

SPLIT TYPE
ROOM AIR CONDITIONER
DUCT TYPE

SERVICE MANUAL



| Indoor unit | Outdoor unit |
|-------------|--------------|
| ARU9RLF | AOU9RLFC |
| ARU12RLF | AOU12RLFC |

(Serial number : R)
Refer to the service
bulletin RAC-0059

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SPECIFICATIONS

ELECTRICAL DATA

| | | | |
|----------------------|---------|----------------------------------|----------------------------------|
| TYPE | | Cool & heat inverter | |
| INDOOR UNIT | | ARU9RLF | ARU12RLF |
| OUTDOOR UNIT | | AOU9RLFC | AOU12RLFC |
| COOLING CAPACITY | | 9,000 Btu/h | 12,000 Btu/h |
| HEATING CAPACITY | | 12,000 Btu/h | 16,000 Btu/h |
| POWER SOURCE | | 208/230 V | |
| FREQUENCY | | 60 Hz | |
| RUNNING CURRENT | Cooling | 3.0 A | 4.4 A |
| | Heating | 3.9 A | 6.0 A |
| INPUT WATTS | Cooling | 0.62 kW | 0.94 kW |
| | Heating | 0.85 kW | 1.30 kW |
| E.E.R. | Cooling | 14.5 Btu/Wh | 12.8 Btu/Wh |
| COP | Heating | 14.1 Btu/Wh | 12.3 Btu/Wh |
| MOISTURE REMOVAL | | 1.5 Pints/h 0.7 L/h | 2.7 Pints/h 1.3 L/h |
| AIR CIRCULATION HIGH | | 350 CFM 600 m ³ /h | 380 CFM 650 m ³ /h |
| MAXIMUM CURRENT | Cooling | 9.3 A | 9.4 A |
| | Heating | 10.8 A | 10.9 A |

FAN MOTOR

| | | | |
|----------------------|--------|--------------|--------------|
| POWER SOURCE | | 208/230 V | |
| INDOOR UNIT | High | 1,260 r.p.m. | 1,340 r.p.m. |
| | Medium | 1,160 r.p.m. | 1,240 r.p.m. |
| | Low | 1,060 r.p.m. | 1,140 r.p.m. |
| | Quiet | 960 r.p.m. | 1,030 r.p.m. |
| OUTDOOR UNIT Cooling | | 590 r.p.m. | 870 r.p.m. |
| OUTDOOR UNIT Heating | | 720 r.p.m. | 780 r.p.m. |

NOISE LEVEL

| | | | |
|----------------------|--------|-------|-------|
| INDOOR UNIT Cooling | High | 28 dB | 29 dB |
| | Medium | 27 dB | 28 dB |
| | Low | 26 dB | 27 dB |
| | Quiet | 25 dB | 26 dB |
| INDOOR UNIT Heating | High | 28 dB | 29 dB |
| | Medium | 26 dB | 28 dB |
| | Low | 25 dB | 27 dB |
| | Quiet | 24 dB | 24 dB |
| OUTDOOR UNIT Cooling | | 44 dB | 49 dB |
| OUTDOOR UNIT Heating | | 49 dB | 50 dB |

COMPRESSOR AND REFRIGERANT

| | | | |
|------------------------|--------------------|---|--|
| COMPRESSOR TYPE | | Hermetic type, 4 pole, 3 phase, DC inverter motor, Rotary | |
| DISCRIMINATION | | 808-884-80 | |
| WEIGHT (with oil) | | 20 lb. 8 oz., 9.3 kg | |
| PRECHARGED REFRIGERANT | | 2 lb. 10-5/16 oz., 1,200 g | |
| REFRIGERANT TYPE | | R410A | |
| FULL CHARGE | Pipe length 49 ft. | 2 lb. 10-5/16 oz., 1,200 g | |
| | 66 ft. | 3 lb. 27/32 oz., 1,300 g | |
| ADDITIONAL CHARGE | | 0.22 oz./ft, 20 g/m | |
| MAXIMUM PIPING HEIGHT | | 49 ft., 15 m | |

DIMENSIONS

| | |
|---------------------------|---|
| INDOOR UNIT H x W x D | 7-25/32 x 27-9/16 x 24-13/32 inch 198 x 700 x 620 mm |
| OUTDOOR UNIT H x W x D | 24-1/2 x 31-3/32 x 11-11/32 inch 620 x 790 x 290 mm |

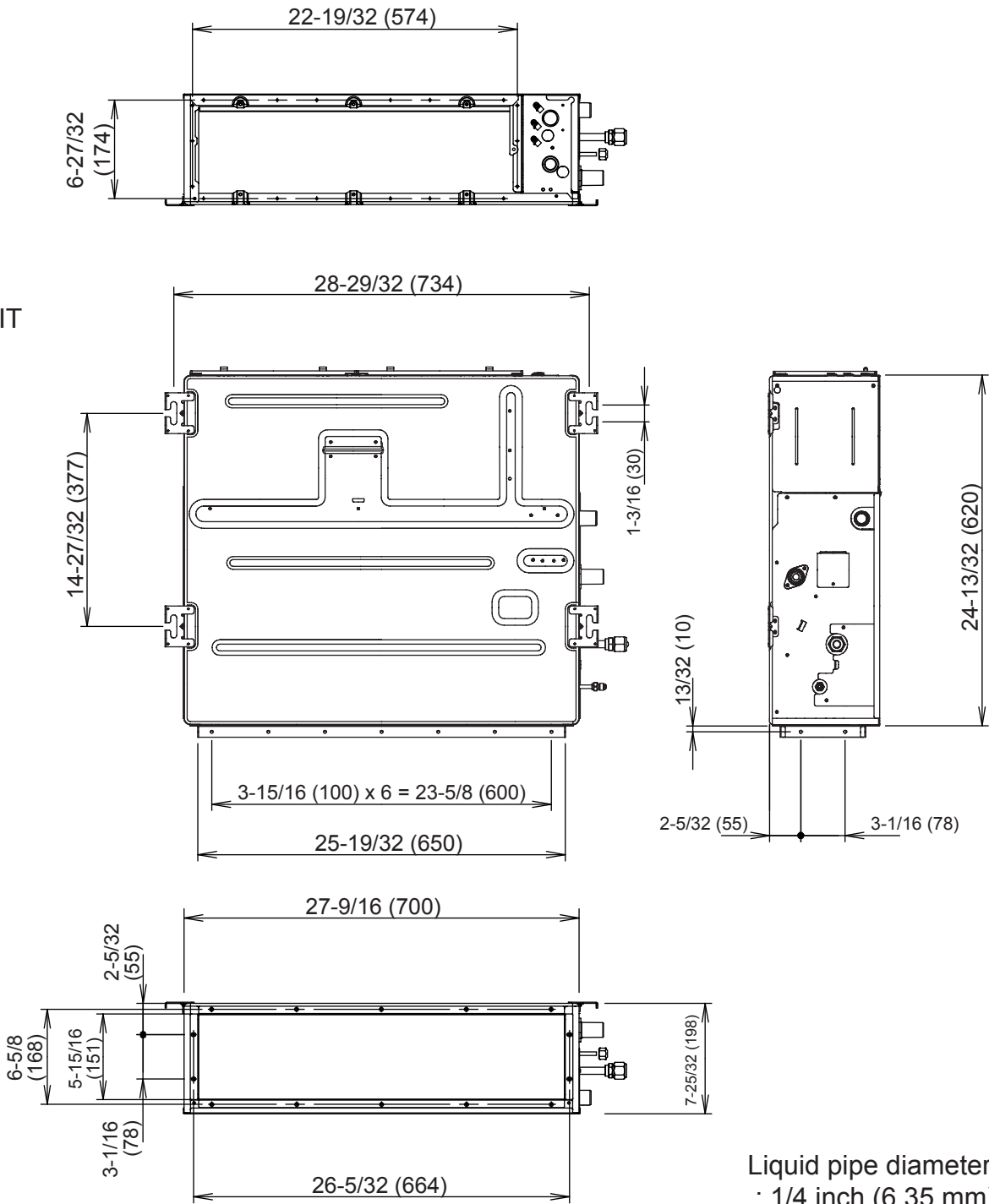
WEIGHT

| | |
|--------------------------------|----------------------------------|
| INDOOR UNIT Net / Shipping | 41 lb. / 58 lb. 19 kg / 26 kg |
| OUTDOOR UNIT Net / Shipping | 84 lb. / 93 lb. 38 kg / 42 kg |

DIMENSIONS

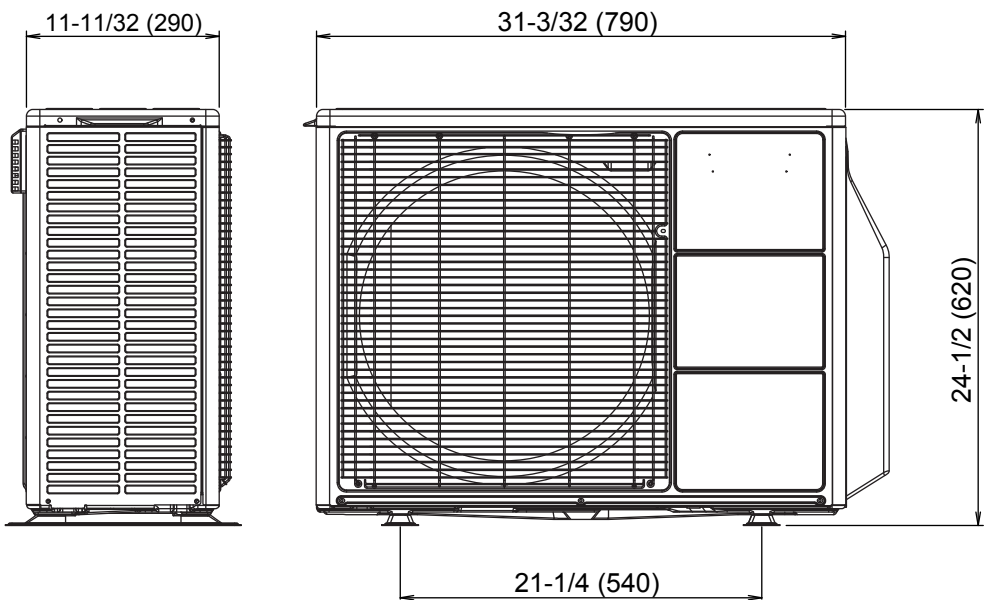
unit : inch (mm)

