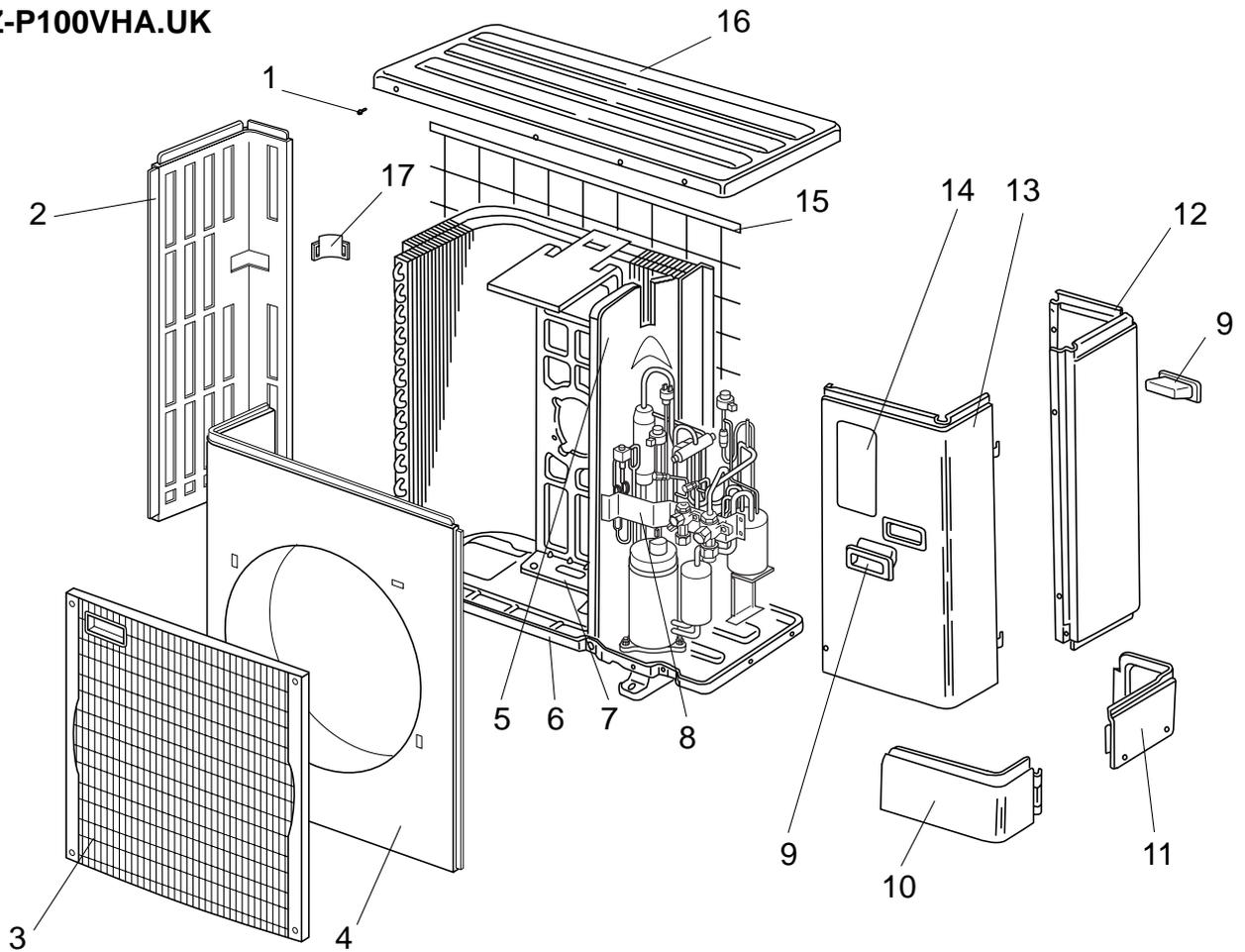
Part numbers that are circled are not shown in the figures.

