FUJITSU

WALL MOUNTED TYPE AND FLOOR / CEILING UNIVERSAL TYPE AIR CONDITIONER

TECHNICAL MANUAL

FUJITSU GENERAL LIMITED

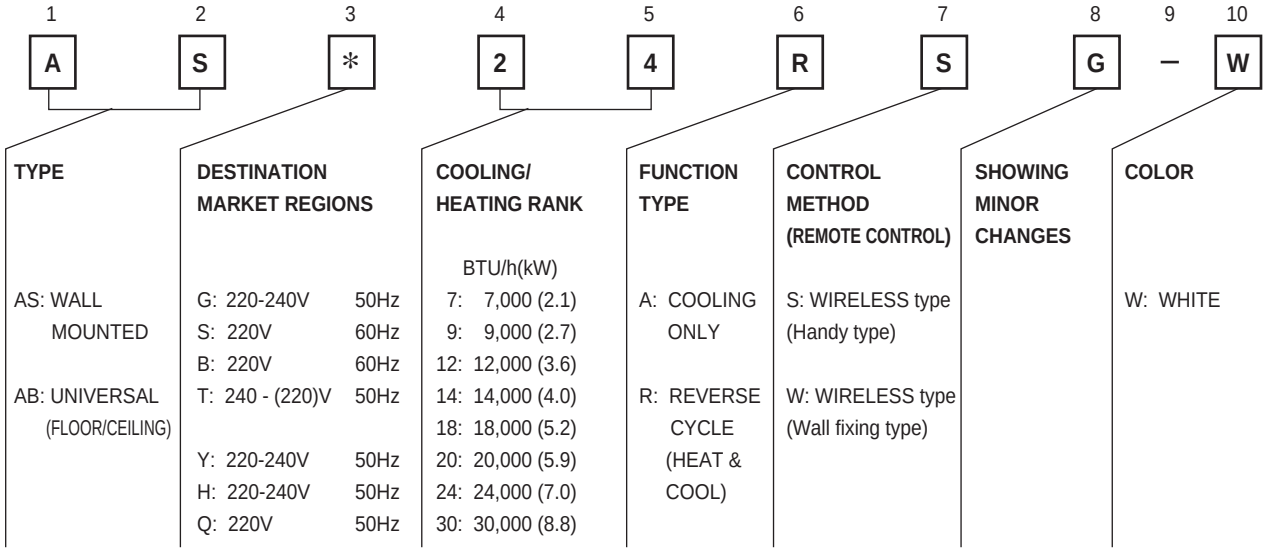
CONTENTS

1. FEATURES

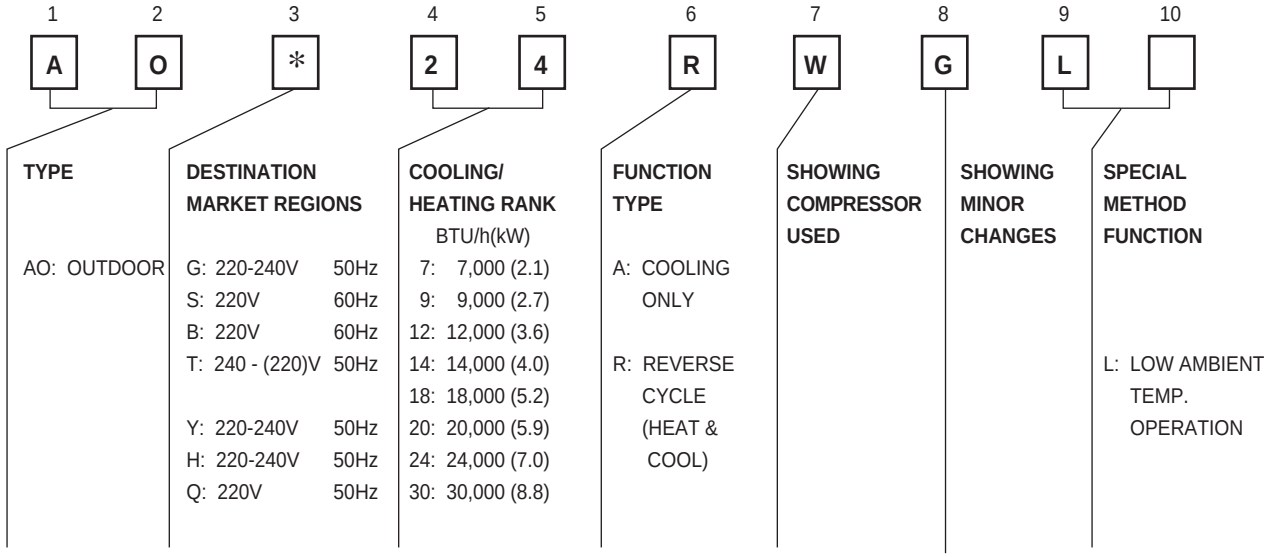
1.1 MODEL IDENTIFICATION

This list applies to new models since June 1997.

Example
INDOOR UNIT



OUTDOOR UNIT



1.2 APPLICATION MODEL

1.2.1 COMPACT SII, MII & LI SERIES FOR 7,000 TO 17,000 BTU/h

CLASSIFICATION		INDOOR UNIT	OUTDOOR UNIT
7,000 BTU/h SII-SERIES	Cooling	AS ✻ 7ASC-W AS ✻ 7ASCCW AS ✻ 7ASD-W	AO ✻ 7ASC AO ✻ 7ASCC AO ✻ 7ASD
	Reverse cycle (Cool & Heat)	AS ✻ 7RSC-W AS ✻ 7RSCCW AS ✻ 7RSD-W	AO ✻ 7RSC AO ✻ 7RSCC AO ✻ 7RSD
8,000BTU/h MII-SERIES	Cooling	ASC-202EA ASC-202A ASC-202B ASC-202C ASC-202D ASC8AYB-W	AOC-202EA AOC-202A AOC-202B AOC-202C AOC-202D AOC8AGBE
9,000BTU/h MII-SERIES	Cooling	AS ✻ 9ASE-W AS ✻ 9ASF-W AS ✻ 9ASG-W AS ✻ 9ASECW AS ✻ 9ASFCW AS ✻ 9ASGCW AS ✻ 9ASHCW AS ✻ 9ASMCW ASB9ASB-W ASA9ASECW FAS25ASAW ASZ9ASBCW	AO ✻ 9ANE AO ✻ 9ANF AO ✻ 9ANG AO ✻ 9ANEC AO ✻ 9ANFC AO ✻ 9ANGC AO ✻ 9ANHC AO ✻ 9ANMC AOB9ASB AOA9ANEC FAO25ASA AOZ9ASBC
	Reverse Cycle (Cool & Heat)	AS ✻ 9RSE-W AS ✻ 9RSF-W AS ✻ 9RSG-W AS ✻ 9RSECW AS ✻ 9RSFCW AS ✻ 9RSGCW AS ✻ 9RSHCW AS ✻ 9RSMCW ASB9RSACW ASB9RSBCW FAS25RSAW FAS25RSBW ASQ9RSDCW	AO ✻ 9RSE AO ✻ 9RSF AO ✻ 9RSG AO ✻ 9RNEC AO ✻ 9RSFC AO ✻ 9RSGC AO ✻ 9RSHC AO ✻ 9RSMC AOB9RSNC AOB9RNBC FAO25RSA FAO25RSB AOQ9RSDC
10,000BTU/h MII-SERIES	Cooling	ASC-252EA ASC-252A ASC-252B ASC-252C ASC-252D ASC10AYB-W AS ✻ 10FSA-W AS ✻ 10FSACW	AOC-252EA AOC-252A AOC-252B AOC-252C AOC-252D AOC10AGBE AO ✻ 10FSA AO ✻ 10FSAC
	Reverse cycle (Cool & Heat)	AS ✻ 10USA-W AS ✻ 10USACW	AO ✻ 10USA AO ✻ 10USAC

CLASSIFICATION		INDOOR UNIT	OUTDOOR UNIT
12,000BTU/h MII-SERIES	Cooling	AS ✻ 12ASE-W AS ✻ 12ASF-W AS ✻ 12ASG AS ✻ 12FSA-W AS ✻ 12ASECW AS ✻ 12ASFCW AS ✻ 12ASGCW AS ✻ 12ASHCW AS ✻ 12FSACW AS ✻ 12ASMCW ASB12ASACW ASB12ASB-W ASB12ASBCW ASB12ASCCW ASZ12ASCCW ASA12ASECW FAS34ASAW ASQ12ASBCW ASU12ASNCW ASH12ASECW	AO ✻ 12ASE AO ✻ 12ASF AO ✻ 12ASG AO ✻ 12FSA AO ✻ 12ASEC AO ✻ 12ASFC AO ✻ 12ASGC AO ✻ 12ASHC AO ✻ 12FSAC AO ✻ 12ASMC AOB12ASAC AOB12ARAE AOB12ARAE AOB12ASCC AOZ12ASBC AOA12ASEC FAO34ASA AOQ12ASBC AOU12ASNC AOH12ASEC
	Reverse cycle (Cool & Heat)	AS ✻ 12RSE-W AS ✻ 12RSF-W AS ✻ 12RSG-W AS ✻ 12USA-W AS ✻ 12RSECW AS ✻ 12RSFCW AS ✻ 12RSGCW AS ✻ 12RSHCW AS ✻ 12RSMCW AS ✻ 12USACW ASB12RSBCW ASB12RSCCW ASB12RSDCW FAS34RSAW FAS34RSBW	AO ✻ 12RSE AO ✻ 12RSF AO ✻ 12RSG AO ✻ 12USA AO ✻ 12RSEC AO ✻ 12RSFC AO ✻ 12RSGC AO ✻ 12RSHC AO ✻ 12RSMC AO ✻ 12USAC AOB12RSBC AOB12RSCC AOB12RRAE FAO34RSA FAO34RSB
14,000 BTU/h LI-SERIES	Cooling	AS ✻ 14ASE-W AS ✻ 14ASF-W	AO ✻ 14AGD AO ✻ 14AND
	Reverse cycle (Cool & Heat)	AS ✻ 14RSE-W AS ✻ 14RSF-W	AO ✻ 14RGD AO ✻ 14RND
17,000 BTU/h LI-SERIES	Cooling	AS ✻ 17ASE-W AS ✻ 17ASH-W AS ✻ 17ASL-W	AO ✻ 17AB AO ✻ 17AN
	Reverse cycle (Cool & Heat)	AS ✻ 17RSB-W AS ✻ 17RSH-W	AO ✻ 17RB AO ✻ 17RN

1.2.2 WALL MOUNTED LARGE AS-SERIES FOR 20,000 TO 30,000 BTU/h

CLASSIFICATION		INDOOR UNIT			OUTDOOR UNIT
		Wireless (Handy)	Wireless (Wall fixing)	Wireless (Handy/ Wall fixing universal)	
20,000 BTU/h	Cooling	AS ✻ 20AS (ASC-502B)	AS ✻ 20AW	AS ✻ 20AG	AO ✻ 20AW AO ✻ 20AZ AO ✻ 20AN (AOC-502B)
	Reverse cycle (Cool & Heat)	AS ✻ 20RS	AS ✻ 20RW	AS ✻ 20RG	AO ✻ 20RW AO ✻ 20RZ AO ✻ 20RM
24,000 BTU/h	Cooling	AS ✻ 24AS (ASC-602B)	AS ✻ 24AW	AS ✻ 24AG	AO ✻ 24AW AO ✻ 24AB AO ✻ 24AN (AOC-602B)
	Reverse cycle (Cool & Heat)	AS ✻ 24RS	AS ✻ 24RW	AS ✻ 24RG	AO ✻ 24RW AO ✻ 24RZ AO ✻ 24RM
30,000 BTU/h	Cooling	AS ✻ 30AS	AS ✻ 30AW	AS ✻ 30AG	AO ✻ 30AB
	Reverse cycle (Cool & Heat)	AS ✻ 30RS	AS ✻ 30RW	AS ✻ 30RG	AO ✻ 30RB

1.2.3 FLOOR/CEILING UNIVERSAL TYPE AB-SERIES FOR 14,000 TO 24,000 BTU/h

CLASSIFICATION		INDOOR UNIT			OUTDOOR UNIT
		Wireless (Handy)	Wireless (Wall fixing)	Wireless (Handy/ Wall fixing universal)	
14,000 BTU/h	Cooling	AB ✻ 14AS	AB ✻ 14AW	AB ✻ 14AG	AO ✻ 14AN AO ✻ 14AG
	Reverse cycle (Cool & Heat)	AB ✻ 14RS	AB ✻ 14RW	AB ✻ 14RG	AO ✻ 14RN AO ✻ 14RG
18,000 BTU/h	Cooling	AB ✻ 18AS	AB ✻ 18AW	AB ✻ 18AG	AO ✻ 18AW AO ✻ 18AZ AO ✻ 18AN
	Reverse cycle (Cool & Heat)	AB ✻ 18RS	AB ✻ 18RW	AB ✻ 18RG	AO ✻ 18RW AO ✻ 18RZ AO ✻ 18RM
24,000 BTU/h	Cooling	AB ✻ 24AS	AB ✻ 24AW	AB ✻ 24AG	AO ✻ 24AW AO ✻ 24AB AO ✻ 24AN
	Reverse cycle (Cool & Heat)	AB ✻ 24RS	AB ✻ 24RW	AB ✻ 24RG	AO ✻ 24RW AO ✻ 24RZ AO ✻ 24RM

1.3 FEATURES OF EACH MODEL

No.	ITEM	COMPACT SII-type		COMPACT MII-type		Wall mounted AS∗20～30,000 BTU/h -type				FLOOR/CEILING AB∗14～24,000 BTU/h -type			
		Cooling only	Reverse cycle	Cooling only	Reverse cycle	Cooling only	Reverse cycle	Cooling only	Reverse cycle	Cooling only	Reverse cycle	Cooling only	Reverse cycle
1	Wireless remote control unit • Handy type	○	○	○	○	○	○	—	—	○	○	—	—
	Wireless remote control unit • Wall fixing type	—	—	—	—	—	—	○	○	—	—	○	○
2	Automatic operation	○	○	○	○	○	—	○	—	○	—	○	—
	Auto changeover operation	—	—	—	—∗3	—	○	—	○	—	○	—	○
3	Heating operation (reverse cycle)	—	○	—	○	—	○	—	○	—	○	—	○
4	Cooling operation	○	○	○	○	○	○	○	○	○	○	○	○
5	Dry operation	○	○	○	○	○	○	○	○	○	○	○	○
6	Fan operation	○	○	○	○	○	○	○	○	○	○	○	○
7	Auto fan speed	○	○	○	○	○	○	○	○	○	○	○	○
8	Nice morning timer (ON timer)	○	○	○	○	○	○	○	○	○	○	○	○
9	OFF timer	○	○	○	○	○	○	○	○	○	○	○	○
10	Sleep timer	○	○	○	○	○	○	○	○	○	○	○	○
11	Program timer	○	○	○	○	○	○	○	○	○	○	○	○
12	Energy save operation	—	—	—	—	—	—	○	○	—	—	○	○
13	Vertical air direction adjustment	○	○	○	○	○	○	○	○	○	○	○	○
14	Horizontal air direction adjustment	—	—	—	—	○	○	○	○	○	○	○	○
15	Vertical air flow swing operation	○	○	○	○	○	○	○	○	○	○	○	○
16	Horizontal air flow swing operation	—	—	—	—	○	○	○	○	○	○	○	○
17	Super vane	—	—	—	—	○	○	○	○	○	○	○	○
18	Linked power diffuser	—	—	—	—∗4	○	○	○	○	—	—	—	—
19	Automatic shut flaps	○	○	○	○	○	○	○	○	○	○	○	○
20	Cooling operation even at low outdoor temperature (0˚C)	—	—	—	—	—∗1	○∗2	—∗1	○∗2	—	○∗2	—	○∗2
21	Mold prevention filter	○	○	○	○	○	○	○	○	○	○	○	○
22	Air purifying filter (optional)	(○)	(○)	(○)	(○)	(○)	(○)	(○)	(○)	—	—	—	—
23	Auto-restart	○	○	○	○	○	○	○	○	○	○	○	○
24	Quiet	○	○	○	○	—	—	—	—	—	—	—	—
25	Others												

NOTE:
∗ 1 Models ASG30AS and ASY30AS have a No. 20 function.
∗ 2 Models AB ∗14RS have no No. 20 function.
∗ 3 Models AST9RSG and AST12RSG have a No. 2 function.
∗ 4 Models ASY9RSG and ASY12RSG have a No. 18 function.

1.3.1 WIRELESS REMOTE CONTROL UNIT (Handy type)

① **SLEEP button**

② **MASTER CONTROL button**

③ **SET TEMP./SET TIME buttons (⊕/⊖)**

④ **Signal Transmitter**

⑤ **TIMER button**

⑥ **FAN CONTROL button**

⑦ **START/STOP button**

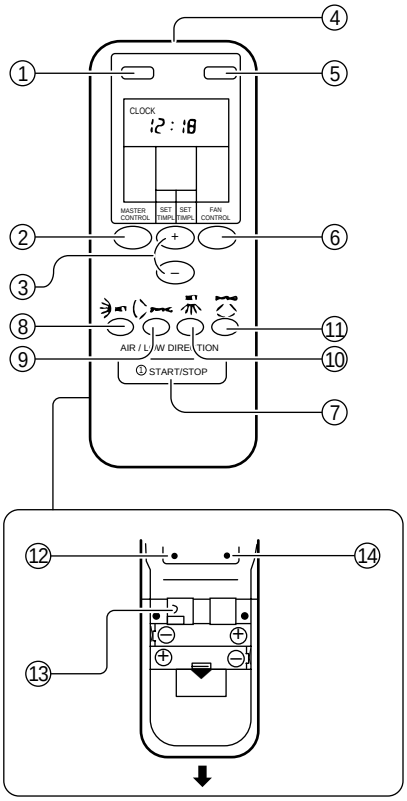
⑧ **AIRFLOW DIRECTION**
VERTICAL SET Button

⑨ **AIRFLOW DIRECTION**
VERTICAL SWING Button

⑩ **AIRFLOW DIRECTION**
HORIZONTAL SET Button

⑪ **AIRFLOW DIRECTION**
HORIZONTAL SWING Button

- Wireless type



Rear Side

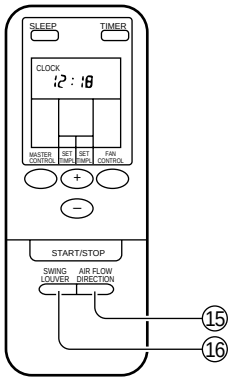
⑫ **TIME ADJUST button**

⑬ **ACL button**
(located inside battery compartment)

⑭ **TEST RUN button**

- This button is used when installing the air conditioner, and should not be used under normal conditions, as it will cause the air conditioner's thermostat function to operate incorrectly.
- If this button is pressed during normal operation, the unit will switch to test operation mode, and the Indoor Unit's OPERATION Indicator Lamp and TIMER Indicator Lamp will begin to flash simultaneously.
- To stop the test operation mode, either press the TEST RUN button once again, or press the START/STOP button to stop the air conditioner.

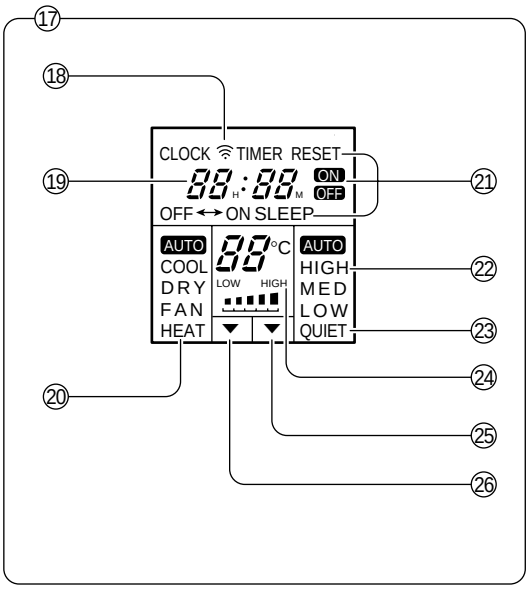
- Compact type SII, MII only



⑮ **AIRFLOW DIRECTION**
VERTICAL SET Button

⑯ **AIRFLOW DIRECTION**
VERTICAL SWING Button

Remote Control Unit Display



⑰ **Remote Control Unit Display**

⑱ **Transmit Indicator**

⑲ **Clock Display**

⑳ **Operating Mode Display**

㉑ **Timer Mode Display**

㉒ **Fan Speed Display**

㉓ **Temperature Set Display**

㉔ **Timer Set Indicator**

㉕ **Temperature Set Indicator**

㉖ **Compact type SII, MII only**

1.3.2 WIRELESS REMOTE CONTROL UNIT (Wall fixing type)

① **SLEEP button**

② **MASTER CONTROL button**

③ **SET TIME buttons (▲ / ▼)**

④ **SET TEMP. buttons (▲ / ▼)**

⑤ **Signal Transmitter**

⑥ **TIMER button**

⑦ **FAN CONTROL button**

⑧ **START/STOP button**

⑨ **AIRFLOW DIRECTION**
VERTICAL SET Button

⑩ **AIRFLOW DIRECTION**
VERTICAL SWING Button

⑪ **AIRFLOW DIRECTION**
HORIZONTAL SET Button

⑫ **AIRFLOW DIRECTION**
HORIZONTAL SWING Button

⑬ **ENERGY SAVE Button**

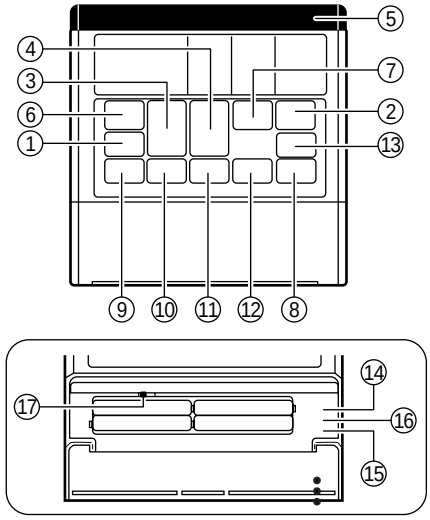
Inside of battery cover

⑭ **TIME ADJUST button**

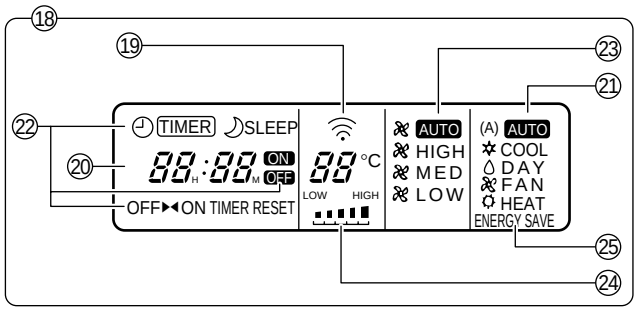
⑮ **ACL button**
(located inside battery compartment)

⑯ **TEST RUN button**
- This button is used when installing the air conditioner, and should not be used under normal conditions, as it will cause the air conditioner's thermostat function to operate incorrectly.
- If this button is pressed during normal operation, the unit will switch to test operation mode, and the Indoor Unit's OPERATION Indicator Lamp and TIMER Indicator Lamp will begin to flash simultaneously.
- To stop the test operation mode, either press the TEST RUN button once again, or press the START/STOP button to stop the air conditioner.

⑰ **CODE CHANGE Switch**
- Switching the remote controller code.
- Use remote controller code A (on the leftmost side) to operate the unit using the remote controller.
- When it is necessary to switch the remote controller code. contact a service technician since the PCB remote controller code of the indoor unit must also be switched.



Remote Control Unit Display



⑱ **Remote Controller Display**

⑲ **Transmit Indicator**

⑳ **Clock Display**

㉑ **Operating Mode Display**

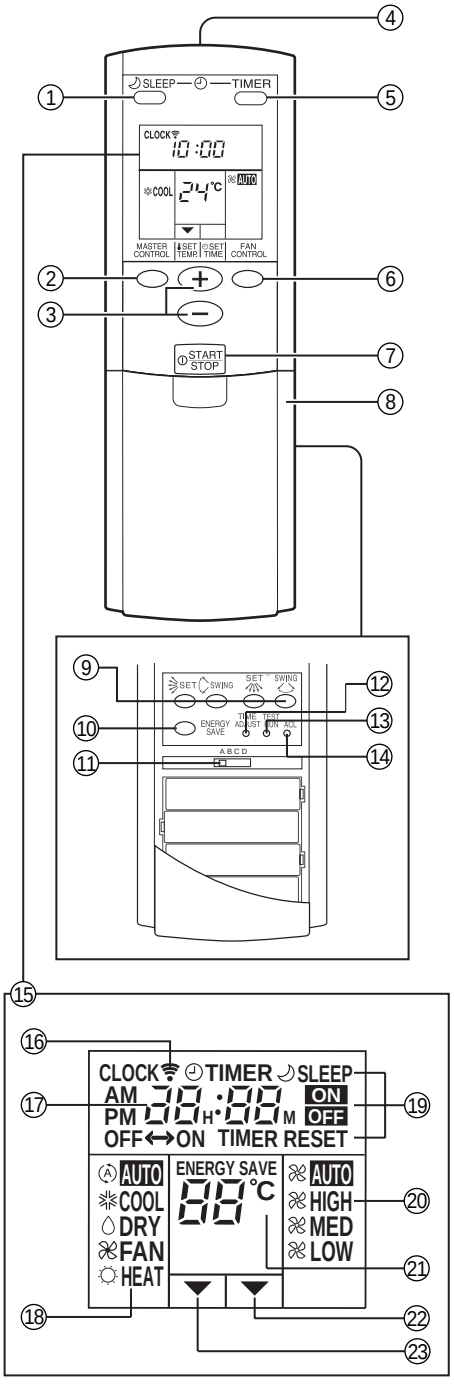
㉒ **Timer Mode Display**

㉓ **Fan Speed Display**

㉔ **Temperature Set Display**

㉕ **Energy Save Display**

1.3.3 WIRELESS REMOTE CONTROL UNIT



① **SLEEP button**

② **MASTER CONTROL button**

③ **SET TEMP./SET TIME buttons (⊕/⊖)**

④ **Signal Transmitter**

⑤ **TIMER button**

⑥ **FAN CONTROL button**

⑦ **START/STOP button**

⑧ **Battery compartment lid**

Inside of the battery compartment lid

⑨ **AIRFLOW DIRECTION button**

⑩ **ENERGY SAVE button**

⑪ **CODE CHANGE (Slide Switch)**
Switching the remote control unit code.
(Max. 4 units)

⑫ **TIME ADJUST button**

⑬ **TEST RUN button**

- This button is used when installing the air conditioner, and should not be used under normal conditions, as it will cause the air conditioner's thermostat function to operate incorrectly.
- If this button is pressed during normal operation, the unit will switch to test operation mode, and the Indoor Unit's OPERATION Indicator Lamp and TIMER Indicator Lamp will begin to flash simultaneously.
- To stop the test operation mode, either press the TEST RUN button once again, or press the START/STOP button to stop the air conditioner.

⑭ **ACL button**

⑮ **Remote Control Unit Display**

⑯ **Transmit Indicator**

⑰ **Clock Display**

⑱ **Operating Mode Display**

⑲ **Timer Mode Display**

⑳ **Fan Speed Display**

㉑ **Temperature Set Display**

㉒ **Timer Set Indicator**

㉓ **Temperature Set Indicator**

1.3.4 AUTOMATIC OPERATION

COOLING MODEL : This applies to the COMPACT type SII and MII.

- Depending on the room temperature at the time operation begins, the operating mode will be switched automatically as ahown in the accompanying table.
  Also, depending on the operating mode, the room temperature setting will cause the "standard" temperature to be set as shown. The operating mode and standrad thermostat settings are selected automatically when operation begins.
- When automatic operation is initiated, the fan will run at very low speed for about one minute while the unit detects and selects the proper operating mode.
- Once the operating mode has been set, the mode will not change even if the room temperature changes.
- If the START/STOP button is pressed to recommence operation within two hours after stopping automatic operation, the unit will begin operating from the same mode as before.

Actual Room Temperature		Operating Mode		Thermostat Setting (standard setting)
30°C or above	➡	Cooling	➡	27°C
27°C to 30°C	➡	Cooling	➡	26°C
25°C to 27°C	➡	Dry	➡	24°C
23°C to 25°C	➡	Dry	➡	22°C
Below 23°C	➡	Dry	➡	20°C

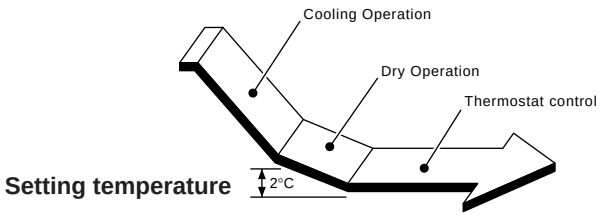
HEAT & COOL MODEL (Reverse cycle)

- Depending on the room temperature at the time operation begins, the operating mode will be switched automatically as shown in the accompanying table.
  Also, depending on the operating mode, the room temperature setting will cause the "standard" temperature to be set as shown.
  The operating mode and standrad thermostat settings are selected automatically when operation begins.
- When automatic operation is initiated, the fan will run at very low speed for about one minute while the unit detects and selects the proper operating mode.
- Once the operating mode has been set, the mode will not change even if the room temperature changes. However, during the monitor operation mode, if the room temperature changes to below 22°C, the mode will automatically switch to Heat, and when it rises above 24°C the mode will automatically switch to Dry.
- When in the monitor mode, the fan will operate very slowly.
- If the START/STOP button is pressed to recommence operation within two hours after stopping automatic operation, the unit will begin operating from the same mode as before.

Actual Room Temperature		Operating Mode		Thermostat Setting (standard setting)
30°C or above	➡	Cooling	➡	27°C
27°C to 30°C	➡	Cooling	➡	26°C
25°C to 27°C	➡	Dry	➡	24°C
22°C to 25°C	➡	Monitor		
Below 22°C	➡	Heating	➡	23°C

COOLING MODEL : This does not apply to the COMPACT type SII, MII.

- When the room temperature is 2°C higher than the set temperature, the mode will switch between Cooling and Drying.
- During Drying mode operation, FAN setting is switched to LOW gentle cooling effect, and the room fan may stop rotating temporarily.
- If the mode automatically selected by the unit is not what you wish, select one of the mode operation (COOL, DRY, FAN).



1.3.5 AUTO CHANGEOVER OPERATION

HEAT & COOL MODEL (Reverse cycle)

- When AUTO CHANGEOVER operation is selected, the air conditioner selects the appropriate operation mode (Cooling or Heating) in response to your room's temperature.
- When AUTO CHANGEOVER operation first selected, the fan will operate at very low speed for about one minute, during which time the unit detects the room conditions and selects the proper operating mode.
- When the air conditioner has adjusted your room's temperature to near the thermostat setting, it will begin monitor operation. In the monitor operation mode, the fan will operate at low speed. If the room temperature subsequently changes, the air conditioner will once again select the appropriate operation (Heating, Cooling) to adjust the temperature to the value set in the thermostat. (The monitor operation range is ±2°C relative to the thermostat setting.)
- If the mode automatically selected by the unit is not what you wish, select one of the mode operation (HEAT, COOL, DRY, FAN).

1.3.6 HEATING OPERATION (REVERSE CYCLE)

- Use to warm your room.
- When Heating mode is selected, the air conditioner will operate at very low fan speed for about 3 to 5 minutes, after which it will switch to the selected fan setting. This period of time is provided to allow the indoor unit to warm up before begin full operation.
- When the room temperature is very low, frost may form on the outside unit, and its performance may be reduced. In order to remove such frost, the unit will automatically enter the defrost cycle from time to time. During Automatic Defrosting operation, the OPERATION indicator lamp (red) will flash, and the heat operation will be interrupted.

1.3.7 COOLING OPERATION

- Use to cool your room.

1.3.8 DRY OPERATION

- Use for gently cooling while dehumifdifying your room.
- You cannot heat the room during Dry mode.
- During Dry mode, the unit will operate at low speed; in order to adjust room humidity, the indoor unit's fan may stop from time to time. Also, the fan may operate at very low speed when detecting room humidity.
- Then fan speed cannot be changed manually when Dry mode has been selected.

During Heating mode :
Set the thermostat to a temperature setting that is higher than the current room temperature. The Heating mode will not operate if the thermostat is set lower than the actual room temperature.

During Cooling/Dry mode :
Set the thermostat to a temperature setting that is lower than the current room temperature. The Cooling and Dry modes will not operate if the thermostat is set higher than the actual room temperature (in Cooling mode, the fan alone will operate).

During Fan mode :
You can not use the unit to heat and cool your room.

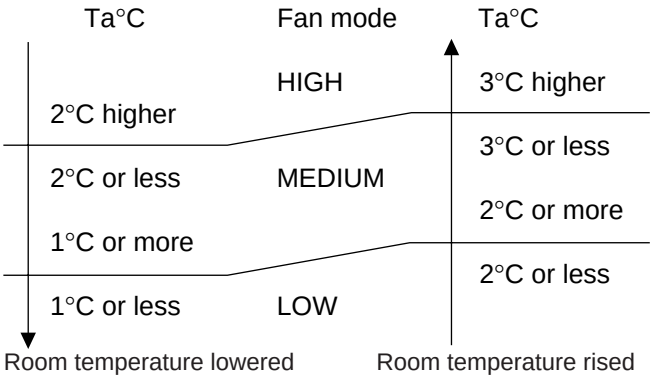
1.3.9 FAN OPERATION

- Use to circulate the air throughout your room.

1.3.10 AUTO FAN SPEED

- When the FAN CONTROL switch is set to the AUTO position, the optimum fan speed will be selected automatically in accordance with room temperature and other conditions.
- During the dry mode, fan speed is set automatically and cannot be changed.
- The breeze is :

Cooling operation



(Room temperature and set temperature difference = Ta°C)

Heating operation

Tp°C	Fan mode
47°C or more	HIGH
41°C to 47°C	MEDIUM
41°C or less	LOW

(Indoor heat exchanger temperature = Tp°C)

1.3.11 NICE MORNING TIMER (ON TIMER)

When the ON timer is used, the air conditioner not only starts at the set time, but also automatically starts before the set time according to the difference between the room temperature and the set temperature so the room becomes the desired temperature at the set time. The time can be set in 5-minute steps.

	Room temperature and set temperature difference	Operation start time
Cooling	Over 10 ˚C 5 ˚C — 0 ˚C Under 5 ˚C	Started 20 minutes before set time Started 15 minutes before set time Started 10 minutes before set time
Heating	Over 20 ˚C 15 ˚C — 0 ˚C 10 ˚C — 5 ˚C Under 10 ˚C	Started 45 minutes before set time Started 30 minutes before set time Started 15 minutes before set time Started 10 minutes before set time

1.3.11 OFF TIMER

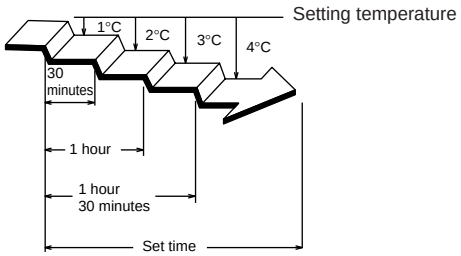
When the timer reaches the set time, the air conditioner will be turned off.

1.3.12 SLEEP TIMER OPERATION

During Heating operation [HEAT & COOL MODEL (Reverse cycle) only] :

When the SLEEP timer is set, the thermostat setting is automatically lowered 1°C every thirty minutes. When the thermostat has been lowered a total of 4°C, the thermostat setting at that time is maintained until the set time has elapsed, at which time the air conditioner automatically turns off.

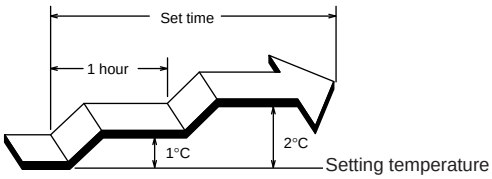
SLEEP timer setting



During Cooling/Dry operation :

When the SLEEP timer is set, the thermostat setting is auto-matically raised 1°C every sixty minutes. When the thermostat has been raised a total of 2°C, the thermostat setting at that time is maintained until the set time has elapsed, at which time the air conditioner automatically turns off.

SLEEP timer setting



1.3.13 PROGRAM TIMER

Combines the OFF timer and the ON timer for one cycle. (OFF ⇨ ON or ON ⇨ CFF)
Starts operation from the OFF timer or the ON timer, Whichever is closer to the current time.

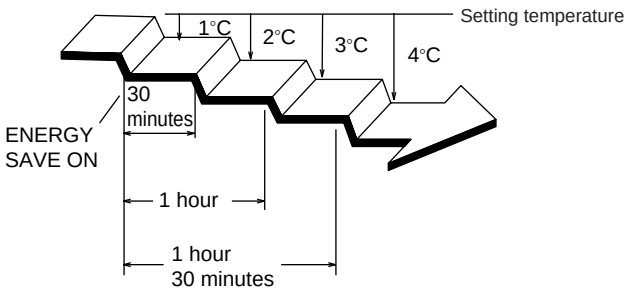
1.3.14 ENERGY SAVE OPERATION

Wireless type (Wall fixing type) only

During Heating operation [HEAT & COOL MODEL (Reverse cycle) only] :

The thermostat temperature setting decreases by 1°C as soon as the ENERGY SAVE button is pressed, and then decreases by another 1°C every thirty minutes. Afterwards, energy consumption is saved by continuing to heat at a thermostat temperature of 4°C less than that set.

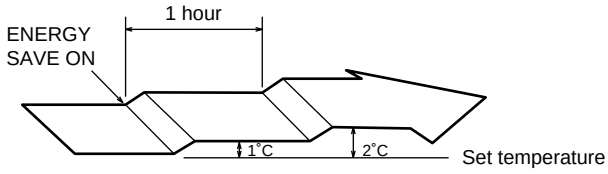
ENERGY SAVE setting



During Cooling/Dry operation :

The thermostat temperature setting increases by 1°C as soon as the ENERGY SAVE button is pressed, and then increases by another 1°C after one hour has passed. Afterwards, energy consumption is saved by continuing to cool or dry at a thermostat temperature of 2°C more than that set.

ENERGY SAVE setting



1.3.15 VERTICAL AIR DIRECTION ADJUSTMENT

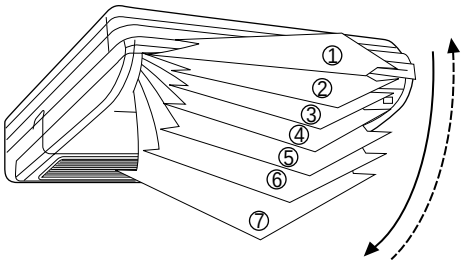
Each time the button is pressed, the air direction range will change as follows :

Types of Airflow Direction Setting :

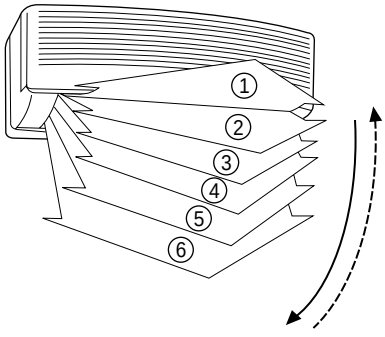
①,②,③,④ : During Cooling/Dry Modes

⑤,⑥,⑦ : During Heating mode

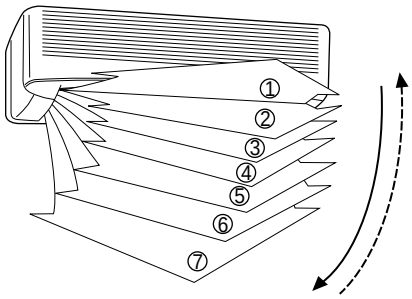
The Remote Control Unit's display does not change.



UNIVERSAL TYPE



COMPACT SII TYPE

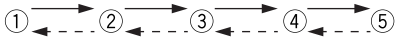


WALL MOUNTED TYPE

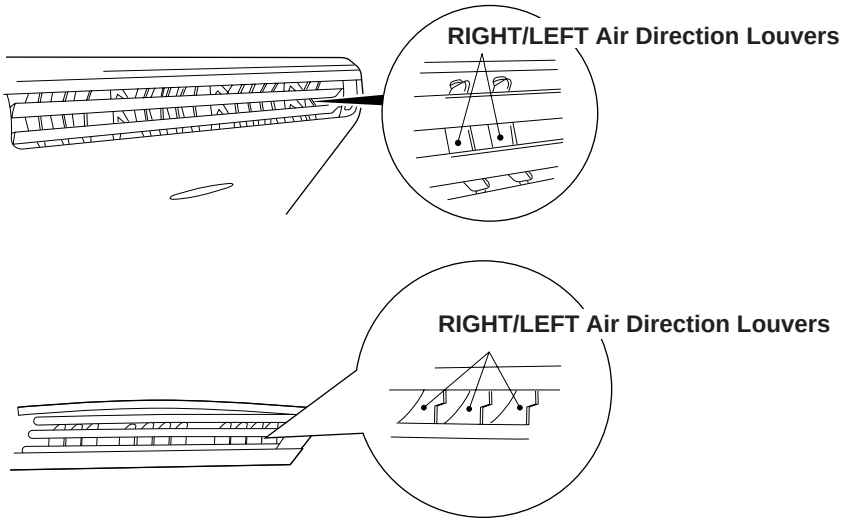
- Use the air direction adjustments within the ranges shown above.
- The vertical airflow direction is set automatically as shown, in accordance with the type of operation selected.
  During Cooling/Dry mode : Horizontal flow ①
  During Heating mode : Downward flow ⑦
- During AUTO mode operation, for the first minute after beginning operation, airflow will be horizontal ①; the air direction cannot be adjusted during this period.

1.3.16 HORIZONTAL AIR DIRECTION ADJUSTMENT

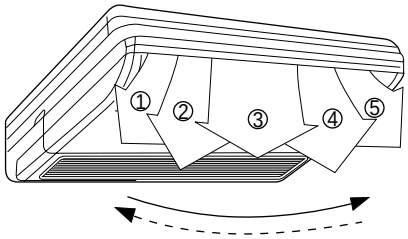
Each time the button is pressed, the air direction range will change as follows:



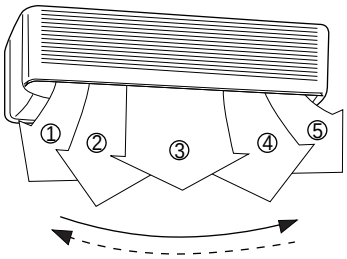
The Remote Controller's display does not change.



- Use the air direction adjustments within the ranges shown above.



UNIVERSAL TYPE



WALL MOUNTED TYPE

1.3.17 VERTICAL AIRFLOW SWING OPERATION

- The range of swing is relative to the currently set airflow direction.

Airflow direction set	Range of swing		
	SII Series	MII Series	AS&AB Series
①	① to ②	① to ③	① to ③
②	① to ③	① to ④	① to ④
③	② to ③	② to ⑤	② to ⑤
④	④ to ⑤	③ to ⑥	③ to ⑥
⑤	④ to ⑥	④ to ⑦	④ to ⑦
⑥	⑤ to ⑥	⑤ to ⑦	⑤ to ⑦
⑦	—	⑥ to ⑦	① to ⑦ (All range)

- If the swing range is not as desired, use the Remote Control Unit's AIRFLOW DIRECTION VERTICAL SET button to change the range of swing.
- The SWING Operation may stop temporarily when the air conditioner's fan is not operating, or when operating at very low speeds.
- During use of the Cooling and Dry modes, do not set the Air UP/DOWN Direction Flaps, in the Heating range (⑤ to ⑦) for long periods of time, since water vapor may condense near the outlet louvers and drops of water may drip from the air conditioner.

1.3.18 HORIZONTAL AIRFLOW SWING OPERATION

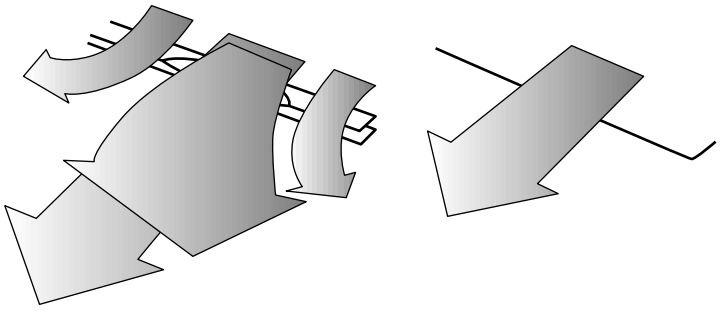
- The range of swing is relative to the currently set airflow direction.

Airflow direction set	Range of swing
①	① to ⑤ (All range)
②	① to ③
③	② to ④
④	③ to ⑤
⑤	① to ⑤ (All range)

- If the swing range is not as desired, use the Remote Control Unit's AIRFLOW DIRECTION HORIZONTAL SET button to change the range of swing.
- The SWING Operation may stop temporarily when the air conditioner's fan is not operating, or when operating at very low speeds.

1.3.19 SUPER VANE

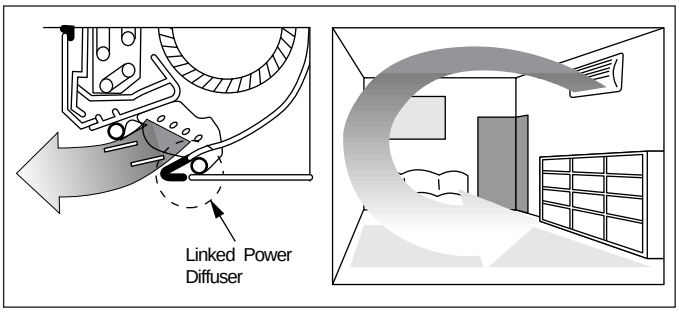
Our newly developed "Super Vane"configuration boosts airflow by sending cool air quickly to every corner of the room.



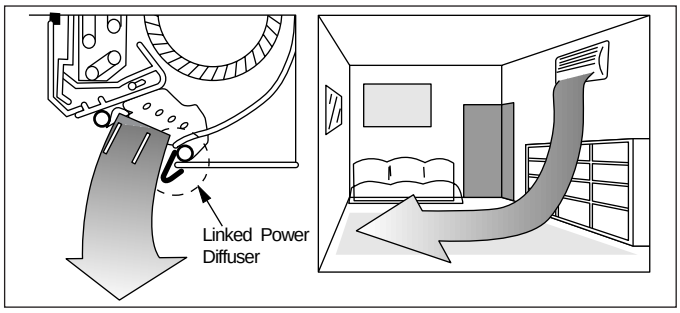
1.3.20 LINKED POWER DIFFUSER

By means of our new design of "Power Diffuser" the floor level heating efficiency is considerably improved. By movement of the up/down direction panels in conjunction with the power diffuser greater comfort can be obtained.

• Horizontal Cooling Airflow



• Vertical Heating Airflow



1.3.21 AUTOMATIC SHUT FLAPS

- The upper and lower flaps shut automatically so that dust or foreign matter does not enter the inside of the unit, while the unit halts.
- The unit looks simple on the outside, as the blow-out section of the air shuts.

1.3.22 COOLING OPERATION EVEN AT A LOW OUTDOOR TEMPERATURE

Cooling operation is possible down to 0°C.

1.3.23 MOLD PREVENTION FILTER

The air filter are specially treated with a mold inhibiting compound.
This stops mold and mildew from forming inside the indoor unit.

1.3.24 AIR PURIFYING FILTER (OPTIONAL)

The electrostatic filter removes dust and minute particles to purify the air in a room.
This is perfect for smokers and for people with allergies during pollen season.

1.3.25 AUTO RESTART

Auto restart function makes the unit to restart automatically in the same operating mode as before after recovery from stoppage due to a temporary power failure.

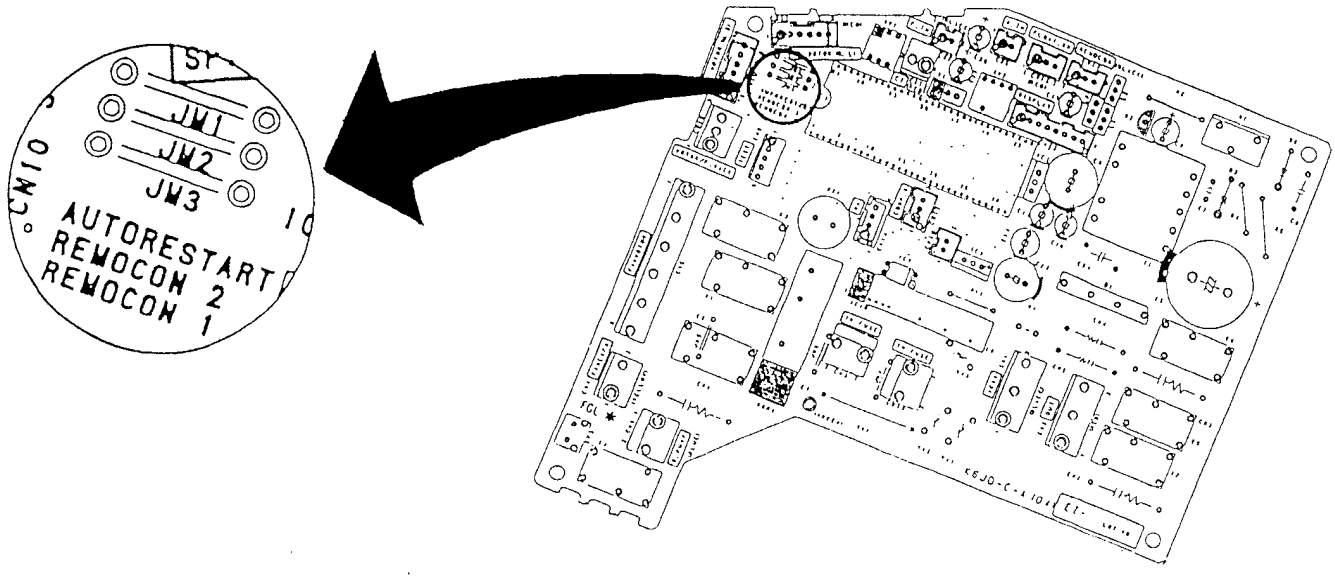
1.3.26 QUIET

The large-diameter cross fan can send a larger volume of air while turning more slowly than before. Through the air suction from the top, smooth airflow and center mount structure, ultimate quietness has been realized while maintaining the ample air volume and speed.

1.4 PRINTED WIRING BOARD SETTINGS

<APPLICATION MODEL>
AS∗20A, 20R, 24A, 24R, 30A, 30R
AB∗14A, 14R, 18A, 18R, 24A, 24R

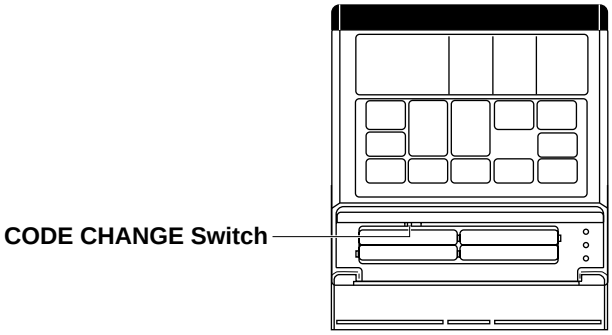
1.4.1 AUTO-RESTART & REMOTE CONTROLLER CODE



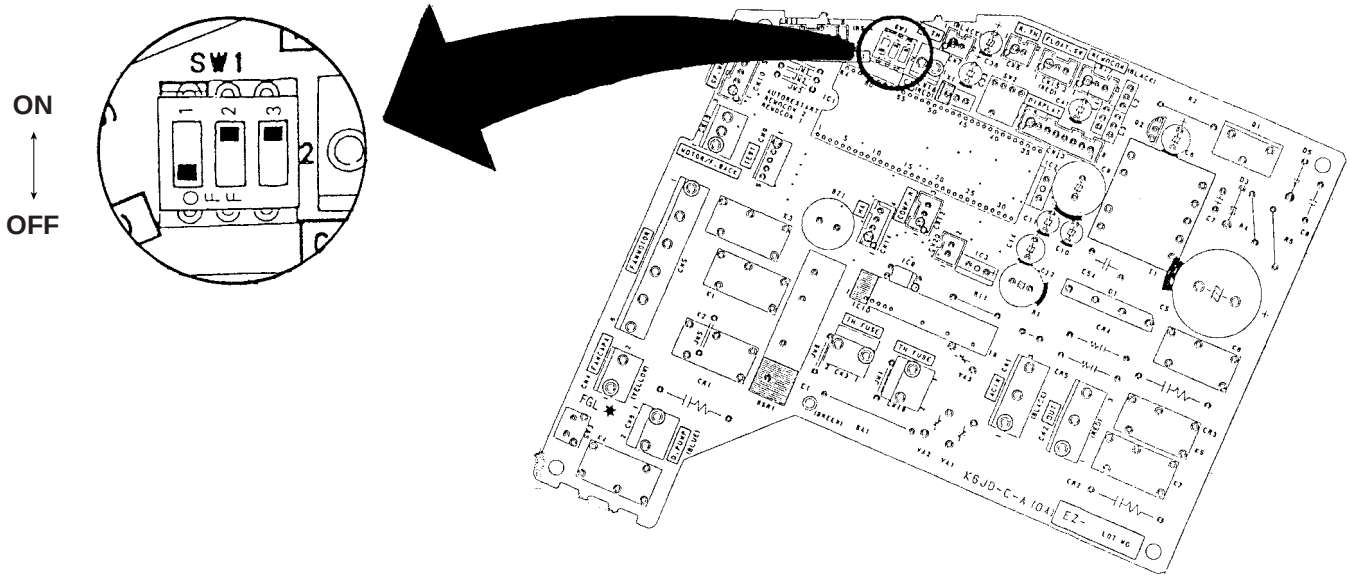
	JM1
Auto - Restart Enable (default)	**Disconnect**
Auto - Restart Disable	**Connect**

☆	JM2	JM3
Remote - Controller Code-A (default)	**Connect**	**Connect**
Remote - Controller Code-B	**Disconnect**	**Connect**
Remote - Controller Code-C	**Connect**	**Disconnect**
Remote - Controller Code-D	**Disconnect**	**Disconnect**

☆ Confirm the remote controller's "CODE CHANGE Switch" selection and printed wiring board setting.
· If these are not confirmed, the remote controller cannot be operated for the air conditioner.



1.4.2 COMPENSATION (HEATING CORRECTION COEFFICIENT)



Compensation	DIP2	DIP3	Application (AB model only)
−2˚C	**ON**	**OFF**	
±0˚C	**OFF**	**ON**	**for floor console**
+2˚C	**OFF**	**OFF**	
+4˚C**(default)**	**ON**	**ON**	**for under ceiling**

☆ The function of DIP1 does not work on AS and AB models.
Turn the DIP1 off anytime.

2. SPECIFICATIONS

2.1 COMPACT SII, MII & LI SERIES (AS ✻ 7A, 7R, 9A, 9R, 12A, 12R, 14A, 14R, 17A, 17R)

2.1.1 AS ✻ 7A / AO ✻ 7A, AS ✻ 7R / AO ✻ 7R

MODEL				WALL MOUNTED TYPE COMPACT TYPE SII-CHASSIS (7,000 BTU/h)	
			Indoor unit	AS ✻ 7A	AS ✻ 7R
			Outdoor unit	AO ✻ 7A	AO ✻ 7R
Power Source			[V]	220 - 240	220 - 240
Phase-Cycles			ϕ-[Hz]	1ϕ - 50	1ϕ - 50
Capacity	Cooling		[kW]	1.95 - 1.95	2.05 - 2.05
	Cooling		[BTU/h]	6,700 - 6,700	7,000 - 7,000
	Heating		[kW]	—	2.30 - 2.30
	Heating		[BTU/h]	—	7,900 - 7,900
Electrical Data	Ampacity	Cooling	[A]	2.8 - 2.9	3.3 - 3.3
		Heating	[A]	—	3.1 - 3.1
	Input watts	Cooling	[kW]	0.590 - 0.635	0.70 - 0.73
		Heating	[kW]	—	0.65 - 0.69
	Starting current		[A]	19	19
EER	Cooling		[kW/kW]	3.31 - 3.07	2.93 - 2.81
	Heating		[kW/kW]	—	3.54 - 3.33
Moisture Removal			[ℓ/hr] (Pints/hr)	0.7 (1.5)	0.8 (1.8)
Air Circulation (Fan)	Indoor	Hi	[m³/h]	340	350
			[C.F.M.]	200	205
		Med	[m³/h]	315	320
			[C.F.M.]	185	190
		Low	[m³/h]	290	290
			[C.F.M.]	170	170
	Outdoor		[m³/h]	1,330 - 1,400	1,330 - 1,400
Operation Sound (Cool/Heat)	Indoor	Hi	[dB]	37.0 / —	37.0 / 39.0
		Med	[dB]	35.0 / —	35.0 / 37.0
		Low	[dB]	33.0 / —	33.0 / 34.0
	Outdoor		[dB]	42 - 43 / —	43 - 44 / 45 - 46
Compressor	Type			Rotary	Rotary
	Capacity		[kW]	1.93	2.29
	Output watts		[W]	600	700
Dimensions (H X W X D)	Net	Indoor	[mm]	248 X 808 X 170	248 X 808 X 170
		Outdoor	[mm]	535 X 650 X 250	535 X 650 X 250
	Gross	Indoor	[mm]	248 X 852 X 302	248 X 852 X 302
		Outdoor	[mm]	590 X 725 X 330	590 X 725 X 330
Weight	Net	Indoor	[kg]	7.5	7.5
		Outdoor	[kg]	24	25
	Gross	Indoor	[kg]	10.0	10.0
		Outdoor	[kg]	27	28
Pipe Size CD	Liquid	Indoor	[mm]	6.35	6.35
	Gross	Outdoor	[mm]	9.52	9.52
Connection Pipe Set				UTP-5FDG, UTP-7FDG	UTP-5FKG, UTP-7FKG
Connection Method				Flare	
Color				White	

※ Permissible range of outdoor temperature — Cooling : 18°C~43°C
Heating : -5°C~21°C

2.1.2 AS ✻ 9A, 9R, 12A, 12R, 14A, 14R, 17A, 17R / AO ✻ 9A, 9R, 12A, 12R, 14A, 14R, 17A, 17R

MODEL				WALL MOUNTED TYPE COMPACT TYPE MII - CHASSIS (9,000/17,000 BTU/h)										
			Indoor unit	AS ✻ 9A	AS ✻ 9R	AS ✻ 12A	AS ✻ 12R	AS ✻ 14A	AS ✻ 14R	AS ✻ 17A	AS ✻ 17R	AS ✻ 17A	AS ✻ 17R
			Outdoor unit	AO ✻ 9A	AO ✻ 9R	AO ✻ 12A	AO ✻ 12R	AO ✻ 14A	AO ✻ 14R	AO ✻ 17AB	AO ✻ 17RB	AO ✻ 17AN	AO ✻ 17RN
Power Source			[V]	220 - 240	220 - 240	220 - 240	220 - 240	220 - 240	220 - 240	220 - 240	220 - 240	220 - 240	220 - 240
Phase-Cycles			ϕ-[Hz]	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50
Capacity	Cooling		[kW]	2.70 - 2.75	2.70 - 2.75	3.45 - 3.50	3.45 - 3.50	3.85 - 4.00	3.85 - 4.00	4.50 - 4.60	4.40 - 4.50	4.75 - 4.90	4.70 - 4.80
	Cooling		[BTU/h]	92,00 - 9,400	9,200 - 9,400	11,800 - 12,000	11,800 - 12,000	13,100 - 13,700	13,100 - 13,700	15,400 - 15,700	15,000 - 15,400	16,200 - 16,700	16,000 - 16,400
	Heating		[kW]	—	3.30 - 3.35	—	4.00 - 4.10	—	4.65 - 4.80	—	5.00 - 5.15	—	5.00 - 5.15
	Heating		[BTU/h]	—	11,300 - 11,400	—	13,600 - 14,000	—	15,900 - 16,400	—	17,100 - 17,600	—	17,100 - 17,600
Electrical Data	Ampacity	Cooling	[A]	4.6 - 4.7	4.6 - 4.5	6.0 - 6.0	5.8 - 5.9	7.6 - 7.8	7.6 - 7.8	9.9 - 10.3	10.1 - 10.5	9.5 - 10.1	9.5 - 10.0
		Heating	[A]	—	4.2 - 4.1	—	5.7 - 5.9	—	7.8 - 8.2	—	10.5 - 10.9	—	9.9 - 10.5
	Input watts	Cooling	[A]	0.97 - 1.03	0.98 - 1.03	1.255 - 1.315	1.22 - 1.27	1.62 - 1.72	—	2.00 - 2.10	2.02 - 2.10	1.98 - 2.15	1.98 - 2.15
		Heating	[A]	—	0.89 - 0.94	—	1.19 - 1.27	—	1.65 - 1.75	—	2.08 - 2.19	—	2.10 - 2.25
	Starting Current		[A]	21	21	35	35	41	41	55	55	56	56
EER	Cooling		[kW/kW]	2.78 - 2.67	2.76 - 2.67	2.75 - 2.66	2.83 - 2.76	2.38 - 2.33	2.33 - 2.29	2.40 - 2.28	2.37 - 2.23	2.40 - 2.28	2.37 - 2.23
	Heating		[kW/kW]	—	3.71 - 3.56	—	3.36 - 3.23	—	2.72 - 2.62	—	2.38 - 2.29	—	2.38 - 2.29
Moisture Removal			[ℓ/hr] (Pints/hr)	1.3 (2.9)	1.3 (2.9)	1.8 (4.0)	1.8 (4.0)	1.6 (3.4)	1.6 (3.4)	2.1 (4.4)	2.1 (4.4)	2.1 (4.4)	2.1 (4.4)
Air Circulation (Cool/Heat)	Indoor	Hi	[m³/h]	430 - 465	Note : See the list shown below.	475 - 500	Note : See the list shown below.	Note : See the list shown below.			Note : See the list shown below.		
			[C.F.M.]	253 - 274		280 - 294							
		Med	[m³/h]	365 - 415		420 - 460							
			[C.F.M.]	215 - 244		247 - 271							
		Low	[m³/h]	320 - 375		370 - 415							
			[C.F.M.]	188 - 221		218 - 244							
	Outdoor		[m³/h]	1,520 - 1,630	1,555 - 1,670	1,555 - 1,670	1,365 - 1,475	1,600 - 1,600	1,600 - 1,600	2,590 - 2,590	2,590 - 2,590	2,590 - 2,590	2,590 - 2,590
Operation Sound (Cool/Heat)	Indoor	Hi	[db]	38 - 39	39 - 39 / 39 - 39	39 - 40	40 - 40 / 39 - 39	40	40 - 40	41 - 41	42 - 42	41 - 41	42 - 42
		Med	[db]	36 - 37	37 - 37 / 36 - 36	37 - 38	39 - 39 / 36 - 36	39 - 39	39 - 39	39 - 39	40 - 40	39 - 39	40 - 40
		Low	[db]	34 - 35	36 - 36 / 31 - 31	35 - 37	37 - 37 / 31 - 31	37 - 37	37 - 37	37.5 - 37.5	38 - 38 / 37 - 37	37.5 - 37.5	38 - 38 / 37 - 37
	Outdoor		[db]	43 - 44	44 - 45 / 45 - 46	44 - 45	45 - 46 / 46 - 47	50 - 50	51 - 51 / 53 - 53	55 - 55	54.5 - 54.5 / 55.5 - 55.5	54.5 - 54.5	54.5 - 54.5 / 55.5 - 55.5
Compressor	Type			Rotary	Rotary	Rotary	Rotary	Rotary	Rotary	Recipro	Recipro	Rotary	Rotary
	Capacity		[kW]	3.005 / 3.035	3.045 / 3.070	3.895 / 3.942	3.895 / 3.942	4.766 / 4.803	4.766 / 4.803	5.946 /	5.946 /	6.245 / 6.280	6.245 / 6.280
	Output watts		[W]	850	950	1,100	1,100	1,320	1,320	1,650	1,650	1,700	1,700
Dimensions (H X W X D)	Net	Indoor	[mm]	260 X 815 X 175	260 5 815 X 175	260 X 815 X 175	260 X 815 X 175	285 X 900 X 172	285 X 900 X 172	285 X 900 X 172	285 X 900 X 172	285 X 900 X 172	285 X 900 X 172
		Outdoor	[mm]	535 X 695 X 250	535 5 695 X 250	535 X 695 X 250	535 X 665 X 250	530 X 750 X 250	530 X 750 X 250	643 X 840 X 336	643 X 840 X 336	643 X 840 X 338	643 X 840 X 338
	Gross	Indoor	[mm]	248 X 866 X 302	248 5 866 X 302	248 X 866 X 302	248 X 866 X 302	254 X 951 X 363	254 X 951 X 363	254 X 951 X 363	254 X 951 X 363	254 X 951 X 363	254 X 951 X 363
		Outdoor	[mm]	600 X 785 X 320	605 5 785 X 320	600 X 785 X 320	600 X 785 X 320	609 X 882 X 339	609 X 882 X 339	750 X 959 X 429	750 X 959 X 429	750 X 959 X 429	750 X 959 X 429
Weight	Net	Indoor	[kg]	8	8	8	8	10	10	10	10	10	10
		Outdoor	[kg]	27	30	30	34	37	36	66	68	55	59
	Gross	Indoor	[kg]	10	10	10	10	13	13	13	13	13	13
		Outdoor	[kg]	30	33	33	37	39	40	74	76	63	67
Pipe Size CD	Liquid	Indoor	[mm]	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35
	Gross	Outdoor	[mm]	9.52	9.52	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Connection Pipe Set				UTP-5FDG, UTP-7FDG	UTP-5FKG, UTP-7FKG	UTP-5FEG, UTP-7FEG	UTP-5FLG, UTP-7FLG	UTP-5FEG, UTP-7FEG	UTP-5FLG, UTP-7FLG	UTP-5FVG	UTP-5FWG	UTP-5FWG	UTP-5FWG
Connection Method				Flare									
Color				White									

※ Permissible range of outdoor temperature
- Cooling : 18°C~43°C (AS ✻ 9A, AS ✻ 9R, AS ✻ 12A, AS ✻ 12R, AS ✻ 14A, AS ✻ 14R, AS ✻ 17A / AO ✻ 17AN, AS ✻ 17R / AO ✻ 17RN), 18°~52°C (AS ✻ 17A / AO ✻ 17AB, AS ✻ 17R / AO ✻ 17RB)
- Heating : -5°C~21° C (AS ✻ 9A, AS ✻ 9R, AS ✻ 12A, AS ✻ 12R), 0°C~21°C (AS ✻ 14A, AS ✻ 14R, AS ✻ 17A, AS ✻ 17R)

Air Circulation (Cool/Heat)	Models			AS ✻ 9R		AS ✻ 12R		AS ✻ 14A, R		AS ✻ 17A, R	
	Fan Guard			With	Without	With	Without	With	Without	With	Without
	Indoor	Hi	[m³/h]	480 - 480 / 495 - 495	495 - 495 / 495 - 495	495 - 495 / 495 - 495	510 - 510 / 510 - 510	540 - 540	560 - 560	540 - 540	560 - 560
			[C.F.M.]	282 - 282 / 291 - 291	291 - 291 / 291 - 291	291 - 291 / 291 - 291	300 - 300 / 300 - 300	318 - 318	330 - 330	318 - 318	330 - 330
		Med	[m³/h]	445 - 445 / 430 - 430	460 - 460 / 440 - 440	465 - 465 / 430 - 430	475 - 475 / 440 - 440	500 - 500	520 - 520	500 - 500	520 - 520
			[C.F.M.]	262 - 262 / 253 - 253	271 - 271 / 259 - 259	274 - 274 / 253 - 253	280 - 280 / 259 - 259	294 - 294	306 - 306	294 - 294	306 - 306
		Low	[m³/h]	420 - 420 / 375 - 375	425 - 425 / 380 - 380	435 - 435 / 375 - 375	450 - 450 / 380 - 380	460 - 460	480 - 480	470 - 470	480 - 480
			[C.F.M.]	247 - 247 / 221 - 221	250 - 250 / 224 - 224	256 - 256 / 221 - 221	265 - 265 / 224 - 224	270 - 270	282 - 282	277 - 277	282 - 282

2.1.3 ASQ9A, 9R, 12A, 12R / AOQ9A, 9R, 12A, 12R

MODEL				WALL MOUNTED TYPE COMPACT TYPE MII - CHASSIS			
	Indoor unit			ASQ9ASB-W	ASQ9RSB-W	ASQ12ASB-W	ASQ12RAB-W
	Outdoor unit			AOQ9ANB	AOQ9RSB	AOQ12ASB	AOQ12RSB
Power Source	[V]			220	220	220	220
Phase-Cycles	ϕ-[Hz]			1ϕ - 50	1ϕ - 50	1ϕ - 50	1ϕ - 50
Capacity	Cooling	[kW]		2.70	2.65	3.35	3.30
	Cooling	[BTU/h]		9,200	9,000	11,400	11,300
	Heating	[kW]		—	3.30	—	4.00
	Heating	[BTU/h]		—	11,300	—	13,600
Electrical Data	Ampacity	Cooling	[A]	4.9	4.6	6.0	5.8
		Heating	[A]	—	4.2	—	5.8
	Input watts	Cooling	[A]	1.03	0.98	1.255	1.21
		Heating	[A]	—	0.89	—	1.21
	Starting Current	[A]		21	21	35	35
EER	Cooling	[kW/kW]		2.62	2.70	2.67	2.73
	Heating	[kW/kW]		—	3.71	—	3.31
Moisture Removal	[ℓ/hr] (Pints/hr)			1.3(2.9)	1.3(2.9)	1.8(4.0)	1.8(4.0)
Air Circulation (Cool/Heat)	Indoor	Hi	[m³/h]	430	480 / 495	475	495 / 495
			[C.F.M.]	253	282 / 291	280	291 / 291
		Med	[m³/h]	370	445 / 430	425	465 / 430
			[C.F.M.]	218	262 / 253	250	274 / 253
		Low	[m³/h]	320	420 / 375	380	435 / 375
			[C.F.M.]	188	247 / 221	224	256 / 221
	Outdoor	[m³/h]		1,520	1,555 / 1,555	1,550	1,365 / 1,365
Operation Sound (Cool/Heat)	Indoor	Hi	[db]	38	39 / 39	39	40 / 39
		Med	[db]	36	37 / 36	37	39 / 36
		Low	[db]	34	36 / 31	35	37 / 31
	Outdoor	[db]		43	44 / 45	44	45 / 46
Compressor	Type			Rotary	Rotary	Rotary	Rotary
	Capacity	[kW]		3.045	3.045	3.895	3.895
	Output watts	[W]		850	950	1,100	1,100
Dimensions (H X W X D)	Net	Indoor	[mm]	260 X 815 X 175	260 X 815 X 175	260 X 815 X 175	260 X 815 X 175
		Outdoor	[mm]	535 X 695 X 250	535 X 695 X 250	535 X 695 X 250	535 X 695 X 250
	Gross	Indoor	[mm]	248 X 866 X 302	248 X 866 X 302	248 X 866 X 302	248 X 866 X 302
		Outdoor	[mm]	605 X 785 X 320	605 X 785 X 320	605 X 785 X 320	605 X 785 X 320
Weight	Net	Indoor	[kg]	8	8	8	8
		Outdoor	[kg]	27	30	30	34
	Gross	Indoor	[kg]	10	10	10	10
		Outdoor	[kg]	30	33	33	37
Pipe Size CD	Liquid	Indoor	[mm]	6.35	6.35	6.35	6.35
	Gross	Outdoor	[mm]	9.52	9.52	12.7	12.7
Connection Pipe Set				UTP-5FDG, UTP-7FDG	UTP-5FKG, UTP-7FKG	UTP-5FEG, UTP-7FEG	UTP-5FLG, UTP-7FLG
Connection Method				Flare			
Color				White			

※ Permissible range of outdoor temperature — Cooling : 18°C~43°C
— Heating : -5°C~21°C

2.2 WALL MOUNTED LARGE AS-SERIES (AS ✻ 20A, 20R, 24A, 24R, 30A, 30R)

2.2.1 AS ✻ 20A, 20R, 24A, 24R, 30A, 30R

MODEL				WALL MOUNTED TYPE (WIRELESS)					
		Indoor unit		AS ✻ 20A	AS ✻ 20R	AS ✻ 24A	AS ✻ 24R	AS ✻ 30A	AS ✻ 30R
		Outdoor unit		AO ✻ 20AZ	AO ✻ 20RZ	AO ✻ 24AB	AO ✻ 24RZ	AO ✻ 30AB	AO ✻ 30RB
Capacity	Cooling	kW		5.55 - 5.70	5.55 - 5.70	6.75 - 6.85	6.70 - 6.80	8.05 - 8.20	7.80 - 8.00
		BTU/h		19,000 - 19,500	19,000 - 19,500	23,000 - 23,400	22,900 - 23,200	27,500 - 28,000	26,600 - 27,300
	Heating	kW		—	5.65 - 5.80	—	7.60 - 7.70	—	8.55- 8.80
		BTU/h		—	19,300 - 19,800	—	26,000 - 26,300	—	29,200 - 30,000
Power source				1 - 50Hz / 220-240V					
Total input watts	Cooling	kW		2.10 - 2.20	2.10 - 2.20	2.52 - 2.64	2.57 - 2.67	3.20 - 3.30	3.20 - 3.30
	Heating			—	1.80 - 1.90	—	2.41 - 2.50	—	2.90 - 3.00
Total ampacity	Cooling	A		9.9 - 9.3	9.9 - 9.3	12.0 - 12.4	12.2 - 12.6	15.4 - 15.9	15.4 - 15.9
	Heating			—	8.5 - 8.0	—	11.5 - 12.0	—	13.9 - 14.4
EER	Cooling	kW/kW		2.64 - 2.59	2.64 - 2.59	2.68 - 2.59	2.61 - 2.55	2.52 - 2.48	2.44 - 2.42
	Heating			—	3.14 - 3.05	—	3.15 - 3.08	—	2.95 - 2.93
Starting current		A		50	50	61	61	80	80
Indoor unit	Fan speed	Hi	r.p.m.	1,060 - 1,110	1,060 - 1,110	1,220 - 1,290	1,220 - 1,290	1,280 - 1,340	1,280 - 1,340
		Med		890 - 970	890 - 970	1,050 - 1,130	1,050 - 1,130	1,120 - 1,200	1,120 - 1,200
		Low		740 - 810	740 - 810	890 - 970	890 - 970	970 - 1,050	970 - 1,050
	Air circulation	Hi	m^3/h	820 - 860	820 - 860	940 - 1,000	940 - 1,000	1,000 - 1,060	1,000 - 1,060
		Med		690 - 740	690 - 740	810 - 870	810 - 870	860 - 930	860 - 930
		Low		570 - 620	570 - 620	690 - 740	690 - 740	730 - 810	730 - 810
	Noise level (Sound pressure)	Hi	dB(A)	41 - 42	41 - 42	45 - 46	45 - 46	47 - 48	47 - 48
		Med		37 - 38	37 - 38	41 - 42	41 - 42	44 - 45	44 - 45
		Low		33 - 34	33 - 34	37 - 38	37 - 38	39 - 40	39 - 40
	Heat exch-anger	Type		Plate fin coil					
		Face area	m^2	0.274	0.274	0.274	0.274	0.274	0.274
		Fin	inch	17	17	17	17	17	17
	Fan type x Q'ty			Cross flow fan x 2					
	Fan motor output		W	32	20	32	27	32	32
	Operation control			Remote control					
	Dimensions	H	mm(inch)	320 (12 - 5/8)					
		W		1,250 (49 - 3/16)					
		D		195 (7 - 11/16)					
	Weight Net/Gross		kg	18 / 26					
Outdoor unit	Fan speed	Hi	r.p.m.	690 - 735	690 - 735	690 - 735	690 - 735	690 - 730	690 - 730
		Low		—	250 - 280	—	250 - 280	410 - 450	410 - 450
	Air circulation	Hi	m^3/h	2,430 - 2,590	2,430 - 2,590	2,430 - 2,590	2,430 - 2,590	3,100 - 3,320	3,100 - 3,320
	Noise level		dB(A)	55 - 56	55 - 56	55 - 56	55 - 56	53 - 54	53 - 54
	Heat exch-anger	Type		Plate fin coil					
		Face area	m^2	0.563	0.549	0.549	0.549	0.726	0.726
		Fin	inch	17	14	14	14	14	14
	Fan type x Q'ty			Propeller x 1				Propeller x 1	
	Fan motor output		W	60	60	60	60	63 x 1	63 x 1
	Compressor type			Hermetic (Recipro)					
		Motor output	W	1,500		2,000		2,700	
		Protection		Internal protector (OCR), High pressure relief valve					
	Dimensions	H	mm(inch)	643 (25 - 5/16)		643 (25 - 5/16)		900 (35 - 7/16)	
		W		840 (33 - 1/16)		840 (33 - 1/16)		900 (35 - 7/16)	
		D		336 (13 - 1/4)		336 (13 - 1/4)		350 (13 - 25/32)	
	Weight Net/Gross		kg	66 / 74	68 / 76	67 / 75	68 / 76	84 / 96	85 / 97
Refrige-rant circuit	Operation mode			Cooling	Cooling	Heating	Cooling	Heating	Cooling	Heating	Cooling	Heating
	Disch. pressure		kg/cm^2G	19.7 - 19.5	19.9- 19.7	17.0 - 16.9	20.1 - 19.8	20.1- 19.8	20.3 - 20.3	17.6- 17.5	17.6- 17.5	19.0 - 19.0
	Suct. pressure			5.0 - 5.0	5.2 - 5.2	4.2 - 4.2	4.7 - 4.7	4.8 - 4.8	3.8 - 3.8	4.7 - 4.7	4.7 - 4.7	4.3 - 4.3
	Discharge temp.		˚C	87 - 89	95 - 97	82 - 85	91 - 94	98 - 101	90 - 95	90 - 92	90 - 92	89 - 90
	Condensing temp.			51.5 - 51	51.5 - 51	45 - 51	51.5 - 51	51.5 - 51	50 - 50	46.5 - 46.5	46.5 - 46.5	48 - 48
	Suction temp.			6 — 6	7 — 7	1 — -1	4 — 4	9 — 11	-2 — -2	7 — 8	7 — 8	-2 — -2
	Refr. pipe length		m	5								
	Disch. air temp.		˚C	13.5 - 13.5	13.5 - 13.5	40 - 40	12.5 - 12.5	12.5 - 12.5	43 - 43	12 - 12	12 - 12	44 - 44
Condition	Indoor entering air temp.	Cool	DB/WB	27°C / 19°C								
		Heat		20°C / 15°C								
	Ourdoor entering air temp.	Cool	DB/WB	35°C / 24°C								
		Heat		7°C / 6°C								
Piping	Refrigerant charge		kg(oz)	1.24 (43.7)	1.80 (63.5)		1.95 (68.8)	2.07 (73.0)		2.3 (81.1)	2.4 (84.7)	
	Pipe size (O.D.)	Liquid	mm(inch)	9.52 (3/8)								
		Gas		15.88 (5/8)								
	Connection method			Flare								
	Between	Height	m	8			8			15	15	
		Pipe length		20			20			30	25	

Note : In the above square, put the letter T, Y, or G by a destination.

