

# MultiElite 2

## Multi Split System Air Conditioner

Installation and Commissioning Guide



### Model Numbers

MRC-075CS-3

MRC-100CS-4

MRC-120CS-5



#### **IMPORTANT NOTE:**

Please read this manual carefully before installing or operating your air conditioning unit. Make sure to save this manual for future reference.



#### **CAUTION:**

The system is charged with flammable refrigerant, safety checks are necessary to ensure that the risk of ignition is minimised.



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### READ SAFETY PRECAUTIONS BEFORE INSTALLATION

Incorrect installation due to ignoring instructions can cause serious damage or injury. The seriousness of potential damage or injuries is classified as either a **WARNING** or **CAUTION**.



**CAUTION**

Failure to observe a caution may result in injury or equipment damage.



**WARNING**

Failure to observe a warning may result death or serious injury.





**FOR COMPLIANCE WITH QUEENSLAND  
ELECTRICAL SAFETY REGULATIONS 2013**  
This refers to electrical works only



**MUST BE INSTALLED BY A LICENSED  
ELECTRICIAN**

## 01. Symbols

Explanation of symbols displayed on the air conditioner. Information About This Guide

	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant leaks and exposed to an external ignition source, there is a risk of fire.
	This symbol shows that the Operation Manual should be read carefully.
	This symbol shows that a service person should be handling this equipment with reference to the Installation Manual.
	This symbol shows that there is information included in the Operation Manual and Installation Manual.

## 02. Inspection

### 02.01. Product Inspections

Check your air conditioning unit and all items against the invoice upon receiving your shipment. Inspect the unit, components and accessories for any sign of damage. If there is any damage to the unit, contact ActronAir Customer Care Department immediately on: **1300 522 722** to obtain a Goods Return Number.

Check the unit nameplate to verify the model, serial number, electrical rated specifications are correct.

### 02.02. Codes, Regulations and Standards

The installer and/or contractor assumes responsibility to ensure that unit installation complies with the relevant council, state / federal codes, regulations and building code standards. All electrical wiring must be in accordance with current electrical authority regulations and all wiring connections to be as per electrical diagram provided with the unit.

## 03. General Information

The ActronAir air conditioning units are designed for applications where superior performance, high efficiency, reliability, supply air quality and quiet operation are the prime priorities.

For optimum efficiency, your air conditioning unit will deliver just the right amount of cooling or heating capacity you demand. Even in extreme conditions, the unit will still supply the required demand at peak performance.

### Energy Efficient Refrigeration Circuits

The ActronAir system is designed with a split ducted refrigeration circuit that delivers only the amount of cooling or heating actually required to maintain your desired comfort at the most optimum efficiency.

Each refrigeration circuit consists of:

- High efficiency inverter scroll compressor.
- Gold hydrophilic coat coil protected condenser designed for optimum performance and efficiency with corrugated fins and ruffled tubing.
- Gold hydrophilic coat coil protected evaporator coil designed for optimum performance and efficiency with lanced fins and ruffled tubing.

### Evaporator Section

The evaporator section has DC fans which deliver just the right amount of airflow, depending on requirements. The fans provide superior performance for your comfort at optimum efficiency:

- Highly efficient variable speed DC motor that uses less energy.
- Easy variable indoor fan commissioning via intelligent controllers.
- Low noise operation.

## Condenser Section

Single DC inverter fan motor, with the following features:

- Low noise operation.
- Inverter rotary compressor.

## Electrical Section

The electrical section is composed of a separate panel for controls, protecting the components from the elements.

## Durable Design and Construction

ActronAir is an Australian manufacturer with proven high quality air conditioning products. Known for their durability and reliable performance, these products are designed and built to withstand the extreme weather conditions.

The galvanized steel cabinet, with powder coated epoxy enamel finish, resists the toughest conditions.

Gold Hydrophillic Coat Coil Protection heat exchangers ensures an enhanced heat transfer with increased performance efficiency.

## System Flexibility

The ActronAir air conditioning units are the first choice for residential, office, schools and other air conditioning facilities applications, both for new construction or retrofitting projects.

## Refrigerant Handling and Accountability

ActronAir strongly urges that all service technicians make every effort to eliminate the emission of refrigerants to the atmosphere. Everyone must act in a responsible manner to conserve refrigerants.

## Sustainability and Environmentally Friendly

The air conditioning system is supplied with a zero ozone depleting low GWP R-32 refrigerant, which has no phase out or replacement concern.

With cooling and heating performance capacity that are among the best in the market, the ActronAir air conditioning units provide the solution for the reduction of energy consumption, CO<sub>2</sub> emission, high fuel dependency and high network grid demand.

## 04. Safety Instructions

- Only licensed HVAC technicians\* should install and service this air conditioning equipment. Improper service or alteration by an unqualified technician could result in significant and major damage to the product or property which may render your warranty null and void. Such unqualified service could also lead to severe physical injury or death. Follow all safety instructions in this literature and all warning labels that are attached to the equipment.
- Prevailing WH&S regulations must be observed and will take precedence to the safety instructions contained on this manual. Safe work practices and environment must be the paramount importance in the performance of all the service procedures.
- Ensure that unit installation complies with relevant council regulations and building code standards.
- All electrical wiring must be in accordance with current electrical authority regulations and all wiring connections to be as per electrical diagram provided.
- Secure the fans against accidental contact. Beware of pinch point and sharp edges which can cause cutting injury.
- Always wear appropriate PPE, remove any dangling jewellery and protect long hair by wearing a cap.
- Make sure that safety guards and panel covers are always firmly secured and not damaged.
- This appliance is not intended for use by young children or infirm persons unless they have been adequately supervised by a responsible person to ensure that they can use the appliance safely. Young children should be supervised to ensure that they do not play with the appliance.
- Installer must incorporate a means of electrical disconnection (isolator) in the sub mains fixed wiring in accordance with the latest version of the AS/NZS 3000 (also known as Australian Wiring Rules).
- Secure the power cords and control cables that goes in/out the unit.  
\*Qualifications required will be appropriate Electrical, Refrigeration and Refrigerant Handling License and Training dependent on local State/Territory regulations.

## DANGER

### **Hazardous Voltage - Risk of Electrocutation.**

Turn Off the power from main isolator before proceeding with any service work of the unit. Observe proper LOCK-OUT/TAG-OUT (LOTO) procedures for electrical appliances in order to prevent accidental switching-on of the power supply. Extreme care and caution must be observed should there be a need to work on live circuit.

## WARNING

This air conditioning unit contains R-32 refrigerant (CLASS A2L) which is mildly flammable.

Thoroughly read and understand the accompanying **R-32 Safety Guide** for installation and maintenance instructions.

Installation, service, maintenance, repairs and decommissioning of this unit must be performed by a licensed HVAC technician; qualified to handle R-32 refrigerant.

R-32 refrigerant is odorless if the refrigerant gas comes into contact with fire, it may emit a poisonous gas.

Appliance shall be installed, operated and stored in a well ventilated area:

- where the room size corresponds to the room area as specific for operation.
- without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).
- away from other potential continuously operating sources that known to cause ignition of R-32 refrigerant.

## CAUTION

### **Beware of Rotating Fans!**

Ensure that indoor and outdoor fans are isolated and have come to a complete stand still before servicing the equipment.

Beware of pinch point and sharp edges which can cause cutting injury. Secure the fans against accidental contact.

Always wear appropriate PPE and remove any dangling jewellery and protect long hair by wearing a cap. Ensure that no loose clothing can be caught / entangled in moving parts.

## **VISUAL INSPECTION AND WORK ASSESSMENT**

Work areas and conditions must first be assessed and evaluated for any potential hazardous conditions. It is also important to be familiar with the unit parts and components before proceeding with any service task.

## **NOTE**

### **Fuse Specifications**

The air conditioner's circuit board (PCB) is designed with a fuse to provide over current protection. The specifications of the fuse are printed on the circuit board such as: T30A/250VAC and T3.15A/250VAC (for 7kW units), T30A/250VAC and T5A/250VAC (for 10kW and 12kW units).

For the units with R-32 refrigerant , only the blast-proof ceramic fuse can be used.

## 05. Installation Information

All service technicians handling this unit must be licensed to handle R-32 refrigerant.

### Recover and Recycle Refrigerants

Never release refrigerant to the atmosphere! It is an offence in Australia to do so. Always recover, recycle and reuse refrigerants. When removing from the system, properly contain and identify refrigerants in its dedicated container for proper disposal and/or storage. Always consider the recycle or reclaim requirements of the refrigerant before beginning the recovery procedures. Obtain a chemical analysis of the refrigerant if necessary. For the recovered refrigerant and acceptable refrigerant quality refer to the existing standards and regulations.

### Refrigerant Handling and Safety

Consult the refrigerant manufacturer's Material Safety Data Sheet (MSDS) for information on proper handling and to fully understand health, safety, storage and disposal requirements. Use the approved containment vessels and refer to appropriate safety standards. Comply with all applicable transportation standards when shipping refrigerant containers.

### Service Equipment and Recovery Procedures

Always use refrigerant reclaiming equipment in order to minimise refrigerant emissions. Use equipment and methods which will pull the lowest possible system vacuum while recovering and condensing refrigerant. Equipment capable of pulling a vacuum of less than 500 microns is required.

Do not open the system to the atmosphere for service work until refrigerant is fully removed and/or recovered. Perform refrigeration system evacuation, prior to charging, in accordance with AIRAH / IRHACE Refrigerant handling code of practice.

Let the unit stand for 1 hour and with the vacuum not rising above 500 microns. A rise above 500 microns indicates a leak from the system and a leak test is required to locate and repair any leak.

Charge refrigerant into the system only after the equipment does not leak or contain moisture. Take into consideration the correct amount of refrigerant charge specified for the system to ensure efficient unit operations. When charging is complete, reclaim refrigerant from charging lines into an approved refrigerant container. Seal all used refrigerant containers with approved closure devices to prevent unused refrigerant from escaping to the atmosphere. Take extra care to maintain all service equipment directly supporting refrigerant service work such as gauges, hoses, vacuum pumps and recycling equipment.

### INSTALLATION PREPARATION (Pre-Installation considerations)

The following items must be considered before beginning the unit installation:

- Verify the unit capacities and ratings with the unit nameplate.
- Make certain the floor or foundation is level, solid and has sufficient structural strength to support the unit and accessories weight.
- Install anti-vibration rubber (installer to supply) under **all of the unit's feet** to help reduce noise and minimize vibration transfer through the foundation. Ensure that all anti-vibration rubbers are rated to provide stable support without impairing the unit's structural integrity.
- Diameter or width of anti-vibration rubber's must be at least equal to the width of the actual feet to prevent deformation overtime.
- Allow minimum recommended clearances for periodic maintenance and service access.
- Allow sufficient space beside the unit for the outdoor air discharge. Condenser air inlet, located on the coil side of the unit, requires sufficient airflow clearance for the optimum unit performance.
- Note the conditioned supply air and return air location. Ensure sufficient spaces are allocated for these purposes.
- For the connection and location of condensate drain in the unit, refer to the drawings and dimensions section of this manual.
- Wiring connections must be in accordance with the wiring diagram provided with the unit.
- Make sure all wirings are in accordance with local electricity authority regulations and standards.
- Do not install the unit close to an area where there is a danger of fire due to volatile, explosive, flammable and/ or hazardous materials.
- Ensure that spaces around the unit are free from any obstructions for optimum unit performance.








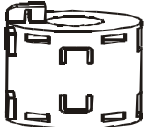
- Installer to ensure correct size/type that main circuit breaker and cable is installed in unit sub-mains to protect the sub-mains and unit wiring.
- Installer to ensure correctly rated residual current device (RCD) is installed as per the latest version of the AS/NZS 3000 (also known as Australian Wiring Rules).