| No. | Part No. | Part Name | Specification | Q'ty/set | | Remarks (Drawing No.) | Wiring Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|-------------|--|--------------------|----------|-----|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | PUHZ-P | | | | | Unit | Amount |
| | | | | 125 | 140 | | | | | |
| | | | | VHA.UK | | | | | | |
| 1 | S70 E10 763 | FAN MOTOR | | 1 | 1 | | MF1 | | | |
| 2 | S70 E60 408 | HEAT EXCHANGER (TOP) | | 1 | 1 | | | | | |
| 3 | S70 K04 115 | PROPELLER FAN | | 2 | 2 | | | | | |
| 4 | S70 K01 097 | NUT | | 2 | 2 | | | | | |
| 5 | S70 E70 408 | HEAT EXCHANGER (UNDER) | | 1 | 1 | | | | | |
| 6 | S70 E20 763 | FAN MOTOR | | 1 | 1 | | MF2 | | | |
| 7 | S70 350 242 | SOLENOID COIL <FOUR-WAY VALVE> | | 1 | 1 | | 21S4 | | | |
| 8 | S70 E03 403 | FOUR-WAY VALVE | | 1 | 1 | | | | | |
| 9 | S70 42H 467 | MUFFLER | | 1 | 1 | | | | | |
| 10 | S70 E34 202 | THERMISTOR (DISCHARGE) | | 1 | 1 | | TH4 | | | |
| 11 | S70 500 418 | STOP VALVE | 3/8 | 1 | 1 | | | | | |
| 12 | S70 E33 400 | COMPRESSOR | ANV33FDDMT | 1 | 1 | | MC | | | |
| 13 | S70 E60 440 | ACCUMULATOR | | 1 | 1 | | | | | |
| 14 | S70 E02 004 | RUBBER MOUNT | | 4 | 4 | | | | | |
| 15 | S70 E06 411 | BALL VALVE | 5/8 | 1 | 1 | | | | | |
| 16 | S70 36L 450 | STRAINER | #50 | 1 | 1 | | | | | |
| 17 | S70 E02 413 | CHARGE PLUG | | 2 | 2 | | | | | |
| 18 | S70 E90 401 | EXPANSION VALVE | | 1 | 1 | | | | | |
| 19 | S70 E81 402 | LINEAR EXPANSION VALVE COIL | | 1 | 1 | | LEV(A) | | | |
| 20 | S70 E10 208 | HIGH PRESSURE SWITCH | | 1 | 1 | | 63H | | | |
| 21 | S70 E31 202 | THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR) | | 1 | 1 | | TH6,7 | | | |
| 22 | S70 E05 716 | TERMINAL BLOCK | 6P(L,N,⊙,S1,S2,S3) | 1 | 1 | | TB1 | | | |
| 23 | S70 E50 316 | CONTROL BOX ASSY | | 1 | | | | | | |
| | S70 E60 316 | CONTROL BOX ASSY | | | 1 | | | | | |
| 24 | S70 410 708 | CONTACTOR | | 1 | 1 | | 52C | | | |
| 25 | S70 E10 234 | RESISTOR | | 1 | 1 | | RS | | | |
| 26 | S70 K20 259 | REACTOR | | 1 | 1 | | DCL | | | |
| 27 | S70 E11 313 | POWER CIRCUIT BOARD | | 1 | 1 | | P.B. | | | |
| 28 | S70 H00 315 | CONTROLLER CIRCUIT BOARD | | 1 | 1 | | C.B. | | | |
| 29 | S70 E30 202 | THERMISTOR (HEAT SINK) | | 1 | 1 | | TH8 | | | |
| 30 | S70 E10 233 | ACTIVE FILTER MODULE | | 1 | 1 | | ACTM | | | |
| 31 | S70 E15 346 | NOISE FILTER CIRCUIT BOARD | | 1 | 1 | | N.F. | | | |
| 32 | S70 E35 202 | THERMISTOR (OUTDOOR PIPE) | | 1 | 1 | | TH3 | | | |
| 33 | S70 E05 255 | MAIN SMOOTHING CAPACITOR | | 1 | 1 | | CB | | | |