2.2.2 AS ✻ 20A, 20R, 24A, 24R

(Nontropicalized models)

MODEL				WALL MOUNTED TYPE (WIRELESS)			
		Indoor unit		AS ✻ 20A	AS ✻ 20R	AS ✻ 24A	AS ✻ 24R
		Outdoor unit		AO ✻ 20AN	AO ✻ 20RM	AO ✻ 24AN	AO ✻ 24RM
Capacity	Cooling	kW		5.80 - 5.90	5.55 - 5.70	6.75 - 6.85	6.70 - 6.80
		BTU/h		19,800 - 20,100	19,000 - 19,500	23,000 - 23,400	22,900 - 23,200
	Heating	kW		—	5.90 - 6.10	—	7.70 - 7.80
		BTU/h		—	20,100 - 20,800	—	26,300 - 26,600
Power source				1ϕ - 50Hz / 220-240V			
Total input watts	Cooling	kW		2.11 - 2.27	2.05 - 2.15	2.66 - 2.81	2.55 - 2.60
	Heating			—	1.85 - 1.97	—	2.46 - 2.55
Total ampacity	Cooling	A		10.3 - 11.0	9.7 - 9.7	12.6 - 12.8	11.7 - 10.9
	Heating			—	8.8 - 9.0	—	11.4 - 10.8
EER	Cooling	kW/kW		2.75 - 2.60	2.71 - 2.65	2.54 - 2.44	2.63 - 2.62
	Heating			—	3.19 - 3.10	—	3.13 - 3.06
Starting current		A		50	50	56	56
Indoor unit	Fan speed	Hi	r.p.m.	1,110 - 1,160	1,110 - 1,160	1,220 - 1,290	1,220 - 1,290
		Med		920 - 1,000	920 - 1,000	1,050 - 1,130	1,050 - 1,130
		Low		790 - 850	790 - 850	860 - 930	860 - 930
	Air circulation	Hi	m^3/h	820 - 860	820 - 860	940 - 1,000	940 - 1,000
		Med		690 - 740	690 - 740	810 - 870	810 - 870
		Low		570 - 620	570 - 620	690 - 740	690 - 740
	Noise level (Sound pressure)	Hi	dB(A)	41 - 42	41 - 42	45 - 46	45 - 46
		Med		37 - 38	37 - 38	41 - 42	41 - 42
		Low		33 - 34	33 - 34	37 - 38	37 - 38
	Heat exch-anger	Type		Plate fin coil			
		Face area	m^2	0.274	0.274	0.274	0.274
		Fin	inch	17	17	17	17
	Fan type x Q'ty			Cross flow fan x 2			
	Fan motor output		W	20	20	27	27
	Operation control			Remote control			
	Dimensions	H	mm(inch)	320 (12 - 5/8)			
		W		1,250 (49 - 3/16)			
		D		195 (7 - 11/16)			
	Weight Net/Gross		kg	18 / 25			
Outdoor unit	Fan speed	Hi	r.p.m.	690 - 735	690 - 735	690 - 735	690 - 735
		Low		—	250 - 280	—	250 - 280
	Air circulation	Hi	m^3/h	2,430 - 2,590	2,430 - 2,590	2,430 - 2,590	2,430 - 2,590
	Noise level		dB(A)	54 - 55	55 - 56	55 - 56	55 - 56
	Heat exch-anger	Type		Plate fin coil			
		Face area	m^2	0.563	0.549	0.549	0.549
		Fin	inch	17	14	14	14
	Fan type x Q'ty			Propeller x 1			
	Fan motor output		W	60	60	60	60
	Compressor type			Hermetic (Rotary)			
		Motor output	W	1,665	1,500	2,200	2,000
		Protection		Internal protector (OCR)			
	Dimensions	H	mm(inch)	643 (25 - 5/16)			
		W		840 (33 - 1/16)			
		D		336 (13 - 1/4)			
	Weight Net/Gross		kg	59 / 67	68 / 76	68 / 76	69 / 77
Refrige-rant circuit	Operation mode			Cooling	Cooling	Heating	Cooling	Cooling	Heating
	Disch. pressure		kg/cm^2G	21.1 - 21.1	21 - 21	17.8 - 18.8	21 - 21	20 - 20	19 - 19
	Suct. pressure			5.2 - 5.2	5 - 5.05	3.45 - 3.55	4.6 - 4.6	4.6 - 4.6	3.7 - 3.8
	Discharge temp.		˚C	95 - 98	93 - 96	76 - 81	96 - 99	95 - 97	71 - 72
	Condensing temp.			53 - 53	52 - 52	46 - 46	49 - 49	51 - 51	49 - 49
	Suction temp.			9.4 — 10	6.2 — 7.7	-4 — -3.7	6 — 8	5 — 8	-2 — -1.5
	Refr. pipe length		m	5					
	Disch. air temp.		˚C	12.4 - 11.7	12.4 - 12.8	40 - 40	12.5 - 12.5	12.5 - 12.5	43 - 43
Condition	Indoor entering air temp.	Cool	DB/WB	27˚C / 19˚C					
		Heat		20˚C / 15˚C					
	Ourdoor entering air temp.	Cool	DB/WB	35˚C / 24˚C					
		Heat		7˚C / 6˚C					
Piping	Refrigerant charge		kg(oz)	1.5 (52.9)	1.95 (68.8)	1.87 (65.9)	2.12 (74.8)		
	Pipe size (O.D.)	Liquid	mm(inch)	9.52 (3/8)					
		Gas		15.88 (5/8)					
	Connection method			Flare					
	Between	Height	m	8					
		Pipe length		20					

2.2.3 ASB20A, 20R, 24A, 24R, 30A, 30R

MODEL				WALL MOUNTED TYPE (WIRELESS)					
		Indoor unit		ASB20A	ASB20R	ASB24A	ASB24R	ASB30A	ASB30R
		Outdoor unit		AOB20A	AOB20R	AOB24A	AOB24R	AOB30A	AOB30R
Capacity	Cooling	W(SSA)		4,500	4,500	5,700	5,700	6,700	6,700
		BTU/h		19,500	19,500	24,000	24,000	30,000	30,000
	Heating	W		—	5,300	—	7,100	—	9,000
		BTU/h		—	19,800	—	24,200	—	30,800
Power source				1 ϕ - 60Hz / 220V					
Total input watts	Cooling	W		2,400	2,400	3,030	3,100	3,600	3,650
	Heating			—	2,000	—	2,550	—	3,150
Total ampacity	Cooling	A		11.1	11.1	13.9	14.3	17.0	17.0
	Heating			—	9.2	—	12.0	—	15.0
EER	Cooling	W/W		1.88	1.88	1.88	1.84	1.86	1.84
	Heating			—	2.65	—	2.78	—	2.86
Starting current		A		53	53	66	66	74	74
Indoor unit	Fan speed	Hi	r.p.m.	1,095	1,095	1,275	1,275	1,300	1,300
		Med		950	950	1,120	1,120	1,150	1,150
		Low		790	790	945	945	1,030	1,030
	Air circulation	Hi	m^3/h	860	860	1,000	1,000	1,060	1,060
		Med		740	740	870	870	930	930
		Low		620	620	740	740	780	780
	Noise level (Sound pressure)	Hi	dB(A)	42	42	46	46	48	48
		Med		38	38	42	42	45	45
		Low		34	34	38	38	41	41
	Heat exch-anger	Type		Plate fin coil					
		Face area	m^2	0.274					
		Fin	inch	17					
	Fan type x Q'ty			Cross flow fan x 2					
	Fan motor output		W	20	20	27	27	32	32
	Operation control			Remote control					
	Dimensions	H	mm(inch)	320 (12 - 5/8)					
		W		1,250 (49 - 3/16)					
		D		195 (7 - 11/16)					
	Weight Net/Gross		kg	18 / 16					
Outdoor unit	Fan speed	Hi	r.p.m.	735	735	735	735	730	730
		Low		—	—	—	—	—	—
	Air circulation	Hi	m^3/h	2,590	2,590	2,590	2,590	3,320	3,320
	Noise level		dB(A)	56	56	56	56	55	55
	Heat exch-anger	Type		Plate fin coil					
		Face area	m^2	0.563	0.549	0.549	0.549	0.726	0.726
		Fin	inch	17	14	14	17	14	14
	Fan type x Q'ty			Propeller x 1				Propeller x 1	
	Fan motor output		W	60	60	60	60	63 x 1	63 x 1
	Compressor type			Hermetic (Recipro)					
		Motor output	W	1,500		1,900		3,000	
		Protection		Internal protector (OCR), High pressure relief valve					
	Dimensions	H	mm(inch)	643 (25 - 5/16)				900 (35 - 7/16)	
		W		840 (33 - 1/16)				900 (35 - 7/16)	
		D		336 (13 - 1/4)				350 (13 - 25/32)	
	Weight Net/Gross		kg	66 / 74	68 / 76		67 / 75	68 / 76	84 / 96	85 / 97
Refrige-rant circuit	Operation mode			Cooling	Cooling	Heating	Cooling	Cooling	Heating	Cooling	Cooling	Heating
	Disch. pressure		kg/cm^2G	25.1	24.9	17.4	25.2	25.4	19.6	23.0	23.2	19.8
	Suct. pressure			5.3	5.4	4.3	5.3	5.4	3.8	4.9	4.8	3.7
	Discharge temp.		˚C	88	96	78	97	108	81	88	99	90
	Condensing temp.			61	60.5	45.5	61.5	62.5	49.5	57	58	50
	Suction temp.			7	7	-2	7	7	-2	5	4	-3
	Refr. pipe length		m	5								
	Disch. air temp.		˚C	14.5	14.5	40	14	14	42	13.5	13.5	44
Condition	Indoor entering air temp.	Cool	DB/WB	29˚C / 19˚C								
		Heat		20˚C / (15)˚C								
	Ourdoor entering air temp.	Cool	DB/WB	46˚C / 24˚C								
		Heat		7˚C / 6˚C								
Piping	Refrigerant charge		kg(oz)	1.29 (45.5)	1.69 (59.6)		1.75 (61.7)	2.07 (73.0)		2.3 (81.1)	2.45 (86.4)	
	Pipe size (O.D.)	Liquid	mm(inch)	9.52 (3/8)								
		Gas		15.88 (5/8)								
	Connection method			Flare								
	Between	Height	m	8			8			15		
		Pipe length		20			20			30		

2.2.2 ASC-502B, ASC-602B

MODEL				WALL MOUNTED TYPE (WIRELESS)	
		Indoor unit		ASC-502B	ASC-602B
		Outdoor unit		AOC-502B	AOC-602B
Capacity	Cooling	kcal/h		5,000	6,000
		BTU/h		19,850	23,820
	Heating	kcal/h		—	—
		BTU/h		—	—
Power source				1ϕ - 60Hz / 220V	
Total input watts	Cooling	W		2,280	2,600
	Heating			—	—
Total ampacity	Cooling	A		10.6	12.0
	Heating			—	—
EER	Cooling	kcal/hW		2.19	2.31
	Heating			—	—
Starting current		A		55	65
Indoor unit	Fan speed	Hi	r.p.m.	1,095	1,275
		Med		950	1,120
		Low		790	945
	Air circulation	Hi	m³/h	860	1,000
		Med		740	870
		Low		620	740
	Noise level (Sound pressure)	Hi	dB(A)	42	46
		Med		38	42
		Low		34	38
	Heat exch-anger	Type		Plate fin coil	
		Face area	m²	0.274	0.274
		Fin	inch	17	17
	Fan type x Q'ty			Cross flow fan x 2	
	Fan motor output		W	20	
	Operation control			Remote control	
	Dimensions	H	mm(inch)	320(12-5/8)	
		W		1,250(49-3/16)	
		D		195(7-11/16)	
	Weight Net/Gross		kg	18/26	
Outdoor unit	Fan speed	Hi	r.p.m.	735	
		Low		—	
	Air circulation	Hi	m³/h	2,590	
	Noise level		dB(A)	55	56
	Heat exch-anger	Type		Plate fin coil	
		Face area	m²	0.549	
		Fin	inch	14	
	Fan type x Q'ty			Propeller x 1	
	Fan motor output		W	60	
	Compressor type			Hermetic (Rotary)	Hermetic (Recipro)
		Motor output	W	1,500	2,385
		Protection		Internal protector (OCR), High pressure relief valve	
	Dimensions	H	mm(inch)	643(25-5/16)	
		W		840(33-1/16)	
		D		336(13-1/14)	
	Weight Net/Gross		kg	66/74	67/75
Refrige-rant circuit	Operation mode			Cooling	
	Disch. pressure		kg/cm²G	18.4	19.8
	Suct. pressure			4.9	4.9
	Discharge temp.		˚C	93	90
	Condensing temp.			48	51
	Suction temp.			7	
	Refr. pipe length		m	5	
	Disch. air temp.		˚C	12	
Condition	Indoor entering air temp.	Cool	DB/WB	27.0˚C / 19.5˚C	
		Heat		20.0˚C /(15.0)˚C	
	Ourdoor entering air temp.	Cool	DB/WB	35.0˚C / 24.0˚C	
		Heat		7.0˚C / 6.0˚C	
Piping	Refrigerant charger		kg(oz)	1.87(66.0)	2.02(71.3)
	Pipe size (O.D.)	Liquid	mm(inch)	9.52(3/8)	
		Gas		15.88(5/8)	
	Connection method			Flare	
	Between	Height	m	8	
		Pipe length		20	

2.3 UNIVERSAL AB-SERIES (AB ✻ 14A, 14R, 18A, 18R, 24A, 24R)

2.3.1 AB ✻ 14A, 14R, 18A, 18R, 24A, 24R

MODEL				FLOOR / CEILING UNIVERSAL TYPE					
		Indoor unit		AB ✻ 14A	AB ✻ 14R	AB ✻ 18A	AB ✻ 18R	AB ✻ 24A	AB ✻ 24R
		Outdoor unit		AO ✻ 14A	AO ✻ 14R	AO ✻ 18AZ	AO ✻ 18RZ	AB ✻ 24AB	AB ✻ 24RZ
Capacity	Cooling	kW		4.00 - 4.10	3.95 - 4.05	5.30- 5.40	5.20 - 5.30	6.55 - 6.65	6.50 - 6.60
		BTU/h		13,700 - 14,000	13,500 - 13,800	18,100 - 18,400	17,800 - 18,100	22,400 - 22,700	22,200 - 22,500
	Heating	kW		—	4.90 - 5.00	—	5.50 - 5.60	—	7.60 - 7.70
		BTU/h		—	16,700 - 17,100	—	18,800 - 19,100	—	25,900 - 26,300
Power source				1 ~ 220-240V 50Hz					
Total input watts	Cooling	kW		1.67 - 1.80	1.62 - 1.76	2.15 - 2.20	2.15 - 2.20	2.58 - 2.68	2.60 - 2.70
	Heating			—	1.61 - 1.73	—	2.00 - 2.10	—	2.49 - 2.59
Total ampacity	Cooling	A		7.9 - 8.3	7.6 - 8.0	9.9 - 9.4	9.9 - 9.4	12.2 - 12.7	12.5 - 13.0
	Heating			—	7.6 - 8.0	—	9.2 - 8.9	—	12.0- 12.5
EER	Cooling	kW/kW		2.39 - 2.28	2.44 - 2.30	2.47 - 2.45	2.42 - 2.41	2.54 - 2.48	2.50 - 2.44
	Heating			—	3.04 - 2.89	—	2.75 - 2.67	—	3.05 - 2.97
Starting current		A		33		50		61	
Indoor unit	Fan speed	Hi	r.p.m.	790 - 850		950 - 1,030		1,120 - 1,180	
		Med		700 - 760		820 - 890		980 - 1,040	
		Low		620 - 670		700 - 770		840 - 900	
	Air circulation	Hi	m^3/h	580 - 640		720 - 800		830 - 900	
		Med		500 - 560		610 - 680		710 - 780	
		Low		430 - 480		500 - 560		590 - 660	
	Noise level (Sound pressure)	Hi	dB(A)	40.0 - 41.0		46.0 - 47.0		48.0 - 49.0	
		Med		37.0 - 38.0		41.5 - 42.5		44.0 - 45.0	
		Low		34.0 - 35.0		37.0 - 38.0		40.0 - 41.0	
	Heat exchanger			Plate fin coil					
	Fan type x Q'ty			Sirocco fan x 2					
	Fan motor output		kW	0.016		0.030		0.040	
	Operation control			Remote control					
	Dimensions	H	mm	199					
		W		990					
		D		655					
	Weight Net/Gross		kg	28 / 37		28 / 37		30 / 39	
Outdoor unit	Fan speed	Hi	r.p.m.	750		735		735	
		Low		—		—	280	—	280
	Air circulation		m^3/h	1,600		2,590		2,590	
	Noise level	Hi	dB(A)	49.0		56.0		56.0	
	Heat exchanger			Plate fin coil					
	Fan type x Q'ty			Propeller x 1					
	Fan motor output		kW	0.022		0.060		0.060	
	Compressor type			Hermetic (rotary)		Hermetic (recipro)			
		Motor output	kW	1,400		1,500		1,875	
		Protection		Internal protector (OCR)		Internal protector (OCR), High pressure relief valve			
	Dimensions	H	mm	530		643		643	
		W		750		840		840	
		D		250		336		336	
	Weight Net/Gross		kg	37 / 39	38 / 40	66 / 74	68 / 76	67 / 75	68 / 76
Refrige-rant circuit	Discharge pressure		kg/cm^2	Cooling: 19.5	Cooling: 19.5 / Heating: 19.8	Cooling: 19.0	Cooling: 19.0 / Heating: 20.0	Cooling: 20.0	Cooling: 20.1 / Heating: 20.7
	Suction pressure			5.1	5.1 / 4.3	4.9	4.9 / 4.2	4.8	4.9 / 4.0
	Discharge temp.		˚C	92	89 / 95	92	97 / 84	91	98 / 87
	Suction temp.			10	10 / 1	7	8 / 1	4	6 / 1
	Refr. pipe length		m	5					
	Disch. air temp.		˚C	13	13 / 45	12	12 / 42	11	12 / 45
Condition	Indoor air temp.	Cool	DB/WB	27.0˚C / 19.0˚C					
		Heat		20.0˚C /(15.0)˚C					
	Ourdoor air temp.	Cool	DB/WB	35.0˚C / 24.0˚C					
		Heat		7.0˚C / 6.0˚C					
Piping	Refrigerant charge		kg	1.000	1.050	1.140	1.690	1.950	2.070
	Pipe size (O.D.)	Liquid	mm	6.35	6.35	9.35	9.53	9.53	9.53
		Gas		12.7	12.7	15.88	15.88	15.88	15.88
	Connection method			Flare					
	Height difference		m	5		8		8	
	Pipe length			10		20		20	

2.3.2 AB ✻ 18A, 18R, 24A, 24R

(Nontropicalized models)

MODEL				FLOOR / CEILING UNIVERSAL TYPE			
		Indoor unit		AB ✻ 18A	AB ✻ 18R	AB ✻ 24A	AB ✻ 24R
		Outdoor unit		AO ✻ 18AN	AO ✻ 18RM	AB ✻ 24AN	AB ✻ 24RM
Capacity	Cooling	kW		5.3 - 5.4	5.2 - 5.3	6.55 - 6.75	6.7 - 6.8
		BTU/h		18,100 - 18,400	17,700 - 18,100	22,400 - 23,000	22,900 - 23,200
	Heating	kW		—	5.7 - 5.8	—	7.6 - 7.7
		BTU/h		—	19,500 - 19,800	—	25,900 - 26,300
Power source				1ϕ 50Hz / 220-240V			
Total input watts	Cooling	kW		2.05 - 2.15	2.05 - 2.15	2.67 - 2.78	2.55 - 2.65
	Heating			—	1.90 - 2.00	—	2.44 - 2.54
Total ampacity	Cooling	A		10.2 - 10.4	9.5 - 9.5	13.2 - 13.4	11.6 - 11.1
	Heating			—	9.0 - 9.1	—	11.2- 10.6
EER	Cooling	kW/kW		2.59 - 2.51	2.54 - 2.47	2.45 - 2.42	2.63 - 2.57
	Heating			—	3.60 - 2.90	—	3.11 - 3.03
Starting current		A		50		56	
Indoor unit	Fan speed	Hi	r.p.m.	950 - 1,030		1,120 - 1,180	
		Med		820 - 890		980 - 1,040	
		Low		700 - 770		840 - 900	
	Air circulation	Hi	m^3/h	720 - 800		830 - 900	
		Med		610 - 680		710 - 780	
		Low		500 - 560		590 - 660	
	Noise level (Sound pressure)	Hi	dB(A)	46.0 - 47.0		48.0 - 49.0	
		Med		41.5 - 42.5		44.0 - 45.0	
		Low		37.0 - 38.0		40.0 - 41.0	
	Heat exchanger			Plate fin coil			
	Fan type x Q'ty			Sirocco fan x 2			
	Fan motor output		kW	0.030		0.040	
	Operation control			Remote control			
	Dimensions	H	mm	199			
		W		990			
		D		655			
	Weight Net/Gross		kg	28 / 37		30 / 39	
Outdoor unit	Fan speed	Hi	r.p.m.	735		735	
		Low		—	280	—	280
	Air circulation		m^3/h	2,590		2,590	
	Noise level	Hi	dB(A)	56.0		56.0	
	Heat exchanger			Plate fin coil			
	Fan type x Q'ty			Propeller x 1			
	Fan motor output		kW	0.060		0.060	
	Compressor type			Hermetic (Rotary)			
	Motor output		kW	1,665	1,500	2,200	2,000
	Protection			Internal protector (OCR)			
	Dimensions	H	mm	643		643	
		W		840		840	
		D		336		336	
	Weight Net/Gross		kg	59 / 67	68 / 76	60 / 68	69 / 77
Refrige-rant circuit	Operation model			Cooling	Cooling / Heating	Cooling	Cooling / Heating
	Discharge pressure		kg/cm^2	21	21 / 20	21.5	21 / 19
	Suction pressure			4.5	4.9 / 3.5	4.8	4.7 / 3.8
	Discharge temp.		˚C	81	93 / 86	90	94 / 70
	Suction temp.			3.5	6.9 / -3	5.5	8 / -2
	Refr. pipe length		m	5			
	Disch. air temp.		˚C	11.5	12 / 43.5	12	12 / 44
Condition	Indoor air temp.	Cool	DB/WB	27.0˚C / 19.0˚C			
		Heat		20.0˚C /(15.0)˚C			
	Ourdoor air temp.	Cool	DB/WB	35.0˚C / 24.0˚C			
		Heat		7.0˚C / 6.0˚C			
Piping	Refrigerant charge		kg	1.5	1.95	1.87	2.070
	Pipe size (O.D.)	Liquid	mm	9.53	9.53	9.53	9.53
		Gas		15.88	15.88	15.88	15.88
	Connection method			Flare			
	Height difference		m	8		8	
	Pipe length			20		20	

2.3.3 ABB24A, ABB24R

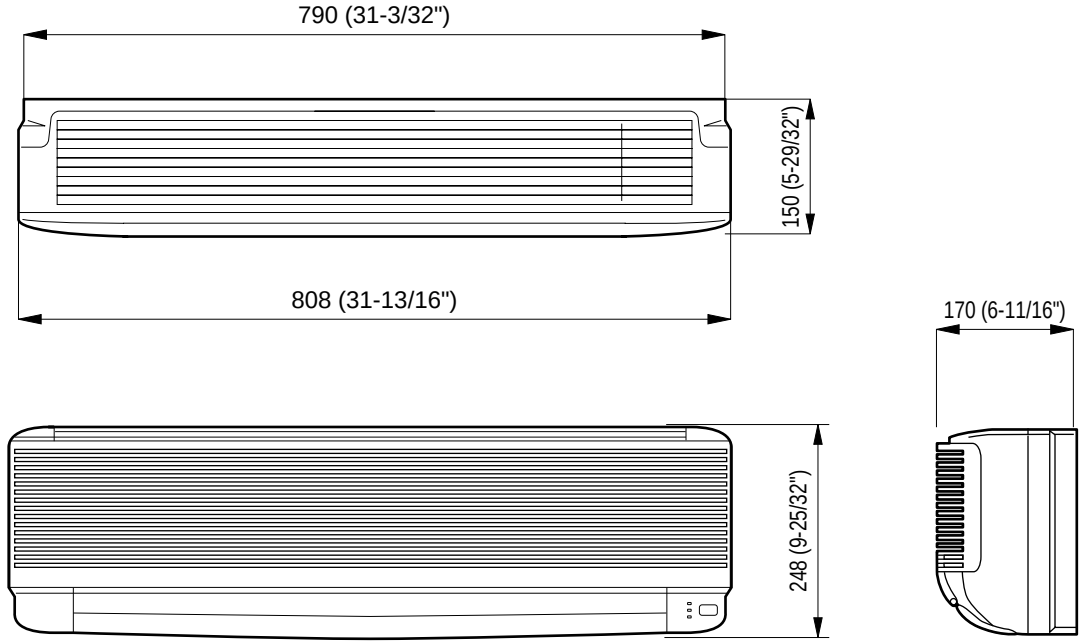
MODEL				FLOOR / CEILING UNIVERSAL TYPE		
				ABB24A	ABB24R	
Capacity	Cooling	W		5,300	5,300	
	Heating			—	7,100	
Power source				1 ~ 220V 60Hz		
Total input watts	Cooling	W		3,100	3,100	
	Heating			—	2,650	
Total ampacity	Cooling	A		14.6	14.6	
	Heating			—	12.5	
EER	Cooling	W/W		1.71	1.71	
	Heating			—	2.68	
Starting current		A		66		
Indoor unit	Fan speed	Hi	r.p.m.	1,150		
		Med		990		
		Low		870		
	Air circulation	Hi	m^3/h	900		
		Med		780		
		Low		660		
	Noise level (Sound pressure)	Hi	dB(A)	49.0		
		Med		45.0		
		Low		41.0		
	Heat exchanger			Plate fin coil		
	Fan type x Q'ty			Sirocco fan x 2		
	Fan motor output		kW	0.040		
	Operation control			Remote control		
	Dimensions	H	mm	199		
		W		990		
		D		655		
	Weight Net/Gross		kg	30 / 39		
Outdoor unit	Fan speed		r.p.m.	735		
	Air circulation		m^3/h	2,590		
	Noise level	Hi	dB(A)	56.0		
	Heat exchanger			Plate fin coil		
	Fan type x Q'ty			Propeller x 1		
	Fan motor output		kW	0.060		
	Compressor type			Hermetic (Recipro)		
	Motor output		kW	1,900		
	Protection			Internal protector (OCR), High pressure relief valve		
	Dimensions	H	mm	643		
		W		840		
		D		336		
	Weight Net/Gross		kg	67 / 75	68 / 76	
Refrige-rant circuit	Disch. pressure		kg/cm^2	Cooling	Cooling	Heating
				24.5	24.9	19.7
	Suct. pressure			4.9	4.9	4.0
	Discharge temp.		˚C	91	102	77
	Suction temp.			8	7	1
	Refr. pipe length		m	5		
	Disch. air temp.		˚C	13	13	45
Condition	Indoor air temp.	Cool	DB/WB	29.0˚C / 19.0˚C		
		Heat		21.0˚C /(15.5)˚C		
	Ourdoor air temp.	Cool	DB/WB	46.0˚C / 24.0˚C		
		Heat		7.0˚C / 6.0˚C		
Piping	Refrigerant charge		kg	1.750	2.070	
	Pipe size (O.D.)	Liquid	mm	9.53		
		Gas		15.88		
	Connection method			Flare		
	Height difference		m	15		
	Pipe length			20		

3. OUTLINE AND DIMENSIONS

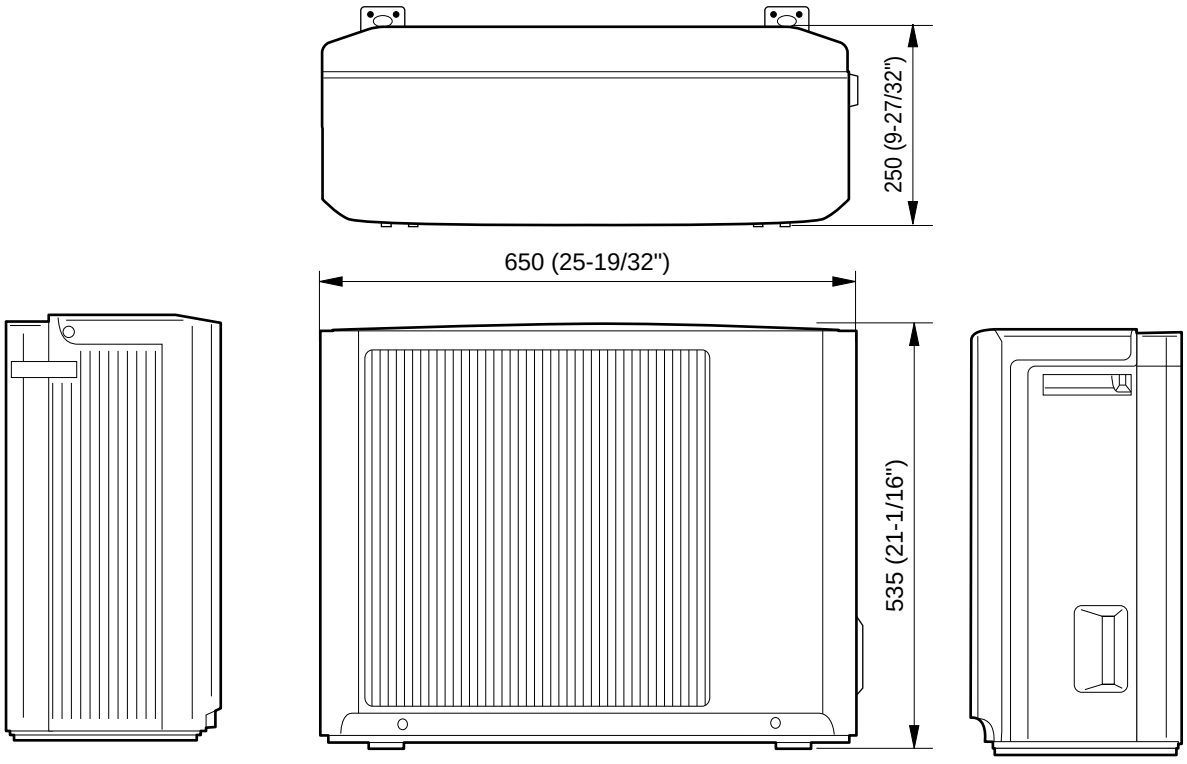
3.1 MODELS : AS ✻ 7A, 7R

3.1.1 INDOOR UNIT

Unit : mm (inch)



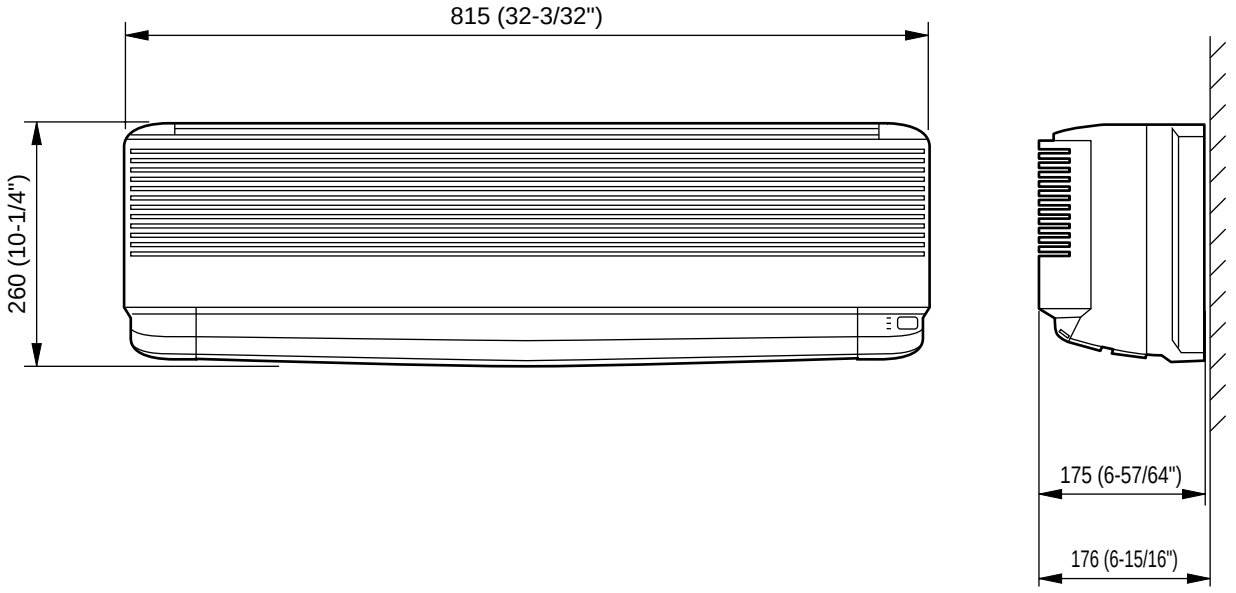
3.1.2 OUTDOOR UNIT



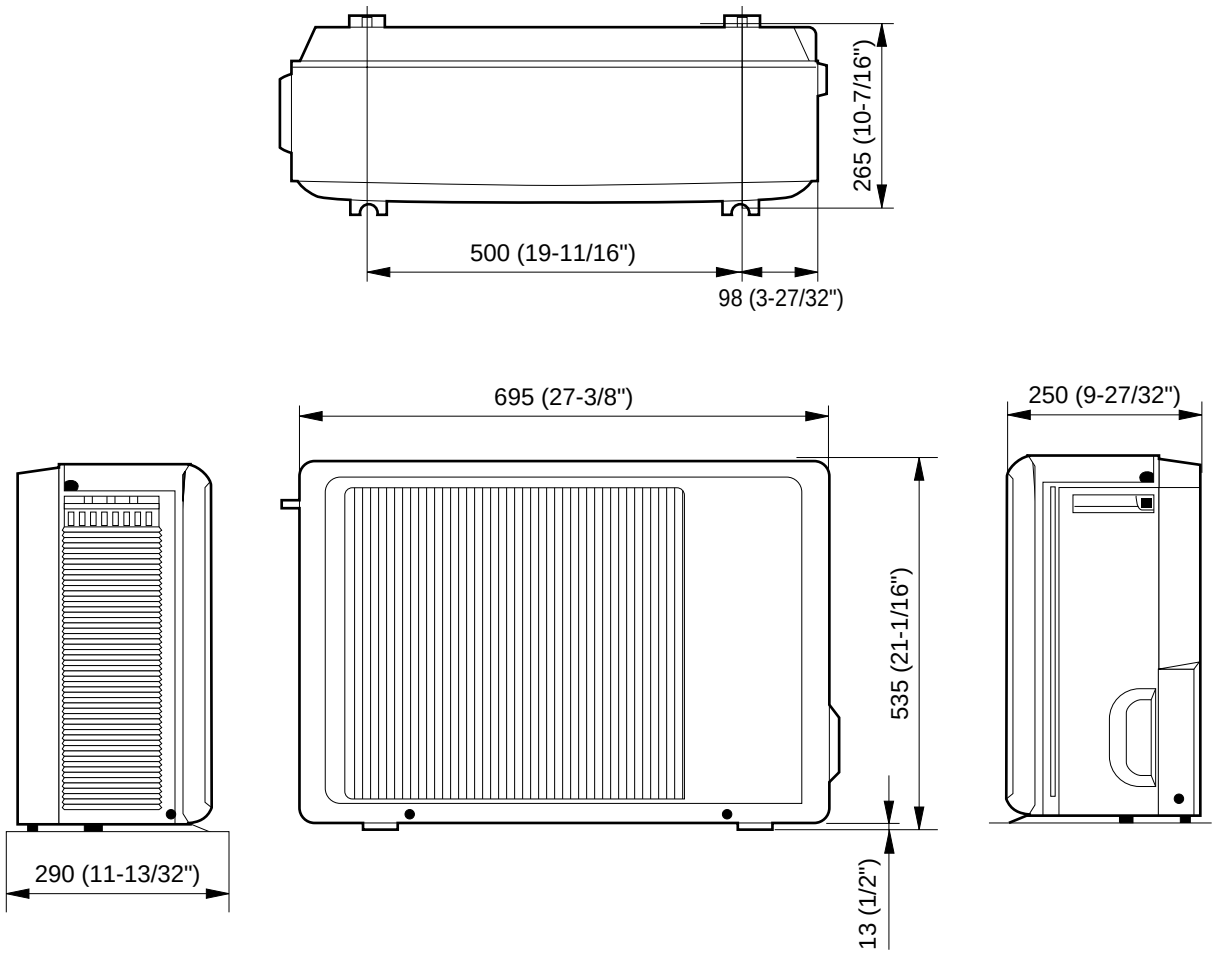
3.2 MODELS : AS ✻ 9A, 9R, 12A , 12R

3.2.1 INDOOR UNIT

Unit : mm (inch)



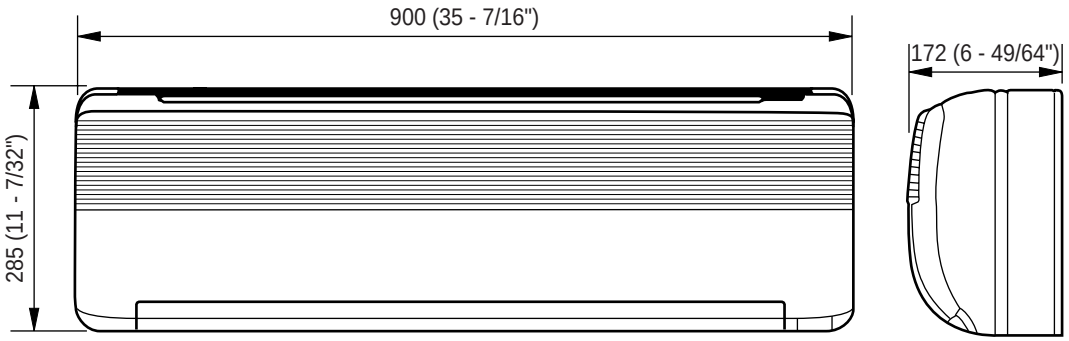
3.2.2 OUTDOOR UNIT



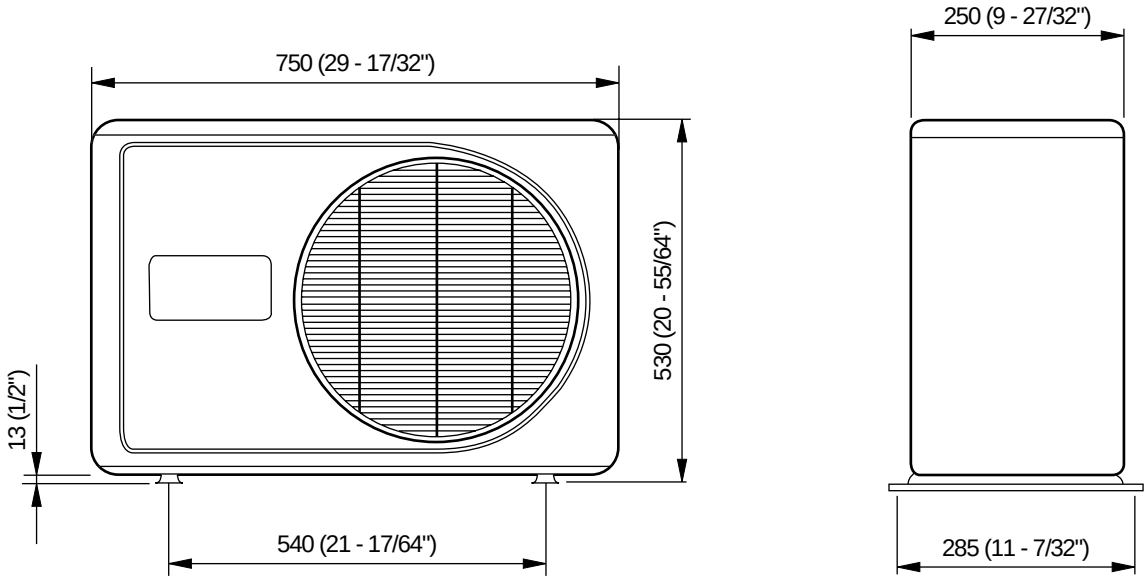
3.3 MODELS : AS ✻ 14A, 14R

3.3.1 INDOOR UNIT

Unit : mm (inch)



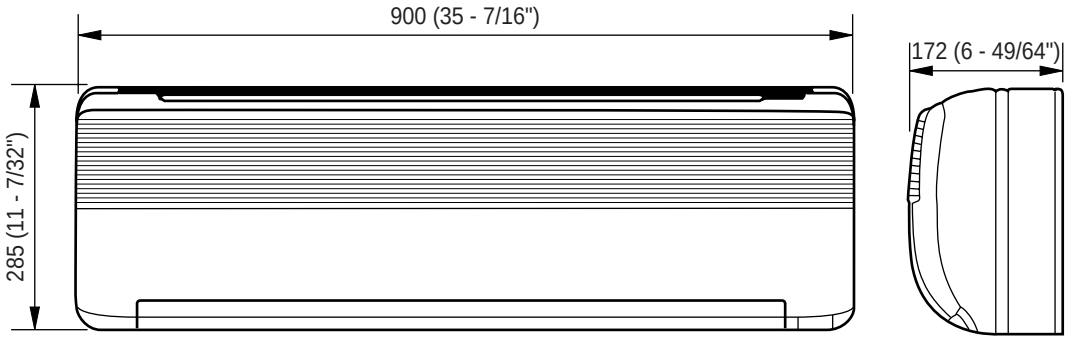
3.3.2 OUTDOOR UNIT



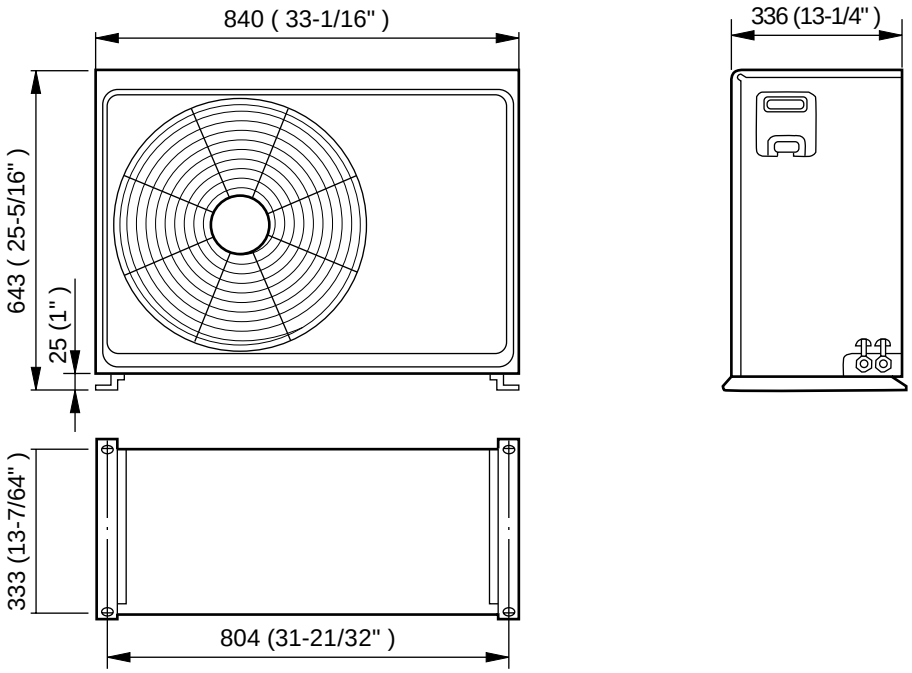
3.4 MODELS : AS ✻ 17A, 17R

3.4.1 INDOOR UNIT

Unit : mm (inch)



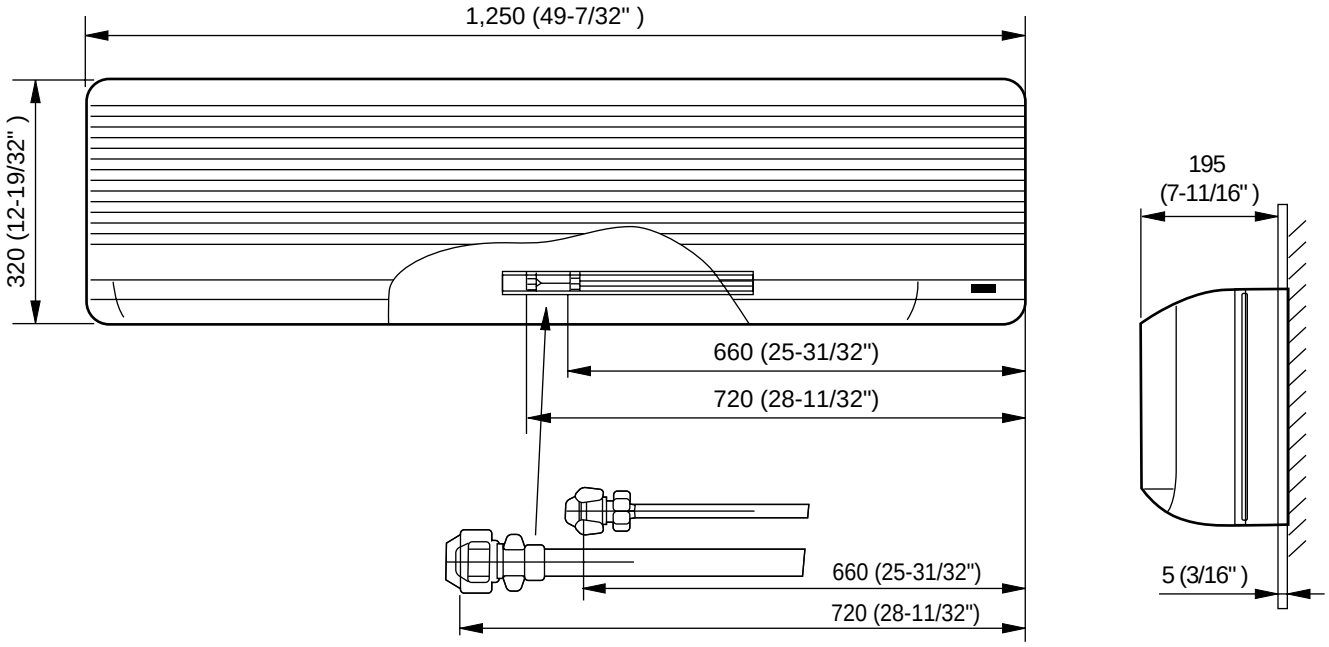
3.4.2 OUTDOOR UNIT



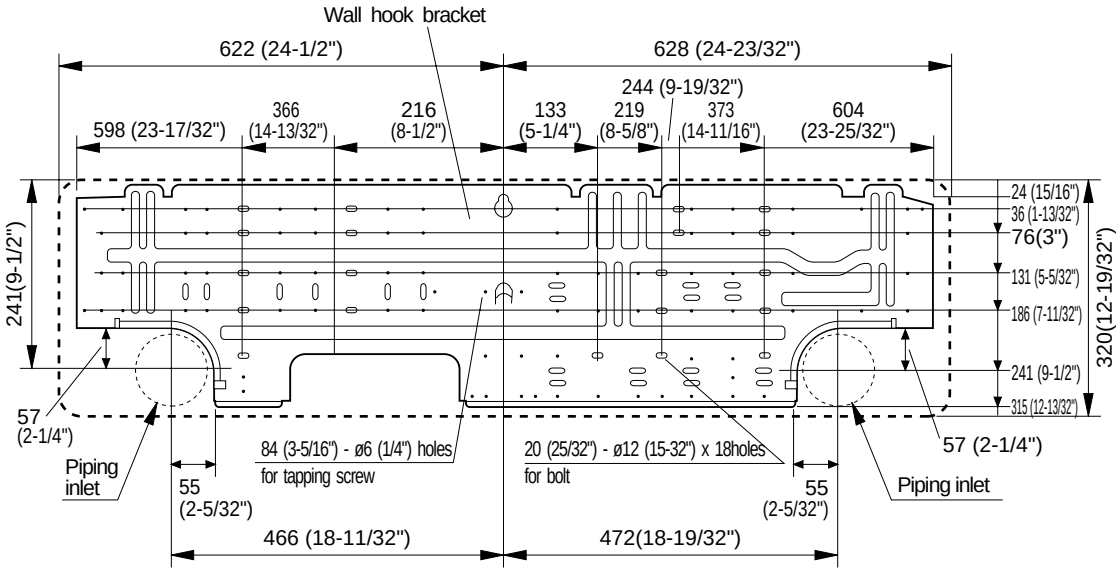
3.5 MODELS : AS ✻ 20A, 20R, 24A, 24R, 30A, 30R, ASC-502B, ASC-602B

3.5.1 INDOOR UNIT

Unit : mm (inch)



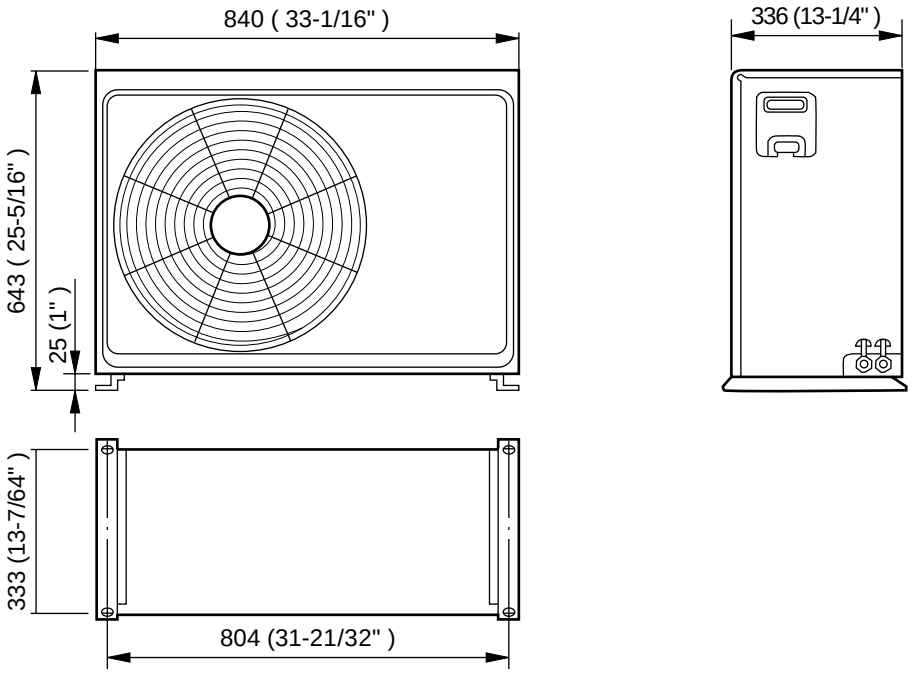
Connecting pipe	Gas	ϕ15.88 (5/8")
	Liquid	ϕ 9.52 (3/8")
Drain pipe	ϕ 16 (5/8")	



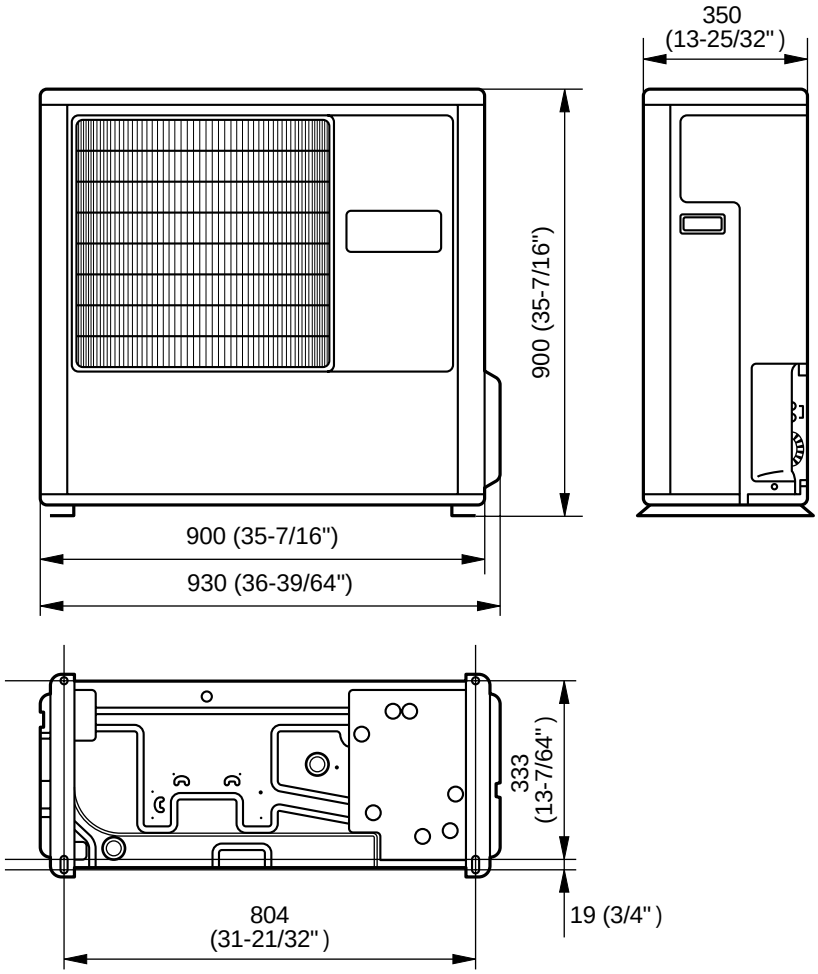
3.5.2 OUTDOOR UNIT

Unit : mm (inch)

Models : AO ✻ 20A, 20R, 24A , 24R, AOC-502B, AOC-602B



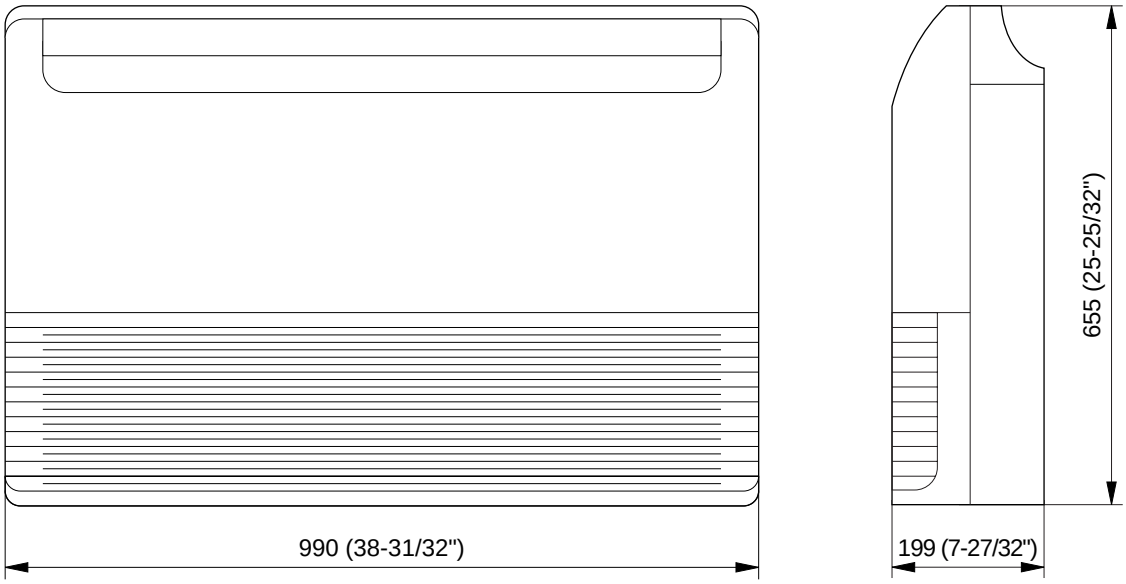
Models : AO ✻ 30A, 30R



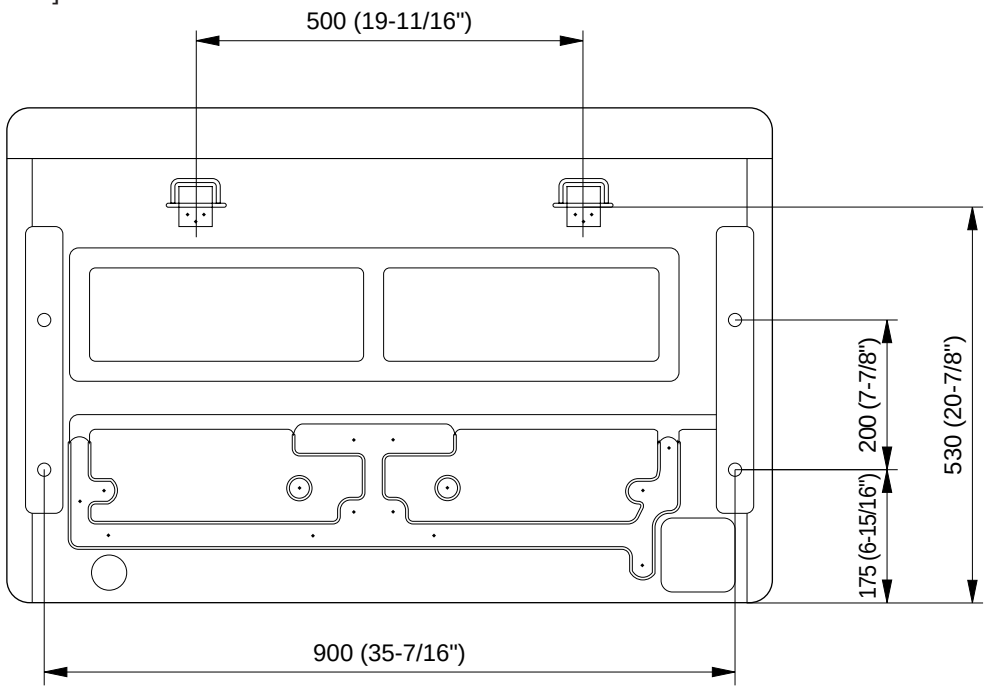
3.6 MODELS : AS ✻ 14A, 14R, 18A, 18R, 24A, 24R

3.6.1 INDOOR UNIT

Unit : mm (inch)



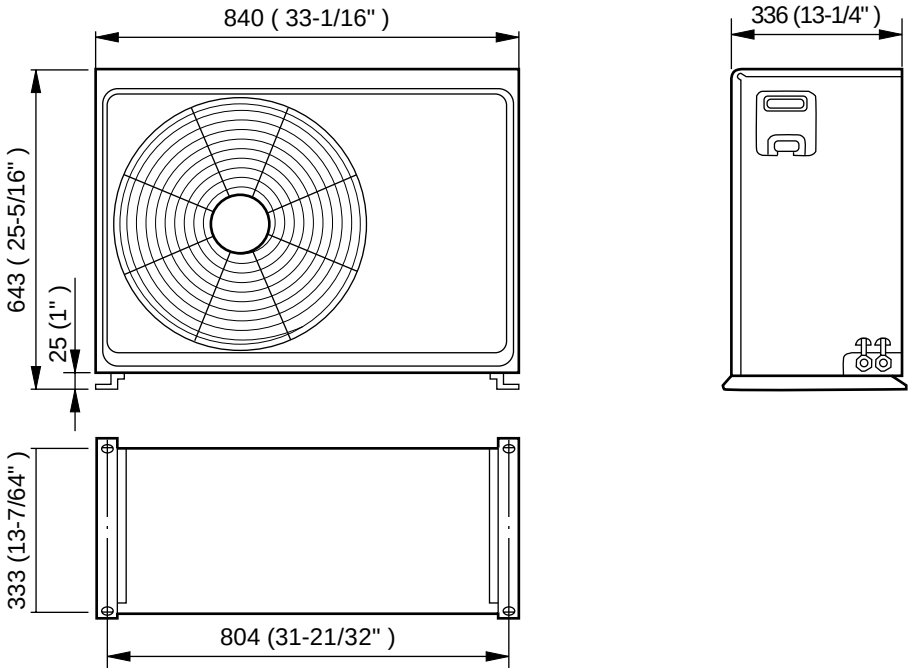
[Rear View]



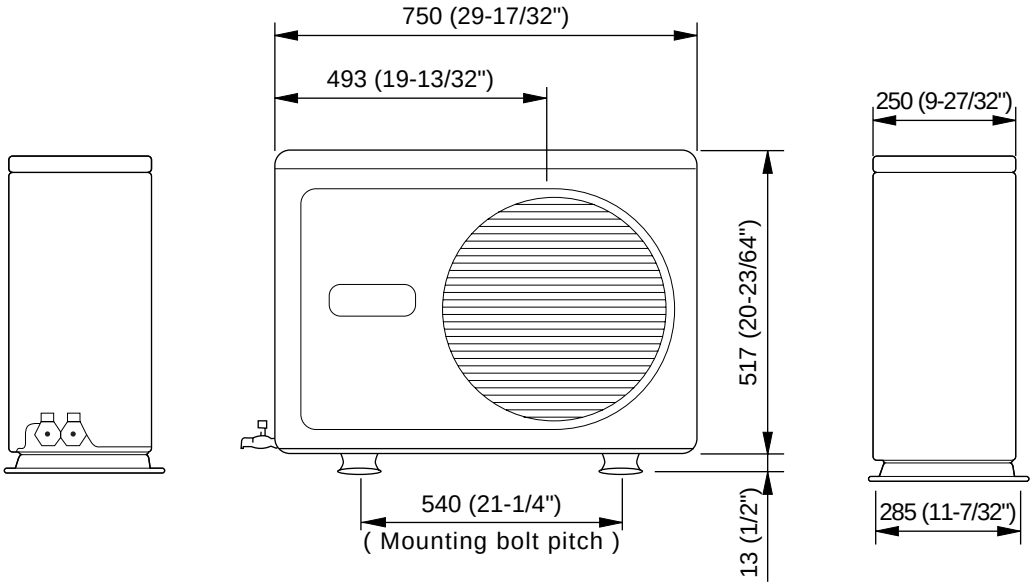
3.6.2 OUTDOOR UNIT

Unit : mm (inch)

Models : AO ✻ 18A, 18R, 24A , 24R



Models : AO ✻ 14A, 14R

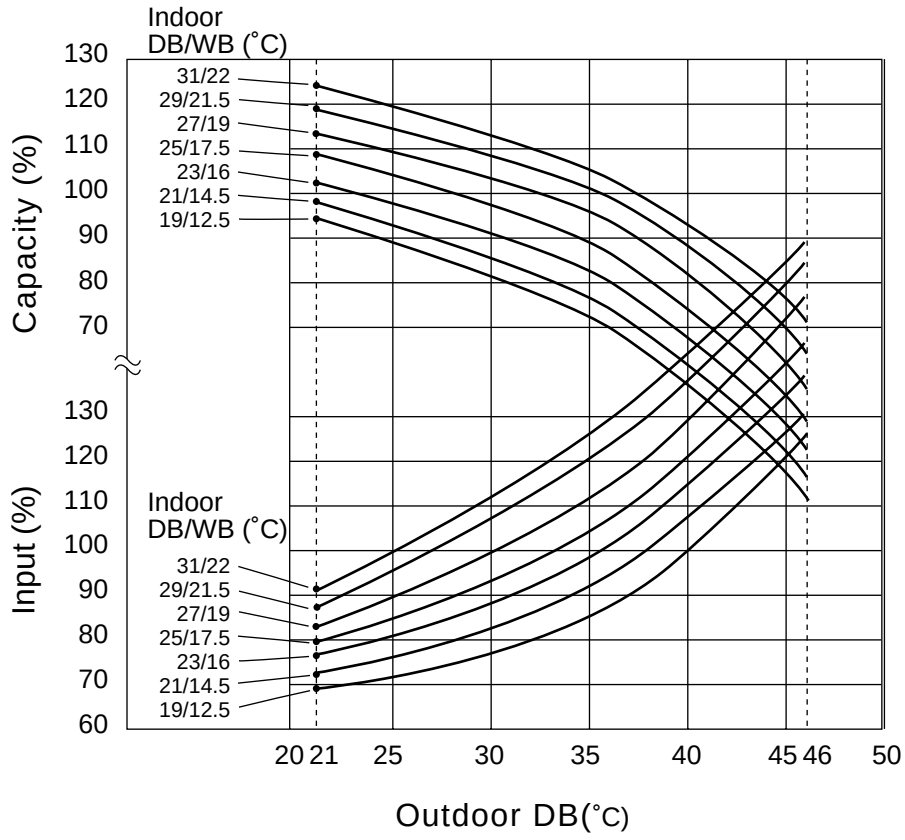


4. DATA

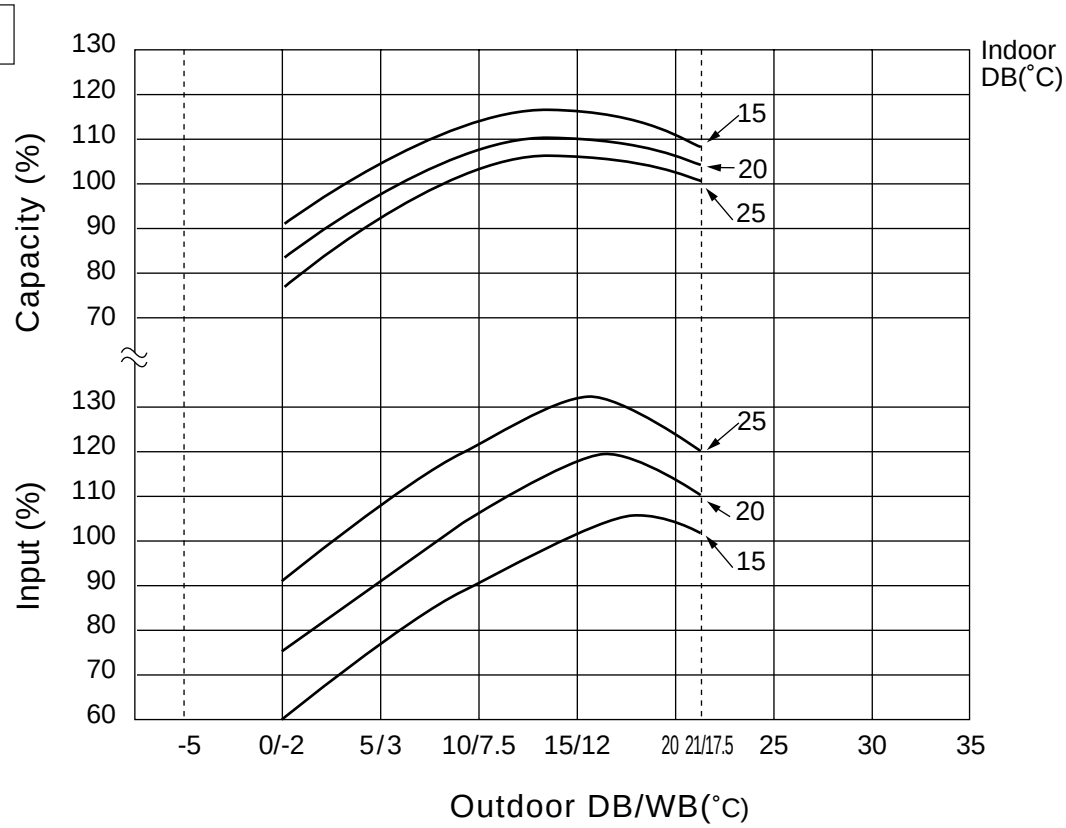
4.1 PERFORMANCE CURVE

4.1.1 MODEL : COMPACT SII, MII & LI (AS*14A, AS*14R) SERIES

Cooling

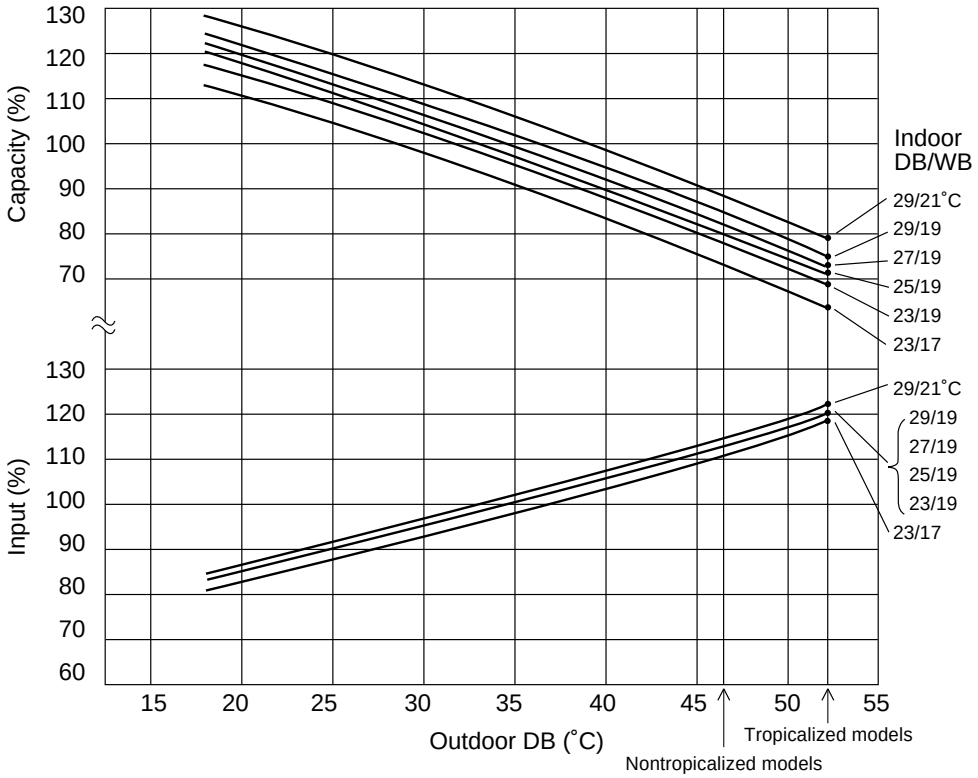


Heating



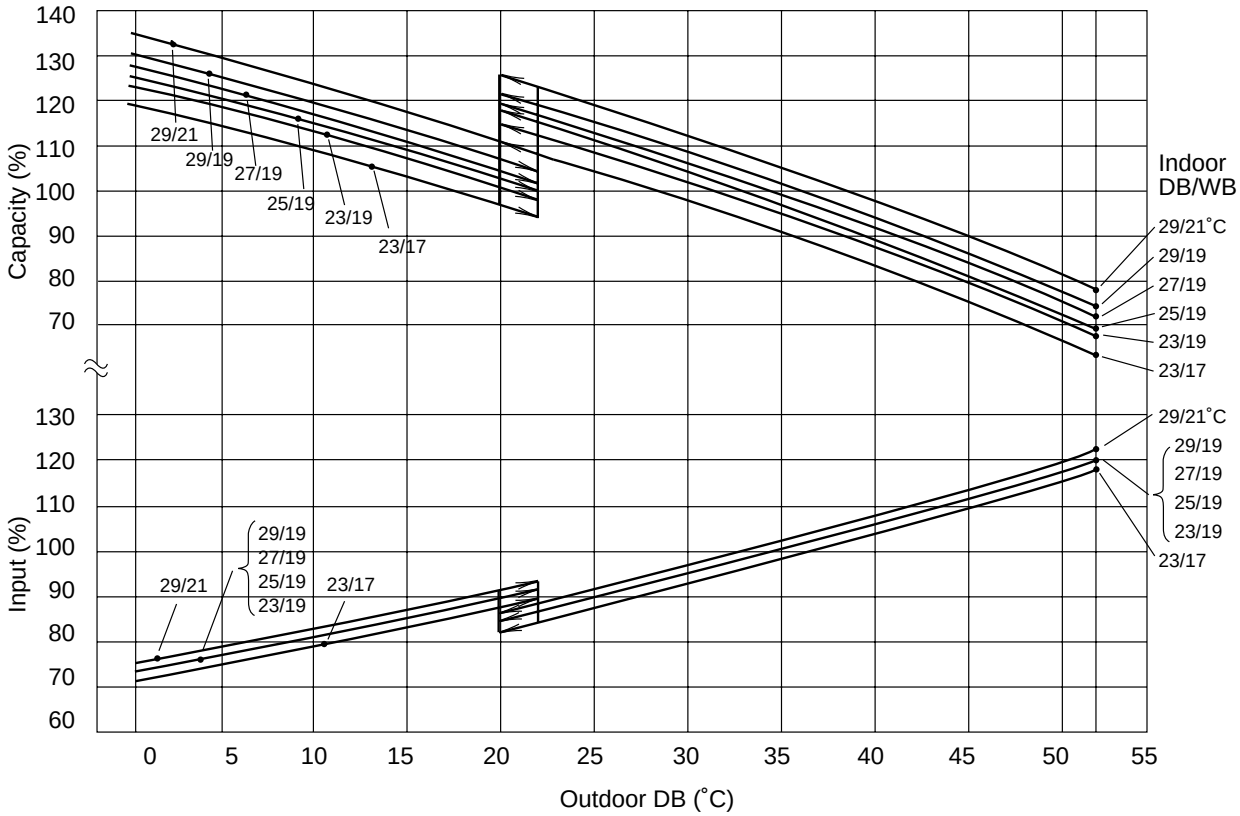
4.1.2 AS ✻ 17A, 20A, 24A (50Hz models)

Cooling



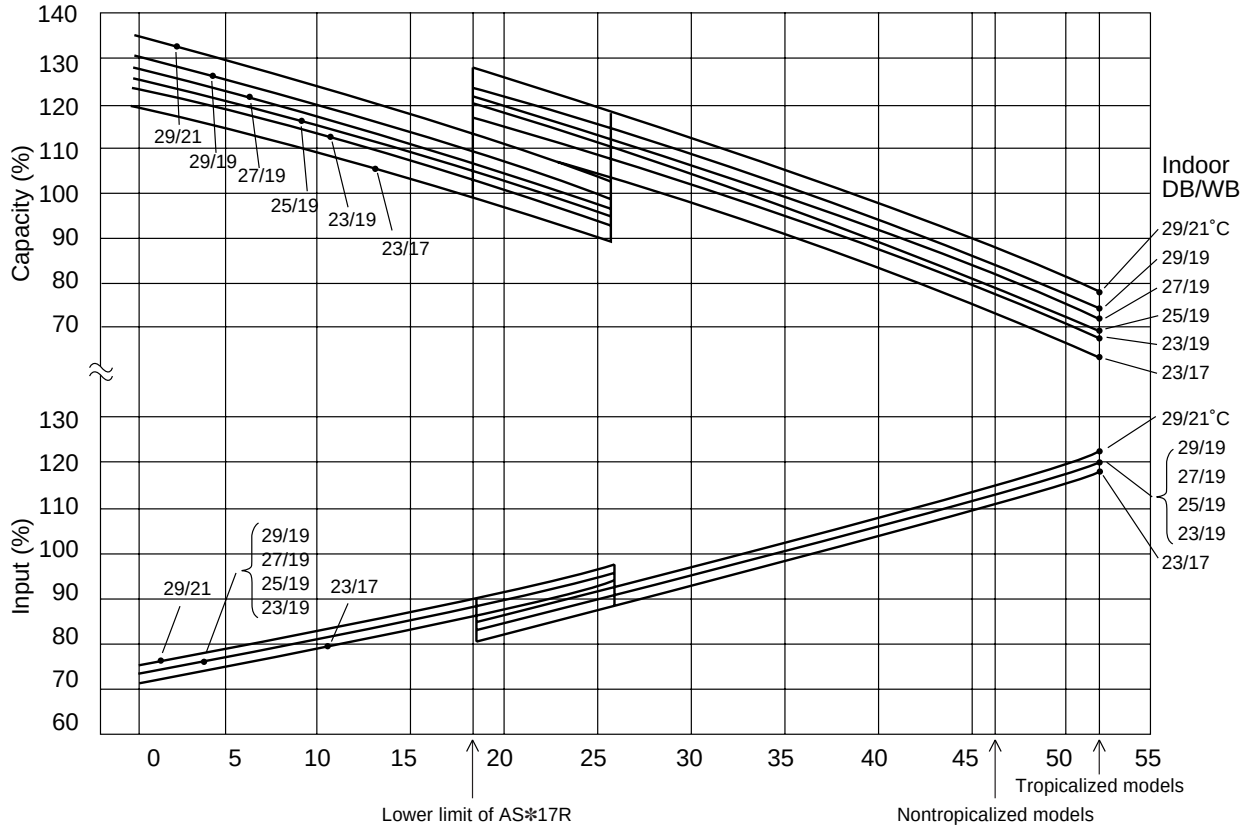
4.1.3 AS ✻ 30A (50Hz models)

Cooling

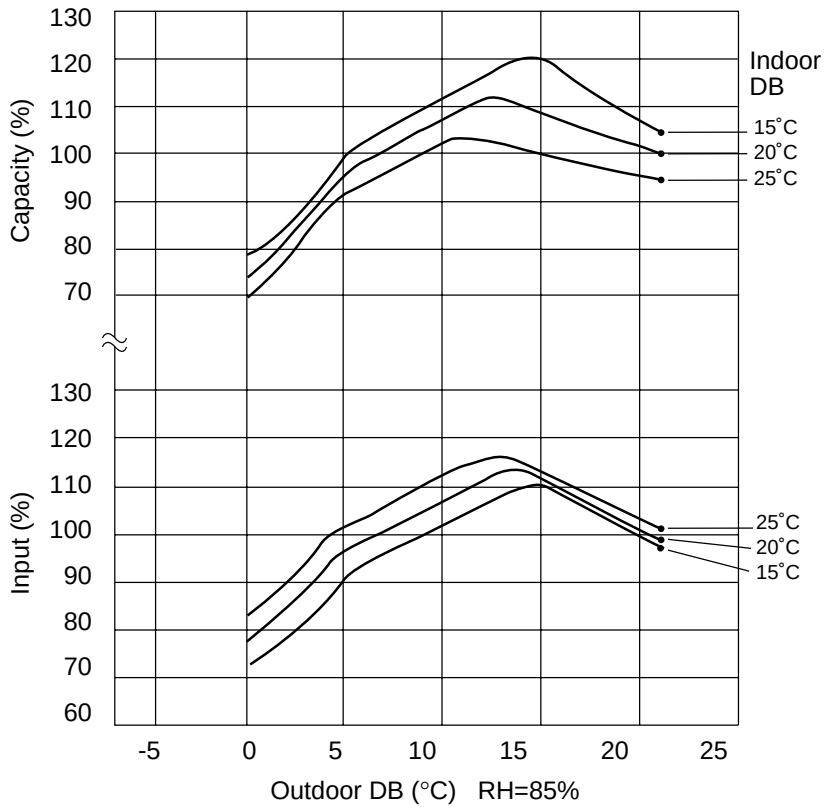


4.1.4 AS ✻ 17R, 20R, 24R (50Hz models)

Cooling

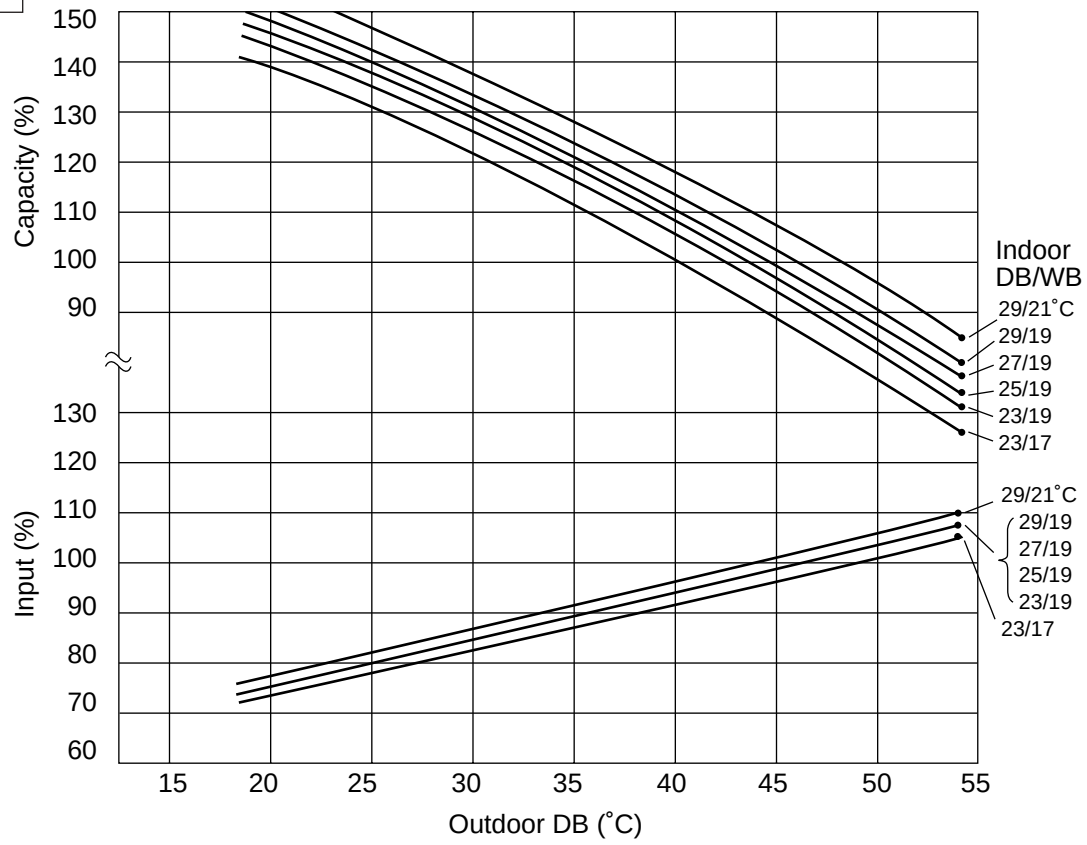


Heating

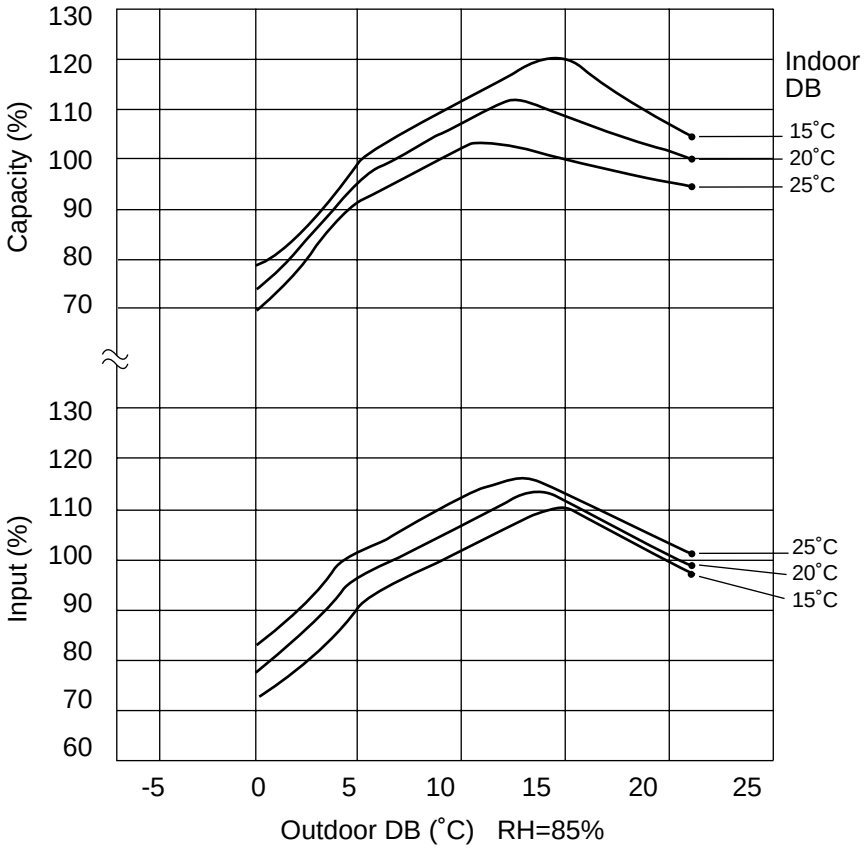


4.1.5 ASB20R, ASB24R, ASB30R (60Hz models)

Cooling

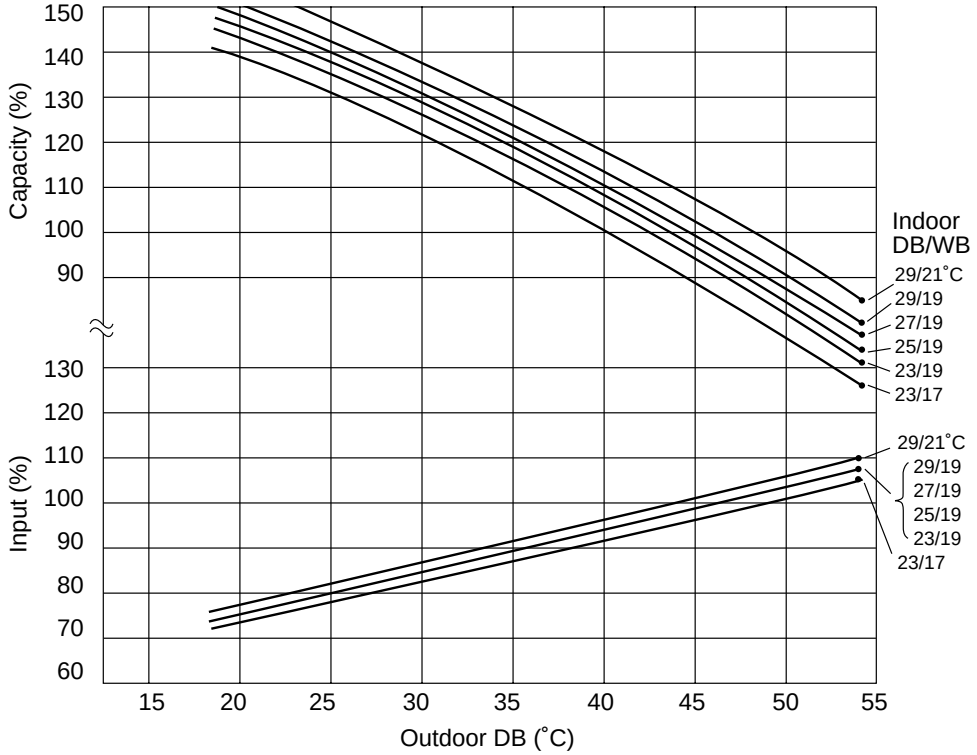


Heating



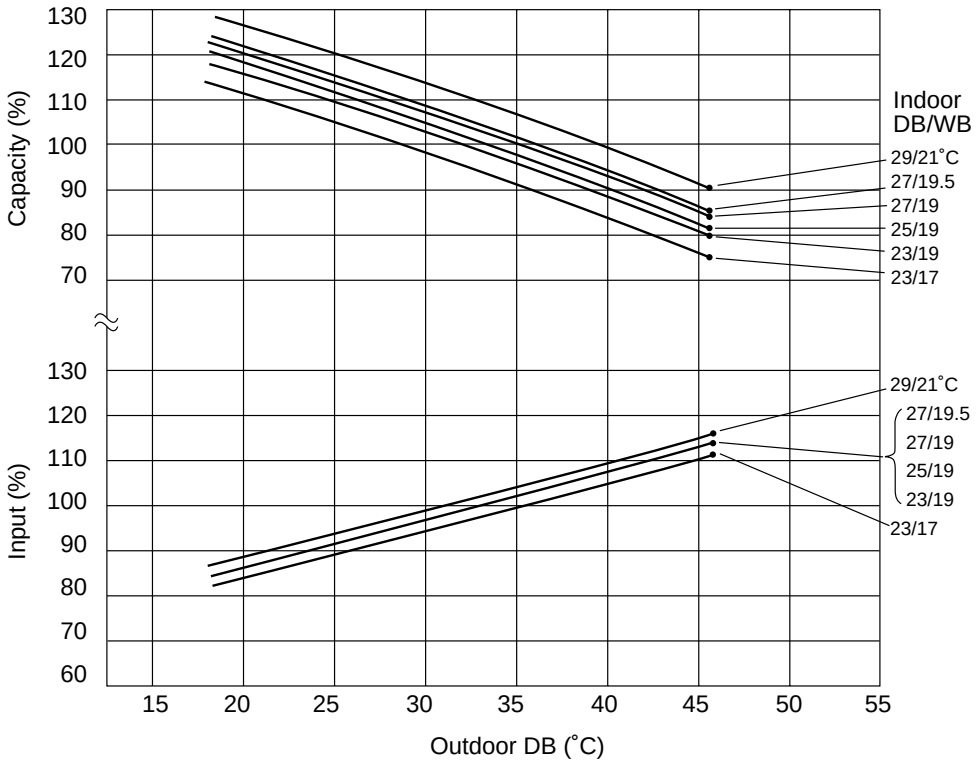
4.1.6 ASB20A, ASB24A, ASB30A (60Hz models)