INDOOR UNIT

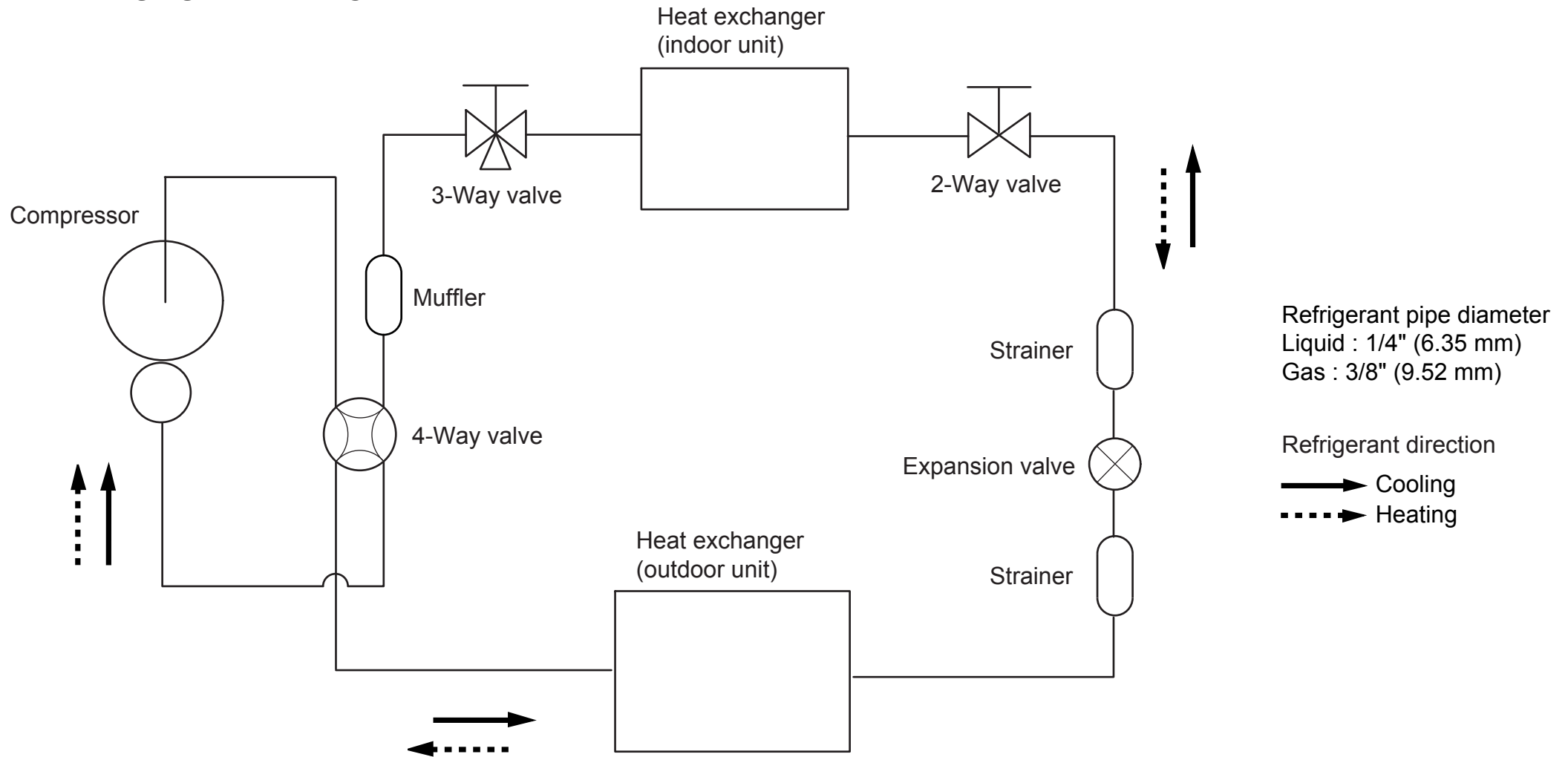


Liquid pipe diameter : 1/4 inch (6.35 mm)
Gas pipe diameter : 3/8 inch (9.52 mm)

OUTDOOR UNIT



REFRIGERANT SYSTEM DIAGRAM

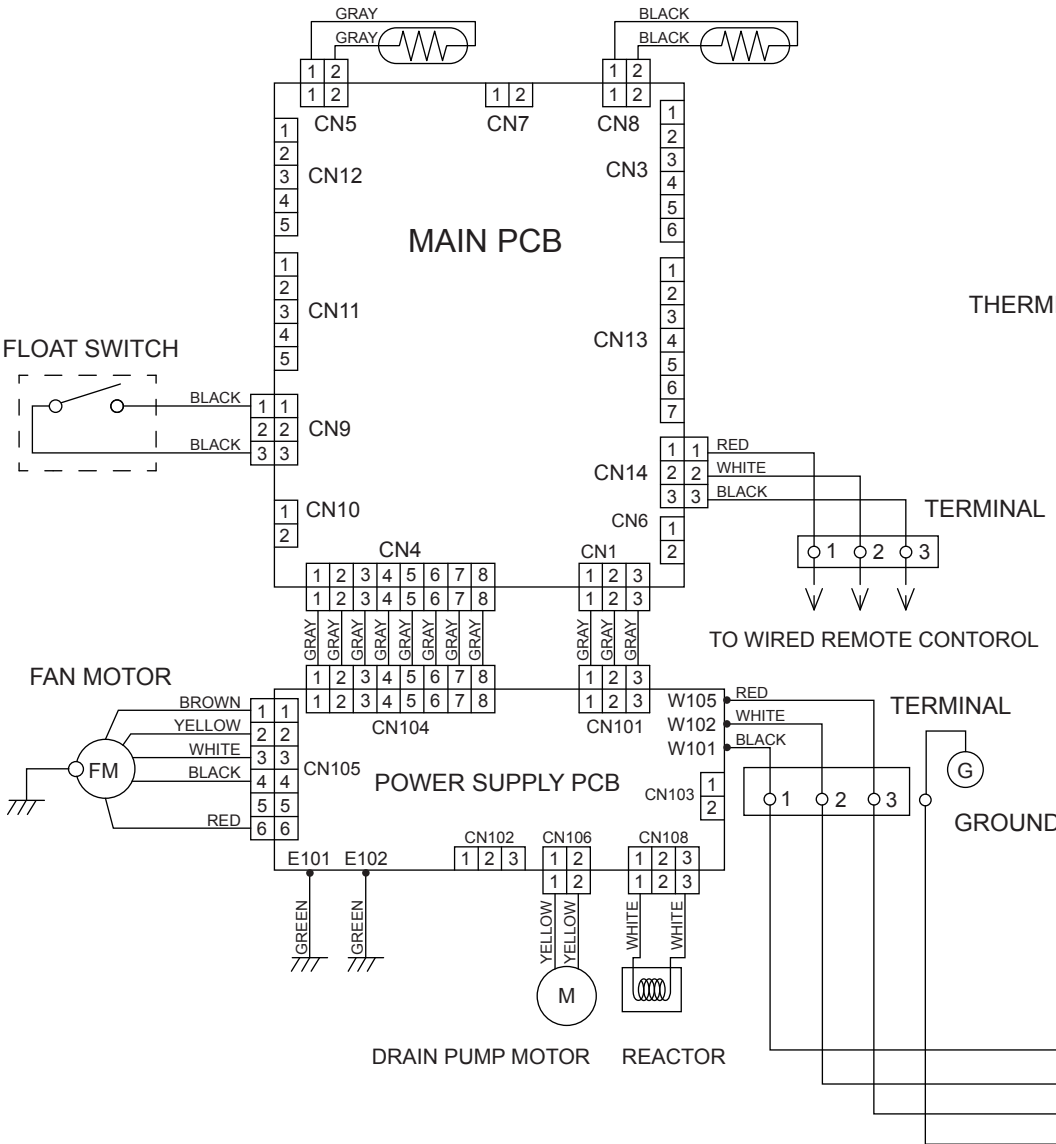


CIRCUIT DIAGRAM

INDOOR UNIT

THERMISTOR
(PIPE TEMP.)

THERMISTOR
(ROOM TEMP.)