STRUCTURAL PARTS
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK

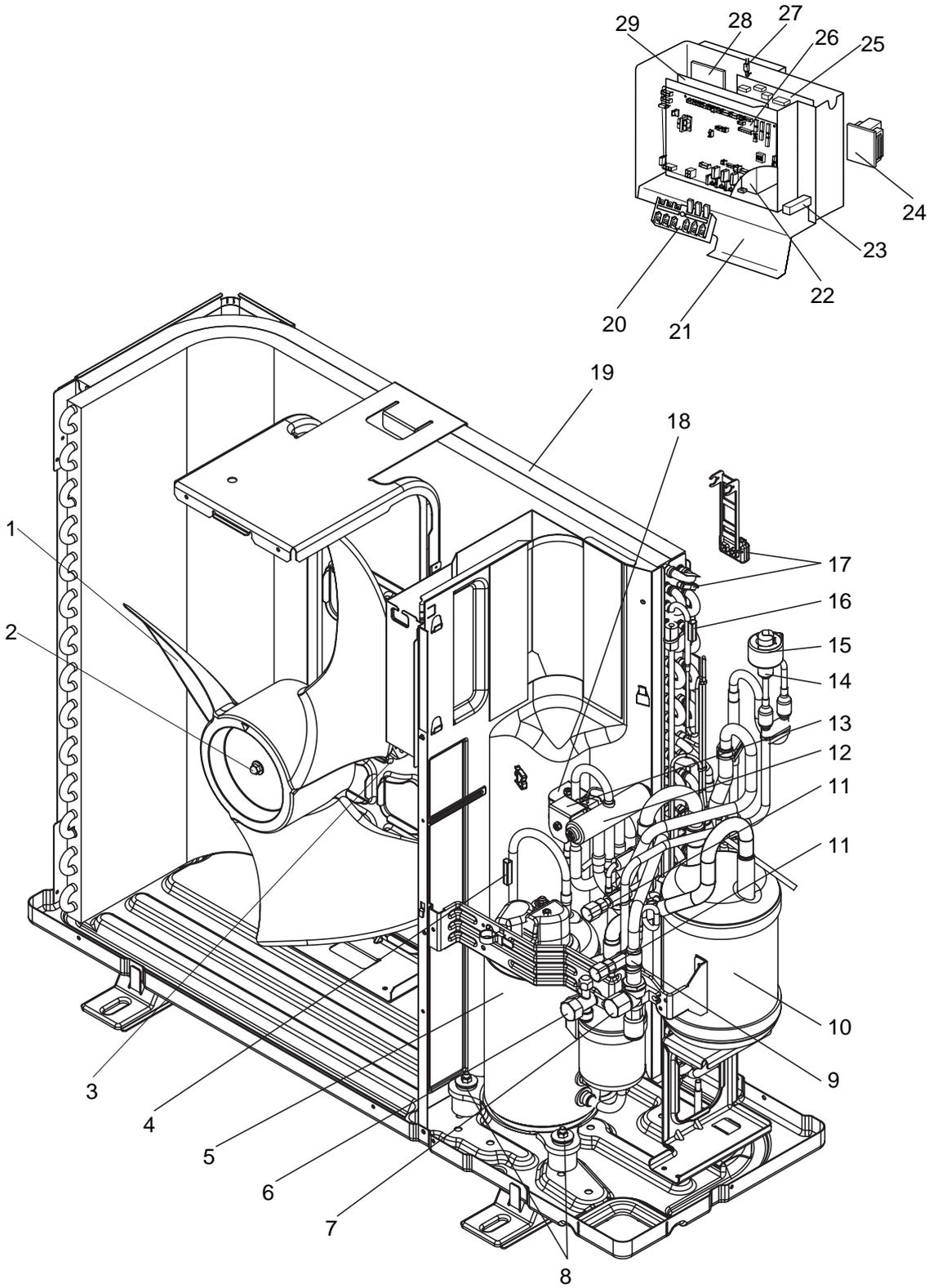


| No. | Part No. | Part Name | Specification | Q'ty/set | Remarks (Drawing No.) | Wiring Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|-------------|---------------------|---------------|------------------------------|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | PUHZ-P 125, 140 VHA.UK | | | | Unit | Amount |
| 1 | — | F.ST SCREW | (5X10) | 47 | (DG12F536H10) | | | | |
| 2 | S70 E20 662 | SIDE PANEL (L) | | 1 | | | | | |
| 3 | S70 E20 675 | FAN GRILLE | | 2 | | | | | |
| 4 | S70 E20 668 | FRONT PANEL | | 1 | | | | | |
| 5 | — | SEPARATOR | | 1 | (BK00C456G02) | | | | |
| 6 | S70 E20 686 | BASE ASSY | | 1 | | | | | |
| 7 | S70 E20 130 | MOTOR SUPPORT | | 1 | | | | | |
| 8 | — | VALVE BED ASSY | | 1 | (BK00C493G01) | | | | |
| 9 | S70 30L 655 | HANDLE | | 2 | | | | | |
| 10 | S70 E10 658 | COVER PANEL (FRONT) | | 1 | | | | | |
| 11 | S70 E20 658 | COVER PANEL (REAR) | | 1 | | | | | |
| 12 | S70 E40 662 | SIDE PANEL (R) | | 1 | | | | | |
| 13 | S70 E40 661 | SERVICE PANEL | | 1 | | | | | |
| 14 | S70 E10 699 | LABEL | | 1 | | | | | |
| 15 | S70 E20 698 | REAR GUARD | | 2 | | | | | |
| 16 | S70 E10 641 | TOP PANEL | | 1 | | | | | |
| 17 | S70 E10 655 | HANDLE | | 1 | | | | | |

STRUCTURAL PARTS
PUHZ-P100VHA.UK


| No. | RoHS | Part No. | Part Name | Specification | Q'ty/set | Remarks (Drawing No.) | Wiring Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|------|-------------|---------------------|---------------|-------------------------|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | | PUHZ-P 100 VHA.UK | | | | Unit | Amount |
| 1 | G | — | F.ST SCREW | (5×10) | 31 | (DG12F536H10) | | | | |
| 2 | G | S70 E10 662 | SIDE PANEL (L) | | 1 | | | | | |
| 3 | G | S70 E20 675 | FAN GRILLE | | 1 | | | | | |
| 4 | G | S70 E10 668 | FRONT PANEL | | 1 | | | | | |
| 5 | G | — | SEPARATOR | | 1 | (BK00C456G03) | | | | |
| 6 | G | S70 E10 686 | BASE ASSY | | 1 | | | | | |
| 7 | G | S70 E10 130 | MOTOR SUPPORT | | 1 | | | | | |
| 8 | G | — | VALVE BED ASSY | | 1 | (BK00C493G01) | | | | |
| 9 | G | S70 30L 655 | HANDLE | | 2 | | | | | |
| 10 | G | S70 E10 658 | COVER PANEL (FRONT) | | 1 | | | | | |
| 11 | G | S70 E20 658 | COVER PANEL (REAR) | | 1 | | | | | |
| 12 | G | S70 E30 662 | SIDE PANEL (R) | | 1 | | | | | |
| 13 | G | S70 E30 661 | SERVICE PANEL | | 1 | | | | | |
| 14 | G | S70 E10 699 | LABEL | | 1 | | | | | |
| 15 | G | S70 E10 698 | REAR GUARD | | 1 | | | | | |
| 16 | G | S70 E10 641 | TOP PANEL | | 1 | | | | | |
| 17 | G | S70 E10 655 | HANDLE | | 1 | | | | | |