Cooling



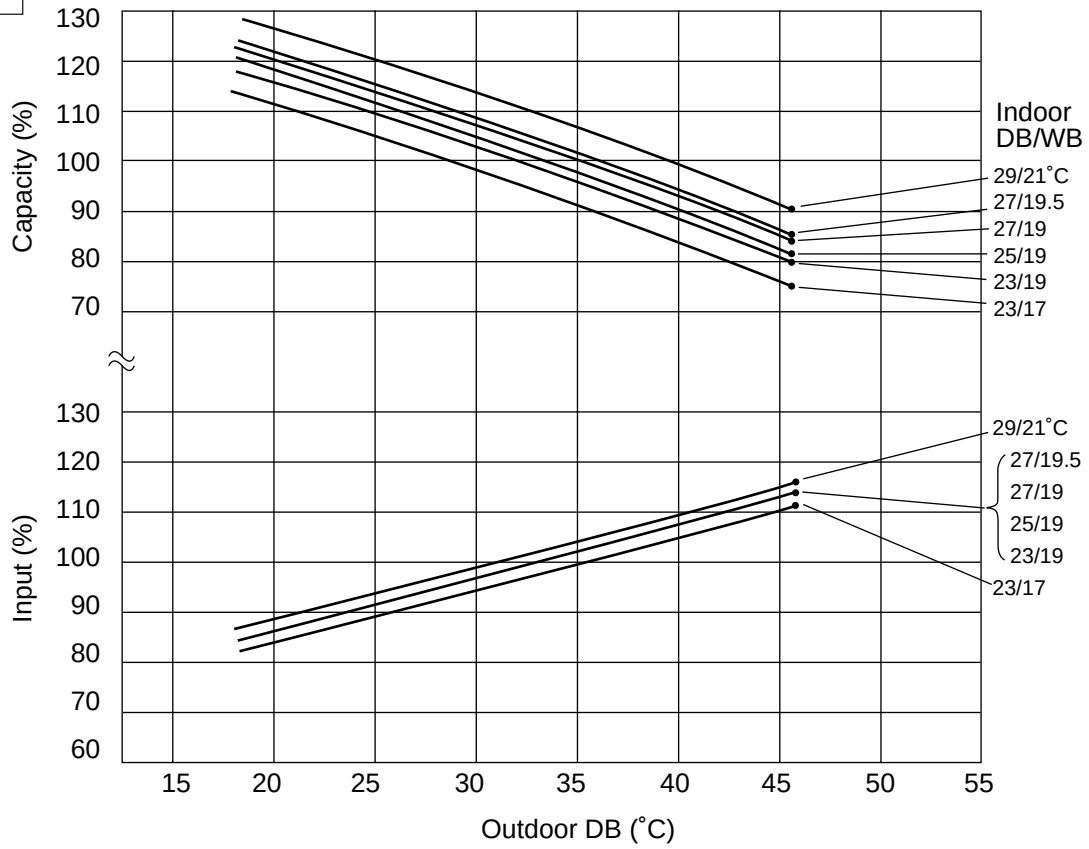
4.1.7 ASC-502B, ASC-602B (60Hz models)

Cooling

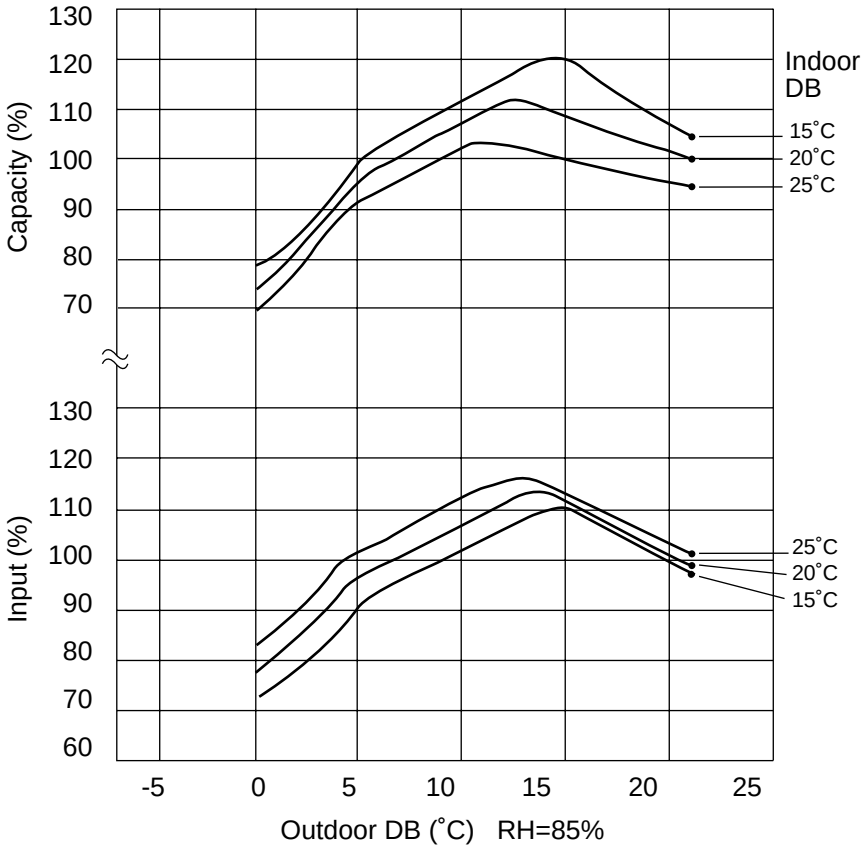


4.1.8 AB＊14R (50Hz models)

Cooling

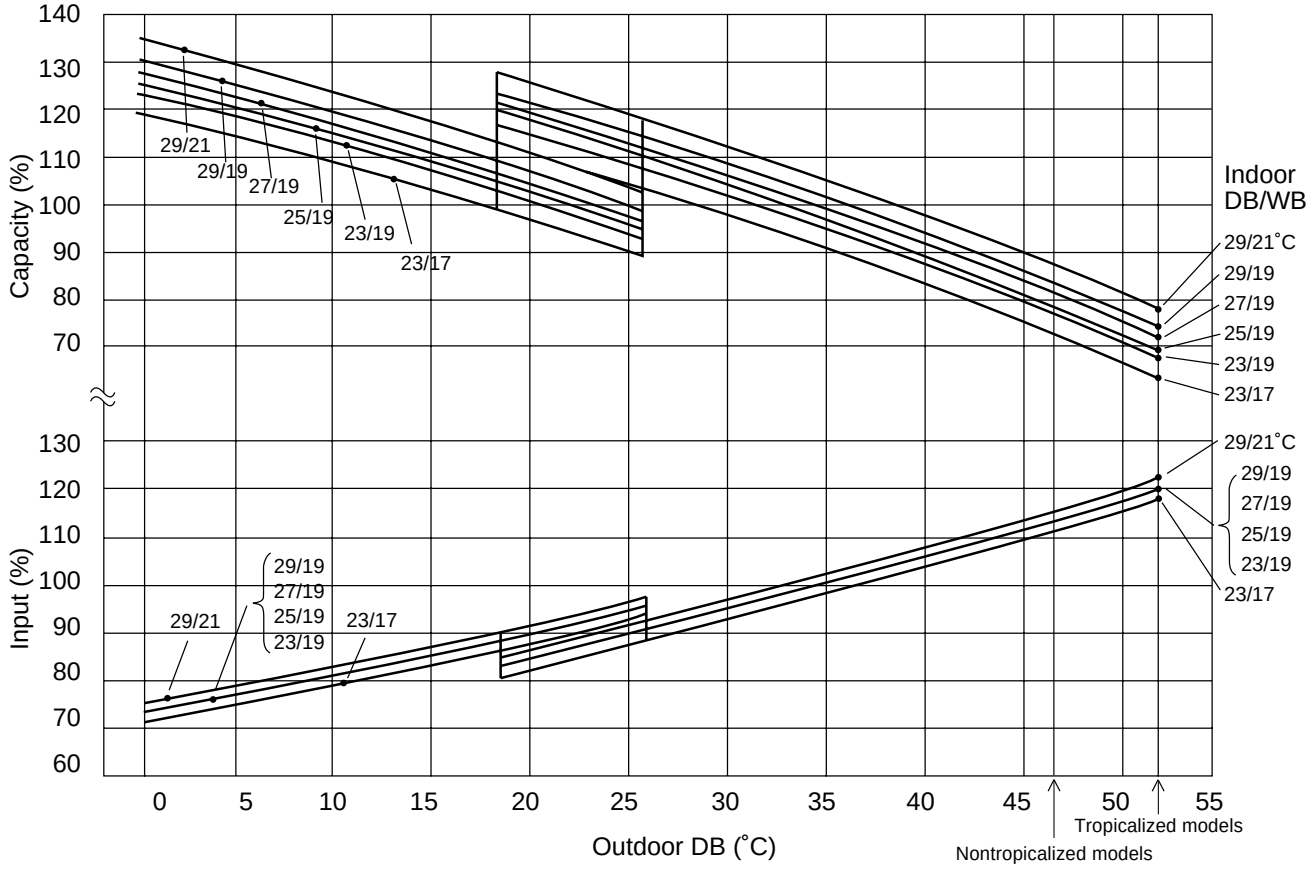


Heating

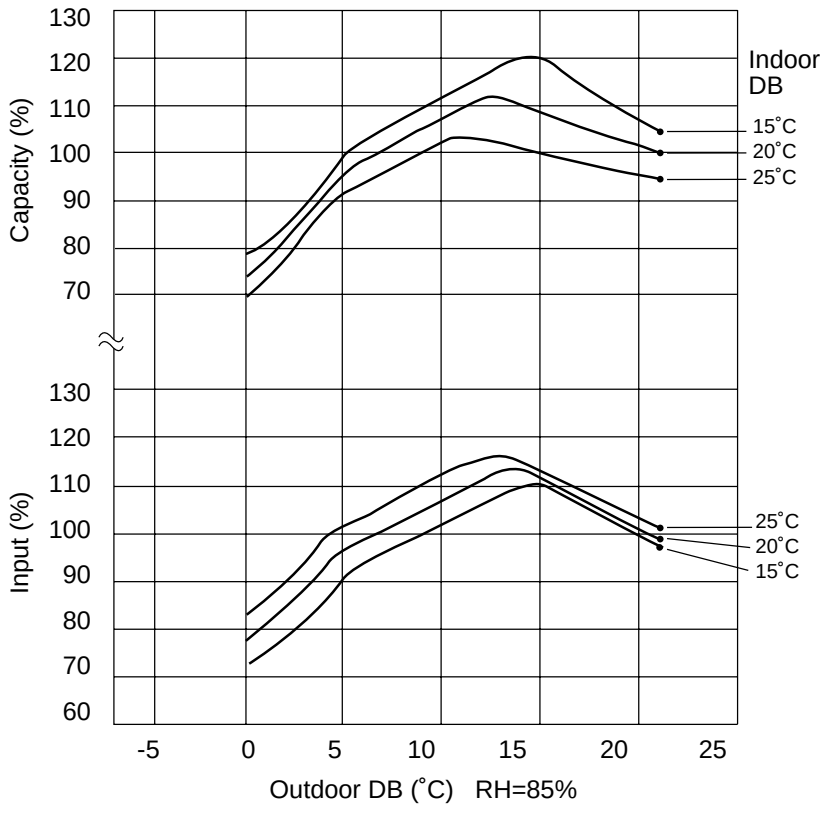


4.1.9 AB ✻ 18R, AB ✻ 24R (50Hz models)

Cooling

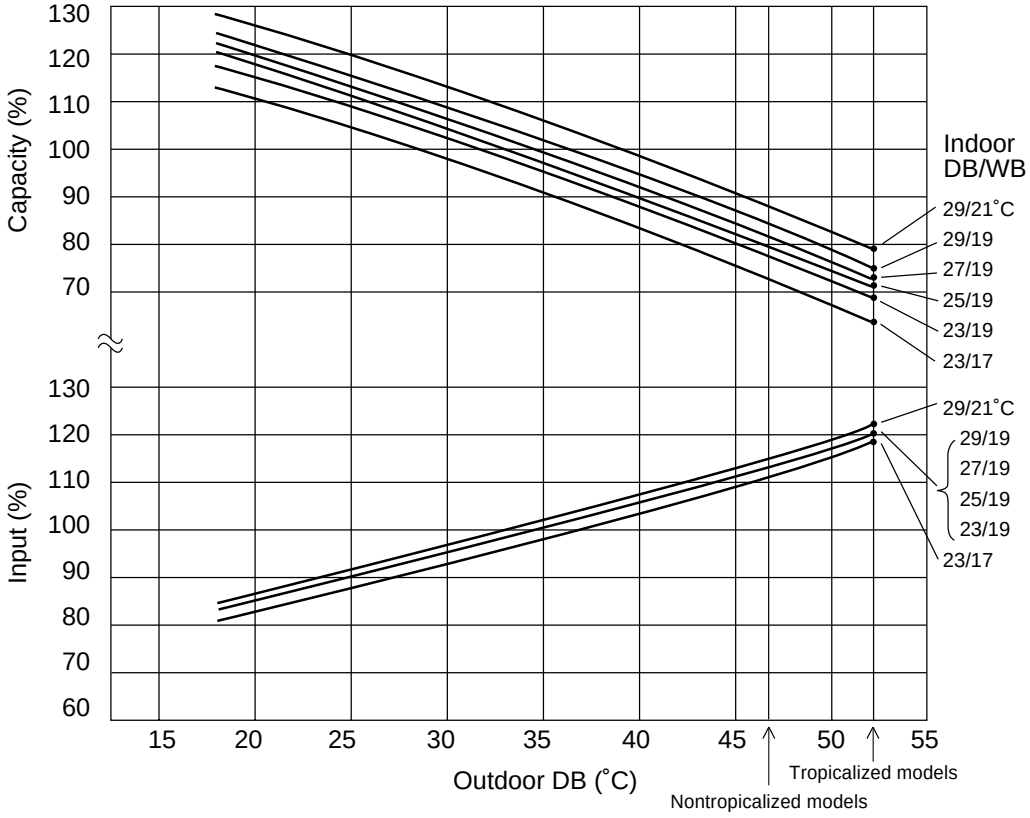


Heating



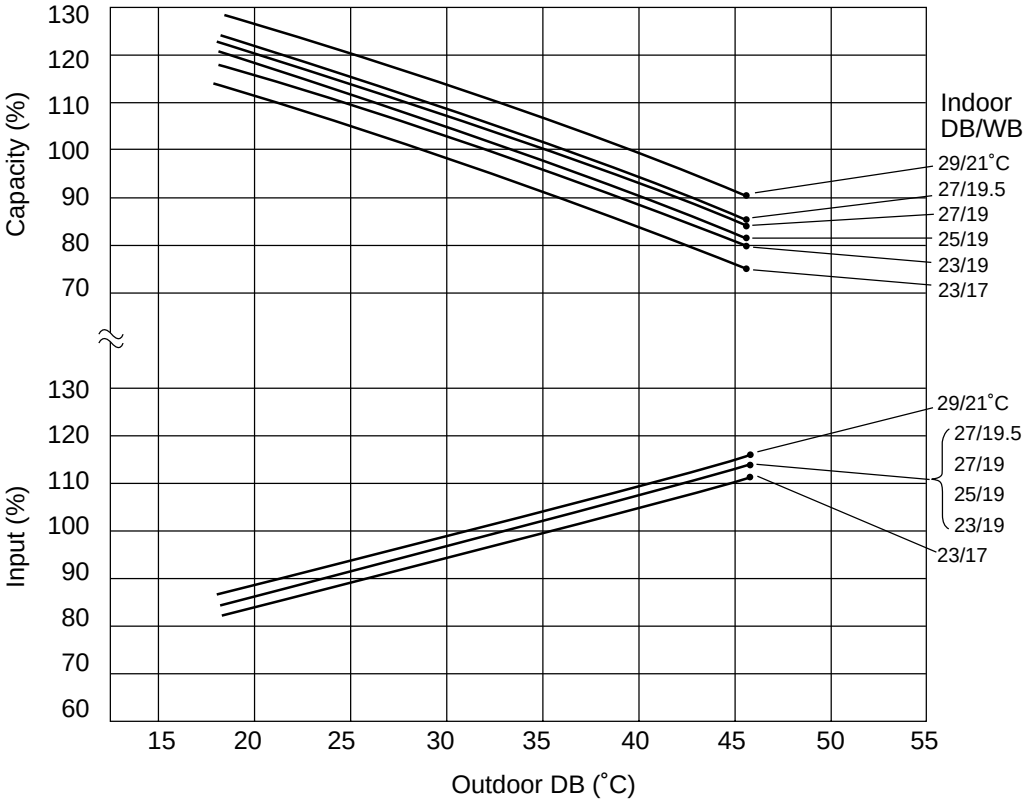
4.1.10 AB ✻ 18A, AB ✻ 24A (50Hz models)

Cooling



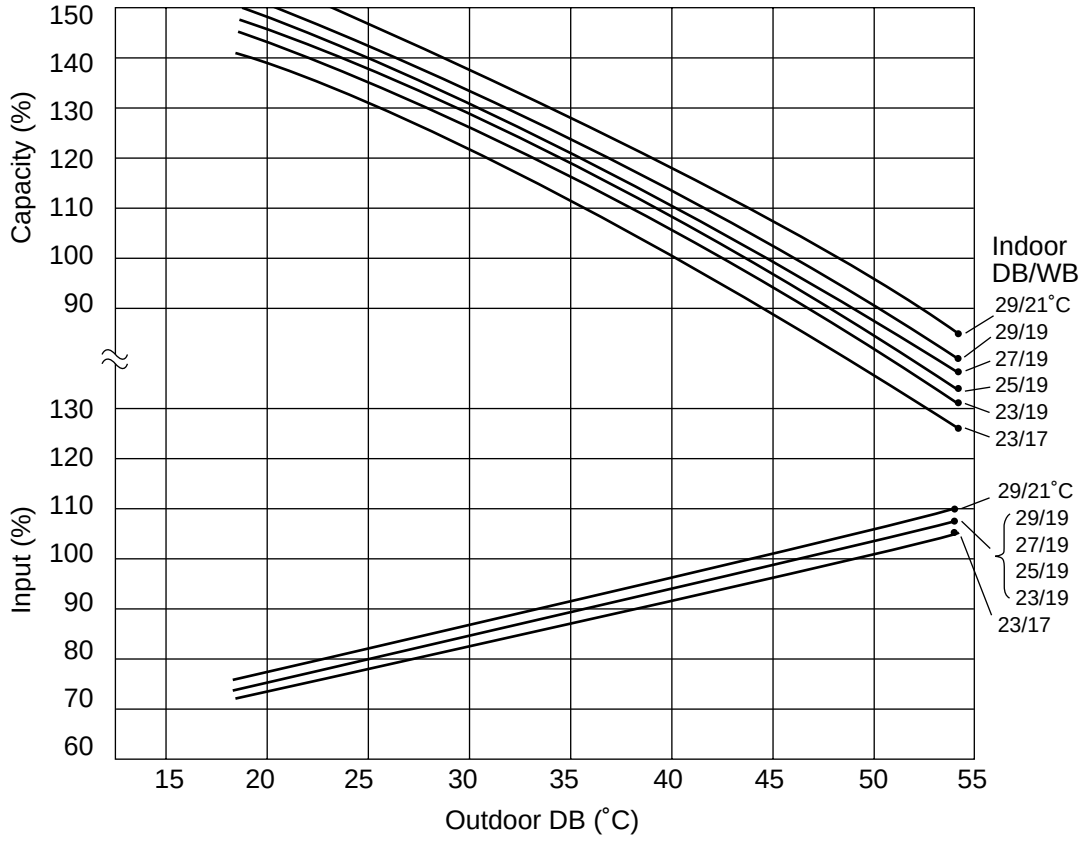
4.1.11 AB ✻ 14A (50Hz models)

Cooling



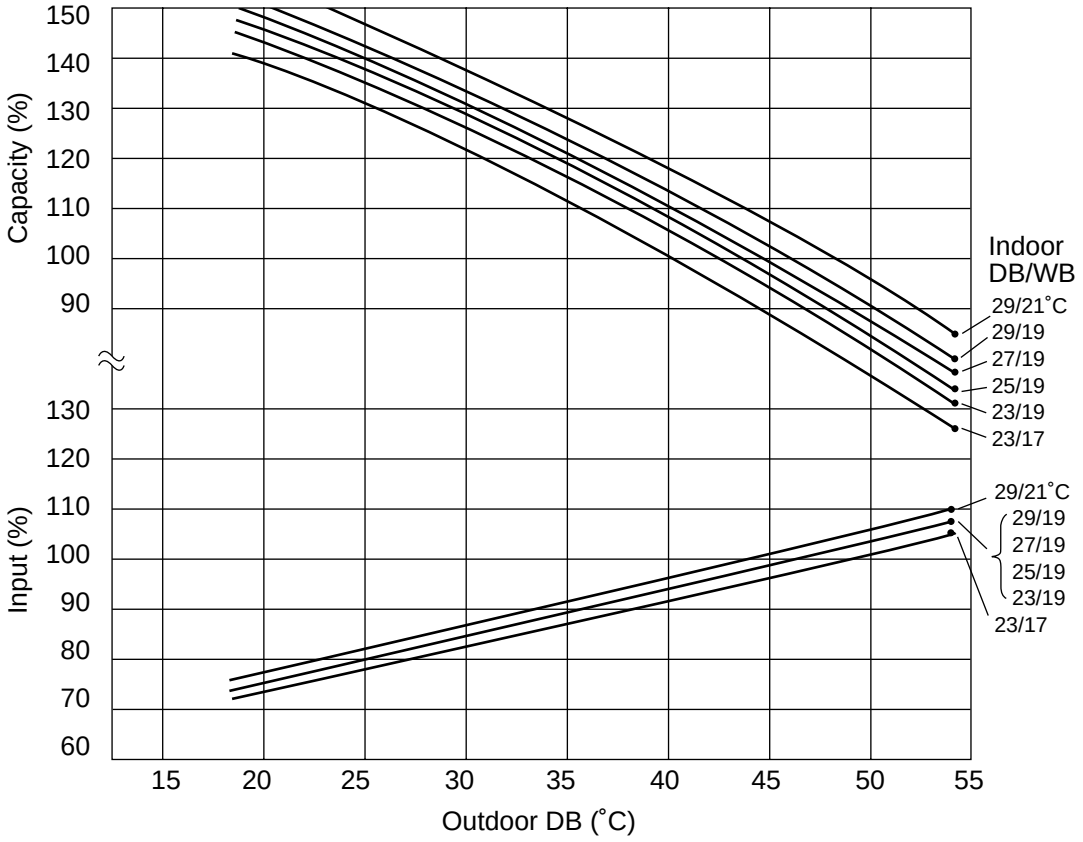
4.1.12 ABB24A (60Hz models)

Cooling

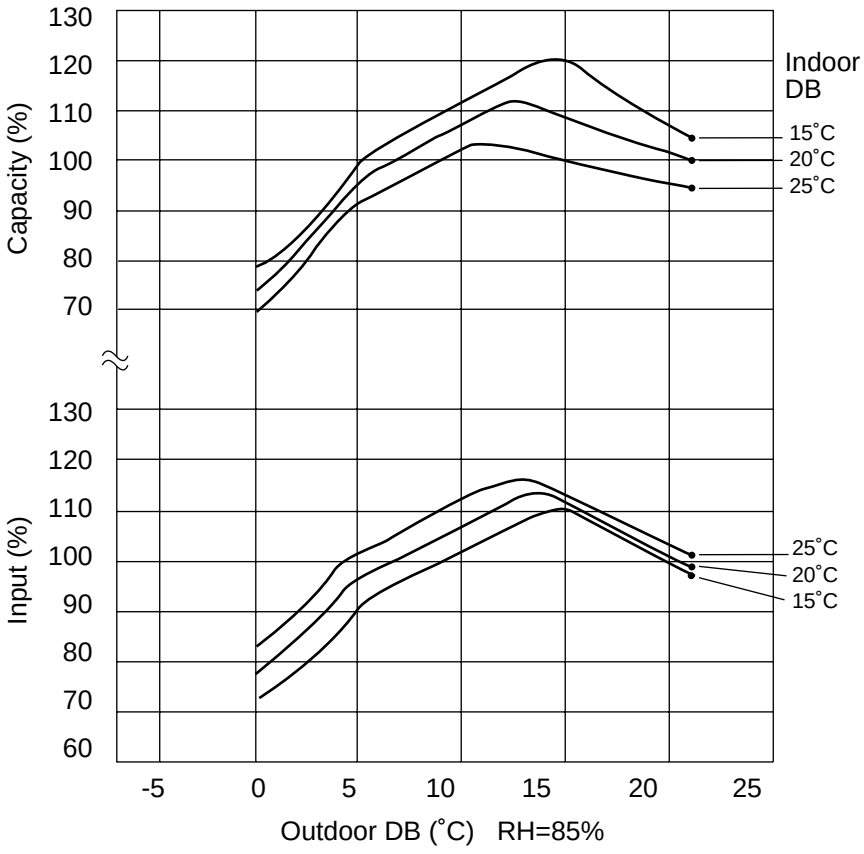


4.1.13 ABB24R (60Hz models)

Cooling



Heating



4.2 TEMPERATURE RANGE

MODELS		TEMPERATURE RANGE	
		INDOOR UNIT	OUTDOOR UNIT
AS ✻ 7A AS ✻ 9A AS ✻ 12A	COOL DRY	Approx. 18°C to 32°C	Approx. 18°C to 43°C
AS ✻ 7R AS ✻ 9R AS ✻ 12A	COOL	Approx. 18°C to 32°C	Approx. 18°C to 43°C
	HEAT	Approx. 16°C to 30°C	Approx. -5°C to 21°C
AS ✻ 14A	COOL	Approx. 18°C to 32°C	Approx. 18°C to 46°C
AS ✻ 17A	COOL	Approx. 18°C to 32°C	Approx. 18°C to 52°C Tropicalized model Approx. 18°C to 46°C Nontropicalized model
AS ✻ 14R AS ✻ 17R	COOL	Approx. 18°C to 32°C	Approx. 18°C to 46°C
	HEAT	Approx. 16°C to 30°C	Approx. 0°C to 21°C
AS ✻ 20A AS ✻ 24A (except ASC-502B and ASC-602B)	COOL DRY	Approx. 18°C to 32°C	Approx. 18°C to 52°C Tropicalized model Approx. 10°C to 46°C Nontropicalized model
ASC-502B ASC-602B	COOL DRY	Approx. 18°C to 32°C	Approx. 18°C to 43°C
ASG30A ASY30A	COOL DRY	Approx. 18°C to 32°C	Approx. 0°C to 52°C
AS ✻ 20R AS ✻ 24R	COOL DRY	Approx. 18°C to 32°C	Approx. 0°C to 52°C Tropicalized model Approx. 0°C to 46°C Nontropicalized model
	HEAT	Approx. 30°C or less	Approx. 0°C to 21°C
AS ✻ 30R	COOL DRY	Approx. 18°C to 32°C	Approx. 0°C to 52°C
	HEAT	Approx. 30°C or less	Approx. 0°C to 21°C
AB ✻ 14A	COOL DRY	Approx. 18°C to 32°C	Approx. 21°C to 43°C
AB ✻ 18A AB ✻ 24A	COOL DRY	Approx. 18°C to 32°C	Approx. 21°C to 52°C Tropicalized model Approx. 0°C to 46°C Nontropicalized model
AB ✻ 14R	COOL DRY	Approx. 18°C to 32°C	Approx. 21°C to 43°C
	HEAT	Approx. 16°C to 30°C	Approx. 0°C to 21°C
AB ✻ 18R AB ✻ 24R	COOL DRY	Approx. 18°C to 32°C	Approx. 0°C to 52°C Tropicalized model Approx. 0°C to 46°C Nontropicalized model
	HEAT	Approx. 16°C to 30°C	Approx. 0°C to 21°C

Note: Outdoor Unit

Standard model – – – – – – – – – – – – – – – – – 21 to 43°C (Cooling)
0 to 21°C (Heating)
Tropicalized model – – – – – – – – – – – – – – – 21 to 52°C (Cooling)
Nontropicalized model – – – – – – – – – – – – – – 21 to 46°C (Cooling)
Tropicalized model with
low ambient cooling operation – – – – – – – – – – 0 to 52°C (Cooling)

4.3 REFRIGERANT CHARGING

4.3.1 COMPACT SII & MII SERIES

Models \ Pipe length		16ft (5m)	23ft (7m)	33ft (10m)	49ft (15m) ※	Additional refrigerant g/m
ADDITIONAL REFRIGERANT	AS∗7A, AS∗7R AS∗9A, AS∗9R AS∗12A, AS∗12R	None	32g	80g	160g	16g

Note: When the piping is longer than 5m, additional charging is necessary.

※ ASY12ASG, ASM, AST12ASH, ASA12ASF

LI SERIES

AS14A, 14R

Models \ Pipe length		16ft (5m)	23ft (7m)	33ft (10m)	Additional refrigerant g/m
ADDITIONAL REFRIGERANT	AS∗14A AS∗14R	None	40g	100g	20g

AS17A, 17R

Models \ Pipe length		16ft (5m)	23ft (7m)	33ft (10m)	49ft (15m)	66ft (20m)	Additional refrigerant g/m
ADDITIONAL REFRIGERANT	AS17A/AO17AB AS17R/AO17RB	None	30g	75g	150g	225g	15g
	AS17A/AO17AN AS17R/AO17RN	None	20g	50g	100g	150g	10g

4.3.2 WALL MOUNTED LARGE AS-SERIES

Models \ Pipe length		16ft (5m)	33ft (10m)	49ft (15m)	66ft (20m)	82ft (25m)	98ft (30m)	Additional refrigerant g/m(oz/ft)
FULL CHARGE AMOUNT	AS*20A/ AO*20AZ	1,320g (46.6 oz)	1,380g (48.7 oz)	1,440g (50.8 oz)	1,500g (52.9 oz)			12g (0.13 oz)
	ASS20A/ AOS20A	1,350g (47.6 oz)	1,410g (49.7 oz)	1,470g (51.9 oz)	1,530g (53.9 oz)			12g (0.13 oz)
	ASC-502B/ AOC-502B	1,870g (66.0 oz)	1,930g (68.1 oz)	1,990g (70.2 oz)	2,050g (72.3 oz)			12g (0.13 oz)
	AS*20R/ AO*20RZ	1,900g (67.0 oz)	2,150g (75.8 oz)	2,400g (84.7 oz)	2,650g (93.5 oz)			50g (0.53 oz)
	ASB20A/ AOB20R	1,690g (59.6 oz)	1,930g (68.1 oz)	2,170g (70.5 oz)	2,410g (85.0 oz)			48g (0.51 oz)
	AS*24A/ AO*24AB	2,000g (70.5 oz)	2,060g (72.7 oz)	2,120g (74.8 oz)	2,180g (76.9 oz)			12g (0.13 oz)
	ASB24A/ AOB24A	1,750g (61.7 oz)	1,810g (63.8 oz)	1,870g (66.0 oz)	1,930g (68.1 oz)			12g (0.13 oz)
	ASC-602B/ AOC-602B	2,020g (71.3 oz)	2,080g (73.4 oz)	2,140g (75.5 oz)	2,200g (77.6 oz)			12g (0.13 oz)
	AS*24R/ AO*24RZ	2,070g (73.0 oz)	2,320g (81.8 oz)	2,570g (90.7 oz)	2,820g (99.5 oz)			50g (0.53 oz)
	ASB24R/ AOB24R	2,070g (73.0 oz)	2,240g (79.0 oz)	2,140g (85.0 oz)	2,580g (91.0 oz)			34g (0.36 oz)
	AS*30A/ AO*30A	2,300g (81.1 oz)	2,385g (84.1 oz)	2,470g (87.1 oz)	2,555g (90.1 oz)	2,640g (93.1 oz)	2,725g (96.1 oz)	17g (0.18 oz)
	ASB30A/ AOB30A	2,300g (81.1 oz)	2,385g (84.1 oz)	2,470g (87.1 oz)	2,555g (90.1 oz)	2,640g (93.1 oz)	2,725g (96.1 oz)	17g (0.18 oz)
	AS*30R/ AO*30R	2,400g (84.7 oz)	2,650g (93.5 oz)	2,900g (102.3 oz)	3,150g (111.1 oz)	3,400g (119.9 oz)		50g (0.53 oz)
	ASB30R/ AOB30R	2,450g (86.5 oz)	2,700g (95.3 oz)	2,950g (104.1 oz)	3,200g (112.9 oz)	3,450g (121.7 oz)		50g (0.53 oz)
	AS*20A/ AO*20AN	1,500g (52.9 oz)	1,580g (55.7 oz)	1,666g (58.6 oz)	1,740g (61.4 oz)			16g (0.17 oz)
	AS*20R/ AO*20RM	1,950g (68.8 oz)	2,100g (74.1 oz)	2,250g (79.4 oz)	2,400g (84.7 oz)			30g (0.32 oz)
	AS*24A/ AO*24AN	1,870g (66.0 oz)	1,950g (68.8 oz)	2,030g (71.6 oz)	2,110g (74.4 oz)			16g (0.17 oz)
	AS*24R/ AO*24RM	2,120g (74.8 oz)	2,270g (80.1 oz)	2,420g (85.4 oz)	2,570g (90.7 oz)			30g (0.32 oz)

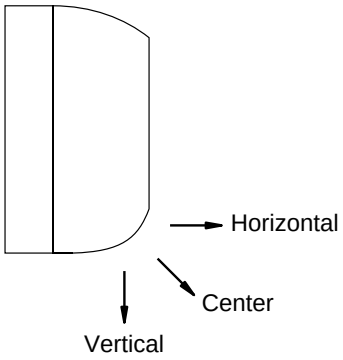
4.3.3 FLOOR / CEILING UNIVERSAL AB-SERIES

Models \ Pipe length		16ft (5m)	33ft (10m)	49ft (15m)	66ft (20m)	Additional refrigerant g/m (oz/ft)
FULL CHARGE AMOUNT	AB*14A/ AO*14AN	1,000g (35.2 oz)	1,150g (40.5 oz)			30g (0.32 oz)
	AB*14R/ AO*14RN	1,050g (36.9 oz)	1,200g (42.2 oz)			30g (0.32 oz)
	AB*18A/ AO*18AZ	1,140g (40.1 oz)	1,200g (42.2 oz)	1,260g (44.4 oz)	1,320g (46.5 oz)	12g (0.13 oz)
	AB*18R/ AO*18RZ	1,790g (63.1 oz)	2,040g (72.0 oz)	2,290g (80.8 oz)	2,540g (89.6 oz)	50g (0.53 oz)
	AB*24A/ AO*24AB (50Hz)	2,000g (70.5 oz)	2,060g (72.7 oz)	2,120g (74.8 oz)	2,180g (76.9 oz)	12g (0.13 oz)
	AB*24R/ AO*24RZ (50Hz)	2,070g (72.9 oz)	2,320g (81.7 oz)	2,570g (90.5 oz)	2,820g (99.3 oz)	50g (0.53 oz)
	AB*24A/ AO*24AZ (60Hz)	1,750g (61.6 oz)	1,810g (63.7 oz)	1,870g (65.8 oz)	1,930g (67.9 oz)	12g (0.13 oz)
	AB*24R/ AO*24RZ (60Hz)	2,070g (72.9 oz)	2,320g (81.7 oz)	2,570g (90.5 oz)	2,820g (99.3 oz)	50g (0.53 oz)
	AB*14A/ AO*14AG	1,090g (38.4 oz)	1,240g (43.7 oz)			30g (0.32 oz)
	AB*14R/ AO*14RG	1,100g (38.8 oz)	1,250g (44.1 oz)			30g (0.32 oz)
	AB*18A/ AO*18AN	1,500g (52.9 oz)	1,580g (55.7 oz)	1,660g (58.6 oz)	1,740g (61.4 oz)	16g (0.17 oz)
	AB*18R/ AO*18RM	1,950g (68.8 oz)	2,160g (76.2 oz)	2,370g (83.5 oz)	2,580g (91.0 oz)	42g (0.49 oz)
	AB*24A/ AO*24AN (50Hz)	1,870g (66.0 oz)	1,950g (68.8 oz)	2,030g (71.6 oz)	2,110g (74.4 oz)	16g (0.17 oz)
	AB*24R/ AO*24RM (50Hz)	2,320g (81.8 oz)	2,470g (87.1 oz)	2,620g (92.4 oz)	2,770g (97.7 oz)	30g (0.32 oz)

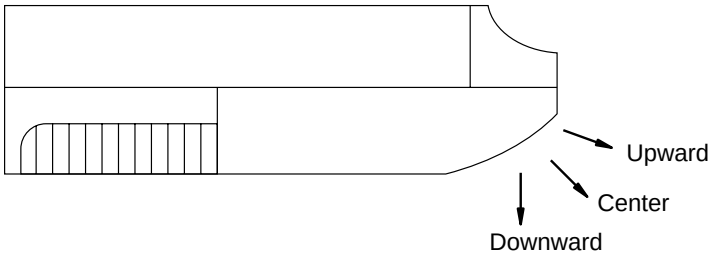
4.4 AIR VELOCITY DISTRIBUTION

4.4.1 AIR DISCHARGE ANGLE

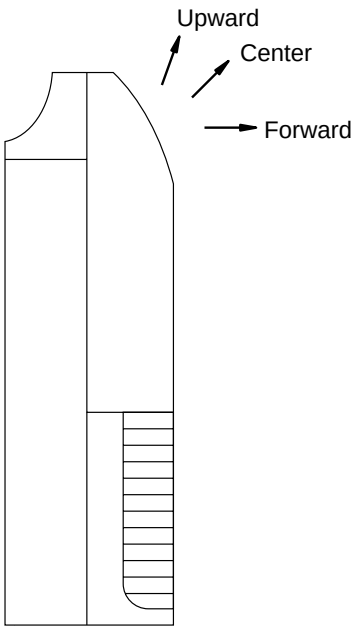
● AS : WALL MOUNTED



● AB : UNDER CEILING



● AB : FLOOR CONSOLE



4.4.2 COMPACT SII SERIES MODELS : AS＊7A, 7R

Note :	
Fan speed	: Hi
Operation	: FAN
Voltage	: 240V

Fig. 3.4.2-1
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

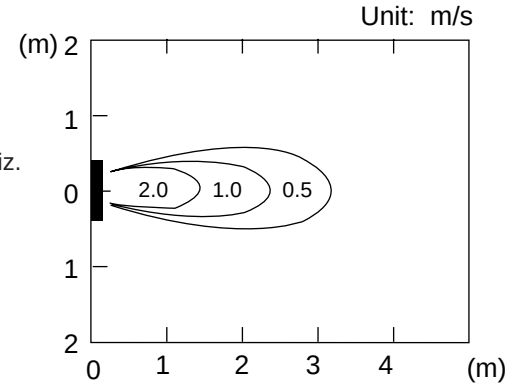


Fig. 3.4.2-2
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Right & Left

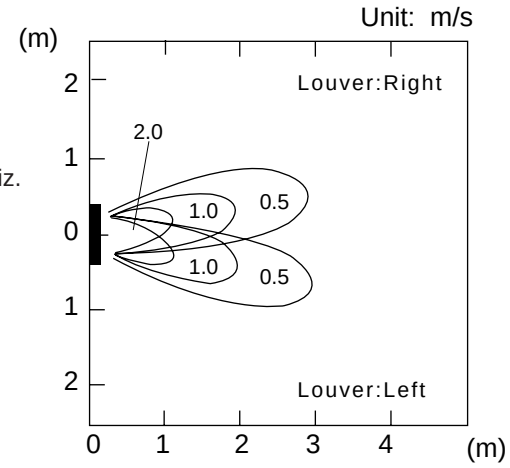


Fig. 3.4.2-3
SIDE VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

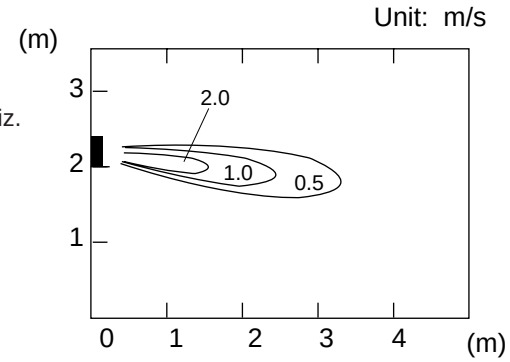
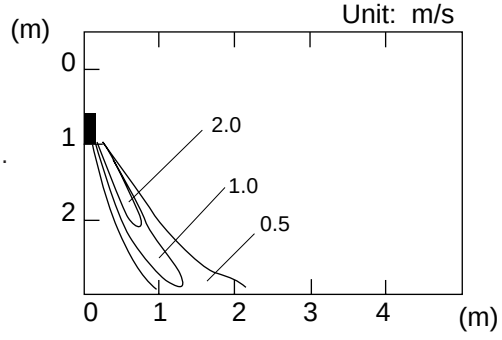


Fig. 3.4.2-4
SIDE VIEW
FLOW CONTROL PANEL : Vert .
LOUVER : Center



4.4.3 LI SERIES MODELS : AS ✻ 9A, 9R, 12A, 12R, AS ✻ 14A, 14R, 17A, 17R

Note :	
Fan speed	: Hi
Operation	: FAN
Voltage	: 240V

Fig. 3.4.3-1
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

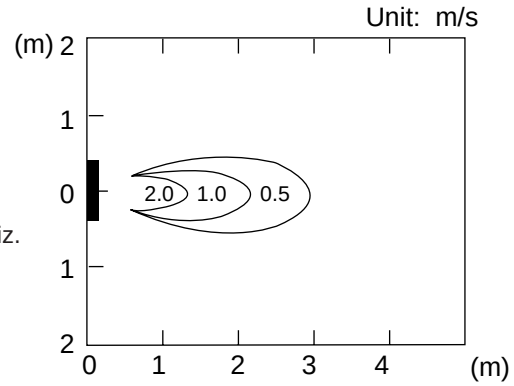


Fig. 3.4.3-2
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Right & Left

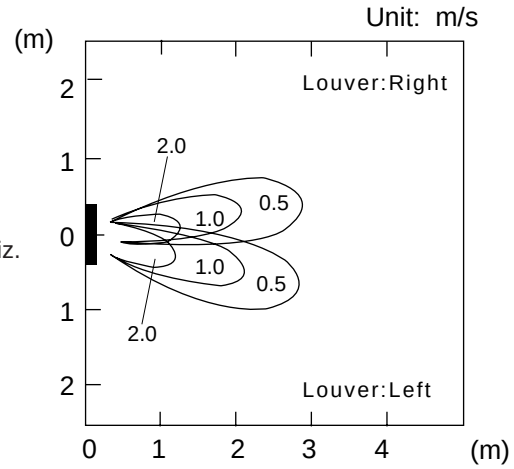


Fig. 3.4.3-3
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

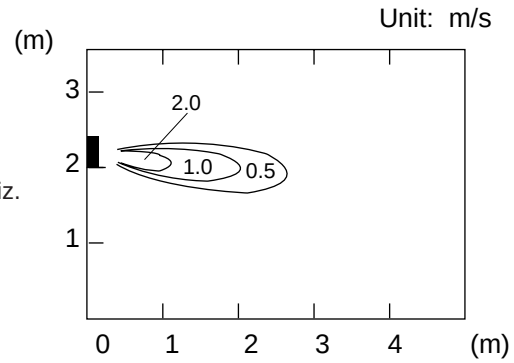
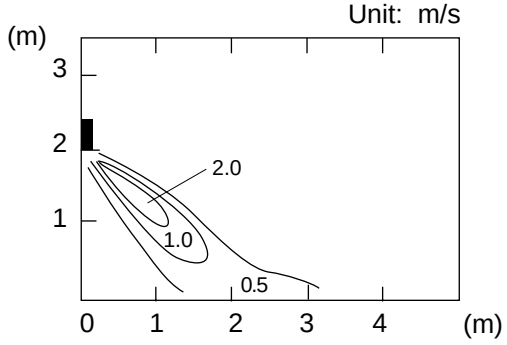


Fig. 3.4.3-4
TOP VIEW
FLOW CONTROL PANEL : Vert.
LOUVER : Center



4.4.4 AIR VELOCITY DISTRIBUTION
MODELS : AS ✻ 20A, AS ✻ 20R, ASC-502B (50, 60Hz models)

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V
220V (60Hz model)

Fig. 4.4.4-1
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

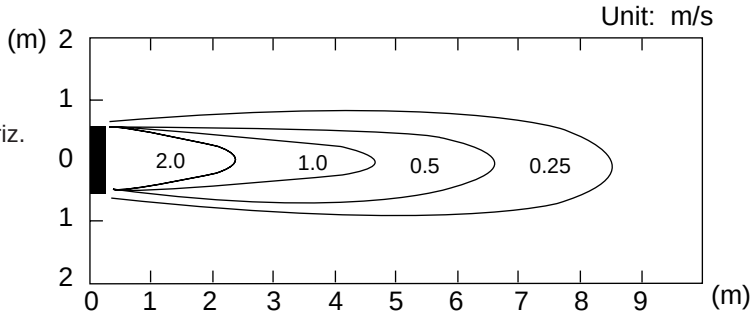


Fig. 4.4.4-2
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Right & Left

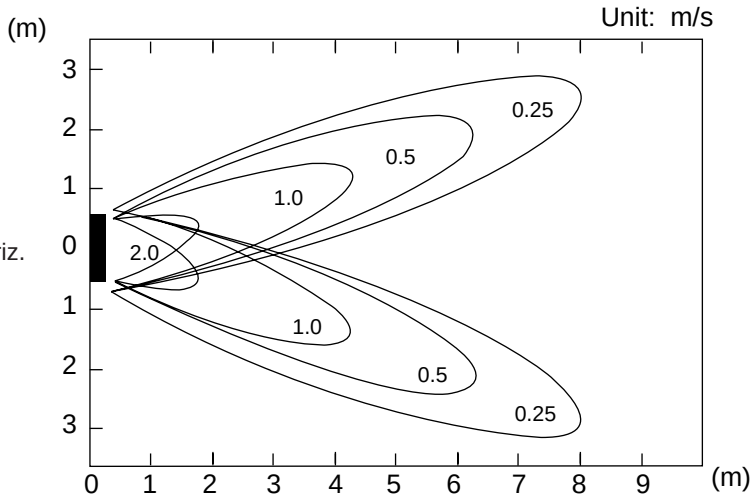


Fig. 4.4.4-3
SIDE VIEW
FLONT CONTROL PANEL : Horiz.
LOUVER : Center

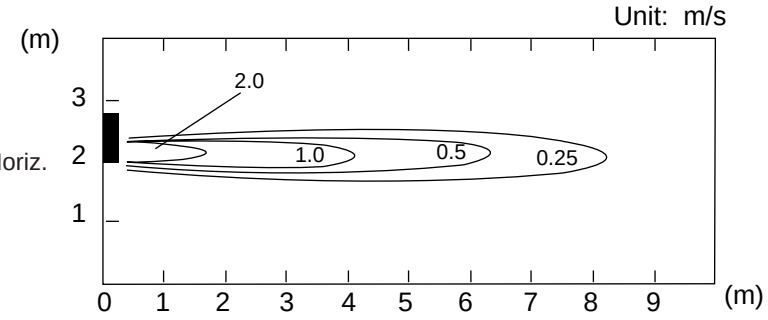
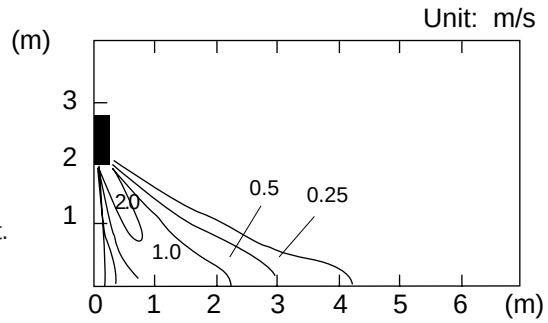


Fig. 4.4.4-4
SIDE VIEW
FLOW CONTROL PANEL : Vert.
LOUVER : Center



4.4.5 AIR VELOCITY DISTRIBUTION
MODELS : AS ✻ 24A, AS ✻ 24R, ASC-602B (50, 60Hz models)

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V
220V (60Hz model)

Fig. 4.4.5-1
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

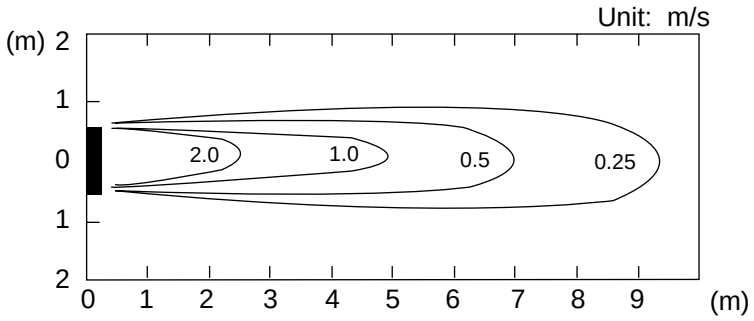


Fig. 4.4.5-2
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Right & Left

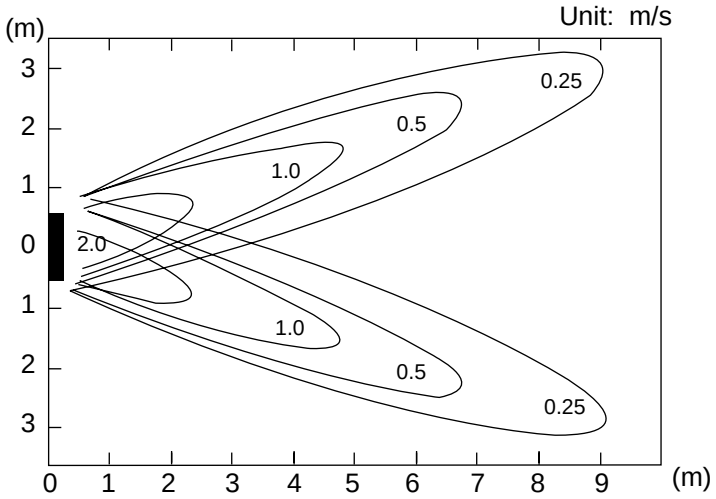


Fig. 4.4.5-3
SIDE VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

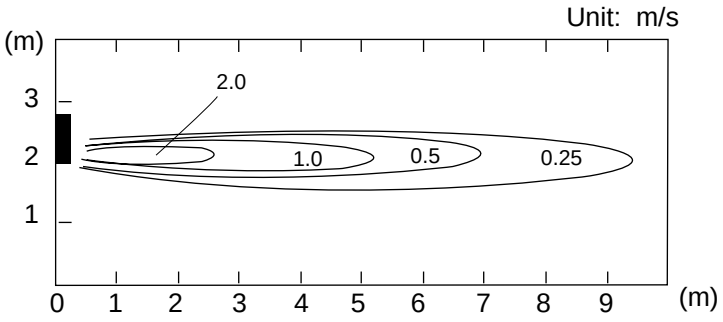
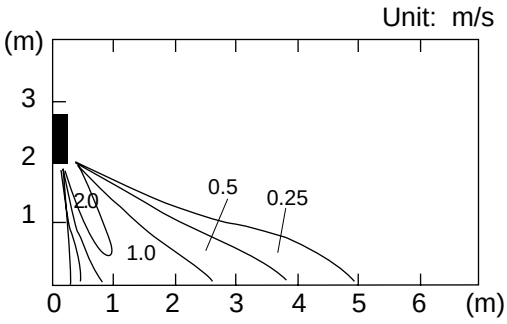


Fig. 4.4.5-4
SIDE VIEW
FLOW CONTROL PANEL : Vert.
LOUVER : Center



4.4.6 AIR VELOCITY DISTRIBUTION
MODELS : AS ✻ 30A, AS ✻ 30R (50, 60Hz models)

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V
220V (60Hz model)

Fig. 4.4.6-1
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

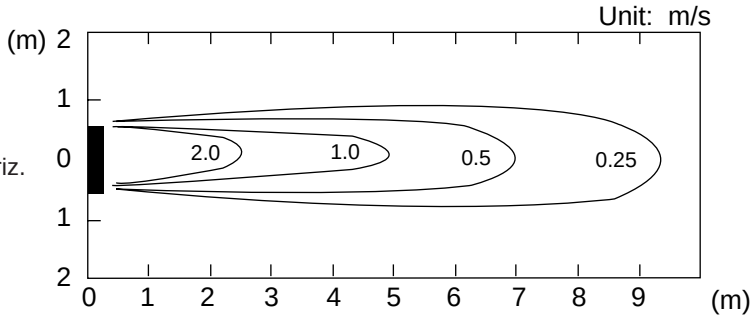


Fig. 4.4.6-2
TOP VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Right & Left

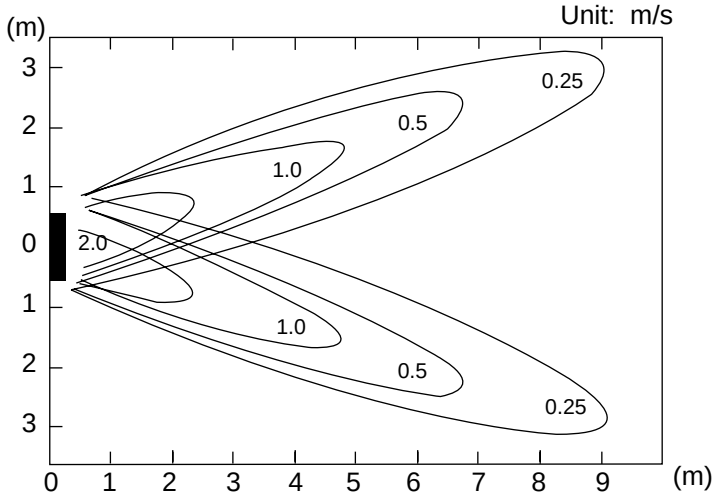


Fig. 4.4.6-3
SIDE VIEW
FLOW CONTROL PANEL : Horiz.
LOUVER : Center

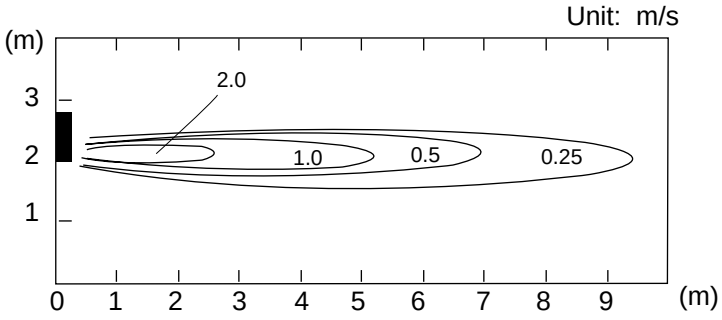
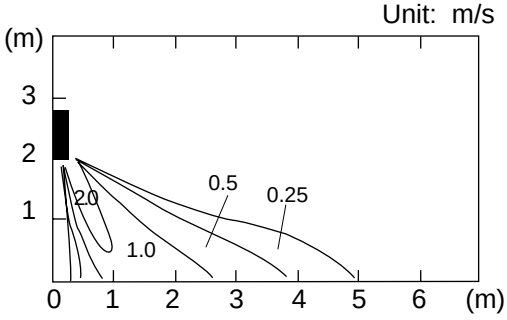


Fig. 4.4.6-4
SIDE VIEW
FLOW CONTROL PANEL : Vert.
LOUVER : Center



4.4.7 AIR VELOCITY DISTRIBUTION
MODEL : AB ✻ 14 (FLOOR CONSOLE)

Fig. 4.4.7-1
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Center

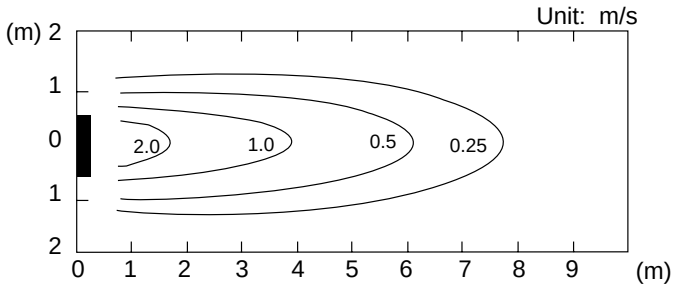
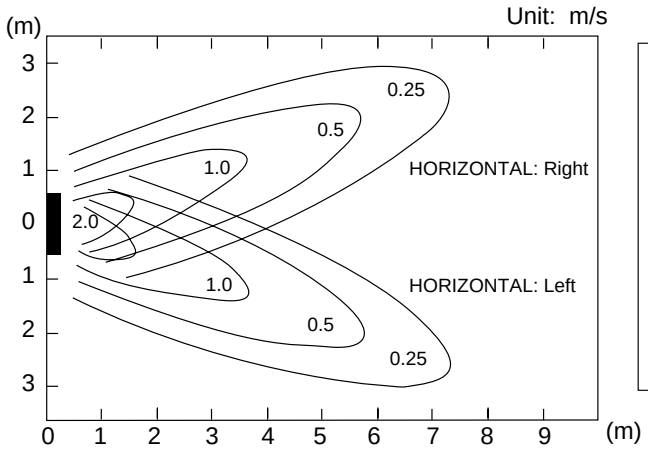


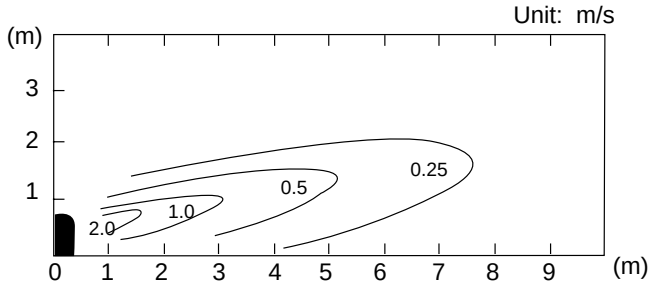
Fig. 4.4.7-2
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Right & Left



Note :
The location of vertical louvers is shown on page 52.

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V

Fig. 4.4.7-3
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Center



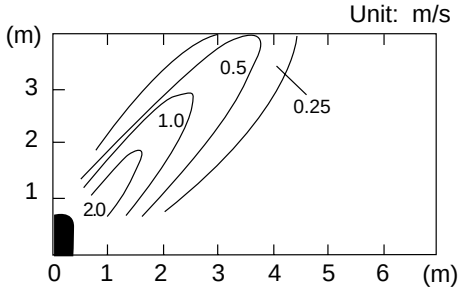


Fig. 4.4.7-4
SIDE VIEW
VERTICAL : Center
HORIZONTAL : Center

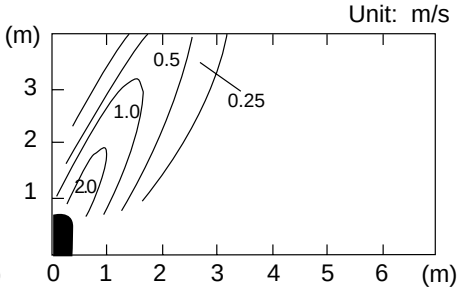


Fig. 4.4.7-5
SIDE VIEW
VERTICAL : Upward
HORIZONTAL : Center

4.4.8 AIR VELOCITY DISTRIBUTION
MODEL : AB ✻ 14 (UNDER CEILING)

Fig. 4.4.8-1
TOP VIEW
VERTICAL : Upward
HORIZONTAL : Center

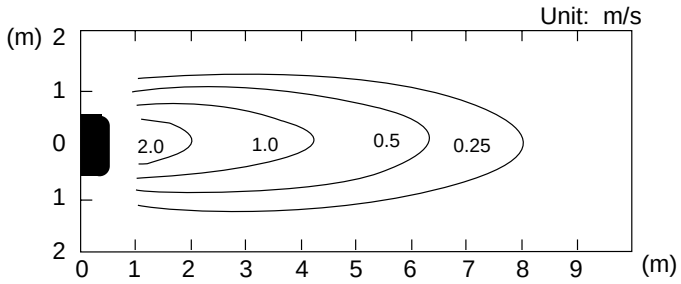
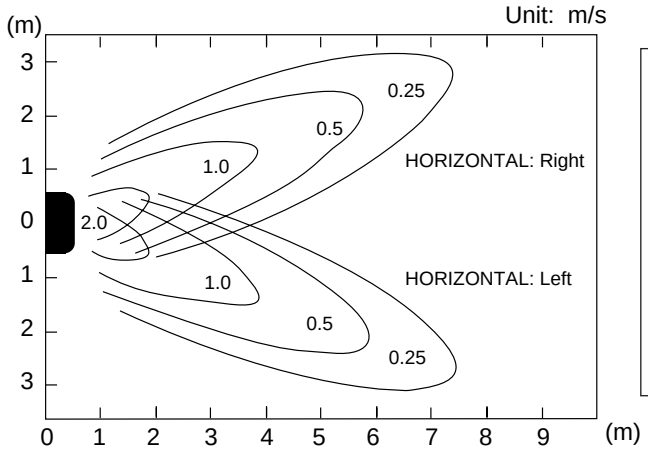


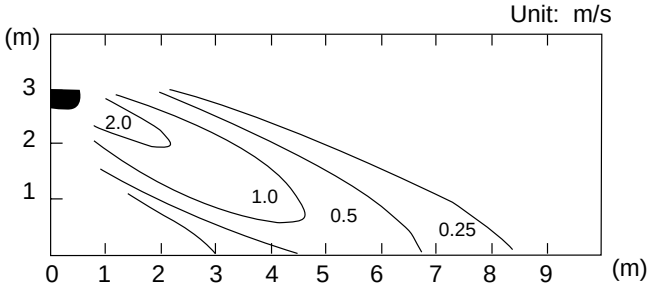
Fig. 4.4.8-2
TOP VIEW
VERTICAL : Upward
HORIZONTAL : Right & Left



Note :
The location of vertical louvers is shown on page 52.

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V

Fig. 4.4.8-3
SIDE VIEW
VERTICAL : Upward
HORIZONTAL : Center



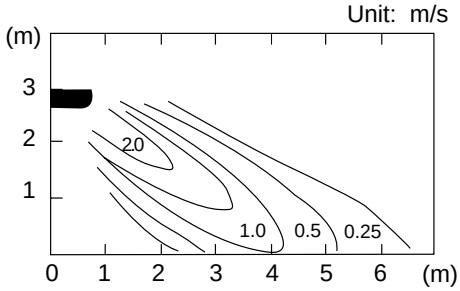


Fig. 4.4.8-4
SIDE VIEW
VERTICAL : Center
HORIZONTAL : Center

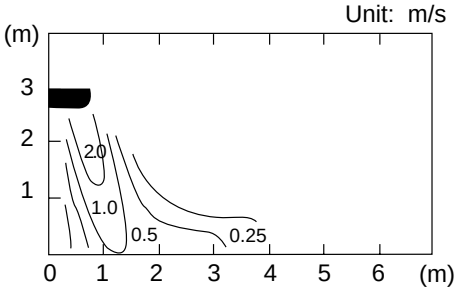


Fig. 4.4.8-5
SIDE VIEW
VERTICAL : Downward
HORIZONTAL : Center

4.4.9 AIR VELOCITY DISTRIBUTION
MODEL : AB ✻ 18 (FLOOR CONSOLE)

Fig. 4.4.9-1
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Center

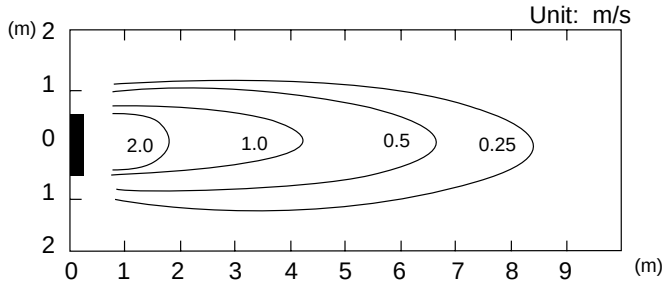
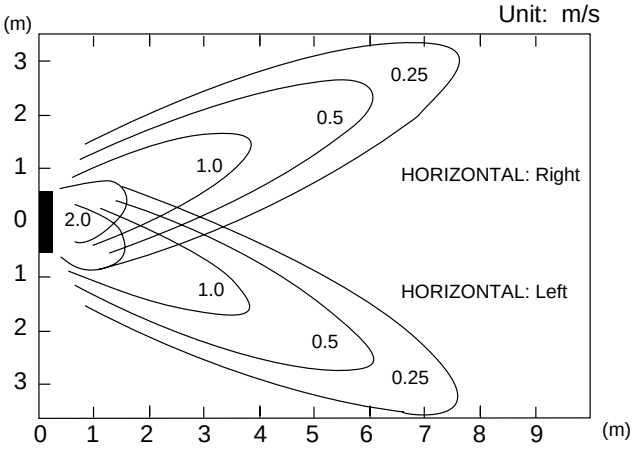


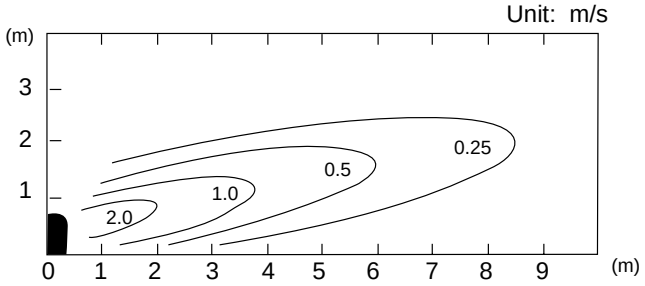
Fig. 4.4.9-2
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Right & Left



Note :
The location of vertical louvers is shown on page 52.

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V

Fig. 4.4.9-3
SIDE VIEW
VERTICAL : Forward
HORIZONTAL : Center



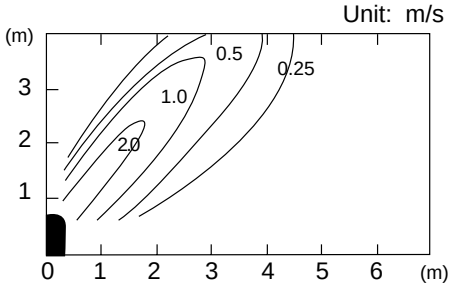


Fig. 4.4.9-4
SIDE VIEW
VERTICAL : Center
HORIZONTAL : Center

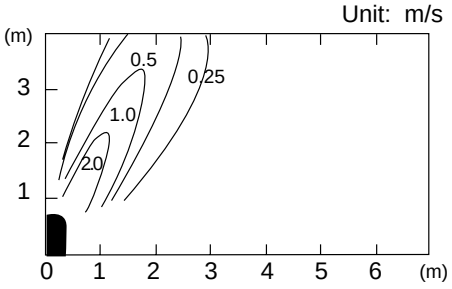


Fig. 4.4.9-5
SIDE VIEW
VERTICAL : Upward
HORIZONTAL : Center

4.4.10 AIR VELOCITY DISTRIBUTION
MODEL : AB ✻ 18 (UNDER CEILING)

Fig. 4.4.10-1
TOP VIEW
VERTICAL : Upward
HORIZONTAL : Center

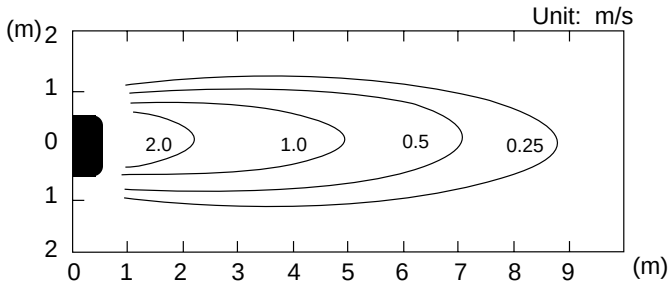
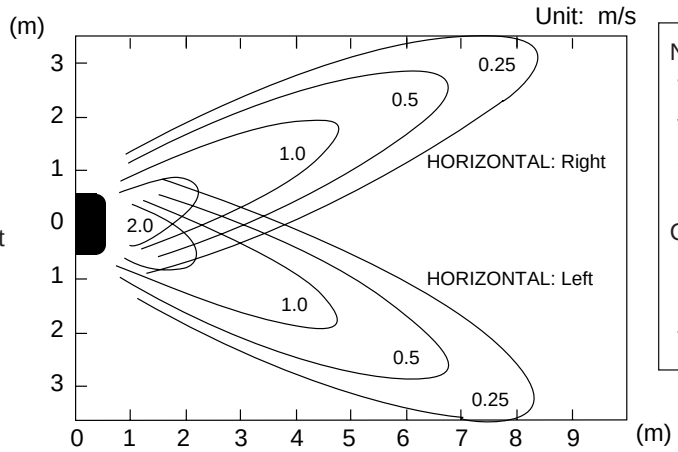


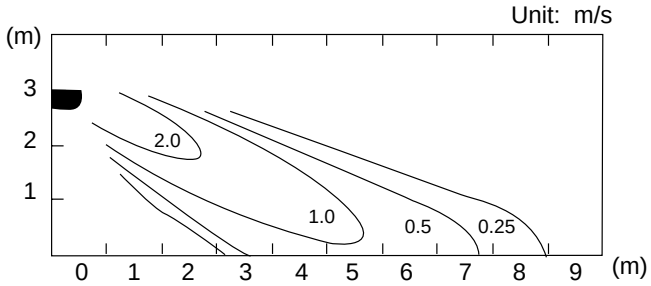
Fig. 4.4.10-2
TOP VIEW
VERTICAL : Upward
HORIZONTAL : Right & Left



Note :
The location of vertical louvers is shown on page 52.

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V

Fig. 4.4.10-3
SIDE VIEW
VERTICAL : Forward
HORIZONTAL : Center



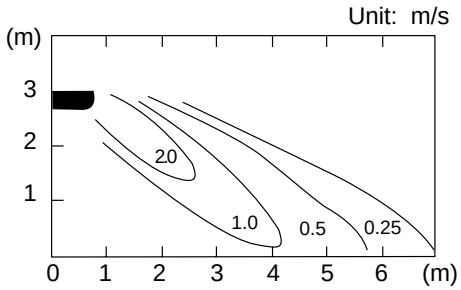


Fig. 4.4.10-4
SIDE VIEW
VERTICAL : Center
HORIZONTAL : Center

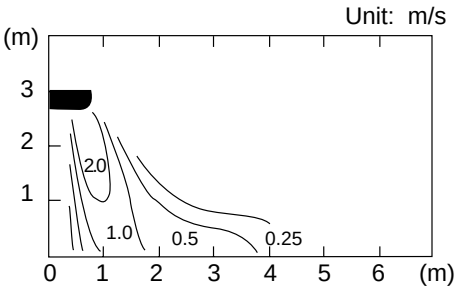


Fig. 4.4.10-5
SIDE VIEW
VERTICAL : Downward
HORIZONTAL : Center

4.4.11 AIR VELOCITY DISTRIBUTION
MODEL : AB ✻ 24 (FLOOR CONSOLE)

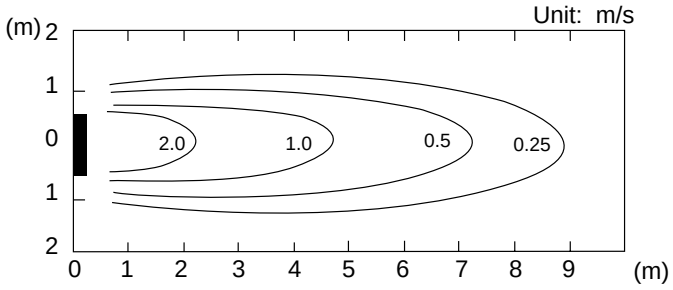


Fig. 4.4.11-1
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Center

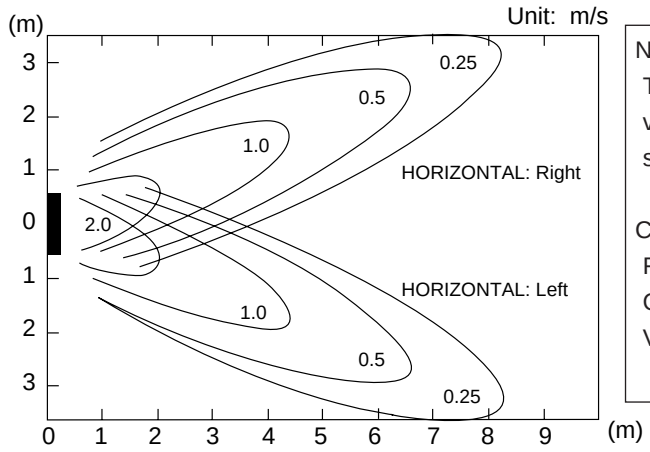


Fig. 4.4.11-2
TOP VIEW
VERTICAL : Forward
HORIZONTAL : Right & Left

Note :
The location of vertical louvers is shown on page 52.

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V (50Hz)
220V (60Hz)

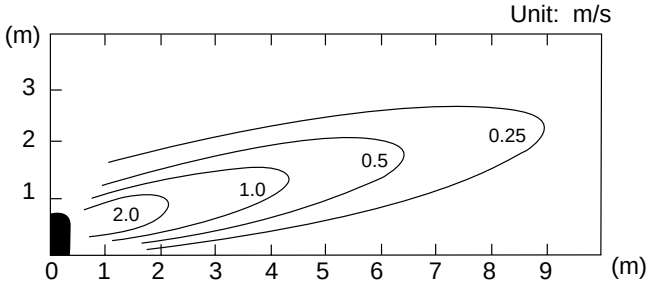


Fig. 4.4.11-3
SIDE VIEW
VERTICAL : Forward
HORIZONTAL : Center

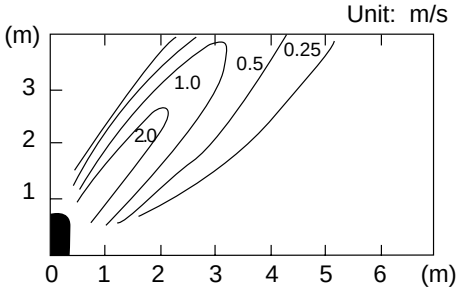


Fig. 4.4.11-4
SIDE VIEW
VERTICAL : Center
HORIZONTAL : Center

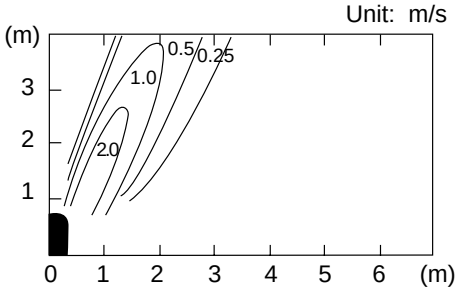


Fig. 4.4.11-5
SIDE VIEW
VERTICAL : Upward
HORIZONTAL : Center

4.4.12 AIR VELOCITY DISTRIBUTION
MODEL : AB ✻ 24 (UNDER CEILING)

Fig. 4.4.12-1
TOP VIEW
VERTICAL : Upward
HORIZONTAL : Center

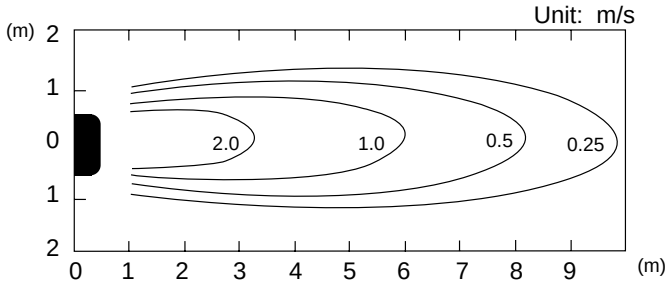
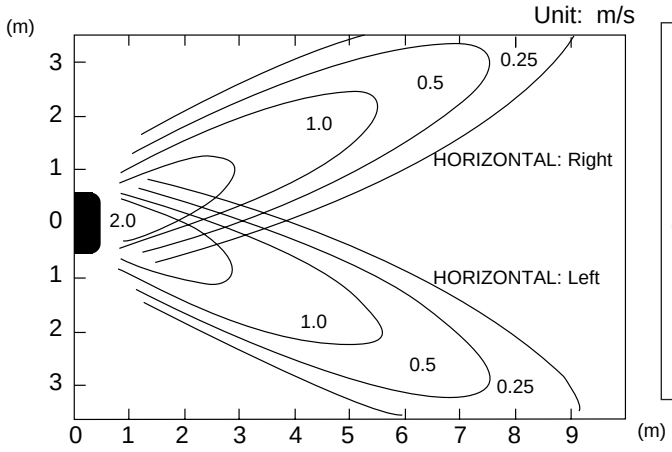


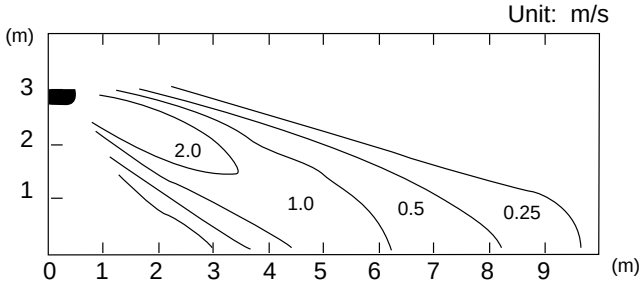
Fig. 4.4.12-2
TOP VIEW
VERTICAL : Upward
HORIZONTAL : Right & Left



Note :
The location of vertical louvers is shown on page 52.

Condition
Fan speed : High
Operation mode : Fan
Voltage : 240V (50Hz)
220V (60Hz)

Fig. 4.4.12-3
SIDE VIEW
VERTICAL : Upward
HORIZONTAL : Center



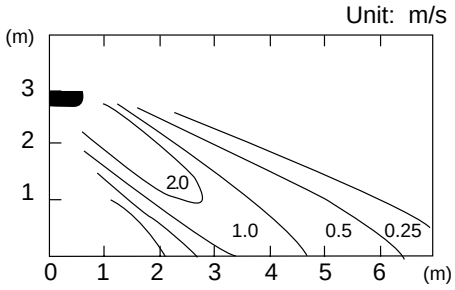


Fig. 4.4.12-4
SIDE VIEW
VERTICAL : Center
HORIZONTAL : Center

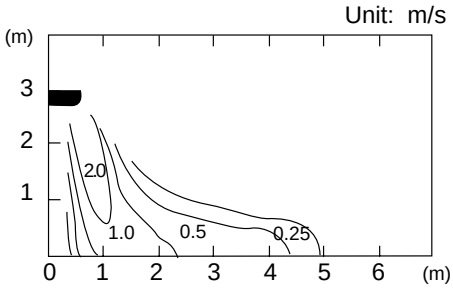


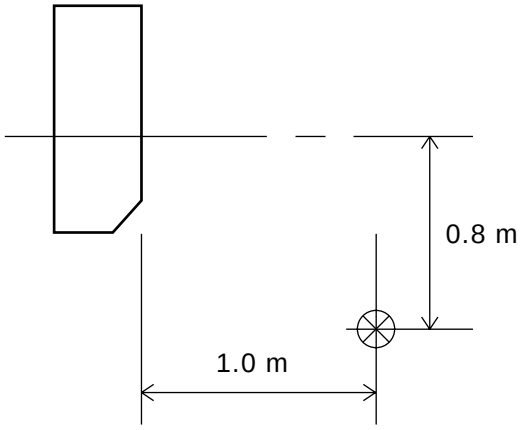
Fig. 4.4.12-5
SIDE VIEW
VERTICAL : Downward
HORIZONTAL : Center

4.5 NOISE LEVEL MEASUREMENT

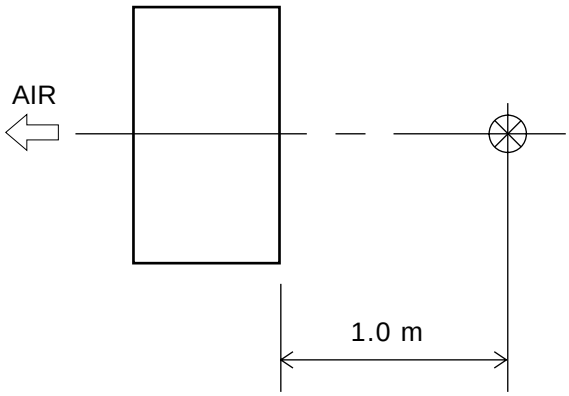
4.5.1 NOISE LEVEL CHECK POINTS

WALL MOUNTED TYPE

(1) INDOOR UNIT



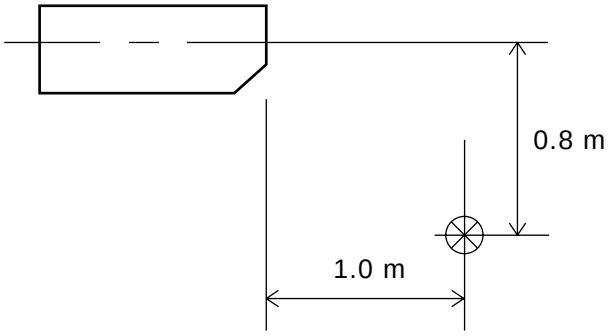
(2) OUTDOOR UNIT



UNIVERSAL TYPE

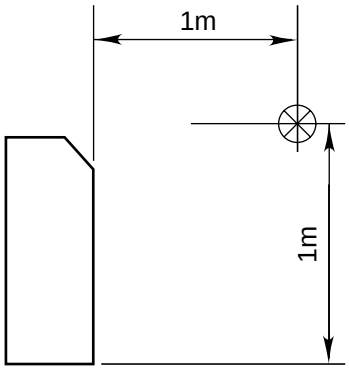
(1) INDOOR UNIT

UNDER CEILING TYPE

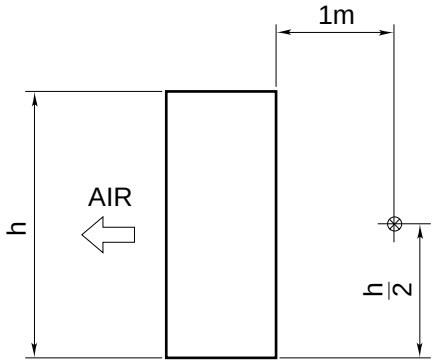


(1) INDOOR UNIT

FLOOR CONSOLE TYPE



(2) OUTDOOR UNIT

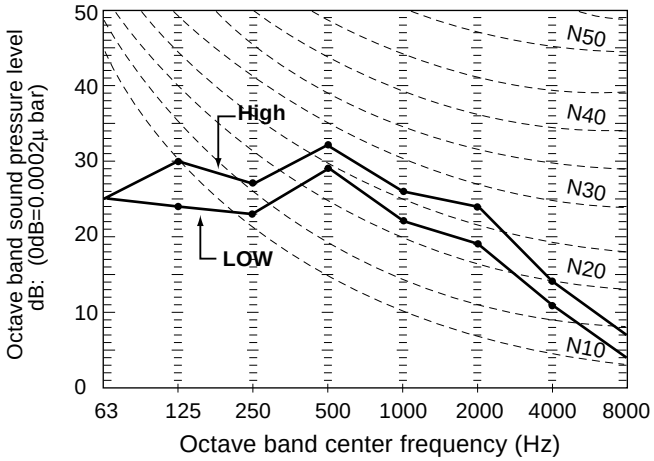


4.5.2 NOISE LEVEL CURVE COMPACT SII SERIES MODELS : AS ✻ 7A, 7R

INDOOR UNIT

Mode : Cool

240V / 50Hz

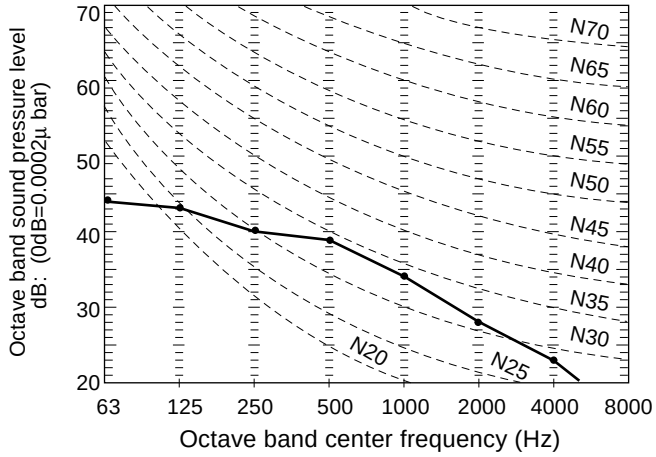


OUTDOOR UNIT

Mode : Cool

240V / 50Hz

Model : AS✻7A

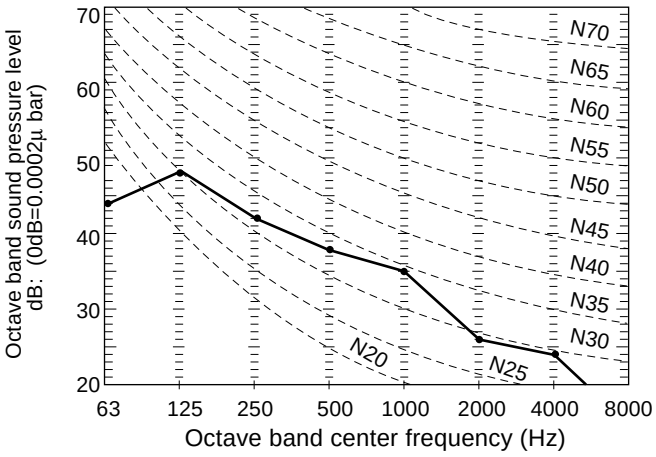


OUTDOOR UNIT

Mode : Cool

240V / 50Hz

Model : AS✻7R

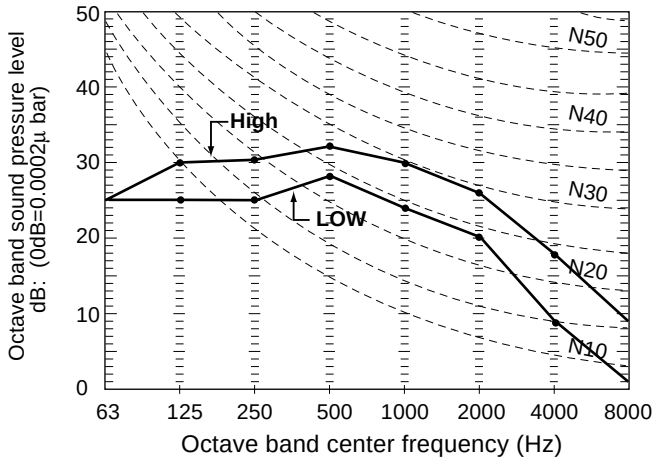


4.5.3 NOISE LEVEL CURVE COMPACT SII SERIES MODELS : AS ✻ 9A, 9R, 12A, 12R, 14A, 14R, 17A, 17R

INDOOR UNIT

Mode : Cool

240V / 50Hz



OUTDOOR UNIT

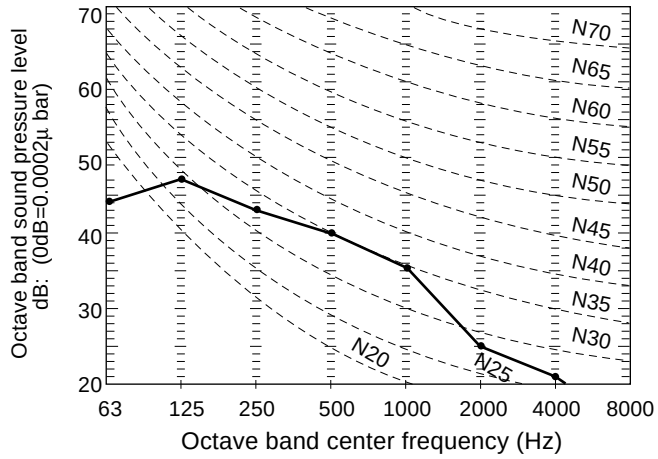
Mode : Cool

240V / 50Hz

Model : AO✻9A

AO✻12A

AO✻14A



OUTDOOR UNIT

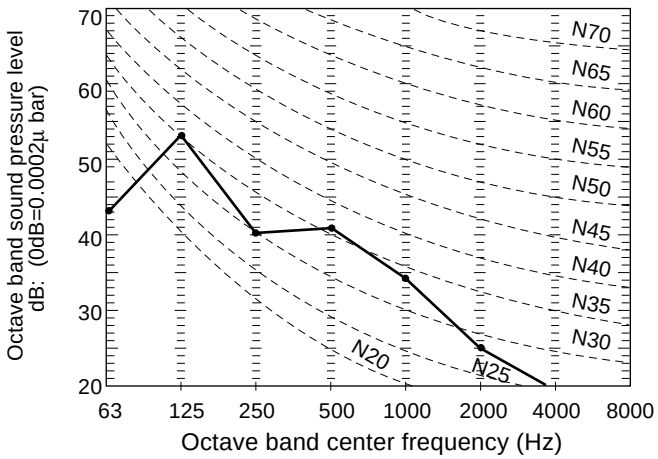
Mode : Cool

240V / 50Hz

Model : AO✻9R

AO✻12R

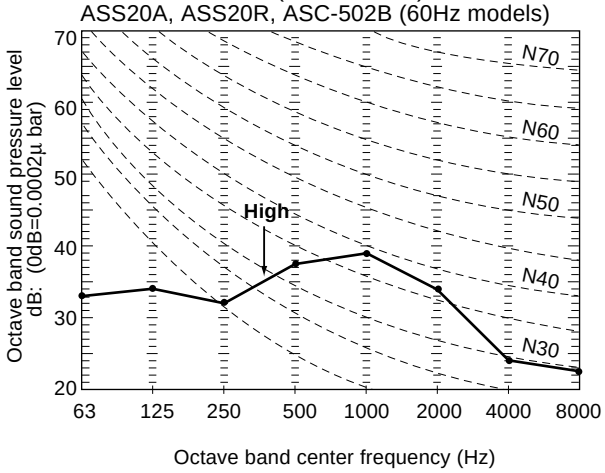
AO✻14R



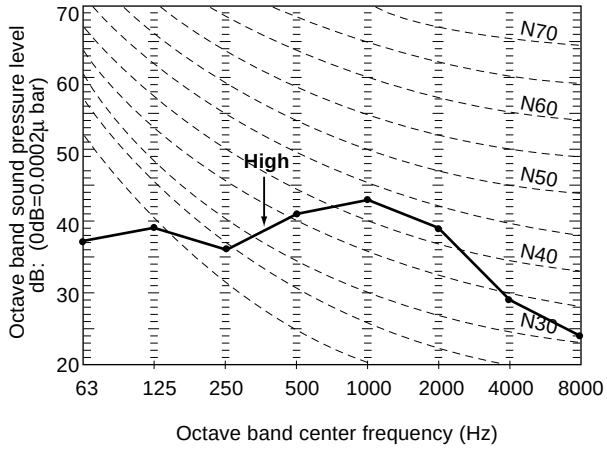
4.5.4 NOISE LEVEL CURVE
WALL MOUNTED LARGE TYPE

■ INDOOR UNIT SIDE

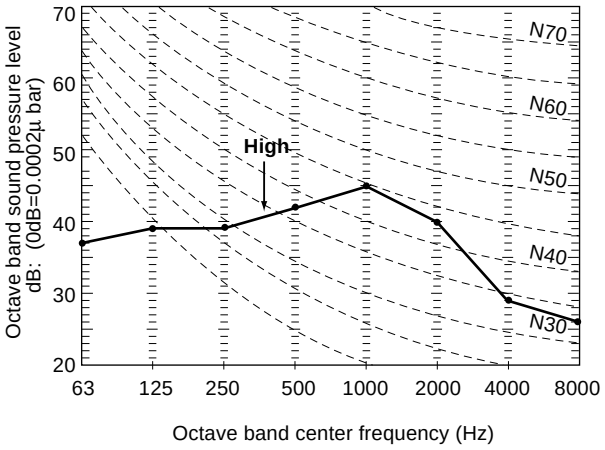
AS✻20A, AS✻20R (50Hz models)
ASS20A, ASS20R, ASC-502B (60Hz models)



AS✻24A, AS✻24R (50Hz models)
ASS24A, ASS24R, ASC-602B (60Hz models)

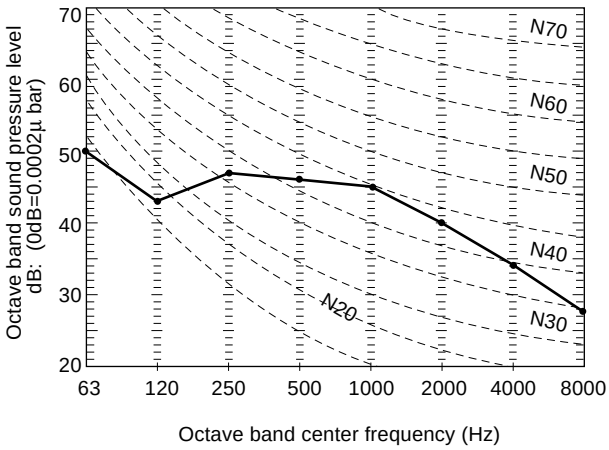


AS✻30A, AS✻30R (50Hz models)
ASS30A, ASS30R (60Hz models)

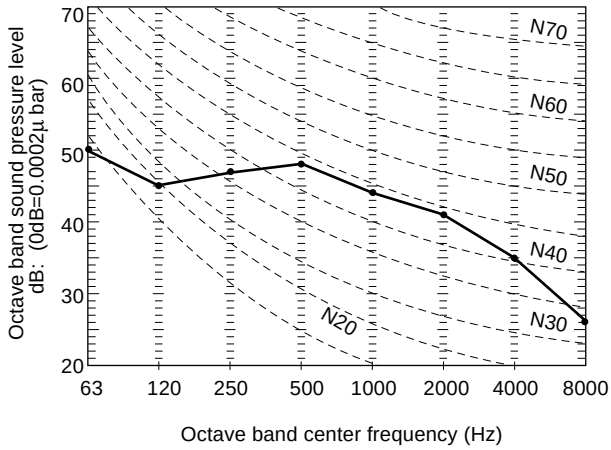


■ OUTDOOR UNIT SIDE

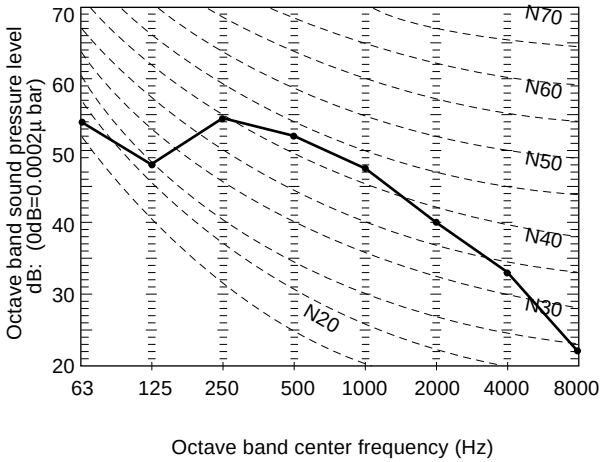
AO✻17A, AO✻20A, AO✻20R



AO✻17R, AO✻24A, AO✻24R



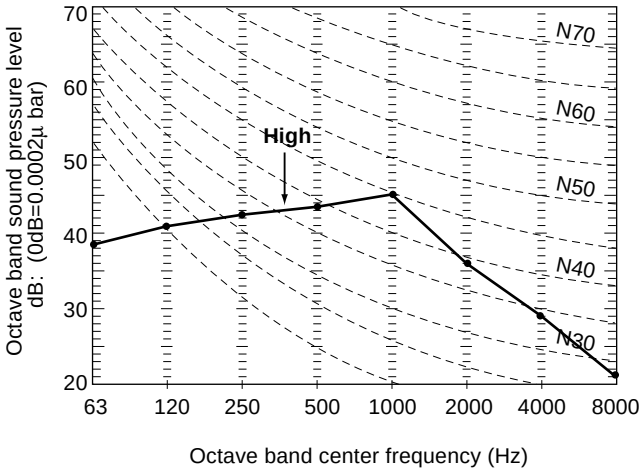
AO✻30A, AO✻30R



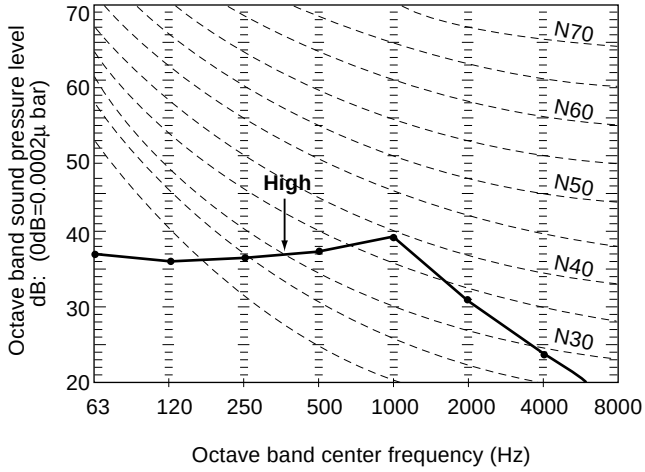
4.5.5 NOISE LEVEL CURVE
FLOOR / CEILING UNIVERSAL TYPE

■ INDOOR UNIT SIDE

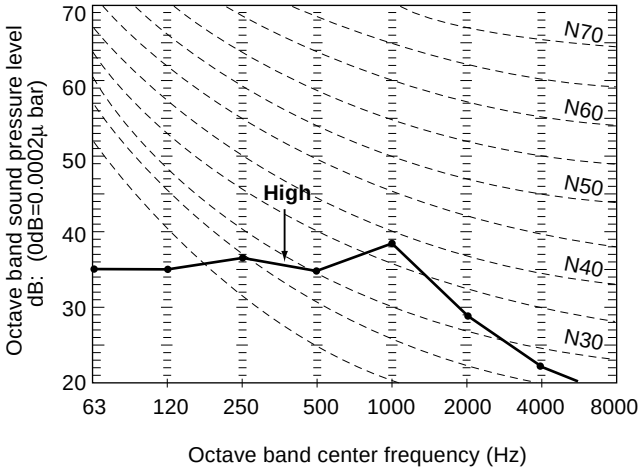
AB✻24A, AB✻24R



AB✻18A, AB✻18R

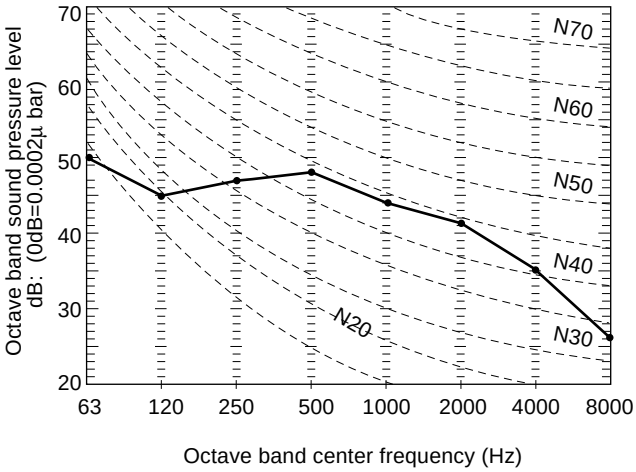


AB✻14A, AB✻14R

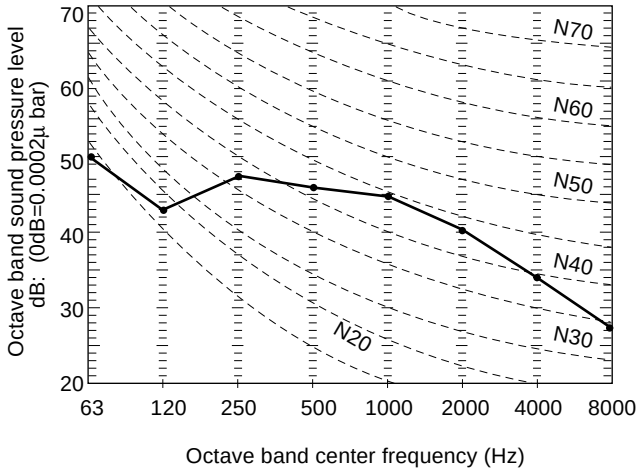


■ OUTDOOR UNIT SIDE

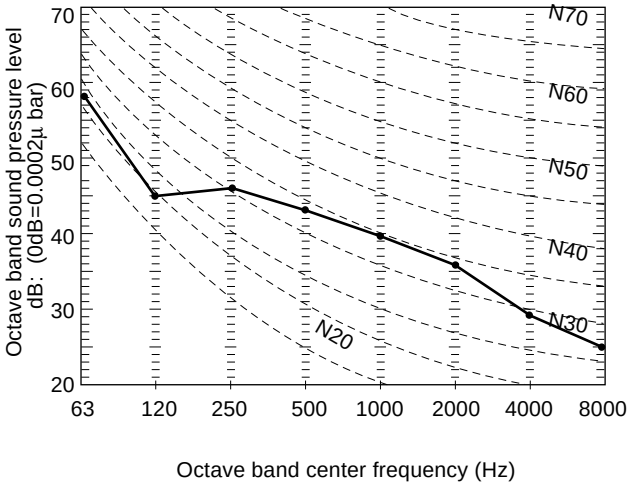
AO✻24A, AO✻24R



AO✻18A, AO✻18R



AO✻14A, AO✻14R

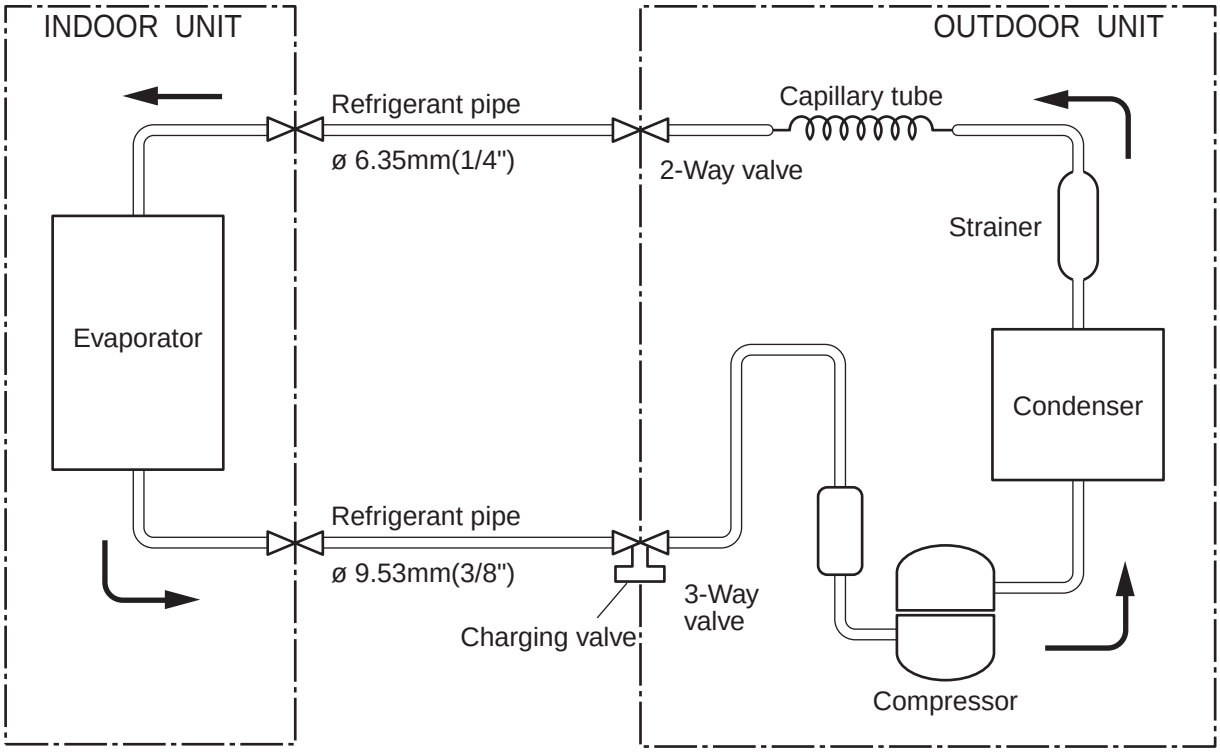


5. DIAGRAM

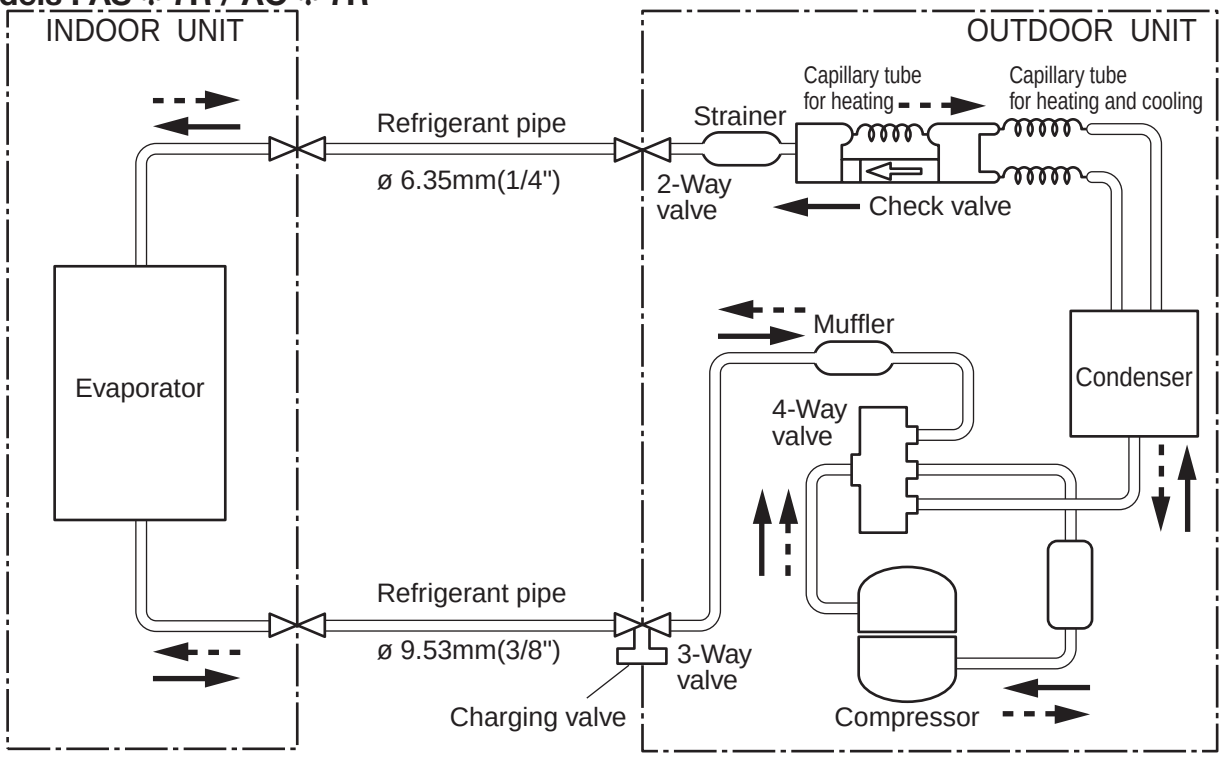
5.1 REFRIGERANT SYSTEM DIAGRAM

5.1.1 COMPACT SII SERIES

Models : AS ✻ 7A / AO ✻ 7A



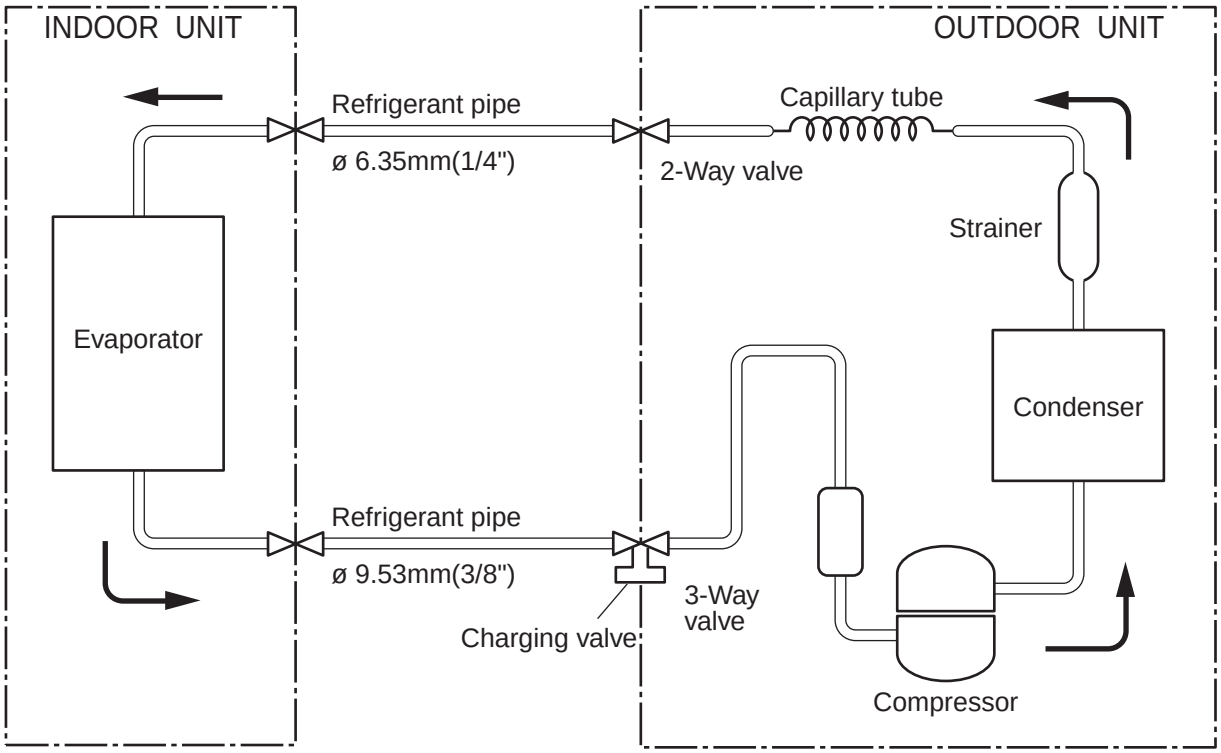
Models : AS ✻ 7R / AO ✻ 7R



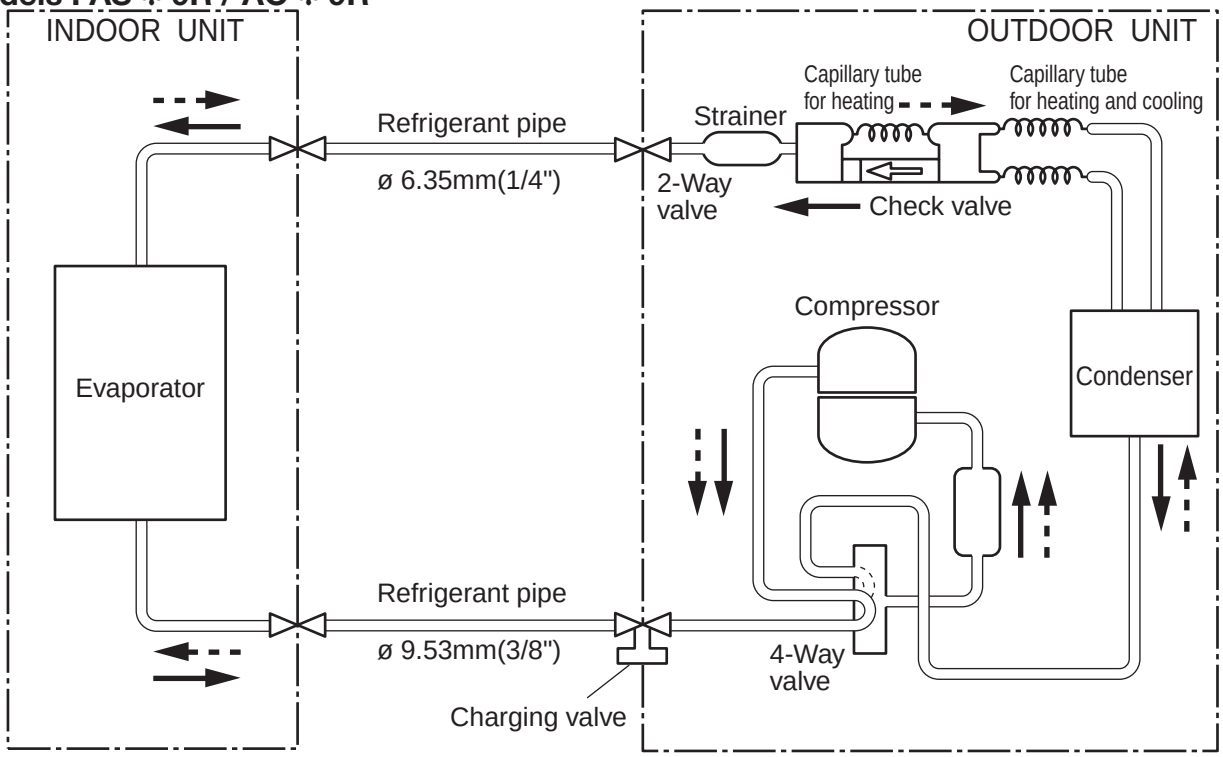
Cooling
Heating
: Flare coupling

5.1.2 COMPACT MII SERIES

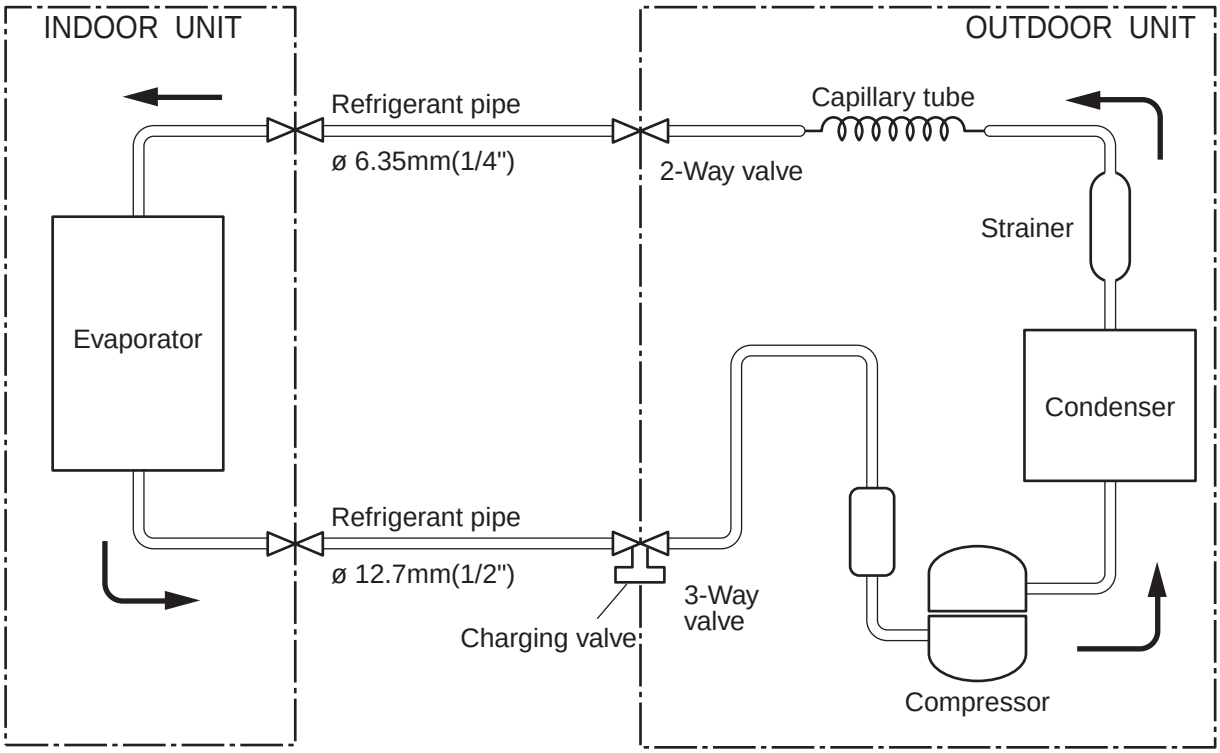
Models : AS ✻ 9A / AO ✻ 9A



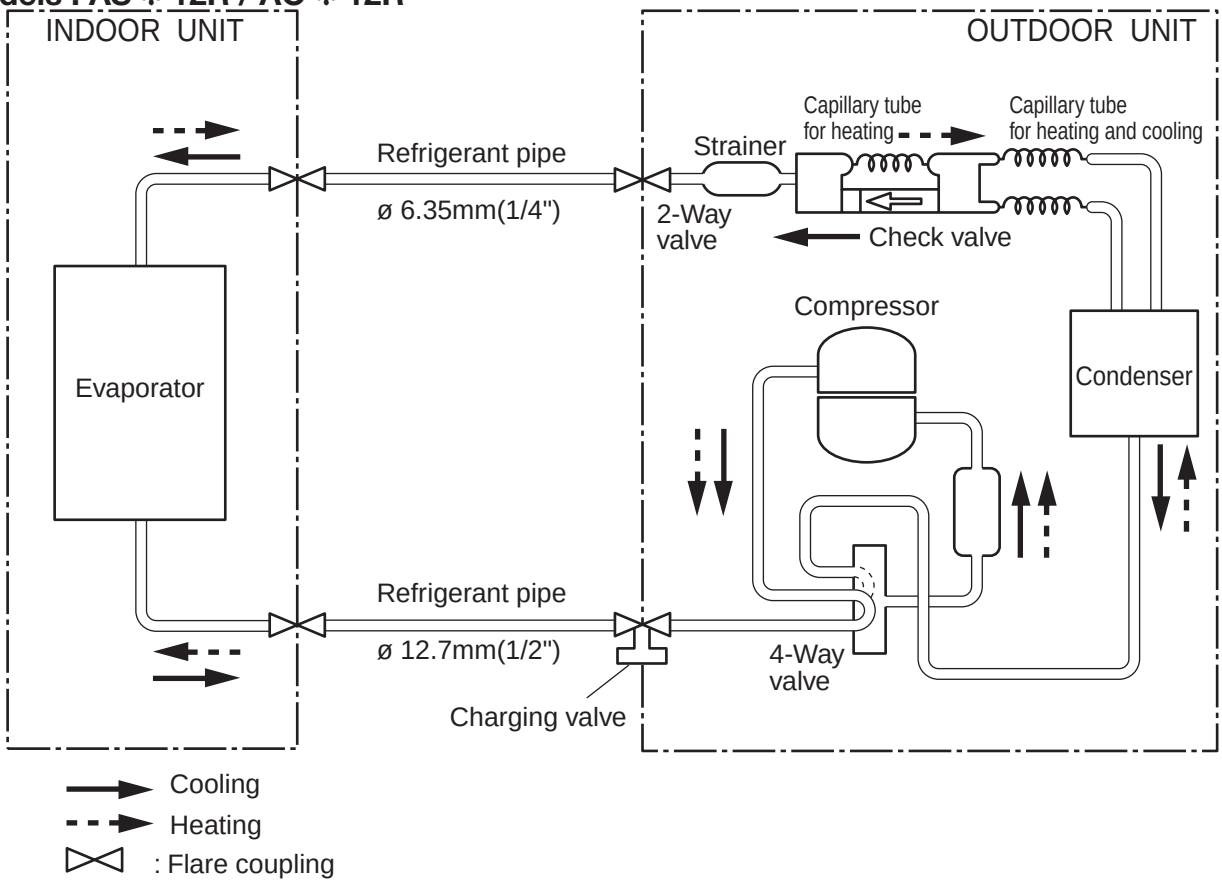
Models : AS ✻ 9R / AO ✻ 9R



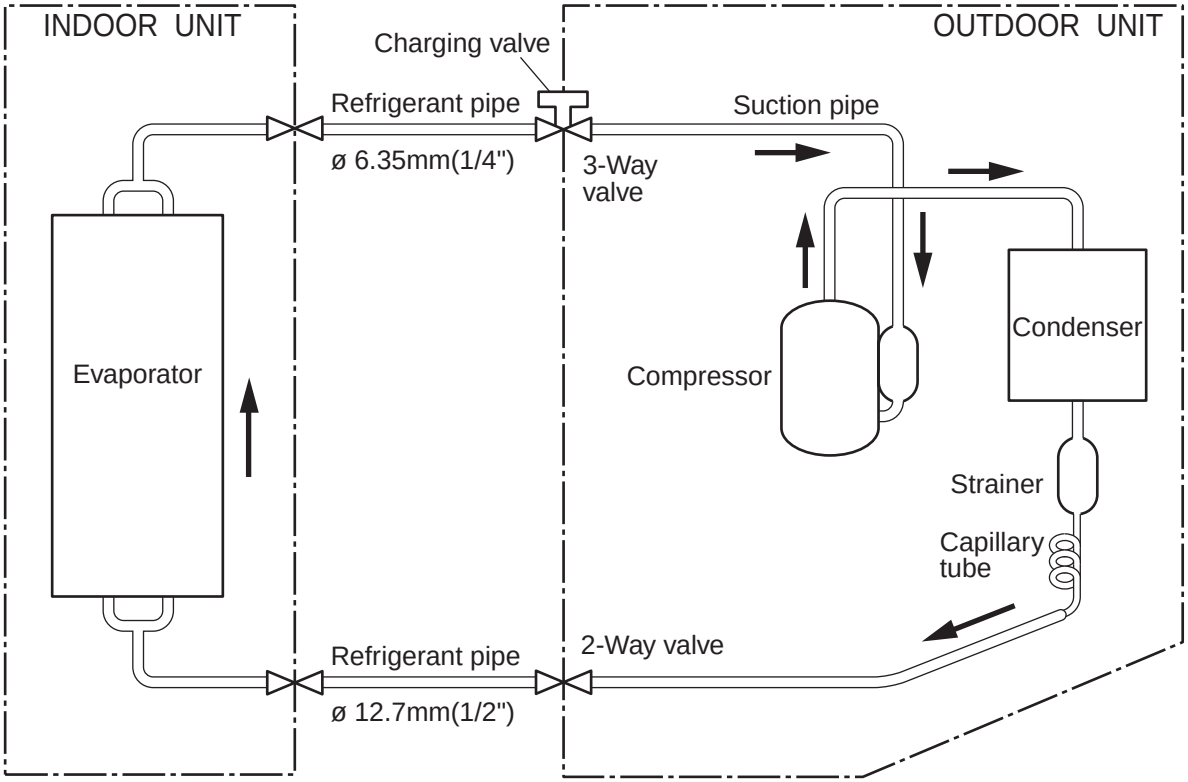
Models : AS ✻ 12A / AO ✻ 12A



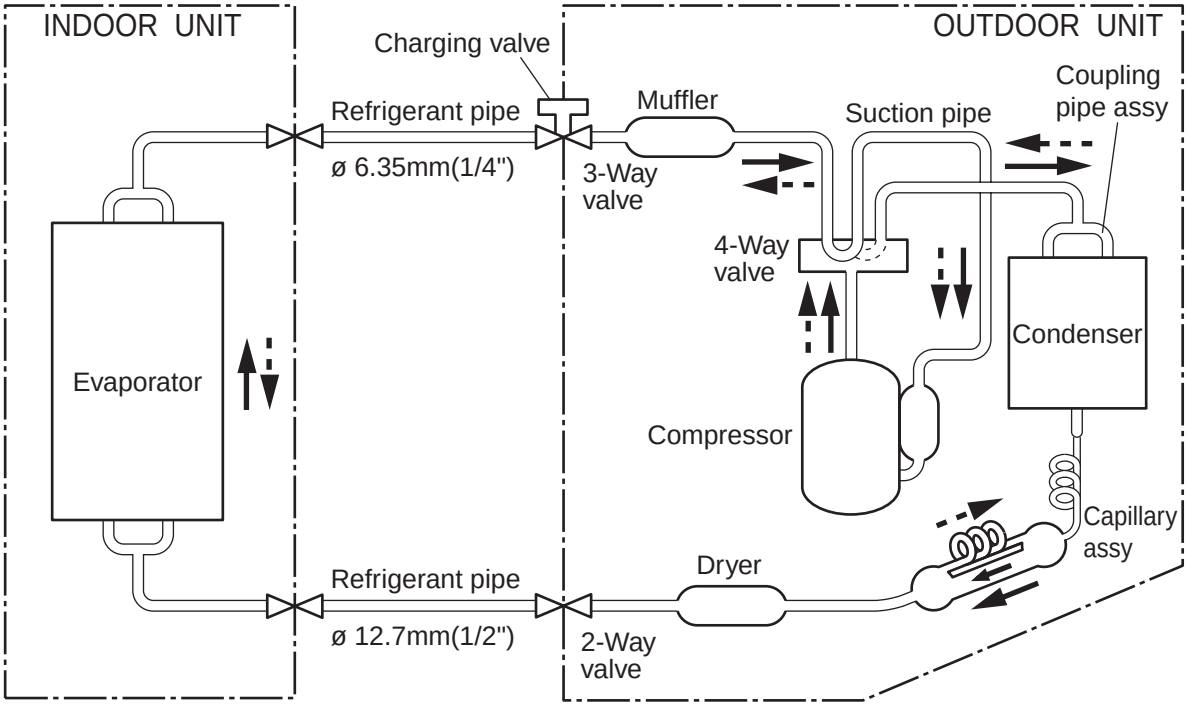
Models : AS ✻ 12R / AO ✻ 12R



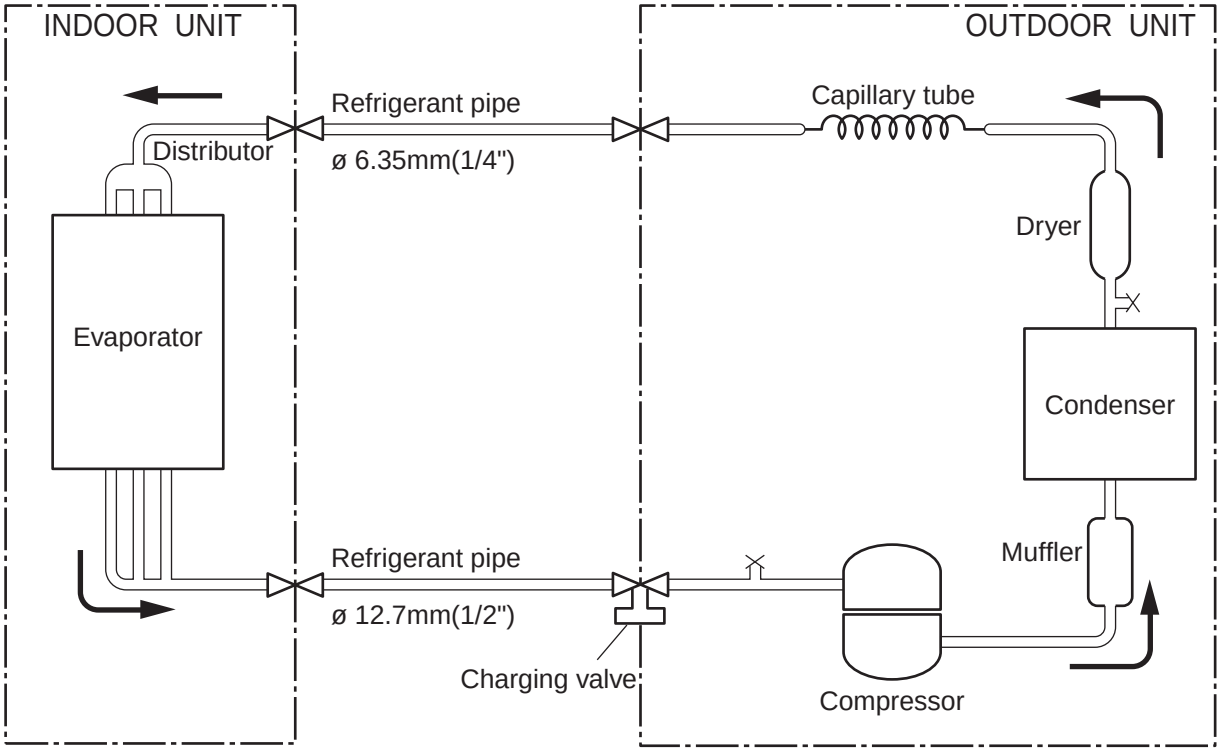
Models : AS ✻ 14A / AO ✻ 14A



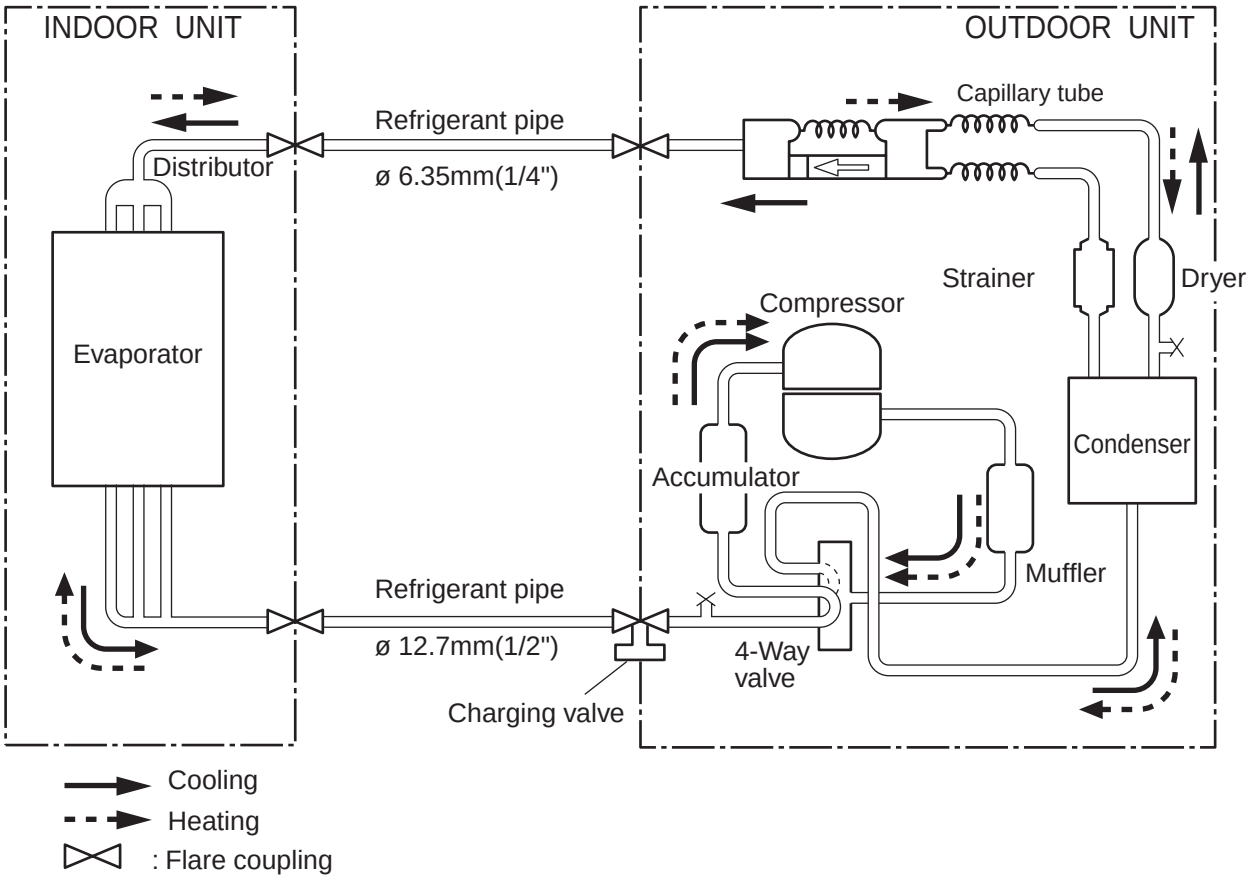
Models : AS ✻ 14R / AO ✻ 14R



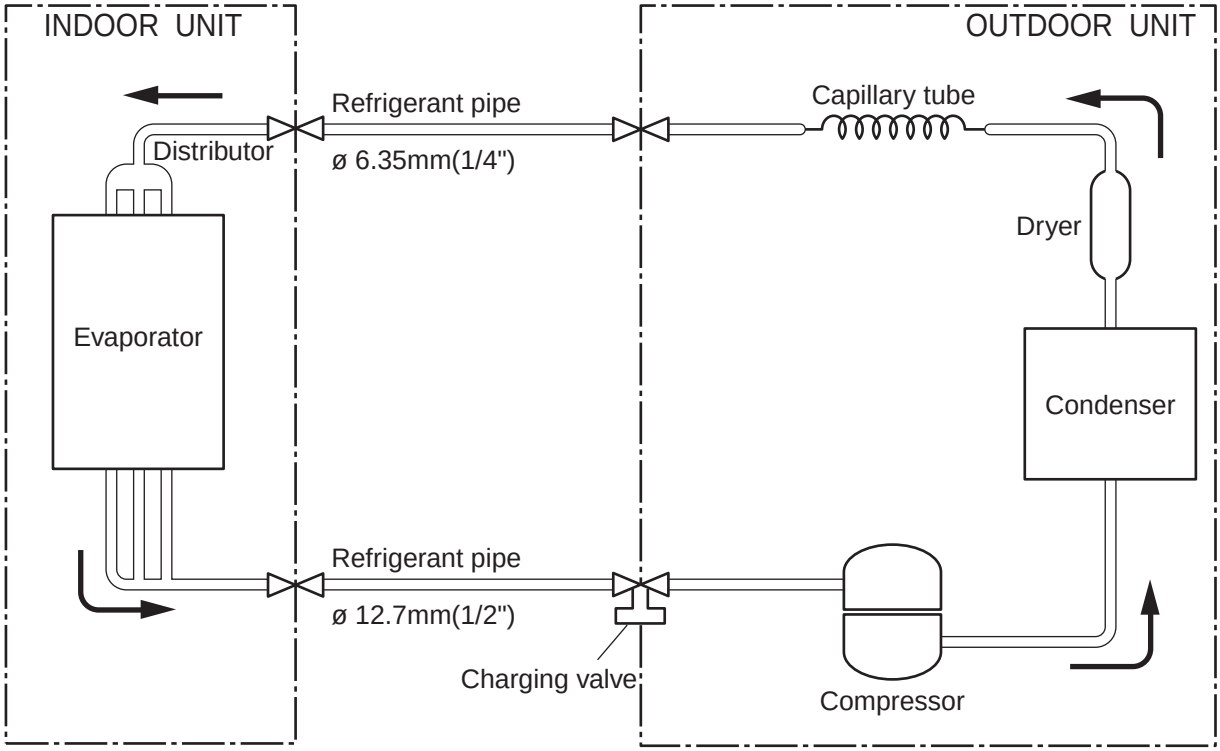
Models : AS ✻ 17A / AO ✻ 17AB



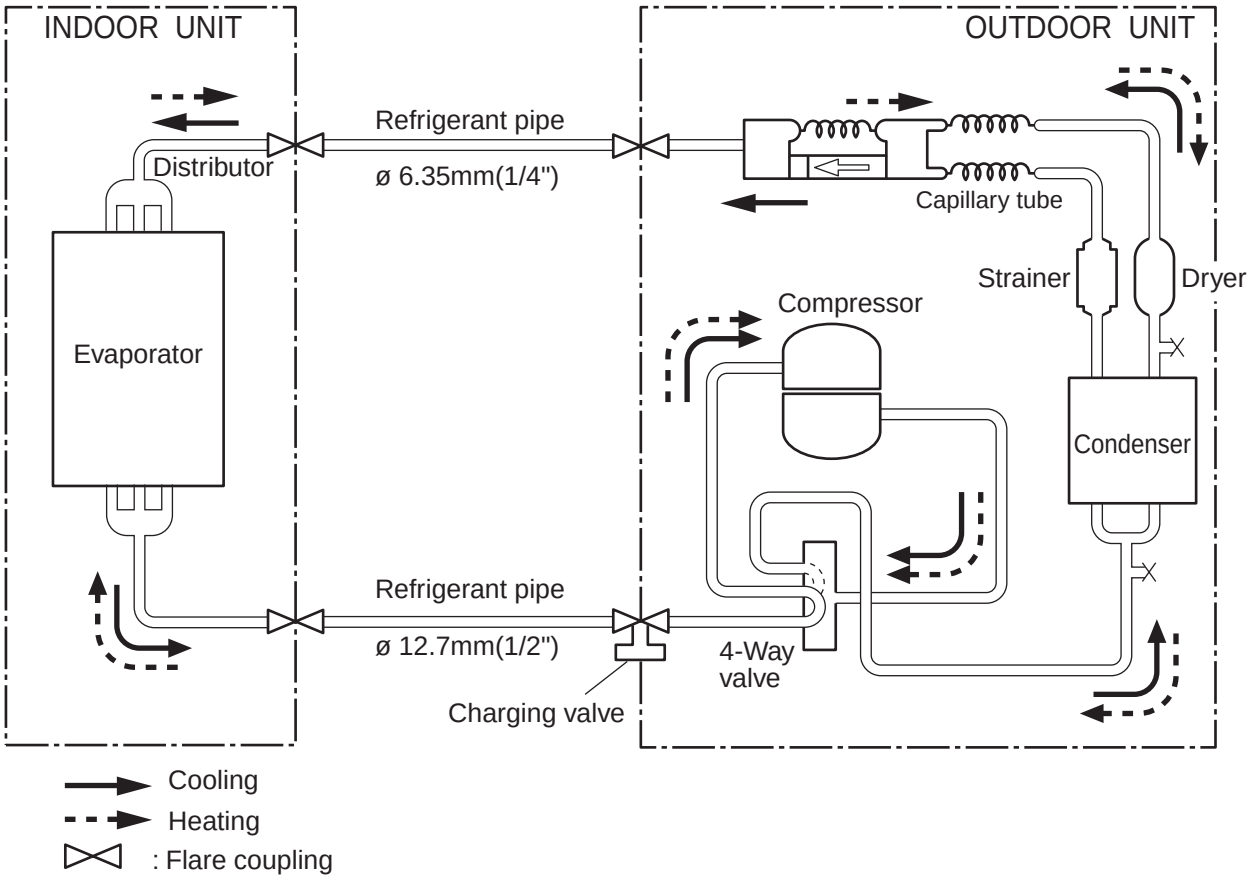
Models : AS ✻ 17R / AO ✻ 17RB



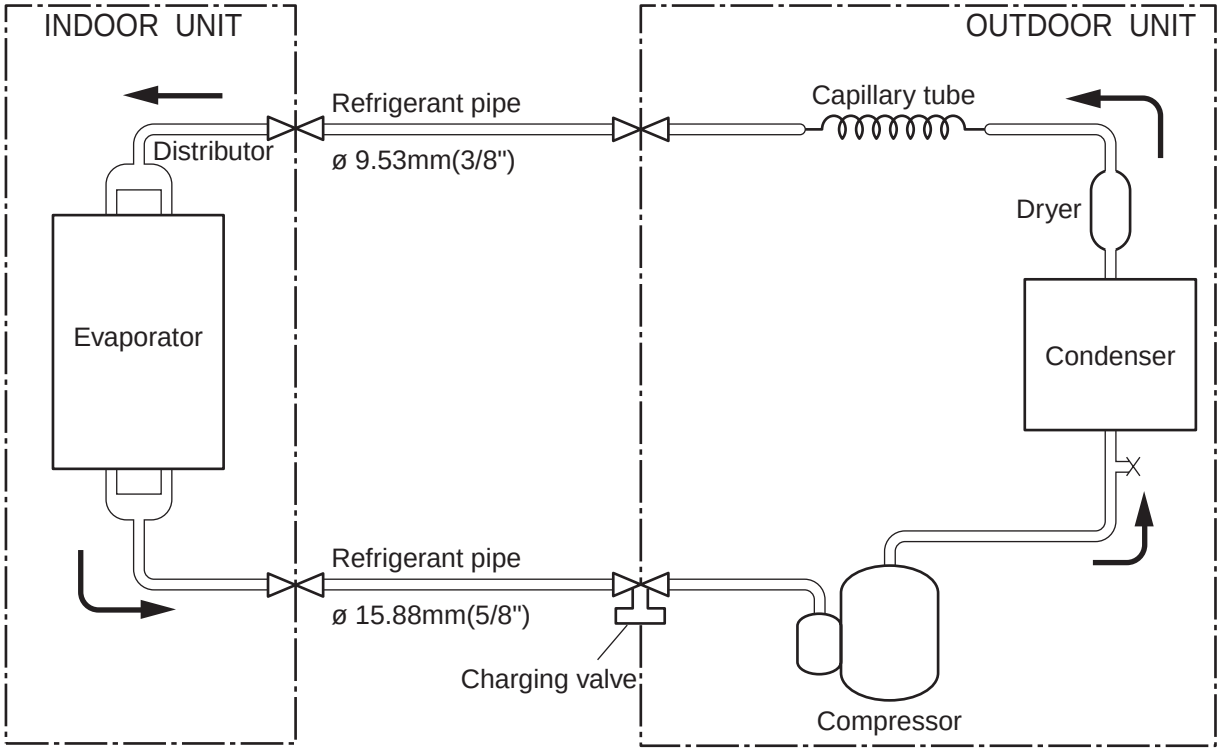
Models : AS ✻ 17A / AO ✻ 17AN



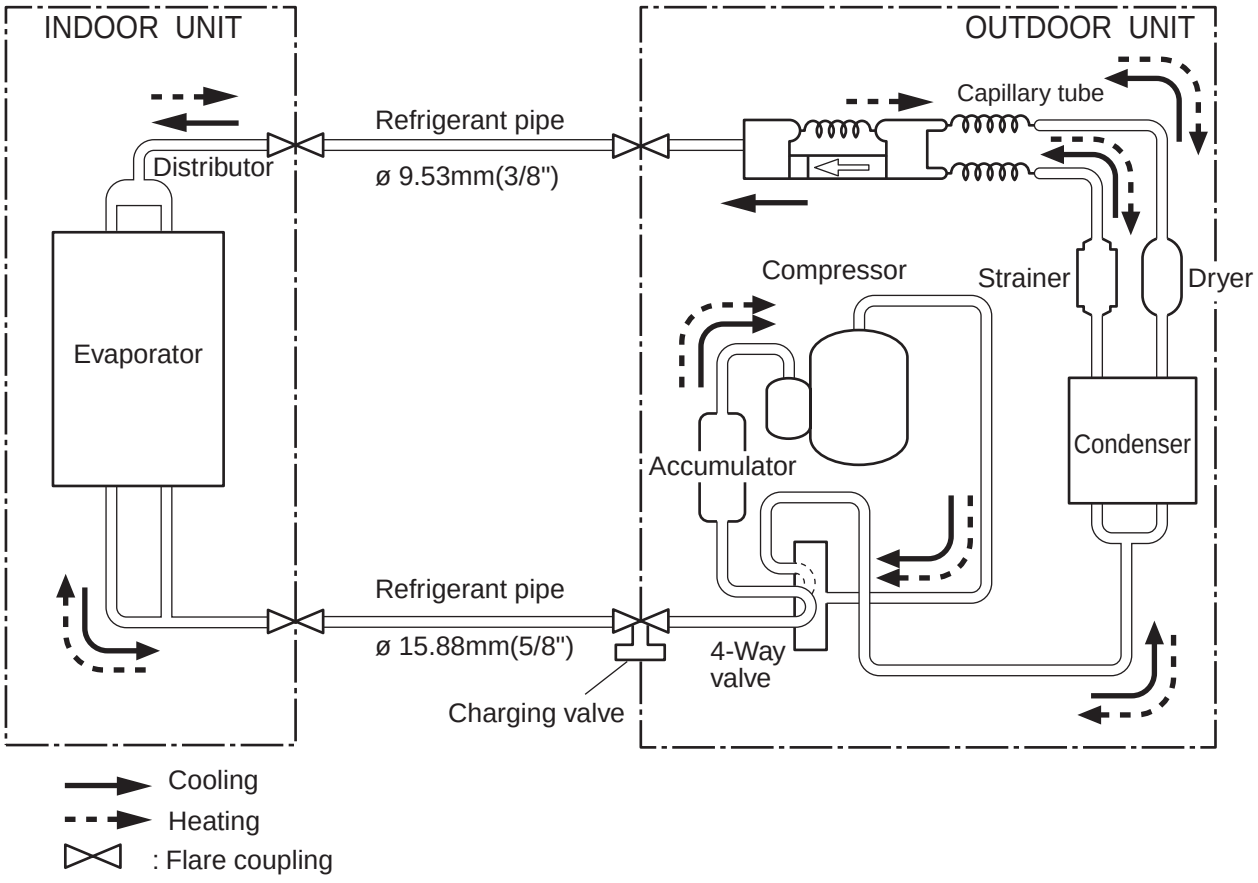
Models : AS ✻ 17R / AO ✻ 17RN



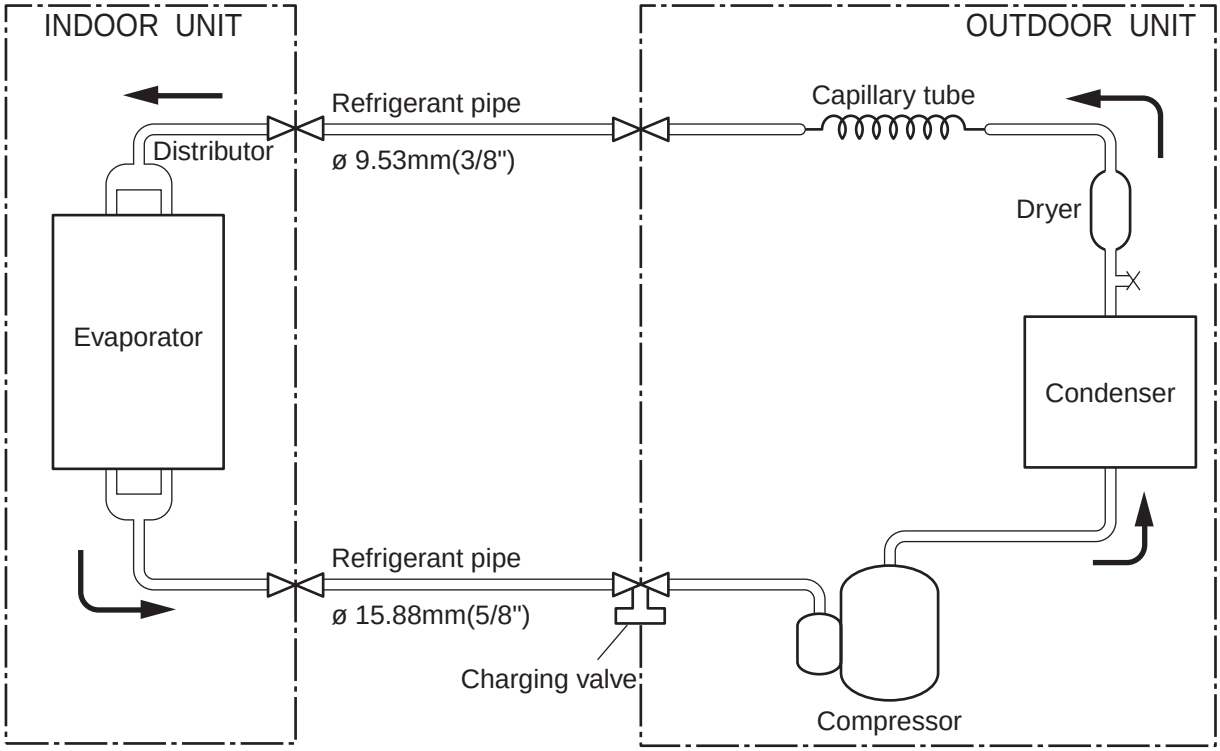
Models : AS ✻ 20A / AO ✻ 20AN



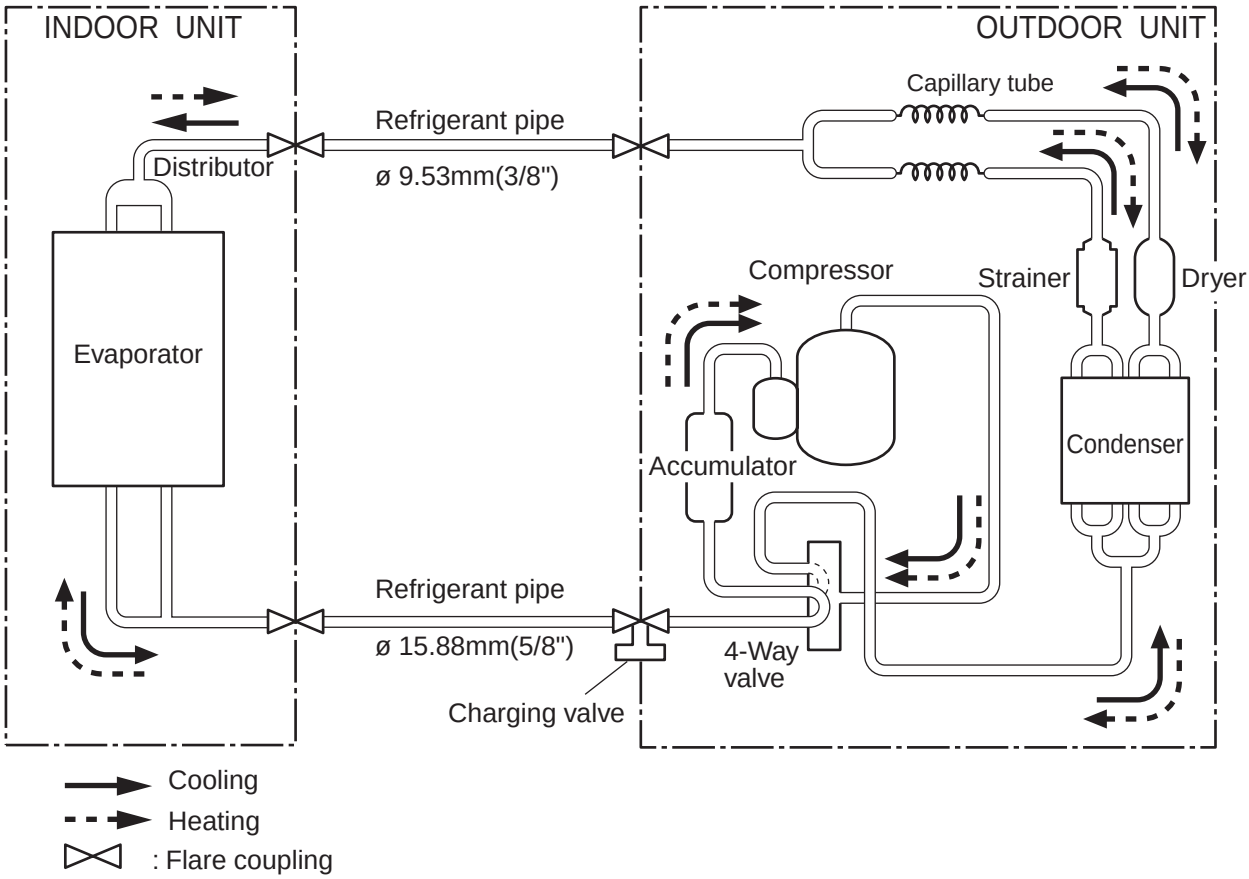
Models : AS ✻ 20R / AO ✻ 20RM



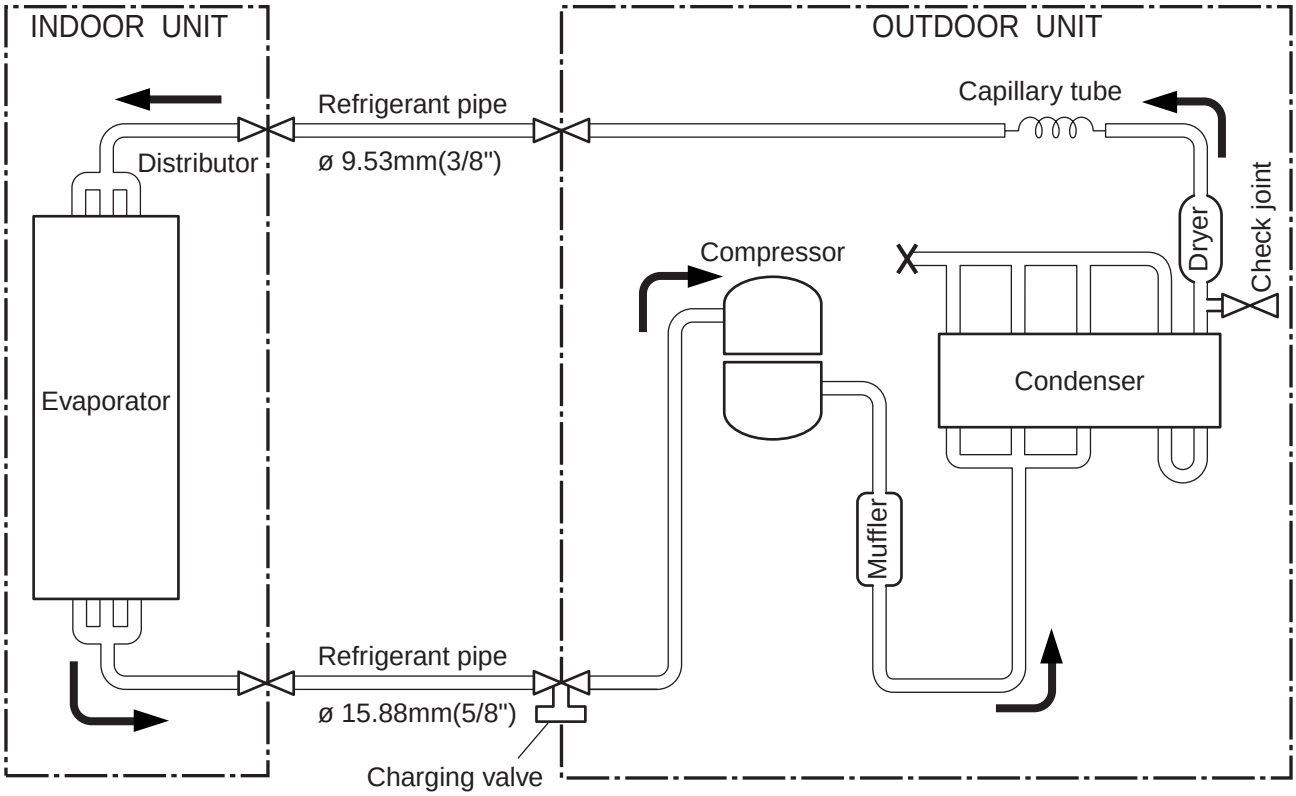
Models : AS ✻ 24A / AO ✻ 24AN



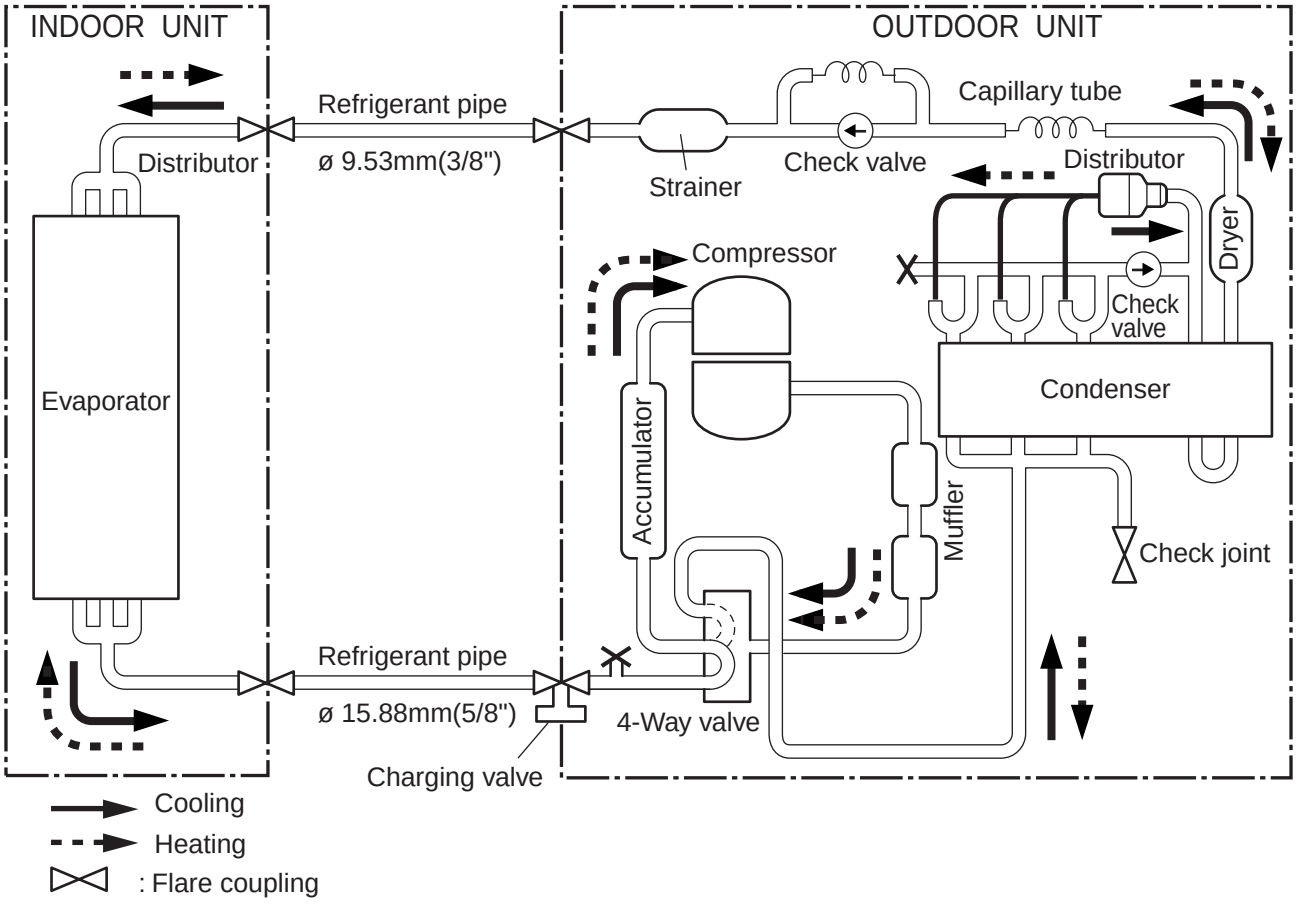
Models : AS ✻ 24R / AO ✻ 24RM



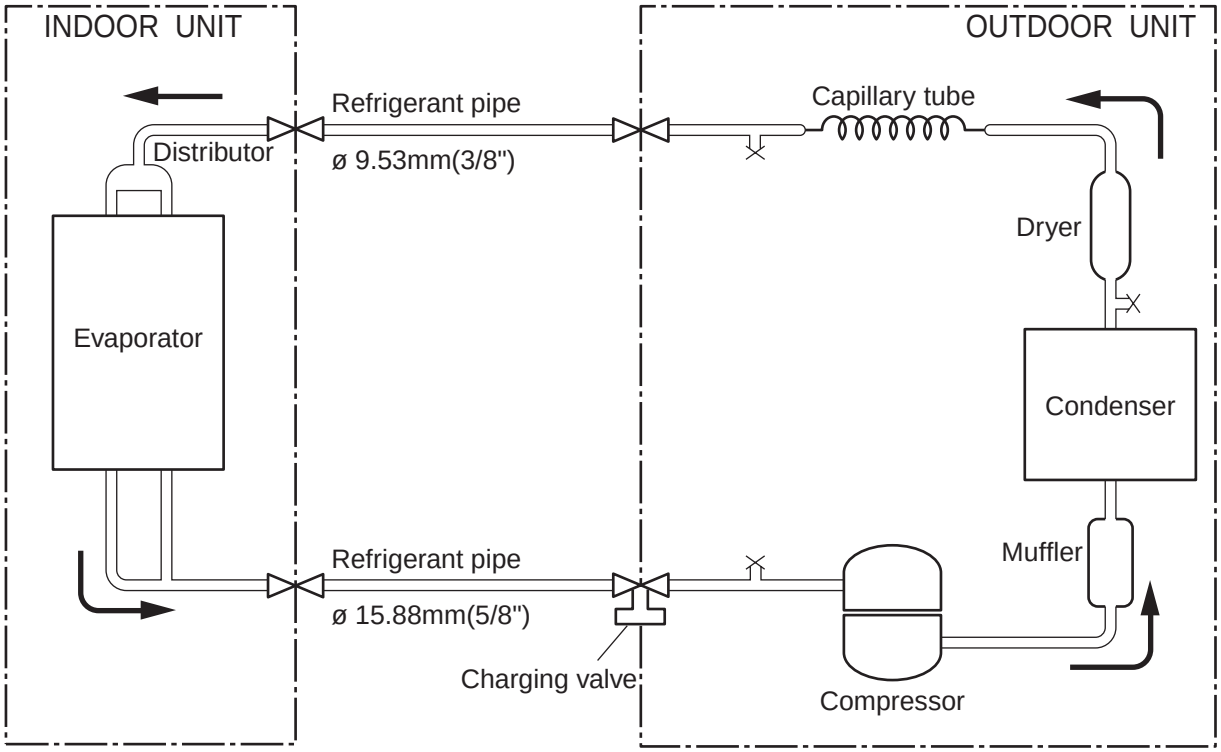
Models : AS ✻ 30A / AO ✻ 30A



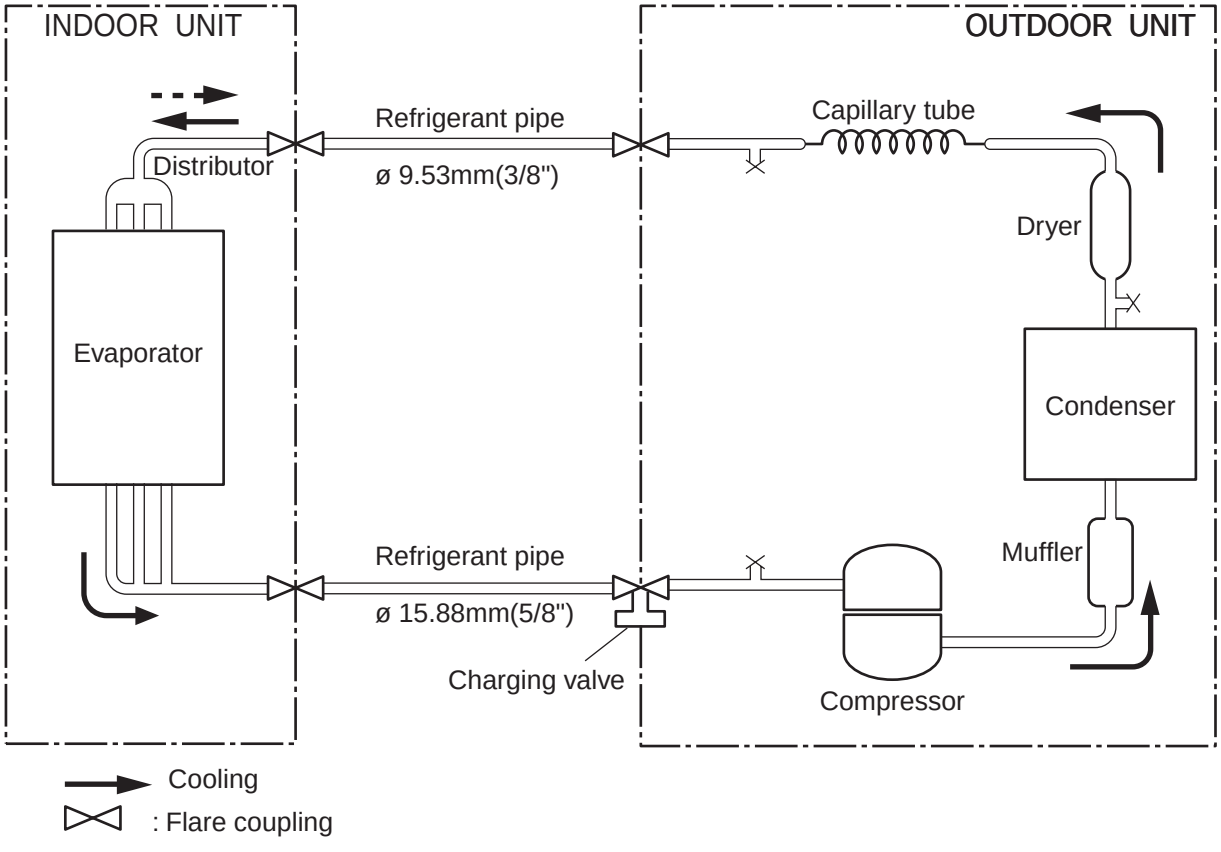
Models : AS ✻ 30R / AO ✻ 30R



Models : ASC-502B / AOC-502B

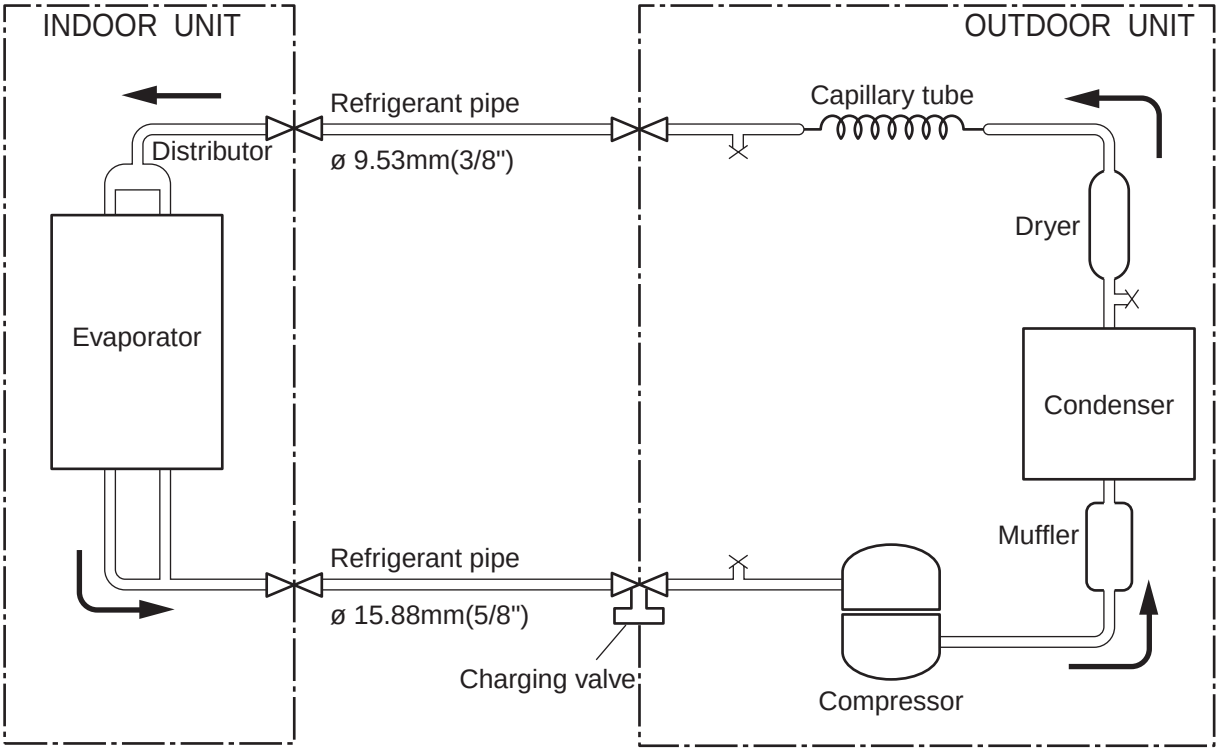


Models : ASC-602B / AOC-602B

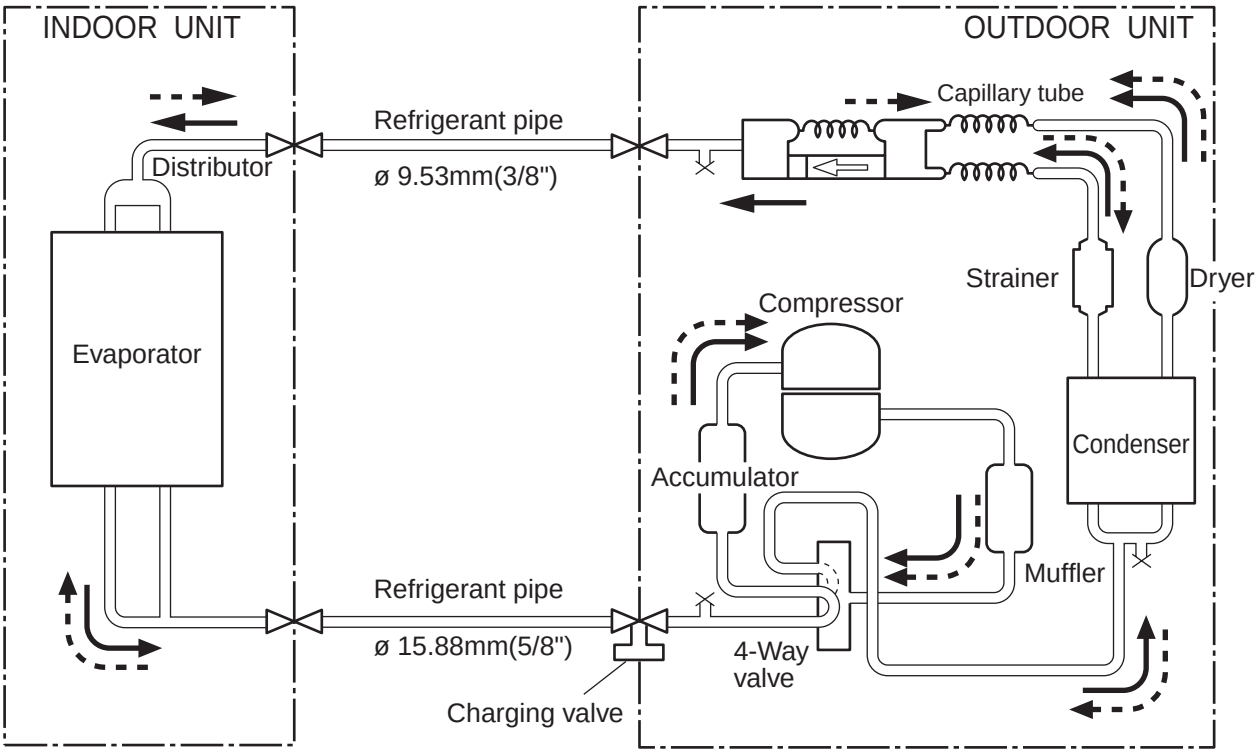


5.1.4 FLOOR / CEILING UNIVERSAL TYPE

Models : AB ✻ 24A / AO ✻ 24A

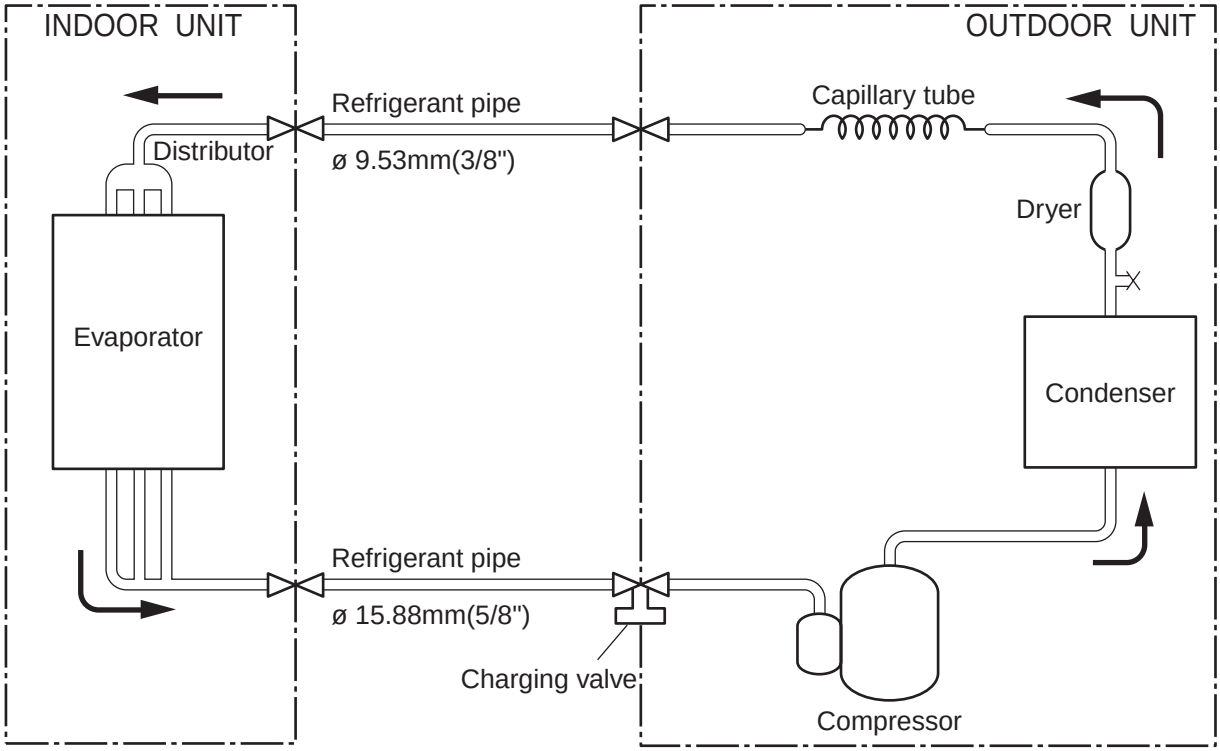


Models : AB ✻ 24R / AO ✻ 24RZ

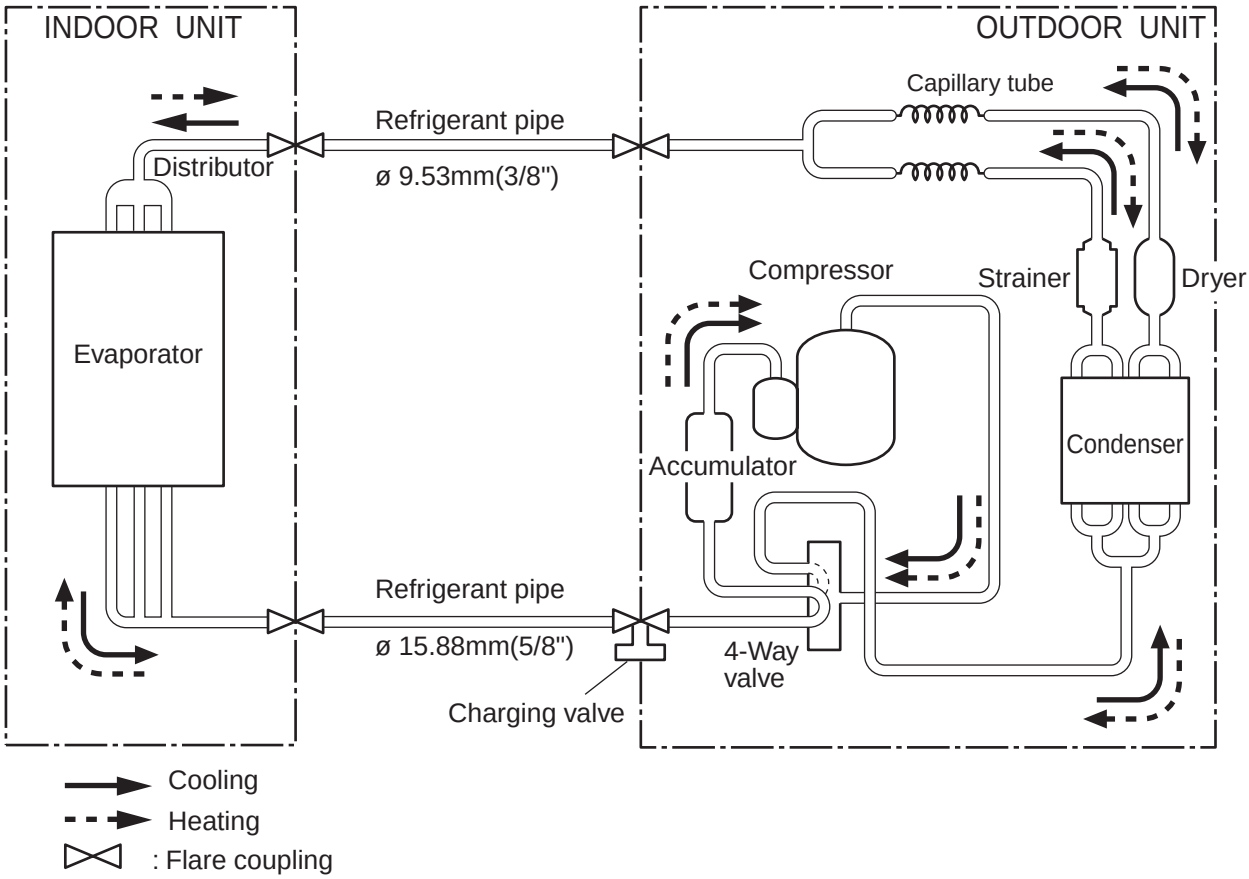


Cooling
Heating
: Flare coupling

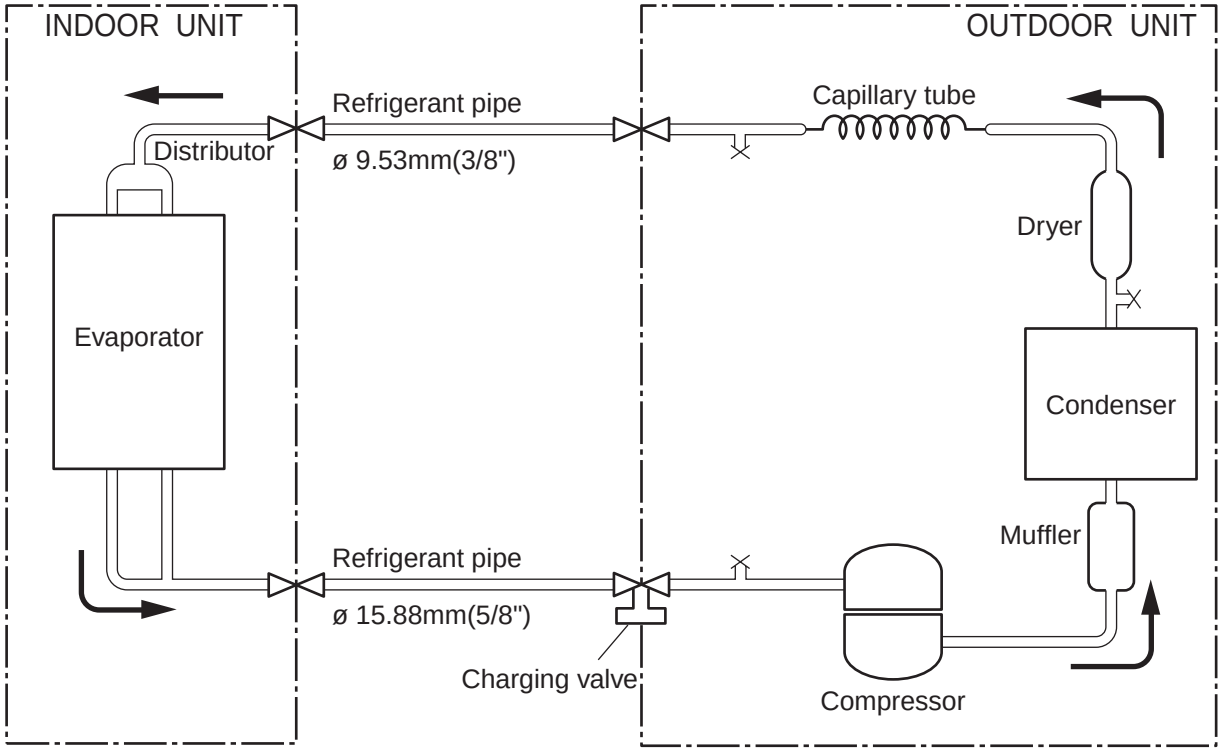
Models : AB ✻ 24A / AO ✻ 24AN



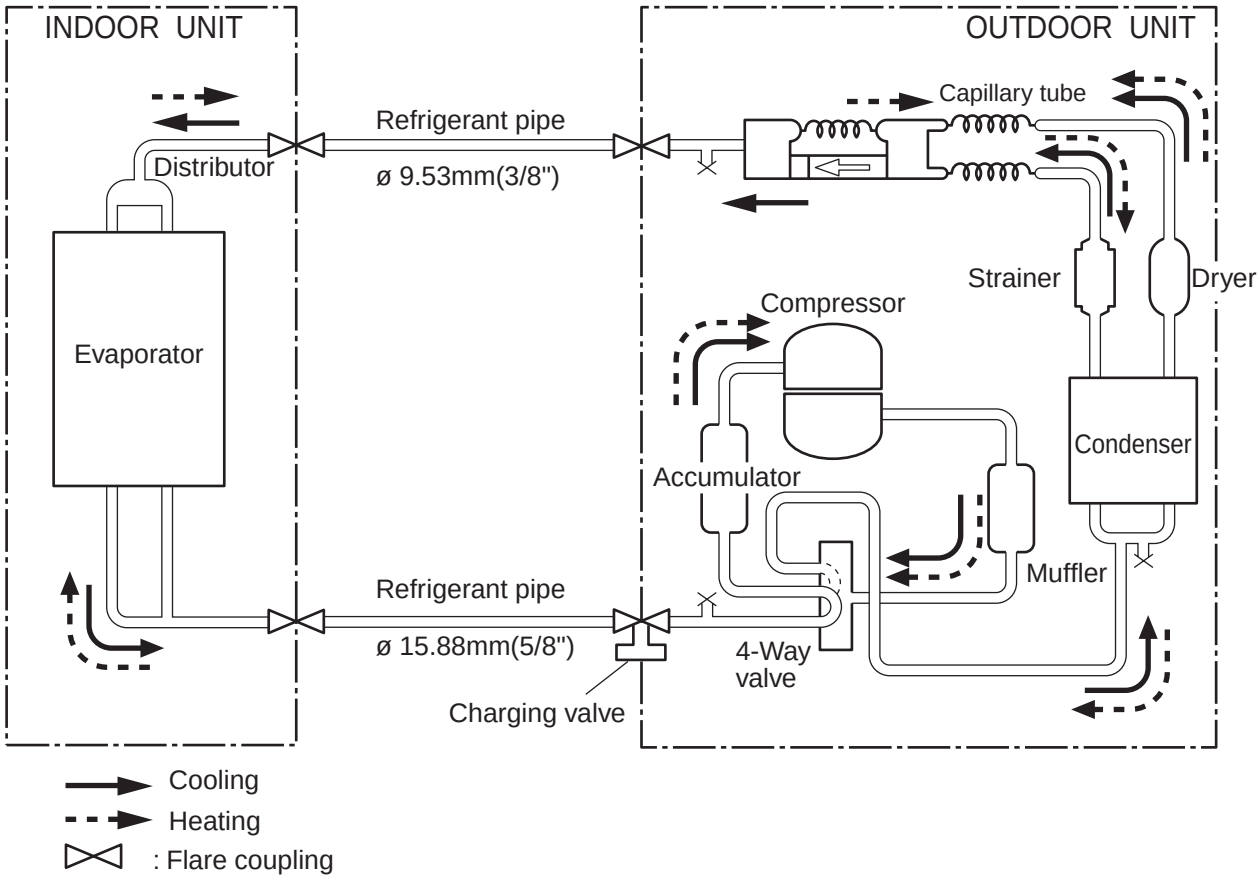
Models : AB ✻ 24R / AO ✻ 24RM



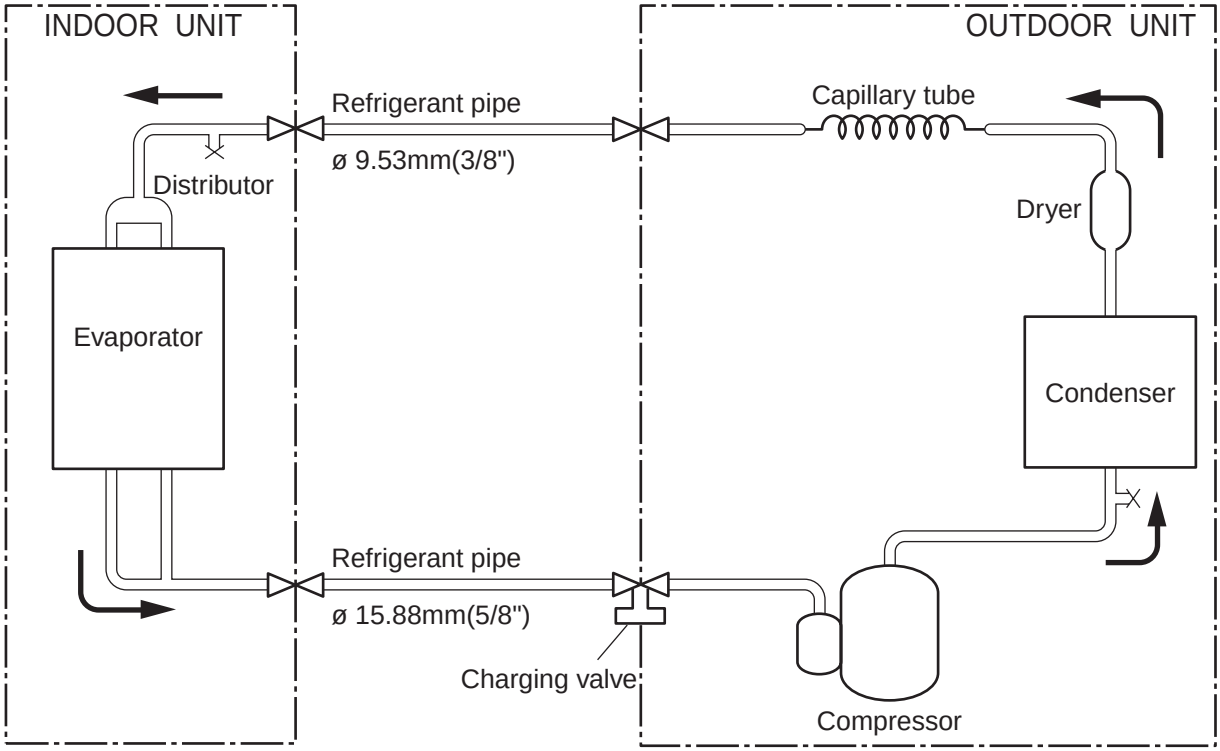
Models : AB ✻ 18A / AO ✻ 18AZ



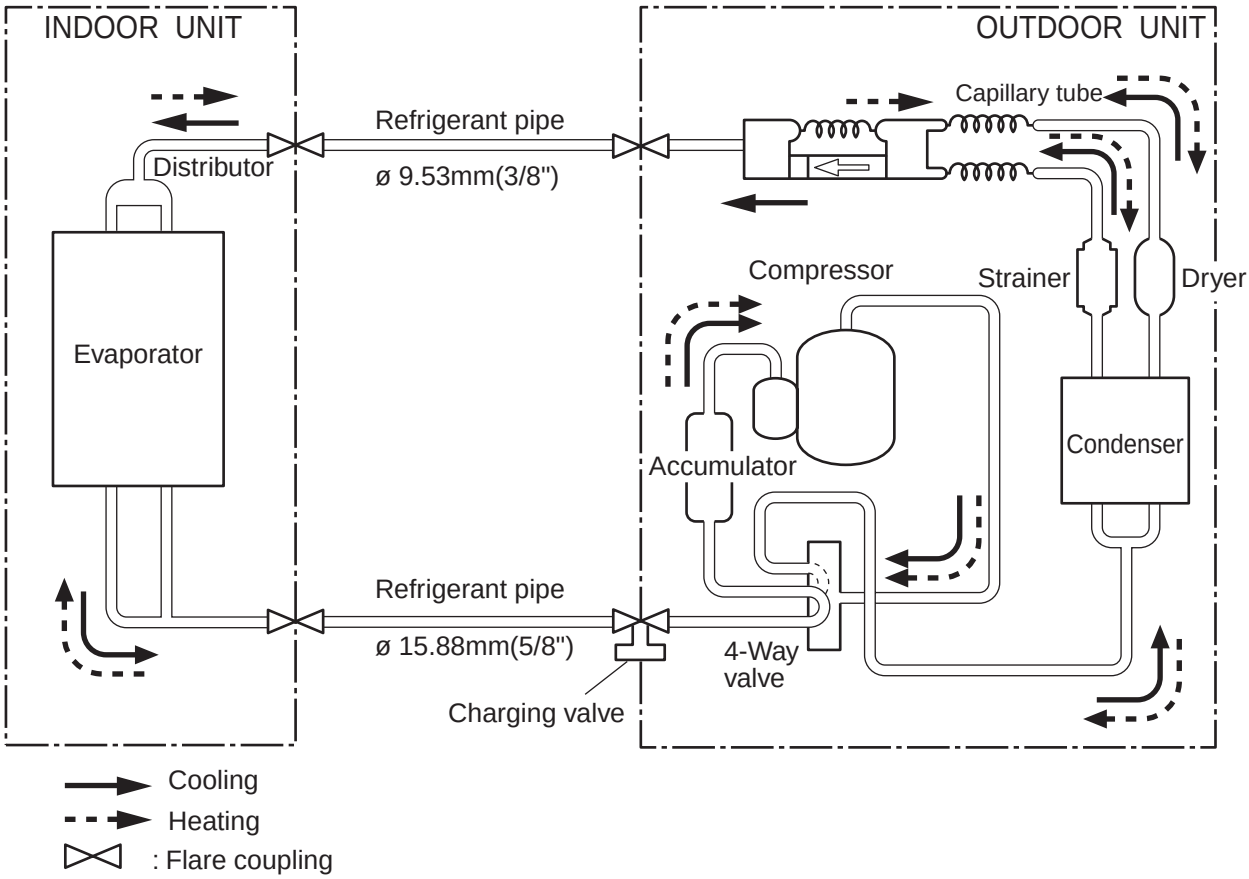
Models : AB ✻ 18R / AO ✻ 18RZ



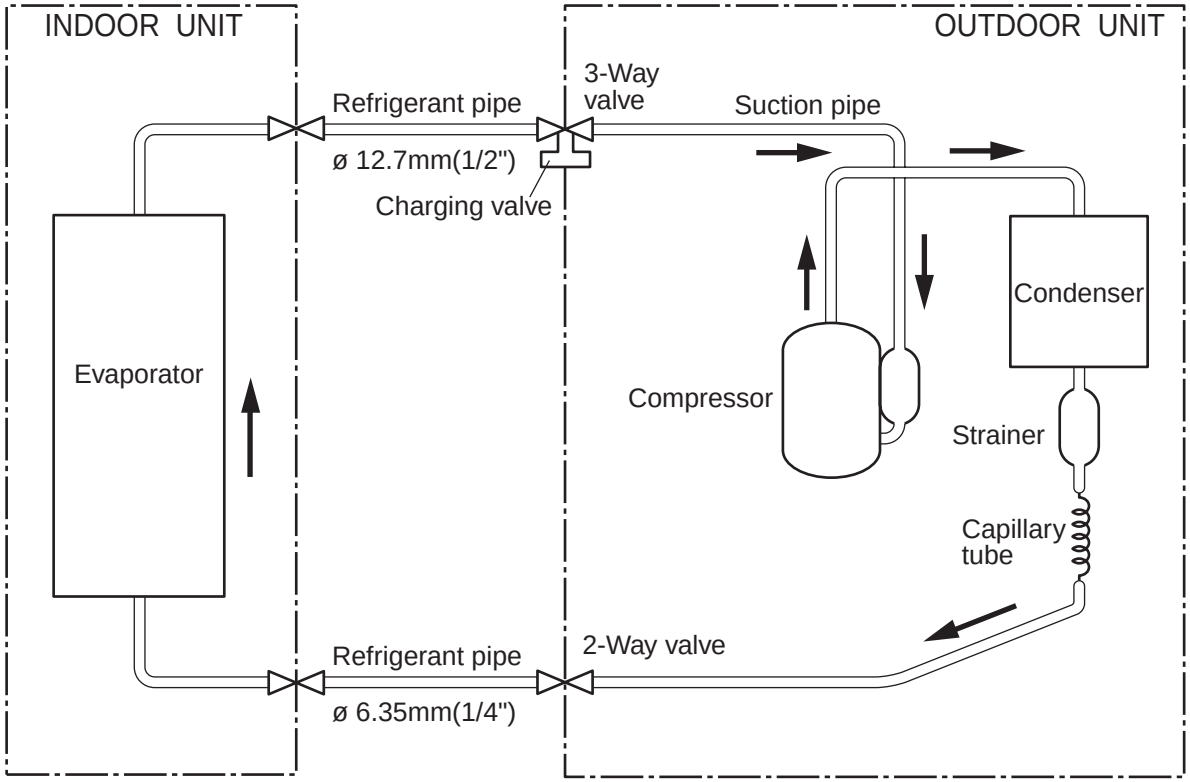
Models : AB ✻ 18A / AO ✻ 18AN



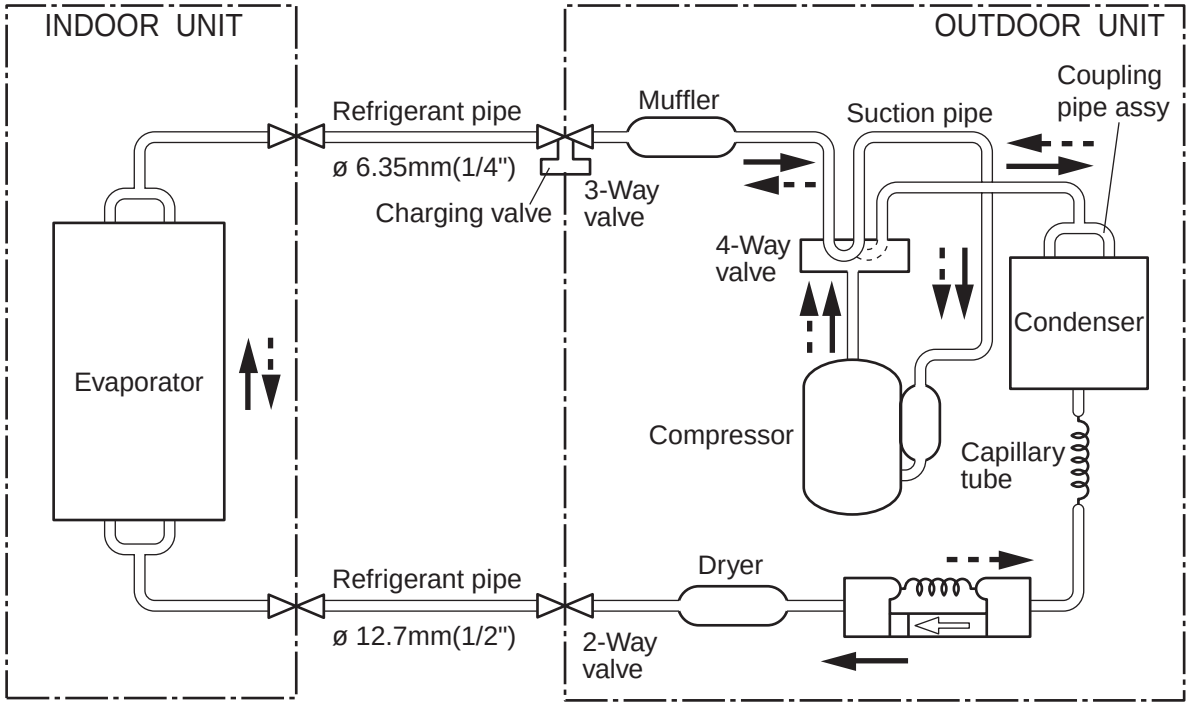
Models : AB ✻ 18R / AO ✻ 18RM



Models : AB ✻ 14A / AO ✻ 14A



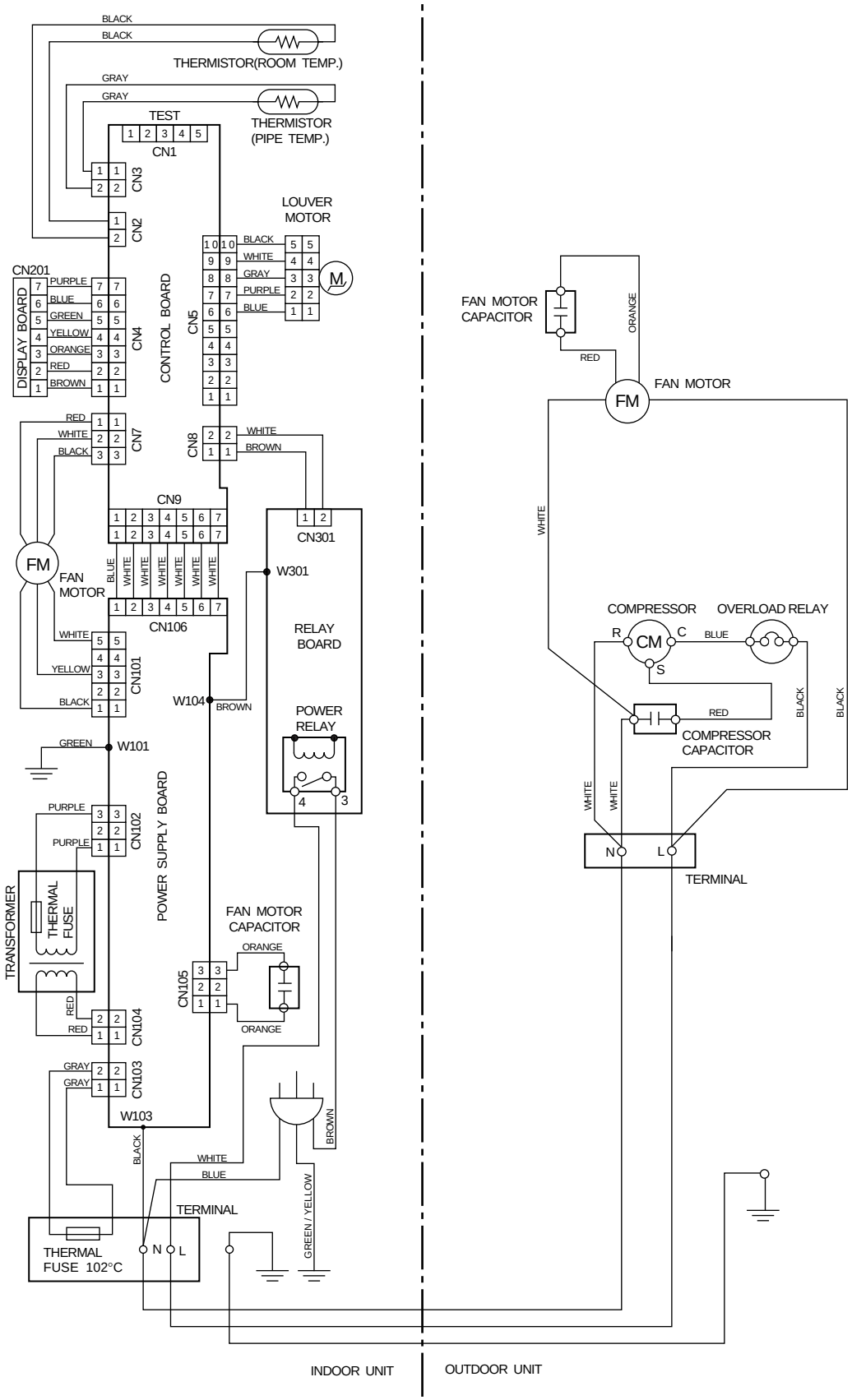
Models : AB ✻ 14R / AO ✻ 14R



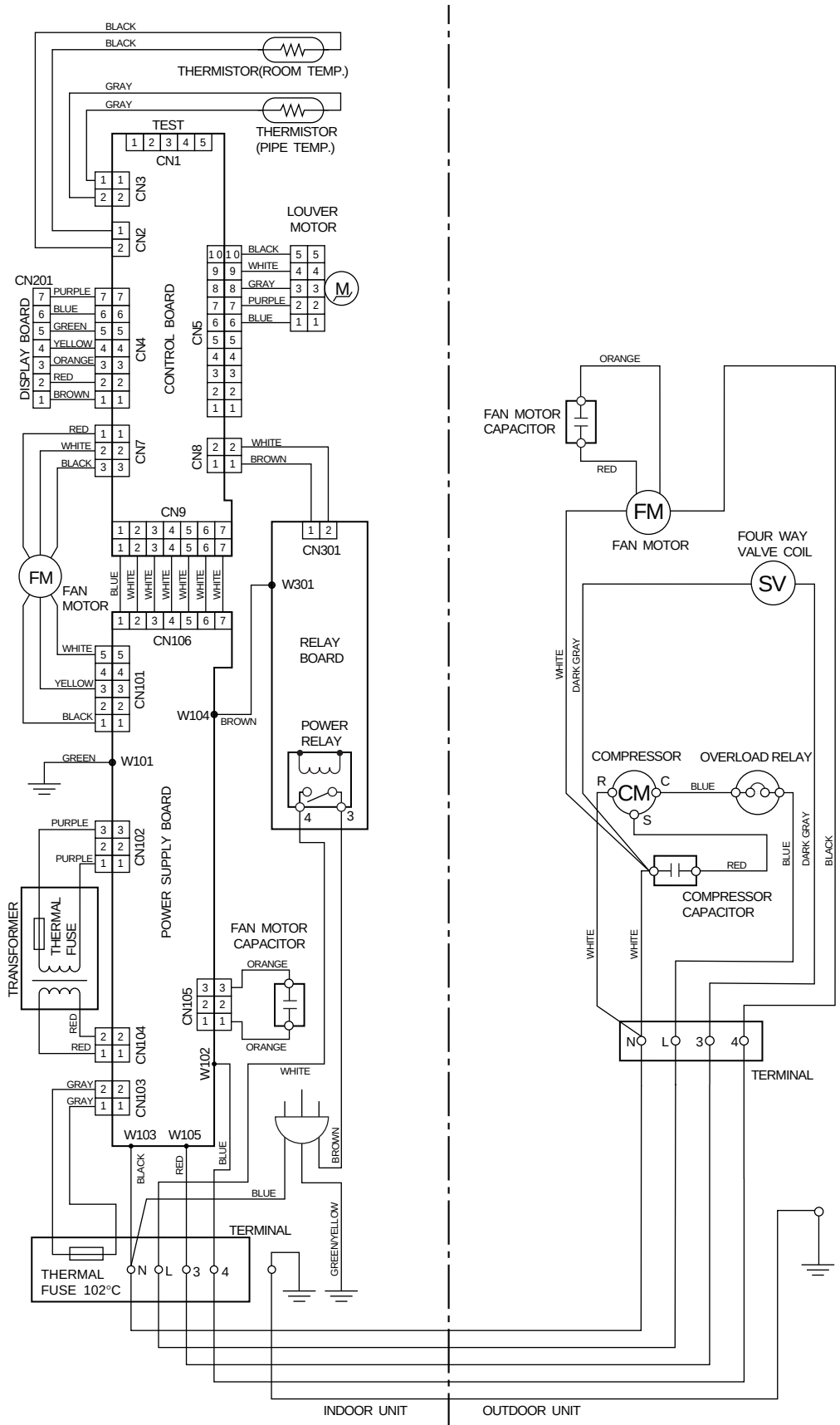
5.2 CIRCUIT DIAGRAM

5.2.1 COMPACT SII SERIES

Models : AS ✻ 7A / AO ✻ 7A

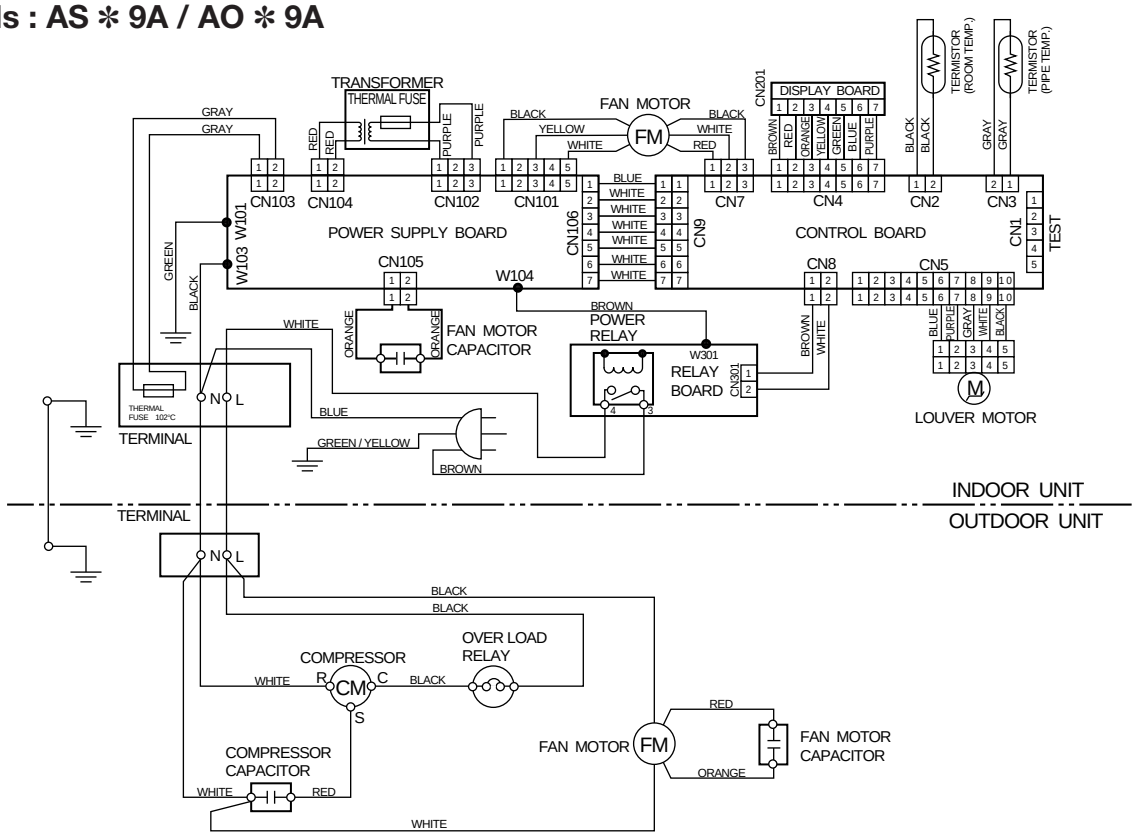


Models : AS ✻ 7R / AO ✻ 7R

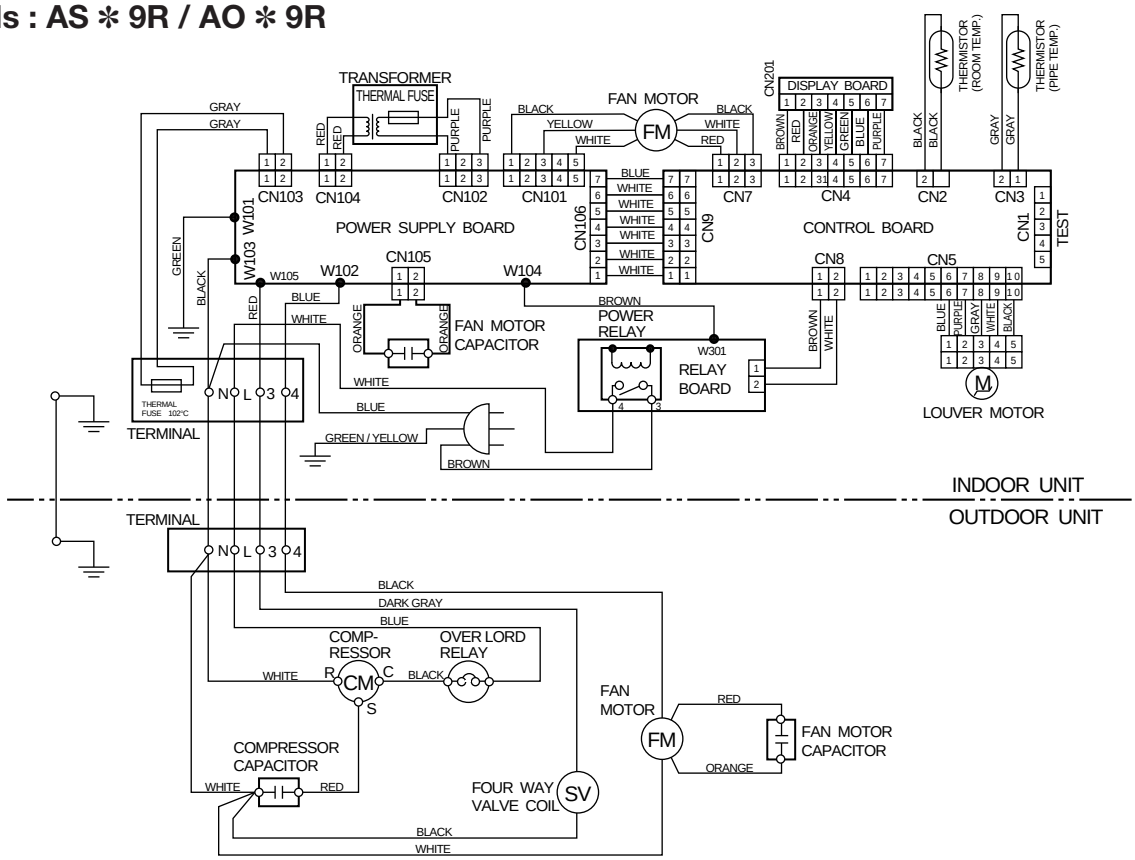


5.2.2 COMPACT MII SERIES

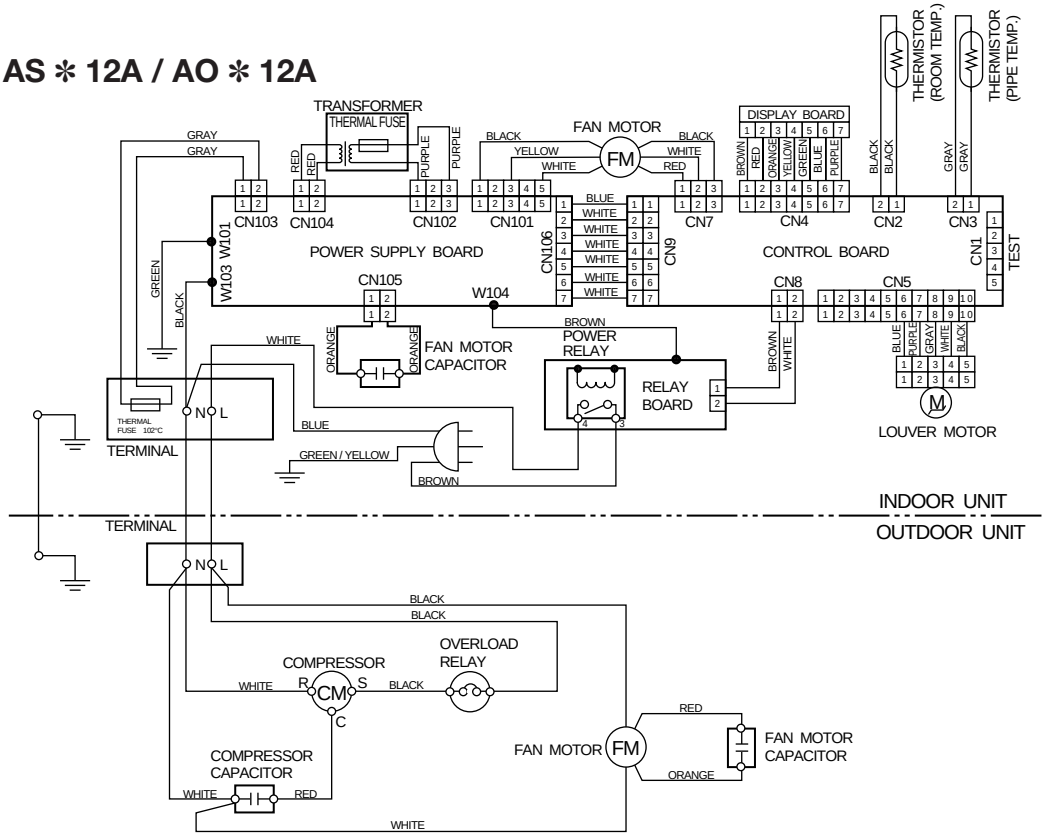
Models : AS ✻ 9A / AO ✻ 9A



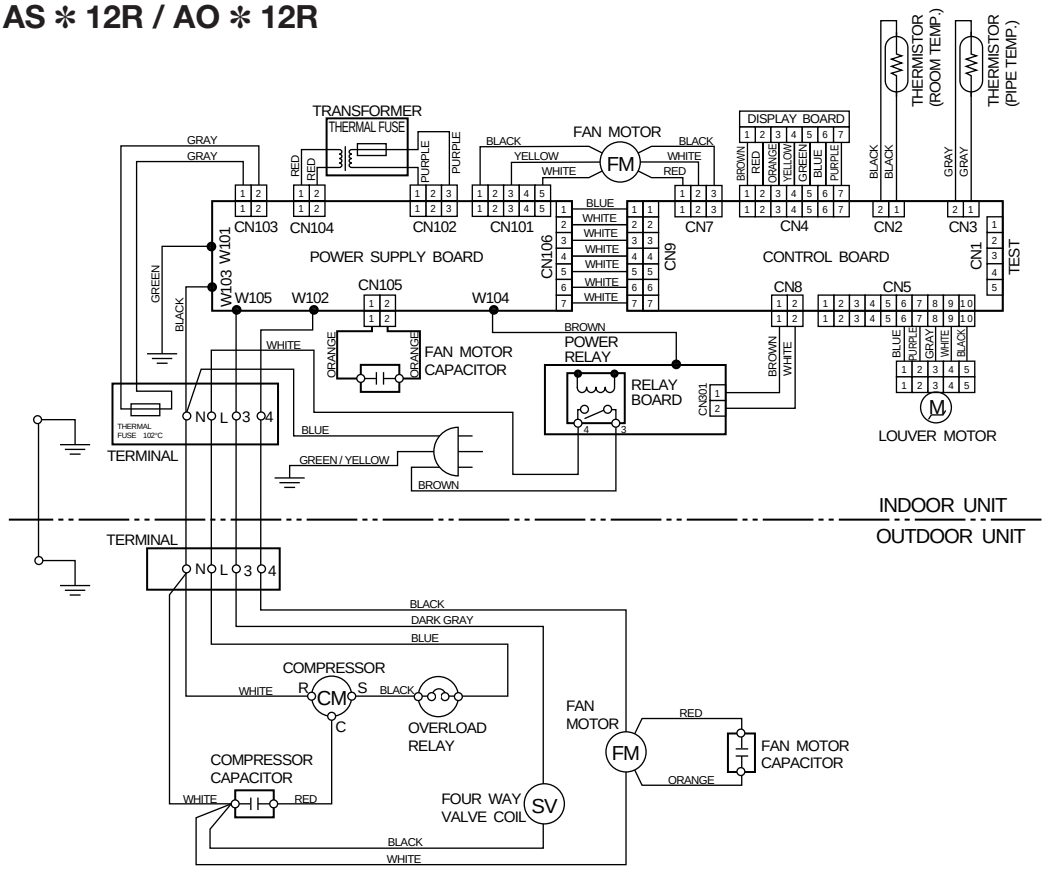
Models : AS ✻ 9R / AO ✻ 9R



Models : AS ✻ 12A / AO ✻ 12A

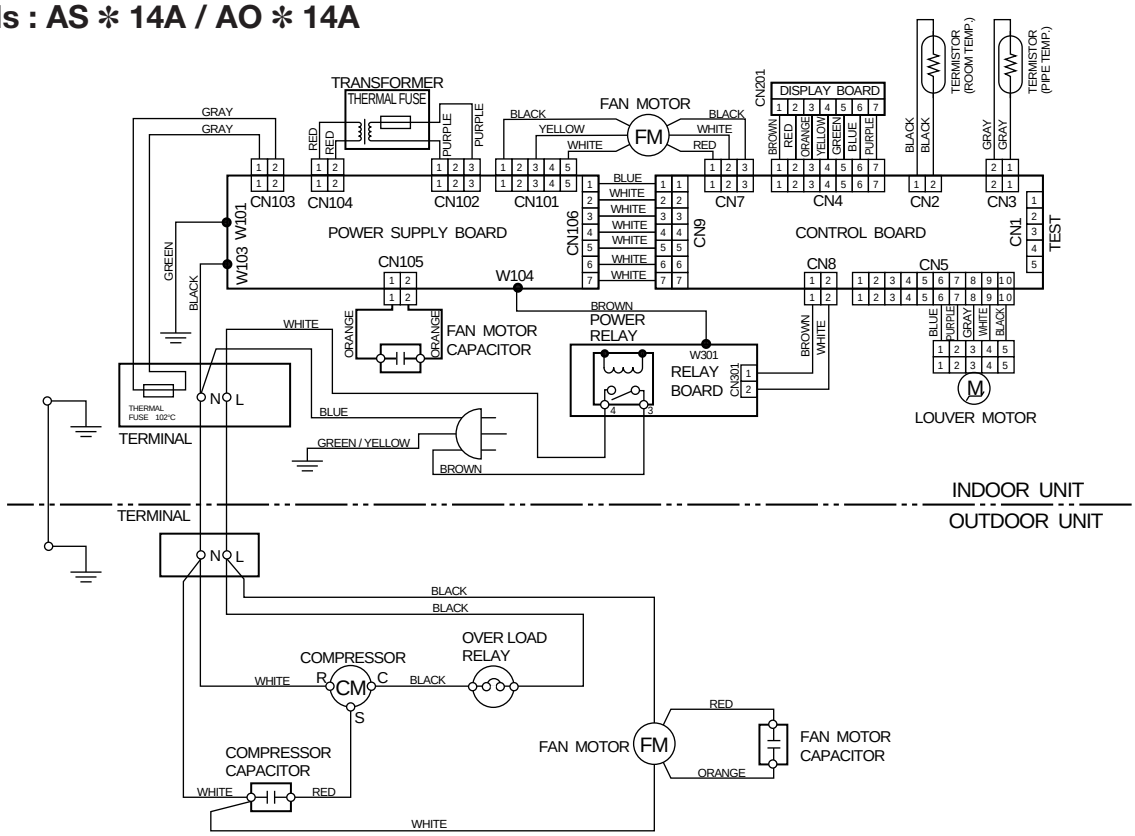


Models : AS ✻ 12R / AO ✻ 12R

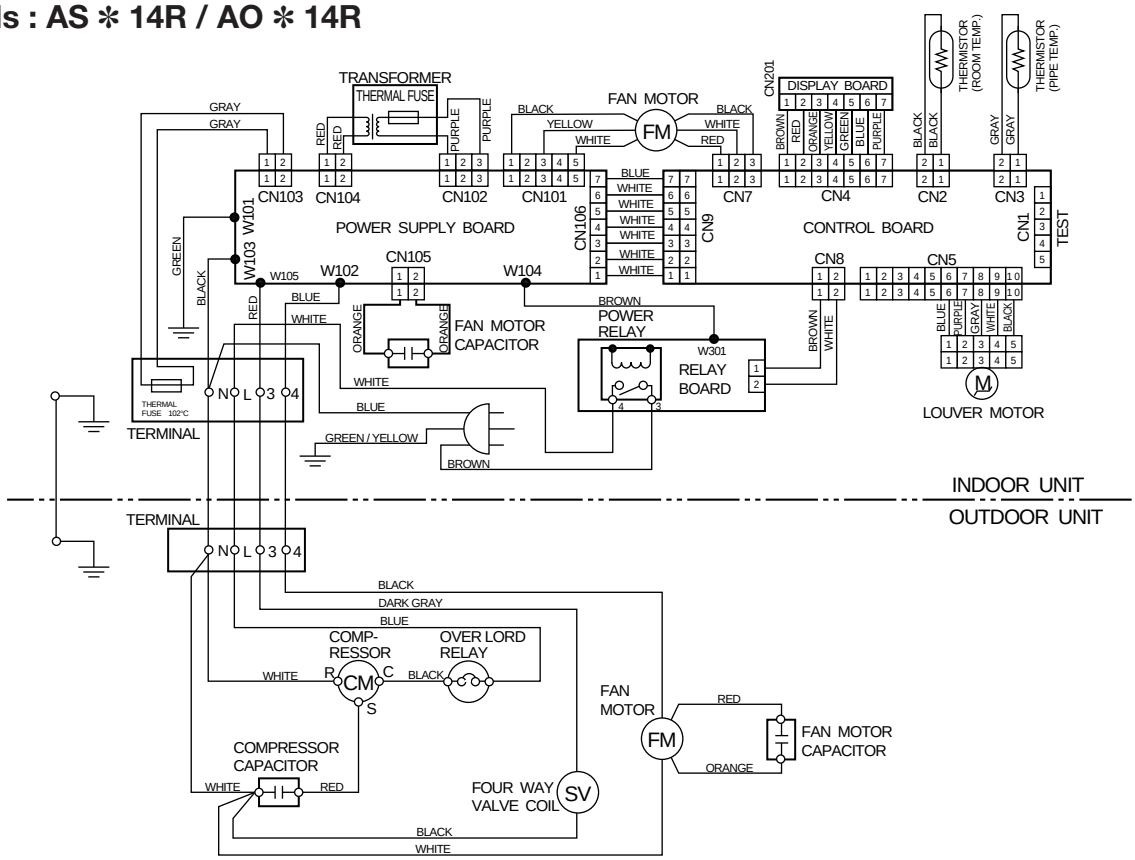


5.2.3 COMPACT LI SERIES

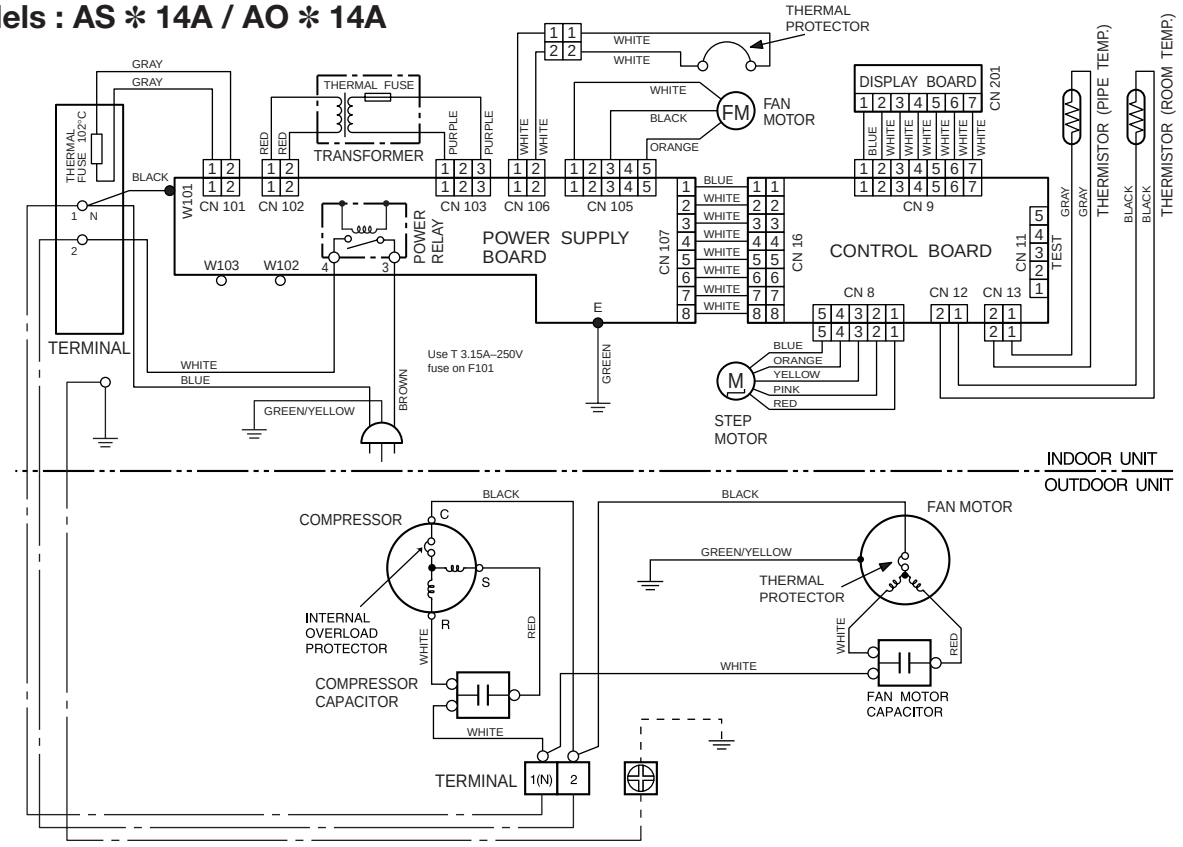
Models : AS ✻ 14A / AO ✻ 14A



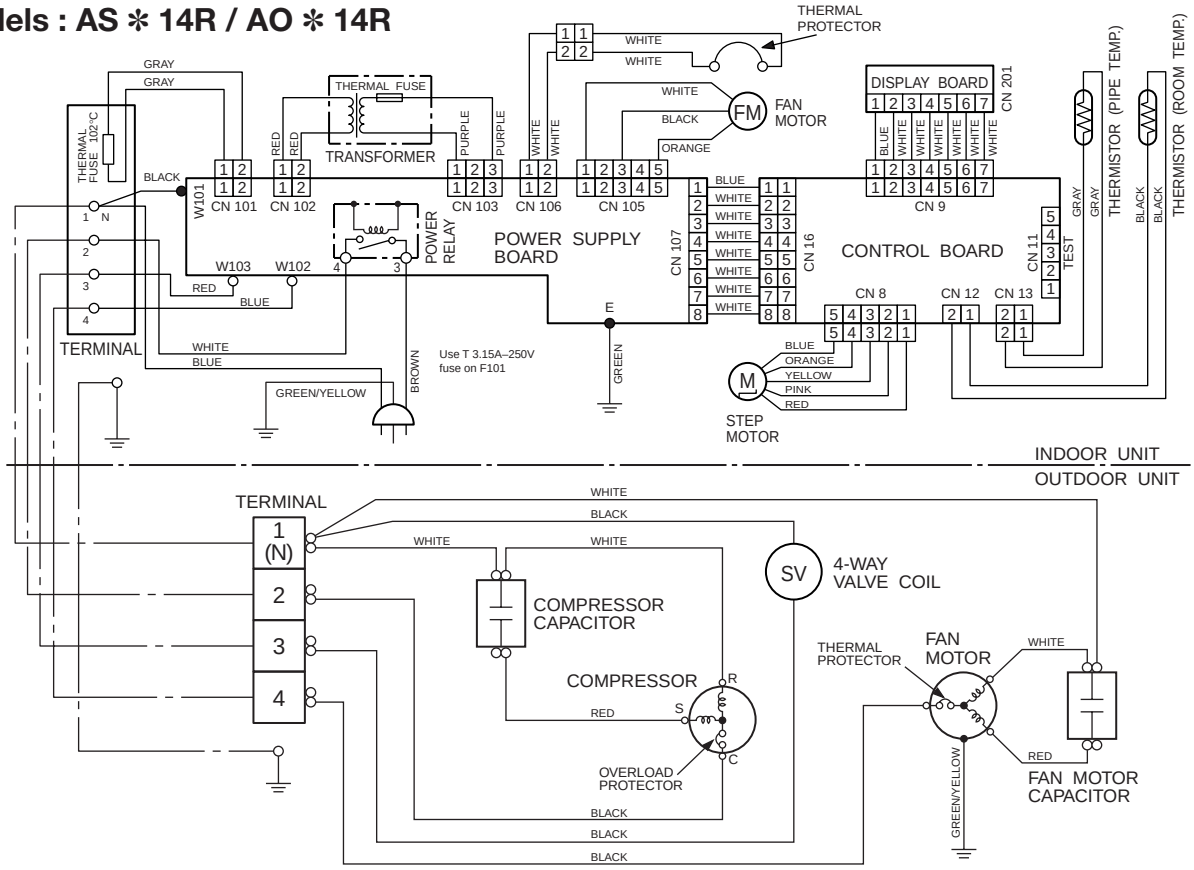
Models : AS ✻ 14R / AO ✻ 14R



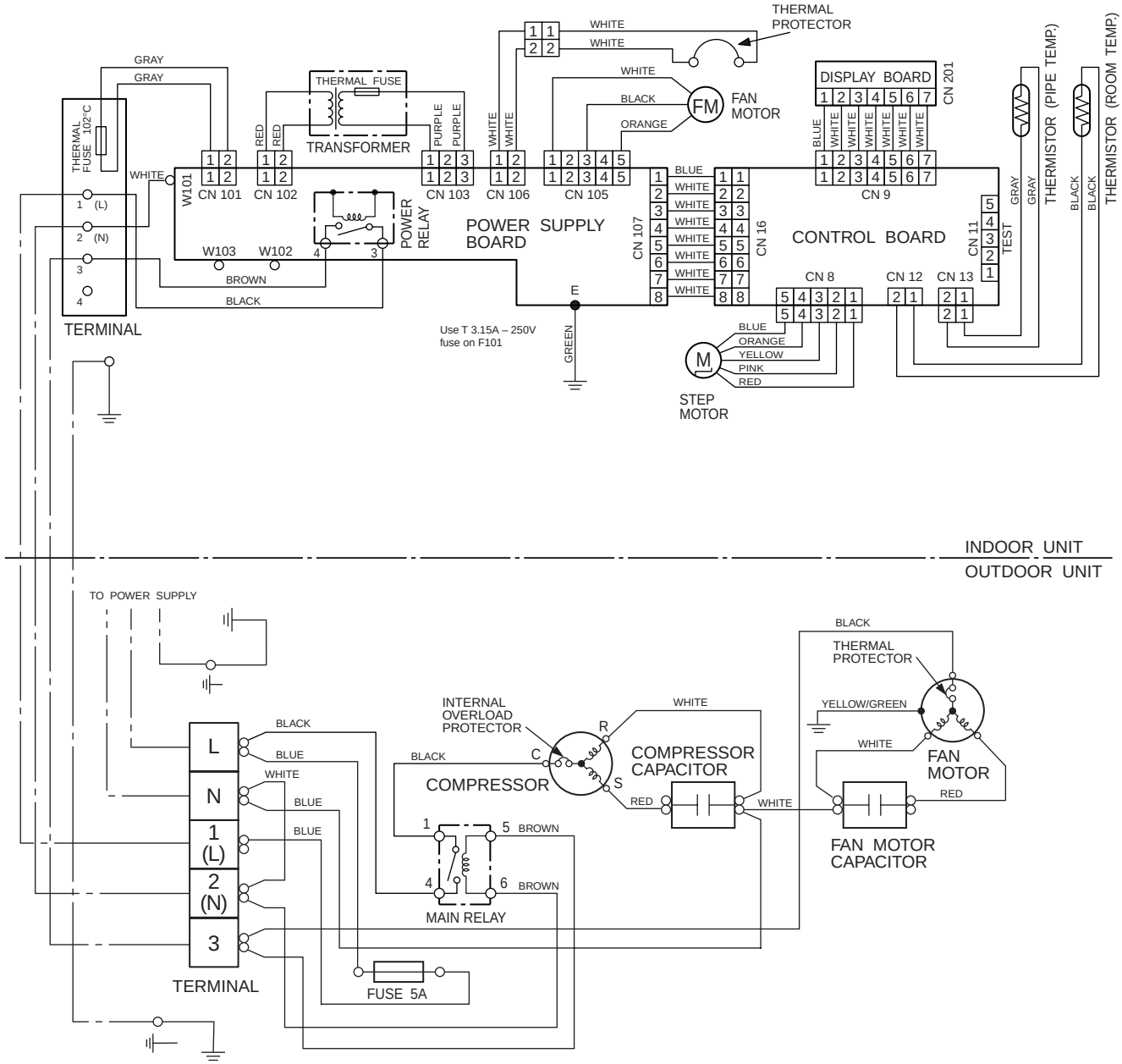
Models : AS ✻ 14A / AO ✻ 14A



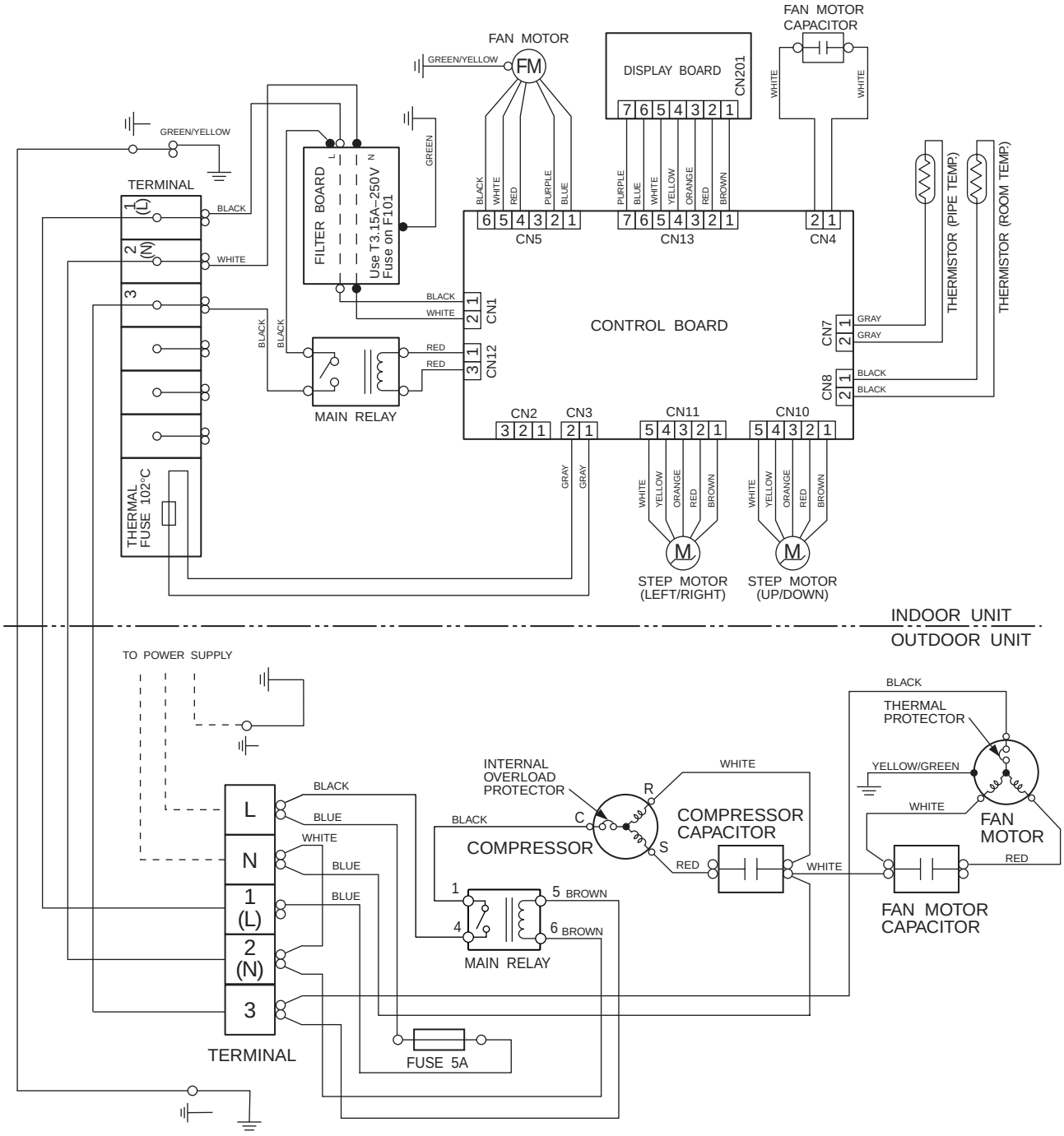
Models : AS ✻ 14R / AO ✻ 14R



Models : AS ✻ 17A / AO ✻ 17AN

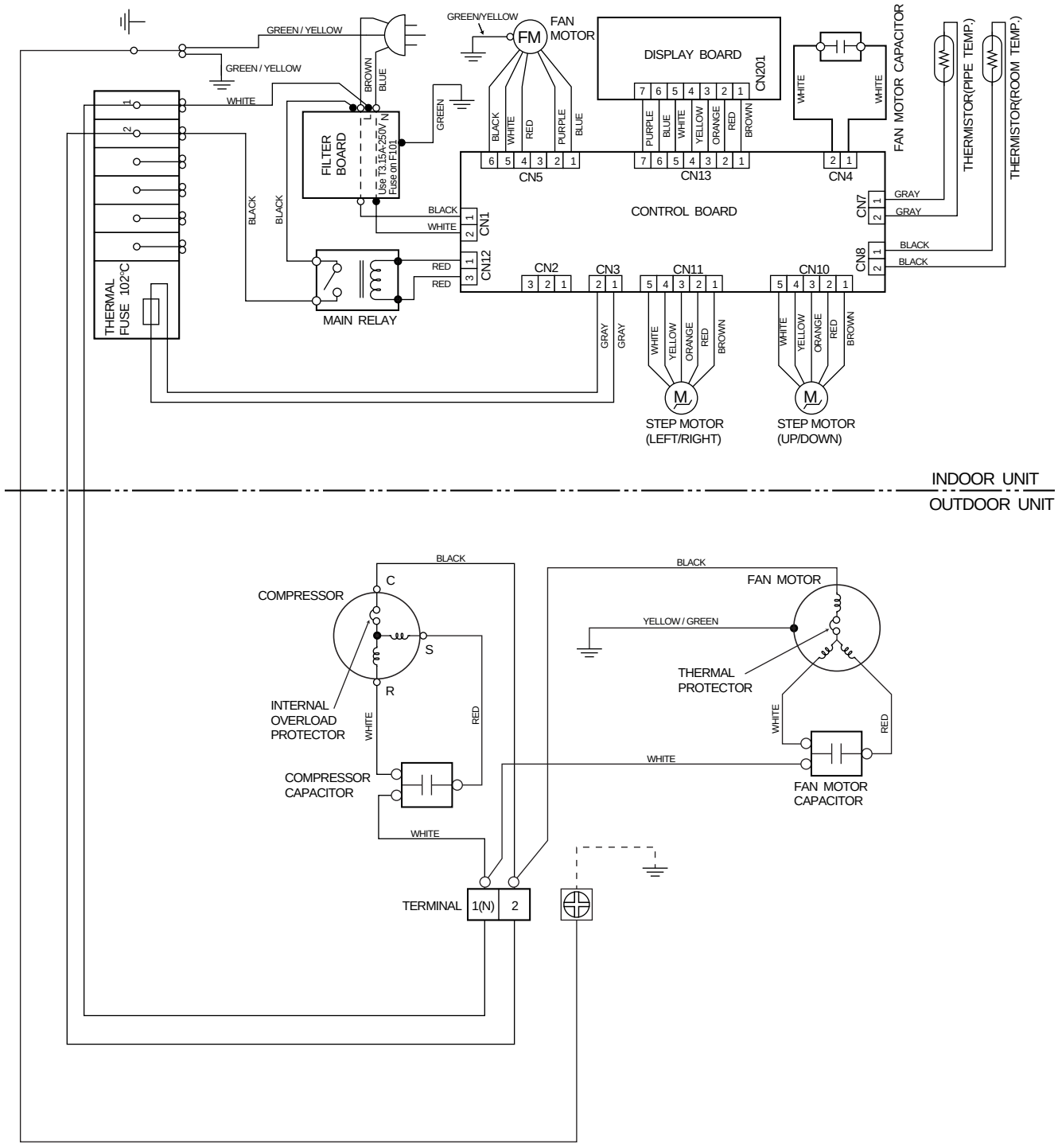


Models : AS ✻ 20A / AO ✻ 20AN
AS ✻ 24A / AO ✻ 24AN

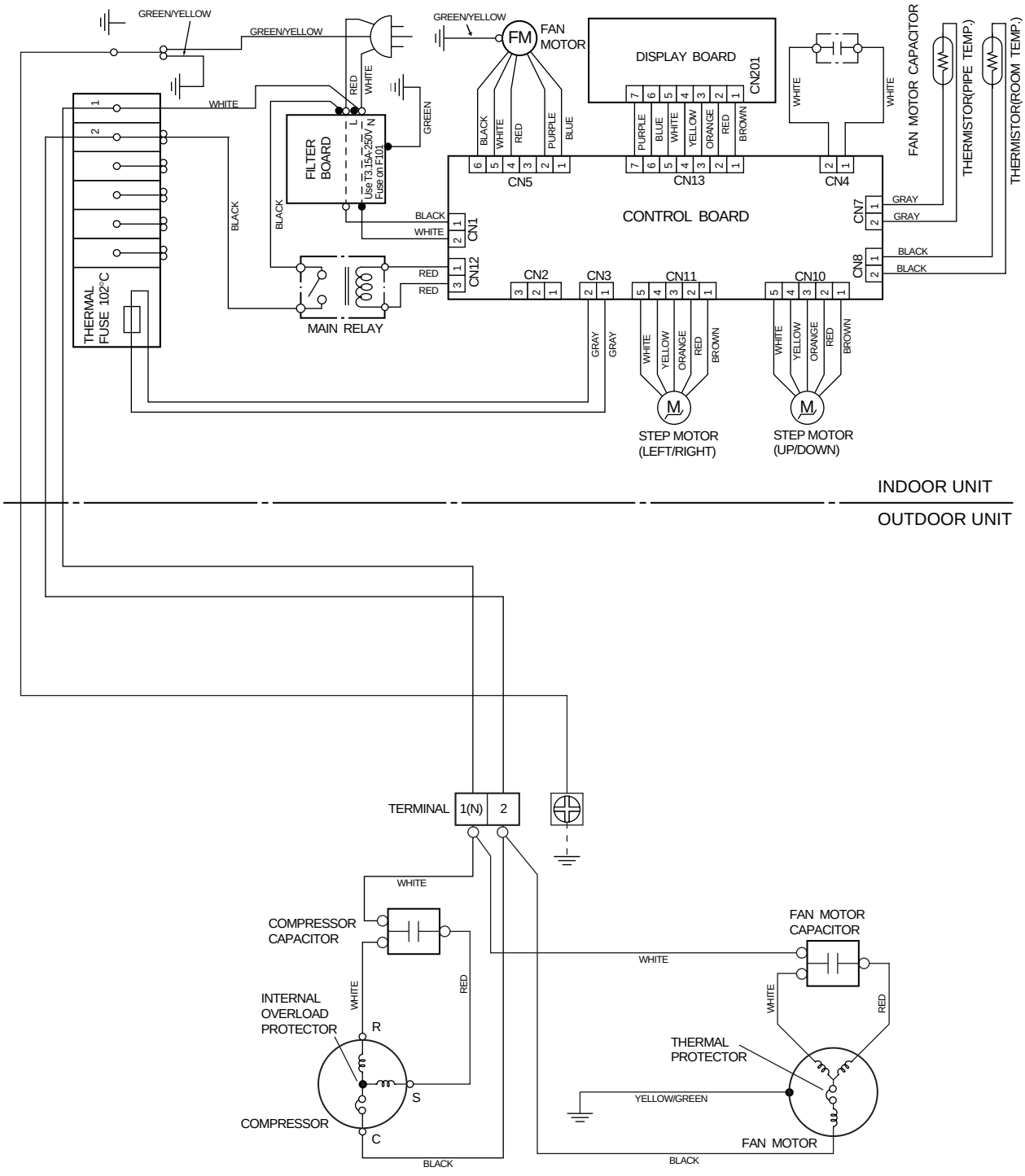


5.2.4 WALL MOUNTED LARGE TYPE

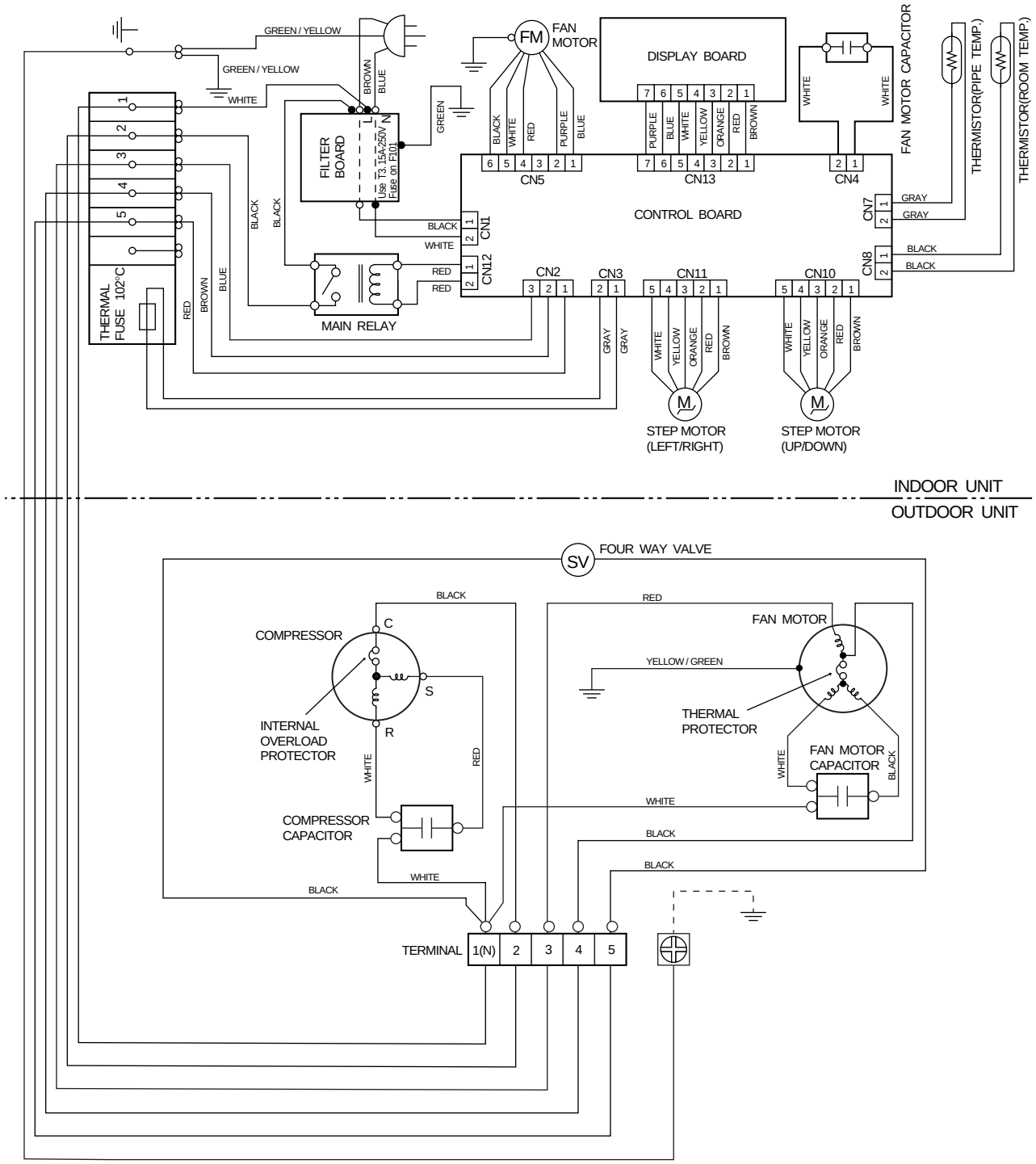
Models : AS ✻ 20A / AO ✻ 20AZ (except ASC-502B / AOC-502B and ASC-602B / AOC-602B)
AS ✻ 24A / AO ✻ 24AB



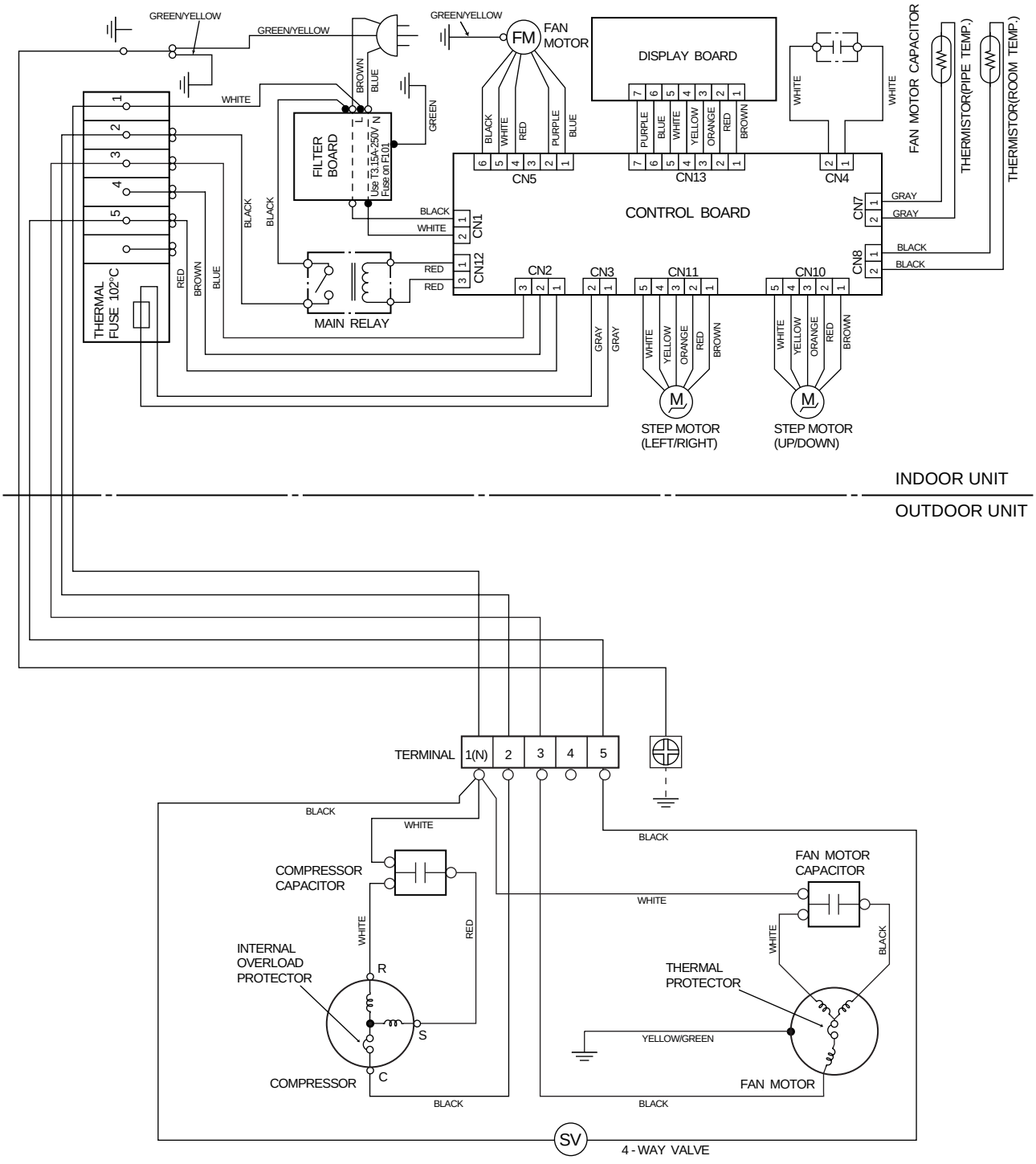
Models : ASC-502B / AOC-502B
ASC-602B / AOC-602B



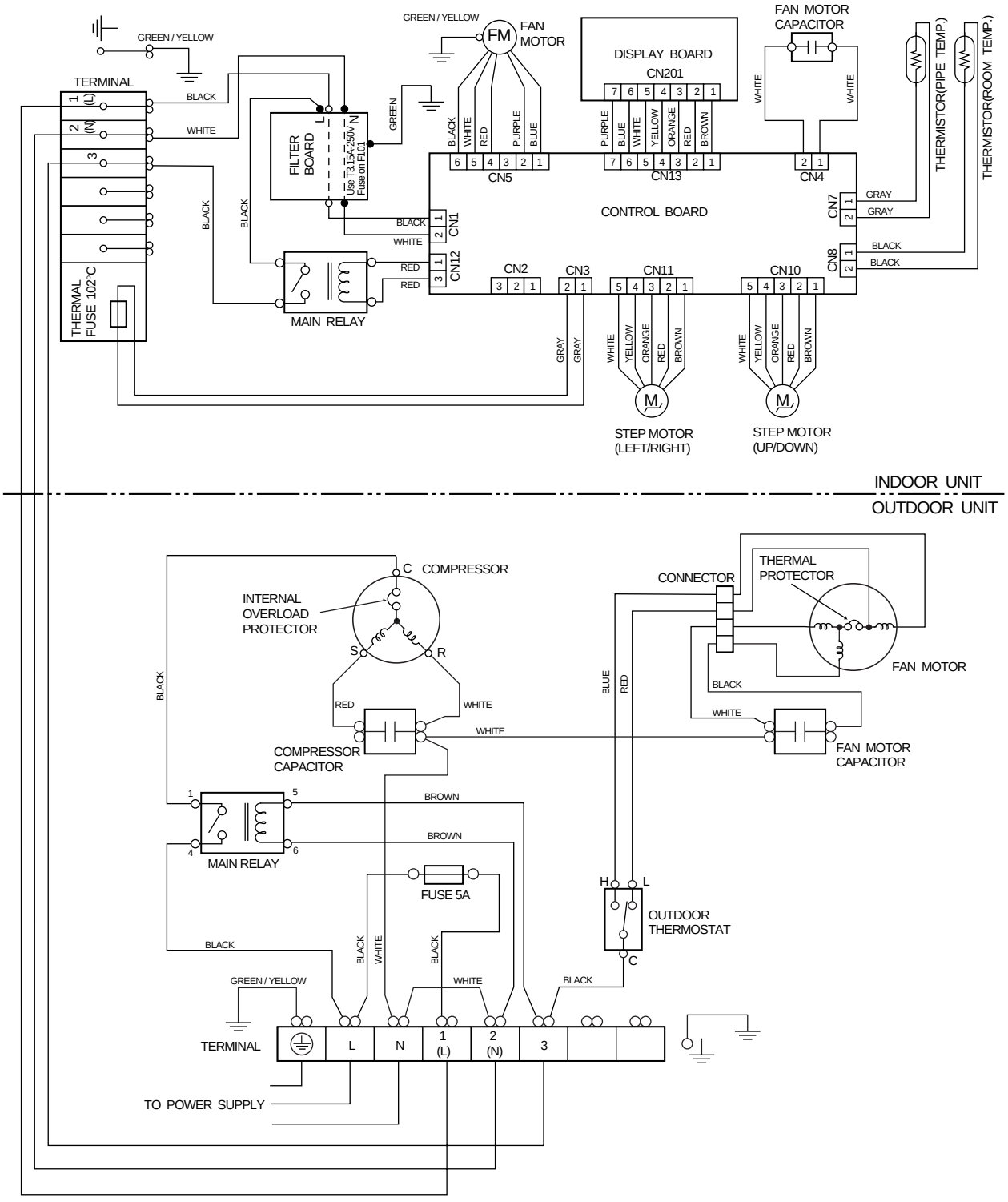
Models : AS ✻ 20R / AO ✻ 20R
AS ✻ 24R / AO ✻ 24R (except “ASB” model)



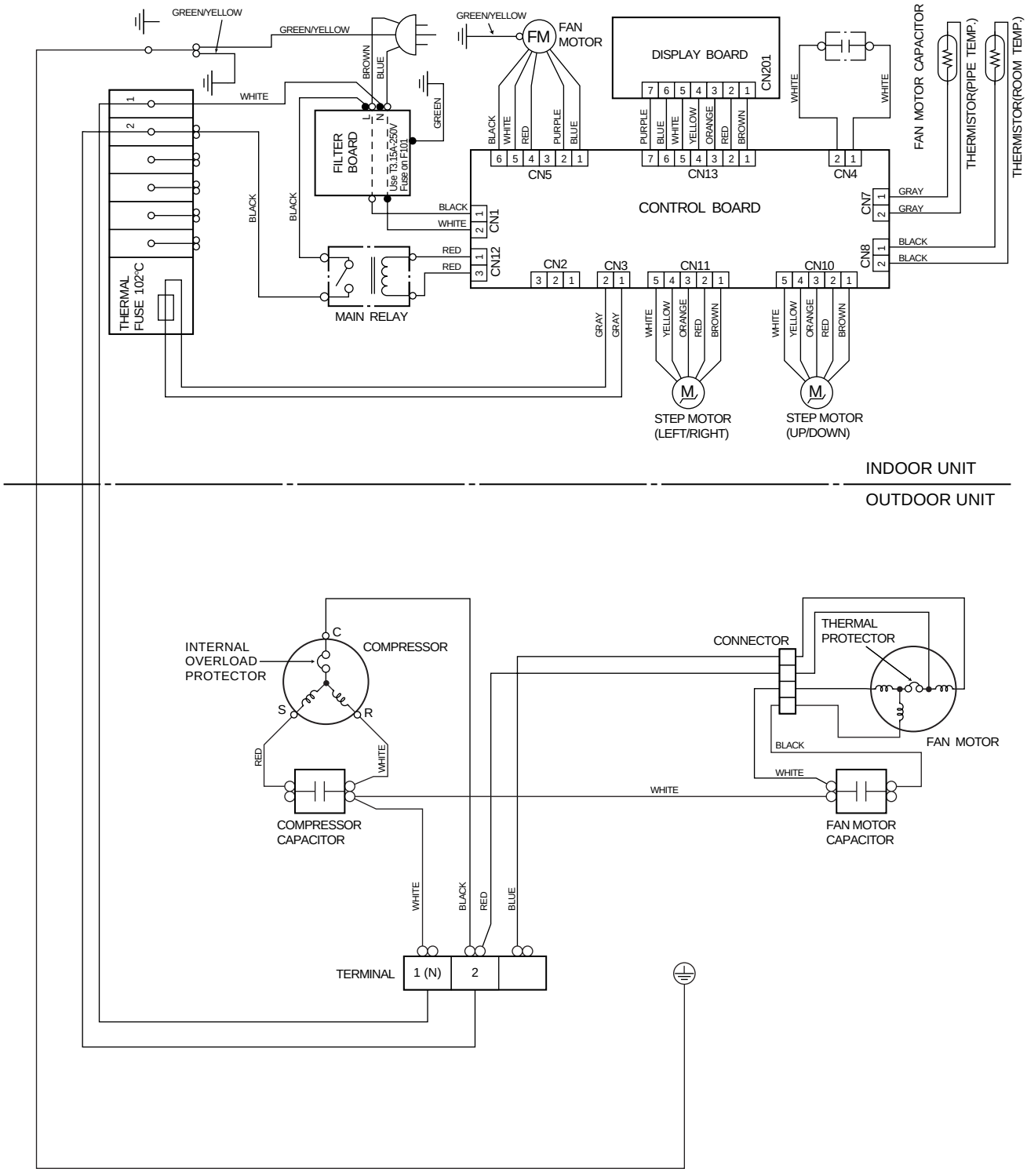
Models : ASB24R / AOB24R



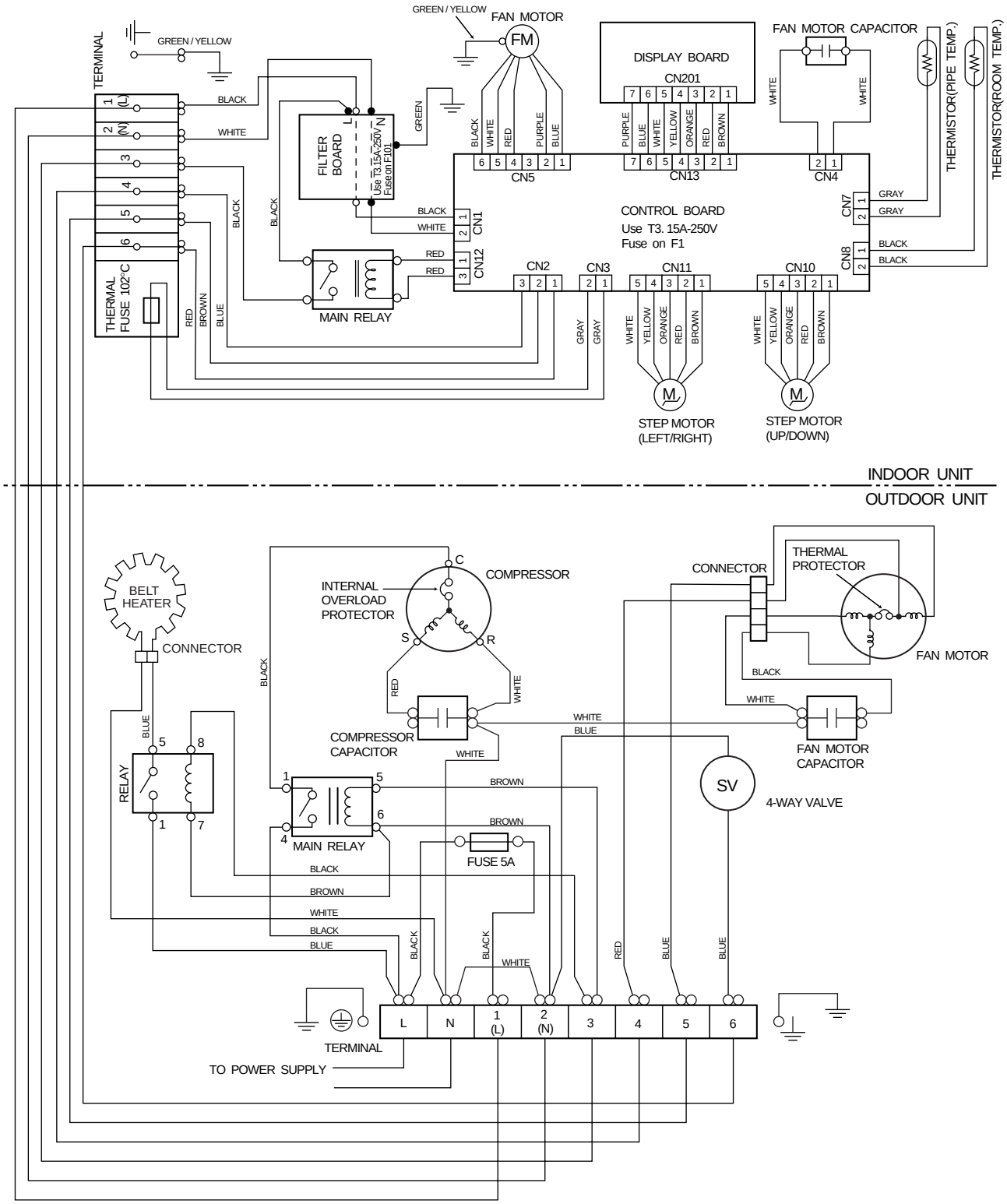
Models : AS ✻ 30A / AO ✻ 30A (except "ASB" model)



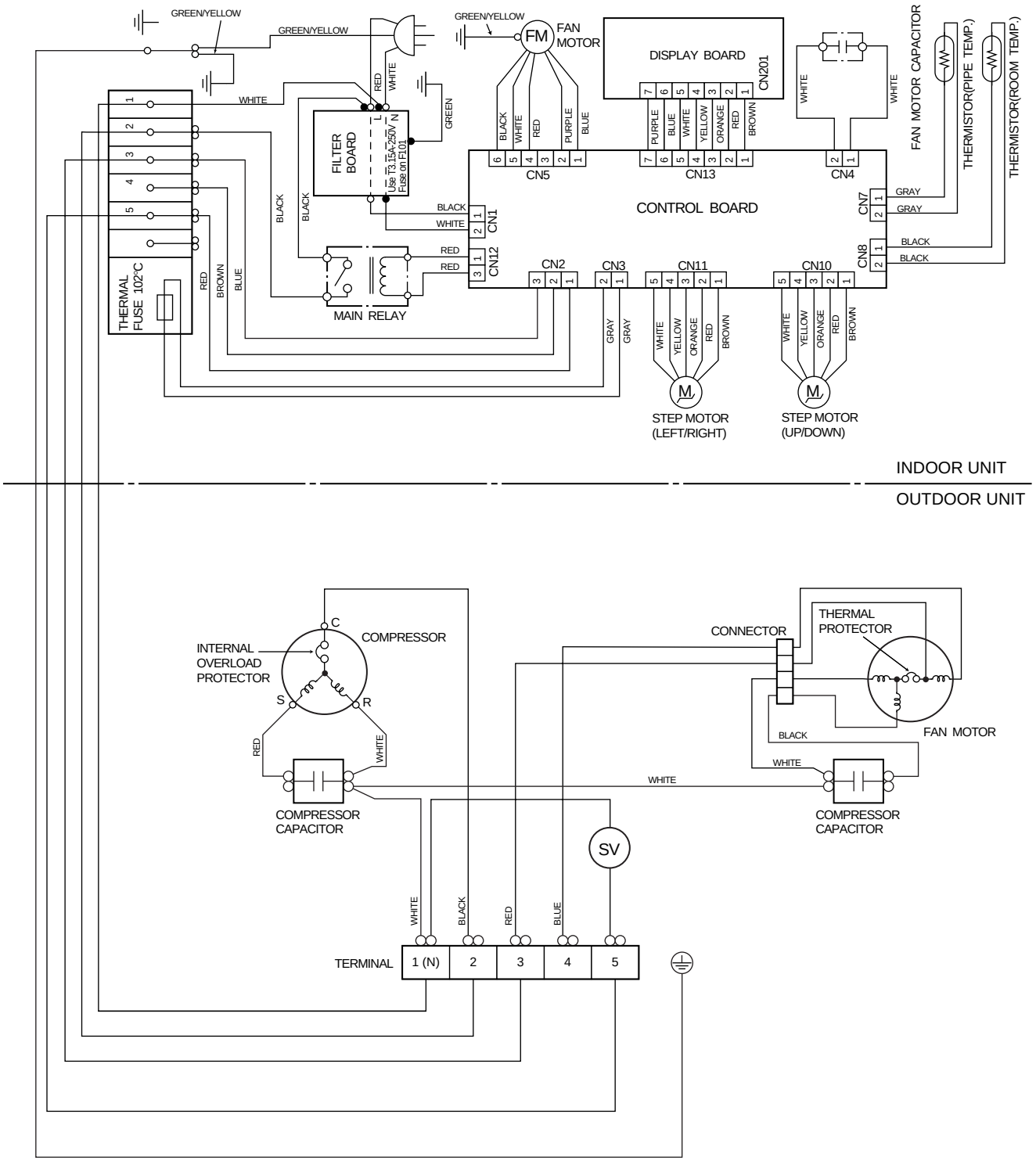
Models : ASB30A / AOB30A



Models : AS ✻ 30R / AO ✻ 30R (except "ASB" model)

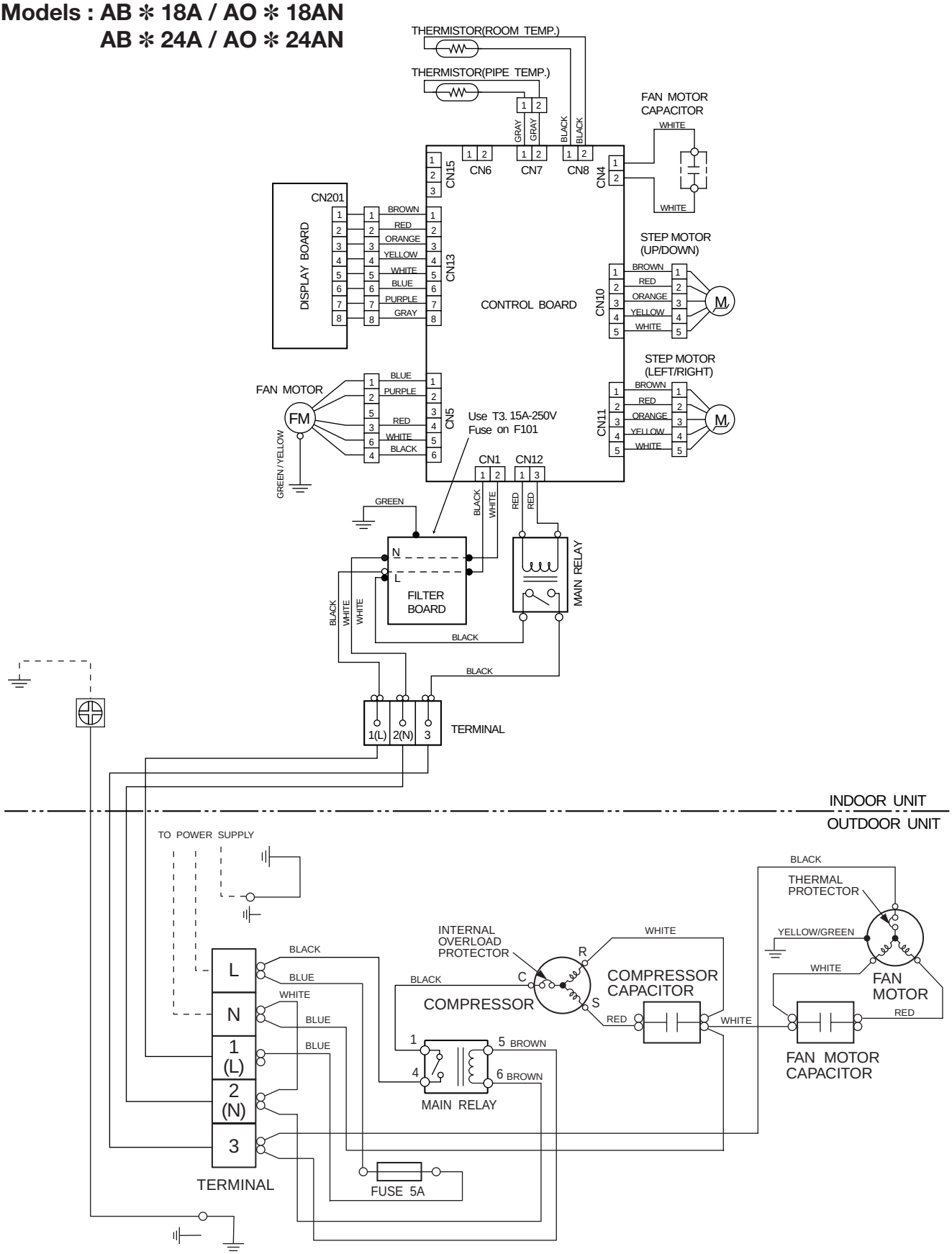


Models : ASB30R / AOB30R

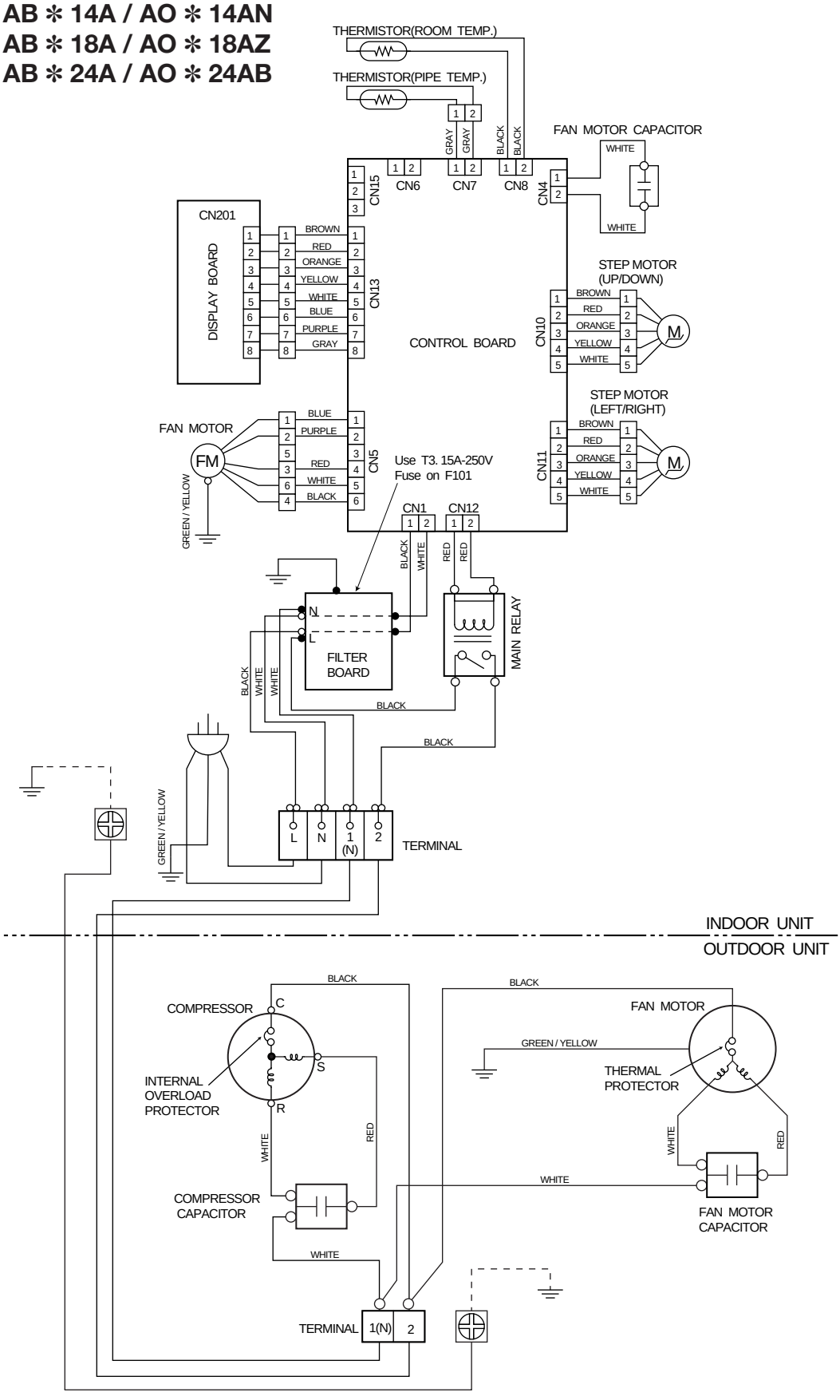


5.2.5 FLOOR / CEILING UNIVERSAL TYPE

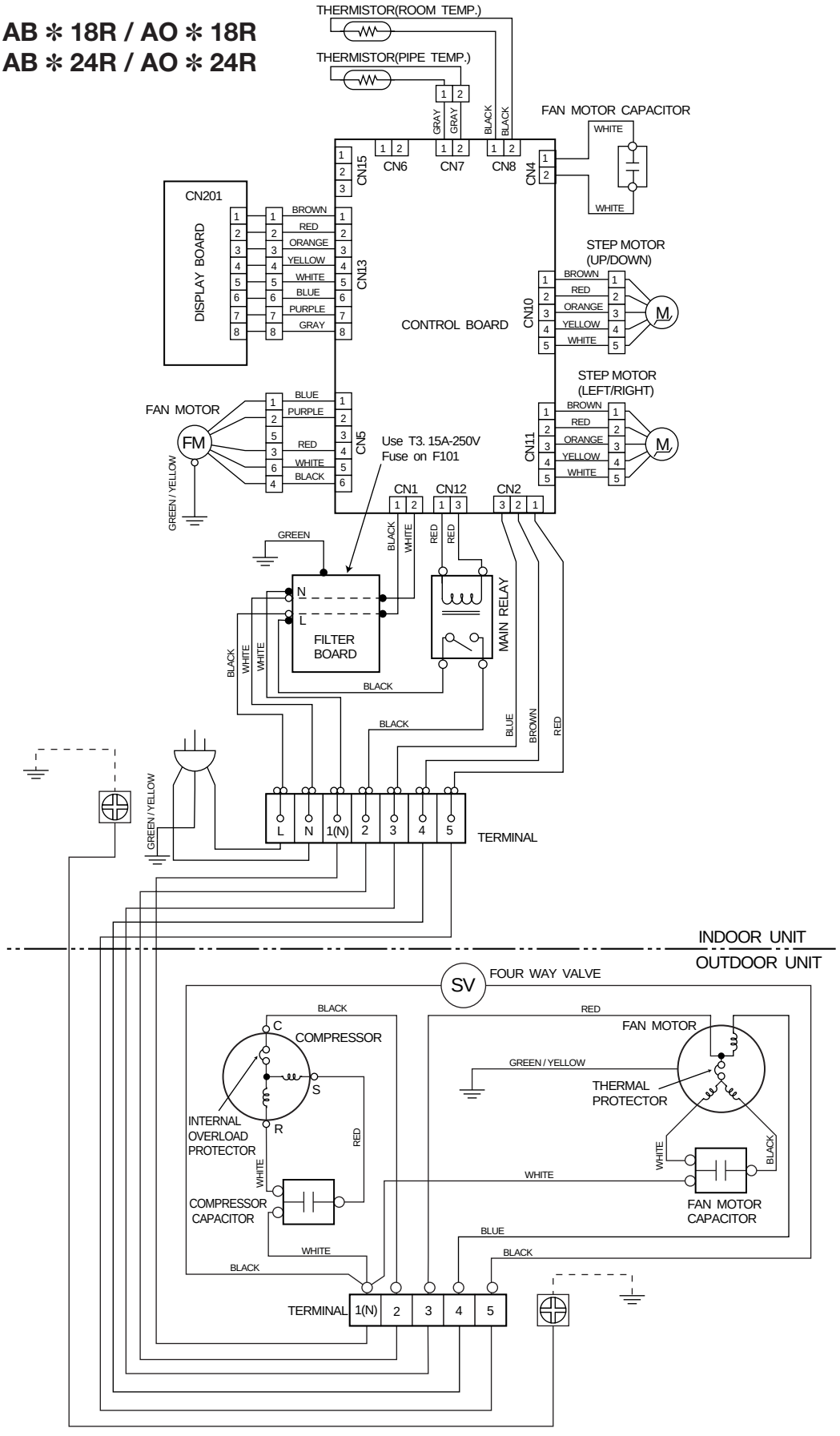
Models : AB ✻ 18A / AO ✻ 18AN
AB ✻ 24A / AO ✻ 24AN



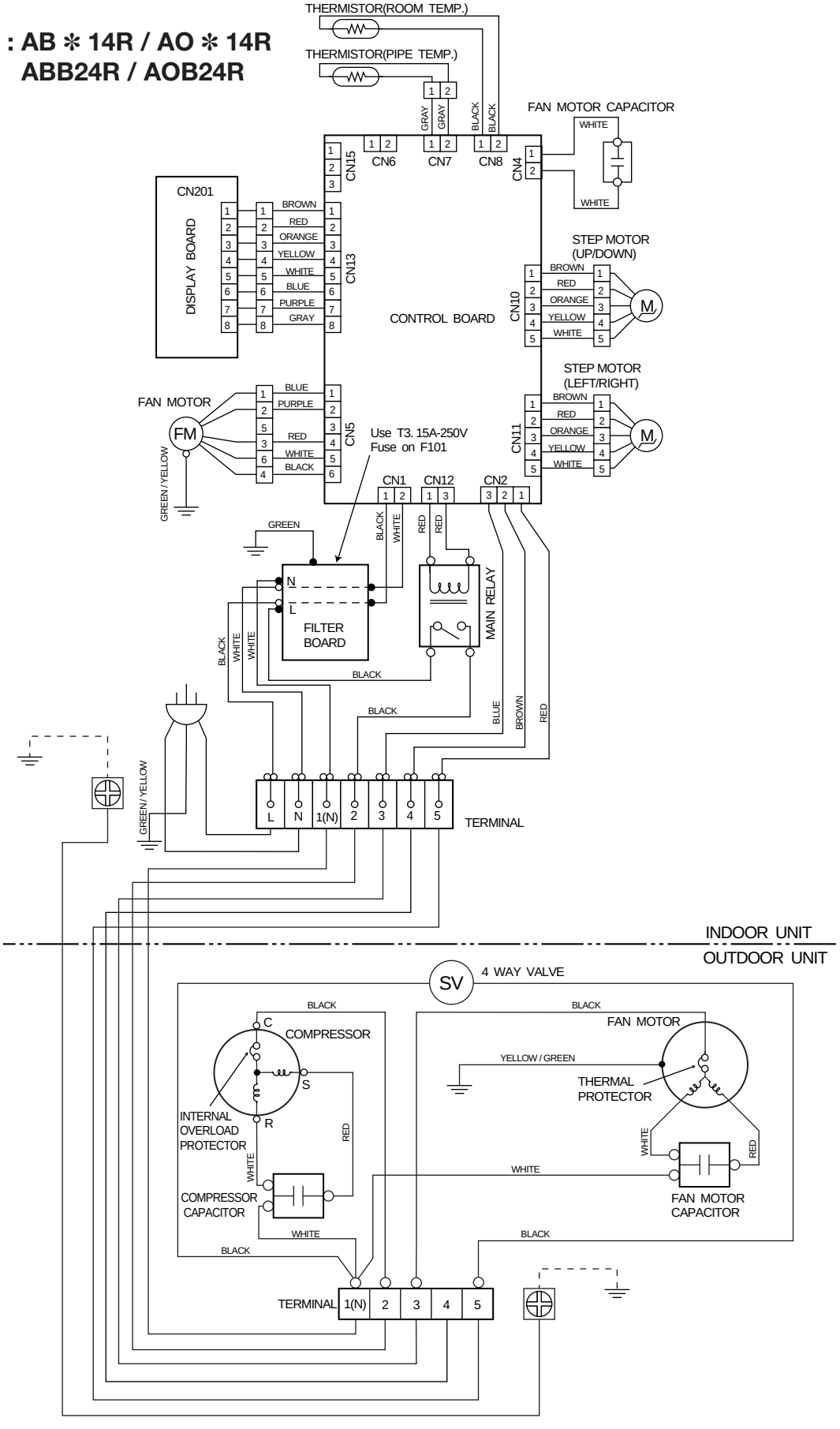
Models : AB ✻ 14A / AO ✻ 14AN
AB ✻ 18A / AO ✻ 18AZ
AB ✻ 24A / AO ✻ 24AB



Models : AB ✻ 18R / AO ✻ 18R
AB ✻ 24R / AO ✻ 24R



Models : AB ✻ 14R / AO ✻ 14R
ABB24R / AOB24R



5.3 CONTROLLER CIRCUIT DIAGRAM EZ NUMBER LIST

MODEL	CONTROL BOX ASSY	P. C. BOARD ASSY	CONTROLLER PCB CIRCUIT DIAGRAM
COMPACT SII TYPE AS □ - SERIES			
ASY 7A	EZ-096KWSE	EZ-096KWSE-C	A-ASY7ASC-06
ASY 7R	EZ-096JHSE	EZ-096JHSE-C	A-ASY7RSC-07

MODEL	CONTROL BOX ASSY	P. C. BOARD ASSY	CONTROLLER PCB CIRCUIT DIAGRAM
COMPACT MII TYPE AS □ - SERIES			
ASY 9A **AST 9A** **ASQ 9A**	EZ-09502WSE EZ-09509WSE EZ-09502WSE or EZ-096NWSE or EZ-0977WSE	EZ-095FWSE-C	A-EZ-095FWSE-12 A-EZ-095FWSE-12 A-EZ-095FWSE-12 A-ASP9ASB-08 A-ASP9ASC-W-04
ASY 12A **AST 12A**	EZ-09505WSE EZ-09505WSE or EZ-096PWSE or EZ-0978WSE	EZ-09504WSE-C	A-ASG12ASE-W-09 A-ASG12ASE-W-09 A-ASP9ASB-08 A-ASP9ASC-W-04
ASY 9R **AST 9R** **ASQ 9A**	EZ-0950HHSE EZ-0950JHSE EZ-0950HHSE or EZ-096MHSE or EZ-0978HSE	EZ-095HHSE-C	A-EZ-095FWSE-12 A-EZ-095FWSE-12 A-EZ-095FWSE-12 A-ASP9RSB-W-10 A-ASP9RSC-W-05
ASY 12R **AST 12R**	EZ-0950LHSE EZ-0950MHSE EZ-0950LHSE EZ-096NHSE or EZ-0979HSE	EZ-0950LHSE-C	A-ASG12ASE-W-09 A-ASG12ASE-W-09 A-ASG12ASE-W-09 A-ASP9RSB-W-10 A-ASP9RSC-W-05

MODEL	CONTROL BOX ASSY	P. C. BOARD ASSY	CONTROLLER PCB CIRCUIT DIAGRAM
LI TYPE AS□ - SERIES			
ASY 14ASE	EZ-096EWSE	EZ-095GWSE-C	A-EZ-096BWSE
ASY 14ASF **AST 14ASH**	EZ-0982WSE EZ-0984WSE	EZ-09707WSE-C	A-ASY17ASF-W-07 A-ASY17ASF-W-07
ASY 14RSE	EZ-096AHSE	EZ-095RHSE-C	A-EZ-0966HSE
ASY 14RSF	EZ-0981HSE	EZ-0981HSE-C	A-EZ-09705HSE
AST 14RSH	EZ-0982HSE	EZ-0982HSE-C	A-EZ-09705HSE
ASY 17ASK	EZ-09908WSE	EZ-09707WSE-C	A-EZ-09908WSE
ASY 17ASF **AST 17ASF** **AST 17ASK**	EZ-09707WSE EZ-098PWSE EZ-0008WSE		A-ASY17ASF-W-07 A-ASY17ASF-W-07 A-EZ-0008WSE
ASB 17ASF	EZ-0981WSE		A-ASY17ASF-W-07
ASY 17ASE	EZ-096BWSE	EZ-095GWSE-C	A-EZ-096BWSE
ASY 17ASH **ASY 17ASL**	EZ-099PWSE		A-EZ-099PWSE
ASY 17RSB **ASY 17RSH**	EZ-0966HSE	EZ-0960HSE-C	A-EZ-0966HSE
ASY 17RSF **ASY 17RSK**	EZ-09705HSE	EZ-09705HSE-C	A-EZ-09705HSE
AST 17RSF **AST 17RSK**	EZ-098HSE		A-EZ-09705HSE
ASB 17RSF	EZ-09802HSE	EZ-09802HSE-C	A-EZ-09705HSE

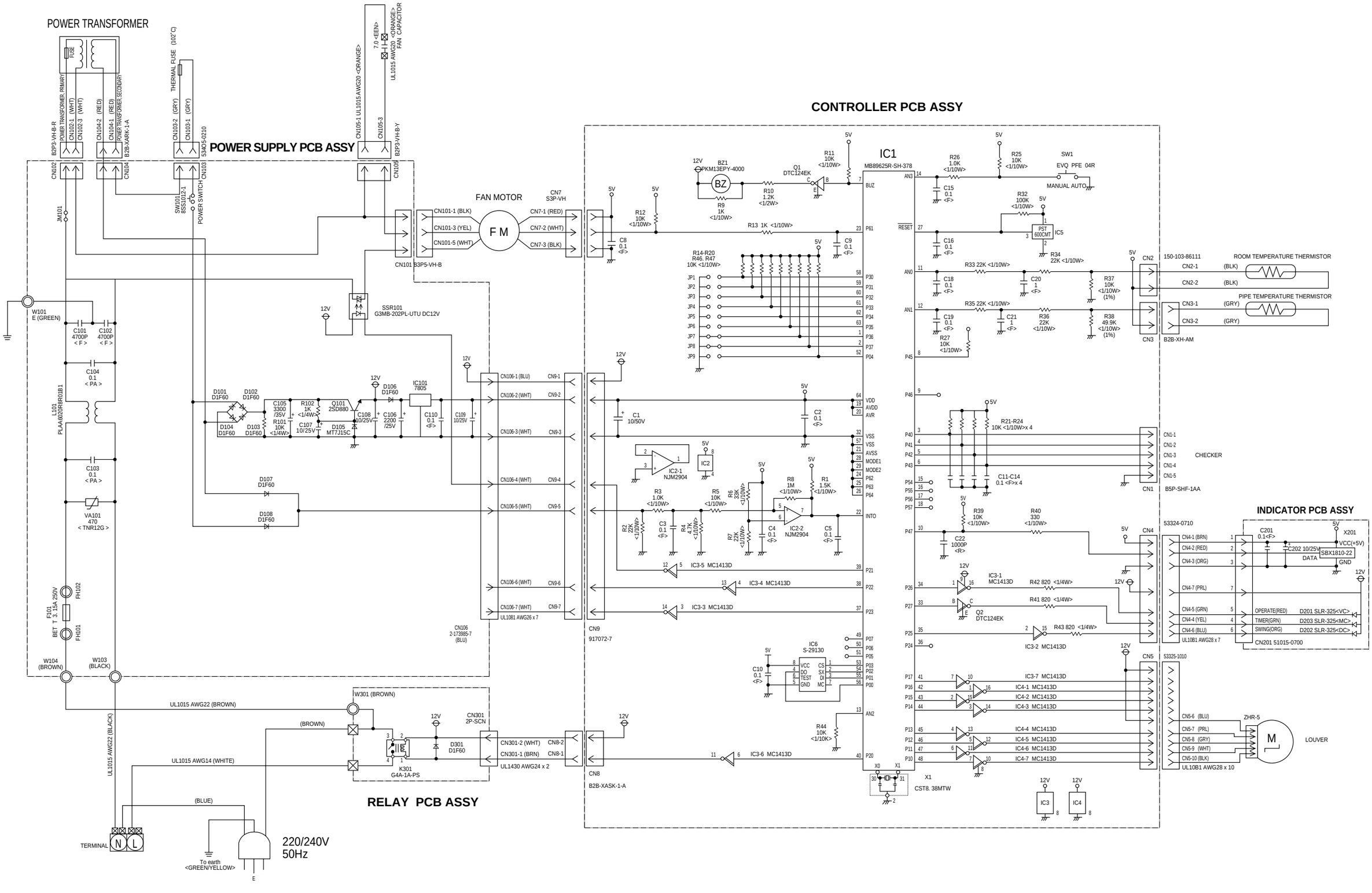
MODEL	CONTROL BOX ASSY	P. C. BOARD ASSY	CONTROLLER PCB CIRCUIT DIAGRAM
AS□-SERIES			
ASY 20/24AS **ASY 20/24AW** **ASY 20/24AGA** **ASY 20/24AGD**	EZ-096JWSE	EZ-0968WSE-F	A-EZ-096JWSE
ASY 20/24AGB **ASY 20/24AGC**	EZ-096HWSE		A-EZ-096HWSE
AST 20/24AGA **AST 20/24AS**	EZ-0968WSE		A-EZ-0968WSE
AST 20AGB **AST 24AGC**	EZ-096HWSE		A-EZ-096HWSE
ASY/T 30A	EZ-096HWSE		A-EZ-096HWSE
ASB 20/24A	EZ-096SWSE		A-EZ-096SWSE
ASB 30A	EZ-096LWSE		A-EZ-096LWSE
ASC-502B/ASC-602B	EZ-0974WSE		A-EZ-0974WSE
ASY 20R	EZ-096UHSE	EZ-096RHSE-F	A-EZ-096UHSE
AST 20R	EZ-096THSE		A-EZ-096THSE
ASY 24R	EZ-096FHSE	EZ-0961HSE-F	A-EZ-096FHSE
AST 24RGA/24RS	EZ-0961HSE		A-EZ-0961HSE
AST 24RGB	EZ-096EHSE		A-EZ-096EHSE
ASY/T 30R	EZ-096EHSE		A-EZ-096EHSE
ASB 24R	EZ-096PHSE	EZ-096PHSE-F	A-EZ-096PHSE
ASB 30R	EZ-096LHSE		A-EZ-096LHSE

MODEL	CONTROL BOX ASSY	P. C. BOARD ASSY	CONTROLLER PCB CIRCUIT DIAGRAM
AB □ -SERIES			
ABY 14AG	EZ-0989WSE	EZ-0985WSE-F	A-EZ-0989WSE
ABY 14AS/AW	EZ-0975WSE		A-EZ-0975WSE
ABY 18AS **ABY 18AW**	EZ-0972WSE		A-EZ-0972WSE
ABY 18AGA	EZ-0987WSE		A-EZ-0987WSE
ABY 18AGB **ABY 18AGC**	EZ-0993WSE		A-EZ-0993WSE
ABY 24AS **ABY 24AW**	EZ-0970WSE		A-EZ-0970WSE
ABY 24AGA	EZ-0986WSE		A-EZ-0986WSE
ABY 24AGB	EZ-0992WSE		A-EZ-0992WSE
ABT 24AS **ABT 24AGA**	EZ-0971WSE		A-EZ-0971WSE
ABT 24AGC	EZ-0992WSE		A-EZ-0992WSE
ABY 14RG	EZ-0986HSE	EZ-0986HSE-F	A-EZ-0986HSE
ABY 14RS/RW	EZ-0975HSE		A-EZ-0975HSE
ABT 14RG/RS	EZ-0977HSE		A-EZ-0977HSE
ABY 18RS/RW	EZ-0972HSE	EZ-0985HSE-F	A-EZ-0972HSE
ABY 18RG	EZ-0988HSE		A-EZ-0988HSE
ABT 18R	EZ-0973HSE		A-EZ-0973HSE
ABY 24RS/RW	EZ-0970HSE		A-EZ-0970HSE
ABY 24RG	EZ-0987HSE		A-EZ-0987HSE
ABT 24RS	EZ-0971HSE		A-EZ-0971HSE
ABT 24RGA	EZ-0971HSE		A-EZ-0971HSE
ABT 24RGC	EZ-0012HSE		A-EZ-0012HSE
ABB 24R	EZ-0974HSE	EZ-0974HSE-F	A-EZ-0974HSE

5.4 CONTROLLER PRINTED CIRCUIT BOARD CIRCUIT DIAGRAM

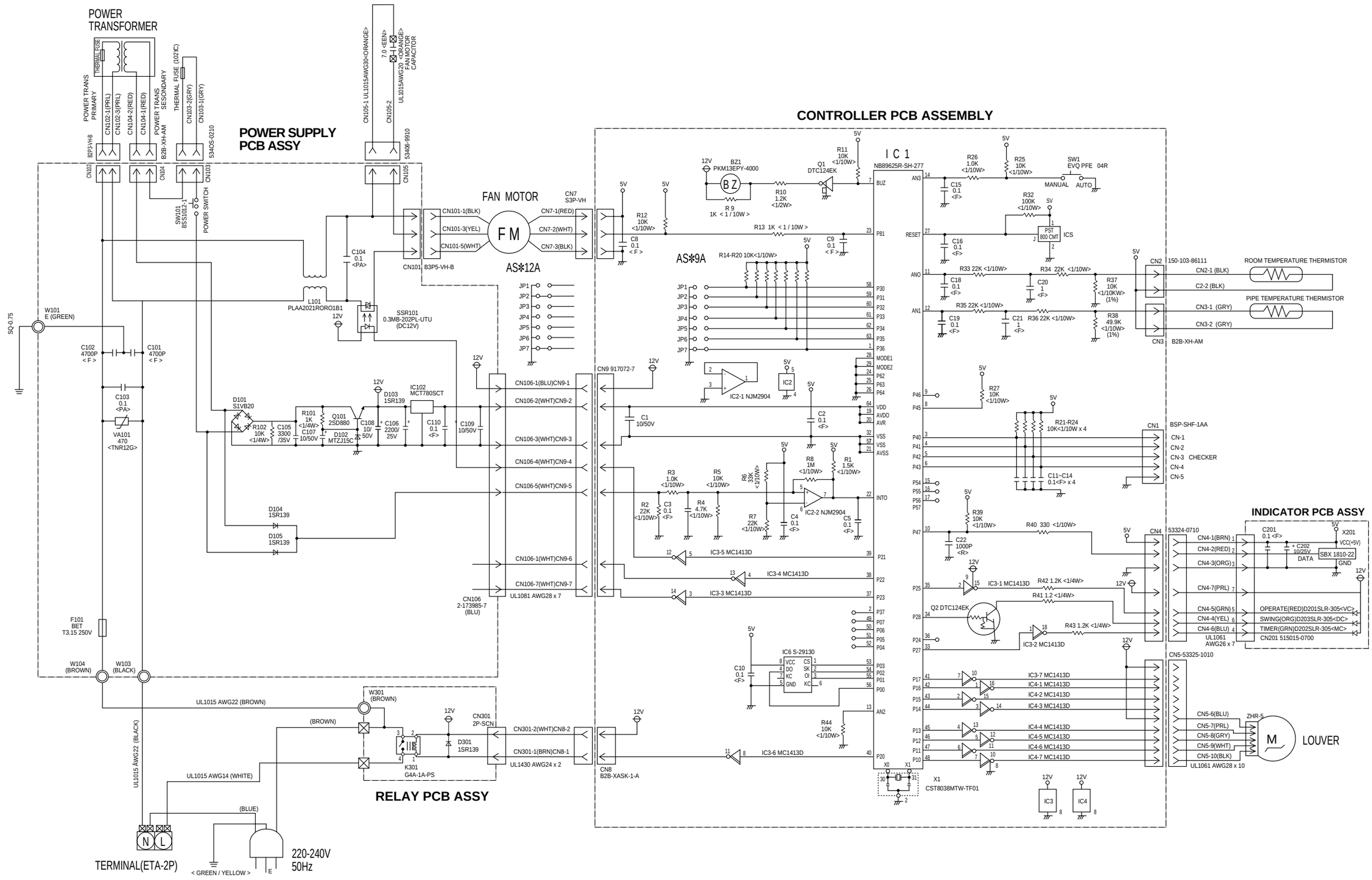
5.4.1 COMPACT SII SERIES

Model : AS ✻ 7A

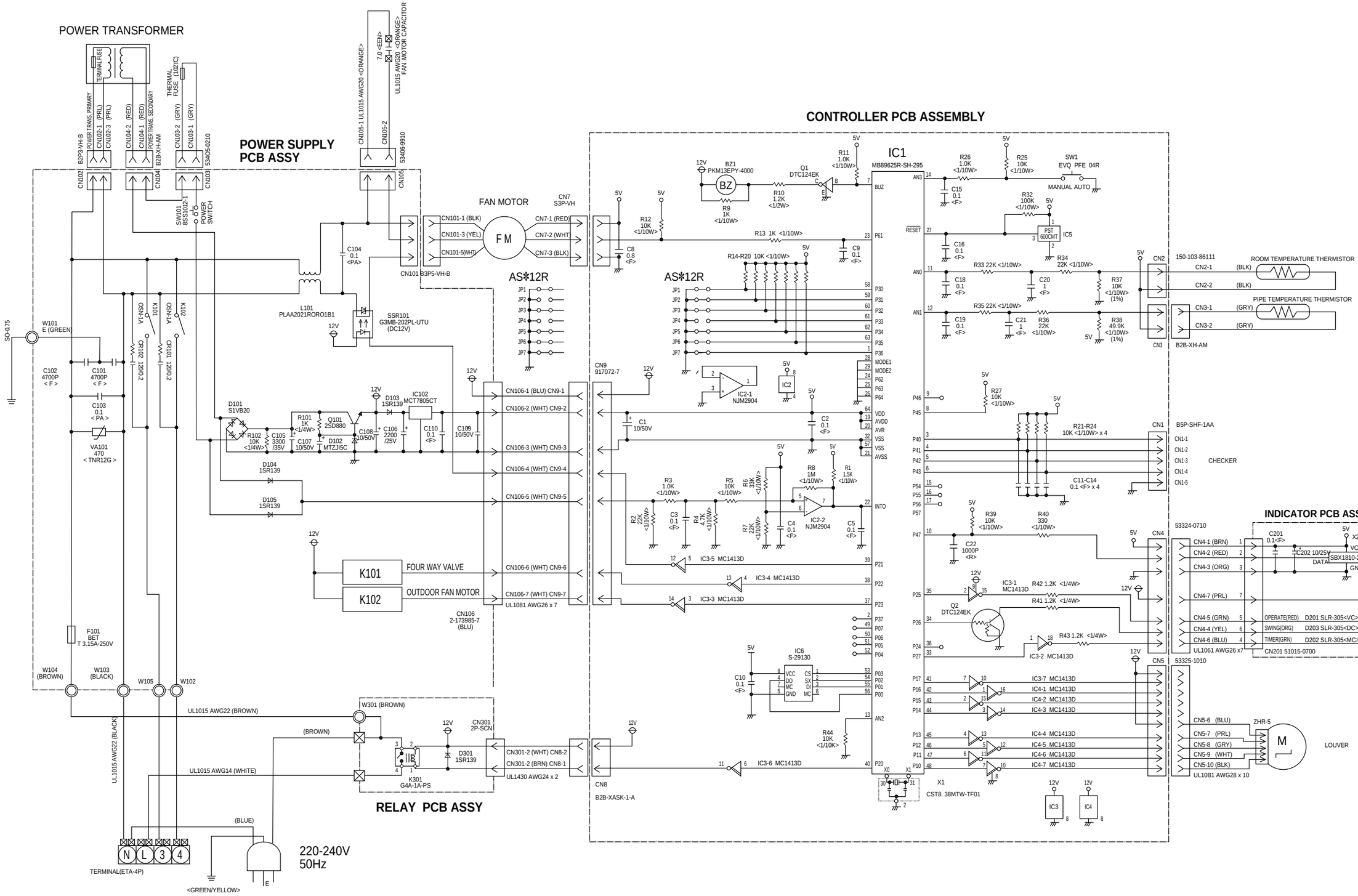


5.4.2 COMPACT MII SERIES

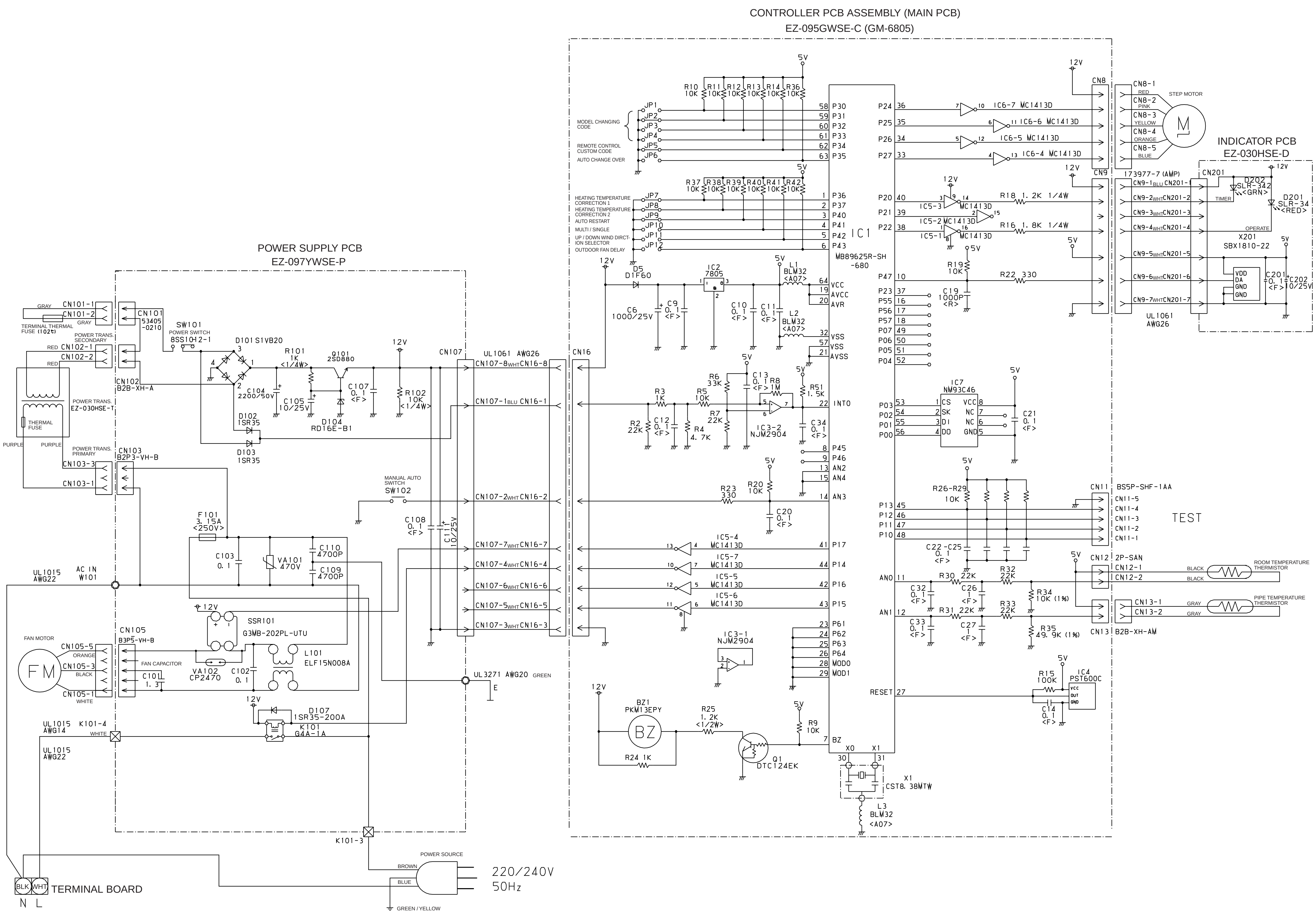
Models : AS ✻ 9A, 12A



Models : AS ✻ 9R, 12R



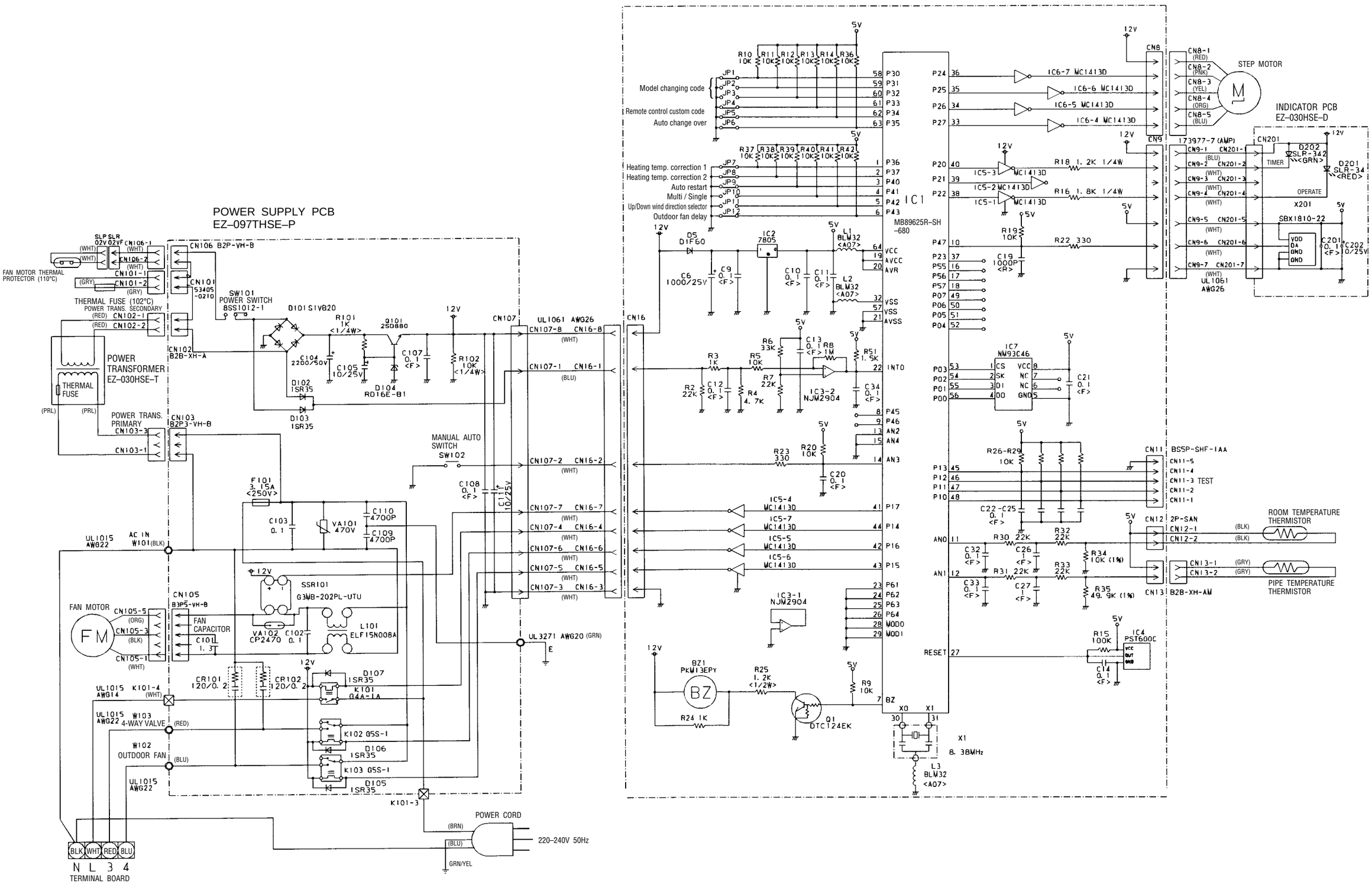
Models : AS ✻ 14A, 17A



Models : AS ✻ 14R, 17R

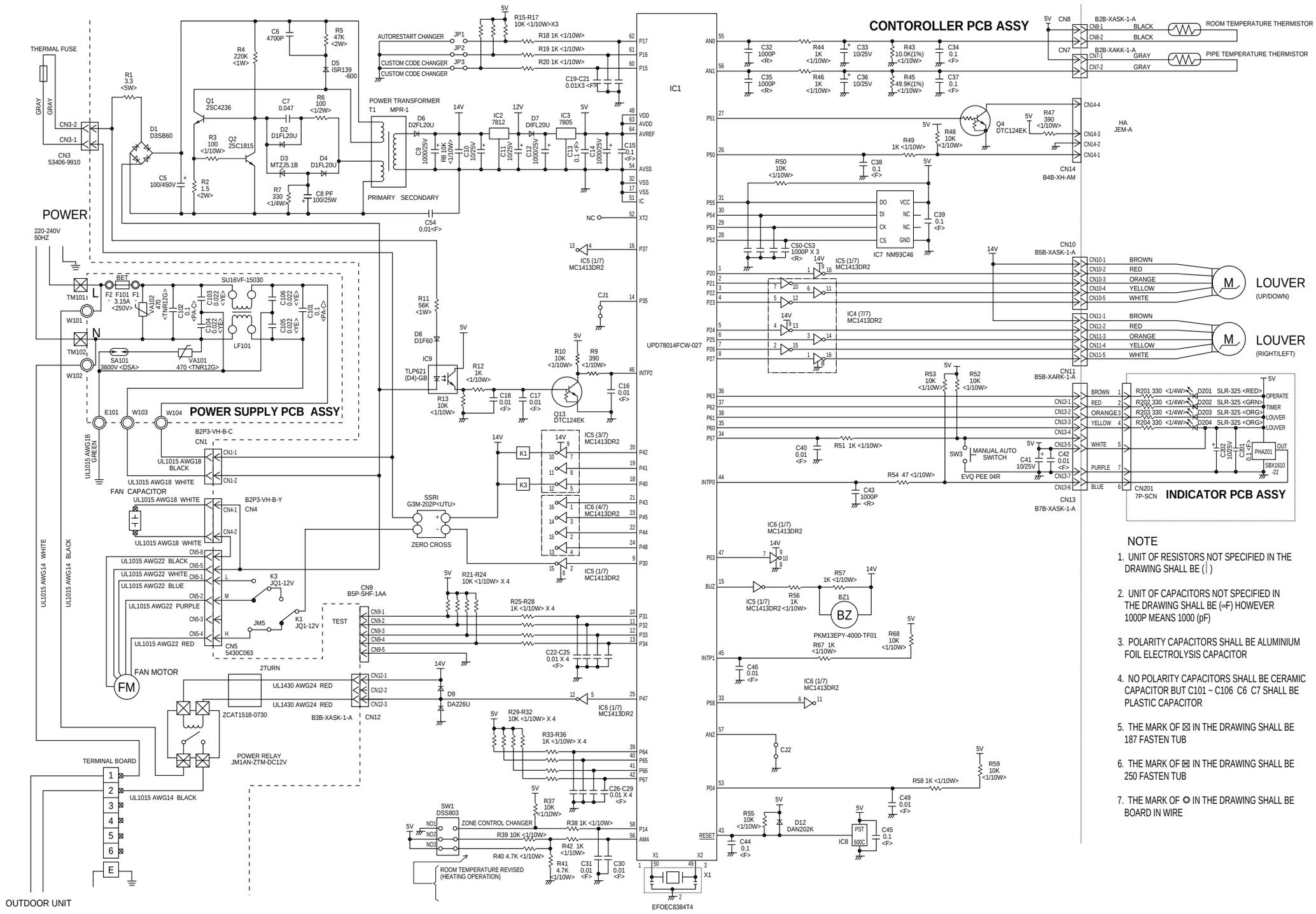
CONTROLLER PCB ASSEMBLY (MAIN PCB)

EZ–0960HSE–C (GM-6844)

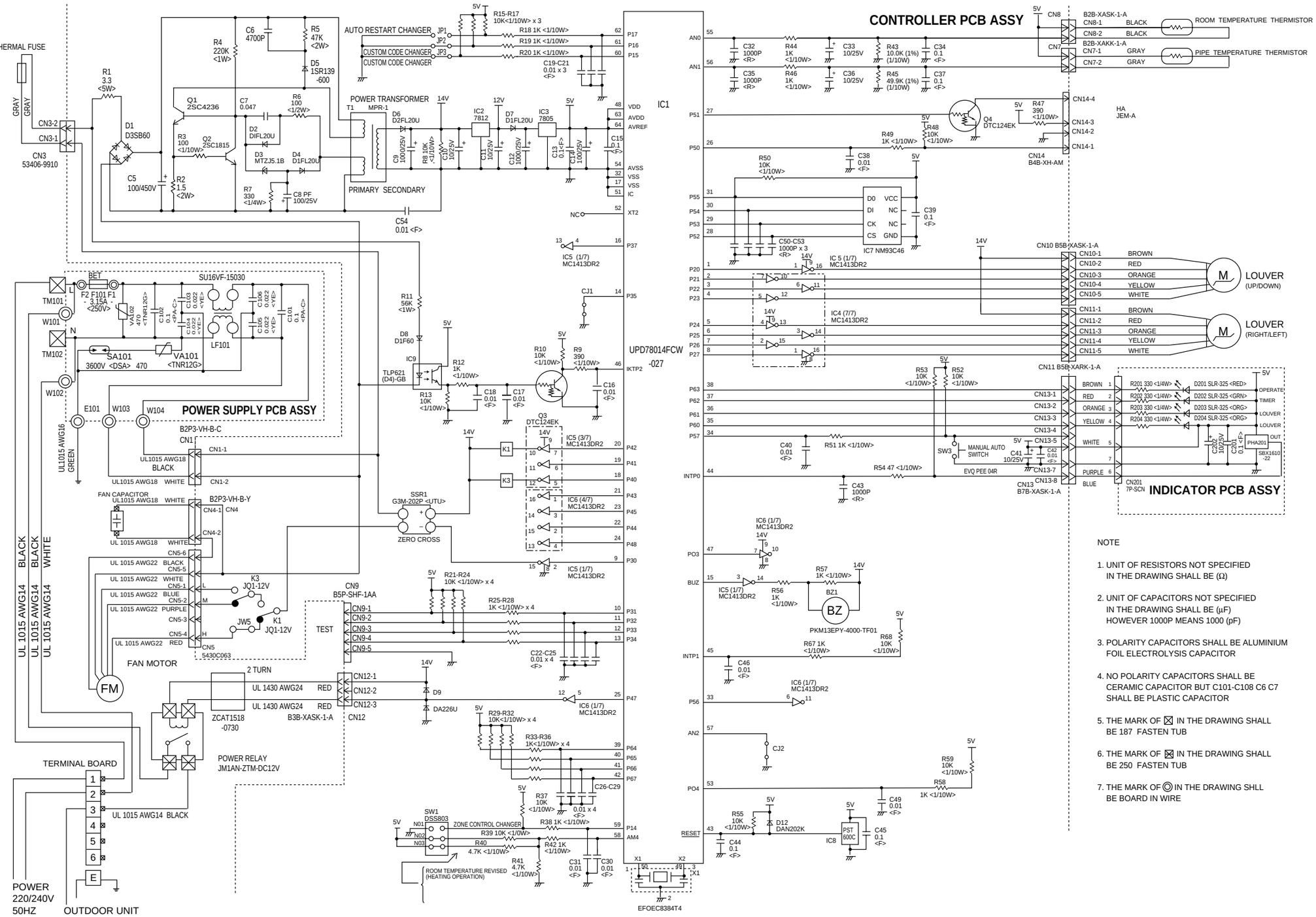


5.4.3 WALL MOUNTED LARGE TYPE

Models : AS ✻ 20A, 24A, ASS30A, ACS-7502, ACS-7602



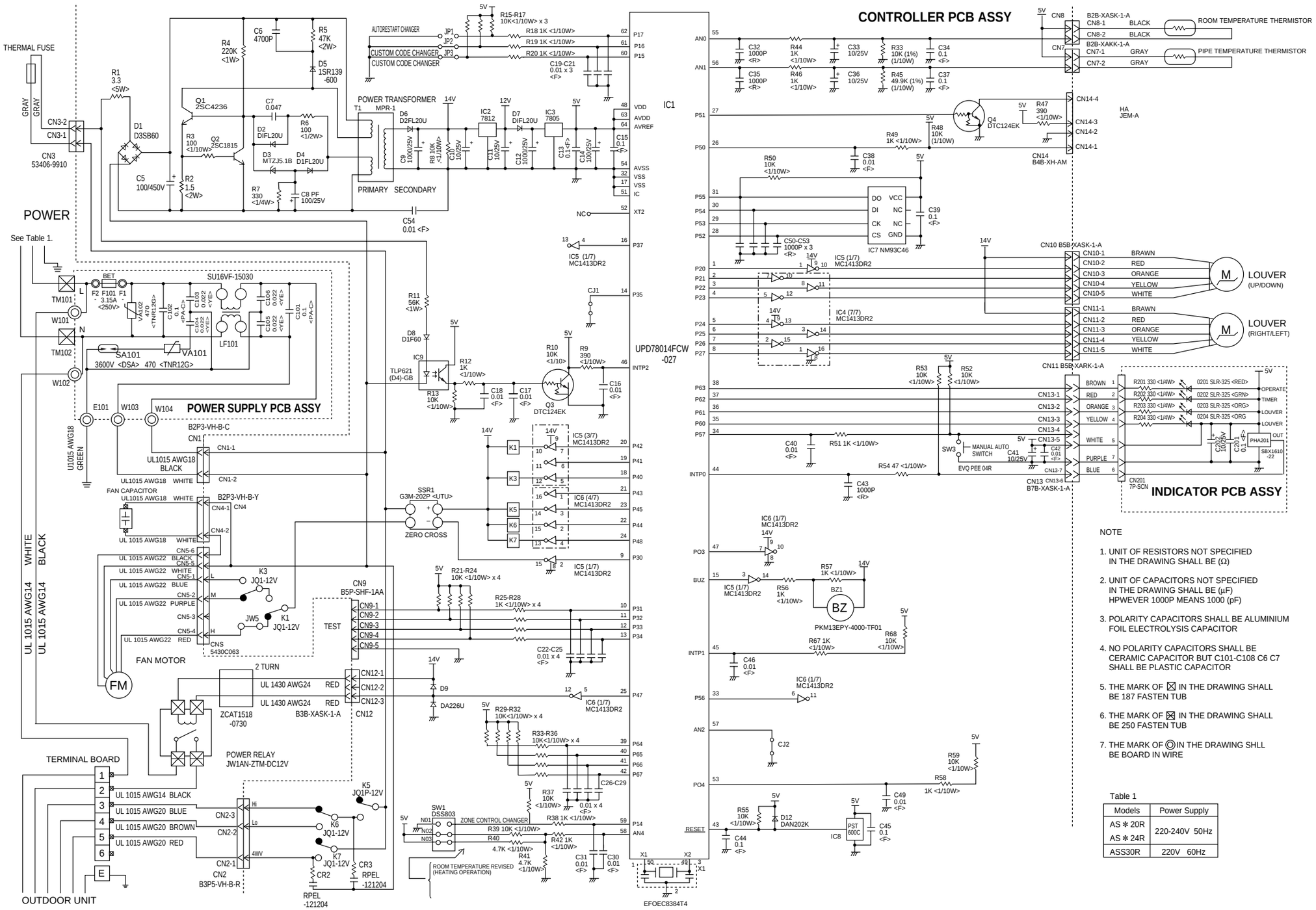
Model : AS * 30A



NOTE

1. UNIT OF RESISTORS NOT SPECIFIED IN THE DRAWING SHALL BE (Ω)
2. UNIT OF CAPACITORS NOT SPECIFIED IN THE DRAWING SHALL BE (μF) HOWEVER 1000P MEANS 1000 (pF)
3. POLARITY CAPACITORS SHALL BE ALUMINIUM FOIL ELECTROLYSIS CAPACITOR
4. NO POLARITY CAPACITORS SHALL BE CERAMIC CAPACITOR BUT C101-C108 C6 C7 SHALL BE PLASTIC CAPACITOR
5. THE MARK OF ☒ IN THE DRAWING SHALL BE 187 FASTEN TUB
6. THE MARK OF ⊠ IN THE DRAWING SHALL BE 250 FASTEN TUB
7. THE MARK OF ◎ IN THE DRAWING SHLL BE BOARD IN WIRE

Models : AS ✻ 20R, 24R, ASB30R



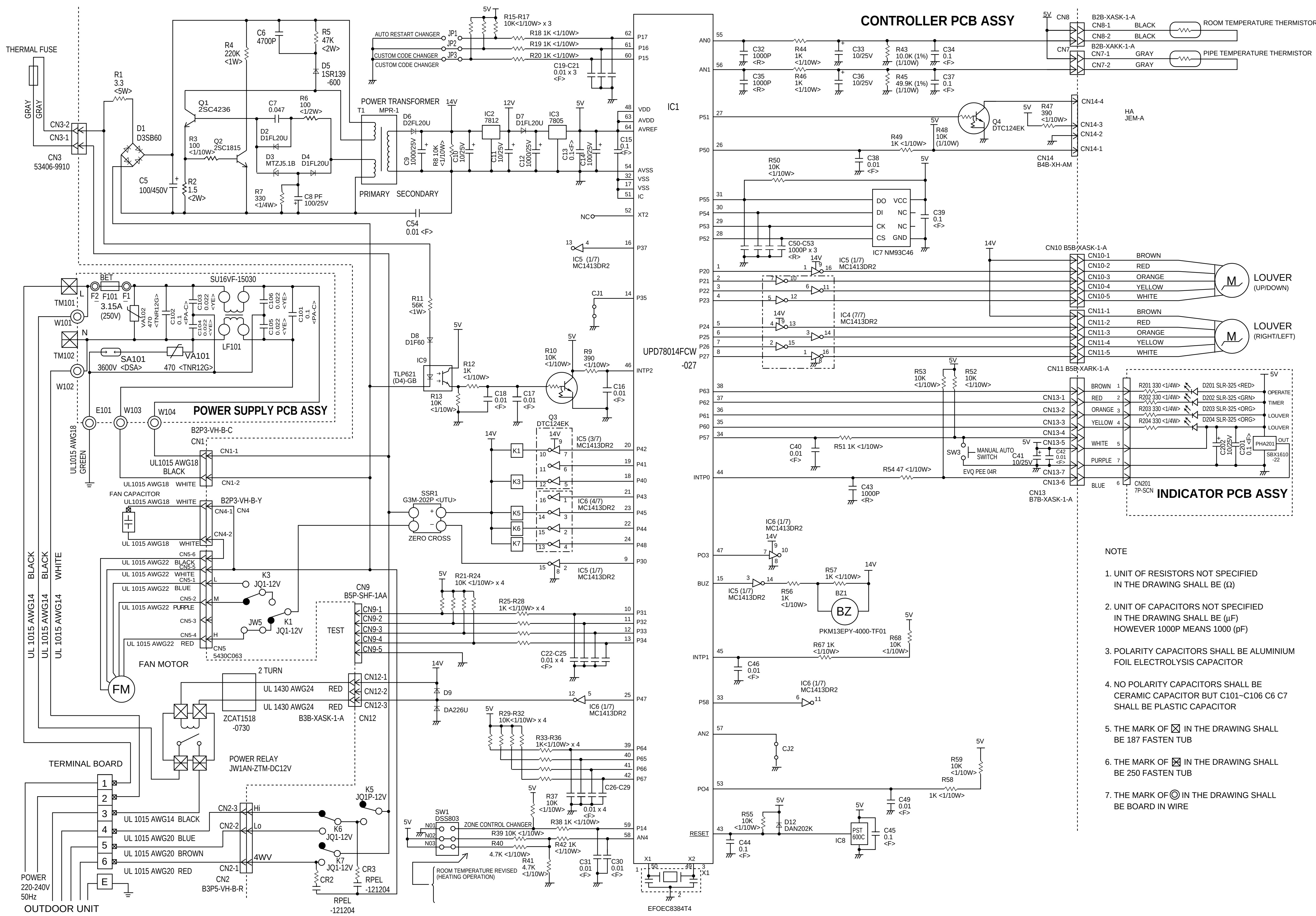
NOTE

1. UNIT OF RESISTORS NOT SPECIFIED IN THE DRAWING SHALL BE (Ω)
2. UNIT OF CAPACITORS NOT SPECIFIED IN THE DRAWING SHALL BE (μF) HPWEVER 1000P MEANS 1000 (pF)
3. POLARITY CAPACITORS SHALL BE ALUMINIUM FOIL ELECTROLYSIS CAPACITOR
4. NO POLARITY CAPACITORS SHALL BE CERAMIC CAPACITOR BUT C101-C108 C6 C7 SHALL BE PLASTIC CAPACITOR
5. THE MARK OF ☒ IN THE DRAWING SHALL BE 187 FASTEN TUB
6. THE MARK OF ⊠ IN THE DRAWING SHALL BE 250 FASTEN TUB
7. THE MARK OF ◎ IN THE DRAWING SHLL BE BOARD IN WIRE

Table 1

Models	Power Supply
AS ✻ 20R	220-240V 50Hz
AS ✻ 24R	
ASS30R	220V 60Hz

Model : AS ✻ 30R

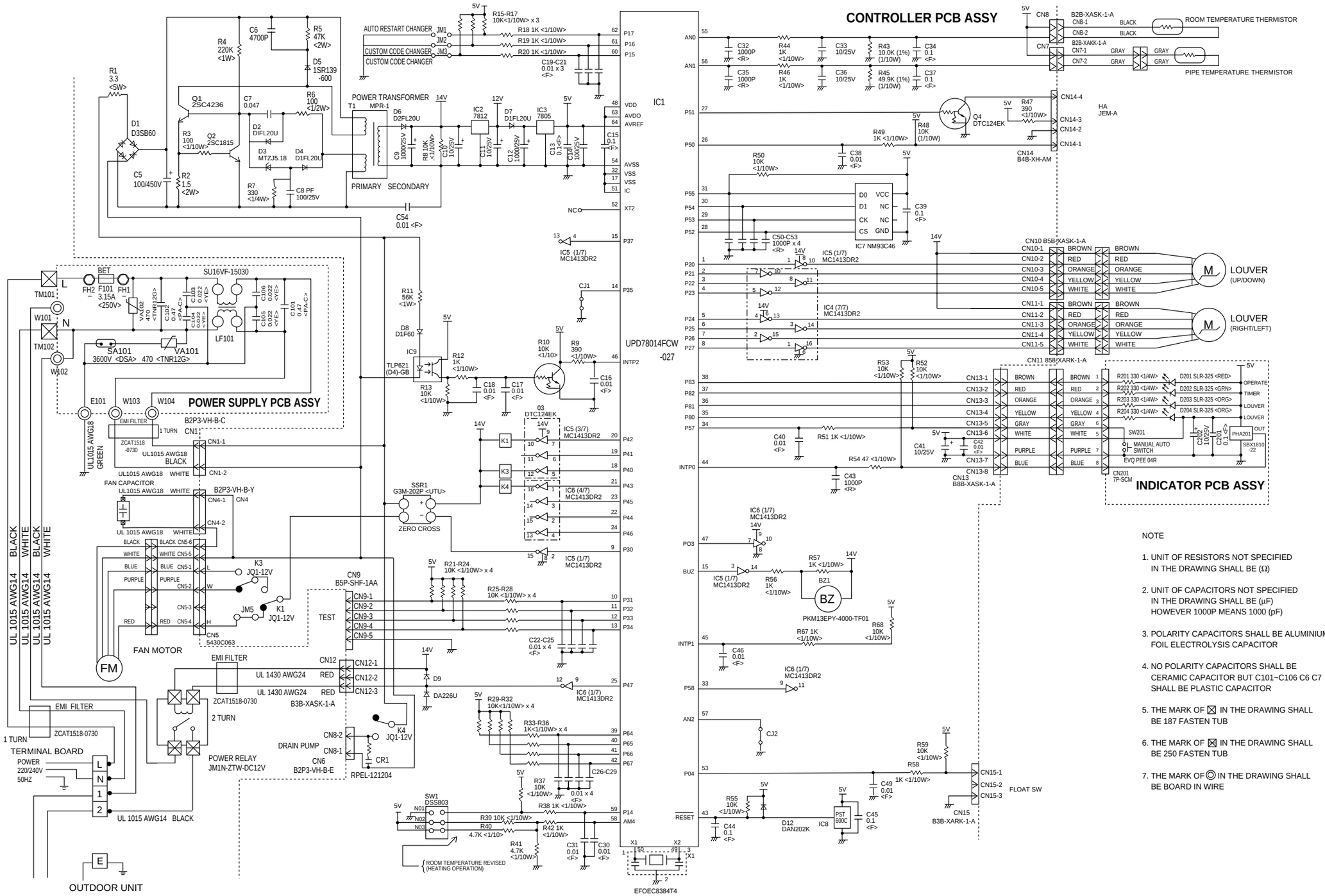


NOTE

1. UNIT OF RESISTORS NOT SPECIFIED IN THE DRAWING SHALL BE (Ω)
2. UNIT OF CAPACITORS NOT SPECIFIED IN THE DRAWING SHALL BE (μF) HOWEVER 1000P MEANS 1000 (pF)
3. POLARITY CAPACITORS SHALL BE ALUMINIUM FOIL ELECTROLYSIS CAPACITOR
4. NO POLARITY CAPACITORS SHALL BE CERAMIC CAPACITOR BUT C101~C106 C6 C7 SHALL BE PLASTIC CAPACITOR
5. THE MARK OF ⊠ IN THE DRAWING SHALL BE 187 FASTEN TUB
6. THE MARK OF ⊠ IN THE DRAWING SHALL BE 250 FASTEN TUB
7. THE MARK OF ◎ IN THE DRAWING SHALL BE BOARD IN WIRE

5.4.4 FLOOR / CEILING UNIVERSAL TYPE

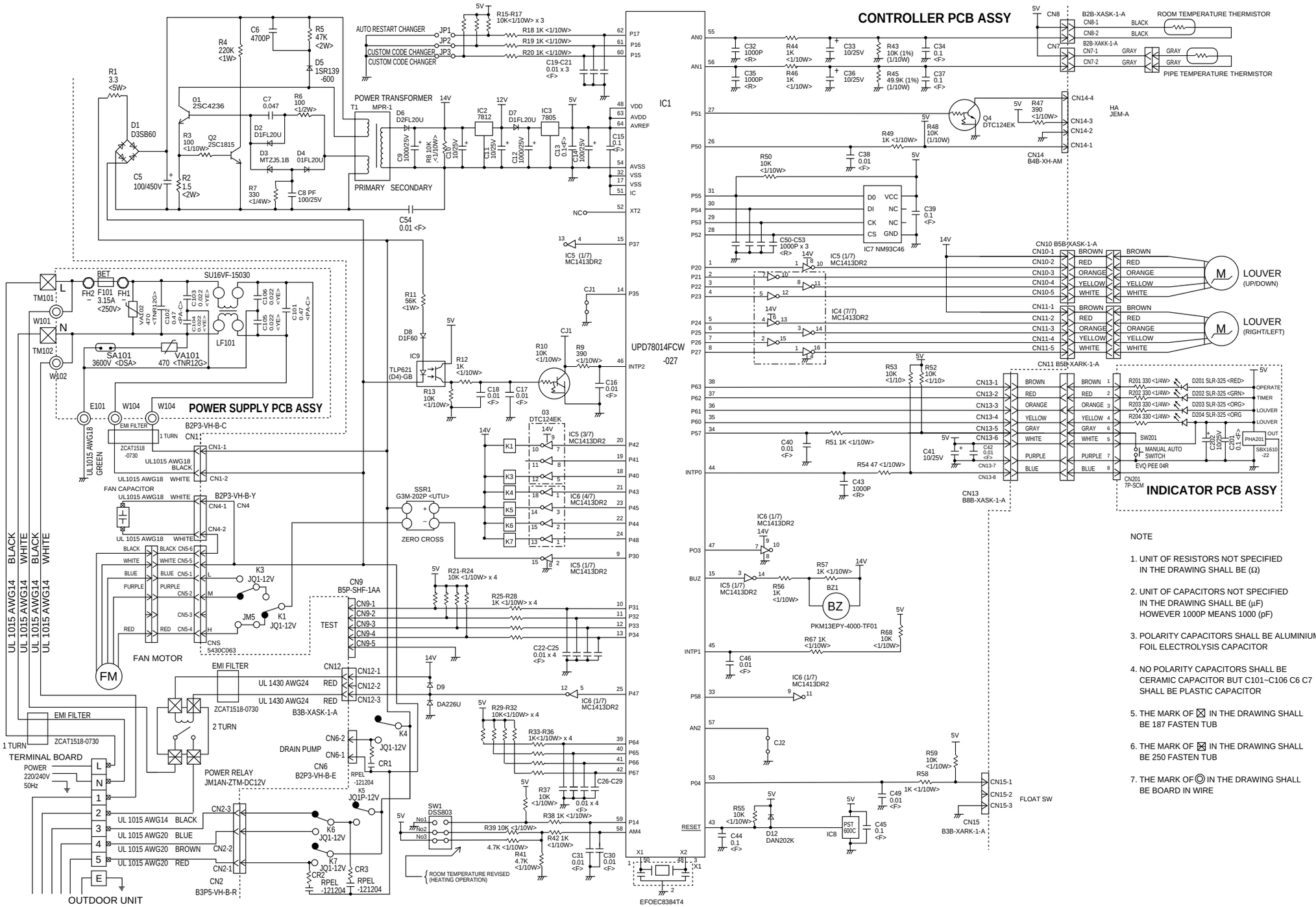
Models : AB ✻ 14A, 18A, 24A



NOTE

1. UNIT OF RESISTORS NOT SPECIFIED IN THE DRAWING SHALL BE (Ω)
2. UNIT OF CAPACITORS NOT SPECIFIED IN THE DRAWING SHALL BE (μF) HOWEVER 1000P MEANS 1000 (pF)
3. POLARITY CAPACITORS SHALL BE ALUMINIUM FOIL ELECTROLYSIS CAPACITOR
4. NO POLARITY CAPACITORS SHALL BE CERAMIC CAPACITOR BUT C101~C106 C6 C7 SHALL BE PLASTIC CAPACITOR
5. THE MARK OF ☒ IN THE DRAWING SHALL BE 187 FASTEN TUB
6. THE MARK OF ☒ IN THE DRAWING SHALL BE 250 FASTEN TUB
7. THE MARK OF ◎ IN THE DRAWING SHALL BE BOARD IN WIRE

Models : AB ✻ 14A, 18A, 24R



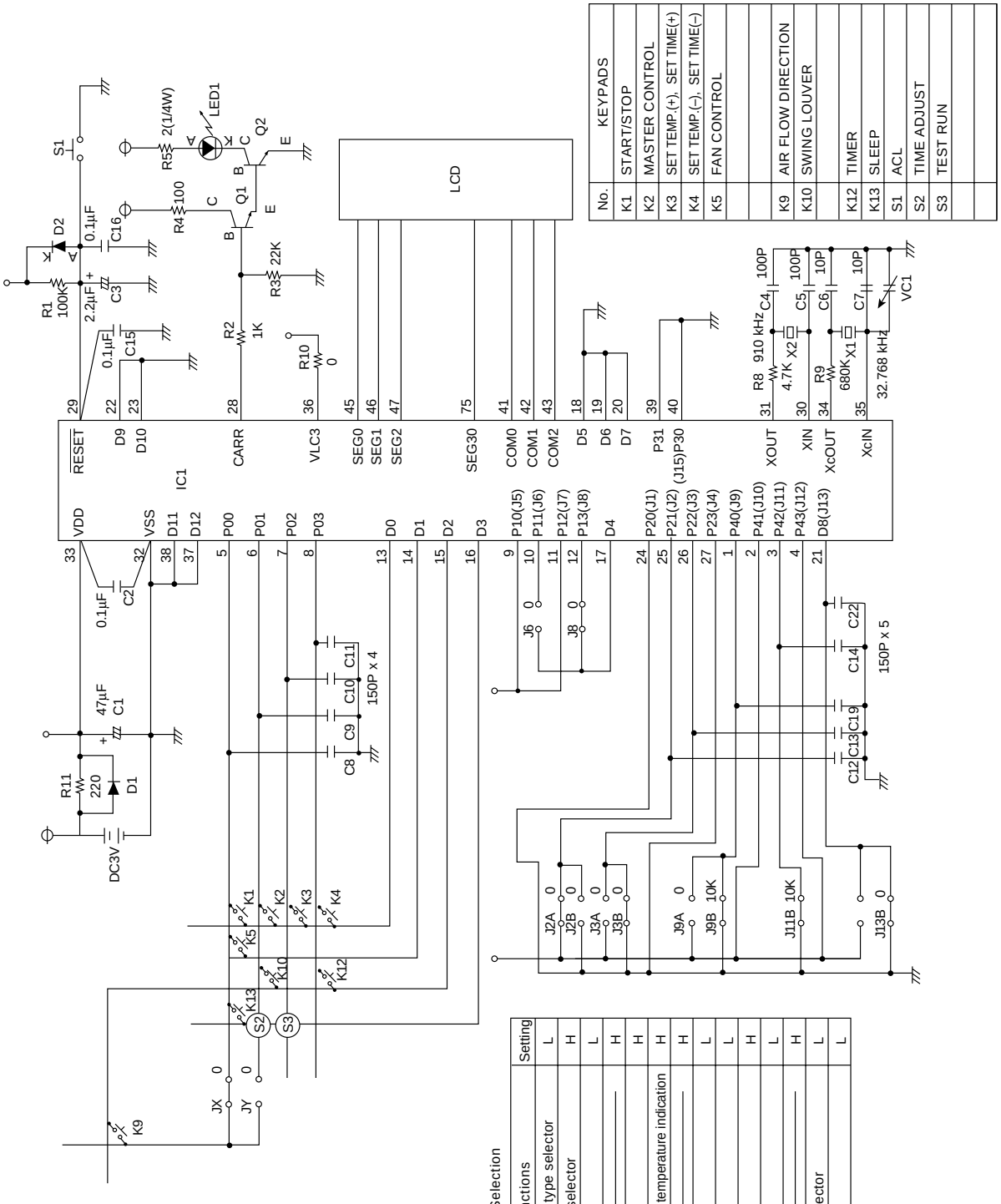
NOTE

1. UNIT OF RESISTORS NOT SPECIFIED IN THE DRAWING SHALL BE (Ω)
2. UNIT OF CAPACITORS NOT SPECIFIED IN THE DRAWING SHALL BE (μF) HOWEVER 1000P MEANS 1000 (pF)
3. POLARITY CAPACITORS SHALL BE ALUMINIUM FOIL ELECTROLYSIS CAPACITOR
4. NO POLARITY CAPACITORS SHALL BE CERAMIC CAPACITOR BUT C101~C106 C6 C7 SHALL BE PLASTIC CAPACITOR
5. THE MARK OF ☒ IN THE DRAWING SHALL BE 187 FASTEN TUB
6. THE MARK OF ☒ IN THE DRAWING SHALL BE 250 FASTEN TUB
7. THE MARK OF ◎ IN THE DRAWING SHALL BE BOARD IN WIRE

5.5 REMOTE CONTROL UNIT CIRCUIT DIAGRAM

5.5.1 COMPACT SII SERIES

Model : AS ✻ 7A



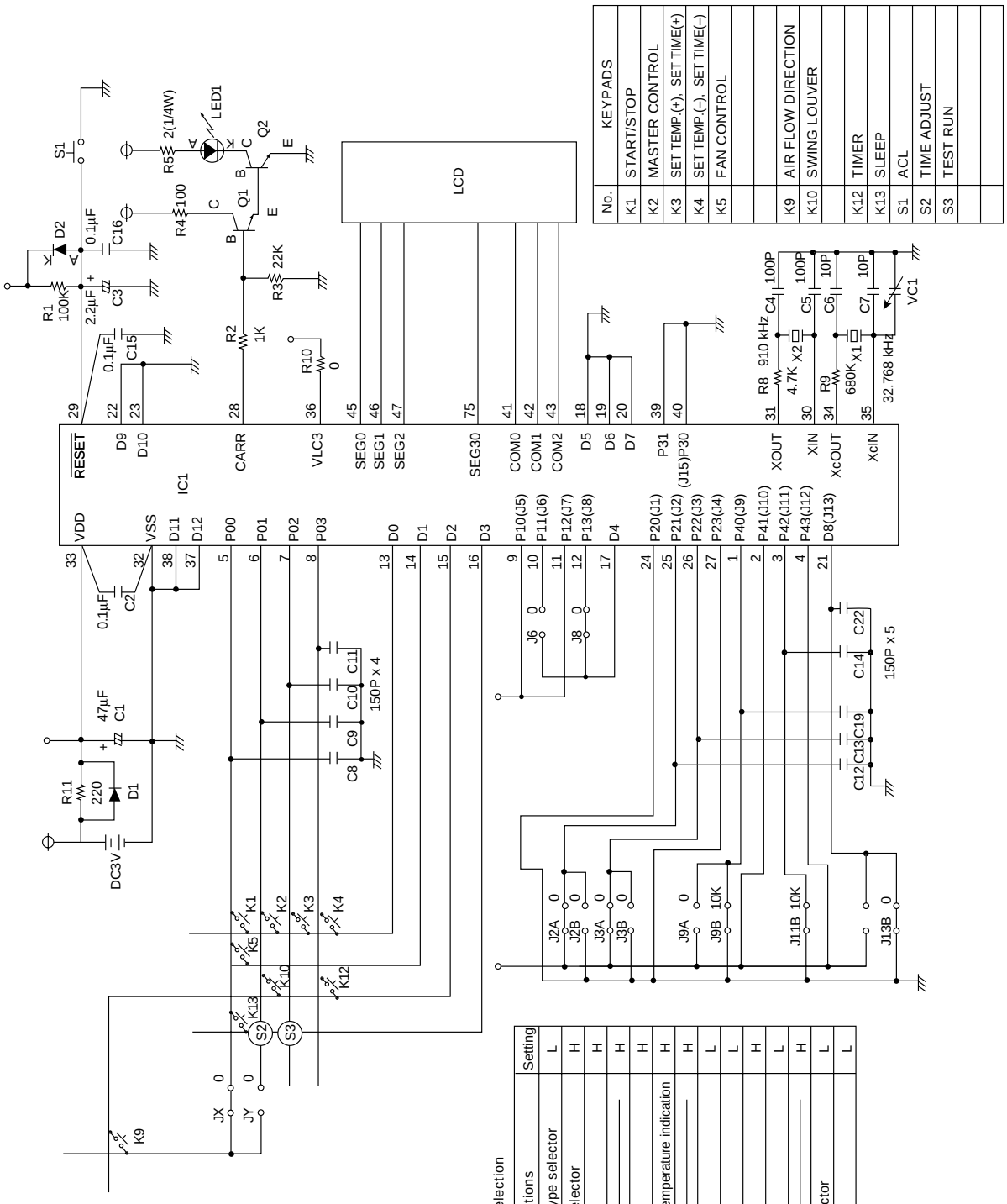
No.	KEYPADS
K1	START/STOP
K2	MASTER CONTROL
K3	SET TEMP.(+), SET TIME(+)
K4	SET TEMP.(–), SET TIME(–)
K5	FAN CONTROL
K9	AIR FLOW DIRECTION
K10	SWING LOUVER
K12	TIMER
K13	SLEEP
S1	ACL
S2	TIME ADJUST
S3	TEST RUN

Jumper Wire Function Selection

No.	Functions	Setting
J1	Remote controller type selector	L
J2	Transmitter code selector	H
J3	Heating operation	L
J4	———	H
J5	Dry operation	H
J6	Automatic operation temperature indication	H
J7	———	H
J8	Timer selector	L
J9	Switch selector	L
J10	Fan mode	H
J11	Power choice	L
J12	———	H
J13	Auto operation selector	L
J15	Super quiet	L

L: Connected to ⏚
H: Connected to ⚲

Model : AS ✻ 7R



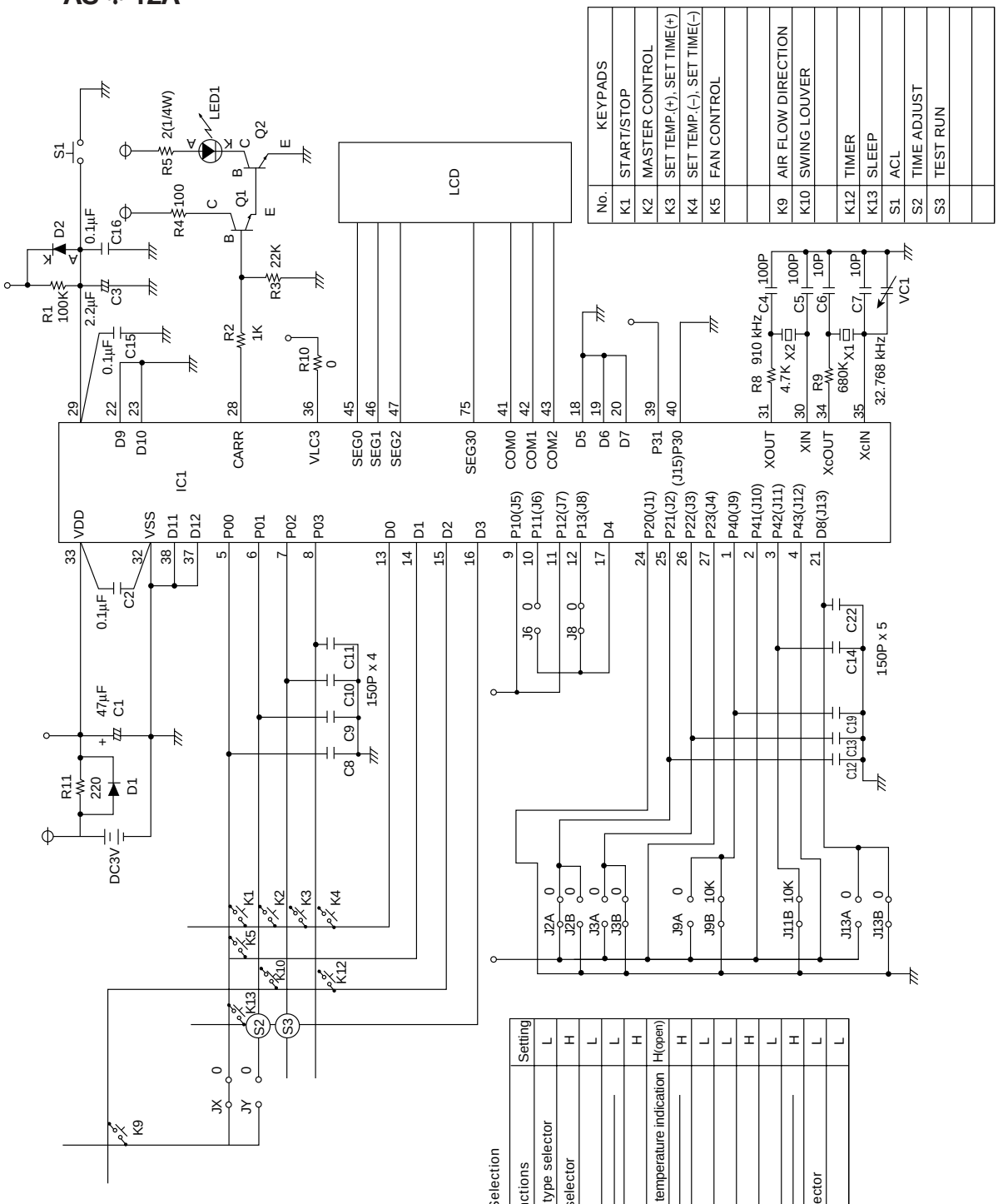
Jumper Wire Function Selection

No.	Functions	Setting
J1	Remote controller type selector	L
J2	Transmitter code selector	H
J3	Heating operation	H
J4	———	H
J5	Dry operation	H
J6	Automatic operation temperature indication	H
J7	———	H
J8	Timer selector	L
J9	Switch selector	L
J10	Fan mode	H
J11	Power choice	L
J12	———	H
J13	Auto operation selector	L
J15	Super quiet	L

L: Connected to ⏚
H: Connected to ⚲

5.5.2 COMPACT MII SERIES

Models : AS ✻ 9A
AS ✻ 12A



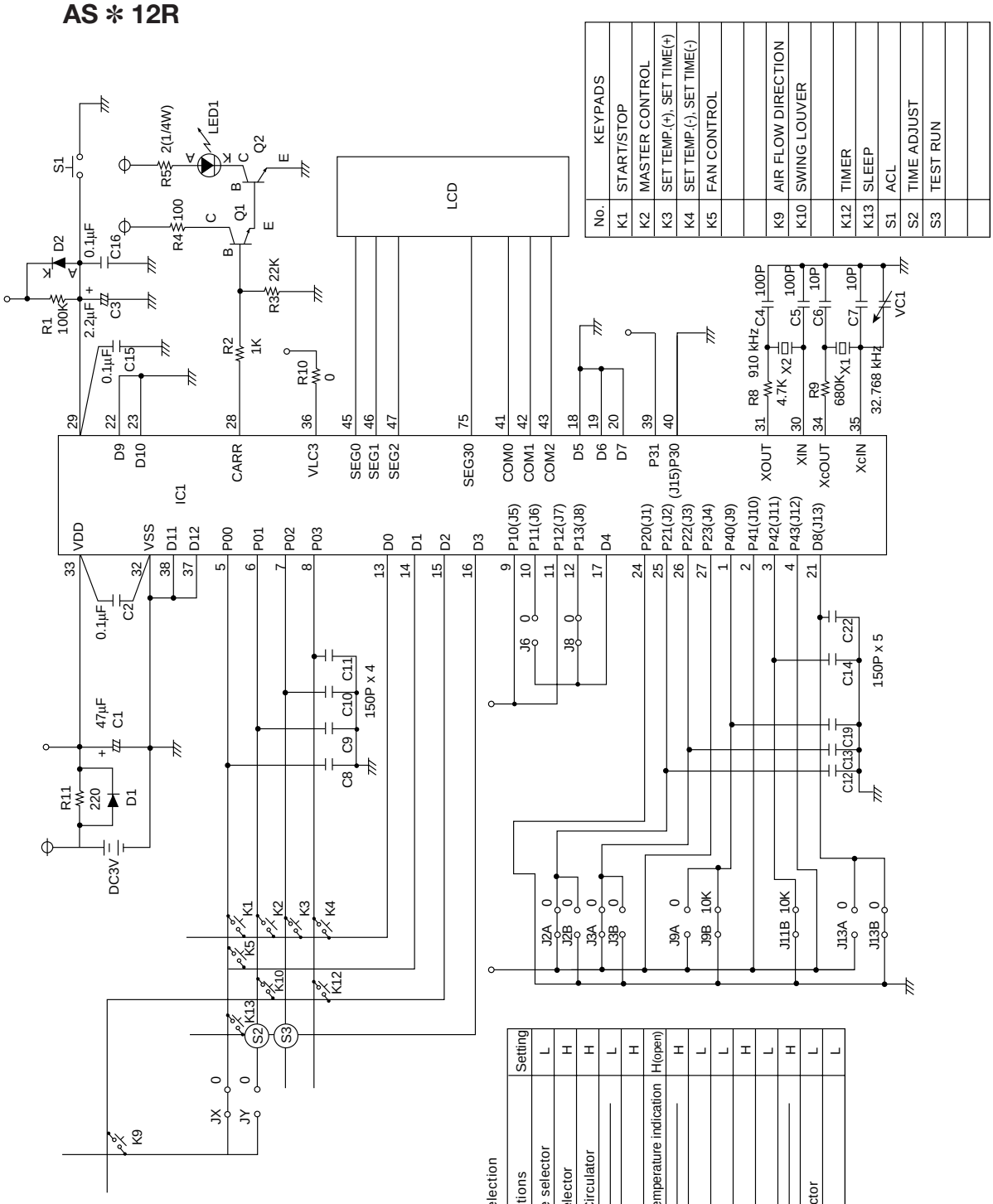
No.	KEYPADS
K1	START/STOP
K2	MASTER CONTROL
K3	SET TEMP.(+), SET TIME(+)
K4	SET TEMP.(–), SET TIME(–)
K5	FAN CONTROL
K9	AIR FLOW DIRECTION
K10	SWING LOUVER
K12	TIMER
K13	SLEEP
S1	ACL
S2	TIME ADJUST
S3	TEST RUN

Jumper Wire Function Selection

No.	Functions	Setting
J1	Remote controller type selector	L
J2	Transmitter code selector	H
J3	Heating operation	L
J4	———	L
J5	Dry operation	H
J6	Automatic operation temperature indication	H(open)
J7	———	H
J8	No timer selector	L
J9	Switch selector	L
J10	Fan mode	H
J11	Power choice	L
J12	———	H
J13	Auto operation selector	L
J15	Super quiet	L

L: Connected to ⏚
H: Connected to ⚲

Models : AS ✻ 9R
AS ✻ 12R



No.	KEYPADS
K1	START/STOP
K2	MASTER CONTROL
K3	SET TEMP.(+), SET TIME(+)
K4	SET TEMP.(-), SET TIME(-)
K5	FAN CONTROL
K9	AIR FLOW DIRECTION
K10	SWING LOUVER
K12	TIMER
K13	SLEEP
S1	ACL
S2	TIME ADJUST
S3	TEST RUN

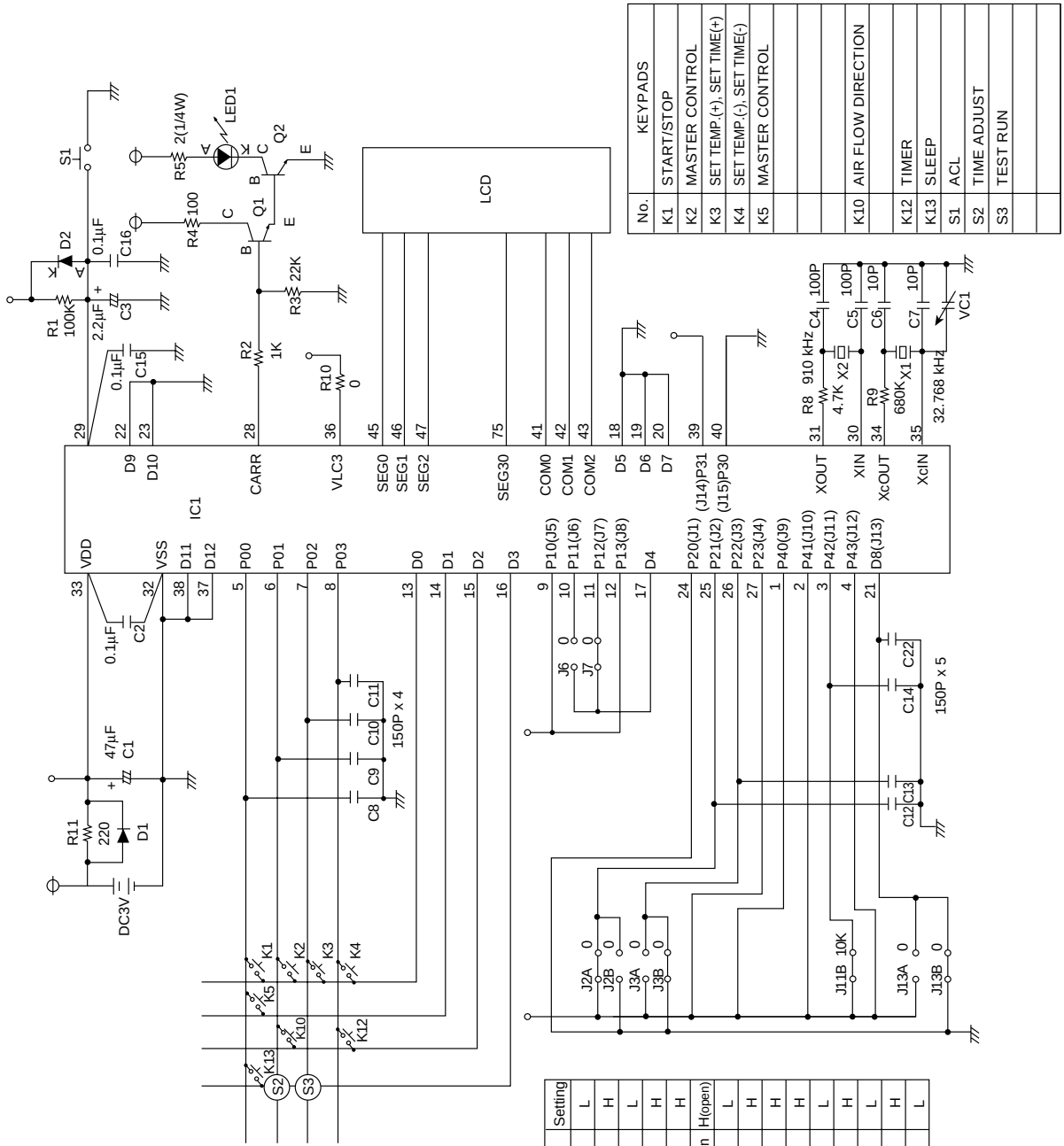
Jumper Wire Function Selection

No.	Functions	Setting
J1	Remote control type selector	L
J2	Transmitter code selector	H
J3	Heating operation/Circulator	H
J4	———	L
J5	Dry operation	H
J6	Automatic operation temperature indication	H(open)
J7	———	H
J8	Timer selector	L
J9	Switch selector	L
J10	Fan mode	H
J11	Power choice	L
J12	———	H
J13	Auto operation selector	L
J15	Super quiet	L

L: Connected to ⏚
H: Connected to ♀

5.5.3 COMPACT MII SERIES

Models : AS ✻ 14A
AS ✻ 17A



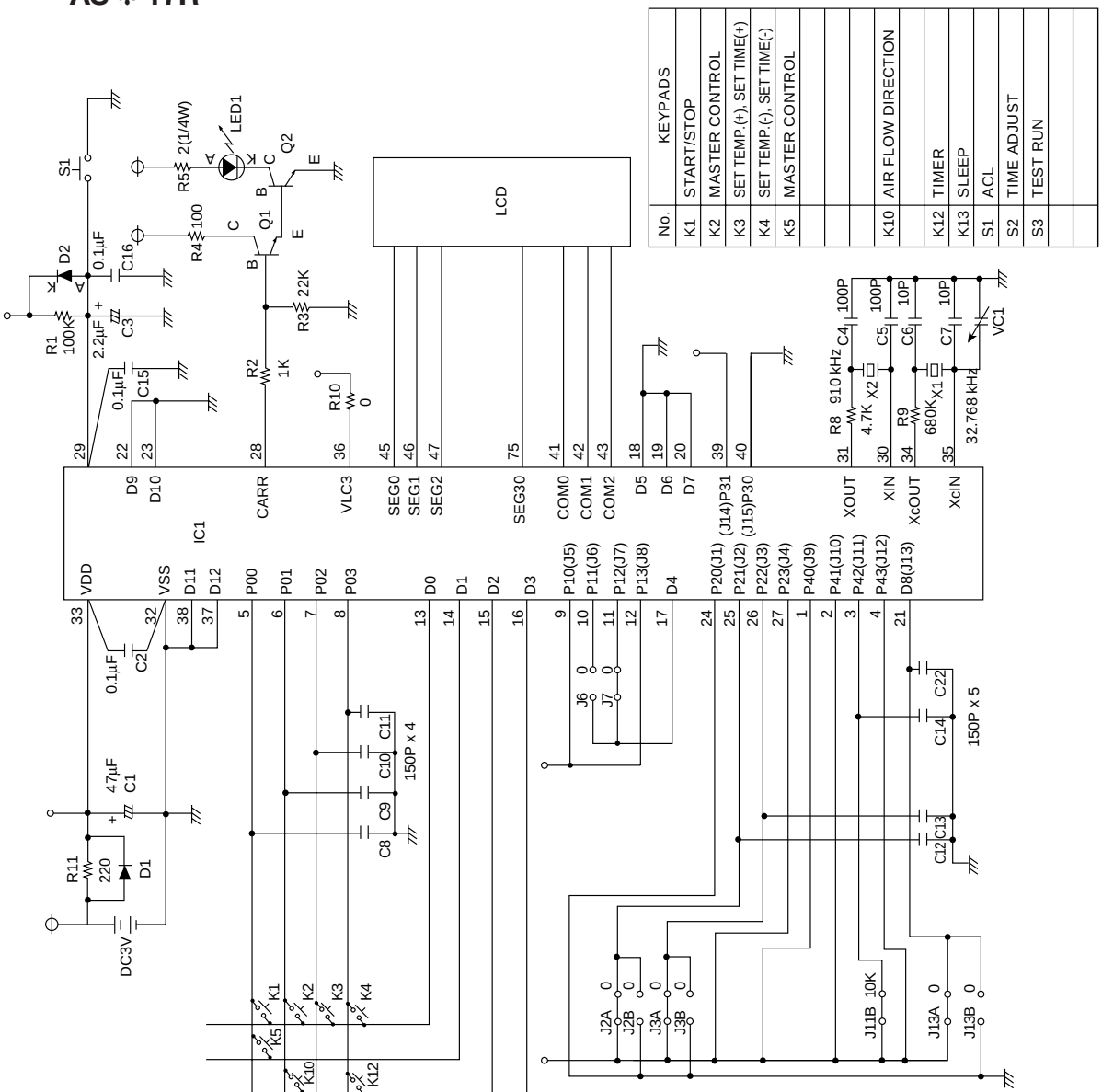
No.	KEYPADS
K1	START/STOP
K2	MASTER CONTROL
K3	SET TEMP.(+), SET TIME(+)
K4	SET TEMP.(-), SET TIME(-)
K5	MASTER CONTROL
K10	AIR FLOW DIRECTION
K12	TIMER
K13	SLEEP
S1	ACL
S2	TIME ADJUST
S3	TEST RUN

Jumper Wire Function Selection

No.	Functions	Setting
J1	Timer button change	L
J2	Transmitter code selector	H
J3	Heating operation	L
J4	Air flow direction / auto louver	H
J5	Dry operation	H
J6	Automatic operation temperature indication	H(open)
J7	Fan mode / Circulation	L
J8	24Hr / 12Hr display selector	H
J9	Temperature unit selector	H
J10	Fan mode	H
J11	SUPER QUIET	L
J12	SLEEP	H
J13	Auto operation selector	L
J14	Remote controller selector 1	H
J14	Remote controller selector 2	L

L: Connected to ⏚
H: Connected to ⚲

Models : AS ✻ 14R
AS ✻ 17R



No.	KEYPADS
K1	START/STOP
K2	MASTER CONTROL
K3	SET TEMP.(+), SET TIME(+)
K4	SET TEMP.(-), SET TIME(-)
K5	MASTER CONTROL
K10	AIR FLOW DIRECTION
K12	TIMER
K13	SLEEP
S1	ACL
S2	TIME ADJUST
S3	TEST RUN

Jumper Wire Function Selection

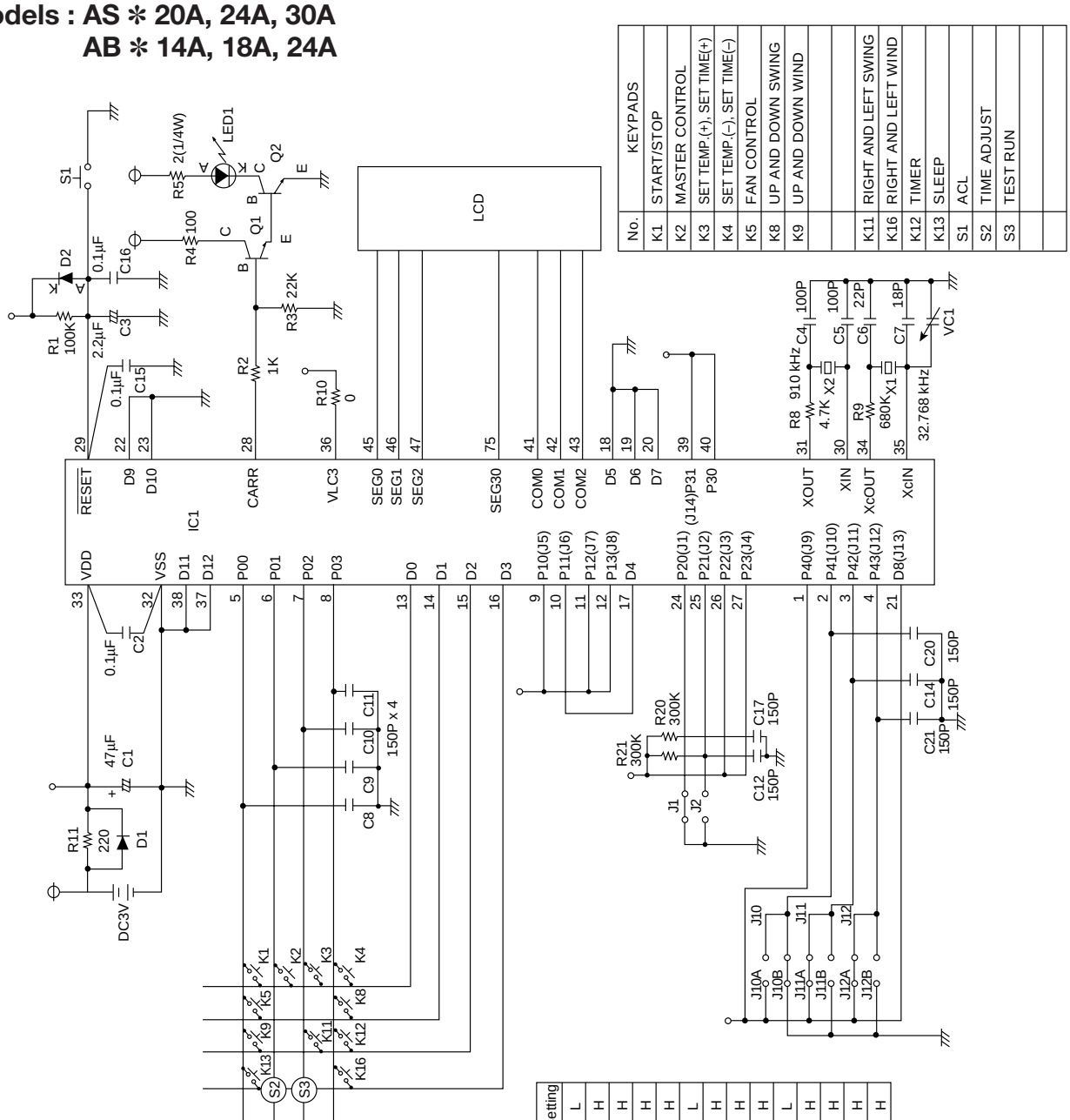
No.	Functions	Setting
J1	Timer button change	L
J2	Transmitter code selector	H
J3	Heating operation	L
J4	Air flow direction / auto louver	H
J5	Dry operation	H
J6	Automatic operation temperature indication	H(open)
J7	Fan mode / Circulation	L
J8	24Hr / 12Hr display selector	H
J9	Temperature unit selector	H
J10	Fan mode	H
J11	SUPER QUIET	L
J12	SLEEP	H
J13	Auto operation selector	L
J14	Remote controller selector 1	H
J14	Remote controller selector 2	L

L: Connected to ⏚
H: Connected to ⚲

5.5.4 WALL MOUNTED LARGE TYPE AND FLOOR/CEILING UNIVERSAL TYPE

REMOTE CONTROL UNIT CIRCUIT DIAGRAM (HANDY TYPE)

Models : AS * 20A, 24A, 30A
AB * 14A, 18A, 24A

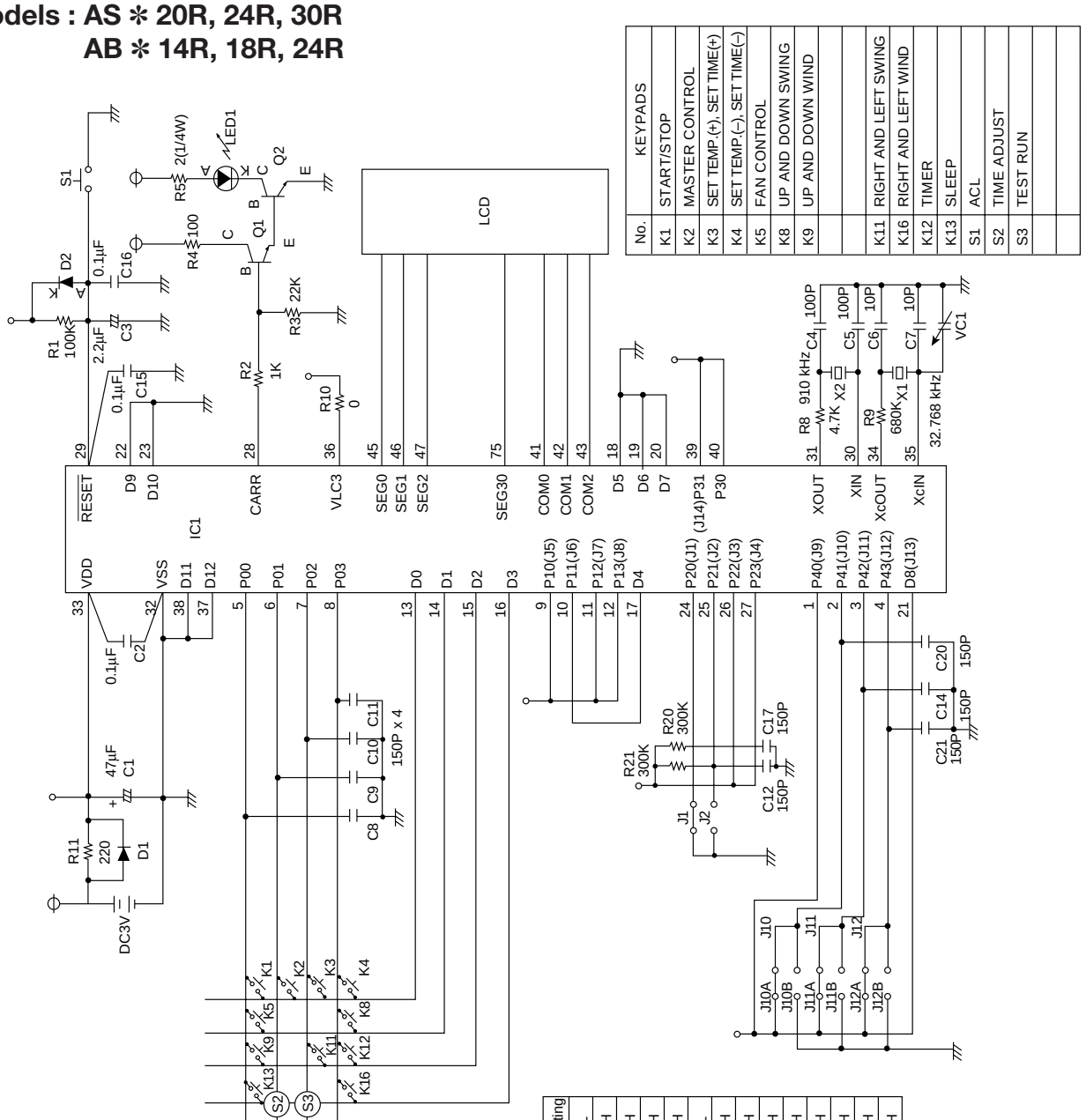


Jumper Wire Function Selection

No.	Functions	Setting
J1	Transmitting code change	L
J2	Transmitting code change	H
J3	Transmitting code change	H
J4	Transmitting code change	H
J5	Dry operation	H
J6	Temperature display of automatic operation	L
J7	Change of V-remote control type	H
J8	Temperature unit selector	H
J9	Automatic operation	H
J10	Heating operation	L
J11	24Hour/12Hour	H
J12	Super quiet	H
J13	Auto operation selector	H
J14	Wind operation	H

L: Connected to ⏚
H: Connected to ⚲

Models : AS * 20R, 24R, 30R
AB * 14R, 18R, 24R



No.	KEYPADS
K1	START/STOP
K2	MASTER CONTROL
K3	SET TEMP.(+), SET TIME(+)
K4	SET TEMP.(–), SET TIME(–)
K5	FAN CONTROL
K8	UP AND DOWN SWING
K9	UP AND DOWN WIND
K11	RIGHT AND LEFT SWING
K16	RIGHT AND LEFT WIND
K12	TIMER
K13	SLEEP
S1	ACL
S2	TIME ADJUST
S3	TEST RUN

Jumper Wire Function Selection

No.	Functions	Setting
J1	Transmitting code change	L
J2	Transmitting code change	H
J3	Transmitting code change	H
J4	Transmitting code change	H
J5	Dry operation	H
J6	Temperature display of automatic operation	L
J7	Change of V-remote control type	H
J8	Temperature unit selector	H
J9	Automatic operation	H
J10	Heating operation	H
J11	24Hour/12Hour	H
J12	Super quiet	H
J13	Auto operation selector	H
J14	Wind operation	H

L: Connected to ⏚
H: Connected to ⏚

REMOTE CONTROL UNIT CIRCUIT DIAGRAM (WALL FIXING TYPE)

Models : AS ✻ 20A, 24A, 30A
AB ✻ 14A, 18A, 24A

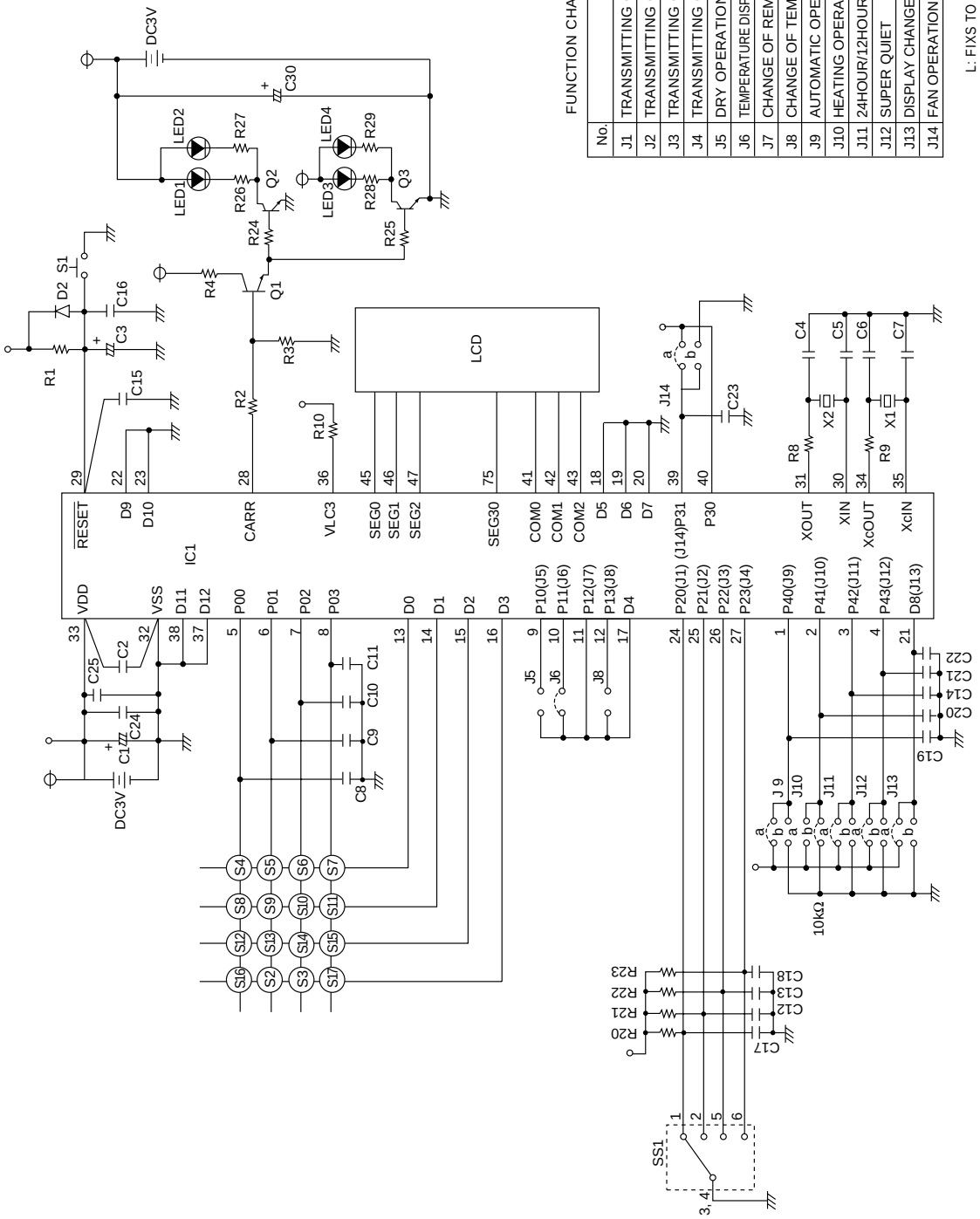
KEY NO. KEY FUNCTION CORRESPONDENCE TABLE

No.	KEY FUNCTION
S1	ACL
S2	TIMER ADJUST
S3	TEST RUN
S4	START / STOP
S5	MASTER CONTROL
S6	SET TIME(+)
S7	SET TIME(–)
S8	FAN CONTROL
S9	TIME(–)
S10	SET TEMP(–)
S11	UP AND DOWN SWING
S12	UP AND DOWN WIND
S13	ENERGY SAVE
S14	RIGHT AND LEFT SWING
S15	TIMER
S16	SLEEP
S17	RIGHT AND LEFT WIND

FUNCTION CHANGE BY THE JUMPER LINE

No.	Functions	Setting
J1	TRANSMITTING CODE CHANGE	L
J2	TRANSMITTING CODE CHANGE	H
J3	TRANSMITTING CODE CHANGE	H
J4	TRANSMITTING CODE CHANGE	H
J5	DRY OPERATION	H
J6	TEMPERATURE DISPLAY OF AUTOMATIC OPERATION	L
J7	CHANGE OF REMOTE CONTROL TYPE	L
J8	CHANGE OF TEMPERATURE UNIT	H
J9	AUTOMATIC OPERATION	H
J10	HEATING OPERATION	L
J11	24HOUR/12HOUR	H
J12	SUPER QUIET	H
J13	DISPLAY CHANGE OF AUTOMATIC OPERATION	H
J14	FAN OPERATION	H

L: FIXS TO LOW LEVEL ⏥
H: FIXS TO HIGH LEVEL ⏦



Models : AS ✻ 20R, 24R, 30R
AB ✻ 14R, 18R, 24R

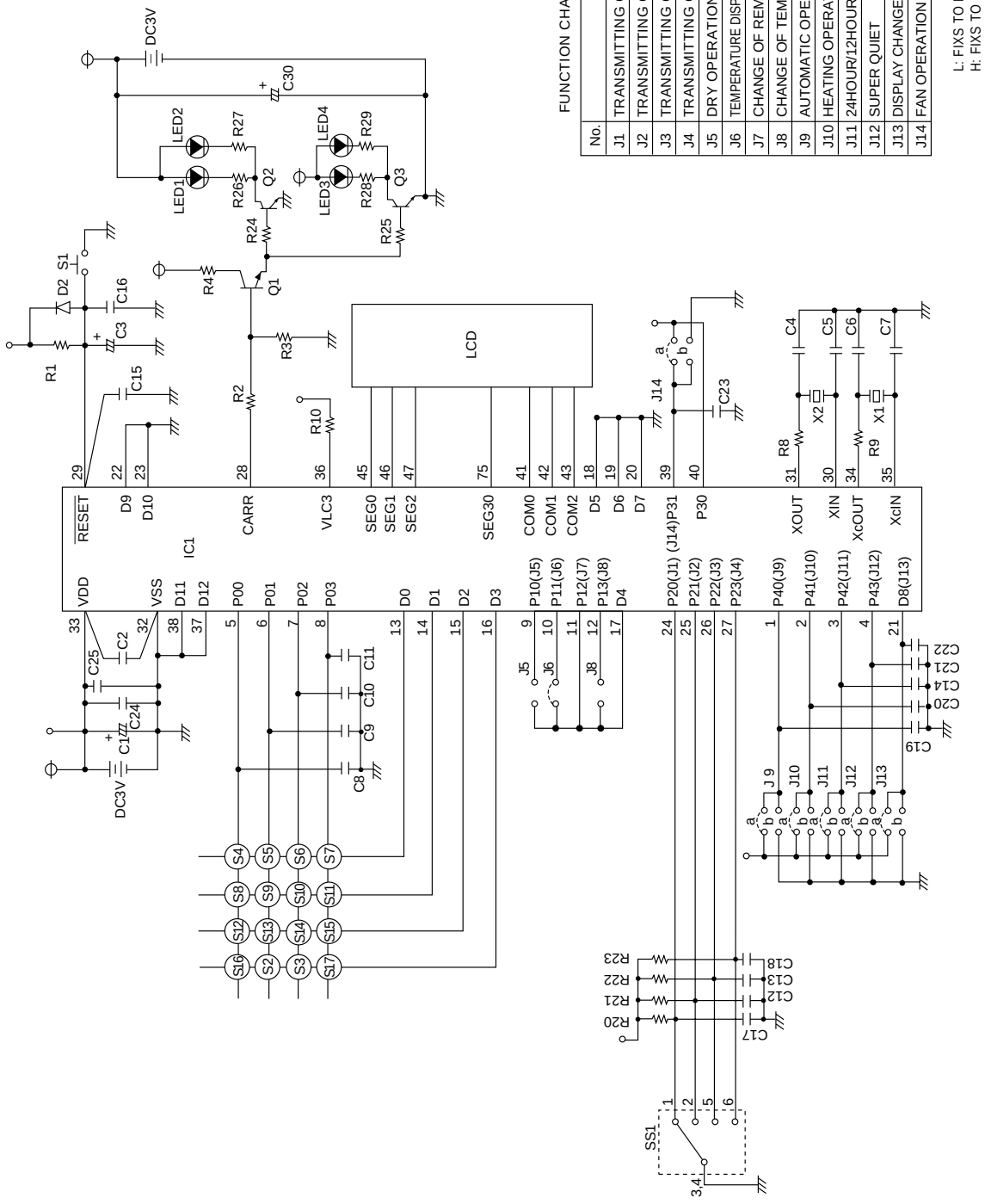
KEY NO. KEY FUNCTION
CORRESPONDENCE TABLE

No.	KEY FUNCTION
S1	ACL
S2	TIMER ADJUST
S3	TEST RUN
S4	START / STOP
S5	MASTER CONTROL
S6	SET TEMP(+)
S7	SET TEMP(–)
S8	FAN CONTROL
S9	SET TIME(+)
S10	SET TIME(–)
S11	UP AND DOWN SWING
S12	UP AND DOWN WIND
S13	ENERGY SAVE
S14	RIGHT AND LEFT SWING
S15	TIMER
S16	SLEEP
S17	RIGHT AND LEFT WIND

FUNCTION CHANGE BY THE JUMPER LINE

No.	Functions	Setting
J1	TRANSMITTING CODE CHANGE	L
J2	TRANSMITTING CODE CHANGE	H
J3	TRANSMITTING CODE CHANGE	H
J4	TRANSMITTING CODE CHANGE	H
J5	DRY OPERATION	H
J6	TEMPERATURE DISPLAY OF AUTOMATIC OPERATION	L
J7	CHANGE OF REMOTE CONTROL TYPE	L
J8	CHANGE OF TEMPERATURE UNIT	H
J9	AUTOMATIC OPERATION	H
J10	HEATING OPERATION	H
J11	24HOUR/12HOUR	H
J12	SUPER QUIET	H
J13	DISPLAY CHANGE OF AUTOMATIC OPERATION	H
J14	FAN OPERATION	H

L: FIXS TO LOW LEVEL
H: FIXS TO HIGH LEVEL



6. INSTALLATION INSTRUCTIONS

6.1 SPLIT TYPE ROOM AIR CONDITIONER

SPLIT TYPE AIR CONDITIONER

INSTALLATION MANUAL

Models : ASY20AGB-W, ASY20AGC-W, ASY24AGB-W,
AST20AGB-W

For authorized service personnel only.

⚠ WARNING	
(1)	For the room air conditioner to operate satisfactorily, install it as outlined in this installation manual.
(2)	Connect the indoor unit and outdoor unit with the room air conditioner piping and cords available standards parts. This installation manual describes the correct connections using the installation set available from our standard parts.
(3)	Installation work must be performed in accordance with national wiring standards by authorized personnel only.
(4)	Never cut the power cord, lengthen or shorten the cord, or change the plug.
(5)	Also, do not use an extension cord.
(6)	Plug in the power cord plug firmly. If the receptacle is loose, repair it before using the room air conditioner.
(7)	Do not turn on the power until all installation work is complete.

- Be careful not to scratch the room air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation manual because it is used when the room air conditioner is serviced or moved.

SELECTING THE MOUNTING POSITION

⚠ WARNING
Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

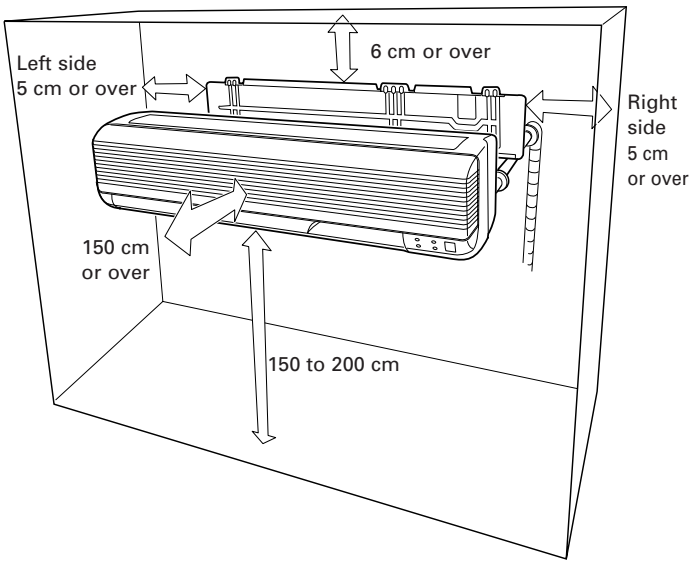
⚠ CAUTION	
(1)	Do not install where there is the danger of combustible gas leakage.
(2)	Do not install near heat sources.
(3)	If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

Decide the mounting position with the customer as follows:

1. INDOOR UNIT

(1) Install the indoor unit level on a strong wall which is not subject to vibration.
(2) The inlet and outlet ports should not be obstructed : the air should be able to blow all over the room.
(3) Install the unit near an electric outlet or special branch circuit.
(4) Do not install the unit where it will be exposed to direct sunlight.
(5) Install the unit where connection to the outdoor unit is easy.
(6) Install the unit where the drain pipe can be easily installed.
(7) Take servicing, etc. into consideration and leave the spaces shown in Fig. 1. Also install the unit where the filter can be removed.

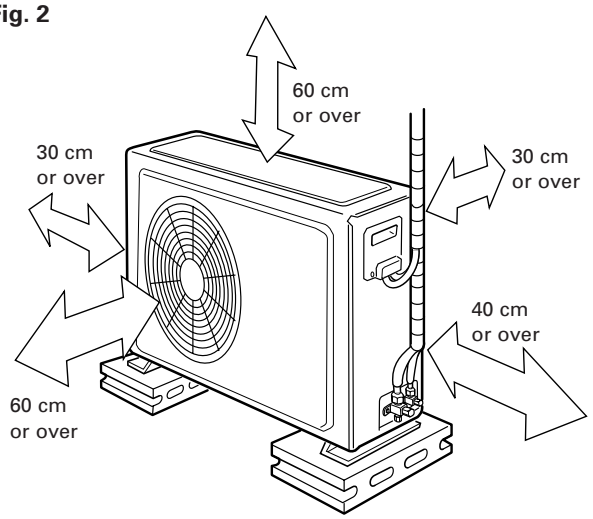
Fig. 1



2. OUTDOOR UNIT

(1) If possible, do not install the unit where it will be exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)
(2) Do not install the unit where a strong wind blows or where it is very dusty.
(3) Do not install the unit where people pass.
(4) Take your neighbors into consideration so that they are not disturbed by air blowing into their windows or by noise.
(5) Provide the space shown in Fig. 2 so that the air flow is not blocked.
Also for efficient operation, leave open three of the four directions front, rear, and both sides.

Fig. 2



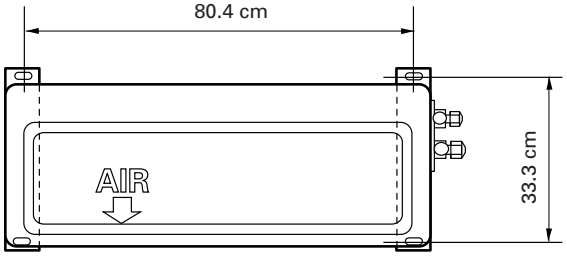
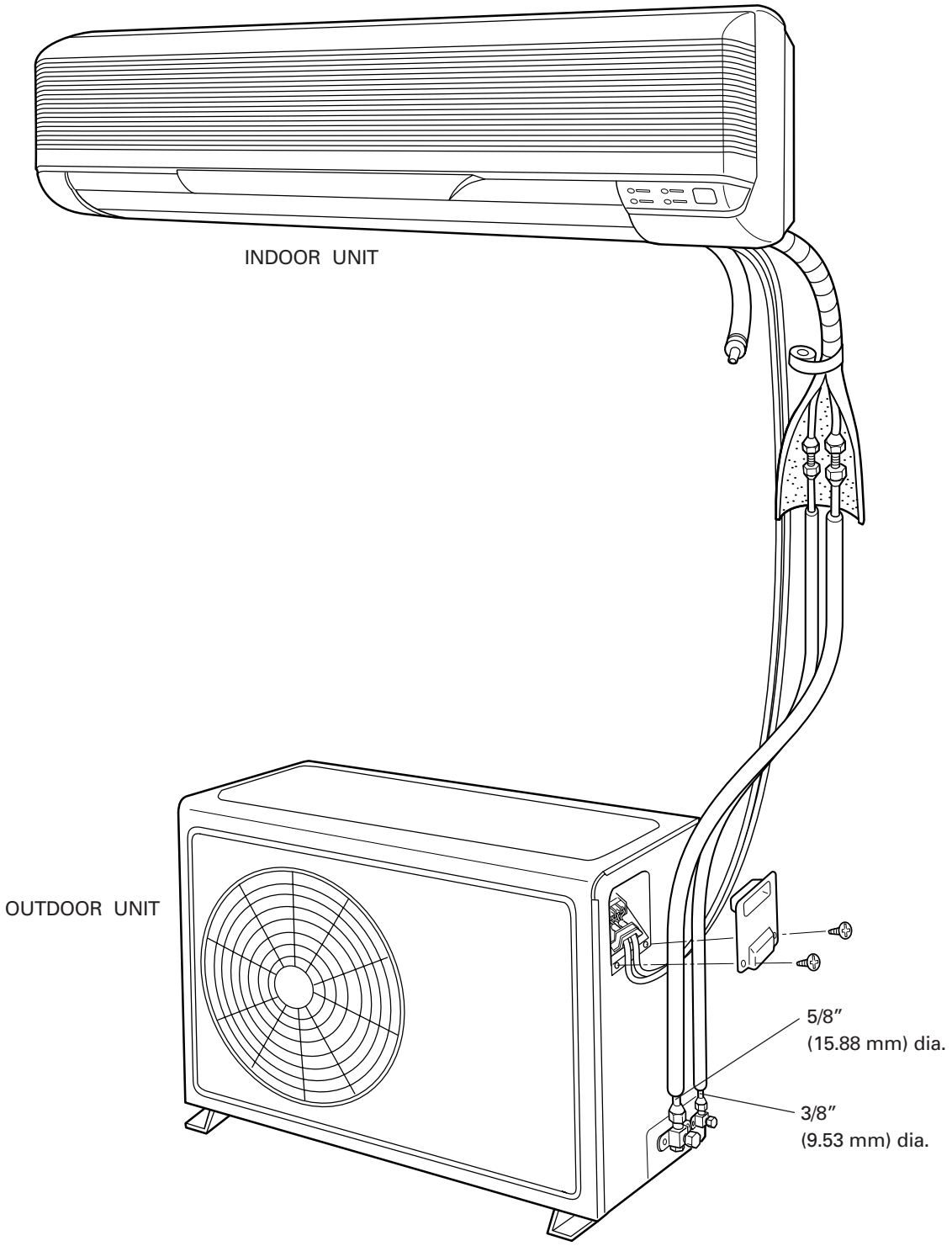


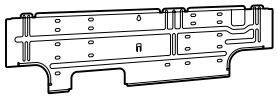
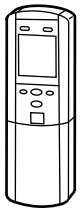
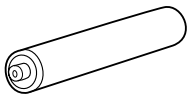
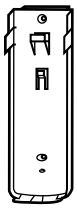
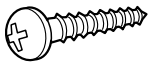
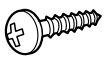
Fig. 3



STANDARD ACCESSORIES

The following installation accessories are supplied. Use them as required.

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Use
Wall hook bracket 	1	For indoor unit installation
Remote control unit 	1	Use for air conditioner operation
Battery (penlight) 	4	For remote control unit
Remote control unit holder 	1	Use as remote control unit holder
Tapping screw (big) (ø4 x 20) 	12	For wall hook bracket installation
Tapping screw (small) (ø3 x 12) 	2	For remote control unit holder installation

OUTDOOR UNIT ACCESSORIES

Hexagon wrench 	1	For air purge
Drain pipe 	1	For outdoor unit drain piping work (Heat & Cool model (Reverse cycle) only)
Flexible tube 	1	
Drain cap 	2	

ELECTRICAL REQUIREMENT

- Electric wire size and fuse capacity:

Table 1

		20,000 BTU/h class	24,000 BTU/h class
Connection cord (mm^2)	MAX	3.5	3.5
	MIN	2.5	2.5
Fuse capacity (A)		20	30

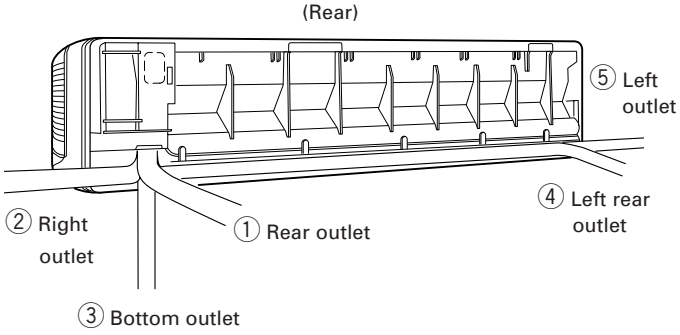
- Always use H07RN-F or equivalent as the connection cord.
- Install the disconnect device with a contact gap of at least 3 mm nearby the units. (Both indoor unit and outdoor unit)

INSTALLATION PROCEDURE

1. INDOOR UNIT INSTALLATION

The piping can be connected in the five directions indicated by ①, ②, ③, ④, and ⑤ in Fig. 4. When the piping is connected in direction ② or ⑤, cut along the piping groove in the side of the under cover with a hacksaw. When connecting the piping in direction ③, cut a notch in the thin wall at the front bottom of the under cover.

Fig. 4



1. INSTALLING THE WALL HOOK BRACKET

Removing the wall hook bracket

Remove the wall hook bracket in the following order:

① Remove one side of under cover B by pulling it forward (arrow direction in Fig. 5).

② Remove the other side of under cover B by pulling it forward (arrow direction in Fig. 5).

③ Remove the tapping screw installed to under cover A. (Fig. 6)

④ While pulling the right side of under cover A forward (releasing the inside stopper), slide under cover A to the left and unhook the two inside hooks. (Fig. 6)

⑤ Next, remove under cover A by pulling the left side forward (arrow direction in Fig. 6).

⑥ Remove the four tapping screws holding the wall hook bracket. (Fig. 7)

Fig. 5

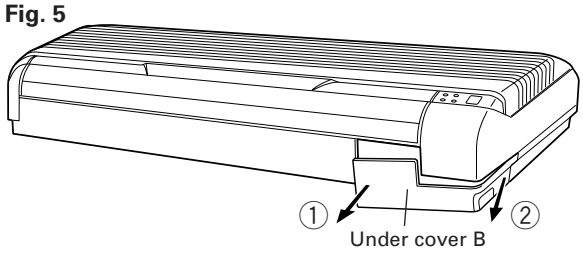


Fig. 6

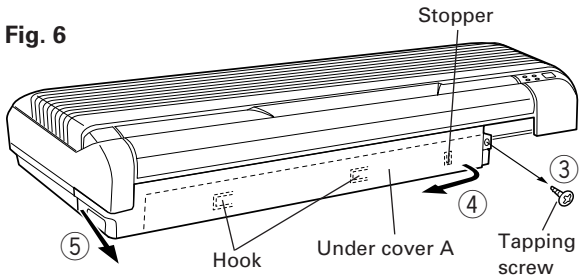
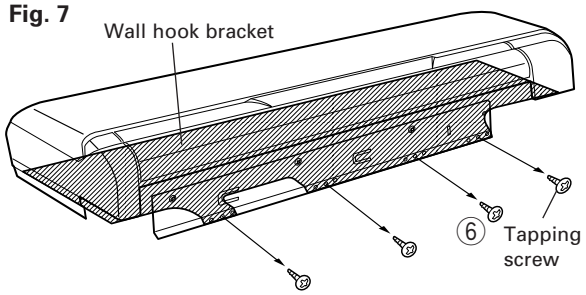


Fig. 7



(1) Install the wall hook bracket so that it is correctly positioned horizontally and vertically. If the wall hook bracket is tilted, water will drip to the floor.

(2) As the weight of the indoor unit is 37 to 44 lbs (17 to 20 kg), it should be installed after properly examining the place where it is intended to be installed. If the place is not strong enough, a plank or girder should be used to make the place sufficiently strong so that the wall can support the weight.

[Installation directly to a wall]

Before fastening the wall hook bracket to the wall with the screws, level it by tapping the hook at the center of bracket to the wall with the handle of a screwdriver.

- Fasten the wall hook bracket to the wall with 6 or more screws and anchor bolts through the holes near the outer edge of the bracket.
- Do not install the wall hook bracket at only one place or at an angle. For a concrete wall, embed anchor bolts (10 mm dia.) into the wall at the wall hook bracket holes (12 x 18 mm dia.). Allow the anchor bolts to stick out at least 18 mm from the wall.(Fig.8)

  Install the unit to the anchor bolts with nuts through the wall hook bracket. Use 2 bolts for concrete wall and 4 bolts for blister concrete wall.
- Finally tighten the bolts and wood screws after confirming, using the level indicator, that the clamp is horizontal.

⚠ CAUTION

Install the wall hook bracket horizontally and perpendicularly. If the wall hook bracket is tilted, water will drip to the floor.

Fig. 8

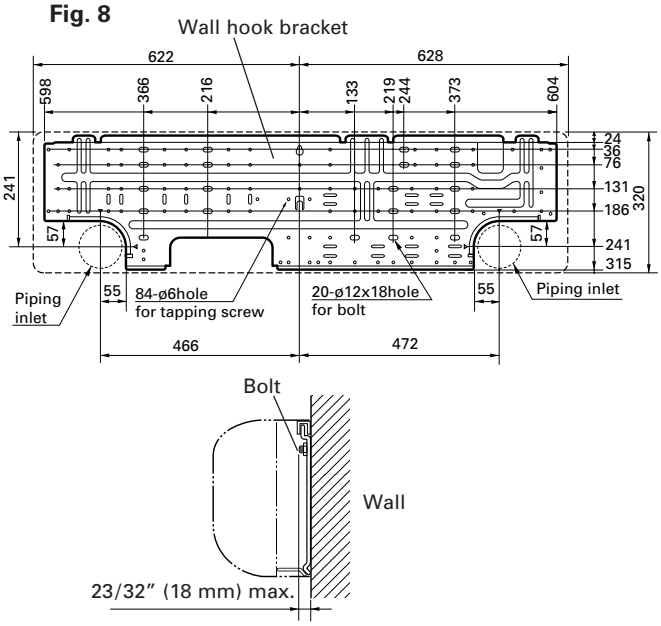
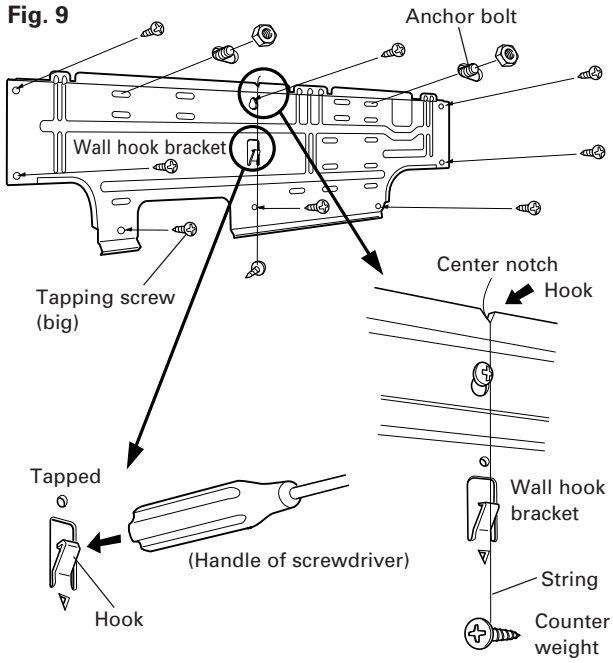


Fig. 9



2. CUTTING THE HOLE IN THE WALL FOR THE CONNECTING PIPING

⚠ WARNING

If the wall pipe is not used, the cord interconnecting the indoor and outdoor units may touch metal and cause electric leakage.

(1) Cut a 100 mm diameter hole in the wall at the position shown in Fig. 10.

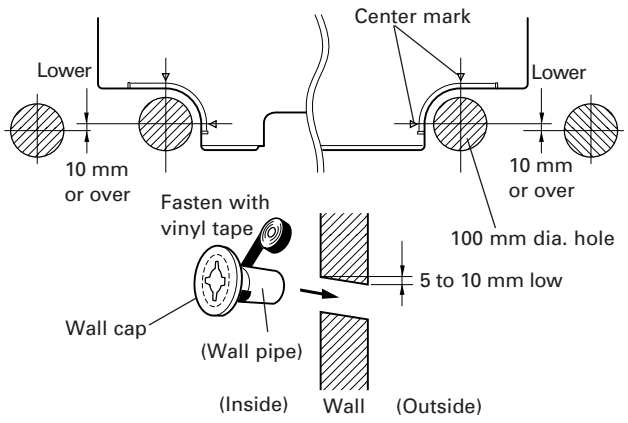
(2) When cutting the wall hole at the inside of the installation frame, cut the hole to a point of intersection of center marks.
When cutting the wall hole at the outside of the installation frame, cut the hole at least 10 mm below less.

(3) Cut the hole so that the outside end is lower (5 to 10 mm) than the inside end.

(4) Always align the center of the wall hole. If misaligned, water leakage will occur.

(5) Cut the wall pipe to match the wall thickness, stick it into the wall cap, fasten the cap with vinyl tape, and stick the pipe through the hole. (The connection pipe is supplied in the installation set.) (Fig. 10)

Fig. 10



(6) For ⑤ left piping and ② right piping, cut the hole a little lower so that drain water will flow freely. (Fig. 10)

3. FORMING THE DRAIN HOSE AND PIPE

⚠ CAUTION

(1) Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.

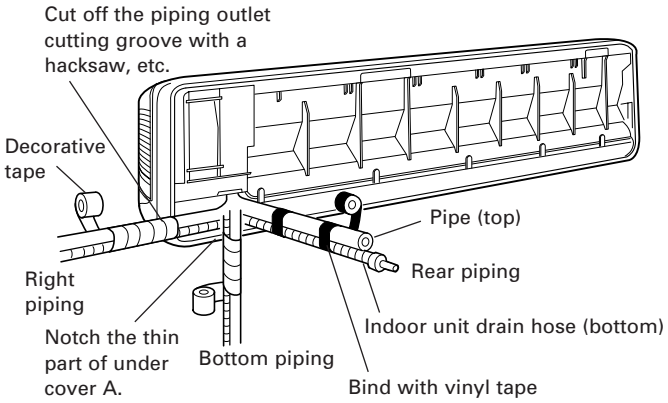
(2) To prevent breaking of the pipe, avoid sharp bends. Bend the pipe with a radius of curvature of 100 mm or over.

(3) If the pipe is bent repeatedly at the same place, it will break.

[① Rear piping, ② Right piping, ③ Bottom piping]

- Install the indoor unit piping in the direction of the wall hole and bind the drain hose and pipe together with vinyl tape. (Fig. 11)
- Install the piping so that the drain hose is at the bottom.

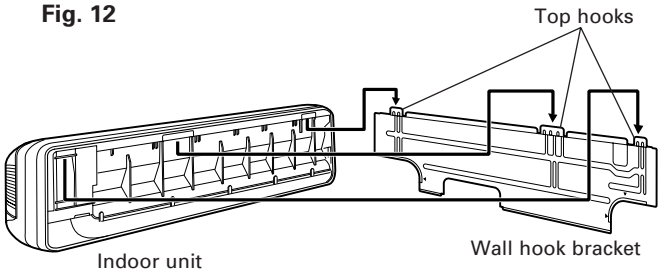
Fig. 11



- Perform "❷ INDOOR UNIT WIRING" before performing this piping.
- Wrap the pipes of the indoor unit that are visible from the outside with decorative tape.

- After passing the indoor piping and drain hose through the wall hole, hang the indoor unit on the hooks at the top of the wall hook bracket.

Fig. 12



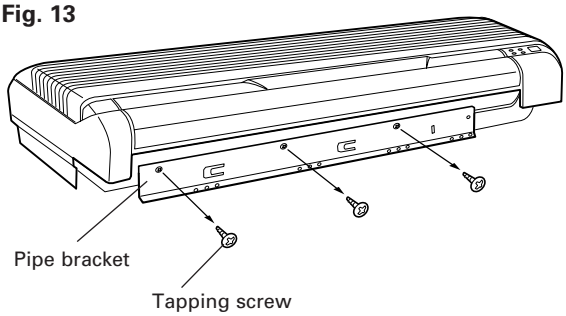
[For ④ Left rear piping, ⑤ Left piping]

- Left piping and left rear piping can be easily installed by removing the pipe bracket.

Removing the pipe bracket

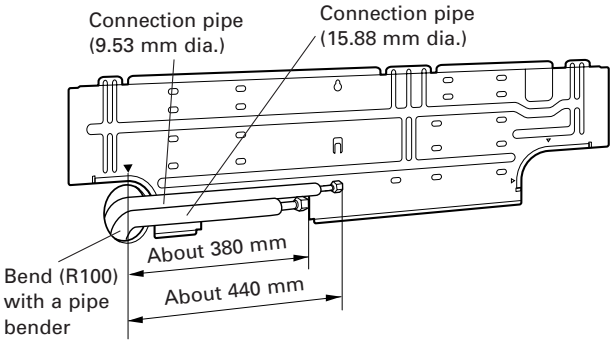
Remove the three tapping screws holding the pipe bracket as shown below.

Fig. 13



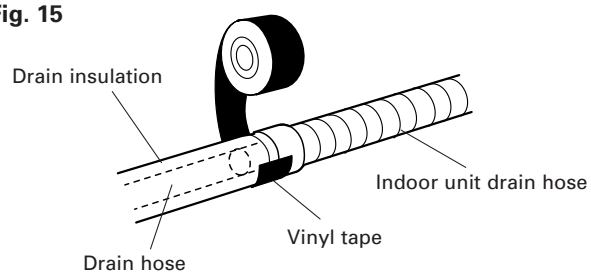
• For left piping and left rear piping, preset the end of the pipe to the dimensions shown in Fig. 14 from the mark on the wall hook bracket and form the connection pipe.
• Bend the connection piping at a bend radius of at least 100 mm and position it no more than 50 mm from the wall.

Fig. 14



• When extending the drain hose at the indoor unit, install the acces-sory drain insulation.

Fig. 15

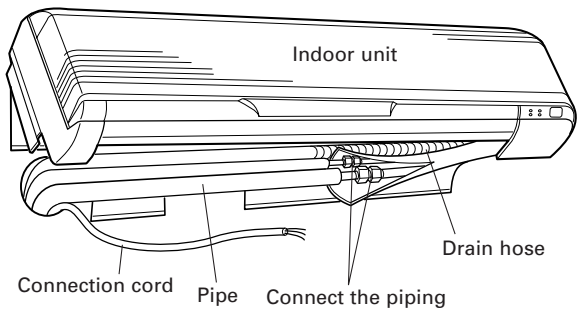


• Place the indoor unit drain hose behind the piping.

[Installing the indoor unit]

• Piping work can be made easier by laying out, shaping, and temporarily fastening the connection pipe, drain hose, and connection cord as shown in Fig. 16 beforehand.

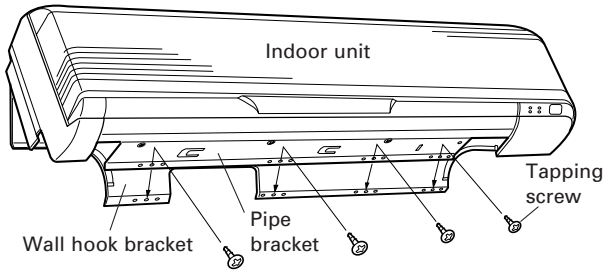
Fig. 16 (Left piping)



4. INSTALLING THE INDOOR UNIT

After connecting the piping, fasten the bottom of the indoor unit and the wall hook bracket with the tapping screws.

Fig. 17



2. INDOOR UNIT WIRING

⚠ CAUTION

(1) Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.

(2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.

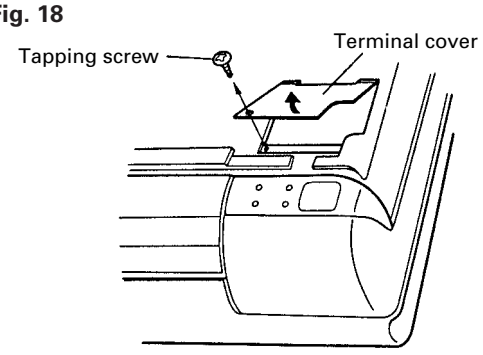
(3) Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)

(4) Always connect the ground wire.

(1) Remove the intake grille.
(2) Remove the terminal cover. (Fig. 18)

Removing the terminal cover

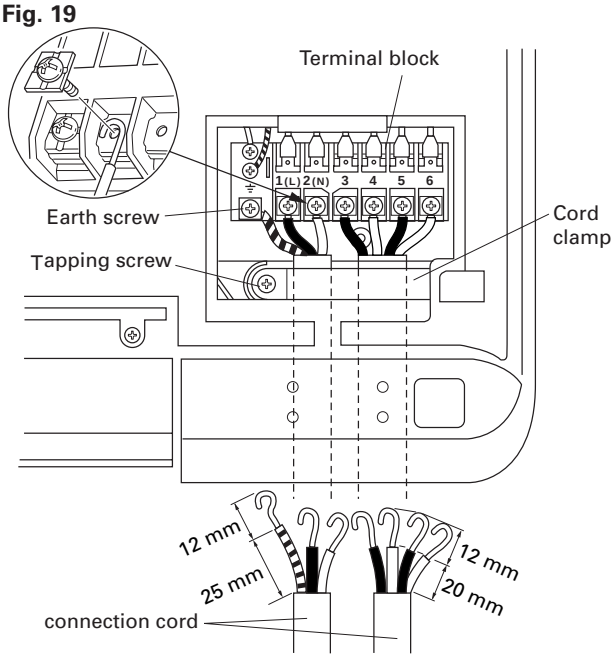
Fig. 18



[Heat & Cool model (Reverse cycle)]

(3) Remove the cord clamp.
(4) Process the end of the connection cords to the dimensions shown in Fig. 19.
(5) Connect the end of the connection cord fully into the terminal block .

Fig. 19

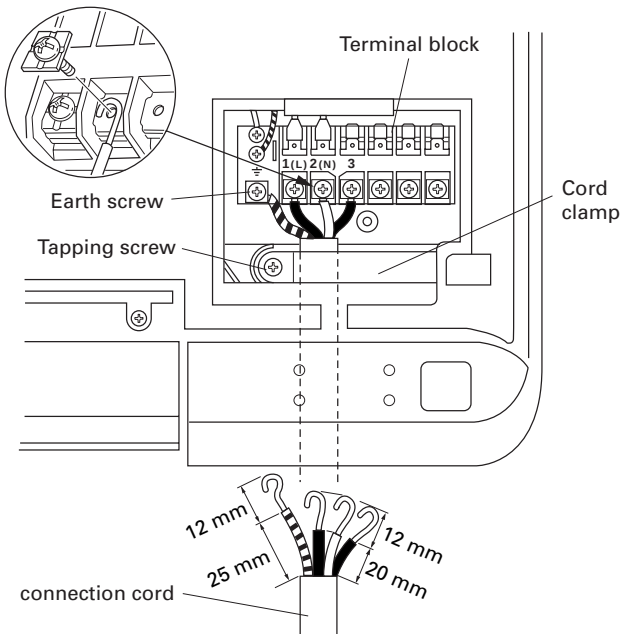


(6) Fasten the connection cord with a cord clamp.
(7) Fasten the terminal cover with the screw.

[Cooling model]

(3) Remove the cord clamp.
(4) Process the end of the connection cords to the dimensions shown in Fig. 20.
(5) Connect the end of the connection cord fully into the terminal block .

Fig. 20



(6) Fasten the connection cord with a cord clamp.
(7) Fasten the terminal cover with the screw.

3. OUTDOOR UNIT INSTALLATION

⚠ WARNING

(1) Install the unit where it will not be tilted by more than 5°.

(2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

- Set the unit on a strong stand, such as one made of concrete blocks to minimize shock and vibration.
- Do not set the unit directly on the ground because it will cause trouble.

4. CONNECTING THE PIPING

⚠ CAUTION

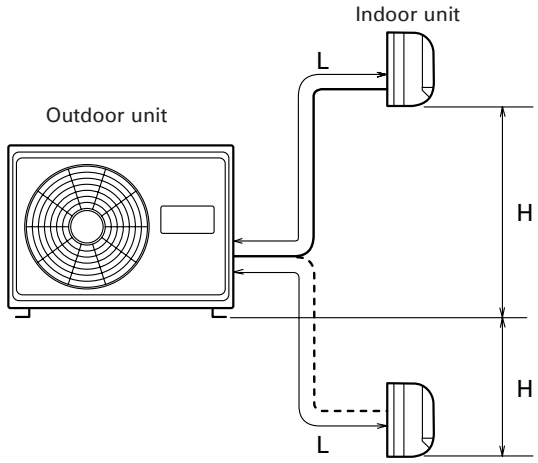
The maximum lengths of this product are shown in table 2. If the units are further apart than this, correct operation can not be guaranteed.

1. LIMITATION OF REFRIGERANT PIPING LENGTH

Table 2

Max length (L)	20 m (66 ft)
Max height difference (H)	8 m (20 ft)

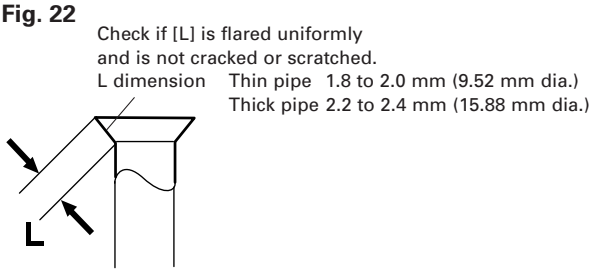
Fig. 21



2. FLARING

(1) Cut the connection pipe to the necessary length with a pipe cutter.
(2) Hold the pipe downward so that cuttings will not enter the pipe and remove the burrs.
(3) Insert the flare nut onto the pipe and flare the pipe with a flaring tool.

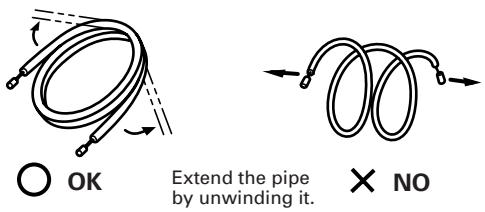
Fig. 22



3. BENDING PIPES

The pipes are shaped by your hands. Be careful not to collapse them.

Fig. 23



Do not bend the pipes in an angle more than 90°.
When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

4. CONNECTION

(1) Install the outdoor unit wall cap (supplied with the optional installation set or procured at the site) to the wall pipe.
(2) Connect the outdoor unit and indoor unit piping.
(3) After matching the center of the flare surface and tightening the nut hand tight, tighten the nut to the specified tightening torque with a torque wrench. (Tighten the flare nut of the outdoor unit 3-way valve after air purging.)

Fig. 24

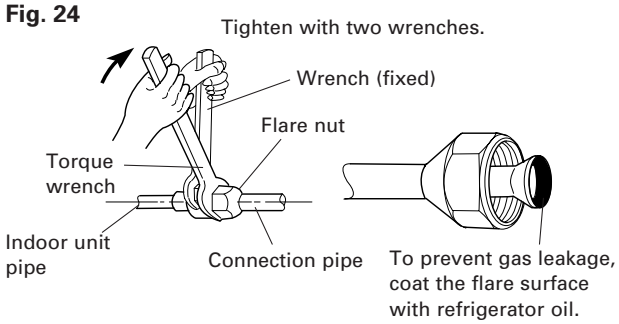


Table 3 Flare nut tightening torque

Flare nut	Tightening torque
9.52 mm dia.	30.4 to 34.3 N•m (310 to 350 kgf•cm)
15.88 mm dia.	73.6 to 78.5 N•m (750 to 800 kgf•cm)

Do not remove the cap from the connection pipe before connecting the pipe.

5. AIR PURGE

⚠ CAUTION

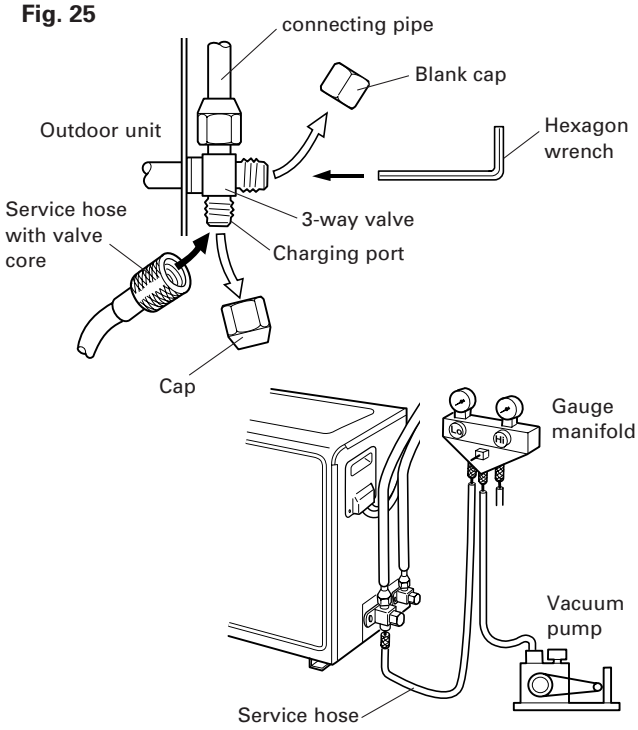
(1) When moving and installing the room air conditioner, do not mix gas other than the specified refrigerant (R22) inside the refrigerant cycle.

(2) Charging of additional refrigerant (R22) according to the piping length is unnecessary.

1. VACUUM

(1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
(2) Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5 mmHg.
(3) Disconnect the service hoses and fit the cap to the charging valve (Tightening torque : 70 to 90 kgf • cm).
(4) Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench (Torque : 2-way valve: 70 to 90 kgf • cm, 3-way valve: 100 to 120 kgf • cm).
(5) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (200 to 250 kgf • cm).

Fig. 25



2. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 5 m is charged in the outdoor unit at the factory.
When the piping is longer than 5 m, additional charging is necessary. For the additional amount, see page 51.

6. GAS LEAKAGE INSPECTION

⚠ CAUTION

After connecting the piping, check the joints for gas leakage with gas leak detector.

7. OUTDOOR UNIT WIRING

⚠ WARNING

(1) Before starting work, check that power is not being supplied to indoor unit and the outdoor unit.

(2) Match the terminal block numbers and connection cord colors with those of the indoor unit side. Erroneous wiring may cause burning of the electric parts.

(3) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.

(4) Always fasten the outside covering of the connection cord with cord clamps. (If the insulator is clamped, electric leakage may occur.)

(5) Always connect the ground wire.

⚠ CAUTION

(1) The power cord is not supplied with the outdoor unit. Use 2.5 mm² to 3.5 mm² H07RN-F or equivalent as the connection cord.

(2) Use VW-1, 12 mm diameter, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

(1) Remove the outdoor unit terminal cover.
(2) Process the end of the connection cords to the dimensions shown in Fig. 27 and bend the end of each cord as shown in Fig. 26.
(3) Connect the end of the connection cord fully into the terminal block and fasten with the screws.
(4) Fasten the sheath with a cord clamp.
(5) Install the terminal cover.

Fig. 26 Stripped length

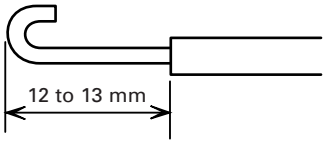
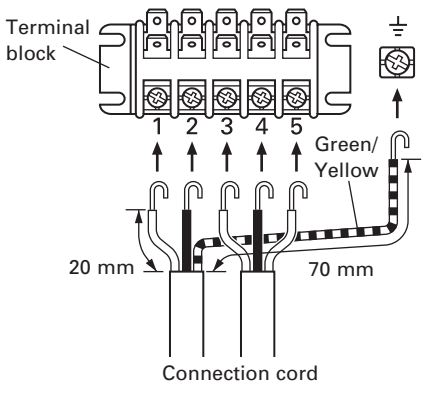
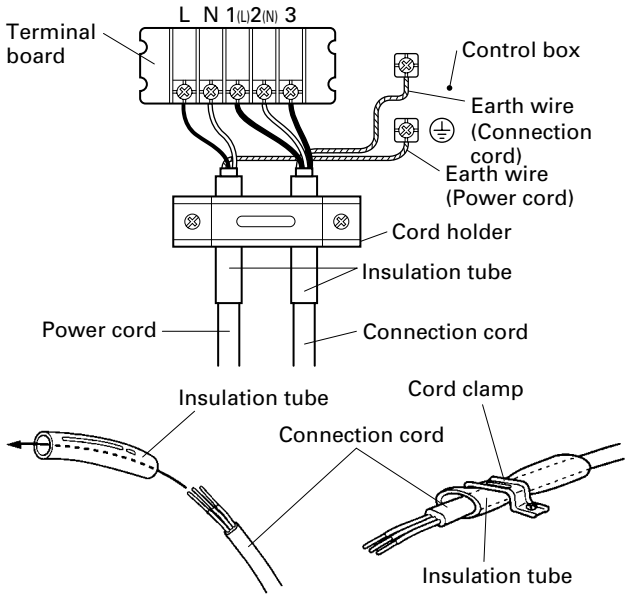


Fig. 27

Heat & Cool model
(Reverse cycle)



Cooling model

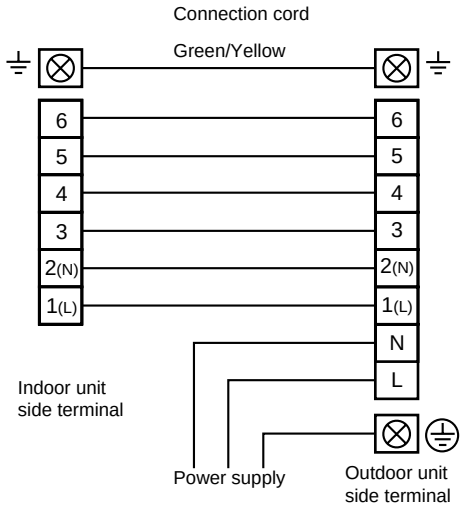


After passing the connection cord through the insulation tube, fasten it with the cord clamp

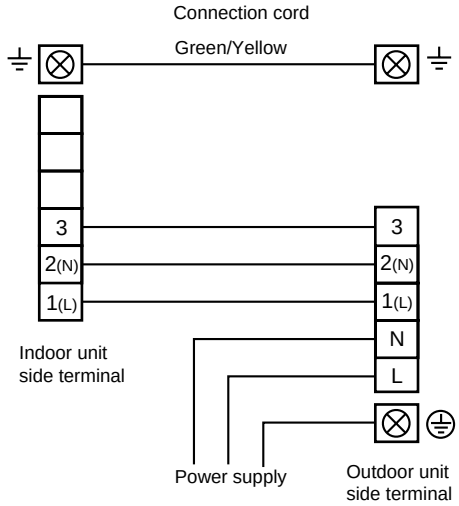
1. CONNECTION DIAGRAM

Fig. 28

Heat & Cool model
(Reverse cycle)



Cooling model

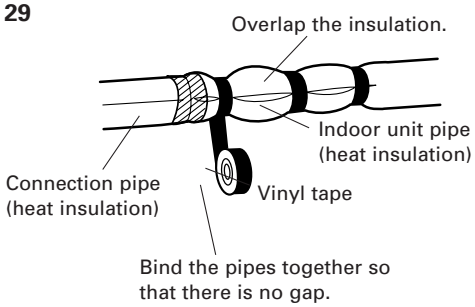


8. FINISHING

(1) Insulate between pipes.

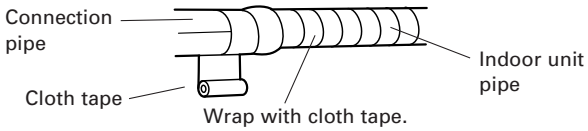
- For rear, right, and bottom piping, overlap the connection pipe heat insulation and indoor unit pipe heat insulation and bind them with vinyl tape so that there is no gap.
- For left and left rear piping, butt the connection pipe heat insulation and indoor unit pipe heat insulation together and bind them with and vinyl tape so that there is no gap.

Fig. 29



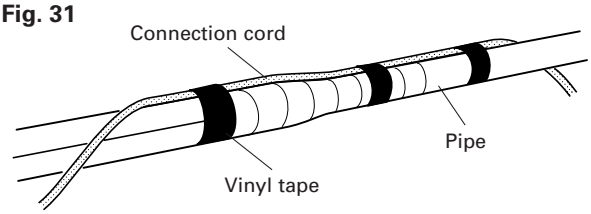
- For left and left rear piping, wrap the area which accommodates the rear piping housing section with cloth tape.

Fig. 30



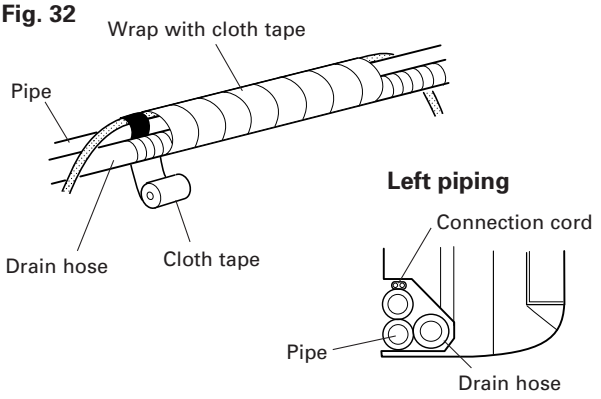
- For left and left rear piping, bind the connection cord to thetop of the pipe with vinyl tape.

Fig. 31



- For left and left rear piping, bundle the piping and drain hose together by wrapping them with cloth tape over the range within which they fit into the rear piping housing section.

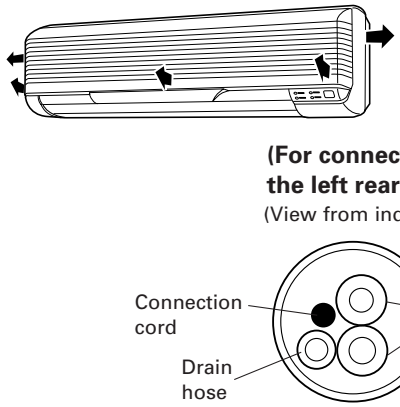
Fig. 32



Check that:

- The top and bottom hooks are hooked firmly and the indoor unit does not move to the front and rear or left and right.
- The indoor unit is accurately positioned horizontally and vertically.
- When connected from the left rear, the drain hose is at the bottom left of the wall pipe.

Fig. 33

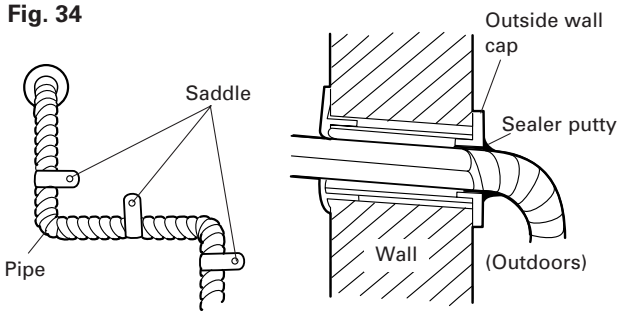


(2) Temporarily fasten the connection cord along the connection pipe with vinyl tape. (Wrap to about 1/3 the width of the tape from the bottom of the pipe so that water does not enter.)

(3) Fasten the connection pipe to the outside wall with a saddle, etc.

(4) Fill the gap between the outside wall pipe hole and the pipe with sealer so that rain water and wind cannot blow in.

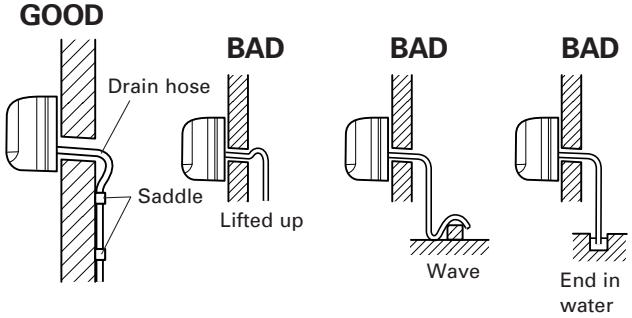
Fig. 34



(5) Fasten the drain hose to the outside wall, etc.

Fig. 34

Check the following :



Installing the under covers

(1) Installing under cover A (Fig. 36)

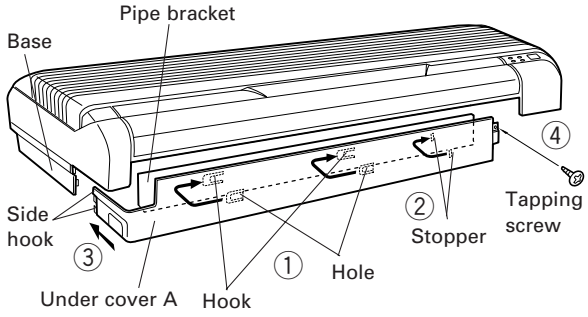
① Hook the two pipe bracket hooks to the two holes in the back of under cover A.

② While pulling the left side of under cover A forward about 1 cm (at this time, hole hook ① so that it does not come unhooked), slide under cover A to the right and hook the hook.

③ Push the left side of under cover A in the arrow direction and hook the two side hooks to the base.

④ Install under cover A to the pipe bracket with the tapping screw.

Fig. 36

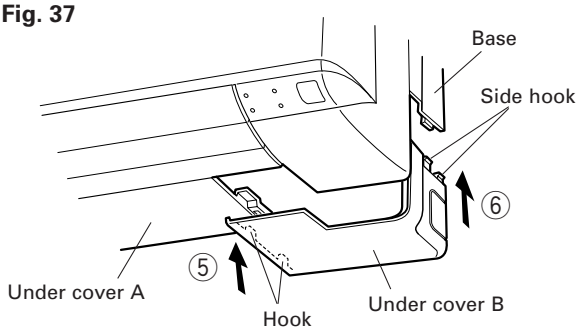


(2) Installing under cover B (Fig. 37)

⑤ Push the left side of under cover B in the arrow direction and hook the two hooks to under cover A.

⑥ Push the right side of under cover B in the arrow direction and hook the two side hooks to the base.

Fig. 37



9. POWER

⚠ WARNING

(1) The rated voltage of this product is 220-240 V A.C. 50 Hz.

(2) Before turning on the verify that the voltage is within the 198 V to 264 V range.

(3) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.

(4) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner. (Install in accordance with standard)

(5) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3 mm between the contacts of each pole.

(6) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.

(7) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION

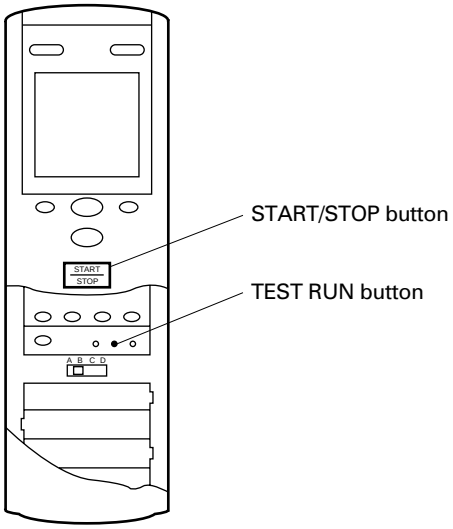
(1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.

(2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

10. TEST RUNNING

- Press the remote control unit test run button while the air conditioner is running.
- At the end of test running, press the remote control unit start/stop button. (Fig. 38)

Fig. 38



Operation can be checked by lighting and flashing of the display section OPERATION and TIMER lamps.

Perform judgement in accordance with the following.

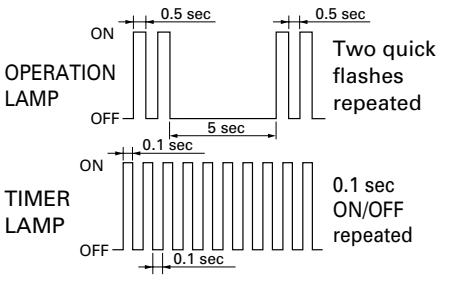
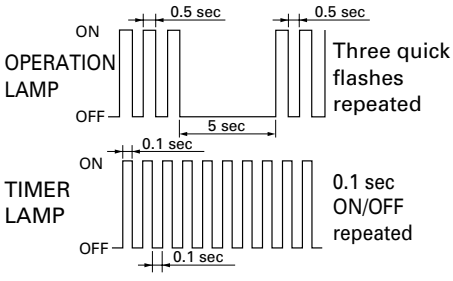
- Test running

When the air conditioner is run by pressing the remote control unit test run button, the OPERATION and TIMER lamps flash slowly at the same time.

- Error

The OPERATION and TIMER lamps operate as follows (Table 5) according to the error contents.

Table 5

Error display	Error contents
	Room temperature thermistor abnormal temperature detected
	Piping thermistor abnormal temperature detected

CHECK ITEMS

(1) INDOOR UNIT

(1) Is operation of each button on the remote control unit normal?
(2) Does each lamp light normally?
(3) Do not air flow direction louvers operate normally?
(4) Is the drain normal?
(5) Is there any abnormal noise and vibration during operation?

(2) OUTDOOR UNIT

(1) Is there any abnormal noise and vibration during operation?
(2) Will noise, wind, or drain water from the unit disturb the neighbors?
(3) Is there any gas leakage?

- Do not operate the air conditioner in the test running state for a long time.
- For the operation method, refer to the operating manual and perform operation check.

11. CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
(2) Air filter removal and cleaning, and how to use the air louvers.
(3) Give the operating and installation manuals to the customer.

12. FRONT PANEL REMOVAL

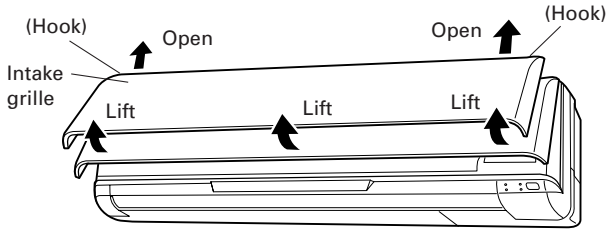
⚠ CAUTION

Install the front panel and intake grille securely. If installation is imperfect, the front panel or intake grille may fall off and cause injury.

1. INTAKE GRILLE REMOVAL

(1) Open the intake grille.
(2) Open the intake grille and lift the intake grille upward until the hook at the top of the intake grille is unhooked.

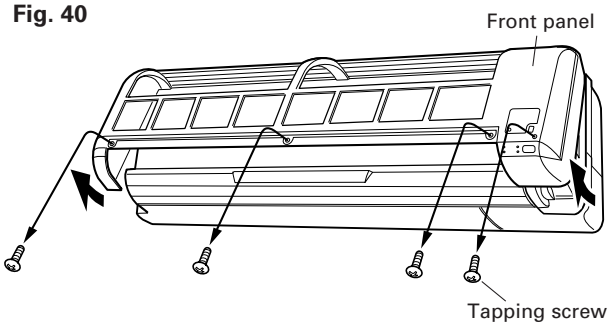
Fig. 39



2. FRONT PANEL REMOVAL

(1) Remove the four tapping screws.
(2) Remove the front panel by lifting the bottom of the front panel upward.

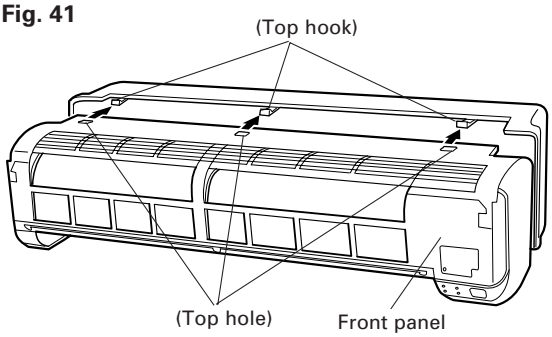
Fig. 40



3. FRONT PANEL INSTALLATION

(1) Hook the top hole of the front panel to the hook of the base.
(2) Fasten the front panel with the screw.

Fig. 41



Be sure that the top hole of the front panel is hooked securely to the hook of the base.

13. REMOTE CONTROL UNIT INSTALLATION

⚠ CAUTION

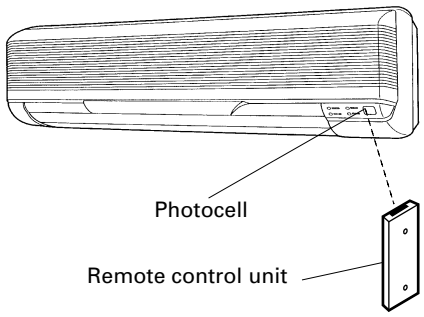
(1) Check that the indoor unit correctly receives the signal from the remote control unit, then install the remote control unit holder.

(2) Select the remote control unit holder selection site by paying careful attention to the following: Avoid places in direct sunlight. Select a place that will not be affected by the heat from a stove, etc.

1. REMOTE CONTROL UNIT HOLDER INSTALLATION

- Install the remote control unit so that the front is facing the photocell.(Fig. 42)

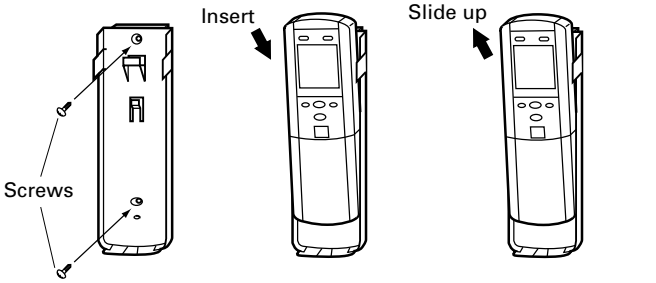
Fig. 42



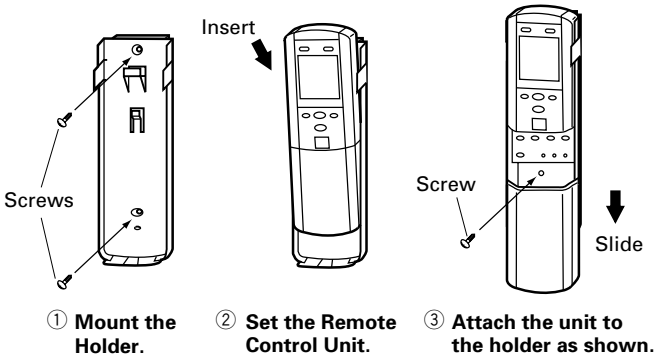
- Install the remote control unit with a distance of 7 m between the remote control unit and the photocell as the criteria. However, when installing the remote control unit, check that it operates positively.
- Install the remote control unit holder to a wall, pillar, etc. with the tapping screw (Fig. 43).

Fig. 43

For use as Handy Type

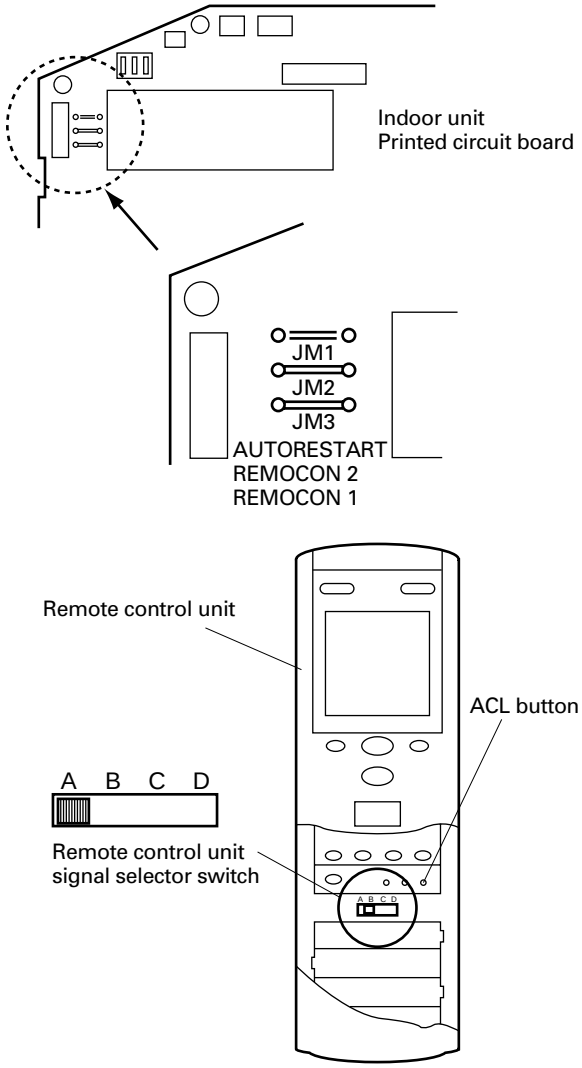


For use as Wall Fixing Type



2. REMOTE CONTROL UNIT CODE SWITCHING

Fig. 44



Confirm the remote control unit signal selector switch selection and the printed circuit board setting.

If these are not set to the same setting, the remote control unit cannot be used to operate for the air conditioner.

Table 6

Jumper wire		Remote control unit signal selector switch
JM 2	JM 3	
Connect	Connect	A (Primary setting)
Connect	Disconnect	B
Disconnect	Connect	C
Disconnect	Disconnect	D

After setting the remote control unit signal selector switch, press the ACL button.

6.2 FLOOR CONSOLE/UNDER CEILING DUAL TYPE

SPLIT TYPE AIR CONDITIONER

INSTALLATION MANUAL

Models : ABT18AGA-W, ABT24AGA-W, ABT24RGA-W,
ABY18AGA-W, ABY18RGA-W, ABY24AGA-W, ABY24RGA-W

For authorized service personnel only.

⚠ WARNING	
(1)	For the room air conditioner to operate satisfactorily, install it as outlined in this installation manual.
(2)	Connect the indoor unit and outdoor unit with the room air conditioner piping and cords available standards parts. This installation manual describes the correct connections using the installation set available from our standard parts.
(3)	Installation work must be performed in accordance with national wiring standards by authorized personnel only.
(4)	Never cut the power cord, lengthen or shorten the cord, or change the plug.
(5)	Also, do not use an extension cord.
(6)	Plug in the power cord plug firmly. If the receptacle is loose, repair it before using the room air conditioner.
(7)	Do not turn on the power until all installation work is complete.

- Be careful not to scratch the room air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation manual because it is used when the room air conditioner is serviced or moved.

SELECTING THE MOUNTING POSITION

⚠ WARNING

Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

⚠ CAUTION

(1) Do not install where there is the danger of com-bustible gas leakage.

(2) Do not install near heat sources.

(3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

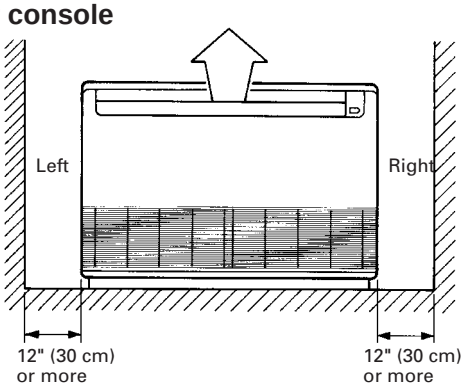
Decide the mounting position with the customer as follows:

1. INDOOR UNIT

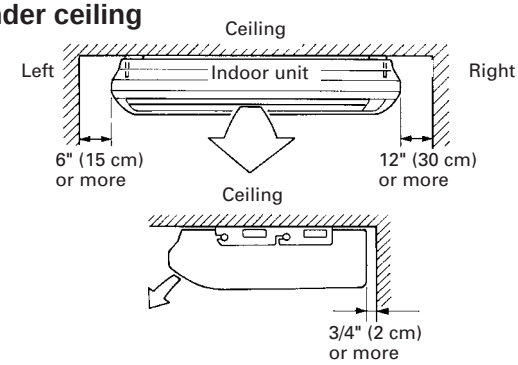
(1) Install the indoor unit level on a strong wall, floor, ceiling which is not subject to vibration.
(2) The inlet and outlet ports should not be obstructed : the air should be able to blow all over the room.
(3) Install the unit near an electric outlet or special branch circuit.
(4) Do not install the unit where it will be exposed to direct sunlight.
(5) Install the unit where connection to the outdoor unit is easy.
(6) Install the unit where the drain pipe can be easily installed.
(7) Take servicing, etc. into consideration and leave the spaces shown in Fig.1. Also install the unit where the filter can be removed.

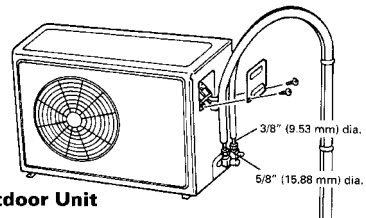
Fig. 1

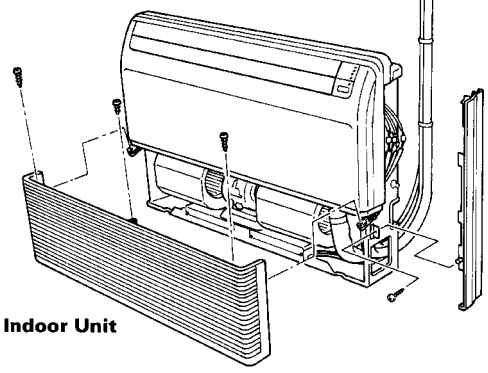
• Floor console



• Under ceiling



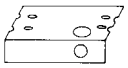
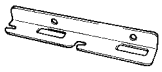
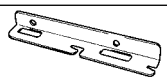
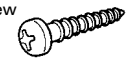
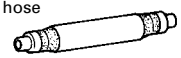
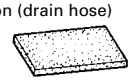
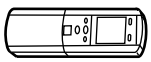
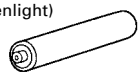




STANDARD PARTS

The following installation parts are furnished.
Use them as required.

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Cover plate (left) 	1	
Cover plate (right) 	1	
Tapping screw (ø4 x 10) 	2	
Installation template 	1	For positioning the indoor unit For under ceiling type.
Bracket (left) 	1	For suspending the indoor unit from ceiling
Bracket (right) 	1	
Anchor bolt (M12) 	4	
Spring washer 	4	
Special nut 	4	
Wall bracket 	2	For suspending the indoor unit on the wall.
Tapping screw (ø4 x 20) 	6	For fixing the wall bracket.
Coupler heat insulator (large) 	1	For indoor side pipe joint (Large pipe)
Coupler heat insulator (small) 	1	For indoor side pipe joint (Small pipe)
Nylon fastener	1	For fixing the drain hose
Drain hose 	1	
Insulation (drain hose) 	1	Adhesive type 70 × 230
VT wire 	1	For fixing the drain hose L 280 mm
Remote control unit 	1	Use for air conditioner operation
Battery (penlight) 	4	For remote control unit
Remote control unit holder 	1	For mounting the remote control unit
Tapping screw (ø3 x 12) 	3	For remote control unit holder installation

OUTDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Hexagon wrench 	1	For air purge
Pipe (drain) 	1	For outdoor unit drain piping work (Heat & Cool model only)
Flexible tube 	1	For outdoor unit drain piping work (Heat & Cool model only)
Cap (drain) 	2	For outdoor unit drain piping work (Heat & Cool model only)

OPTIONAL PARTS FOR INDOOR UNIT

Name and Shape	Part No.	Application
Joint pipe-A 	9302812021	For indoor side pipe joint

CONNECTION PIPE REQUIREMENT

Table 1

Diameter		Maximum length	Maximum height (between indoor and outdoor)
Small	Large		
9.53 mm (3/8 in)	15.88 mm (5/8 in)	20 m (66 ft)	8 m (26 ft)

- Use 0.7 mm to 1.2 mm thick pipe.
- Use pipe with water-resistant heat insulation.
- Use pipe that can withstand a pressure of 3,040 kPa.

2. OUTDOOR UNIT

⚠ WARNING

(1) Install the unit where it will not be tilted by more than 5°

(2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

(1) If possible, do not install the unit where it will exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)

(2) Install the outdoor unit in a place where it will be free from being dirty or getting wet by rain as much as possible.

(3) Install the unit when connection to the indoor unit is easy.

(4) During heating operation, drain water flows from the outdoor unit. Therefore, install the outdoor unit in a place where the drain water flow will not be obstructed. (Reverse cycle model only)

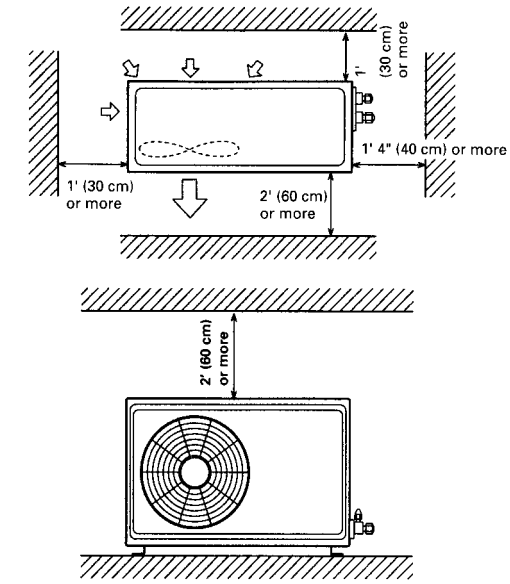
(5) Do not place animals and plants in the path of the warm air.

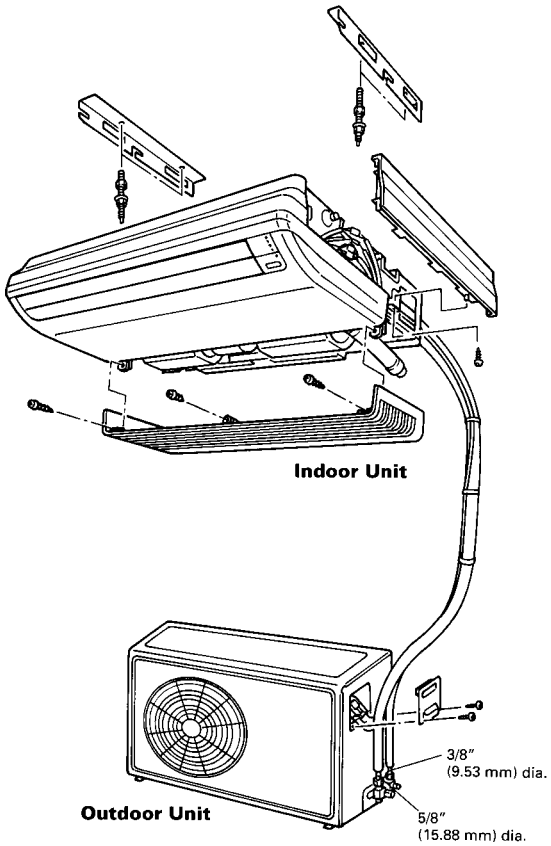
(6) Take the air conditioner weight into account and select a place where noise and vibration are small.

(7) Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.

(8) Provide the space shown in Fig. 2 so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.

Fig. 2





INSTALLATION PROCEDURE

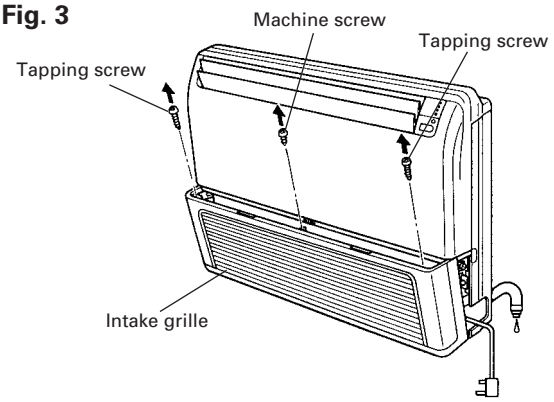
Install the air conditioner as follows:

1. PREPARING INDOOR UNIT INSTALLATION

REMOVE THE INTAKE GRILLE

Open the intake grille and remove the three screws (Fig. 3).

Fig. 3



Remark : The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.

2. INDOOR UNIT INSTALLATION

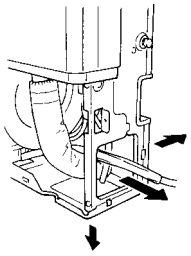
A. FLOOR CONSOLE TYPE

1. DRILLING FOR PIPING

Select piping and drain directions (Fig. 4).

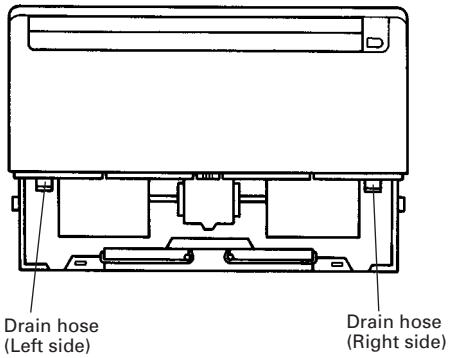
The piping and drain can be made in three directions as shown below.

Fig. 4



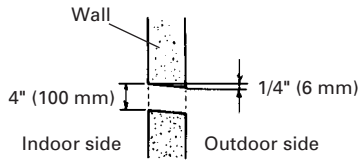
The drain hose can be connected to either the left or right side (Fig. 5).

Fig. 5



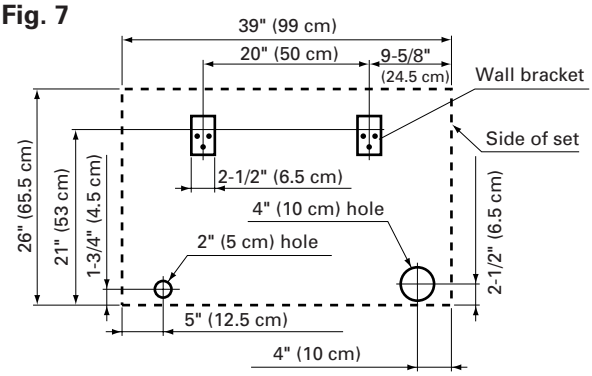
When the directions are selected, drill a 4" (10 cm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole in Fig. 6, at the position shown.

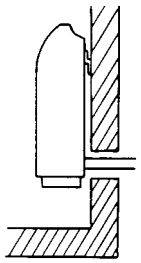
Fig. 6



When installing set to wall install the accessory wall bracket at the position shown in Fig. 7, and mount the set to it.

Fig. 7





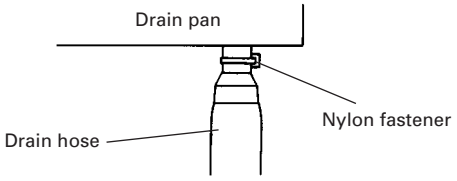
2. INSTALLING DRAIN HOSE

INSTALL THE DRAIN HOSE

Select whether the drain hose will be connected to the left or right side (Fig. 5).

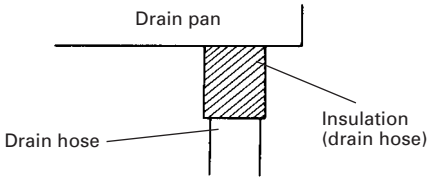
Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (Fig. 8).

Fig. 8



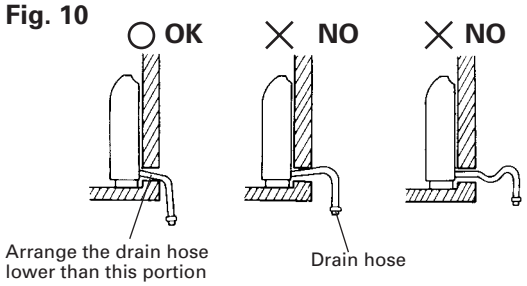
Wrap the insulation (drain hose) around the drain hose connection (Fig. 9).

Fig. 9



Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.

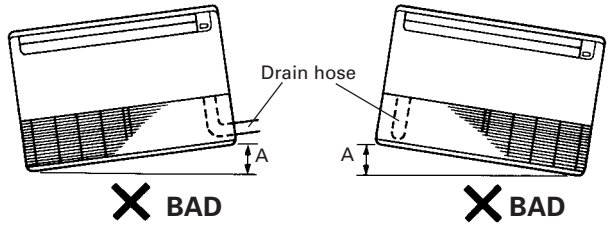
Fig. 10



⚠ CAUTION

Do not install the unit so that the drain hose side is too high. Height A should be less than 5 mm (Fig. 11).

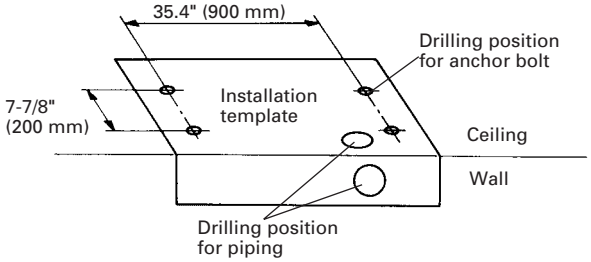
Fig. 11



B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts (for holes) (Fig. 12).

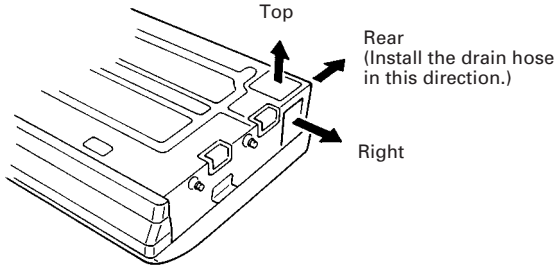
Fig.12



1. DRILLING FOR PIPING

Select piping and drain directions (Fig. 13).

Fig.13

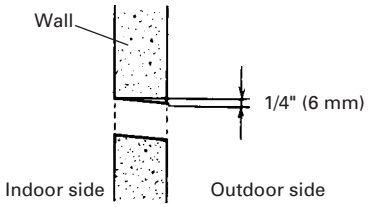


⚠ CAUTION

Install the drain hose at the rear; it should not be installed on the top or right side.

When the directions are selected, drill 3-1/8″ (80 mm) and 2″ (50 mm) or 6″ (150 mm) dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.

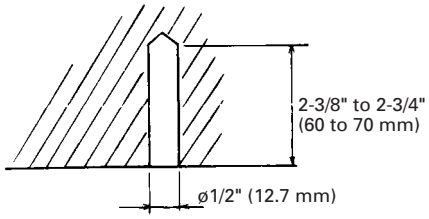
Fig.14



2. DRILLING HOLES FOR ANCHOR BOLTS AND INSTALLING THE ANCHOR BOLTS

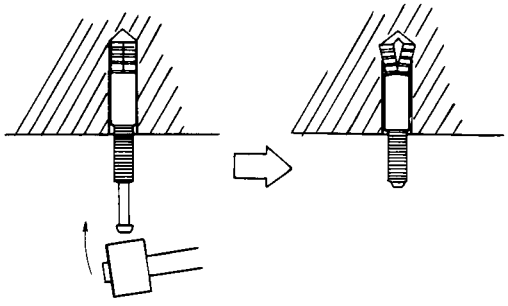
With a concrete drill, drill four 1/2″ (12.7 mm) dia. holes (Fig. 15).

Fig.15



Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer (Fig. 16).

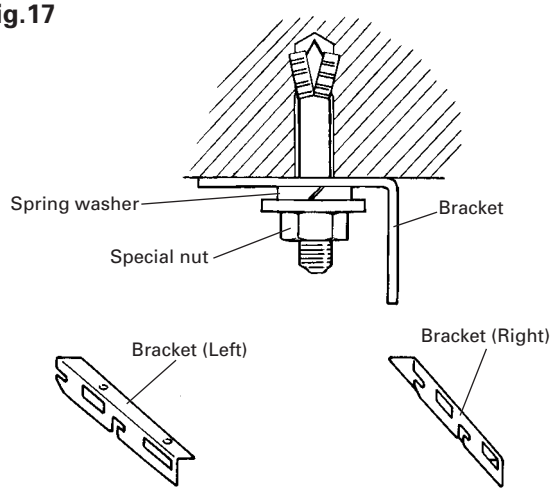
Fig.16



3. INSTALLING BRACKETS

Install the brackets with nuts, washers and spring washers (Fig. 17).

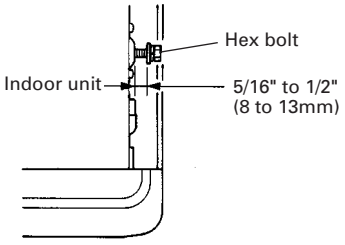
Fig.17



4. INSTALLING INDOOR UNIT

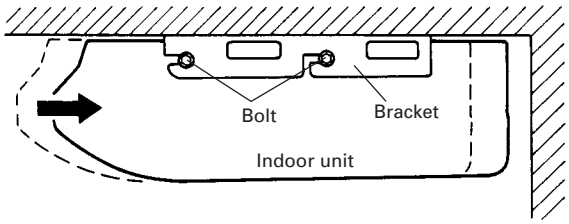
Reset the hex bolts as shown in Fig. 18.

Fig.18



Apply the indoor unit to the brackets (Fig. 19).

Fig.19



Now, securely tighten the hex bolts in both sides.

5. INSTALL THE DRAIN HOSE

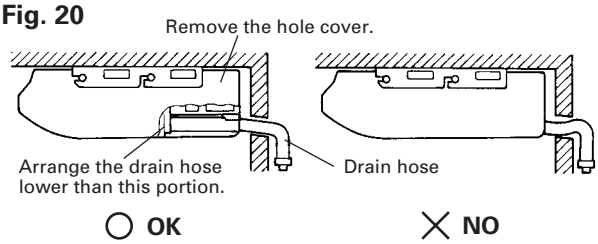
Select whether the drain hose will be connected to the left or right side (Fig. 5).

Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener (Fig. 8).

Wrap the insulation (drain hose) around the drain hose connection (Fig. 9).

Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit (Fig. 20).

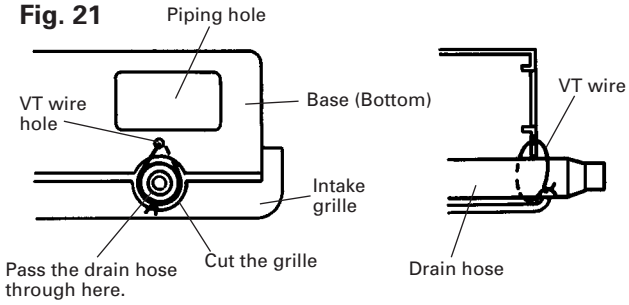
Fig. 20



When drain hose is arranged backward.

Secure the drain hose with the VT wire (Fig.21).

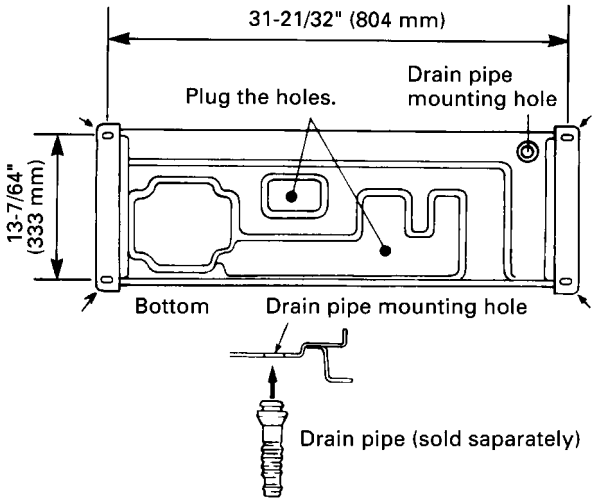
Fig. 21



3. OUTDOOR UNIT INSTALLATION

- When the outdoor unit will be exposed to strong wind, fasten it with bolts at the places indicated by the arrows. (Fig. 22)
- Since the drain water flows out of the outdoor unit during heating operation, install the drain pipe sold separately and connect it to an commercial 16 mm hose. (Heat & Cool model only)
- When installing the drain pipe, plug all the holes (• holes at two places) other than the drain pipe mounting hole in the bottom of the outdoor unit with putty so there is no water leakage. (Fig. 22) (Heat & Cool model only)

Fig. 22



4. CONNECTING THE PIPING

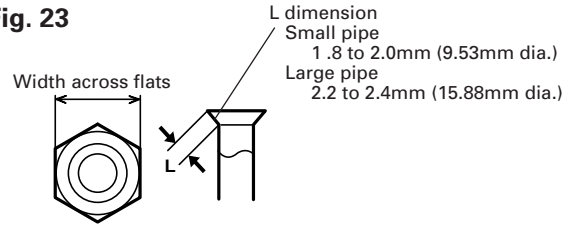
1. FLARE PROCESSING

(1) Cut the connection pipe with pipe cutters so that the pipe is not deformed.
(2) Holding the pipe downwards so that cuttings cannot enter the pipe, remove the burrs.
(3) Remove the flare nut from the indoor unit pipe and outdoor unit and assemble as shown in (Table 1) and insert the flare nut onto the pipe, and flare with a flaring tool.
(4) Check if the flared part "L" (Fig. 23) is spread uniformly and that there are no cracks.

Table 2

Pipe	Flare nut
Small pipe	Small (width across flats 22 mm)
Large pipe	Large (width across flats 24 mm)

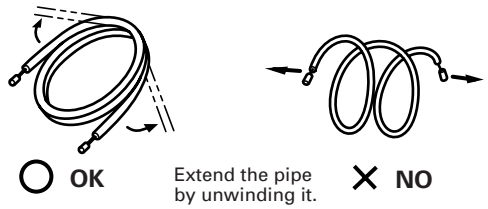
Fig. 23



2. BENDING PIPES

The pipes are shaped by your hands. Be careful not to collapse them.

Fig. 24

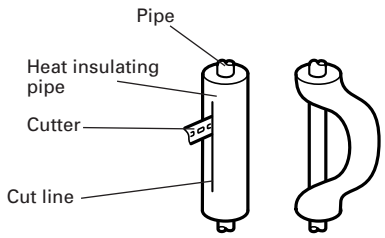


Do not bend the pipes in an angle more than 90°.

When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

When bending the pipe, do not bend it as is. The pipe will be collapsed. In this case, cut the heat insulating pipe with a sharp cutter as shown in Fig. 25, and bend it after exposing the pipe. After bending the pipe as you want, be sure to put the heat insulating pipe back on the pipe, and secure it with tape.

Fig. 25



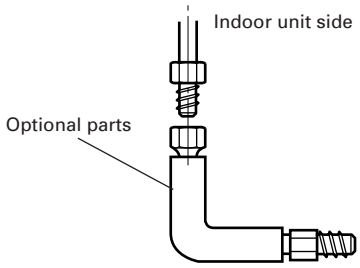
3. CONNECTION PIPES

(1) Indoor unit side

Centering the pipe against port on the indoor unit, turn the flare nut with your hand (Fig. 26).

Be sure that the small pipe is completely installed before connecting the large pipe.

Fig. 26



⚠ CAUTION

Be sure to apply the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.

When the flare nut is tightened properly by your hand, use a torque wrench to finally tighten it.

Fig. 27

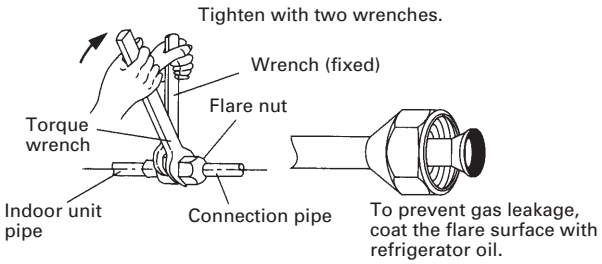


Table 3 : Flare nut tightening torque

Flare nut	Tightening torque
Small pipe 9.52 mm dia.	30.4 to 34.3 N · m (310 to 350 kgf · cm)
Large pipe 15.88 mm dia.	73.6 to 78.5 N · m (750 to 800 kgf · cm)

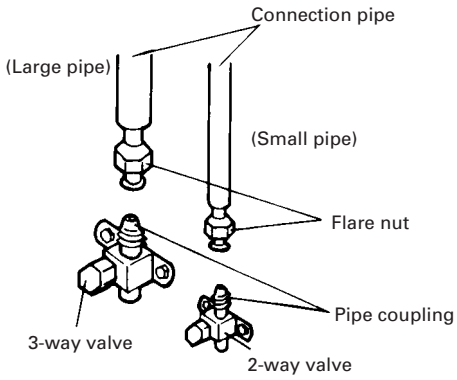
Do not remove the cap from the connection pipe before connecting the pipe.

⚠ CAUTION

Be sure to connect the large pipe after connecting the small pipe completely.

(2) Outdoor unit side
Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as that as at the indoor side.

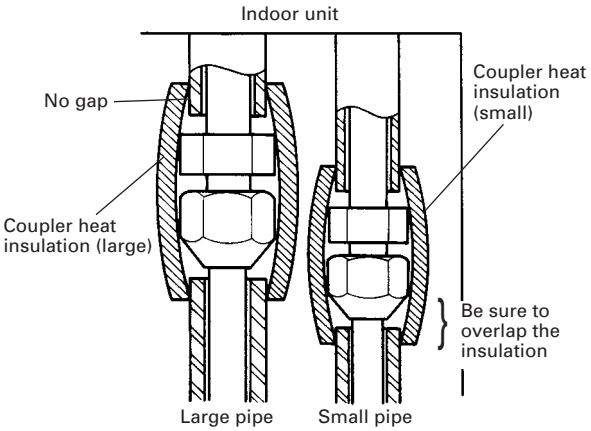
Fig. 28

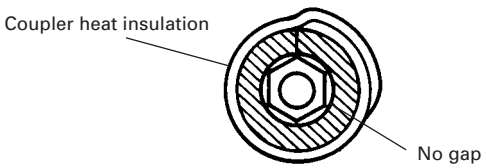


5. HEAT INSULATION ON THE PIPE JOINTS (INDOOR SIDE ONLY)

Put coupler heat insulation on the joints (indoor side only) (Fig. 29).

Fig.29

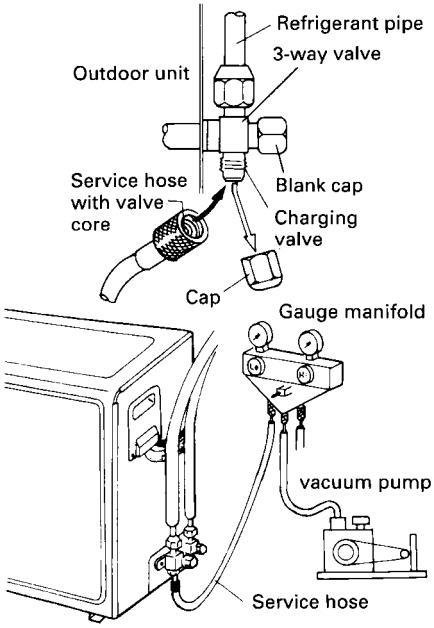




5. AIR PURGE

1. AIR PURGE

(1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
(2) Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5 mmHg.
(3) Disconnect the service hoses and fit the cap to the charging valve (Tightening torque : 70 to 90 kgf • cm).
(4) Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench (Torque : 2-way valve: 70 to 90 kgf • cm, 3-way valve: 100 to 120 kgf • cm).
(5) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque (200 to 250 kgf • cm).



2. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 5 m is charged in the outdoor unit at the factory.
When the piping is longer than 5 m, additional charging is necessary.
For the additional amount, see page 52.

4. GAS LEAKAGE INSPECTION

⚠ CAUTION

After connecting the piping, check the joints for gas leakage with gas leak detector.

7. HOW TO CONNECT WIRING TO THE TERMINALS

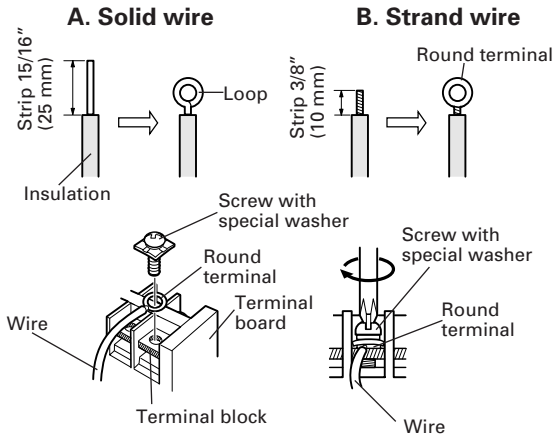
A. For solid core wiring (or F-cable)

(1) Cut the wire and with a wire cutter or wire-cutting pliers, then strip the insulation to about 15/16″ (25 mm) to expose the solid wire.
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

B. For strand wiring

(1) Cut the wire and with a wire cutter or wire-cutting pliers, then strip the insulation to about 3/8″ (10 mm) of expose the strand wiring.
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.

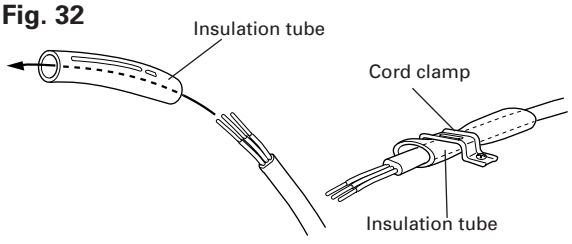
Fig. 31



HOW TO FIXED CONNECTION CORD AND POWER CABLE AT THE CORD CLAMP

After passing the connection cord and power cable through the insulation tube, fasten it with the cord clamp.

Fig. 32



Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

8. ELECTRICAL REQUIREMENT

Electric wire size and fuse capacity:

Table 4

		18,000 BTU/h class	24,000 BTU/h class
Connection cord (mm^2)	MAX	3.5	3.5
	MIN	2.5	2.5
Fuse capacity (A)		20	30

Always use H07RNF or equivalent as the connection cord

9. ELECTRICAL WIRING

⚠ WARNING

(1) Match the terminal block numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.

(2) Connect the connection cords firmly to the terminal block. Imperfect installation may cause a fire.

(3) Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)

(4) Always connect the ground wire.

1. INDOOR UNIT SIDE

(1) Remove the electric component box.

Fig. 33

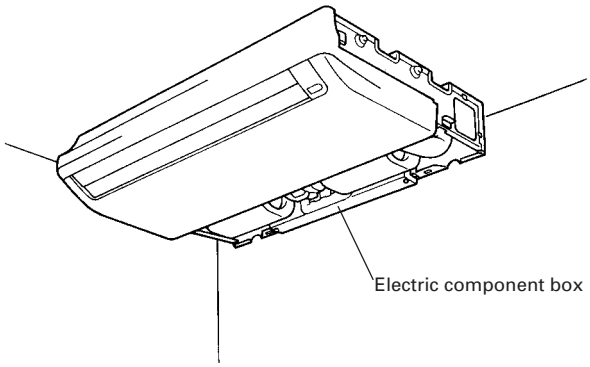
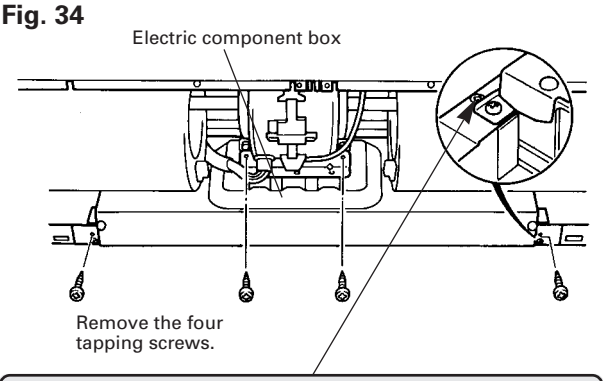


Fig. 34

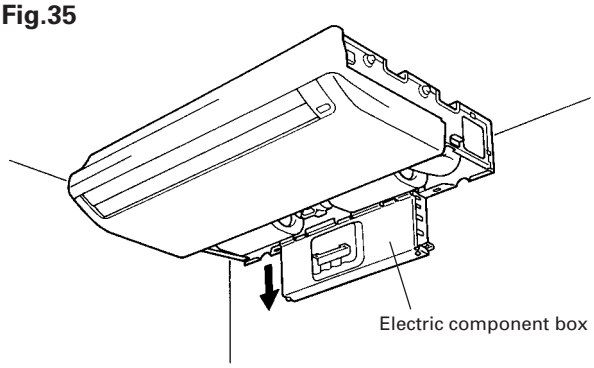


⚠ CAUTION

Do not remove the screws. If the stays are removed, the electric component box will fall.

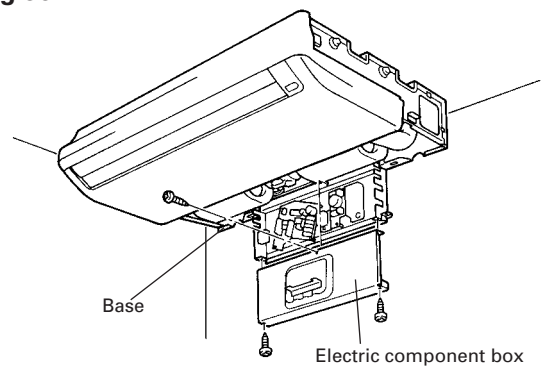
(2) Pull out the electric component box.

Fig.35



(3) Remove the electric component box cover.

Fig.36



Remove the three tapping screws.

⚠ CAUTION

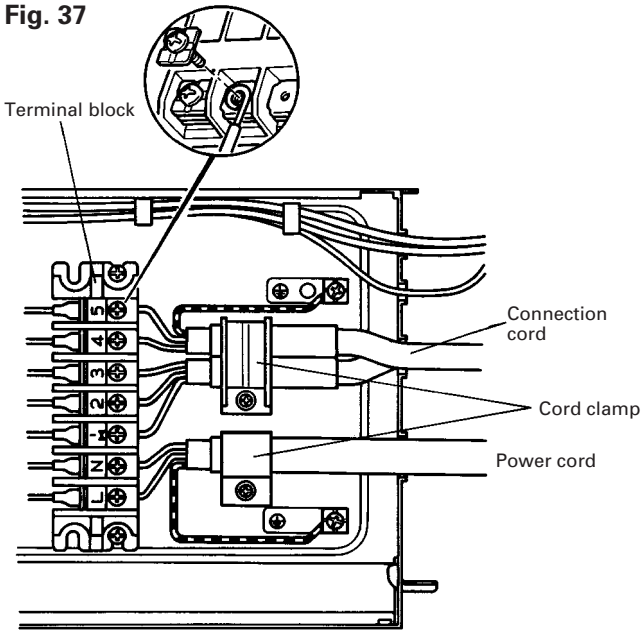
Be careful not to pinch the lead wires between the electric component box and base.

(4) Wiring

[Heat & Cool model (Reverse cycle)]

1) Remove the cord clamp.
2) Process the end of the connection cords to the dimensions shown in Fig. 37.
3) Connect the end of the connection cord fully into the terminal block.

Fig. 37

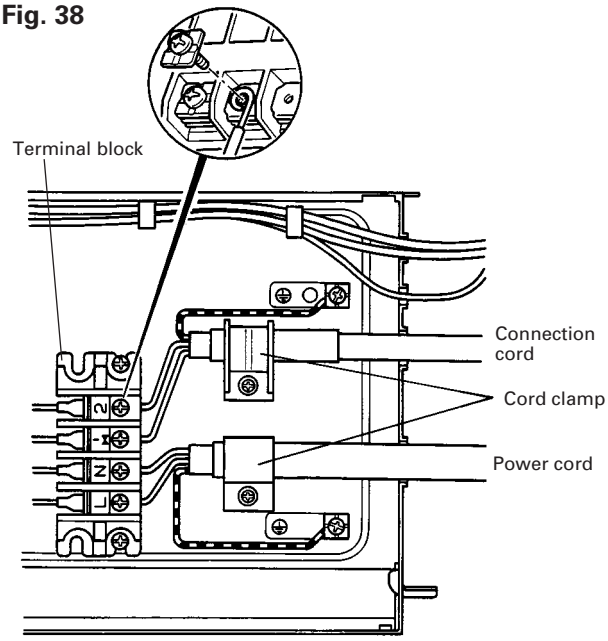


4) Fasten the connection cord with a cord clamp.
5) Fasten the end of the connection cord with the screw.

[Cooling model]

1) Remove the cord clamp.
2) Process the end of the connection cords to the dimensions shown in Fig. 38.
3) Connect the end of the connection cord fully into the terminal block.

Fig. 38

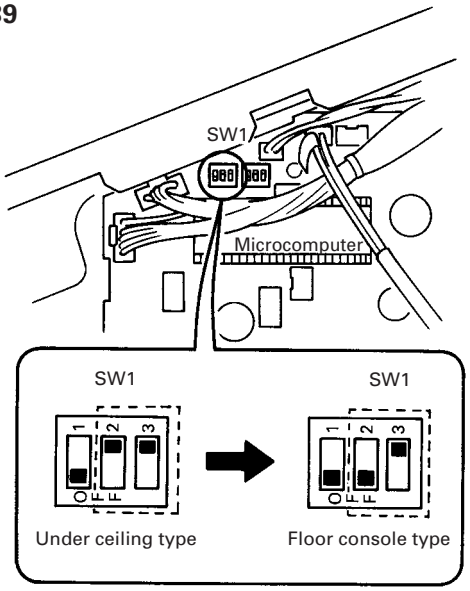


4) Fasten the connection cord with a cord clamp.
5) Fasten the end of the connection cord with the screw.

(5) Floor console/Under ceiling select switch

1) The electrical circuits for this were set for use as a ceiling type at the factory.
2) The following changes must be made to the settings if the unit is to be used as a floor type.
3) CChanging the settings for the electrical circuits. Switch 1 (SW1) on the printed circuit board inside the electric component box must be set as follows.

Fig. 39



2. OUTDOOR UNIT SIDE

Fig. 40

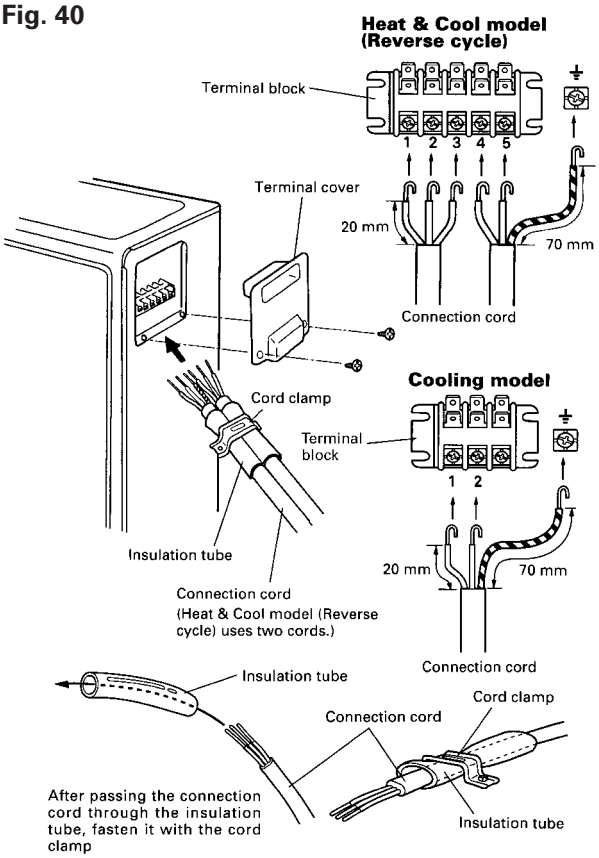
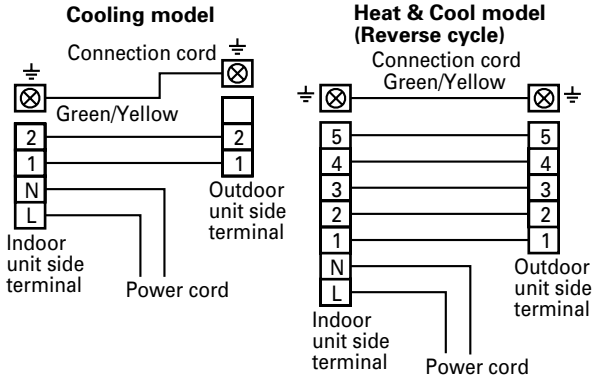


Fig. 41



10. POWER

⚠ WARNING

(1) The rated voltage of this product is 220-240V A.C. 50Hz.

(2) Before turning on the verify that the voltage is within the 198V to 264V range.

(3) Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.

(4) Use a circuit breaker and receptacle matched to the capacity of the room air conditioner.

(5) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3mm between the contacts of each pole.

(6) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.

(7) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION

(1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.

(2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

11. REMOTE CONTROL UNIT INSTALLATION

⚠ CAUTION

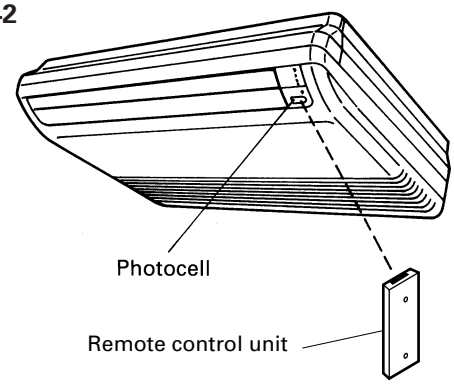
(1) Check that the indoor unit correctly receives the signal from the remote control unit, then install the remote control unit holder.

(2) Select the remote control unit holder selection site by paying careful attention to the following:
Avoid places in direct sunlight. Select a place that will not be affected by the heat from a stove, etc.

1. REMOTE CONTROL UNIT HOLDER INSTALLATION

Install the remote control unit so that the front is facing the photocell. (Fig. 42)

Fig. 42

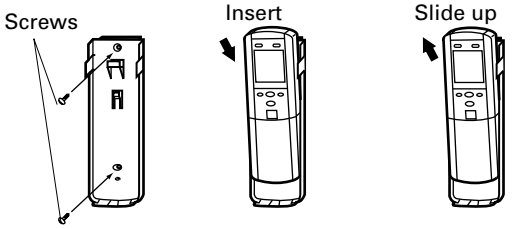


Install the remote control unit with a distance of 7 m between the remote control unit and the photocell as the criteria. However, when installing the remote control unit, check that it operates positively.

Install the remote control unit holder to a wall, pillar, etc. with the tapping screw (Fig. 43).

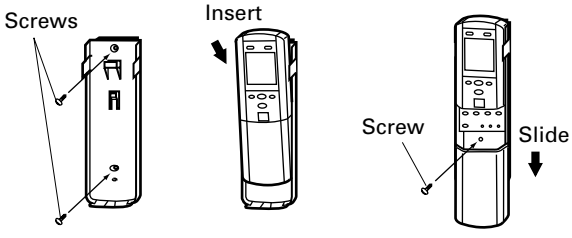
Fig. 43

For use as Handy Type



1. Mount the Holder.
2. Set the Remote ControlUnit.
3. To remove the RemoteControl Unit (when useat hand.)

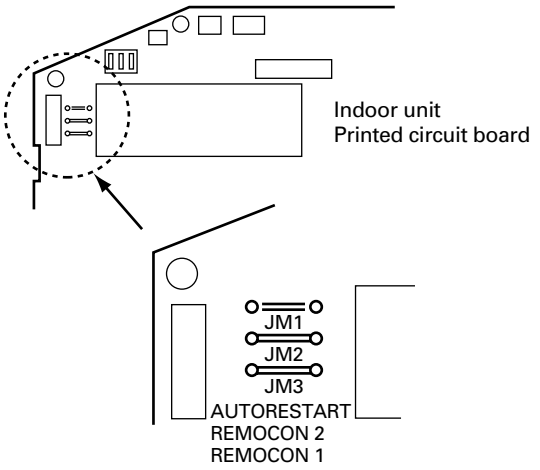
For use as Wall Fixing Type

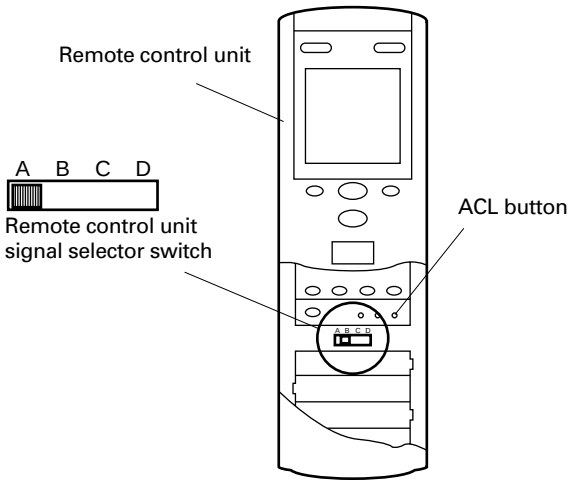


1. Mount the Holder.
2. Set the Remote ControlUnit.
3. Attach the unit to the holder as shown.

2. REMOTE CONTROL UNIT CODE SWITCHING

Fig. 42





Confirm the remote control unit signal selector switch selection and printed circuit board setting.

If these are not confirmed, the remote control unit cannot be operated for the air conditioner.

Table 5

Jumper wire		Remote control unit signal selector switch
JM 2	JM 3	
Connect	Connect	A (Primary setting)
Connect	Disconnect	B
Disconnect	Connect	C
Disconnect	Disconnect	D

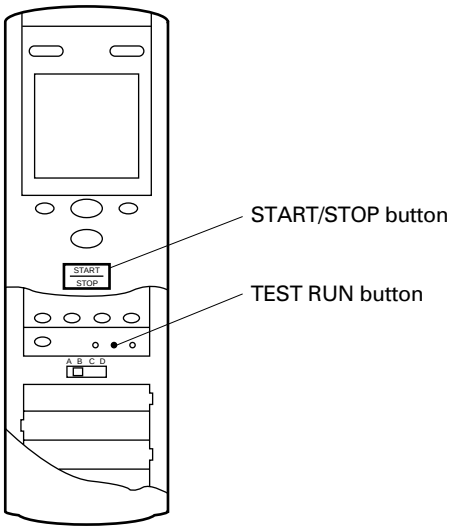
After setting the remote control unit signal selector switch, press the ACL button.

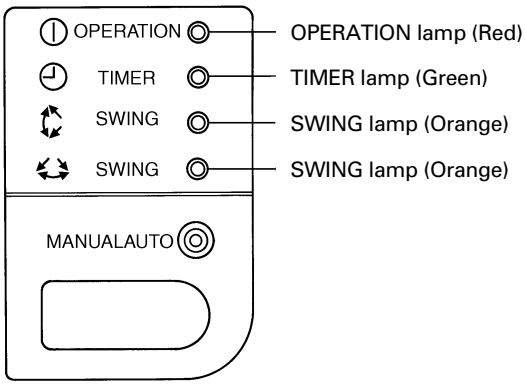
12. TEST RUNNING

Press the remote control unit test run button while the air conditioner is running.

At the end of test running, press the remote control unit start-stop button. (Fig. 45)

Fig. 45





Operation can be checked by lighting and flashing of the display section OPERATION and TIMER lamps.

Perform judgment in accordance with the following.

Test running

When the air conditioner is run by pressing the remote control unit test run button, the OPERATION and TIMER lamps flash slowly at the same time.

Error

The OPERATION and TIMER lamps operate as follows (Table 6) according to the error contents.

Table 6

Error display	Error contents
OPERATION LAMP: ON 0.5 sec / 0.5 sec, OFF, 5 sec — Two quick flashes repeated TIMER LAMP: ON 0.1 sec, OFF 0.1 sec — 0.1 sec ON/OFF repeated	Room temperature thermistor abnormal temperature detected
OPERATION LAMP: ON 0.5 sec / 0.5 sec, OFF, 5 sec — Three quick flashes repeated TIMER LAMP: ON 0.1 sec, OFF 0.1 sec — 0.1 sec ON/OFF repeated	Piping thermistor abnormal temperature detected

CHECK ITEMS

1. INDOOR UNIT

(1) Is operation of each button on the remote control unit normal?
(2) Does each lamp light normally?
(3) Do not air flow direction louvers operate normally?
(4) Is the drain normal?
(5) Is there any abnormal noise and vibration during operation?

2. OUTDOOR UNIT

(1) Is there any abnormal noise and vibration during operation?
(2) Will noise, wind, or drain water from the unit disturb the neighbors?
(3) Is there any gas leakage?

Do not operate the air conditioner in the test running state for a long time.

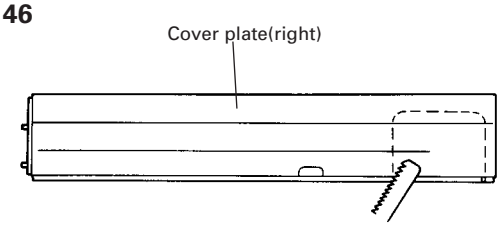
For the operation method, refer to the operating manual and perform operation check.

13. MOUNT THE COVER PLATE AND THE INTAKE GRILLE

1. MOUNT THE COVER PLATE (RIGHT)

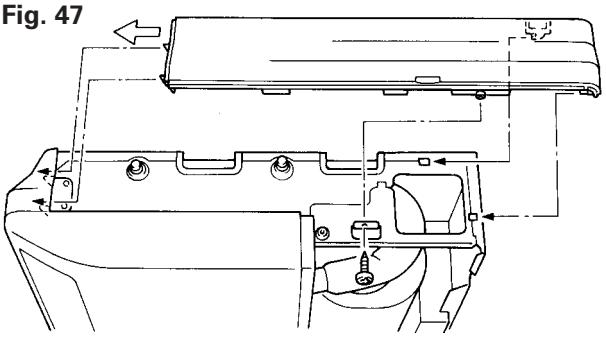
(1) Cut a pipe exit hole in the right plate. This is only when the pipe exits from the right side. (This operation is not required when the protrusion is on the top or rear.)

Fig. 46



(2) Join the cover plates (right) and mount with screws (Fig. 47).

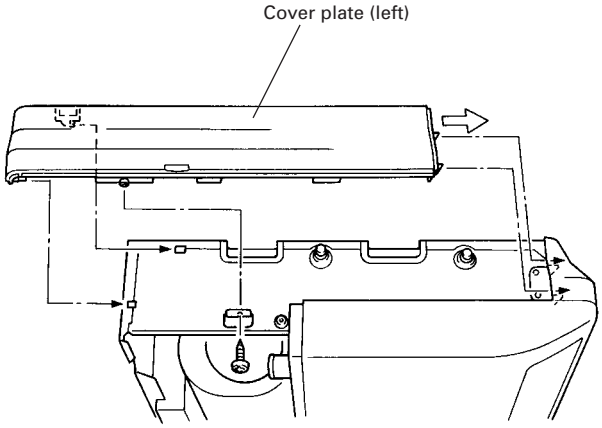
Fig. 47



2. MOUNT THE COVER PLATE (LEFT)

(1) Join the cover plates (left) and mount with screws.

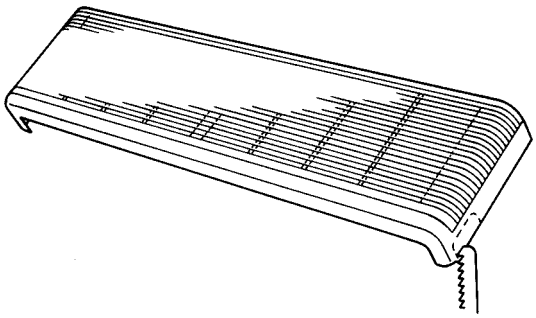
Fig. 48



3. MOUNT THE INTAKE GRILLE

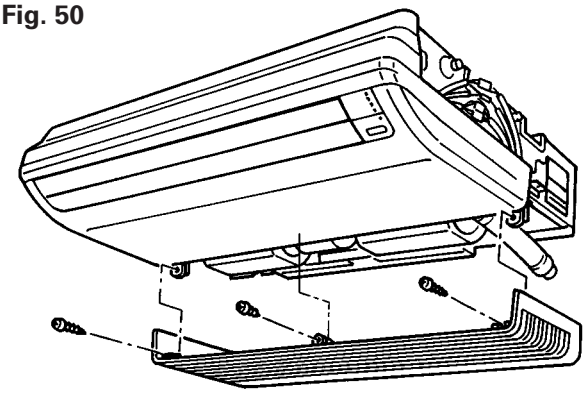
(1) Cut the right side of the intake grille. This is only when the pipe exits from the right side (Fig. 49).

Fig. 49



(2) Insert the hinges on the bottom of the intake grille into the holes in the base assembly. Then mount the arms to the three areas on the top of the intake grille (Fig. 50).

Fig. 50



11. CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual :

(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote controller operations.

(2) Air filter removal and cleaning, and how to use the air louvers.

(3) Give the operating and installation manuals to the customer.

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