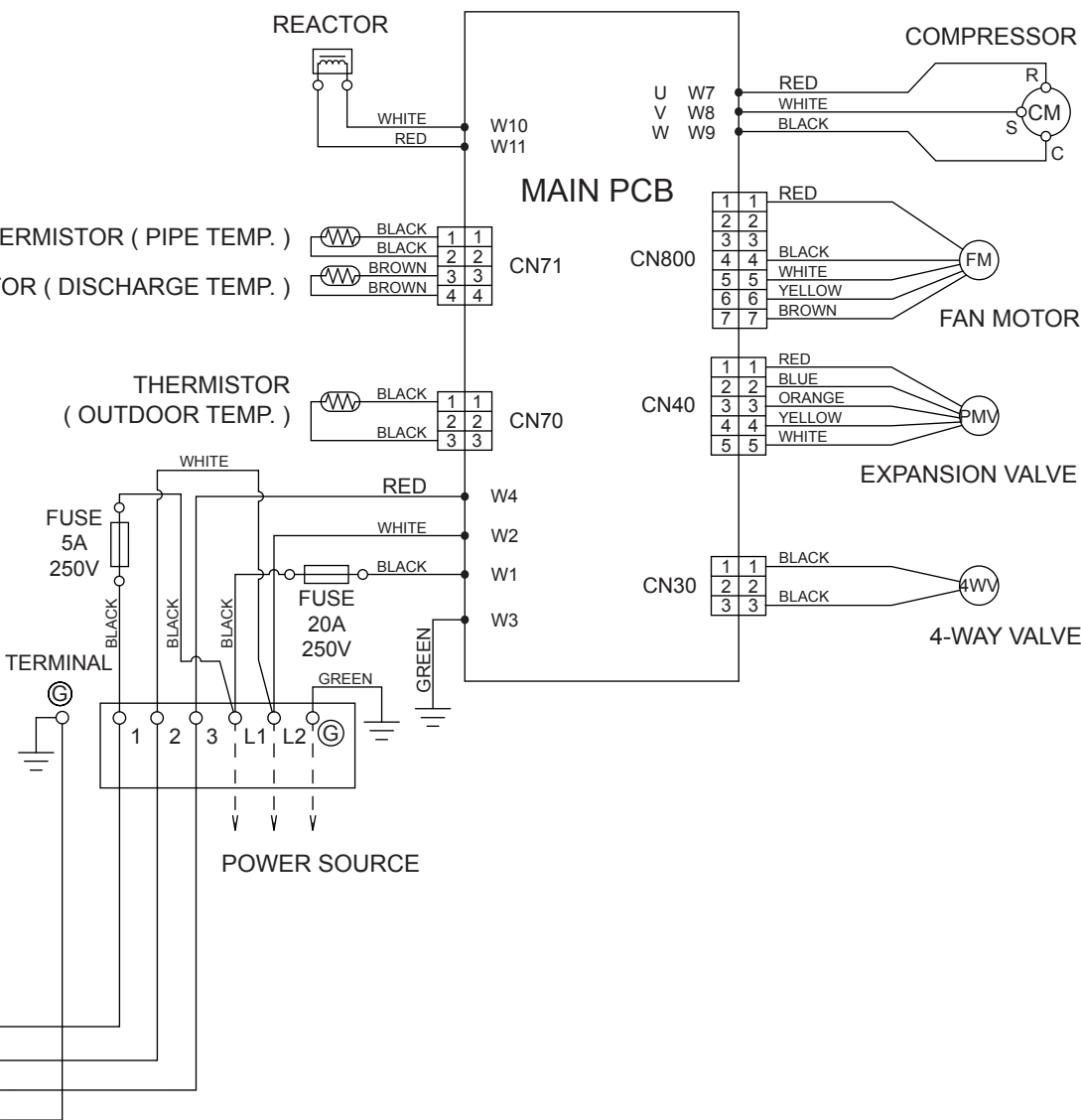


OUTDOOR UNIT

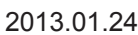
THERMISTOR (PIPE TEMP.)

THERMISTOR (DISCHARGE TEMP.)

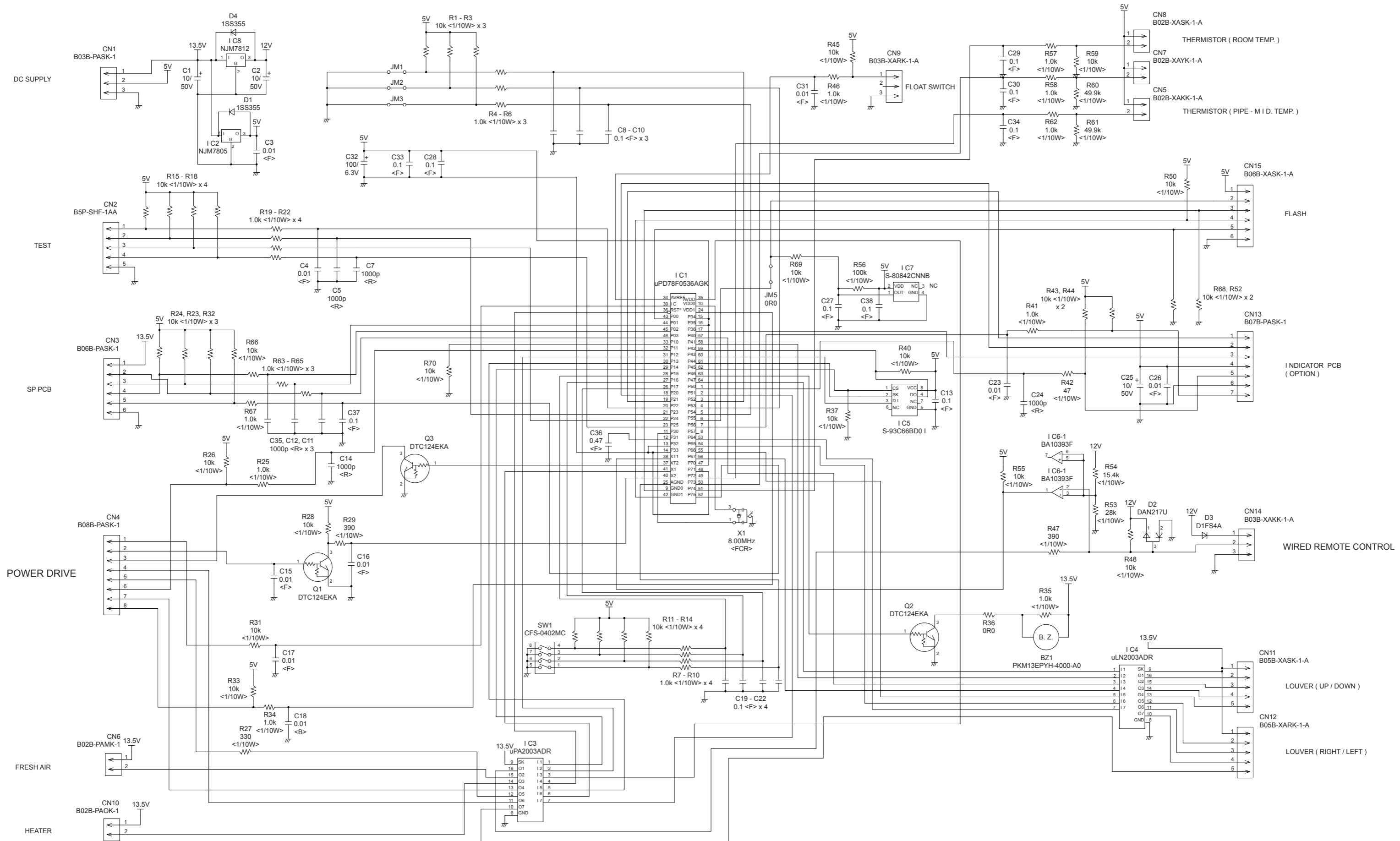
THERMISTOR
(OUTDOOR TEMP.)