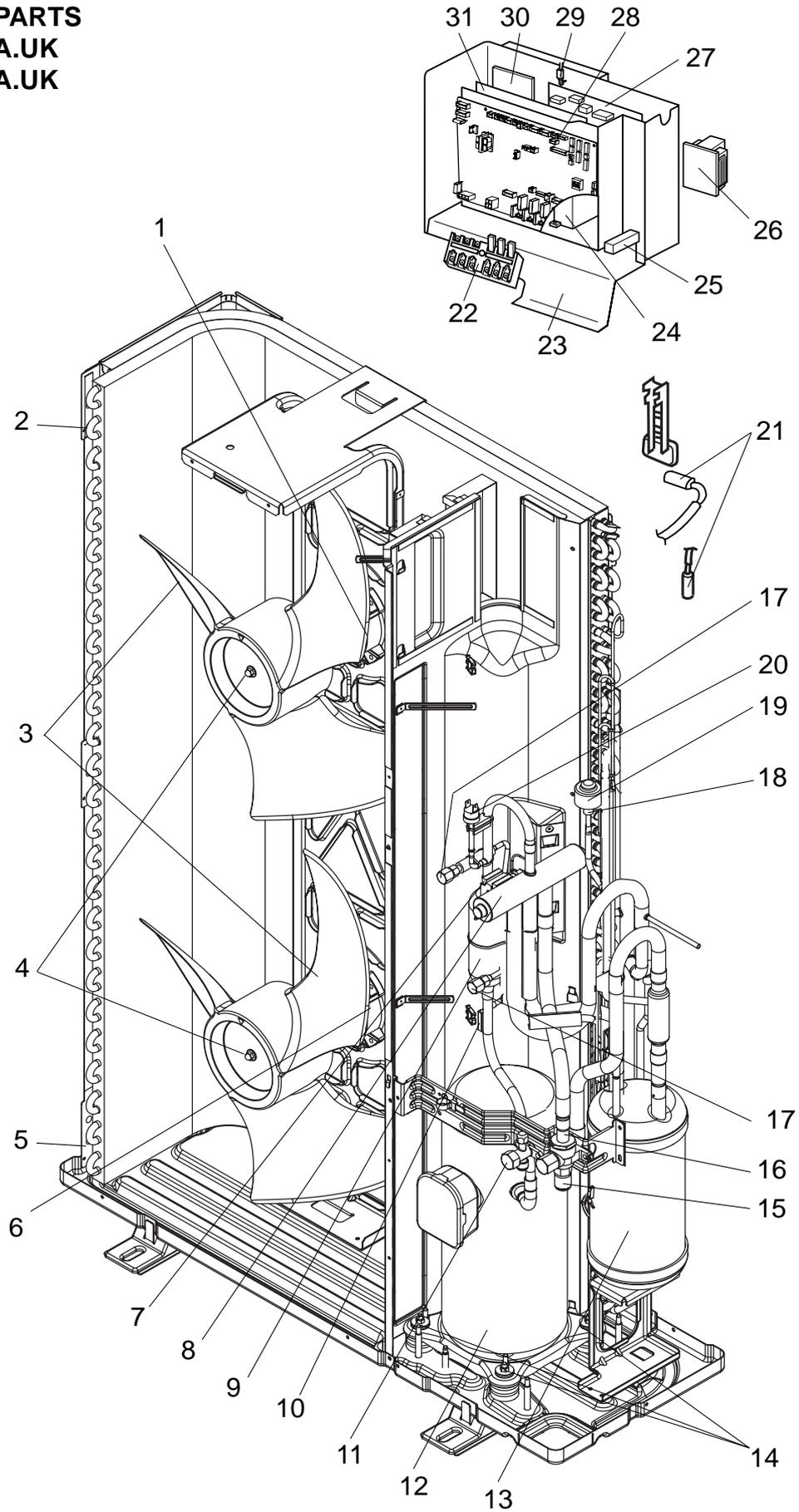
FUNCTIONAL PARTS
PUHZ-P100VHA.UK



Part numbers that are circled are not shown in the figures.