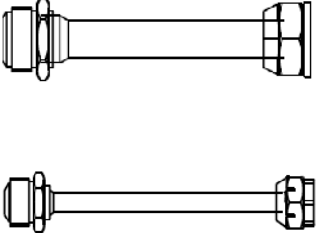
**NOTE**

This outdoor unit is designed to match only with the ActronAir indoor unit as specified in the Technical Selection Catalogue. This unit is designed for use with R-32 refrigerant only. The unit is supplied with factory charged R-32 refrigerant. Be aware of all the relevant regulations concerning the handling of refrigerant.

## 06. Components

The air conditioning system comes with the following components. Use all of the installation parts and accessories to install the air conditioner. Improper installation may result in water leakage, electrical shock and fire, or cause the equipment to fail. The items are not included with the air conditioner must be purchased separately.

Name of Accessories	Quantity		Illustration
Owner's Manual	1		
Installation Manual	1		
Safety Guide	1		
Drain Joint	1		
Seal Ring	1		
Rubber Pipe Insulation	1		
Self-Tapping Screw	4		
Magnetic Ring	MRC-075CS-3	1	
	MRC-100CS-4	8	
	MRC-120CS-5	5	

Name of Accessories	Model	Adaptor	Quantity	Illustration
<b>NOTE:</b> Pipe size may differ from appliance to appliance. To meet the different pipe size requirements, sometimes the pipe connections need the adaptor to be installed to the outdoor unit.	MRC-075CS-3	Ø9.52 - Ø12.7	1	
	MRC-100CS-4	Ø12.7 - Ø9.52	1	
		Ø12.7 - Ø15.88	1	
		Ø9.52 - Ø6.35	1	
		Ø9.52 - Ø12.7	1	
	MRC-120CS-5	Ø12.7 - Ø9.52	1	
		Ø12.7 - Ø15.88	1	
		Ø6.35 - Ø9.52	1	
		Ø9.52 - Ø12.7	3	

### Optional accessories

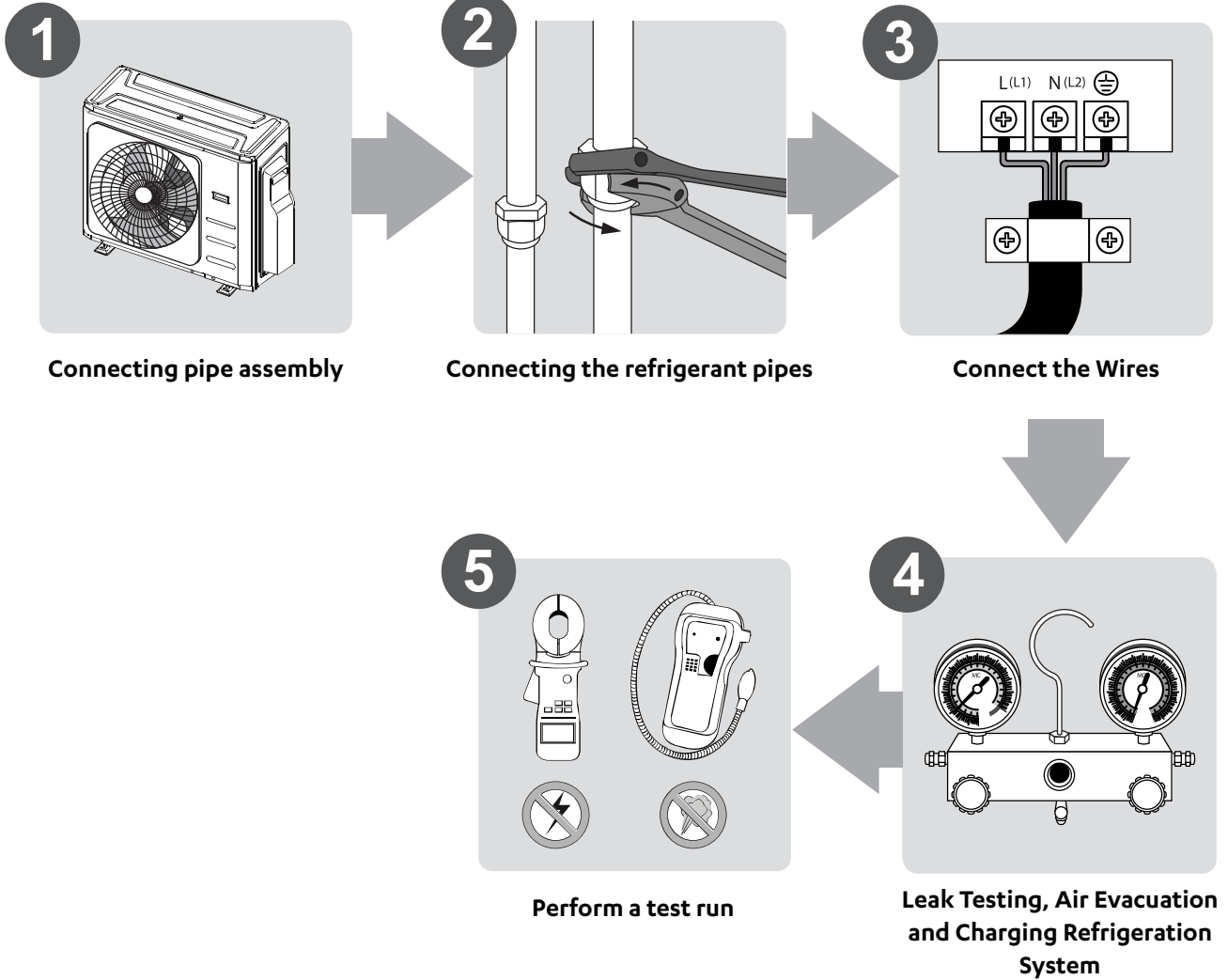
There are two types of remote controls: wired and wireless. Select a remote controller based on customer preferences and requirements and install in an appropriate place.

Refer to catalogues and technical literature for guidance on selecting a suitable remote controller



## 07. Installation Overview

### Installation Order



## 08. Specifications

Table 08.1

Indoor units that can be used in combination	Number of connected units	1 to 5
Compressor stop/start frequency	Stop time	3 min or more
Power source voltage	Voltage supply	230VAC
	Voltage fluctuation	+10% to -6% of rated voltage

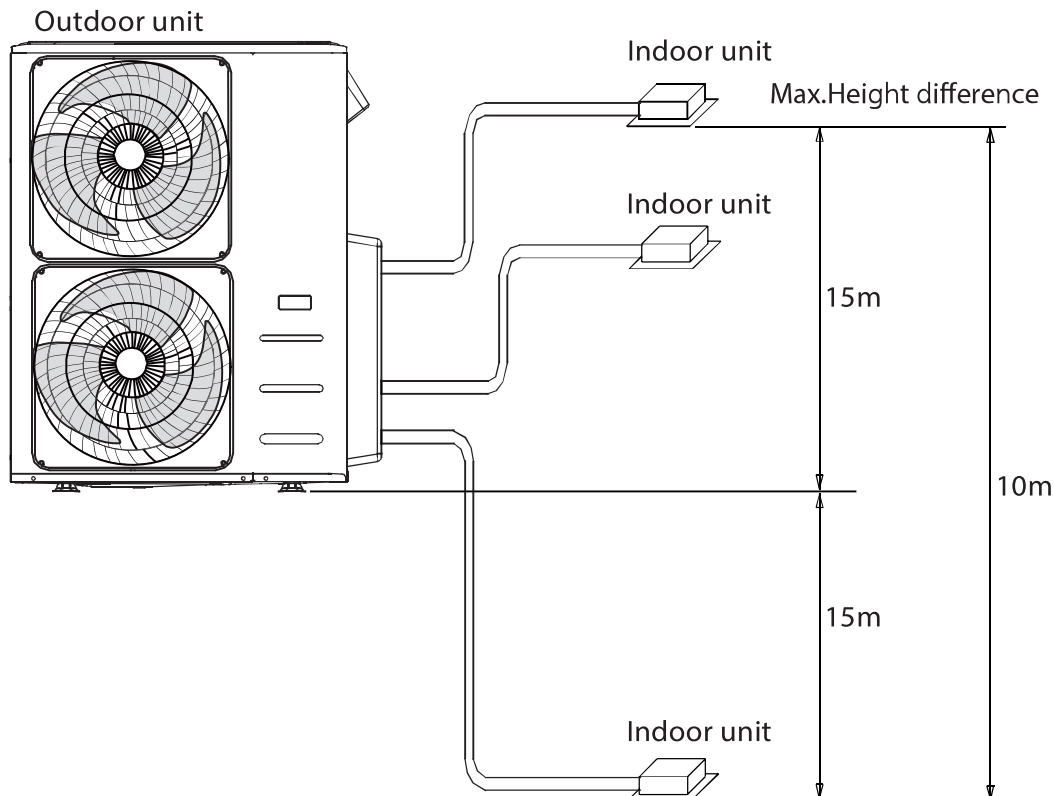
Table 08.2

	1 Outdoor		
	3 Indoor	4 Indoor	5 Indoor
Minimum Field Pipe Length (m) @ 3m per 1 indoor unit	9	12	15
Maximum length for all rooms (m)	60	80	80
Maximum length for one indoor unit (m)	30	35	35
Maximum height different between indoor and outdoor units (m)	OU higher than IU	15	15
	OU lower than IU	15	15
Maximum height difference between indoor units (m)	10	10	10

### NOTE

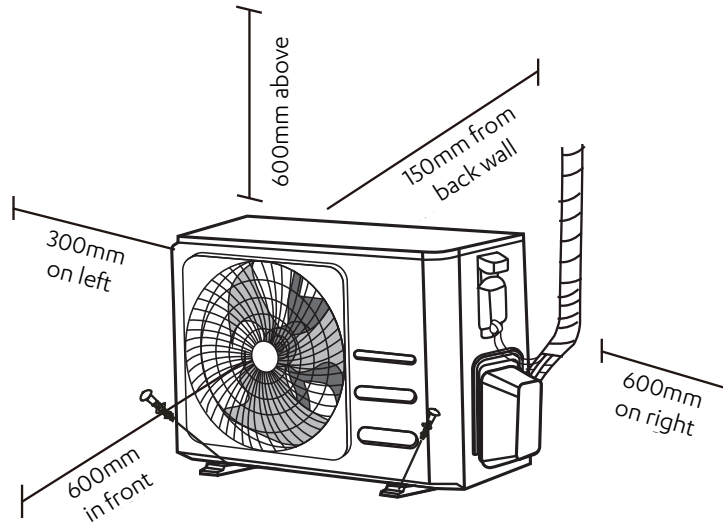
The installation must be performed in accordance with the requirement of local and national standards. The installation may be slightly different in different areas.

When installing multiple indoor units with a single outdoor unit, ensure that the length of the refrigerant pipe and the height difference between the indoor and outdoor and indoor to indoor units meet the following requirements:



## 09. Outdoor Unit Installation

Install the unit by following local codes and regulations, there may be differ slightly between different regions.



### 09.01. Outdoor Unit Installation Instructions

#### Step 1. Select Installation Location

Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

#### Proper installation locations meet the following standards:

1. Meets all spatial requirements shown in Installation Space Requirements above.
2. Good air circulation and ventilation
3. Firm and solid: the location can support the unit and will not vibrate
4. Noise from the unit will not disturb others
5. Protected from prolonged periods of direct sunlight or rain
6. Where snowfall is anticipated, take appropriate measures to prevent ice buildup and coil damage.