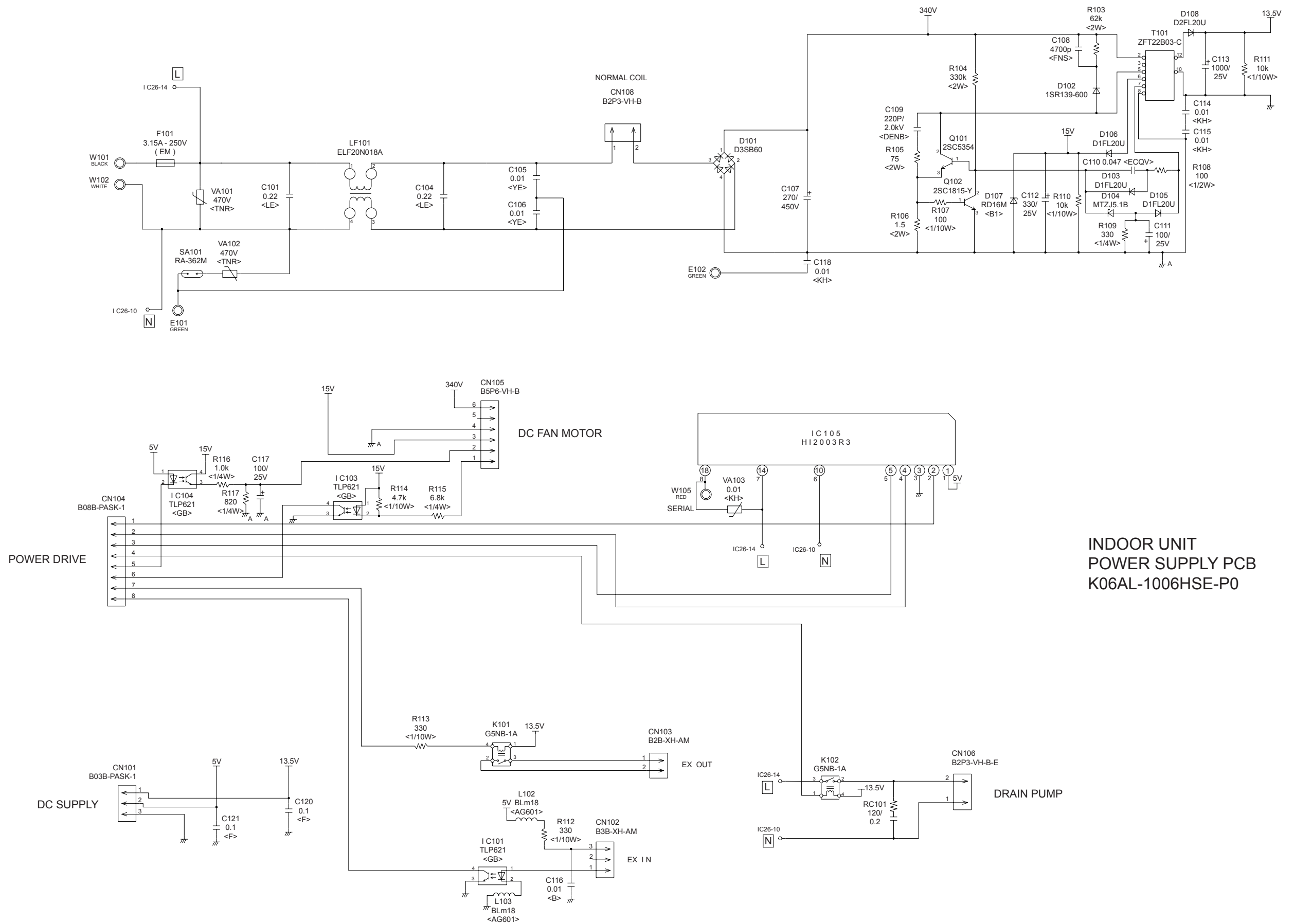


CONTROL UNIT
ARU9RLF : EZ-01123HSE
ARU12RLF : EZ-01124HSE

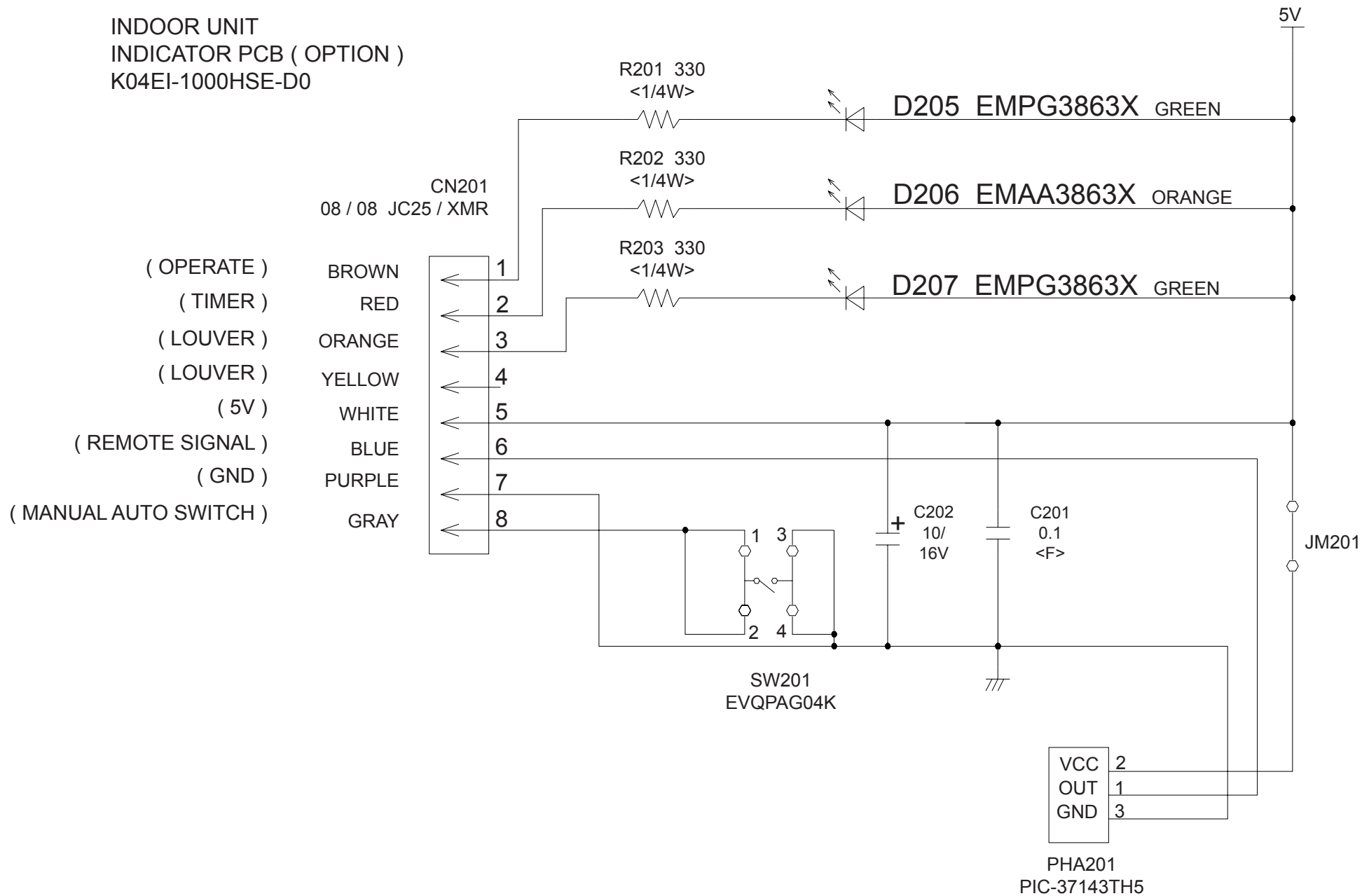


INDOOR UNIT
MAIN PCB
ARU9RLF : K06AK-121LHSE-C1
ARU12RLF : K06AK-121MHSE-C1



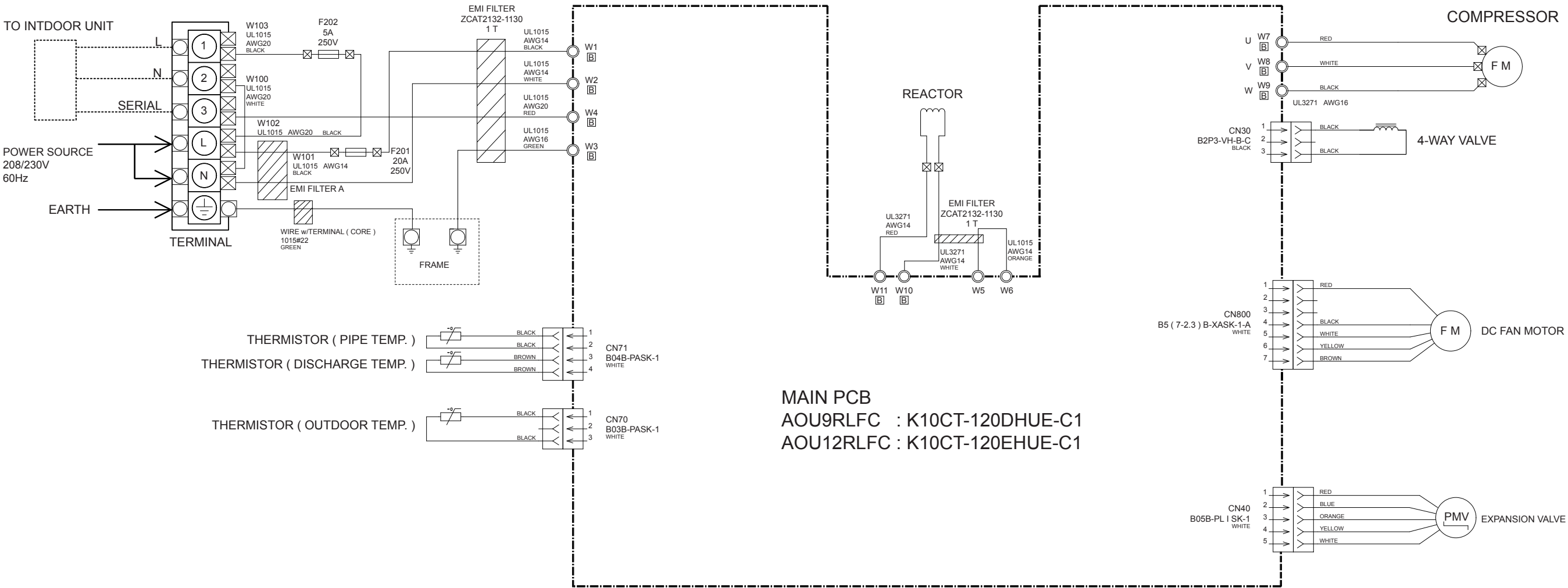


INDOOR UNIT
INDICATOR PCB (OPTION)
K04EI-1000HSE-D0

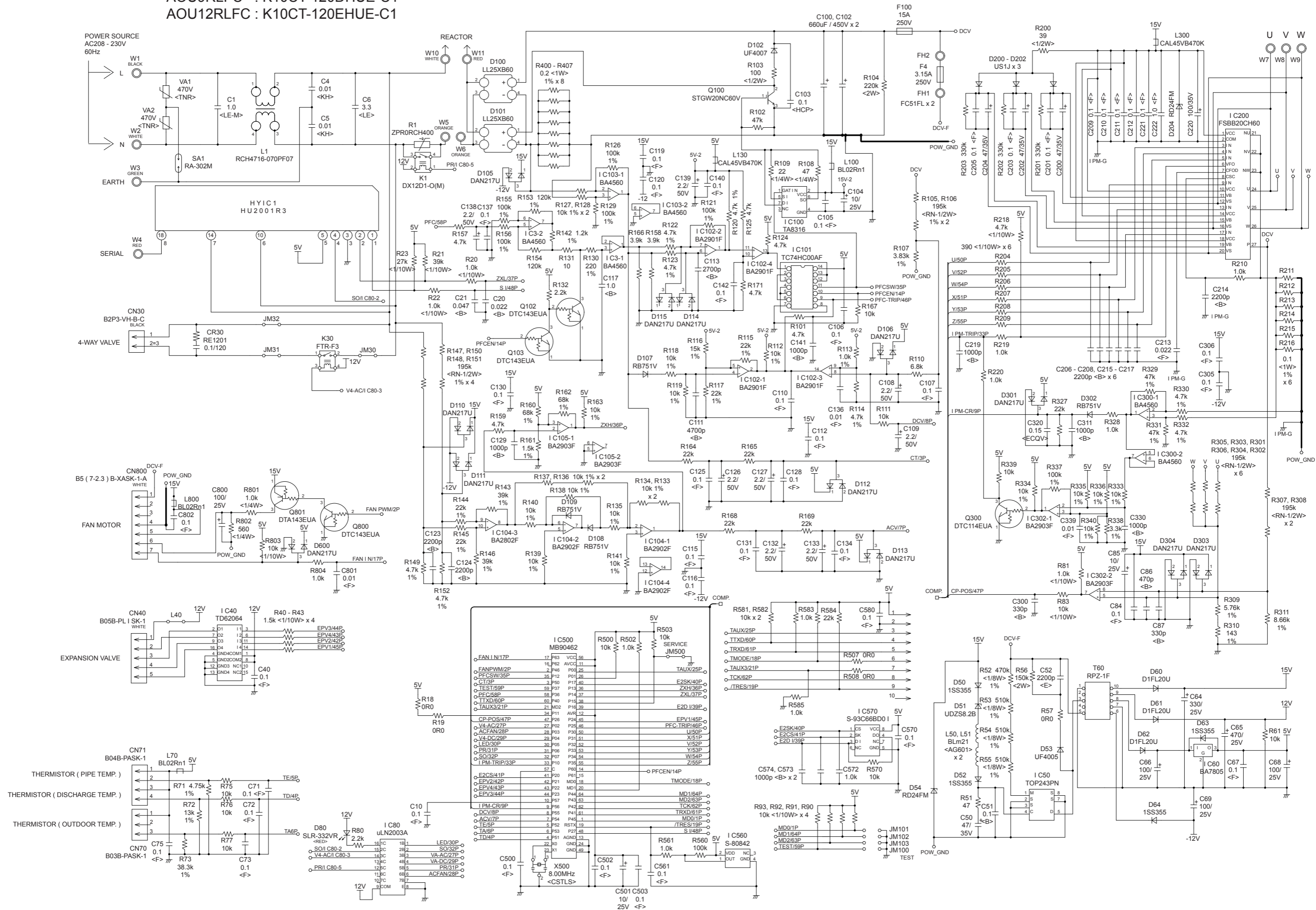


OUTDOOR PCB
CIRCUIT DIAGRAM

INVERTER ASSEMBLY
AOU9RLFC : EZ-01223HUE
AOU12RLFC : EZ-01224HUE



AOU12RLFC : K10CT-120EHUE-C1



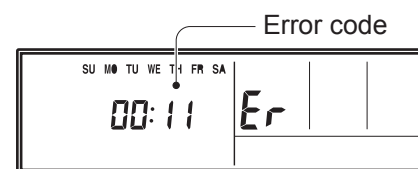
ERROR DETECTION

Troubleshooting at a wired remote control

INDOOR UNIT

If you use a wired type remote control,
error codes will appear on the remote control display.
If you use a wireless remote control, the lamps on the IR receiver
unit will output error codes by way of blinking patterns.
See the lamp blinking patterns and error codes in the table below.
An error display is displayed only during operation.

If an error occurs,
the following display will be shown.

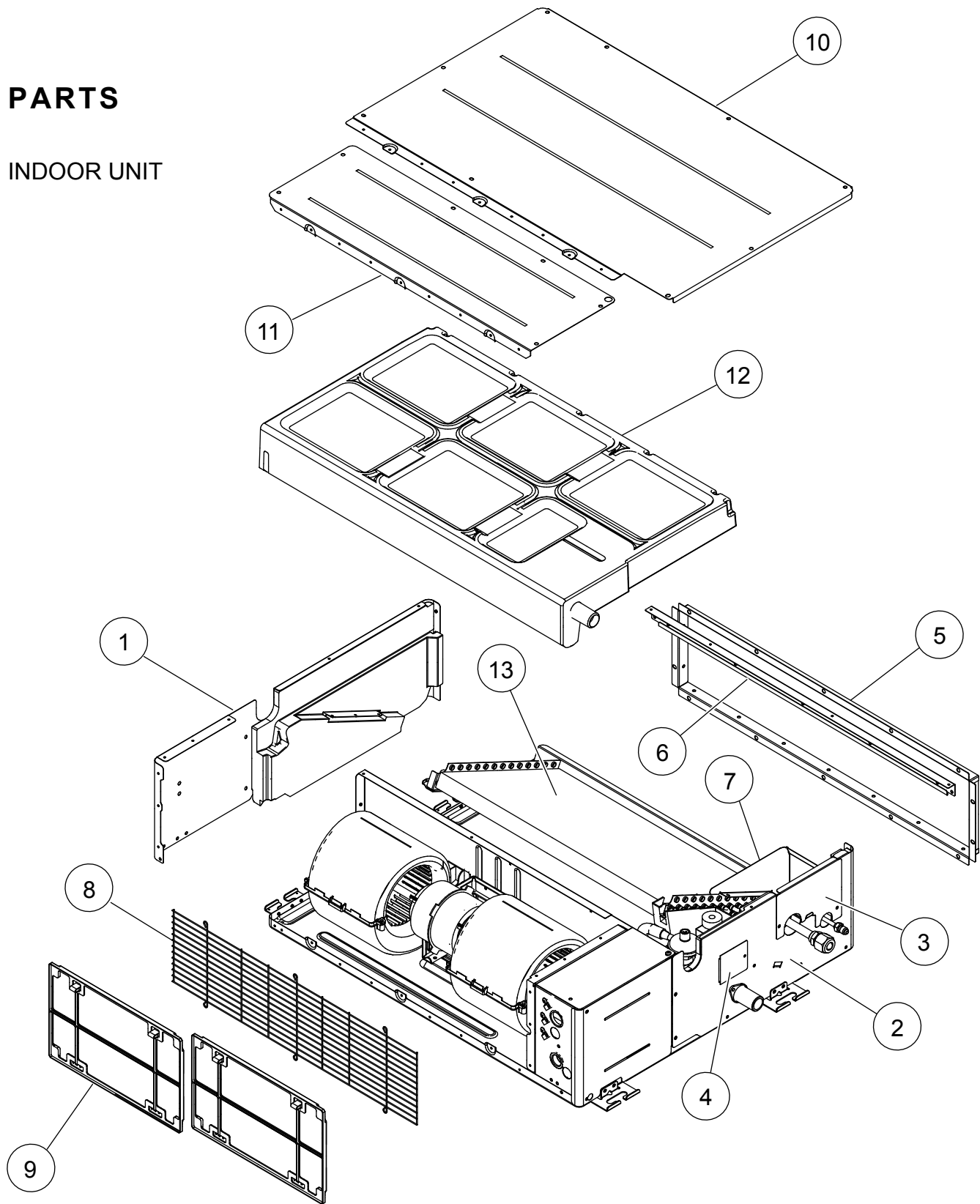


| Error display | | | Wired remote control | Mode | DESCRIPTION | Remark |
|------------------------------|---------------------------|----------------------------|----------------------------|--------------------|--|---|
| OPERATION lamp (green) | TIMER lamp (orange) | ECONOMY lamp (green) | | | | |
| ● (1) | ● (1) | ◇ | 11 | Communication | Serial communication error | •When the indoor unit cannot receive the signal from the branch unit •When the branch unit cannot receive the signal from the indoor unit |
| ● (1) | ● (2) | ◇ | 12 | Communication | Remote control communication error | •Wired remote control communication error |
| ● (1) | ● (5) | ◇ | 15 | Communication | Scan error | •Check operation incompleteness error (normally, operation disabled) |
| ● (2) | ● (1) | ◇ | 21 | Function setting | Initial setting error | •Wiring mistake |
| ● (2) | ● (2) | ◇ | 22 | Function setting | Indoor unit capacity error | •Indoor unit capacity error |
| ● (2) | ● (3) | ◇ | 23 | Function setting | Connection disabled (series error) | •Combination error |
| ● (2) | ● (4) | ◇ | 24 | Function setting | Connection unit number error | •Connection unit number error (indoor unit) •Connection unit number error (branch unit) |
| ● (3) | ● (2) | ◇ | 32 | Indoor unit | Indoor unit main PCB error | •Indoor unit PCB Model information error |
| ● (3) | ● (5) | ◇ | 35 | Indoor unit | Manual auto switch error | •Manual auto switch error |
| ● (4) | ● (1) | ◇ | 41 | Indoor unit | Room error | •Inlet thermistor error |
| ● (4) | ● (2) | ◇ | 42 | Indoor unit | Indoor unit Heat Ex. sensor error | •Indoor unit Heat Ex. Middle thermistor error |
| ● (5) | ● (1) | ◇ | 51 | Indoor unit | Indoor unit fan motor error | •Main fan motor lock error •Main fan motor revolution speed error |
| ● (5) | ● (3) | ◇ | 53 | Indoor unit | Water Drain error | •Drain pump error |
| ● (5) | ● (15) | ◇ | 54 | Indoor unit | Indoor unit error | •Indoor unit error |