| No. | RoHS | Part No. | Part Name | Specification | Q'ty/set | Remarks (Drawing No.) | Wining Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|------|-------------|--|--------------------|---------------|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | | PUHZ-P | | | | Unit | Amount |
| | | | | | 100 VHA.UK | | | | | |
| 1 | G | S70 K04 115 | PROPELLER FAN | | 1 | | | | | |
| 2 | G | S70 K01 097 | NUT | | 1 | | | | | |
| 3 | G | S70 E10 763 | FAN MOTOR | | 1 | | MF1 | | | |
| 4 | G | S70 E33 202 | THERMISTOR (DISCHARGE) | | 1 | | TH4 | | | |
| 5 | G | S70 E22 400 | COMPRESSOR | TNB220FLDM | 1 | | MC | | | |
| 6 | G | S70 500 418 | STOP VALVE | 3/8 | 1 | | | | | |
| 7 | G | S70 E06 411 | BALL VALVE | 5/8 | 1 | | | | | |
| 8 | G | S70 E01 004 | RUBBER MOUNT | | 3 | | | | | |
| 9 | G | S70 36L 450 | STRAINER | #50 | 1 | | | | | |
| 10 | G | S70 E50 440 | ACCUMULATOR | | 1 | | | | | |
| 11 | G | S70 E02 413 | CHARGE PLUG | | 2 | | | | | |
| 12 | G | S70 E04 403 | FOUR-WAY VALVE | | 1 | | | | | |
| 13 | G | S70 E01 242 | SOLENOID VALVE COIL <FOUR-WAY VALVE> | | 1 | | 21S4 | | | |
| 14 | G | S70 E80 401 | EXPANSION VALVE | | 1 | | | | | |
| 15 | G | S70 E81 402 | LINEAR EXPANSION VALVE COIL | | 1 | | LEV(A) | | | |
| 16 | G | S70 E32 202 | THERMISTOR (OUTDOOR PIPE) | | 1 | | TH3 | | | |
| 17 | G | S70 E31 202 | THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR) | | 1 | | TH6,7 | | | |
| 18 | G | S70 E02 242 | SOLENOID VALVE COIL <BYPASS VALVE> | | 1 | | SV | | | |
| 19 | G | S70 E50 408 | HEAT EXCHANGER | | 1 | | | | | |
| 20 | G | S70 E05 716 | TERMINAL BLOCK | 6P(L,N,⊕,S1,S2,S3) | 1 | | TB1 | | | |
| 21 | G | S70 E40 316 | CONTROL BOX ASSY | | 1 | | | | | |
| 22 | G | S70 410 708 | CONTACTOR | | 1 | | 52C | | | |
| 23 | G | S70 E10 234 | RESISTOR | | 1 | | RS | | | |
| 24 | G | S70 K20 259 | REACTOR | | 1 | | DCL | | | |
| 25 | G | S70 E10 313 | POWER CIRCUIT BOARD | | 1 | | P.B. | | | |
| 26 | G | S70 H00 315 | CONTROLLER CIRCUIT BOARD | | 1 | | C.B. | | | |
| 27 | G | S70 E30 202 | THERMISTOR (HEAT SINK) | | 1 | | TH8 | | | |
| 28 | G | S70 E10 233 | ACTIVE FILTER MODULE | | 1 | | ACTM | | | |
| 29 | G | S70 E15 346 | NOISE FILTER CIRCUIT BOARD | | 1 | | N.F. | | | |
| 30 | G | S70 E10 208 | HIGH PRESSURE SWITCH | | 1 | | 63H | | | |
| 31 | G | S70 42H 467 | MUFFLER | | 1 | | | | | |
| 32 | G | S70 E05 255 | MAIN SMOOTHING CAPACITOR | | 1 | | CB | | | |
| 33 | G | S70 282 403 | SOLENOID VALVE (BYPASS VALVE) | | 1 | | | | | |