#### DO NOT install unit in the following locations:

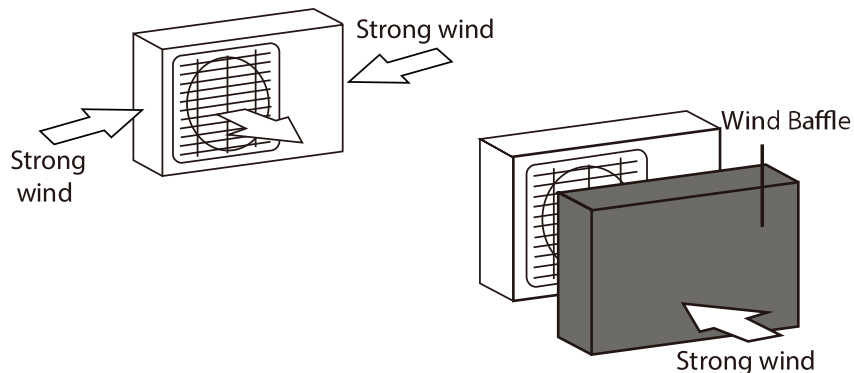
1. Near an obstacle that will block air inlets and outlets
2. Near a public street, crowded areas, or where noise from the unit will disturb others
3. Near animals or plants that will be harmed by hot air discharge
4. Near any source of combustible gas
5. In a location that is exposed to large amounts of dust
6. In a location exposed to a excessive amounts of salty air

## Special Consideration For Extreme Weather

### If the unit is exposed to heavy wind:

Install unit so that air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds.

See Figures below.



### If the unit is frequently exposed to heavy rain or snow:

Build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.

### If the unit is frequently exposed to salty air (seaside):

Use outdoor unit that is specially designed to resist corrosion.

## Step 2. Install Drain Joint (Heat Pump Unit Only)

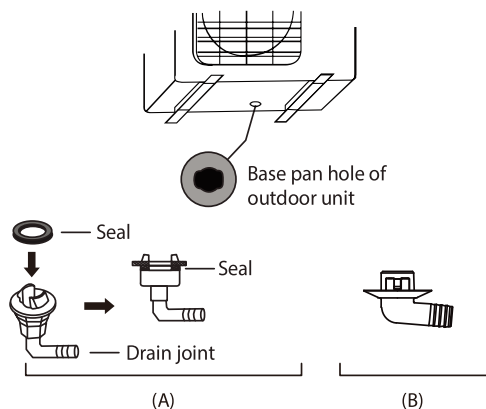
Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. Note that there are two different types of drain joints depending on the type of outdoor unit.

### If the drain joint comes with a rubber seal (see Fig. A ), follow steps below.

1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
4. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

### If the drain joint doesn't come with a rubber seal (see Fig. B ), follow steps below.

1. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place.
2. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.



**CAUTION**

**In Cold Climates**

Make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

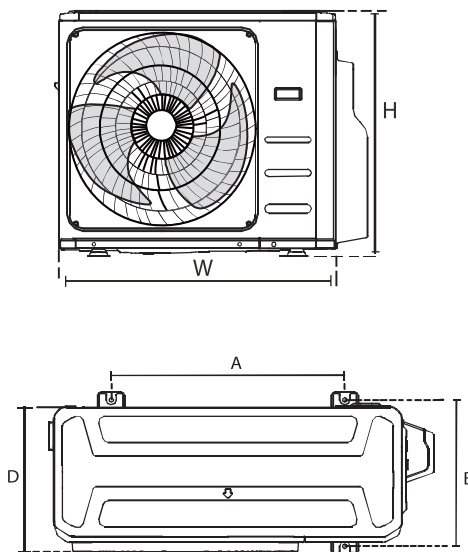
**Step 3. Anchor Outdoor Unit**

The outdoor unit can be anchored to the ground or to a wall-mounted bracket with bolt(M10). Prepare the installation base of the unit according to the dimensions below.

**09.02. Unit Mounting Dimensions**

The following is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the installation base of the unit according to the dimensions below.

**Split Type Outdoor Unit**



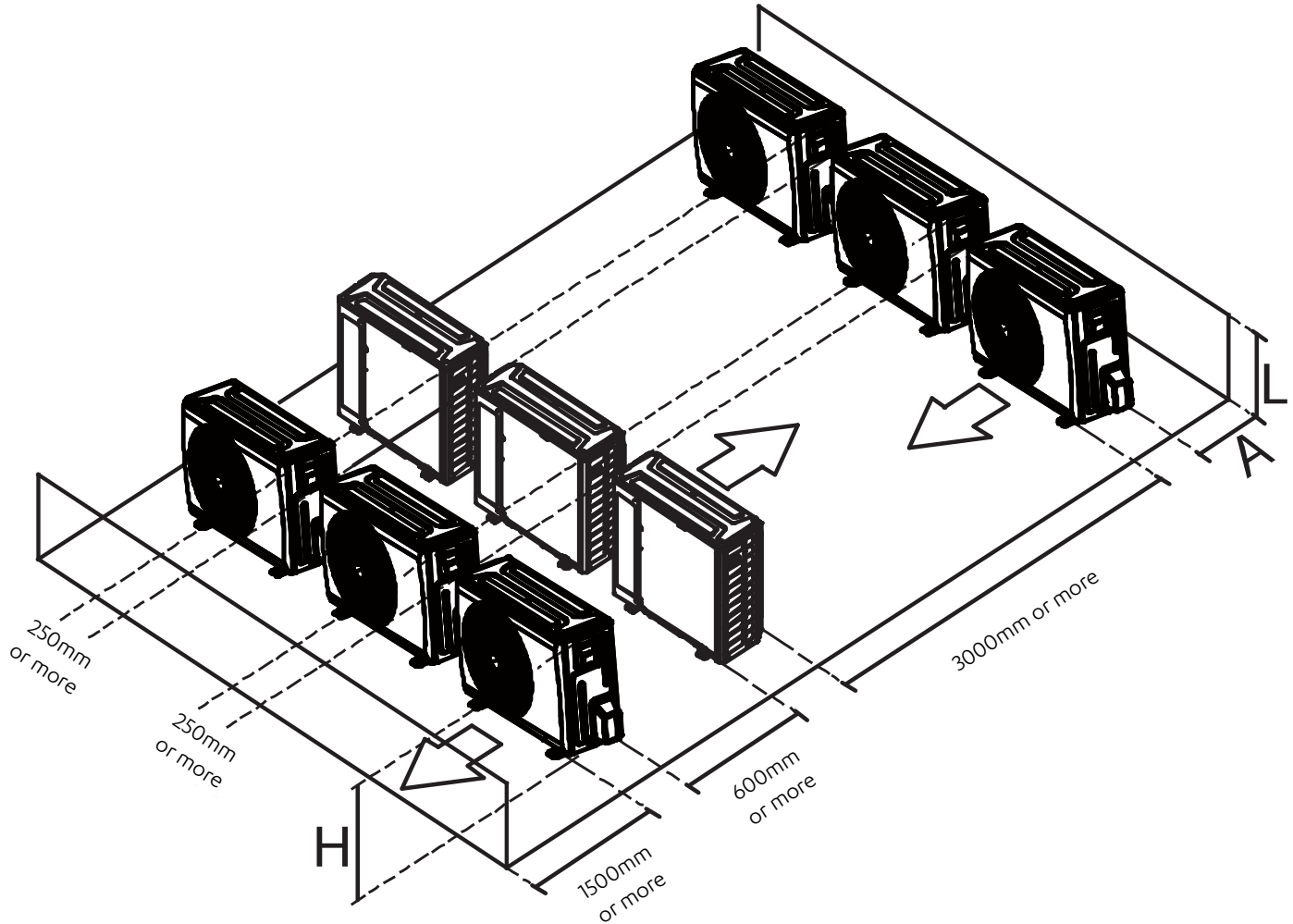
**Outdoor Unit Specifications Table**

Model Number	Outdoor Unit Dimensions W x H x D	Mounting Dimensions (Centre to Centre)	
		A (mm)	B (mm)
MRC-075CS-3	890 x 673 x 342	663	354
MRC-100CS-4	946 x 810 x 410	673	403
MRC-120CS-5	946 x 810 x 410	673	403

## Rows of Series Installation

The relations between H, A and L are as follows.

	L	A
L ≤ H	L ≤ 1/2H	250mm or more
	1/2H < L ≤ H	300mm or more
L > H	Can not be installed	



### Drilling Hole In Wall

You must drill a hole in the wall for the refrigerant piping, and the signal cable that will connect the indoor and outdoor units.

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 65mm (2.5 in) core drill, drill a hole in the wall.

#### NOTE

When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

3. Place a protective wall cuff in the hole. This protects the edges of the hole and helps seal it when you finish the installation process.

### Connecting 7k Indoor Unit

The 7kW indoor unit can only be connected to the A port, if there are two 7kW indoor units, they can be connected to A and B port. (See Fig. below). Please use pipe adaptors provided.

### Connecting Pipe Size of Indoor Units

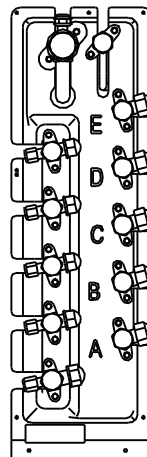
Indoor Unit Capacity (kW)	Liquid (mm)	Gas (mm)
2.6 / 3.5	6.35	9.52
5.0 / 5.3	6.35	12.70
7.0	9.52	15.88

### Connecting Pipe Size of Outdoor Units

Reference Location	MRC-075CS-3		MRC-100CS-4		MRC-120CS-5	
	Gas Line	Liquid Line	Gas Line	Liquid Line	Gas Line	Liquid Line
E	-	-	-	-	Ø9.52 (3/8")	Ø6.35 (1/4")
D	-	-	Ø9.52 (3/8")	Ø6.35 (1/4")	Ø9.52 (3/8")	
C	Ø9.52 (3/8")	Ø6.35 (1/4")	Ø9.52 (3/8")		Ø9.52 (3/8")	
B	Ø9.52 (3/8")		Ø9.52 (3/8")		Ø9.52 (3/8")	
A	Ø9.52 (3/8")		Ø12.7 (1/2")		Ø12.7 (1/2")	

#### NOTE

See illustration for Reference Location



## 10. Refrigerant Piping Connection

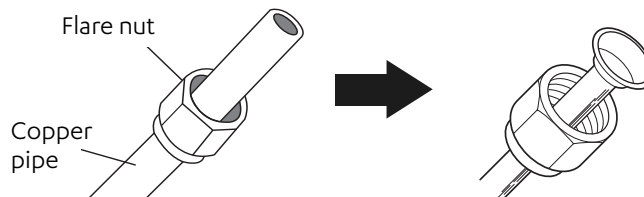
Outdoor Model	MRC-075CS-3	MRC-100CS-4	MRC-120CS-5
Minimum Field Pipe Length (m)	3	3	3
Maximum length for all rooms (m)	60	80	80
Maximum length for one indoor unit (m)	30	35	35
Maximum Vertical (m)	15	15	15
Liquid Pipe mm (inch)	3 x 6.35 (1/4)	4 x 6.35 (1/4)	4 x 6.35 (1/4)
Gas Pipe mm (inch)	3x 9.52 (3/8)	3 x 9.52 (3/8) + 1 x 12.7 (1/2)	3 x 9.52 (3/8) + 1 x 12.7 (1/2)

**NOTE**

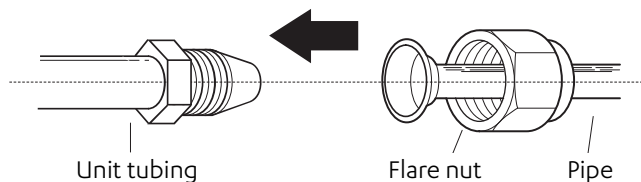
Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements shown in above table.

**Refrigerant Piping Connection Instructions:**

1. Cut the connecting pipes according to required length.
2. Remove burrs in the pipe. Burrs can affect the air-tight seal of refrigerant piping connections.
3. Place flare nuts on both ends of pipe. Flare each end of connecting pipes.



4. Connect the pipe to indoor and outdoor unit. Apply a thin coat of refrigeration oil to the flared end of the pipe. Tighten the flare nuts using a spanner and torque wrench.





Pipe Flare Dimension and Tightening Torque Guide				
Pipe Size	Tightening Torque	Flare Dimension (A)		Flare Shape
		Min (mm)	Max (mm)	
Ø 6.35	18 - 20 Nm	8.3	8.7	
Ø 9.52	32 - 39 Nm	13.2	13.5	
Ø 12.7	49 - 59 Nm	16.2	16.5	
Ø 15.88	57 - 71 Nm	19.2	19.7	



### CAUTION

- Ensure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Make sure the pipe is properly connected. Over tightening may damage the bell mouth and under tightening may lead to leakage.

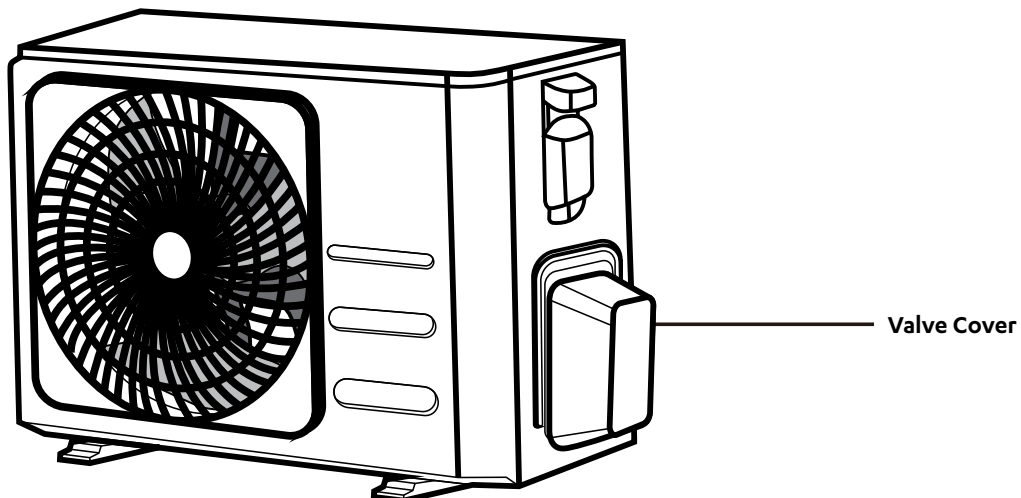
### Instructions for Connecting Piping to Outdoor Unit

#### NOTE

Installation of this unit should be in accordance with Electrical Safety Standard, AS/NZS 60335.2.40. If the smallest room to be conditioned is less than the required minimum room area ( $A_{min}$ ), additional safety provision maybe needed such as leak detector sensor and/or ventilation to comply, for more details refer to Annex GG and Annex HH of the above standard.

Refer to R-32 Safety Manual for minimum required area of installation.

1. Unscrew the valve cover on the side of the outdoor unit.

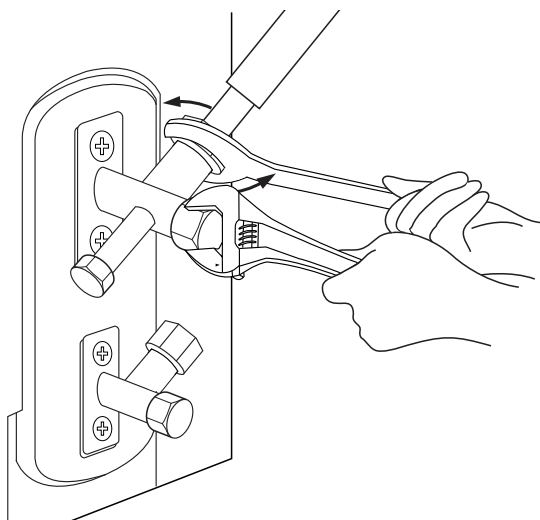


2. Remove protective caps from ends of valves.

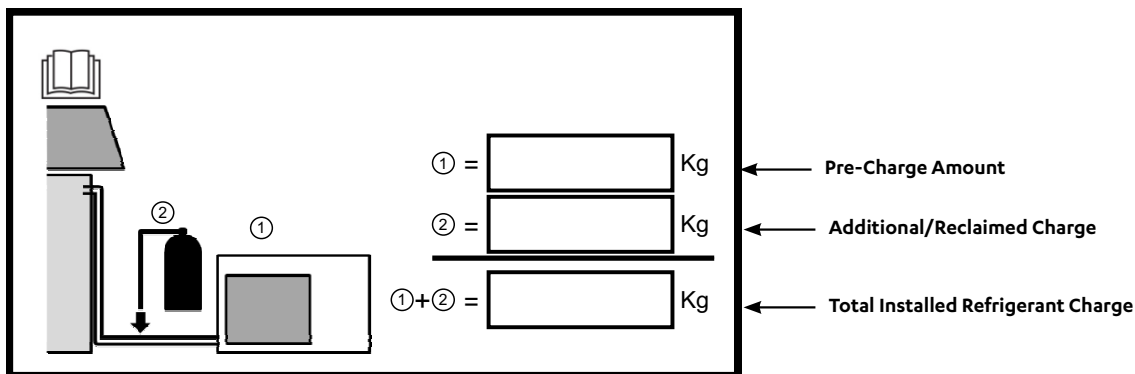
3. Align flared pipe end with each valve, and tighten the flare nut as tightly as possible by hand.
4. Using a spanner, grip the body of the valve. Do not grip the nut that seals the service valve.

### NOTE

USE SPANNER TO GRIP MAIN BODY OF VALVE. Torque from tightening the flare nut can snap off other parts of valve.



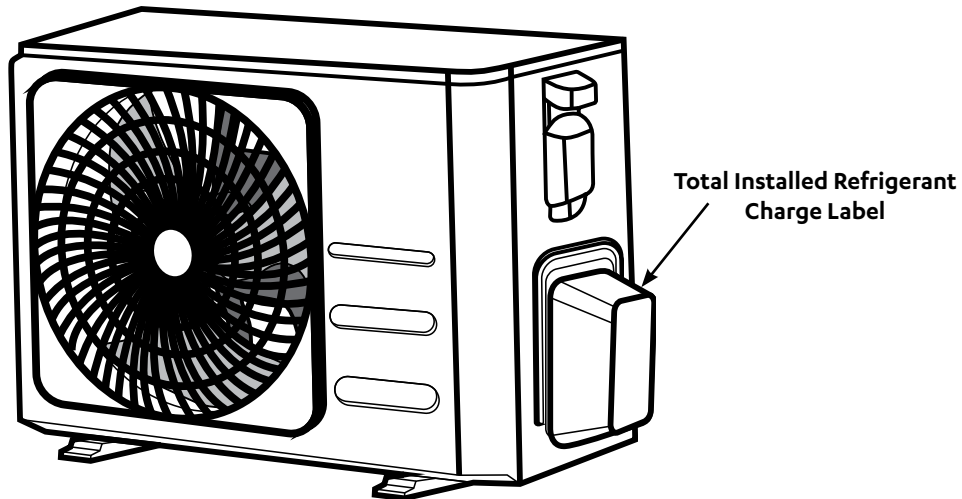
5. While firmly gripping the body of the valve, use a torque wrench to tighten the flare nut according to the correct torque values.
6. Loosen the flaring nut slightly, then tighten again.
7. Repeat Steps 4 to 7 for the remaining pipe.
8. Fill out the "Total Installed Refrigerant Charge" label located on the plastic valve cover.



### NOTE

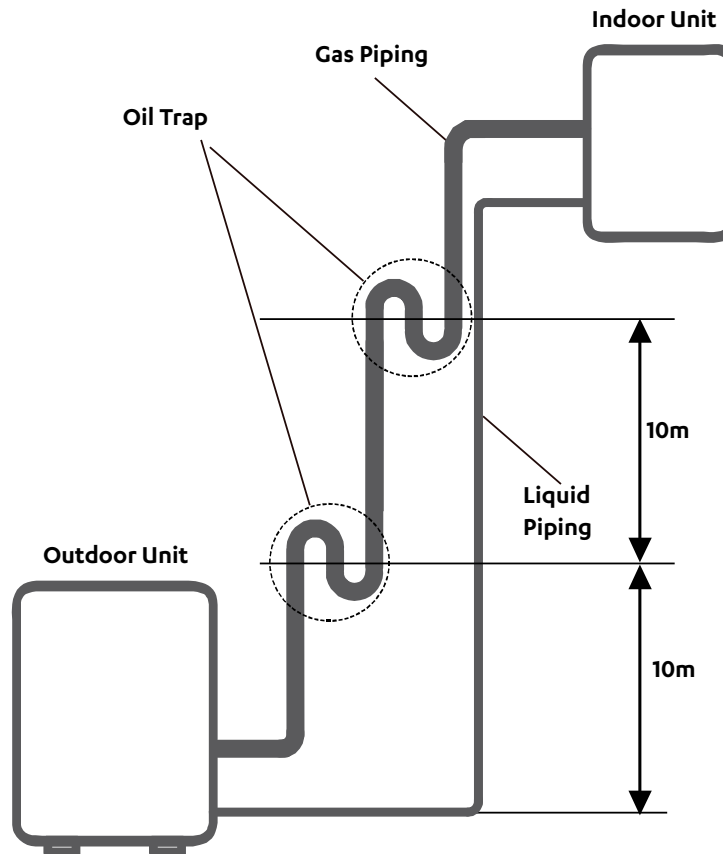
The Pre-Charge Amount is written on the Rating Label of the Outdoor unit. Where adjustment to charge is required to complete the refrigerating system, the installer should note the resulting "Additional/Reclaimed Charge" and "Total Installed Refrigerant Charge" on the label located in the outer part of the valve cover of the Outdoor unit and "Start Up and Commissioning Report" of R-32 Safety Manual.

9. Mount the Valve cover back.



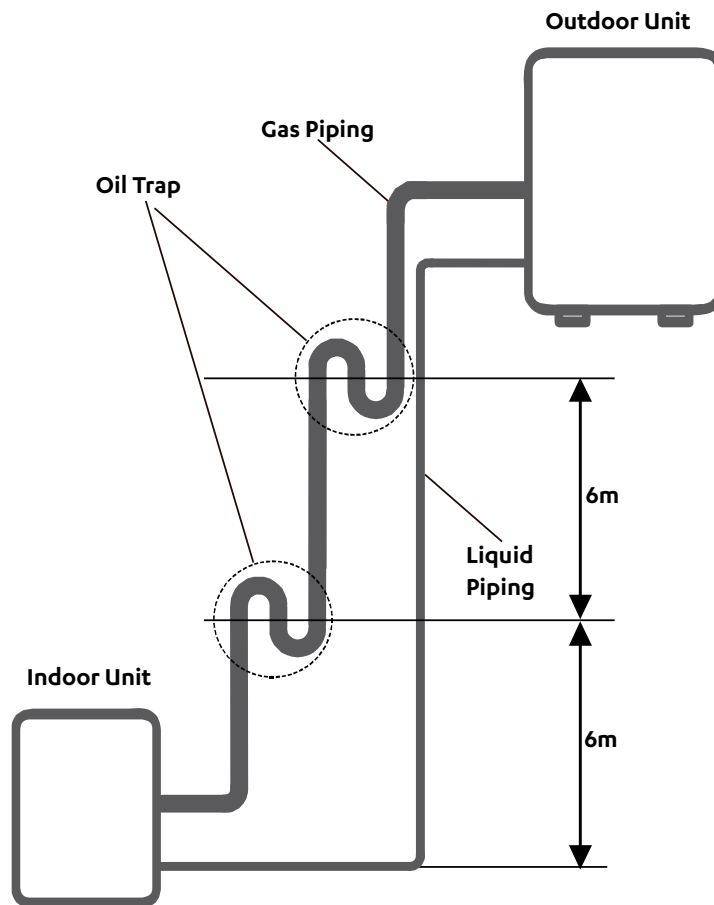
**CAUTION**

If the indoor unit is installed at a higher position than the outdoor unit, there is a chance that oil may flow into the compressor. This may cause liquid compression or deterioration of oil return. Use oil traps in the gas piping to prevent this. An oil trap should be installed every 10m in the vertical suction line riser.



**CAUTION**

If the outdoor unit is installed at a higher position than the indoor unit, it is recommended that the vertical suction risers not be upsized. Proper oil return to the compressor should be maintained with suction gas velocity. If velocities drop below 7.62 m/s, oil return will be decreased. An oil trap should be installed every 6m of vertical suction line riser.



## 11. Wiring



### WARNING

- Be sure to isolate the power supply before working on the unit.
- All electrical wiring must be done according to local and national regulations.
- Electrical wiring must be done by qualified technician. Improper connections may cause electrical malfunction, injury and fire.
- Connect the power cable to the terminals and fasten it with the clamp. Unsecured connection may cause fire. If the cord clamp cannot fasten on a small cord, use the cord protection rubber ring to wrap around the cord. Then fix it in place with the cord clamp.
- Make sure that all wiring is done correctly and the control board cover is properly installed. Failure to do so can cause overheating at the connection points, fire, and electrical shock.



### CAUTION

- Make sure you earth the unit. Improper earthing may cause electrical shock.
- **DO NOT** connect the unit with the power source until all wiring and piping is completed.
- Make sure that you do not cross your electrical wiring with your signal wiring, as this can cause distortion and interference or unit malfunction.

#### Follow these instructions to prevent distortion when the compressor starts:

- The unit must be connected to its individual sub-circuit. Ensure sub-circuit mains are of adequate size to ensure minimal voltage drop at supply terminals.
- No other equipment should be connected to the same sub-circuit as the air conditioning unit.
- The unit's power information can be found on the rating sticker on the product.

### NOTE

The air conditioners circuit board (PCB) is designed with a fuse to provide over current protection. The specifications of the fuse are printed on the circuit board, such as: T30A/250VAC and T3.15A/250VAC (for 7kW units), T30A/250VAC and T5A/250VAC (for 10kW and 12kW units).

This model is charged with R-32 refrigerant, only a blast-proof ceramic fuse can be used.

#### Multi-Function Board

The installation of a multi-function board allows the connection of the following options:

- Remote ON/OFF
- Wired Controller (WC-02)
- Alarm relay output

#### Remote On/off

To use, remote On/Off connect wiring and switch cross CN46 and remove jumper wire that is currently in the terminals. Remote on/off will work by the following two options:

### DIP switch F2: OFF/OFF

Current Running Operation	CN46	Operation	CP
Unit ON	Open	OFF	CP
	Closed	No Change	No CP
Unit OFF	Open	No Change	CP
	Closed	ON Last Setting	No CP

### DIP switch F2: ON/ON

Current Running Operation	CN46	Operation	CP
Unit ON	Open	OFF	No CP
	Closed	No Change	No CP
Unit OFF	Open	No Change	No CP
	Closed	ON Auto 24°C	No CP

CP – No Control Operation

No CP – Remote/Wired controller operation

N/O and N/C can be reversed by adjusting DIP switches. See wiring diagram for DIP switch settings.

### Wired Controller

Wired controller allows the functions of scheduling on the wall hung split system via connection to multi-function board CN42 and CN41. See wiring diagram for terminal connection locations.

### Alarm Relay Output

Connection terminal CN45 on the multi-function board allows for alarm relay output, this must be 24VAC or DC and limited to 0.5A max. CN45 Relay will close during any error operation which will cause the unit to stop or during OFF operation. See wiring diagram for terminal connection locations.

### 11.01. Outdoor Unit Wiring

#### WARNING

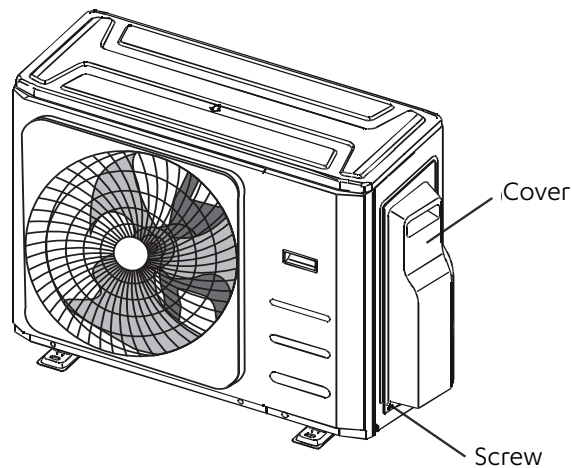
Before performing any electrical or wiring work, isolate and LOCK-OUT/TAG-OUT (LOTO) power to the air conditioning unit.

1. Prepare the cable for connection
  - Ensure the correct size cable size has been selected, as per specifications.
  - Using wire strippers, strip the rubber jacket from both ends of signal cable.
  - Strip the insulation from the ends of the wires.
  - Using a wire crimper, crimp fork-lugs on the ends of the wires.

#### NOTE

While connecting the wires, please strictly follow the wiring diagram (found inside the electrical box cover).

2. Remove the electric cover of the outdoor unit.



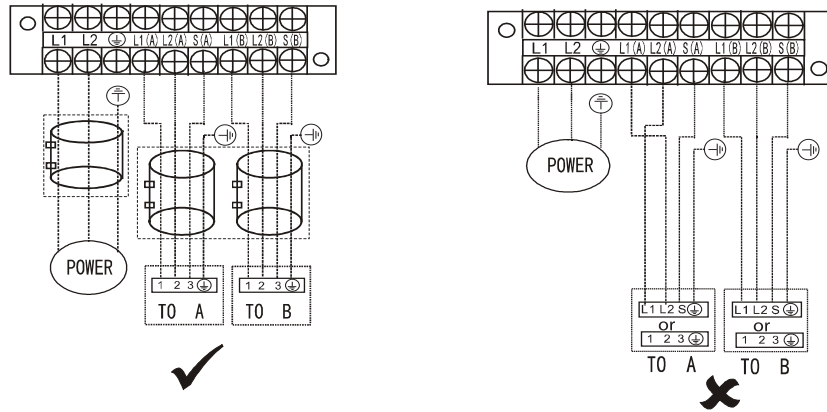
3. Connect the fork-lugs to the terminals. Match the wire colours / labels with the labels on the terminal block, and firmly screw the lug of each wire to its corresponding terminal.
4. Clamp down the cable with designated cable clamp.
5. Reinstall the cover of the electric control box.

## 11.02. Wiring Figure

### ⚠ CAUTION

Connect the connective cables to the terminals, as identified, with their matching numbers on the terminal block of the indoor and outdoor units. For example, Terminal L1 (A) of the outdoor unit must connect with terminal L1/1 on the indoor unit.

The outdoor unit can match different types of indoor unit, the numbers on the terminal block of the indoor unit may be slightly different. Please pay special attention while connecting the wire.



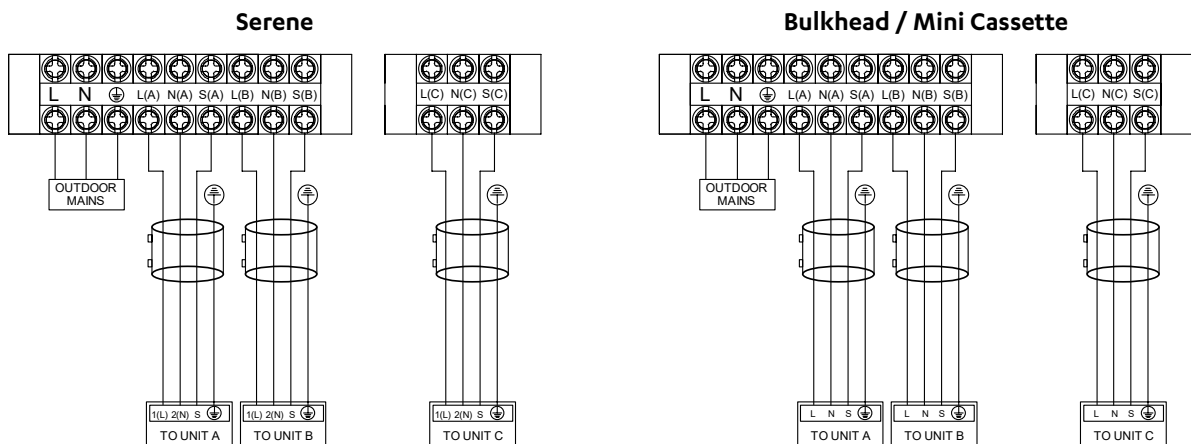
### NOTES

For quick-connector models, please refer to Owner's Manual packed with the indoor unit.

Run the main power cord through the lower line-outlet of the cord clamp.

---- This symbol indicates field wiring.

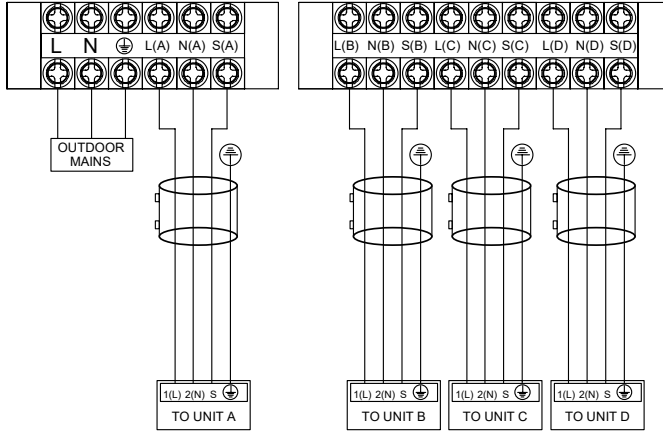
### One - Three Models (MRC-075CS-3)



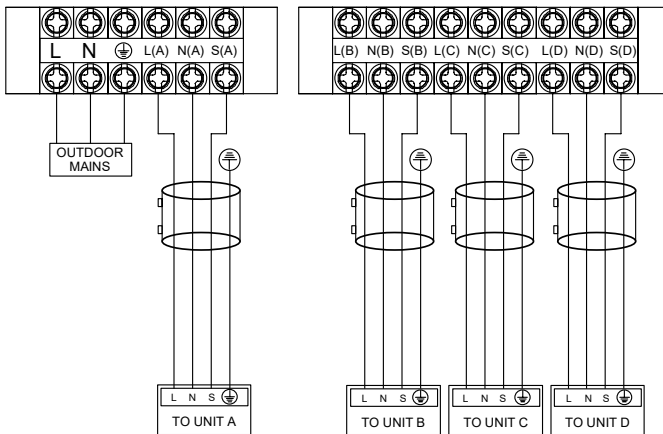


## One - Four Models (MRC-100CS-4)

### Serene

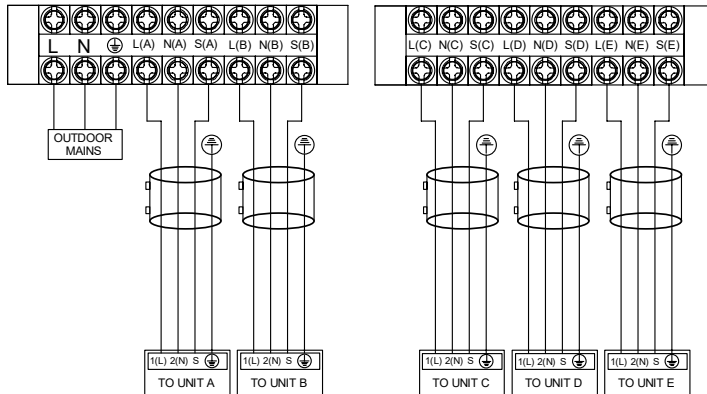



### Bulkhead / Mini Cassette



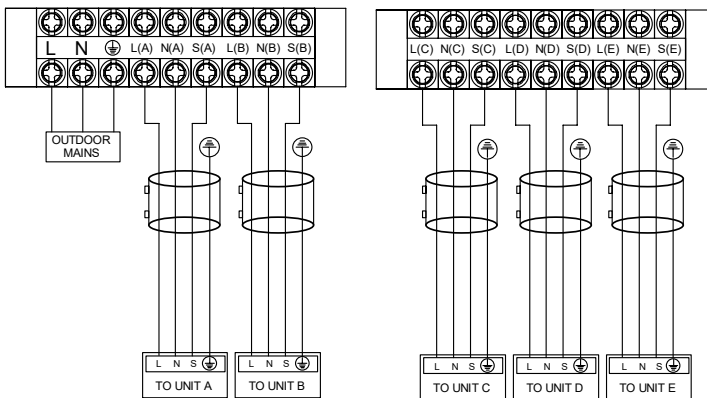
## One - Five Models: (MRC-120CS-5)

### Serene



 Magnetic Ring (supplied, on selected outdoor models). Clip this around the connecting wires during installation.

### Bulkhead / Mini Cassette



### CAUTION

#### After the confirmation of the above conditions, prepare the wiring as follows:

- Separate isolator (sub-circuit) must be installed for each air-conditioning system. Make sure to follow the wiring diagram provided with unit (back of control cover).
- During transport, screws in terminal block may become loose due to handling and vibrations. Check the connections and tightened the screw if necessary.
- Ensure the voltage supply is within the required specification 230VAC (-6%/+10%) .
- Cable size recommendation selected in accordance to maximum conductor temperature of 75°C with wiring enclosed in air.
- Suggested minimum cable size should be used as a guide only, refer to the latest edition of the AS/NZS 3000 "Australian/New Zealand Wiring Rule" for more details.

### Circuit Breaker Size and Amps (Main Power Supply)

1. Compute the total FLA of all the installed equipment (outdoor + the combined indoor units) using the table below:

Example:

MRC-120CS-5 + 2x WRE-026CS + 2 x BRE-035CS + 1 x MRE-035CS

Total System FLA = 19.0 + 2(0.24) + 2 (1.1) + 1 (0.57) = 22.25A

Full Load Amps Table					
<b>Model</b>	<b>MRC-075CS-3</b>	<b>MRC-100CS-4</b>	<b>MRC-120CS-5</b>		
FLA (Outdoor Unit)	17.5	19.0	19.0		
<b>Model</b>	<b>WRE-026CS</b>	<b>WRE-035CS</b>	<b>WRE-050CS</b>	<b>WRE-072CS</b>	<b>WRE-085CS</b>
FLA (Indoor Unit)	0.24	0.275	0.275	0.4	0.4
<b>Model</b>	<b>BRE-026CS</b>	<b>BRE-035CS</b>	<b>BRE-050CS</b>	<b>BRE-070CS</b>	
FLA (Indoor Unit)	1.1	1.1	1.3	1.3	
<b>Model</b>	<b>MRE-035CS</b>	<b>MRE-053CS</b>			
FLA (Indoor Unit)	0.57	0.57			

2. From the calculated system total FLA, use the table below to determine cable sizes and system circuit breaker size:

Example:

Total System FLA = 28.71A will require 6.0mm (Supply Mains), 1.0mm (OD to ID wire) and 32A CB fuse.

Total FLA Range	20A and less	>20A to 25A	>25A to 32A
Outdoor Unit Cable Size (Supply Mains)	2.5	4.0	6.0
Indoor Unit Cable Size (Outdoor to Indoor wire)	1.0	1.0	1.0
Circuit Breaker Size	20A	25A	32A

#### NOTES:

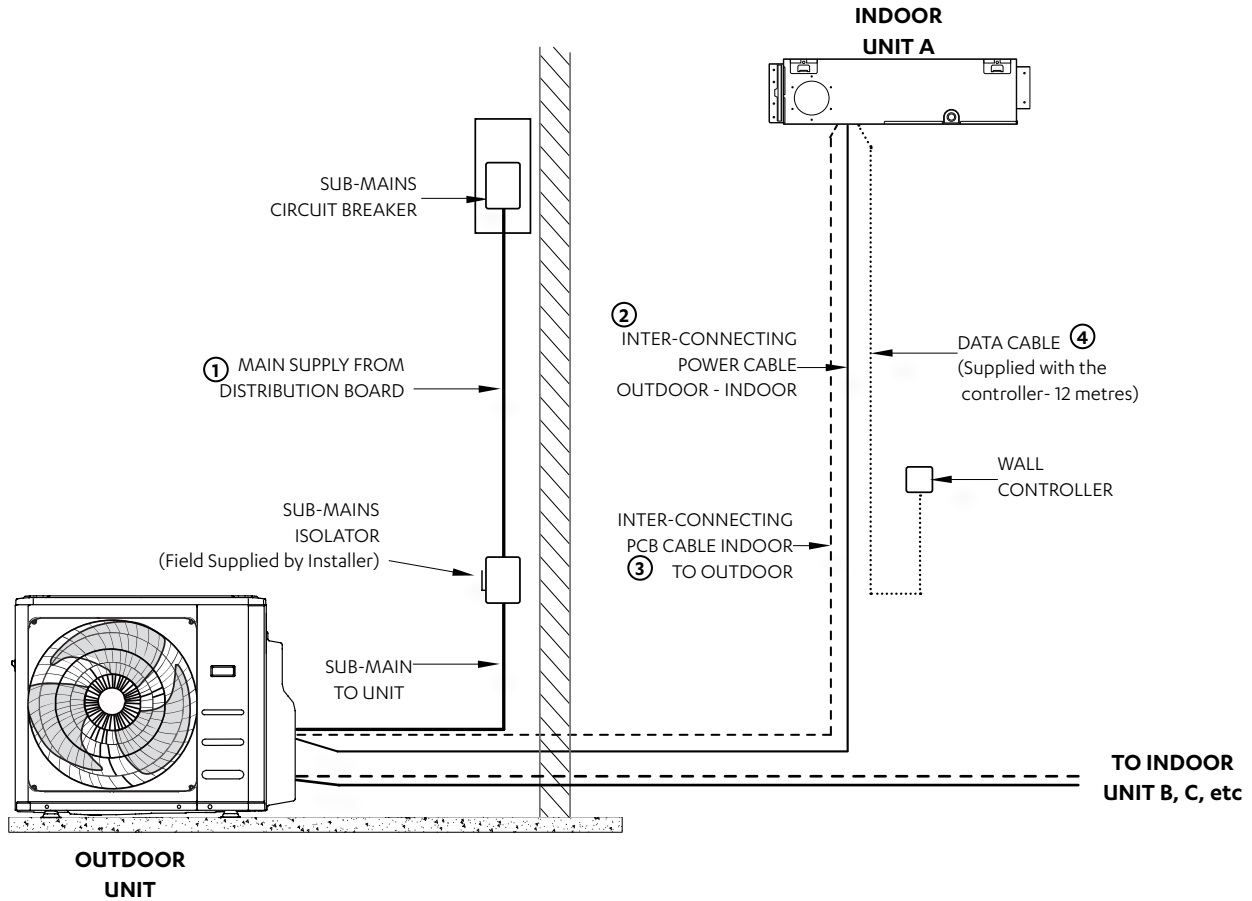
Cable sizes are suggested minimum and should be used as a guide only.

Refer to the latest edition of the AS/NZS 3000 "Australian Wiring Rules" for more details.

Cable size recommendation selected in accordance to maximum conductor temperature of 75°C with wiring enclosed in air.

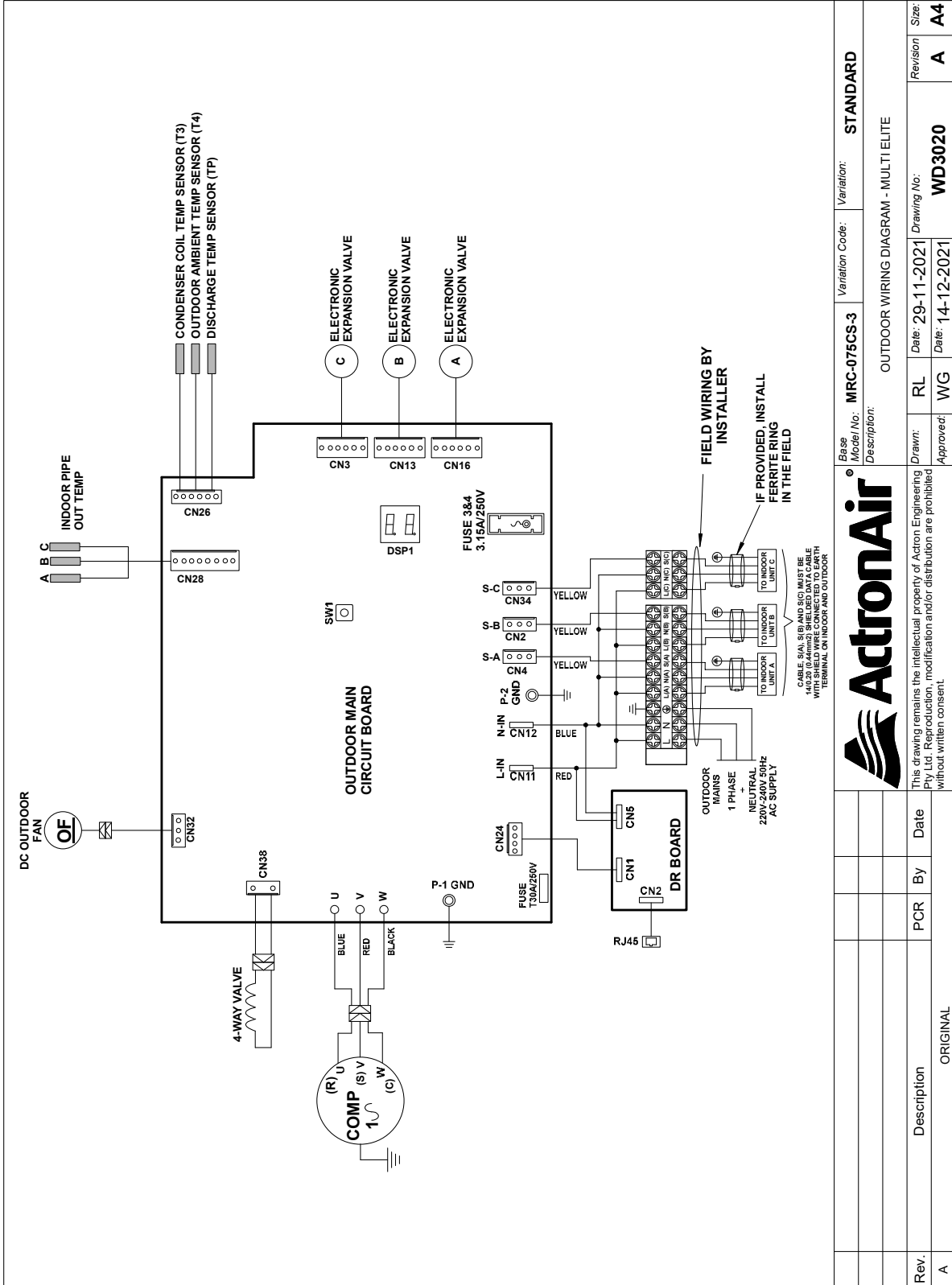
Wires, circuit breaker and fuses are NOT supplied with the units, installer has to provide.

- ① MAINS WIRING (220-240VAC)  
(Single Phase + Neutral) 50Hz
- ② CONTROL WIRING (220-240VAC)  
(Single Phase + Neutral) 50Hz
- - - - ③ EXTRA LOW VOLTAGE DATA CONTROL WIRING  
2 core shielded data cable 14/0.20 (0.44mm<sup>2</sup>)  
maximum 65 metres
- ..... ④ EXTRA LOW VOLTAGE DATA CONTROL WIRING  
4 core shielded data cable (0.75mm<sup>2</sup>)  
maximum 12 metres



## 12. Wiring Diagram

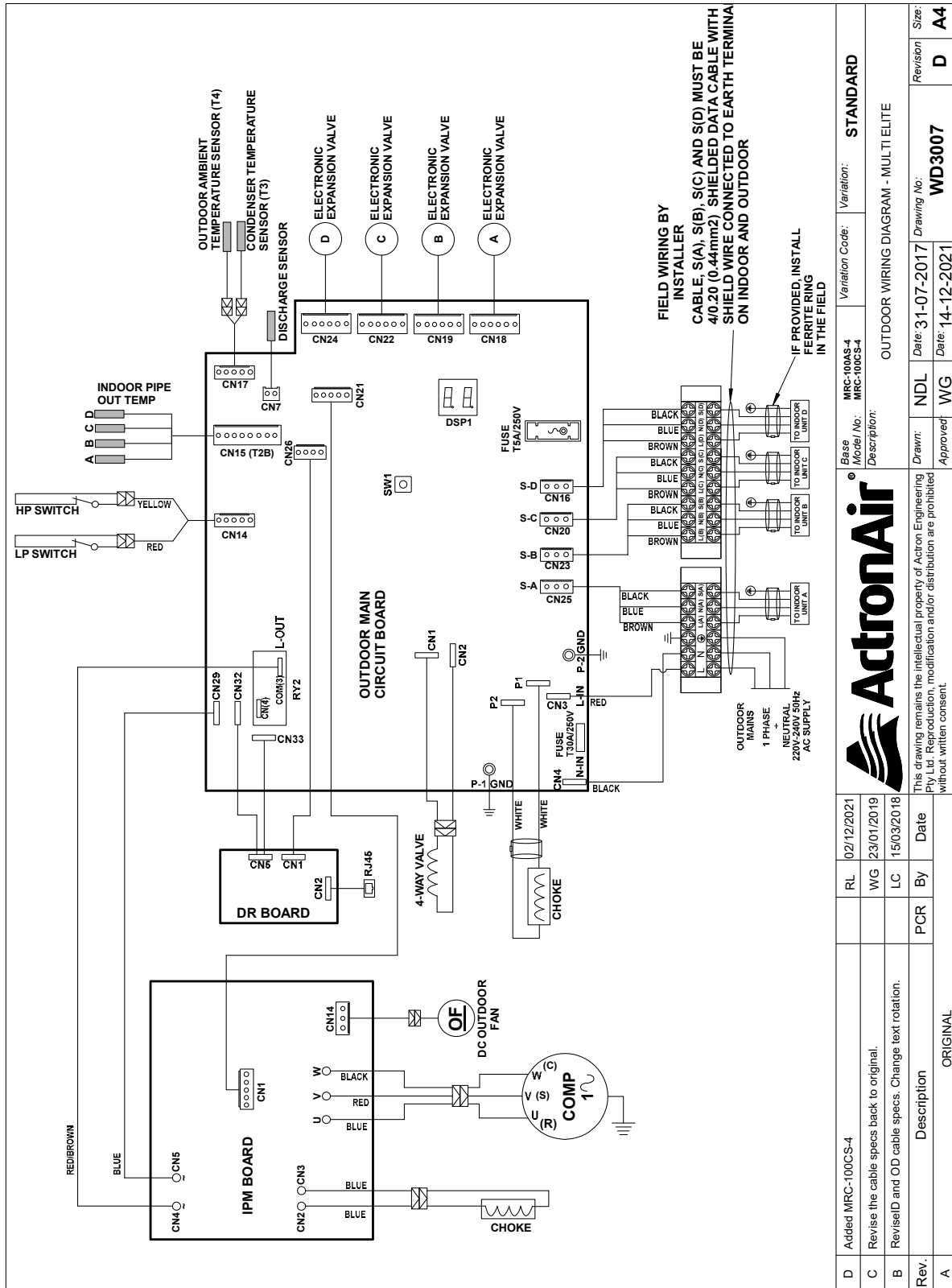
MRC-075CS-3



Base Model No: <b>MRC-075CS-3</b>		Variation Code: <b>STANDARD</b>	
Description: <b>OUTDOOR WIRING DIAGRAM - MULTI ELITE</b>			
Rev.:	Description	PCR	Date
A	ORIGINAL		
Drawn:	Approved:	Revision:	Size:
RL	WG	A	A4
Date:	Date:	Drawing No:	
29-11-2021	14-12-2021	<b>WD3020</b>	

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## MRC-100CS-4



Base Model No:	MRC-100AS-4	Variation Code:	STANDARD
Description:	MRC-100CS-4		
Drawn:	NDL	Date:	31-07-2017
Approved:	WG	Date:	14-12-2021
Drawing No:	WD3007	Revision:	D
Size:	A4		

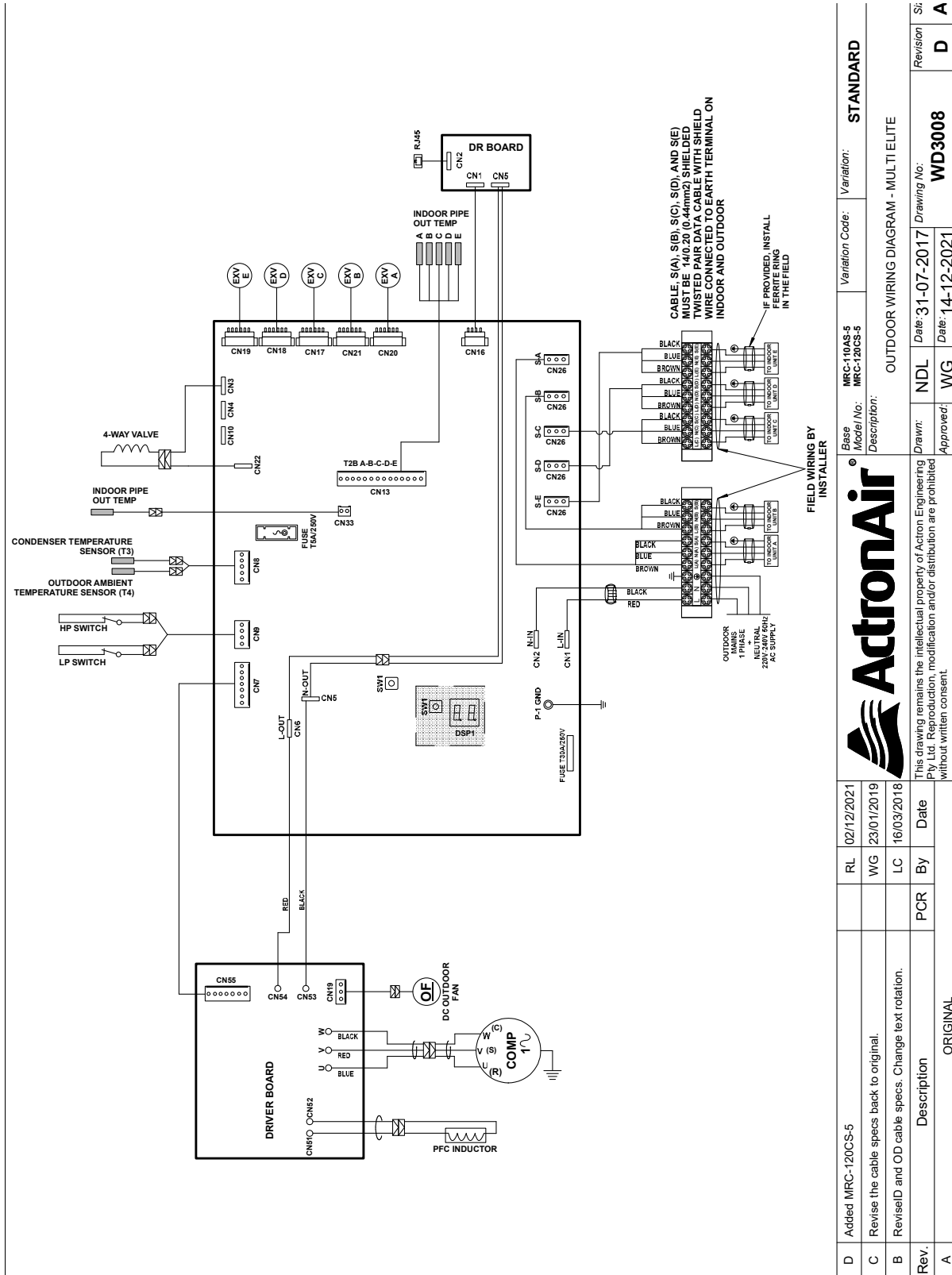
Rev.	Description	By	Date
D	Added MRC-100CS-4	RL	02/12/2021
C	Revise the cable specs back to original.	WG	23/01/2019
B	Revise ID and OD cable specs. Change text rotation.	LC	15/03/2018
A		PCR	

ORIGINAL



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## MRC-120CS-5



D	Added MRC-120CS-5	RL	02/12/2021	Base Model No:	MRC-110AS-5 MRC-120CS-5	Variation Code:	STANDARD
C	Revise the cable specs back to original.	WG	23/01/2019	Description:	OUTDOOR WIRING DIAGRAM - MULTI ELITE		
B	Revise ID and OD cable specs. Change text rotation.	LC	16/03/2018	Drawn:	NDL	Date:	31-07-2017
Rev.	Description	PCR	By	Date	WG	Date:	14-12-2021
A	ORIGINAL			Approved:		Drawing No:	WD3008
						Revision	D
						Si	A

## 13. Air Evacuation

### Preparations and Precautions

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the refrigerant circuit, removing any non-condensable gas and moisture from the system.

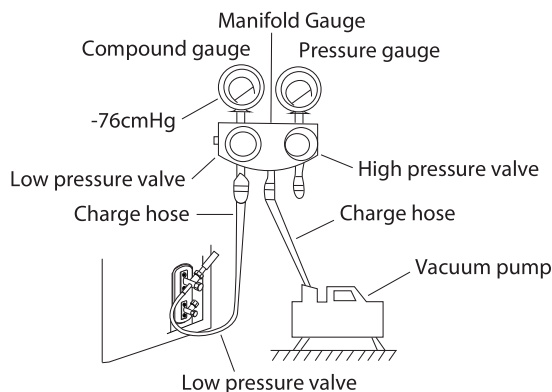
Evacuation should be performed upon initial installation and when unit is relocated.

### Before Performing Evacuation

1. Check to make sure the connective pipes between the indoor and outdoor units are connected properly .
2. Check to make sure all wiring is connected

### Evacuation Instructions

Before using a manifold gauge and a vacuum pump, read their operation manuals to make sure you know how to use them properly.



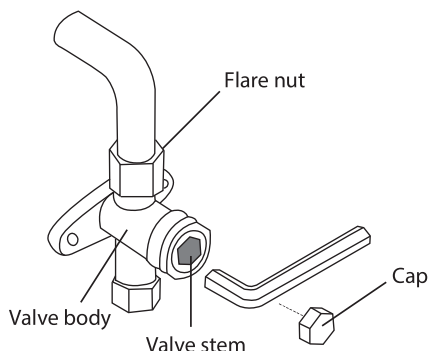
1. Connect the manifold gauge's charge hose to the service port on the outdoor unit's low pressure valve.
2. Connect the manifold gauge's charge hose from the to the vacuum pump.
3. Open the Low Pressure side of the manifold gauge. Keep the High Pressure side closed.
4. Turn on the vacuum pump to evacuate the system.
5. Run the vacuum pump until the Compound Meter reads 500 microns.
6. Close the manifold gauge's Low Pressure valve and turn off the vacuum pump.
7. Wait for 5 minutes, then check that there has been no change in system pressure.

### NOTE

If there is no change in system pressure, unscrew the cap from the packed valve (high pressure valve). If there is a change in system pressure, there may be a gas leak.



- Insert hexagonal wrench into the post valve (liquid line valve) and open the valve by turning the wrench 1/4 counterclockwise. Listen for gas to exit the system, then close the valve after 5 seconds.



- Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. It should read slightly higher than the atmospheric pressure.
- Remove the charge hose from the service port.
- Using hexagonal wrench, fully open both the high pressure and low pressure valves.

## CAUTION

### OPEN VALVE STEMS GENTLY

When opening valve stems, turn the hexagonal wrench until it hits against the stopper. **DO NOT** try to force the valve to open further.

- Tighten valve caps on all three valves (service port, high pressure, low pressure) by hand. You may tighten it further using a torque wrench if needed.
- If the outdoor unit uses all vacuum valves, and the vacuum position is at the main valve, the system is not connected with the indoor unit. The valve must be tightened with a screw nut. Check for gas leaks before operation to prevent leakage.

## 13.01. Refrigerant Charge Details

Model	MRC-075CS-3	MRC-100CS-4	MRC-120CS-5
Refrigerant Type	R-32	R-32	R-32
Refrigerant Charge (grams)	1850	2400	2950
Pre-charged Length (metres)	3 x 10	4 x 10	5 x 10
Additional Refrigerant per metre (grams/metres)	12	12	12
Liquid Pipe	3 x Ø6.35 (1/4")	4 x Ø6.35 (1/4")	5 x Ø6.35 (1/4")
Gas Pipe	3x Ø9.52 (3/8")	3 x Ø9.52 (3/8") + 1 x Ø12.7 (1/2")	4 x Ø9.52 (3/8") + 1 x Ø12.7 (1/2")

## 13.02. Safety And Leakage Check

### Electrical Safety Check

Perform the electric safe check after completing installation.

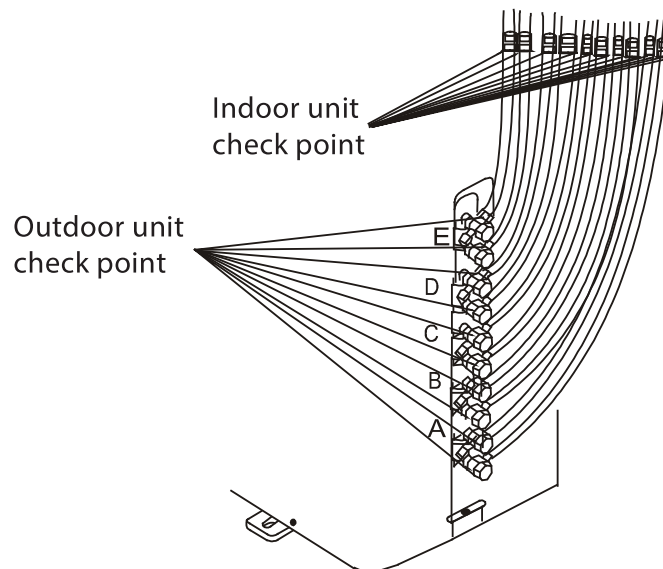
1. Insulated resistance  
The insulated resistance must be more than  $2M\Omega$ .
2. Grounding work  
After finishing grounding work, measure the grounding resistance by visual detection and grounding resistance tester. Make sure the grounding resistance is less than  $4\Omega$ .
3. Electrical leakage check (performing during test running)  
During test operation after finishing installation, the service technician can use the multimeter to perform the electrical leakage check. Turn off the unit immediately, rectify before continuing.

### Gas Leak Check

Proper pressure test with dry nitrogen should be performed, prior to air evacuation. Perform leak detection test with electronic leak detector after letting refrigerant into pipework

#### NOTE

After confirming that the all pipe connection points **DO NOT** leak, replace the valve cover on the outside unit.



#### NOTES

- The illustration is for explanation purpose only.
- The actual order of A, B, C, D, and E on the machine may be slightly different from the unit you purchased but the general shape will remain the same. The actual shape shall prevail.
- A, B,C,D are points for MRC-100CS-4 Unit.
- A, B,C,D, and E are points for the MRC-120CS-5 Unit.

## 14. Test Run

### Before Test Run

A test run must be performed after the entire system has been completely installed. Confirm the following points before performing the test:

1. The indoor and outdoor units are properly installed.
2. Piping and wiring are properly connected.
3. No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
4. The refrigeration system does not leak.
5. Drainage system is unimpeded and draining to a safe location.
6. The heating insulation is properly installed.
7. The grounding wires are properly connected.
8. Length of the piping and additional refrigerant stow capacity have been recorded.
9. The power voltage is the correct voltage for the air conditioner.

### CAUTION

Failure to perform the test run may result in unit damage, property damage or personal injury.

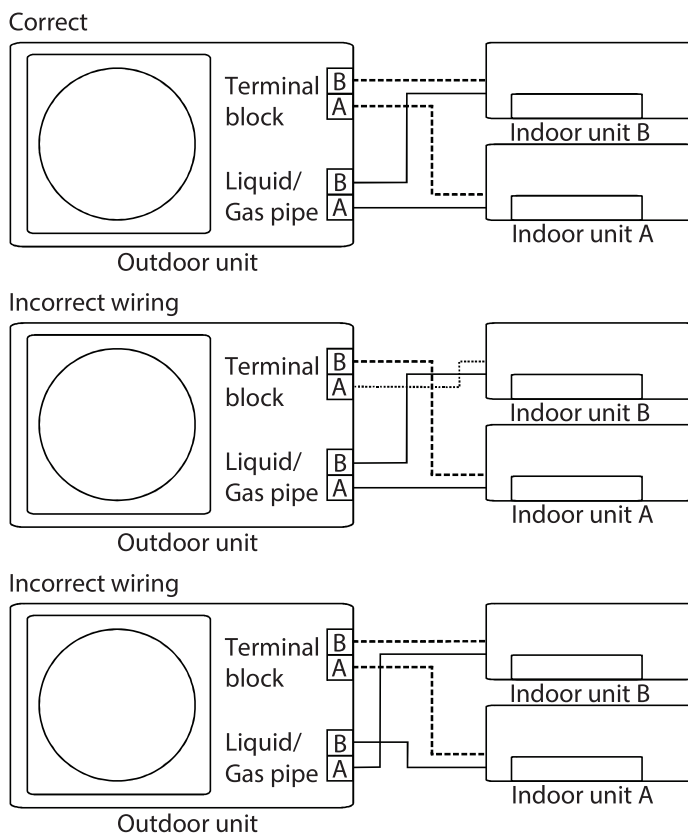
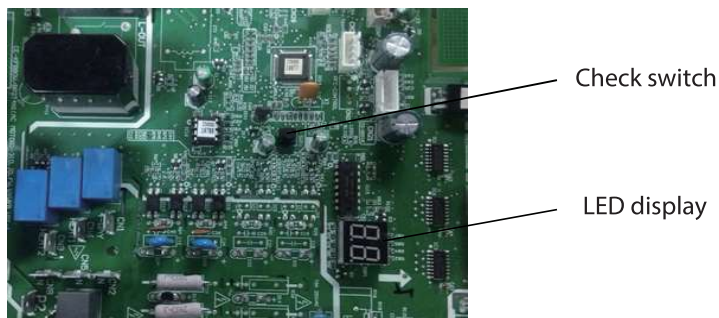
1. Open both the liquid and gas stop valves.
2. Turn on the main power switch and allow the unit to warm up.
3. Set the air conditioner to **COOL** mode.
4. For the Indoor Unit
  - a. Ensure the remote control and its buttons work properly.
  - b. Ensure the louvers move properly and can be changed using the remote control.
  - c. Double check to see if the room temperature is being registered correctly.
  - d. Ensure the indicators on the remote control and the display panel on the indoor unit work properly.
  - e. Ensure the manual buttons on the indoor unit works properly.
  - f. Check to see that the drainage system is unimpeded and draining smoothly.
  - g. Ensure there is no vibration or abnormal noise during operation.
5. For the Outdoor Unit
  - a. Check to see if the refrigeration system is leaking.
  - b. Make sure there is no vibration or abnormal noise during operation.
  - c. Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.

### NOTE

If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.

## 15. Automatic Wiring/Piping Correction Function

More recent models now feature automatic correction of wiring/piping errors. Press the **Check Switch** on the outdoor unit PCB board for 5 seconds until the LED displays **CE**, indicating that this function is working. Approximately 5-10 minutes after the switch is pressed, the **CE** disappears, meaning that the wiring/piping error is corrected and all wiring/piping is properly connected.



### How To Activate This Function

1. Check that outside temperature is above 5°C.  
(This function does not work when outside temperature is not above 5°C )
2. Check that the stop valves of the liquid pipe and gas pipe are open.
3. Turn on the breaker and wait at least 2 minutes.
4. Press the check switch on the outdoor PCB board unit LED display **CE**.
5. If the display changes from **CE** to **CF**, a detection error has occurred. You are advised to re-do the auto correction function or check the wiring and pipe connections.

## 16. Maintenance Frequency Checklist

Regular servicing of equipment by a qualified technician is recommended every 12 months for residential applications and every quarter for commercial applications. Regular servicing of your unit helps in maintaining its optimum performance and reliability. **The following checklist and service periods are provided as a guide only, as some sites may require more frequent servicing.**

Electrical										
Parts	Service Frequency					Detail of Service Check	Service Methods			
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs			3 Yrs	4 Yrs	5 Yrs
Printed Circuit Boards				✓					Visual Inspection.	Tighten Terminals as necessary on printed circuit boards.
Electrical Connections				✓					Check all electrical terminals, mains, communications, etc.	Re-tighten if loose.
Magnetic Contactor				✓					Check for loose terminal connections.	Tighten electrical terminals. Remove any dust.

Outdoor Unit											
Parts	Service Frequency								Detail of Service Check	Service Methods	
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs			
Casing / Panels and Frames				✓						Visual check for damage, rust and dust accumulation.	For highly corrosive environment, wash panels quarterly with water & neutral detergent solution. Wax panels. Repair / re-paint where required.
Insulation				✓						Visual check for insulation conditions.	Repair / replace insulation material.
Fan				✓						Visual check for run out of balance and dust accumulation.	Clean off dust as necessary to negate possibility of fan running out of balance.
Motor				✓ Ω						Visual check on wiring. Insulation resistance check to be carried out annually.	Measure insulation resistance. Should be more than 1MΩ.
Heat Exchanger				✓						Check for clogging by dust. Check for leaks / damage.	Clean air inlet side as necessary. Straighten any bent fins using fins comb.
Condensate Drain Line (if available)				✓						Check for obstructions & free flow of water.	Clean to eliminate obstructions/ sludge & check condition of drain line. Pour water to ensure free flow.
Compressor				✓ Ω						Check for high / low pressure. Measure insulation resistance. Check compressor for abnormal noise/ vibrations.	Measure insulation resistance. Should be more than 1MΩ. Ensure to isolate first the VSD from the compressor before measuring insulation resistance.
Compressor drive				✓						For variable drive compressor check full operation of drive from minimum hertz to maximum, check fan operation of drive.	Check compressor amperage & running frequency feedback from outdoor board seven segment display.
				✓						Ensure drive fresh air path is clear and drive fan is operating correctly.	Check ventilation holes on top and bottom of drive cover are clear of leaves, pebbles or dirt.
Refrigeration Operational Readings				✓						Make note of operational reading in test cool/heat mode.	Check operating pressures, record super heat & sub-cool values.
Safety Devices				✓						Check calibration of safety devices.	Check resistance of sensors, pressure cut in / cut out of pressure controls.
Faults				✓						Check for any previous fault history on unit.	Investigate any causes for previous faults, reset fault history.

Indoor Unit											
Parts	Service Frequency								Detail of Service Check	Service Methods	
	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs			
Casing/Panels and Frames				✓						Visual check for damage, rust and dust accumulation.	For highly corrosive environment, wash panels quarterly with water & neutral detergent solution. Wax panels. Repair / re-paint where required.
Insulation				✓						Visual check for insulation conditions.	Repair / replace insulation material.
Fan				✓						Visual check for run out of balance and dust attached.	Clean off dust as necessary to negate possibility of fan running out of balance.
Motor				✓ Ω						Visual check on wiring. Insulation resistance check to be carried out annually.	Measure insulation resistance to earth with Megger. Insulation resistance should be more than 1MΩ.
Heat Exchanger				✓						Check for clogging by dust. Check for leaks / damage.	Clean air inlet side as necessary. Straighten any bent fins using fins comb.
Drain Pan/ Condensation line				✓						Check for obstructions & free flow of water.	Clean to eliminate obstructions/ sludge & check condition of pan. Pour water to ensure free flow.
Filter*	✓									Check for clogging by dust.	Clean / Replace Filter.
Temperature Readings				✓						Measure air on & air off.	Place temperature probe in return & supply air of unit.

\*Service period for filter cleaning may vary depending on operating time & surrounding environment



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