| ● (6) | ● (2) | ◇ | 62 | Outdoor unit | Outdoor unit main PCB error | •Outdoor unit PCB Model information error •Outdoor unit PCB microcomputer communication error |
| ● (6) | ● (3) | ◇ | 63 | Outdoor unit | Inverter PCB error | •Inverter error |
| ● (6) | ● (4) | ◇ | 64 | Outdoor unit | Active filter error , PFC circuit error | •Voltage error stoppage permanently •Voltage error (can restore) •Over current protected operation stoppage permanently •PFC hardware error |
| ● (6) | ● (5) | ◇ | 65 | Outdoor unit | IPM error | •Trip terminal L error |
| ● (6) | ● (10) | ◇ | 6A | Outdoor unit | Display panel error | •Microcomputers communication error |
| ● (7) | ● (1) | ◇ | 71 | Outdoor unit | Discharge thermistor error | •Discharge thermistor 1 error |
| ● (7) | ● (2) | ◇ | 72 | Outdoor unit | Compressor thermistor error | •Compressor thermistor 1 error |
| ● (7) | ● (3) | ◇ | 73 | Outdoor unit | Outdoor unit Heat Ex. Sensor error | •Outdoor unit Heat Ex. liquid thermistor error |
| ● (7) | ● (4) | ◇ | 74 | Outdoor unit | Outdoor thermistor error | •Outdoor thermistor error |
| ● (7) | ● (5) | ◇ | 75 | Outdoor unit | Suction Gas thermistor error | •Suction Gas thermistor error |
| ● (7) | ● (7) | ◇ | 77 | Outdoor unit | Heat sink thermistor error | •Heat sink thermistor error |
| ● (8) | ● (2) | ◇ | 82 | Outdoor unit | Sub-cool Heat Ex. gas thermistor error | •Sub-cool Heat Ex. gas inlet thermistor error •Sub-cool Heat Ex. gas outlet thermistor error |
| ● (8) | ● (3) | ◇ | 83 | Outdoor unit | Liquid pipe thermistor error | •Liquid pipe thermistor 1 error |
| ● (8) | ● (4) | ◇ | 84 | Outdoor unit | Current sensor error | •Current sensor 1 error (stoppage permanently) |
| ● (8) | ● (6) | ◇ | 86 | Outdoor unit | Pressure sensor error | •Discharge pressure sensor error •Suction pressure sensor error •High pressure switch 1 error |
| ● (9) | ● (4) | ◇ | 94 | Outdoor unit | Trip detection | •Trip detection |
| ● (9) | ● (5) | ◇ | 95 | Outdoor unit | compressor motor control error | •Rotor position detection error (stoppage permanently) |
| ● (9) | ● (7) | ◇ | 97 | Outdoor unit | Outdoor unit fan motor 1 error | •Duty error |
| ● (9) | ● (9) | ◇ | 99 | Outdoor unit | 4-way valve error | •4-way valve error |
| ● (10) | ● (1) | ◇ | A1 | Refrigerant system | Discharge temperature 1 error | •Discharge temperature 1 error |
| ● (10) | ● (3) | ◇ | A3 | Refrigerant system | Compressor temperature error | •Compressor 1 temperature error |
| ● (10) | ● (5) | ◇ | A5 | Refrigerant system | Pressure error 2 | •Low pressure error |
| ● (13) | ● (2) | ◇ | J2 | Branch box | Unit flow divider error | •EEPROM access error •Equipment type information error •Serial communication error to outdoor unit •Branch units serial communication error •Serial communication error to indoor unit •Liquid pipe thermistor error •Gas pipe thermistor error •Expansion valve full closure operation error •Remote control communication error •Branch unit error |