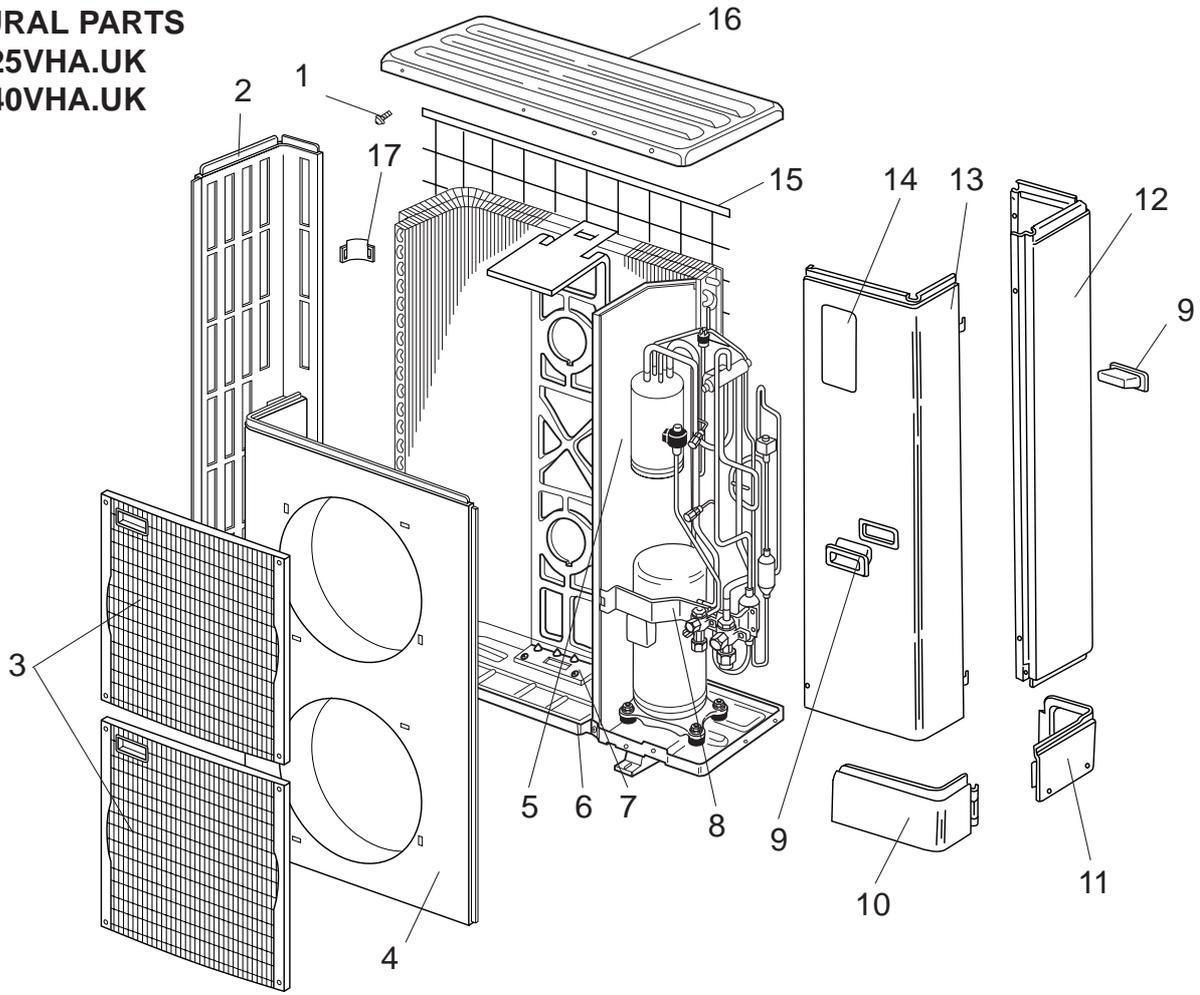
FUNCTIONAL PARTS
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK



Part numbers that are circled are not shown in the figures.

| No. | RoHS | Part No. | Part Name | Specification | Q'ty/set | | Remarks (Drawing No.) | Wiring Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|------|-------------|--|--------------------|----------|-----|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | | PUHZ-P | | | | | Unit | Amount |
| | | | | | 125 | 140 | | | | | |
| | | | | | VHA.UK | | | | | | |
| 1 | G | S70 E10 763 | FAN MOTOR | | 1 | 1 | | MF1 | | | |
| 2 | G | S70 E60 408 | HEAT EXCHANGER(TOP) | | 1 | 1 | | | | | |
| 3 | G | S70 K04 115 | PROPELLER FAN | | 2 | 2 | | | | | |
| 4 | G | S70 K01 097 | NUT | | 2 | 2 | | | | | |
| 5 | G | S70 E70 408 | HEAT EXCHANGER(UNDER) | | 1 | 1 | | | | | |
| 6 | G | S70 E20 763 | FAN MOTOR | | 1 | 1 | | MF2 | | | |
| 7 | G | S70 350 242 | SOLENOID COIL <FOUR-WAY VALVE> | | 1 | 1 | | 21S4 | | | |
| 8 | G | S70 E03 403 | FOUR-WAY VALVE | | 1 | 1 | | | | | |
| 9 | G | S70 42H 467 | MUFFLER | | 1 | 1 | | | | | |
| 10 | G | S70 E34 202 | THERMISTOR (DISCHARGE) | | 1 | 1 | | TH4 | | | |
| 11 | G | S70 500 418 | STOP VALVE | 3/8 | 1 | 1 | | | | | |
| 12 | G | S70 E33 400 | COMPRESSOR | ANV33FDDMT | 1 | 1 | | MC | | | |
| 13 | G | S70 E60 440 | ACCUMULATOR | | 1 | 1 | | | | | |
| 14 | G | S70 E02 004 | RUBBER MOUNT | | 4 | 4 | | | | | |
| 15 | G | S70 E06 411 | BALL VALVE | 5/8 | 1 | 1 | | | | | |
| 16 | G | S70 36L 450 | STRAINER | #50 | 1 | 1 | | | | | |
| 17 | G | S70 E02 413 | CHARGE PLUG | | 2 | 2 | | | | | |
| 18 | G | S70 E90 401 | EXPANSION VALVE | | 1 | 1 | | | | | |
| 19 | G | S70 E81 402 | LINEAR EXPANSION VALVE COIL | | 1 | 1 | | LEV(A) | | | |
| 20 | G | S70 E10 208 | HIGH PRESSURE SWITCH | | 1 | 1 | | 63H | | | |
| 21 | G | S70 E31 202 | THERMISTOR (OUTDOOR 2-PHASE PIPE, OUTDOOR) | | 1 | 1 | | TH6,7 | | | |
| 22 | G | S70 E05 716 | TERMINAL BLOCK | 6P(L,N,⓪,S1,S2,S3) | 1 | 1 | | TB1 | | | |
| 23 | G | S70 E50 316 | CONTROL BOX ASSY | | 1 | | | | | | |
| | G | S70 E60 316 | CONTROL BOX ASSY | | | 1 | | | | | |
| 24 | G | S70 410 708 | CONTACTOR | | 1 | 1 | | 52C | | | |
| 25 | G | S70 E10 234 | RESISTOR | | 1 | 1 | | RS | | | |
| 26 | G | S70 K20 259 | REACTOR | | 1 | 1 | | DCL | | | |
| 27 | G | S70 E11 313 | POWER CIRCUIT BOARD | | 1 | 1 | | P.B. | | | |
| 28 | G | S70 H00 315 | CONTROLLER CIRCUIT BOARD | | 1 | 1 | | C.B. | | | |
| 29 | G | S70 E30 202 | THERMISTOR (HEAT SINK) | | 1 | 1 | | TH8 | | | |
| 30 | G | S70 E10 233 | ACTIVE FILTER MODULE | | 1 | 1 | | ACTM | | | |
| 31 | G | S70 E15 346 | NOISE FILTER CIRCUIT BOARD | | 1 | 1 | | N.F. | | | |
| 32 | G | S70 E35 202 | THERMISTOR (OUTDOOR PIPE) | | 1 | 1 | | TH3 | | | |
| 33 | G | S70 E05 255 | MAIN SMOOTHING CAPACITOR | | 1 | 1 | | CB | | | |