● : 0.5s ON / 0.5s OFF, () : Number of flashing, ◇ : 0.1s ON / 0.1s OFF

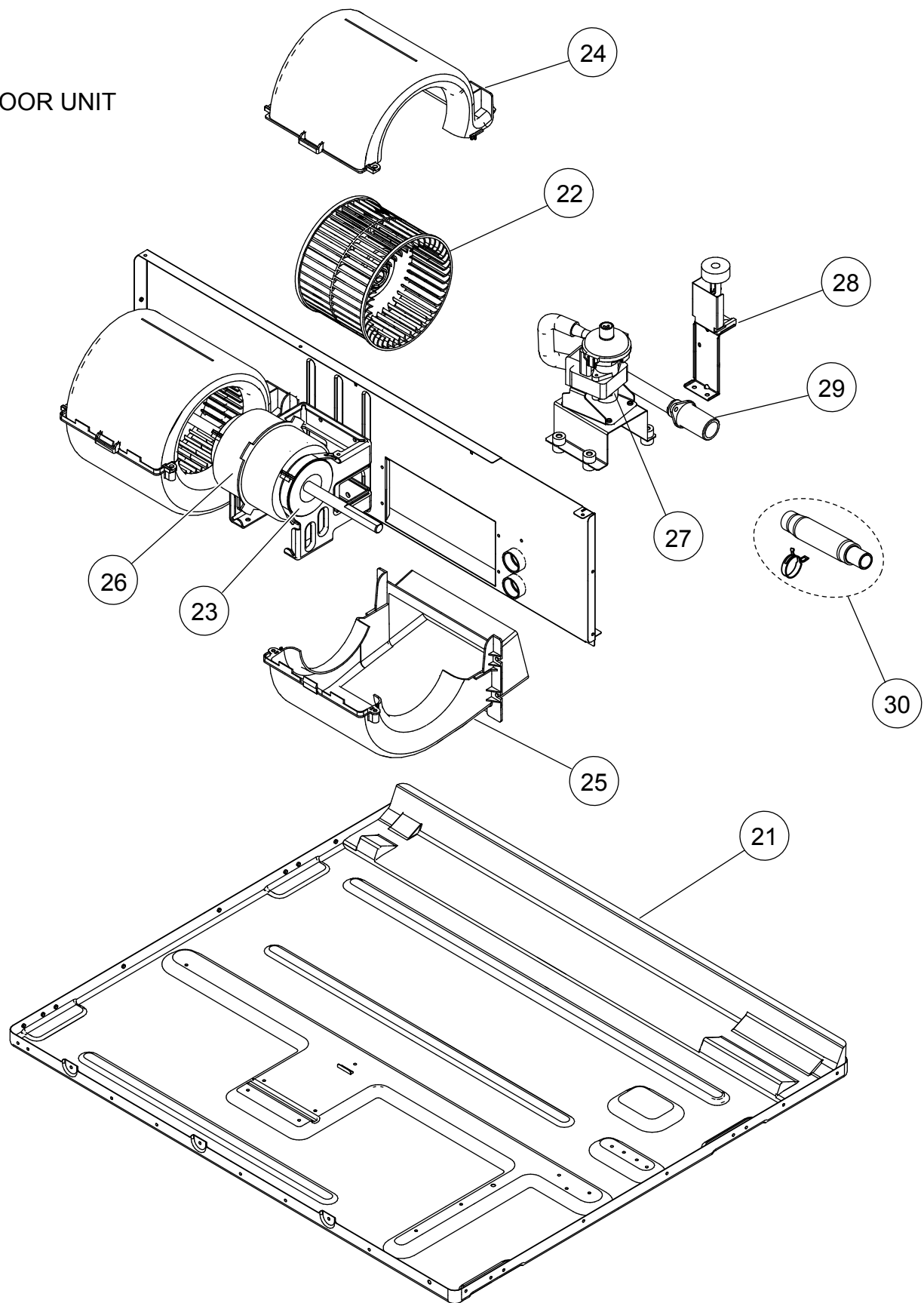
PARTS

INDOOR UNIT



| Ref | Description | Parts number | Ref | Description | Parts number |
|-----|-------------------------|--------------|-----|-----------------------|--------------|
| 1 | Side Panel R Sub Assy | 9379906012 | 8 | Fan Guard (2 Fan) | 9380589006 |
| 2 | Side Panel L Sub Assy | 9379907019 | 9 | Air Filter | 9379574006 |
| 3 | Pipe Panel Sub Assy | 9379900003 | 10 | Main Panel (2 Fan) | 9380602002 |
| 4 | Panel (Window) Sub Assy | 9379915007 | 11 | Cabinet Panel (2 Fan) | 9380597001 |
| 5 | Outlet Frame Assy | 9380042006 | 12 | Drain Pan Sub Assy | 9379901048 |
| 6 | Front Panel (2 Fan) | 9380594000 | 13 | Evaporater Total Assy | 9380682042 |
| 7 | Valve Cover Sub Assy | 9379576017 | | | |

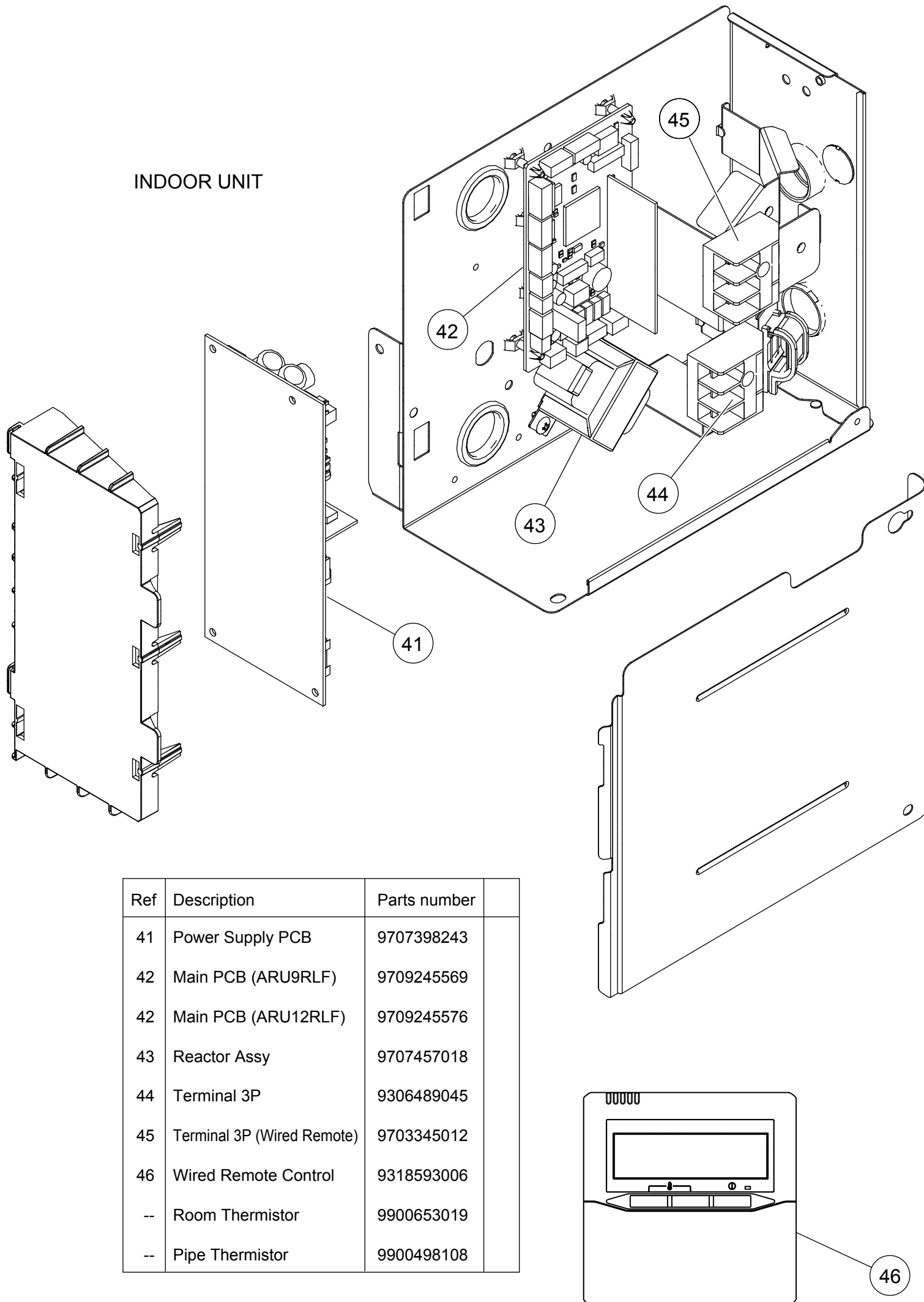
INDOOR UNIT



| Ref | Description | Parts number |
|-----|--------------------------|--------------|
| 21 | Top Panel Sub Assy | 9379908030 |
| 22 | Sirroco Fan Assy | 9379570015 |
| 23 | Rubber (Vibration Proof) | 9379644006 |
| 24 | Casing B | 9379572019 |
| 25 | Casing U | 9379571012 |

| Ref | Description | Parts number |
|-----|-----------------------|--------------|
| 26 | Fan Motor Assy | 9602967025 |
| 27 | Pump Assy | 9900472054 |
| 28 | Float Switch Sub Assy | 9378593022 |
| 29 | Drain Hose Assy | 9379913003 |
| 30 | Hose Sub Assy | 9378450141 |

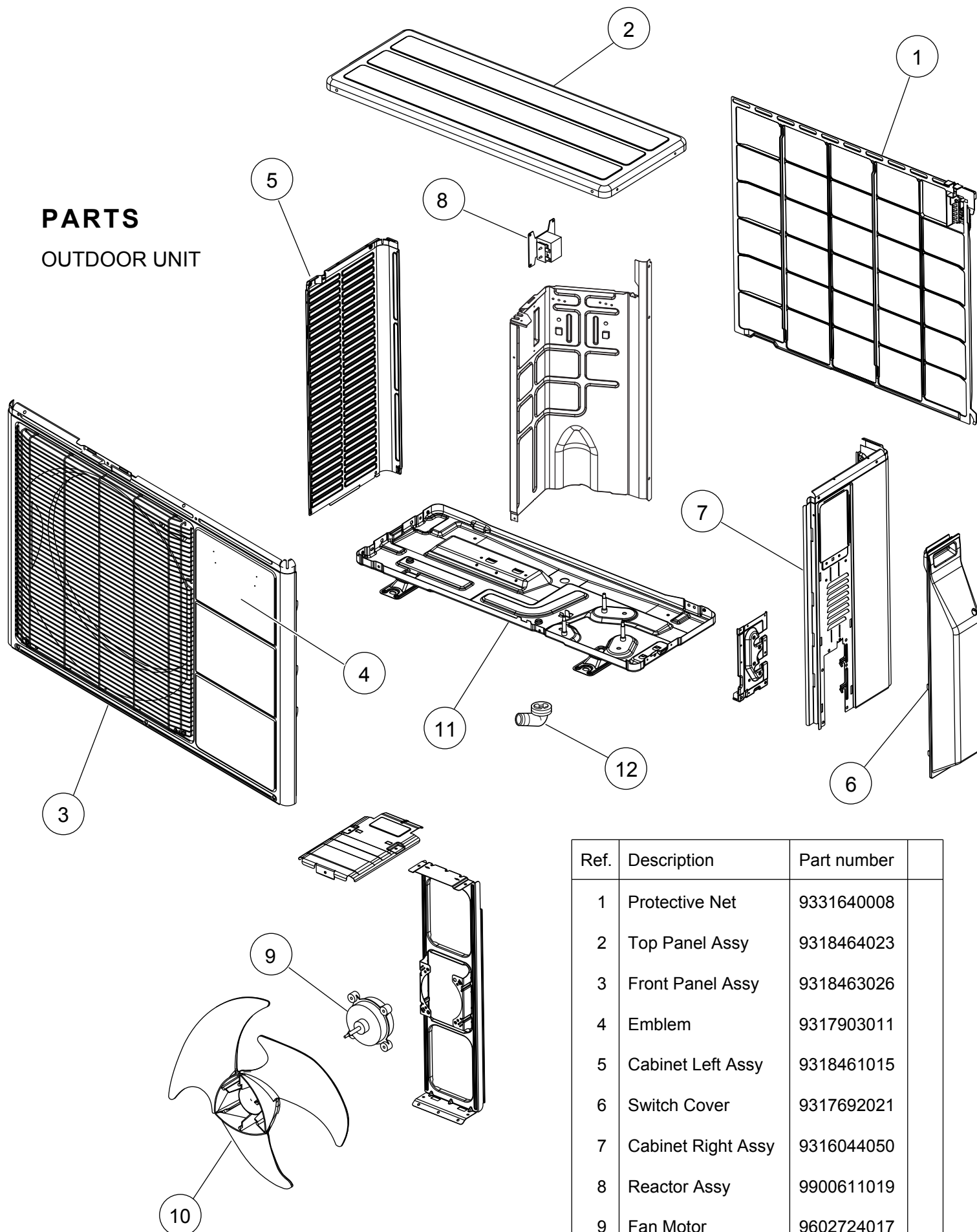
INDOOR UNIT



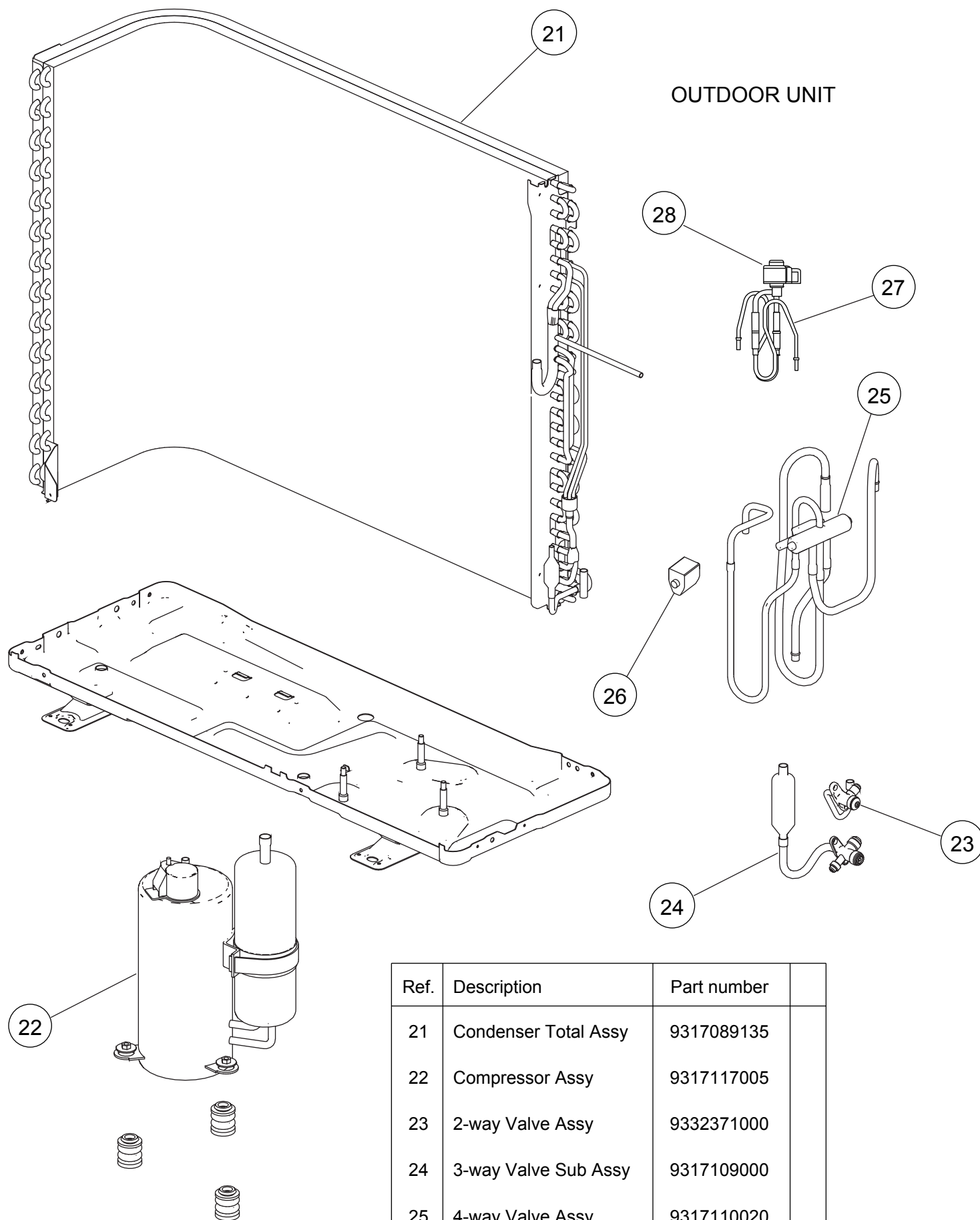
| Ref | Description | Parts number | |
|-----|----------------------------|--------------|--|
| 41 | Power Supply PCB | 9707398243 | |
| 42 | Main PCB (ARU9RLF) | 9709245569 | |
| 42 | Main PCB (ARU12RLF) | 9709245576 | |
| 43 | Reactor Assy | 9707457018 | |
| 44 | Terminal 3P | 9306489045 | |
| 45 | Terminal 3P (Wired Remote) | 9703345012 | |
| 46 | Wired Remote Control | 9318593006 | |
| -- | Room Thermistor | 9900653019 | |
| -- | Pipe Thermistor | 9900498108 | |

PARTS

OUTDOOR UNIT

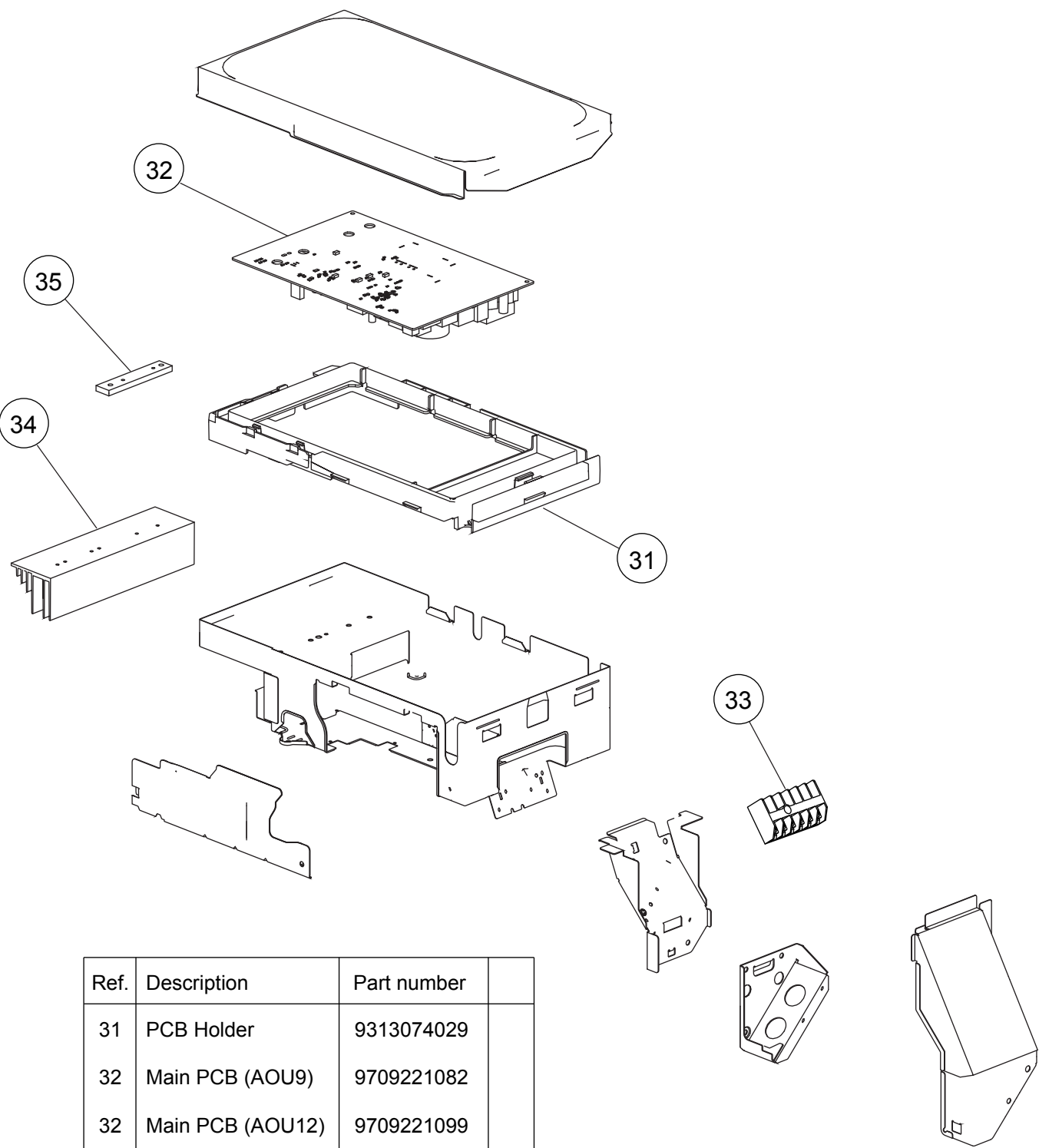


| Ref. | Description | Part number | |
|------|--------------------|-------------|--|
| 1 | Protective Net | 9331640008 | |
| 2 | Top Panel Assy | 9318464023 | |
| 3 | Front Panel Assy | 9318463026 | |
| 4 | Emblem | 9317903011 | |
| 5 | Cabinet Left Assy | 9318461015 | |
| 6 | Switch Cover | 9317692021 | |
| 7 | Cabinet Right Assy | 9316044050 | |
| 8 | Reactor Assy | 9900611019 | |
| 9 | Fan Motor | 9602724017 | |
| 10 | Propeller Fan | 9313808013 | |
| 11 | Base Assy | 9316885066 | |
| 12 | Drain Assy | 9303029022 | |



| Ref. | Description | Part number | |
|------|------------------------|-------------|--|
| 21 | Condenser Total Assy | 9317089135 | |
| 22 | Compressor Assy | 9317117005 | |
| 23 | 2-way Valve Assy | 9332371000 | |
| 24 | 3-way Valve Sub Assy | 9317109000 | |
| 25 | 4-way Valve Assy | 9317110020 | |
| 26 | Solenoid | 9970110047 | |
| 27 | Pulse Motor Valve Assy | 9332368000 | |
| 28 | Expansion Valve Coil | 9970095030 | |

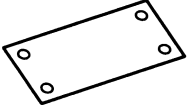
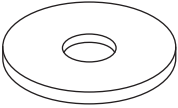
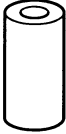

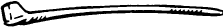
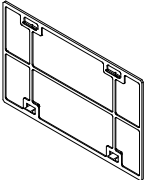
OUTDOOR UNIT

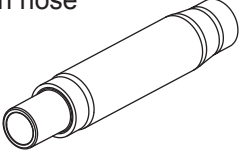




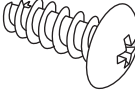


| Ref. | Description | Part number | |
|------|--------------------|-------------|--|
| 31 | PCB Holder | 9313074029 | |
| 32 | Main PCB (AOU9) | 9709221082 | |
| 32 | Main PCB (AOU12) | 9709221099 | |
| 33 | Terminal | 9900016081 | |
| 34 | Heatsink A | 9314410017 | |
| 35 | Heatsink B | 9314090011 | |
| -- | Outdoor Thermistor | 9900544010 | |
| -- | Thermistor Assy | 9900614027 | |

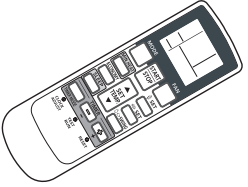
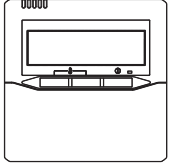

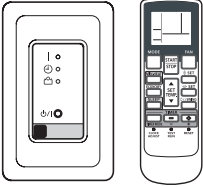
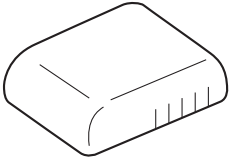
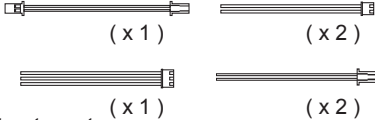
ACCESSORIES

INDOOR UNIT

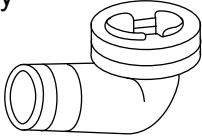
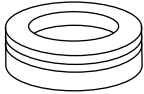
| Name and Shape | Q'ty | Application |
|---|-------------|---|
| Installation template  | 1 | For positioning an indoor unit |
| Washer  | 8 | For installing indoor unit |
| Coupler heat insulation (large)  | 1 | For indoor side pipe joint (large pipe) |
| Coupler heat insulation (small)  | 1 | For indoor side pipe joint (small pipe) |
| Binder  | Medium 3 | For power supply and remote control cable binding |
| | Large 4 | For fixing a coupler heat insulation |
| Filter (small)  | 2 | |

| Name and Shape | Q'ty | Application |
|--|------|---|
| Drain hose  | 1 | For installing drain pipe 3/4 in. (O.D. 1-1/16 in.) |
| Hose band  | 1 | For installing drain hose |
| Drain hose insulation B  | 1 | Insulates a drain hose |
| Wired remote control  | 1 | |
| Remote control cable  | 1 | For connecting a remote control |
| Tapping screw (M4 × 16 mm)  | 2 | For installing the remote control |

OPTIONAL PARTS

| |
|--|
| Name and Shape Wireless remote control UTY-LNHUM  |
| Wired remote control UTY-RNNUM  |
| Simple remote control UTY-RSNUM  |
| IR receiver unit UTY-LRHUM  for a wireless remote control |
| Remote sensor unit UTY-XSZX  room temperature sensor |
| External control set UTD-ECS5A  for control input/output port |

OUTDOOR UNIT

| Name and Shape | Q'ty | Use | Part number |
|---|------|-----------------------|--------------|
| Drain assy  | 1 | For drain piping work | 9303029022 |
| Drain cap  | 3 | | 313166024302 |

1302G4173