STRUCTURAL PARTS
PUHZ-P125VHA.UK
PUHZ-P140VHA.UK



| No. | RoHS | Part No. | Part Name | Specification | Q'ty/set | Remarks (Drawing No.) | Wiring Diagram Symbol | Recom- mended Q'ty | Price | |
|-----|------|-------------|---------------------|---------------|------------------------------|--------------------------|-----------------------------|--------------------------|-------|--------|
| | | | | | PUHZ-P 125, 140 VHA.UK | | | | Unit | Amount |
| 1 | G | — | F.ST SCREW | (5X10) | 47 | (DG12F536H10) | | | | |
| 2 | G | S70 E20 662 | SIDE PANEL (L) | | 1 | | | | | |
| 3 | G | S70 E20 675 | FAN GRILLE | | 2 | | | | | |
| 4 | G | S70 E20 668 | FRONT PANEL | | 1 | | | | | |
| 5 | G | — | SEPARATOR | | 1 | (BK00C456G02) | | | | |
| 6 | G | S70 E20 686 | BASE ASSY | | 1 | | | | | |
| 7 | G | S70 E20 130 | MOTOR SUPPORT | | 1 | | | | | |
| 8 | G | — | VALVE BED ASSY | | 1 | (BK00C493G01) | | | | |
| 9 | G | S70 30L 655 | HANDLE | | 2 | | | | | |
| 10 | G | S70 E10 658 | COVER PANEL (FRONT) | | 1 | | | | | |
| 11 | G | S70 E20 658 | COVER PANEL (REAR) | | 1 | | | | | |
| 12 | G | S70 E40 662 | SIDE PANEL (R) | | 1 | | | | | |
| 13 | G | S70 E40 661 | SERVICE PANEL | | 1 | | | | | |
| 14 | G | S70 E10 699 | LABEL | | 1 | | | | | |
| 15 | G | S70 E20 698 | REAR GUARD | | 2 | | | | | |
| 16 | G | S70 E10 641 | TOP PANEL | | 1 | | | | | |
| 17 | G | S70 E10 655 | HANDLE | | 1 | | | | | |

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN