MULTIELITE
MRC-052AS-2 Multi Split System Air Conditioner

MULTIELITE MRC-052AS-2 Multi Split System Air Conditioner Installation Guide

Contents

MULTIELITE

MULTIELITE MRC-052AS-2 Multi Split System Air Conditioner

Product Information

The Multi Split System Air Conditioner is designed to provide efficient cooling for indoor spaces. It contains fluorinated gas and must be handled by qualified HVAC technicians for installation, service, maintenance, and repair.

- Read the safety precautions and warnings in the manual carefully before installation.
- Ensure that the appliance is installed according to national regulations.
- Installation, service, maintenance, and repair must be performed by a qualified HVAC technician.
- Check for refrigerant leaks during installation as refrigerant is toxic.
- Read all safety precautions before installation.
- Use specially designed air-conditioning units for specific functional environments.
- Only qualified HVAC technicians should handle installation, repair, and service.
- Avoid refrigerant leaks during installation as they pose health risks.
- Observe prevailing WH&S regulations.
- Ensure safe work practices and environment during all service procedures.

FAQ

- **Q:** Who should handle the installation and service of the air conditioning unit?
- **A:** Only qualified HVAC technicians should handle the installation, service, maintenance, and repair of the air conditioning unit to ensure proper functioning and safety.

Model Numbers

- MRC-052AS-2
- MRC-071AS-3
- MRC-100AS-4
- MRC-110AS -5
- MRC-135AS -5

IMPORTANT NOTE
Please read this manual carefully before installing or operating your new air conditioning unit and keep it available for future reference. This owner's manual only refers to the use of the outdoor unit. When using the indoor unit, refer to the owner's manual for the indoor unit.

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.

WARNING: Failure to observe a warning may result in death or serious injury. The appliance must be installed under national regulations.
CAUTION: Failure to observe a caution may result in injury or equipment damage.

Note about Fluorinated Gases

1. This air conditioning unit contains fluorinated gas. For specific information on the type of gas and the amount, please refer to the relevant label on the unit itself.
2. Installation, service, maintenance, and repair of this unit must be performed by a qualified HVAC technician.
3. Product uninstallation and recycling must be performed by a qualified HVAC technician.
4. When the unit is checked for leaks, proper record-keeping of all checks is strongly recommended.

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

MUST BE INSTALLED BY A LICENSED ELECTRICIAN

Safety Precautions

WARNING

1. Carefully read all the Safety Precautions before installation.
2. In certain functional environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.
3. Only qualified HVAC technicians* should install, repair, and service this air conditioning unit. 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.

4. During installation, ensure there are no refrigerant leaks. Refrigerant is toxic and poses a serious health and safety risk.

Qualifications required will be appropriate Electrical, Refrigeration, and Refrigerant Handling License & Training, dependent on local State/Territory regulations.

SAFETY INSTRUCTIONS

1. Prevailing WH&S regulations must be observed and will take precedence over the safety instructions contained in this manual. Safe work practices and environment must be the paramount importance in the performance of all the service procedures.
2. Ensure that unit installation complies with relevant council regulations and building code standards.
3. All electrical wiring must be under current electrical authority regulations and all wiring connections to be as per the electrical diagram provided.
4. Always wear appropriate PPE, remove any dangling jewelry, and protect long hair by wearing a cap.
5. Make sure that safety guards and panel covers are always firmly secured and not damaged.
6. 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.
7. The installer must incorporate a means of electrical disconnection (isolator) in the sub-main fixed wiring under the Australian wiring rule (AS3000).
8. Secure the power cords and control cables that go in/out of the unit. Use the cable ties provided in the control box.

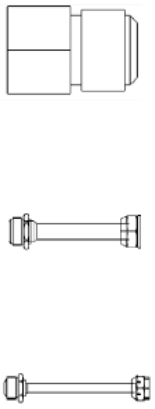
CAUTION

Do not install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause fire.
Do not install your air conditioner in a wet room such as a bathroom or laundry room. Too much exposure to water can cause electrical components to short circuit.

1. The product must be properly grounded at the time of installation, or electrical shock may occur.
2. Install drainage piping according to the instructions in this manual. Improper drainage may cause water damage to your home and property.

Components

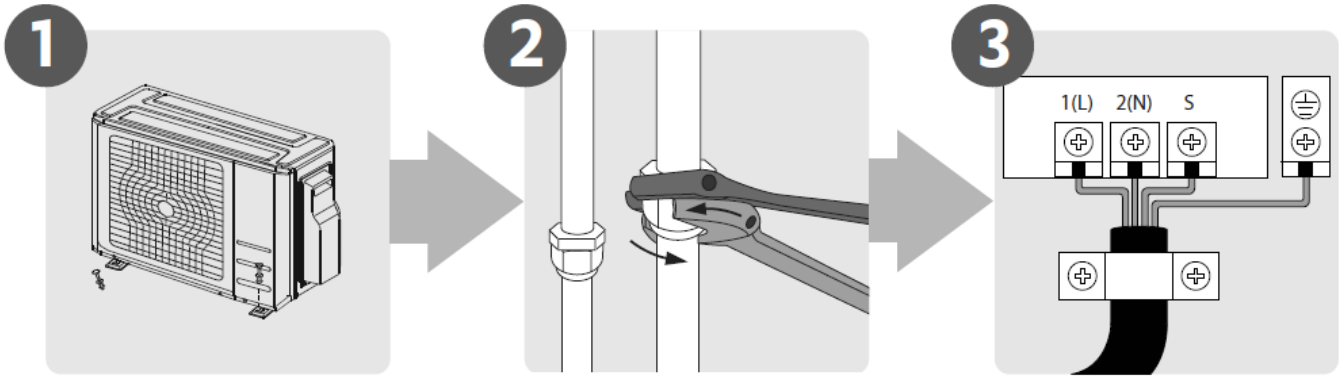
The air conditioning system comes with the following components. Use all of the installation parts and accessories to install the air conditioner. Improper installation may result in water leakage, electrical shock, and fire, or cause the equipment to fail.

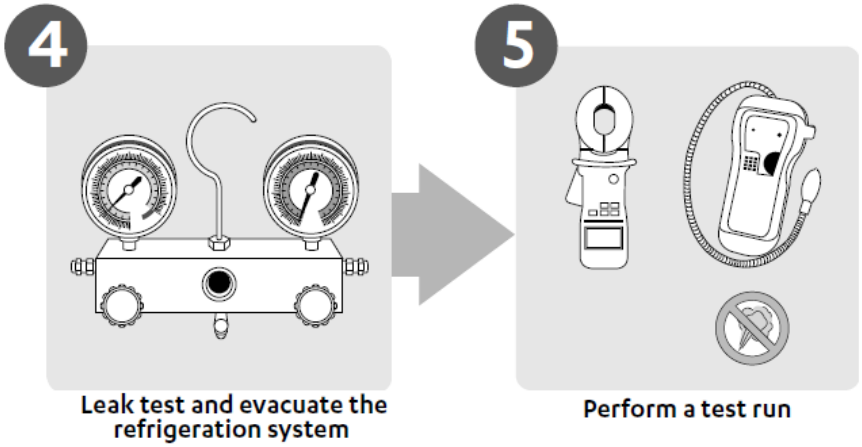
<table>
<tr><th>Name</th><th>Shape</th><th colspan="3">Quantity</th></tr>
<tr><td>Drain joint (some models)</td><td>  </td><td colspan="3">1</td></tr>
<tr><td>Seal ring (some models)</td><td>  </td><td colspan="3">1</td></tr>
<tr><td rowspan="14">Pipe Adaptor
(NOTE: Pipe size may differ from appliance to appliance. To meet the different pipe size requirements, sometimes the pipe connections need the adaptor to be installed to the outdoor unit.)</td><td rowspan="14">  </td><td>Model</td><td>Adaptor</td><td>Quantity</td></tr>
<tr><td>MRC-052AS-2</td><td>Ø9.52 - Ø12.7</td><td>2</td></tr>
<tr><td rowspan="4">MRC-071AS-3</td><td>Ø9.52 - Ø12.7</td><td>2</td></tr>
<tr><td>Ø9.52 - Ø15.9</td><td>1</td></tr>
<tr><td>Ø6.35 - Ø9.52</td><td>1</td></tr>
<tr><td rowspan="4">MRC-100AS-4</td><td>Ø12.7 - Ø9.52</td><td>1</td></tr>
<tr><td>Ø12.7 - Ø15.9</td><td>1</td></tr>
<tr><td>Ø9.52 - Ø15.9</td><td>1</td></tr>
<tr><td>Ø9.52 - Ø12.7</td><td>1</td></tr>
<tr><td rowspan="3">MRC-110AS-5</td><td>Ø12.7 - Ø9.52</td><td>1</td></tr>
<tr><td>Ø9.52 - Ø12.7</td><td>3</td></tr>
<tr><td>Ø12.7 - Ø15.9</td><td>1</td></tr>
<tr><td rowspan="3">MRC-135AS-5</td><td>Ø6.35 - Ø9.52</td><td>2</td></tr>
<tr><td>Ø12.7 - Ø9.52</td><td>2</td></tr>
<tr><td>Ø12.7 - Ø15.9</td><td>2</td></tr>
<tr><td>Owner’s manual</td><td>  </td><td colspan="3">1</td></tr>
<tr><td>Installation manual</td><td>  </td><td colspan="3">1</td></tr>
</table>

Optional Accessories

- There are two types of controllers: a wall controller(wired) and a remote controller (wireless).
- Select a controller according to customers’ request and install it in an appropriate place.
- Refer to catalogs and technical literature for selecting a suitable controller, for the indoor unit used.

Installation Overview





CAUTION

- A minimum pipe run of 6 meters is recommended to minimize vibration & excessive noise.

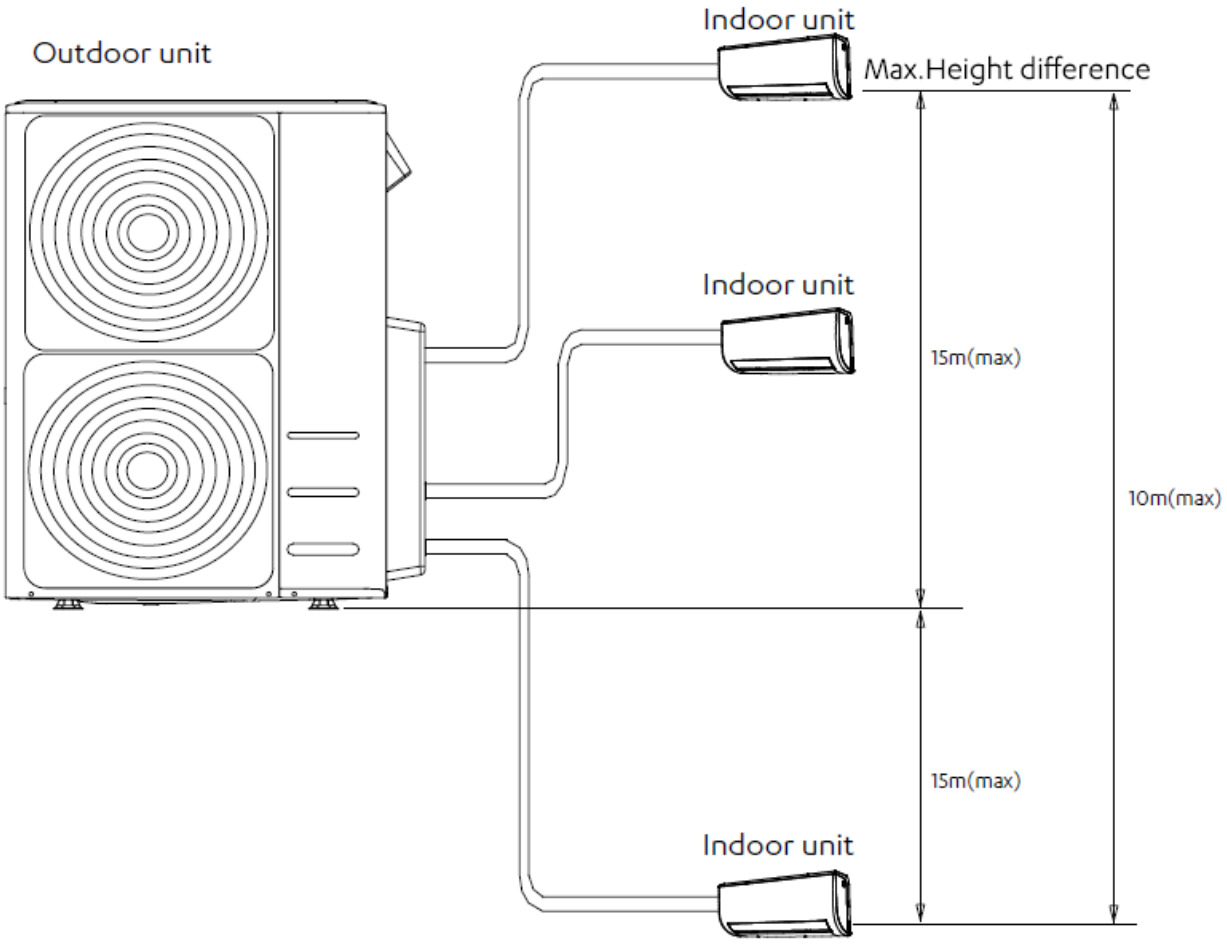
Specification

Table 3.1

Indoor units that can be used in combination	**number of connected units**	**1-5**
Compressor stop-start frequency	**stop time**	**3 minutes or more**
Power source voltage	**voltage supply**	**230VAC (-6%/+10%)**
	voltage drop during the start	**±5% of rated**

Table 3.2		1 outdoor			
		2 indoor	3 indoor	4 indoor	5 indoor
Minimum Field Pipe Length (m) – 1 indoor unit		6	9	12	15
Maximum length for all rooms (m)		30	60	60	80
Maximum length for one indoor unit (m)		25	30	35	35
Maximum height difference between indoor and outdoor unit (m)	OU higher than IU	15	15	15	15
	OU lower than IU	15	15	15	15
Maximum height difference between indoor units (m)		10	10	10	10

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



Outdoor Unit Installation Instructions

Step 1: Select the installation location
The outdoor unit should be installed in a location that meets the following requirements:

- Place the outdoor unit as close to the indoor unit as possible.
- Ensure that there is enough room for installation and maintenance.
- The air inlet and outlet must not be obstructed or exposed to strong wind
- Ensure the location of the unit will not be subject to snowdrifts, accumulation of leaves, or other seasonal debris. If possible, provide an awning for the unit.
- Ensure the awning does not obstruct airflow.
- The installation area must be dry and well-ventilated.
- There must be enough room to install the connecting pipes and cables and to access them for maintenance.

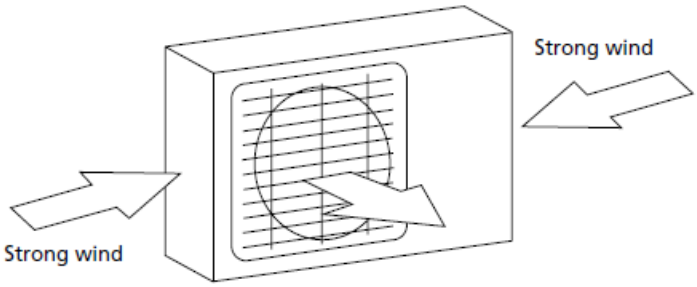


Fig. 3.1

- The area must be free of combustible gases and chemicals
- The pipe length between the outdoor and indoor units may not exceed the maximum allowable pipe length.
- If possible, DO NOT install the unit where it is exposed to direct sunlight.
- If possible, make sure the unit is located far away from your neighbors' property so that the noise from the unit will not disturb them.
- If the location is exposed to strong winds (for example: near a seaside), the unit must be placed against the wall to shelter it from the wind. If necessary, use an awning. Ensure minimum space requirements are met. (See Fig. 3.1 & 3.2)
- Install the indoor and outdoor units, cables, and wires at least 1 meter from televisions or radios to prevent static or image distortion. Depending on the radio waves, a 1-metre distance may not be enough to eliminate all interference.

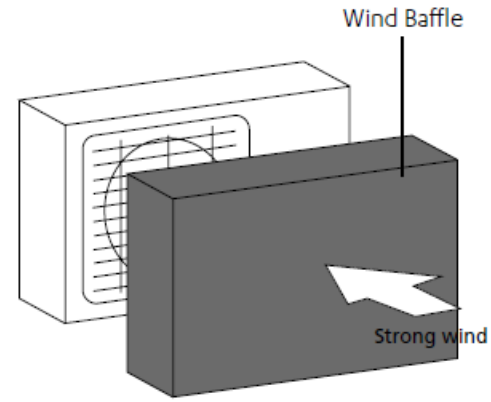


Fig. 3.2

Step 2: Install Outdoor Unit

- Fix the outdoor unit with anchor bolts (M10)

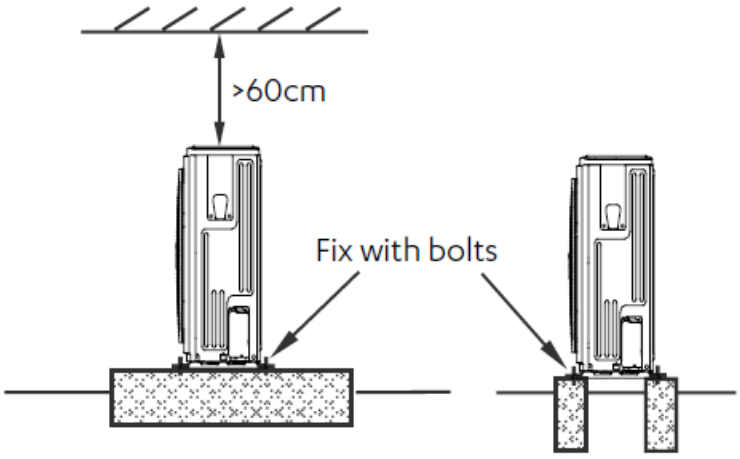


Fig. 3.3

CAUTION

- Be sure to remove any obstacles that may block air circulation.
- Make sure you refer to Fig. 3.7 to ensure there is enough room for installation and maintenance.

Outdoor Unit Installation Instructions

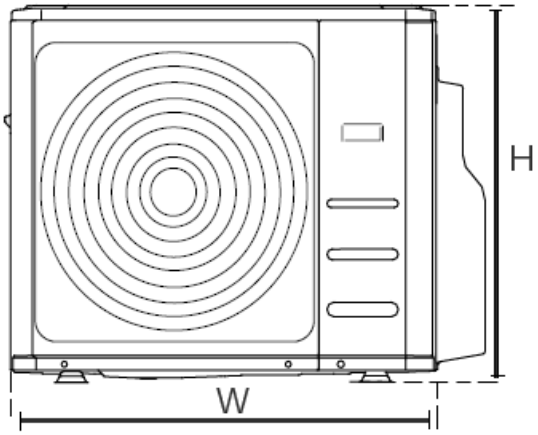


Fig. 3.4

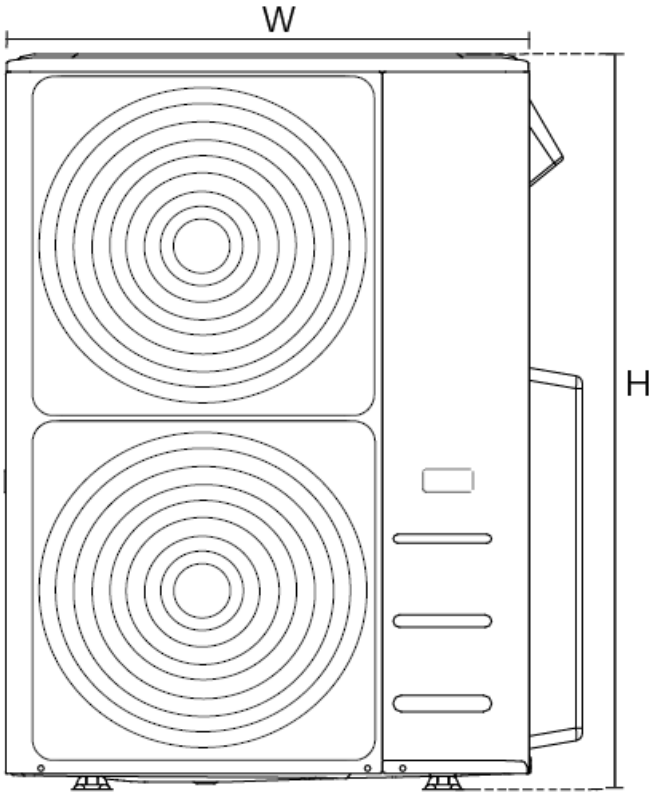


Fig. 3.5

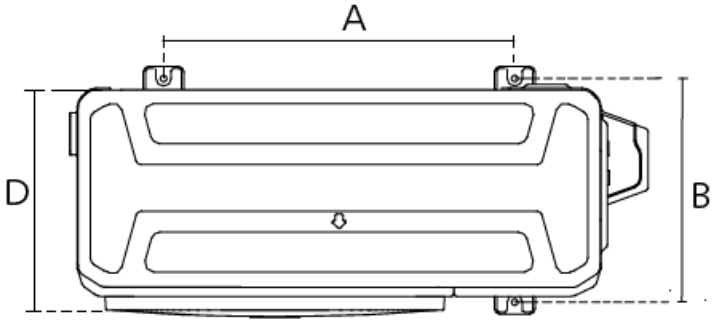


Fig. 3.6

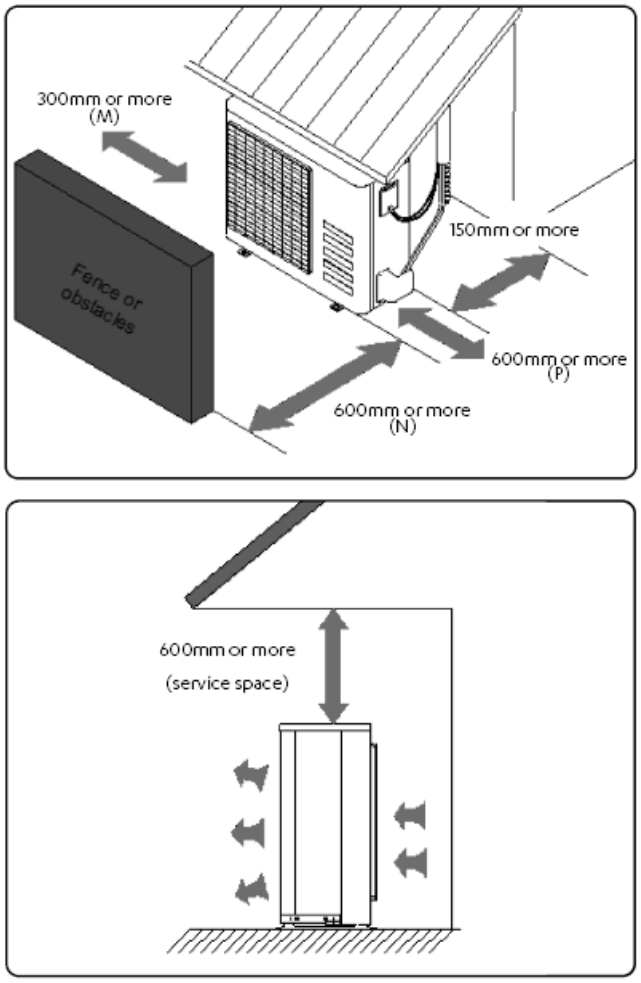
Table 3.3
Dimensions of Multi Split Outdoor Unit (mm)

Model Number	Outdoor Unit Dimensions W x H x D (mm)	Mounting Dimensions		
		Distance A (mm)	Distance B (mm)	
MRC052AS-2 MRC-071AS-3	845 x 702 x 363	540	350	
MRC-100AS-4 MRC-110AS-5	946 x 810 x 410	673	403	
MRC-135AS-5	952 x 1333 x 415	634	404	

NOTE

The minimum distance between the outdoor unit and walls described in the installation guide does not apply to airtight rooms. Be sure to keep the unit unobstructed in at least two of the three directions (M, N, P). See Fig 3.7

Fig. 3.7



Drain Joint Installation

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. (See Fig. 3.8).

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.

NOTE
Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

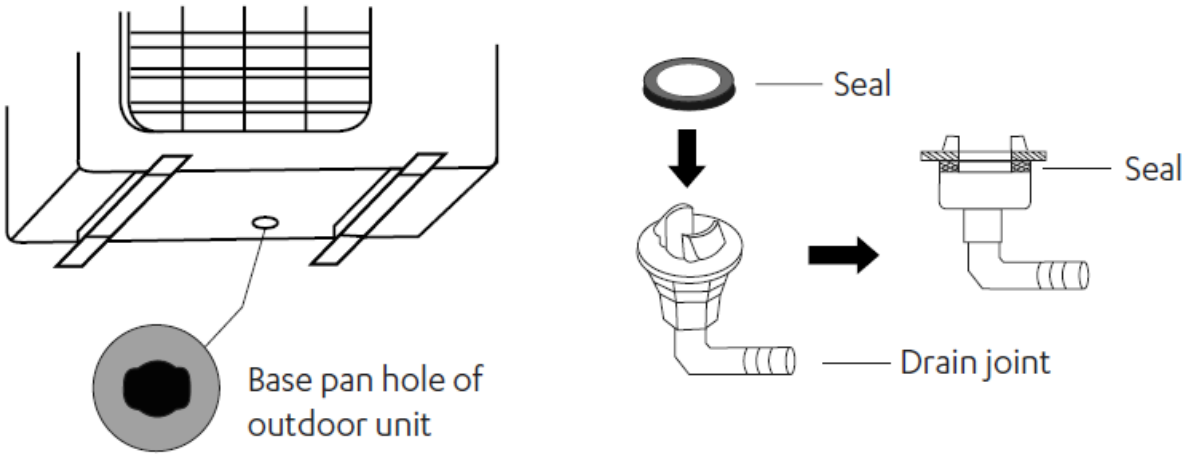


Fig. 3.8

Notes On 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 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 the protective wall cuff in the hole. This protects the edges of the hole and will help seal it when you finish the installation process.

Connecting 7kW 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 ports. (See Fig. 3.9). Please use the pipe adaptors provided.

Table 3.4
Connecting pipe size of the indoor unit

Indoor Unit Capacity	Liquid (mm)	Gas (mm)
2.6kW	6.35mm	9.52mm
3.5kW / 5kW	6.35mm	12.7mm
7kW	9.52mm	15.88mm

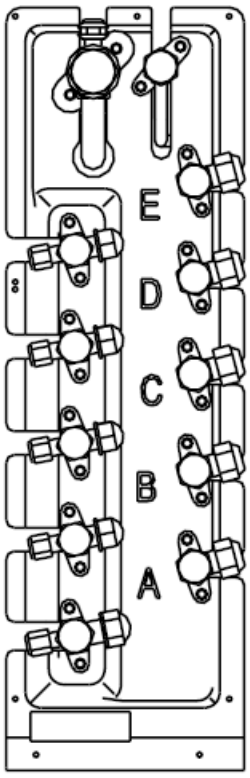


Fig. 3.9

Refrigerant Pipe Connection

WARNING

- All field piping must be completed by a qualified HVAC technician and must comply with local and national regulations.
- When the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. If the refrigerant leaks and its concentration exceeds its proper limit, hazards due to lack of oxygen may result.
- When installing the refrigeration system, ensure that air, dust, moisture, or foreign substances do not enter the refrigerant circuit. Contamination in the system may cause poor operating capacity, high pressure in the refrigeration cycle, explosion, injury or product failure and may void the warranty.
- Ventilate the area immediately if there is refrigerant leakage during the installation. Leaked refrigerant gas can be toxic. Ensure there is no refrigerant leakage after completing the installation work.

Notes On Pipe Length and Elevation

- Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meet the requirements shown in Table 3.2.

Refrigerant Piping Connection Instructions

1. Cut the connecting pipes according to the 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 the pipe. Flare each end of connecting pipes.

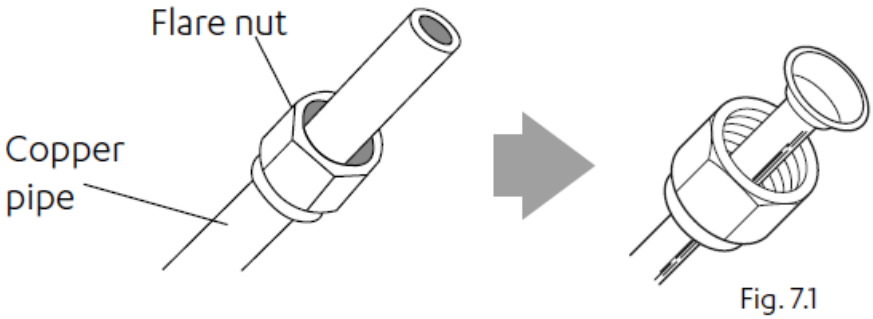


Fig. 7.1

4. Connect the pipe to an 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.

Fig. 7.2

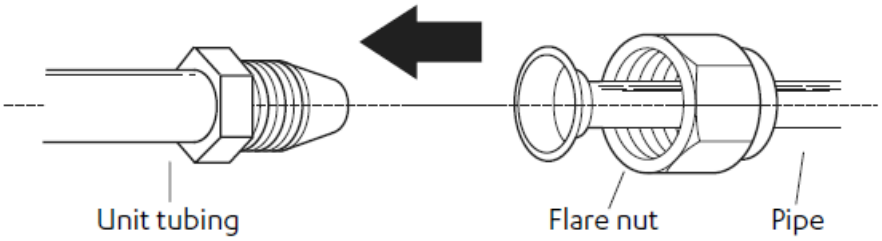


Table 4.1
Pipe Flare Dimension and Tightening Torque Guide

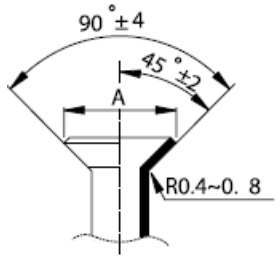
Pipe Size	Tightening Torque	Flare Dimension (A)		Flare Shape
		Min (mm)	Max (mm)	
0 6.4	14.2 – 17.2 Nm	8.3	8.3	
0 9.5	32.7 – 39.9 Nm	12.4	12.4	
0 12.7	49.5 – 60.3 Nm	15.4	15.8	

Fig. 41

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.

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 a qualified technician. Improper connections may cause electrical malfunction, injury, and fire.
- Connect the power cable to the terminals and fasten it with a clamp. An insecure connection may cause a fire.
- 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

- Connect the outdoor wires before connecting the indoor wires.
- Make sure you earth the unit. Improper earthing may cause electrical shock.
- Insulate both the gas and liquid piping to prevent water leakage.
- DO NOT connect the unit to 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.

Follow these instructions to prevent interference when the compressor starts:

- The unit must be connected to a separate sub-circuit.
- No other equipment should be connected to the same sub-circuit.
- The unit’s power information can be found on the rating sticker on the product.

Outdoor Wiring

WARNING
Before performing any electrical or wiring work, isolate and lockout/tag out power to the A/C unit.

1. Prepare the cable for connection
    - Ensure the correct size cable has been selected, as per specifications.
    - Using wire strippers, strip the rubber jacket from both ends of the 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. If there is no cover on the outdoor unit, disassemble the bolts from the maintenance board and remove the protection board. (See fig 4.1)

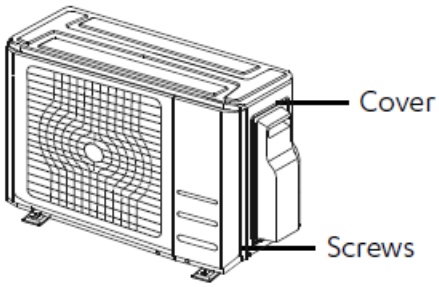
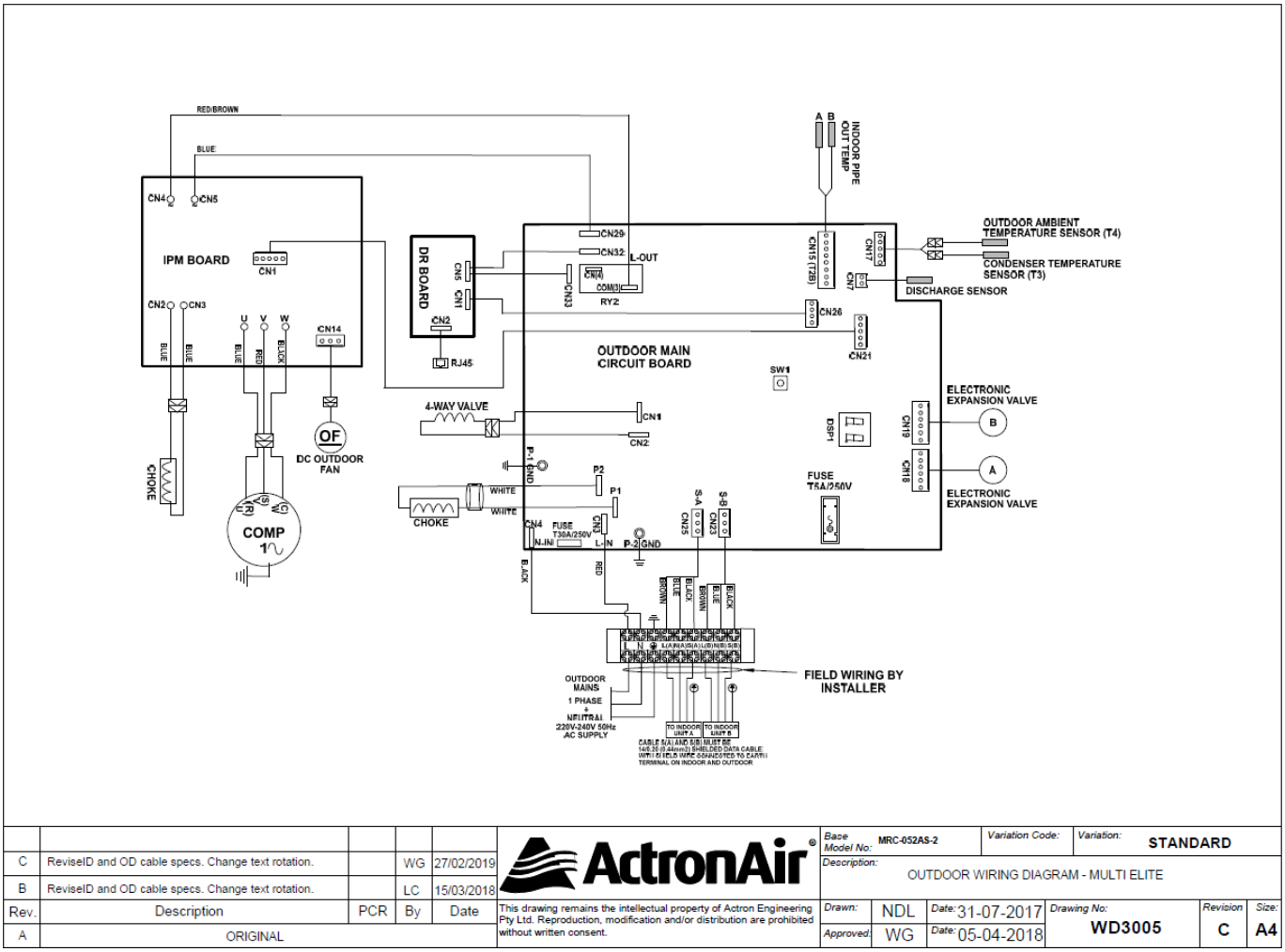


Fig. 5.1

3. Connect the fork lugs to the terminals. Match the wire colors/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 the designated cable clamp.
5. Reinstall the cover of the electric control box.

Wiring Diagram MRC-052AS-2

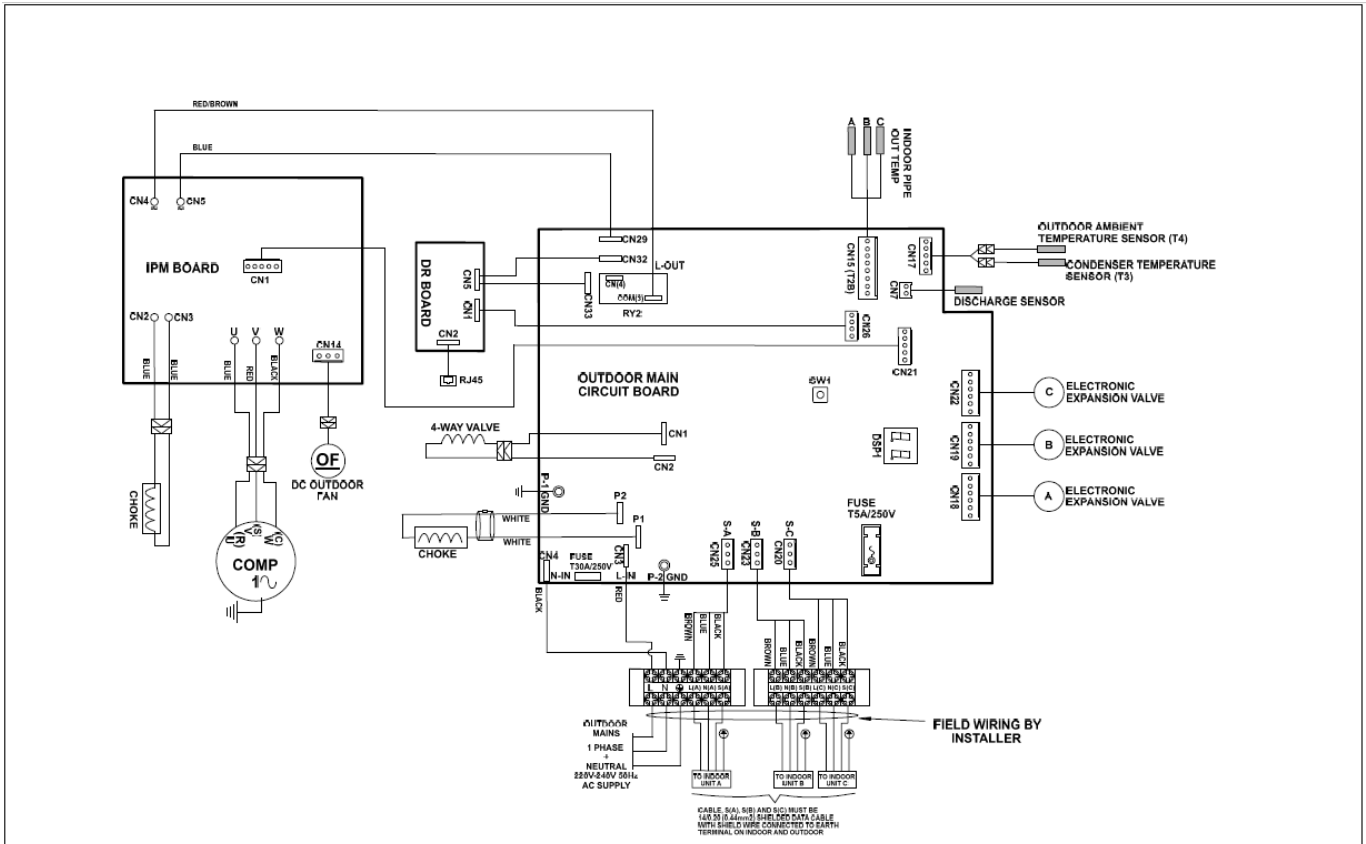


Rev.	Description	PCR	By	Date
C	ReviseID and OD cable specs. Change text rotation.		WG	27/02/2019
B	ReviseID and OD cable specs. Change text rotation.		LC	15/03/2018
A	ORIGINAL			

ActronAir®

Base Model No: MRC-052AS-2	Variation Code:	Variation: STANDARD				
Description: OUTDOOR WIRING DIAGRAM - MULTI ELITE						
Drawn:	NDL	Date: 31-07-2017	Drawing No: WD3005	Revision C	Size: A4	
Approved:	WG	Date: 05-04-2018				

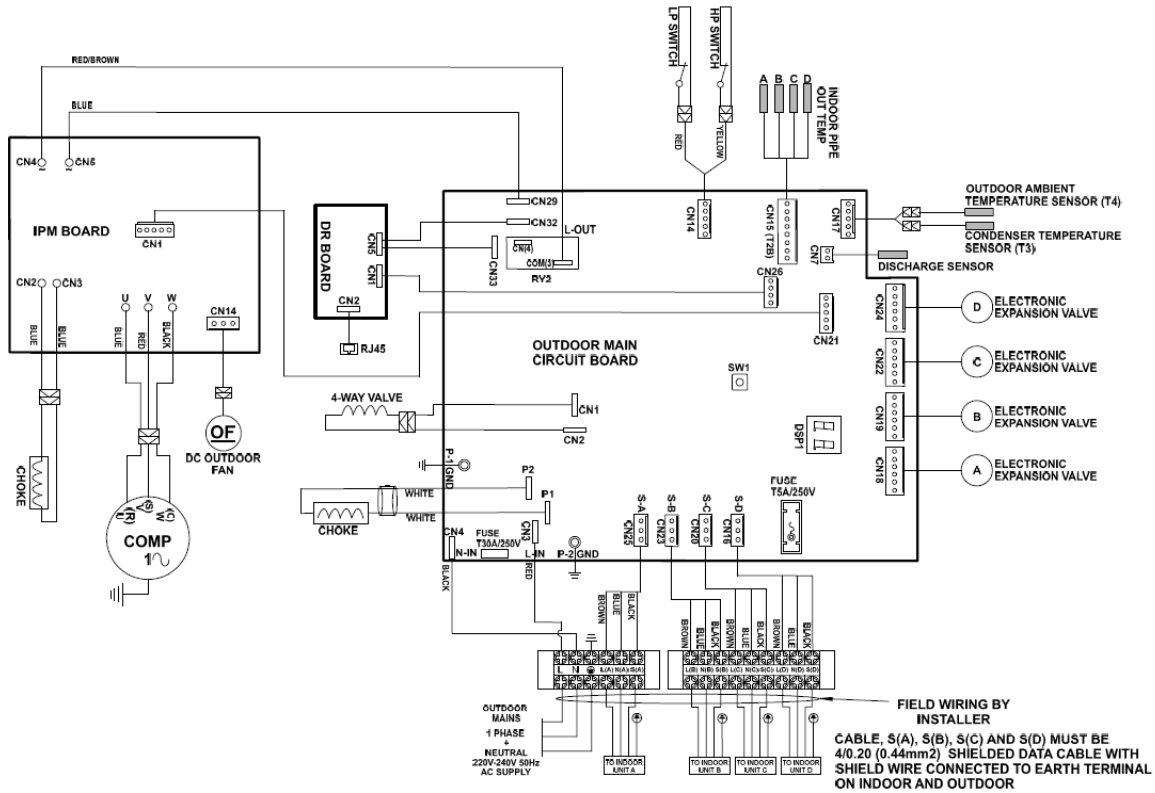
Wiring Diagram MRC-071AS-3



Rev.	Description	PCR	By	Date
C	Revise the cable specs back to original.		WG	23/01/2019
B	ReviseID and OD cable specs. Change text rotation.		LC	15/03/2018
A	ORIGINAL			

Base Model No:	MRC-071AS-3 MRC-075AS-3	Variation Code:	Variation:	STANDARD		
Description:	OUTDOOR WIRING DIAGRAM - MULTI ELITE					
Drawn:	NDL	Date: 31-07-2017	Drawing No:	WD3006	Revision: C	Size: A4
Approved:	WG	Date: 05-04-2018				

Wiring Diagram MRC-100AS-4

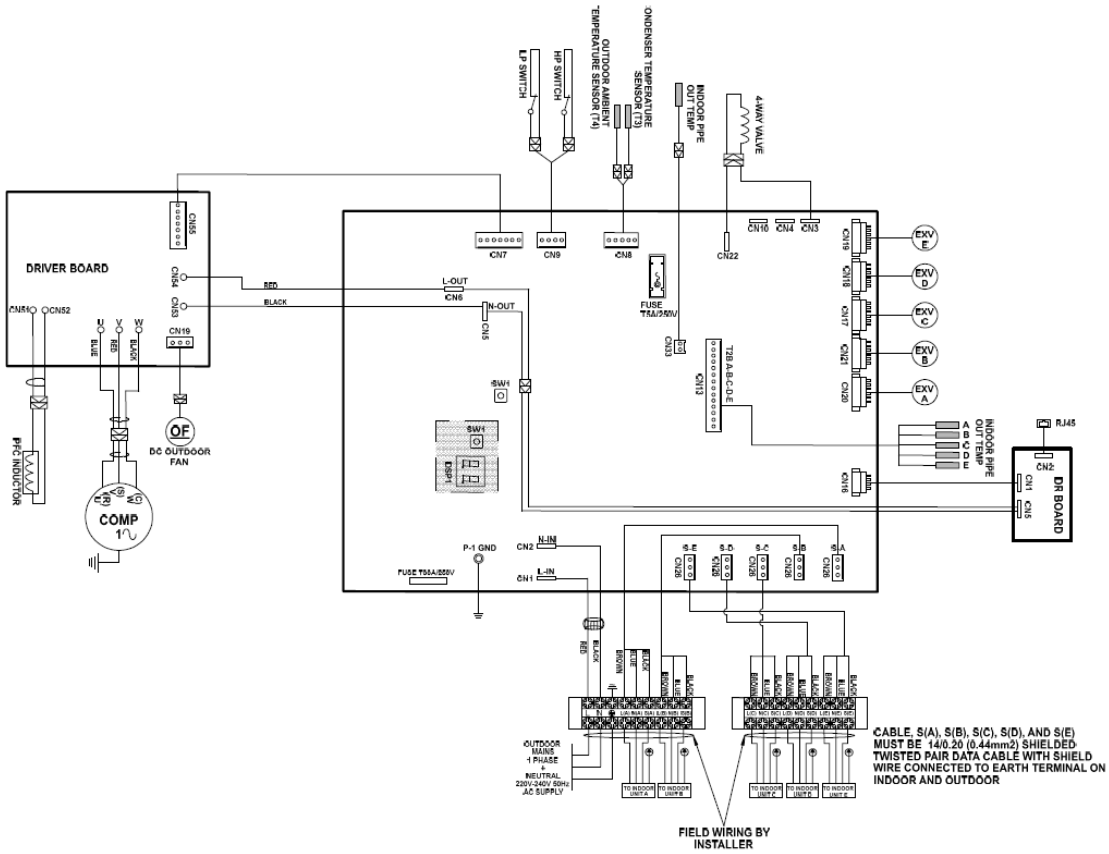


Rev.	Description	PCR	By	Date
C	Revise the cable specs back to original.		WG	23/01/2019
B	ReviseID and OD cable specs. Change text rotation.		LC	15/03/2018
A	ORIGINAL			

ActronAir

Base Model No:	MRC-100AS-4	Variation Code:	Variation:	STANDARD
Description:	OUTDOOR WIRING DIAGRAM - MULTI ELITE			
Drawn:	NDL	Date: 31-07-2017	Drawing No:	WD3007
Approved	WG	Date: 05-04-2018	Revision	C
			Size	A4

Wiring Diagram MRC-110AS-5

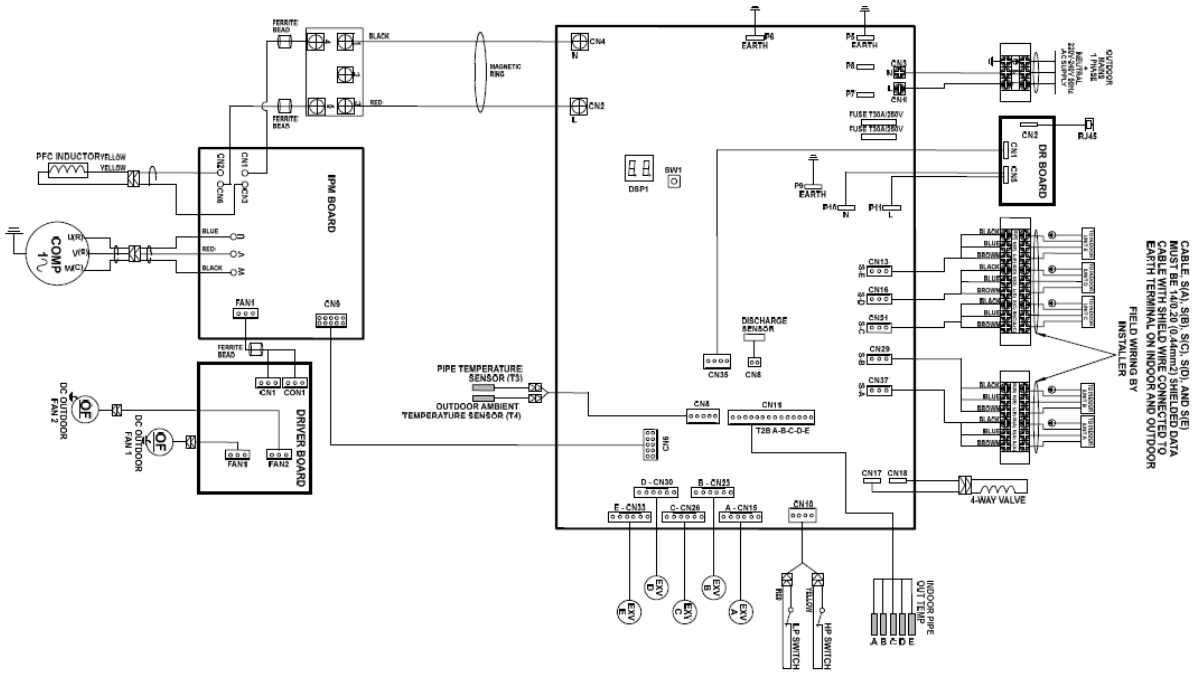


Rev.	Description	PCR	By	Date
C	Revise the cable specs back to original.		WG	23/01/2019
B	ReviseID and OD cable specs. Change text rotation.		LC	16/03/2018
A	ORIGINAL			

ActronAir

Base Model No:	MRC-110AS-5	Variation Code:	Variation:	STANDARD
Description:	OUTDOOR WIRING DIAGRAM - MULTI ELITE			
Drawn:	NDL	Date: 31-07-2017	Drawing No:	WD3008
Approved	WG	Date: 05-04-2018	Revision	C
			Size	A4

Wiring Diagram MRC-135AS-5



C	Revise the cable specs back to original.		WG	23/01/2019
B	ReviseID and OD cable specs. Change text rotation.		LC	16/03/2018
Rev.	Description	PCR	By	Date
A	ORIGINAL			

ActronAir®

Base Model No: MRC-135AS-5	Variation Code:	Variation: STANDARD				
Description: OUTDOOR WIRING DIAGRAM - MULTI ELITE						
Drawn:	NDL	Date: 31-07-2017	Drawing No: WD3009	Revision C	Size: A4	
Approved:	WG	Date: 05-04-2018				

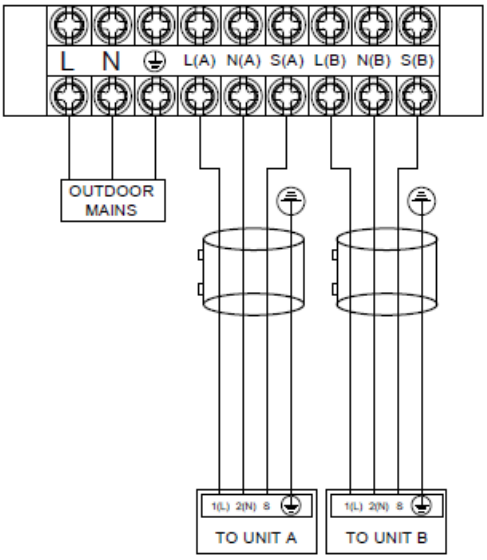
Field Wiring Connection

CAUTION
Connect the field wirings to the terminals as specified on the terminal block of indoor and outdoor units.

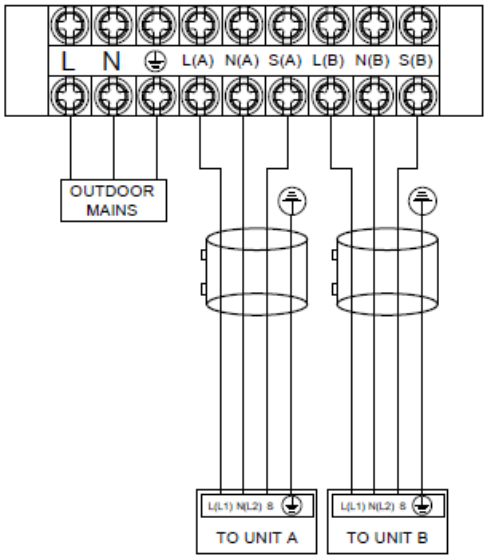
- Magnetic Ring (supplied, on selected outdoor models). Clip this around the connecting wires during installation.

MRC-052AS-2 Connecting Diagram

Serene / Mini Cassete

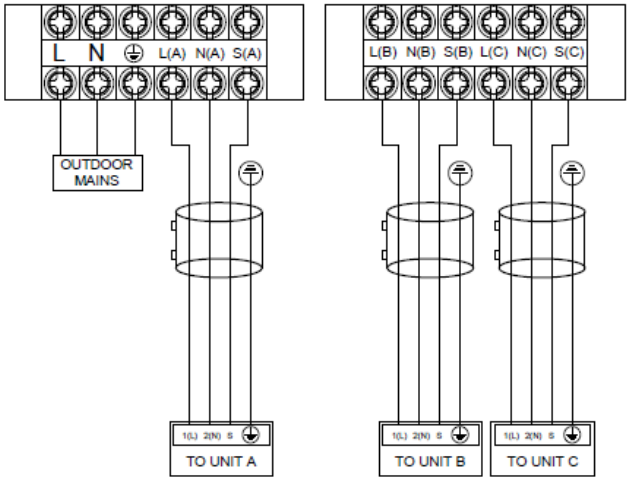


Bulkhead

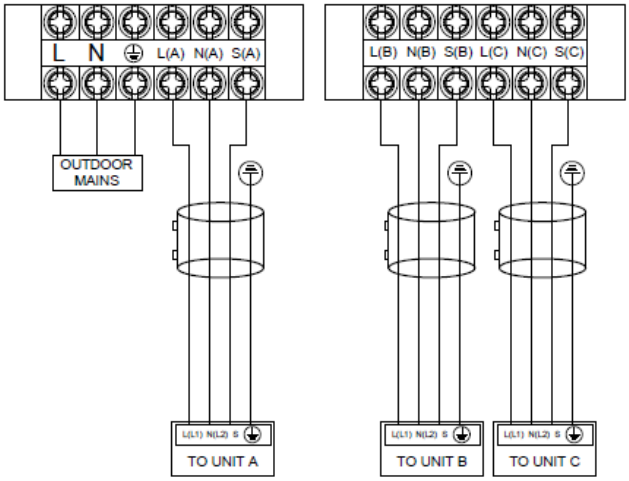


MRC-071AS-3 Connecting Diagram

Serene / Mini Cassete

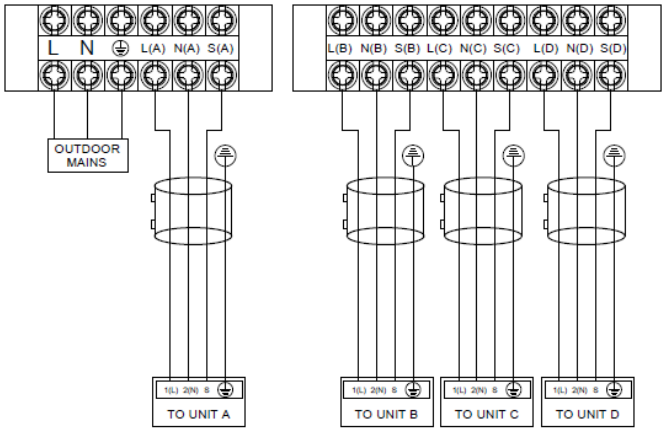


Bulkhead

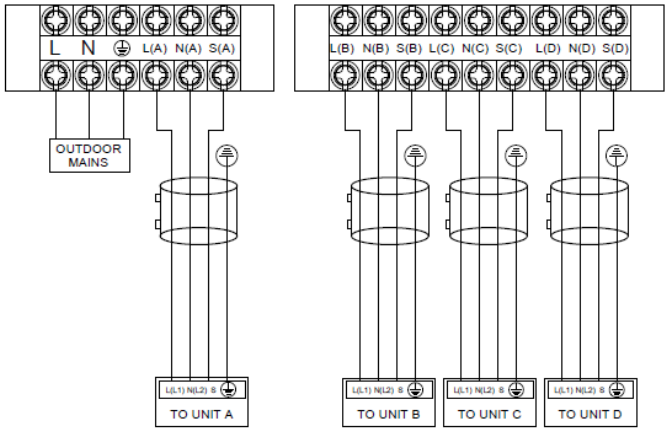


MRC-100AS-4 Connecting Diagram

Serene / Mini Cassete

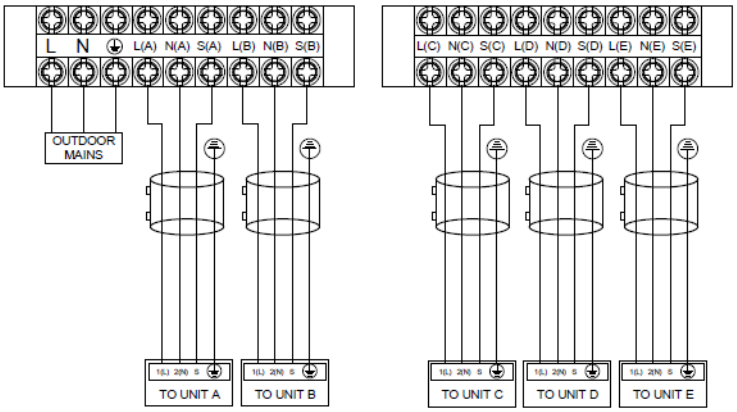


Bulkhead



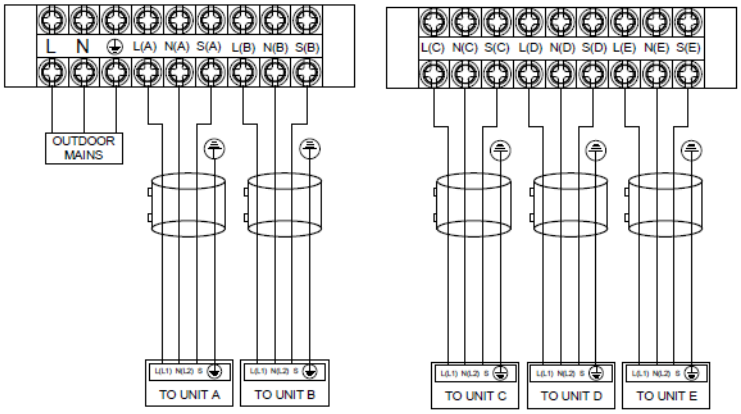
MRC-110AS-5 and MRC-135-5 Connecting Diagram

Serene / Mini Cassete



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

Bulkhead



CAUTION

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

- A separate isolator (sub-circuit) must be installed for each air-conditioning system. Make sure to follow the wiring diagram provided with the unit (back of control cover).
- During transport, screws in the 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%).
- Suggested minimum cable size should be used as a guide only, refer to AS/NZS 3000 “Australian/New Zealand Wiring Rule” for more details.

Circuit Breaker Size & 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-135AS-5 + 2x WRE-026AS + 2x BRE-035BS + 1x MRE-035AS
   Total System FLA = 25.8 + 2(0.24) + 2(1.2) + 1(0.57) = 29.25A

Full Load Amps Table					
Model	**MRC-052AS-2**	**MRC-071AS-3**	**MRC-100AS-4**	**MRC-110AS-5**	**MRC-135AS-5**
FLA (Outdoor Unit)	**14.0**	**15.8**	**16.0**	**21.0**	**25.8**
Model	**WRE-026AS**	**WRE-035AS**	**WRE-050AS**	**WRE-071AS**	**BRE-026BS**
FLA (Indoor Unit)	**0.24**	**0.275**	**0.275**	**0.4**	**1.2**
Model	**BRE-035BS**	**BRE-050BS**	**BRE-071BS**	**MRE-035AS**	**MRE-0520AS**
FLA (Indoor Unit)	**1.2**	**1.5**	**1.5**	**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 AS/NZS 3000 “Australian Wiring Rules” for more details.
Wires, circuit breakers, and fuses are NOT supplied with the units, the installer has to provide them.

- ——— 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 (0.44mm2) maximum 65 meters
- ····· ④ EXTRA LOW VOLTAGE DATA CONTROL WIRING 4 core shielded data cable (0.75mm2) maximum 12 meters

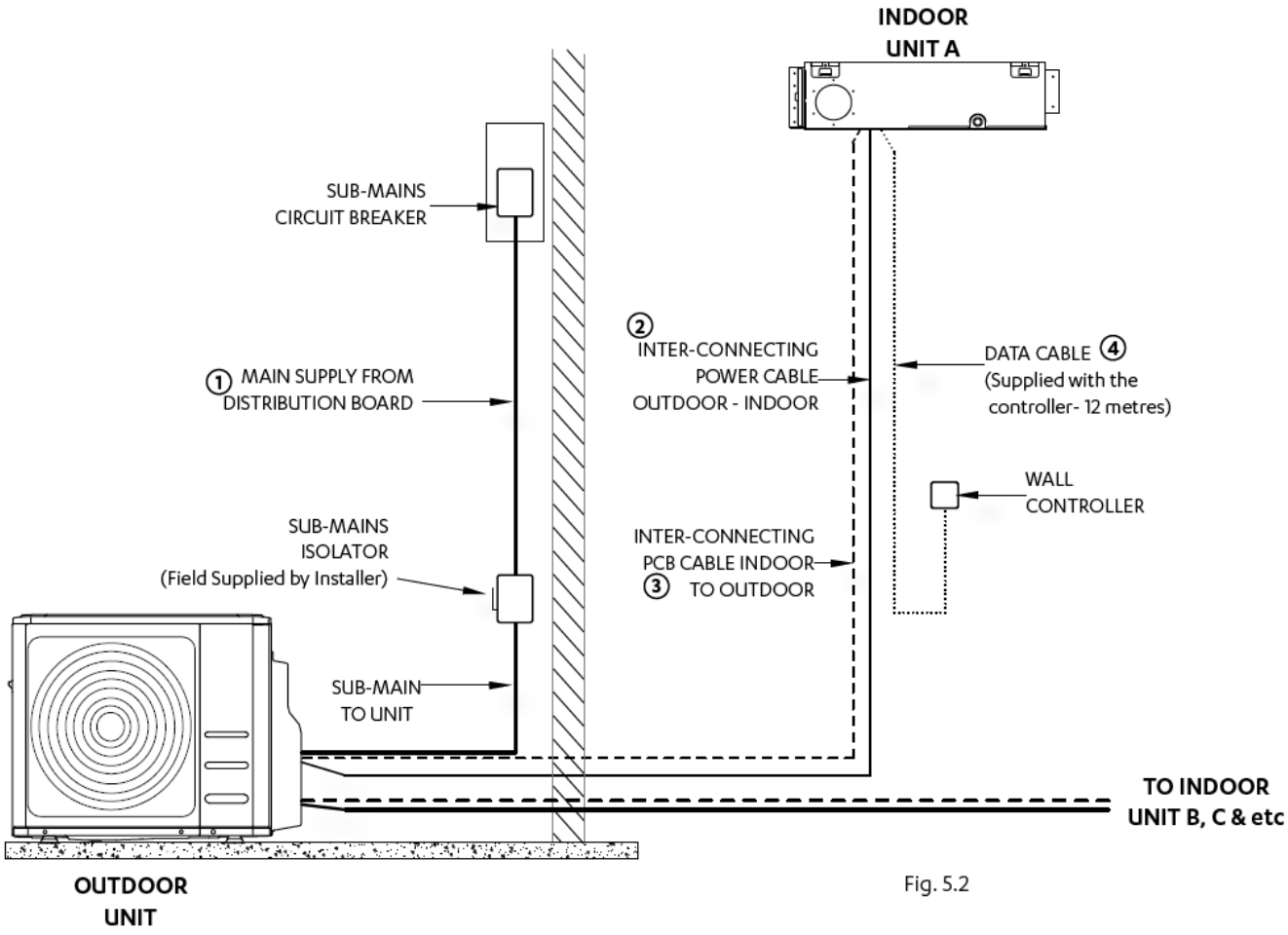


Fig. 5.2

Leak Test and Air Evacuation

Leak Test

NOTE
Leak testing and evacuation must be conducted on each circuit with a connected indoor unit.

1. Run interconnecting pipe work from condenser to evaporator.
2. Connect the liquid and suction pipe to the indoor and outdoor unit flare connections (please see refrigerant piping connection instructions).
3. Fit the service gauge to the service port on the outdoor unit.
4. Fit a nitrogen to the service gauge.
5. Pressurise the system to 4000kPa. A recommended pressure test is to be performed for no less than 1 hour at 4000kPa Bubble test system and ensure pressure does not drop during this time.
6. Repeat the process for the rest of the connected indoor units.

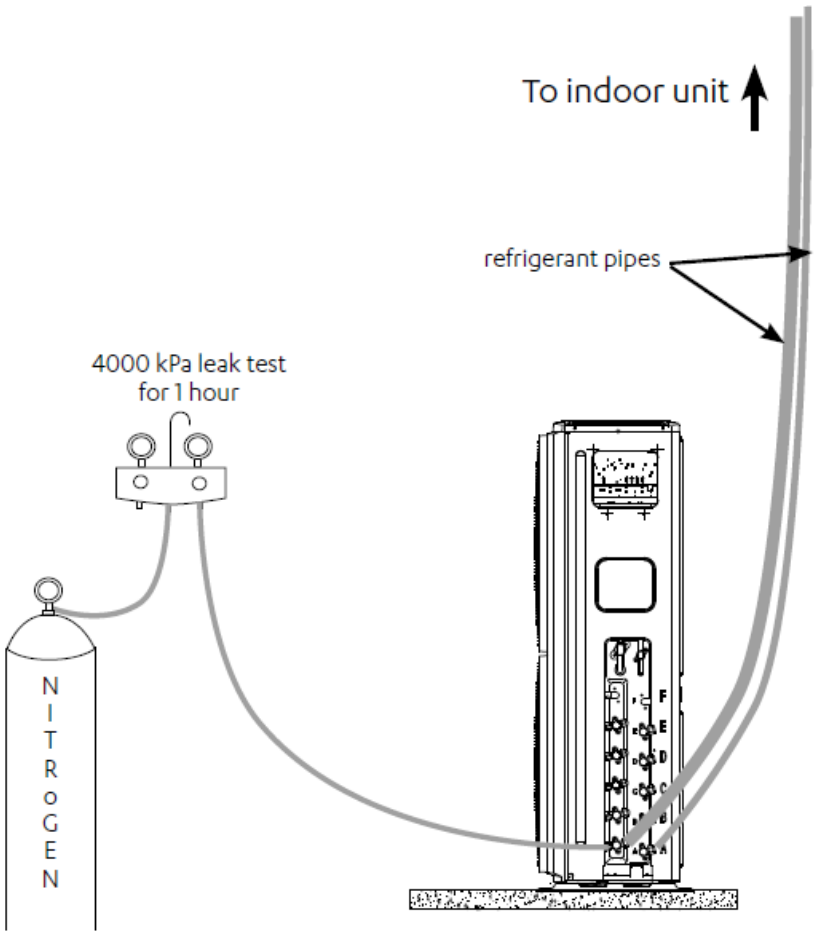


Fig. 6.1

Evacuation Instructions

CAUTION

- Use a vacuum pump and a vac to start reading lower than 500 microns and an air discharge capacity above 40L/min.
- The outdoor unit does not need vacuuming DO NOT open the outdoor unit's gas and liquid stop valves.
- Ensure that your vac stat reads 500 microns or below after 2 hours. If after three hours of operation, the vac start reading is still above 500 microns, re-pressurize the system and check for a gas leak. If there is no leakage, perform another evacuation for 1 to 2 hours or until the vac stat reads 500 microns or below.
- DO NOT use refrigerant gas during a leak test of a system.

Leak Test and Air Evacuation

Evacuation Instructions

- Before using manifold gauges and vacuum pumps, read their operation manuals to familiarize yourself with how to use them properly.

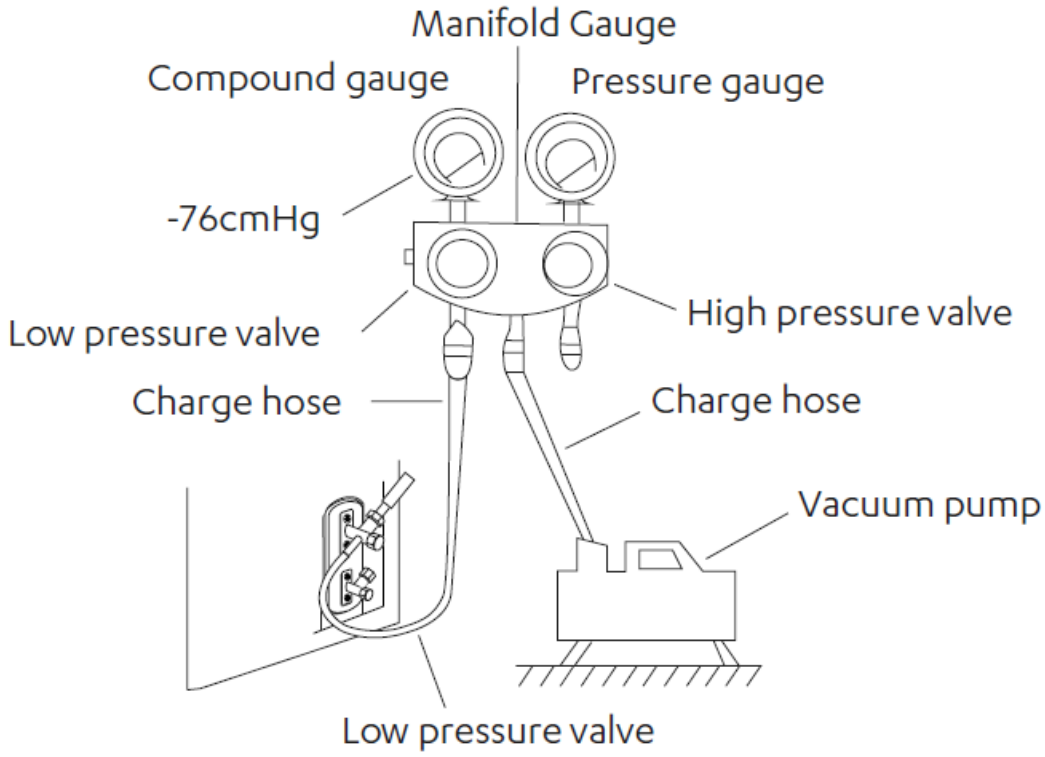


Fig. 6.2

1. Connect the charge hose of the manifold gauge to the service port on the outdoor unit's low-pressure valve.
2. Connect another charge hose from the manifold gauge 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 until the vac stat reads 500 microns.
6. Close the Pressure side of the manifold gauge, and turn off the vacuum pump.
7. Wait for 5 minutes, then check that there has been no change in system pressure.
8. Insert the hexagonal wrench into the packed valve (high-pressure valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for gas to exit the system, then close the valve after 5 seconds.

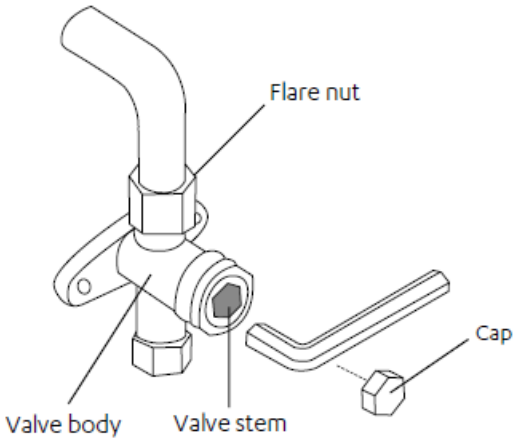


Fig. 6.3

9. Watch the Pressure Gauge for one minute to make sure that there is no change in pressure. The Pressure Gauge should read slightly higher than atmospheric pressure.
10. Remove the charge hose from the service port.
11. Using a hexagonal wrench, fully open both the high-pressure and low-pressure valves.
    OPEN VALVE STEMS GENTLY
    When opening valve stems, turn the hexagonal wrench until it hits the stopper. DO NOT try to force the valve to

open further.

12. Tighten valve caps by hand, then tighten them using the proper tool.
13. If the outdoor unit is not connected to all the valves, please ensure nuts that are not connected to an indoor are tight and have been leak-tested correctly

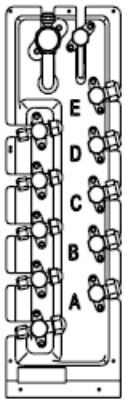


Fig. 6.4

Note on Adding Refrigerant

CAUTION

- Refrigerant charging must be performed after wiring, pressure test, and evacuation.
- DO NOT exceed the maximum allowable quantity of refrigerant or overcharge the system. Doing so can damage or impact the unit's function.
- Charging with unsuitable substances may cause explosions or accidents. Ensure that the appropriate refrigerant is used.
- Refrigerant containers must be opened slowly. Always use protective gear when charging the system.

Refrigerant Charge Details (Table 6.1)

Model	MRC-052AS-2	MRC-071AS-3	MRC-100AS-4	MRC-110AS-5	MRC-135AS-5
Refrigerant Type	R410A				
Refrigerant Charge (grams)	2150	2620	3300	3980	4980
Pre-charged Length (meters)	10m per connected ID unit				
Additional Refrigerant per meter (grams/metres)	15			15	
Liquid Pipe	2 x 6.35mm (1/4″)	3 x 6.35mm (1/4″)	4 x 6.35mm (1/4″)	5 x 6.35mm (1/4″)	5 x 6.35mm (1/4″)
Gas Pipe	2 x 9.52mm (3/8″)	3 x 9.52mm (3/8″)	3 x 9.52mm (3/8″) + 1 x 12.7mm (1/2″)	4 x 9.52mm (3/8″) + 1 x 12.7mm (1/2″)	3 x 9.52mm (3/8″) + 2 x 12.7mm (1/2″)

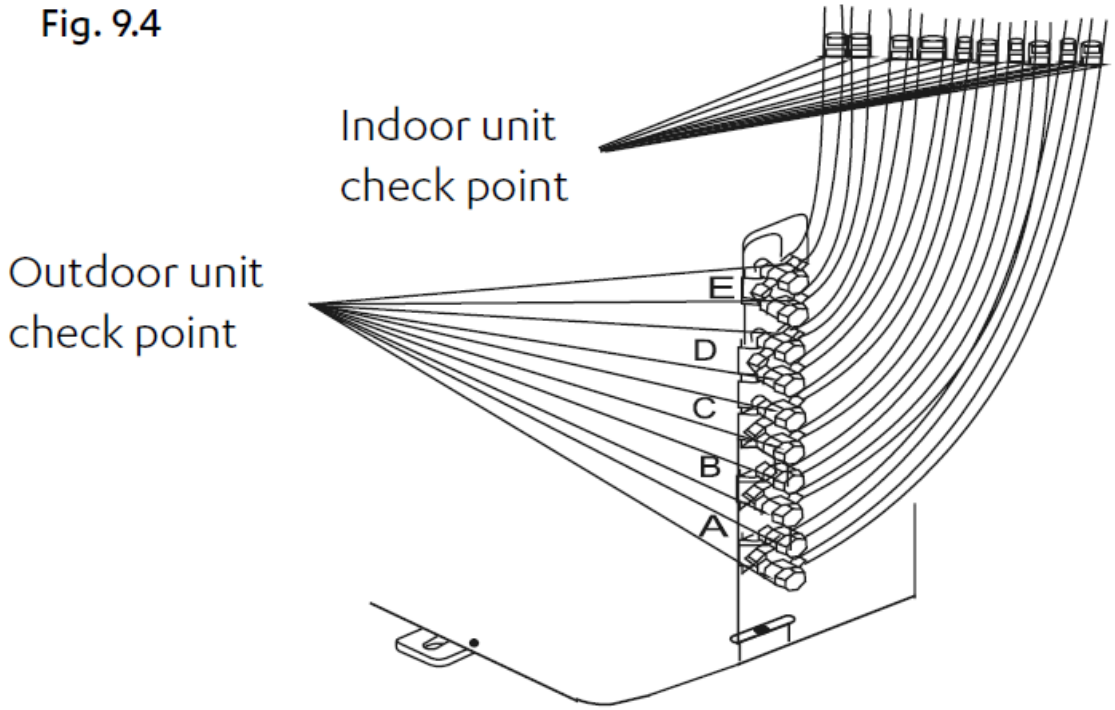
Electrical & Gas Leak Checks

Electrical Safety Test
Perform the electric safe check after completing installation:

1. Insulated resistance
   The insulated resistance must be more than 2MΩ.
2. Grounding work
   After Finishing the grounding work, measure the grounding resistance by visual detection and grounding resistance tester. Make sure the grounding resistance is less than 4Ω.
3. Electrical leakage check (performed during test running)
   During test operation after finishing an installation, the service technician can use the multimeter to perform the electrical leakage check. Turn off the unit immediately if the fault is found rectify etc;

NOTE
The illustration is for explanation purposes only. The actual order of A, B, C, D, and E on the machine may be slightly different from the unit you purchased. The actual shape shall prevail.

Fig. 9.4



- A, B, C, and D are points for one of four types.
- A, B, C, D, and E are points for one of five types.

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:

- a. The indoor and outdoor units are properly installed.
- b. Piping and wiring are properly connected.
- c. Ensure that there are no obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
- d. The refrigeration system does not leak.
- e. The drainage system is unimpeded and draining to a safe location.
- f. The heating insulation is properly installed.
- g. The earth wires are properly connected.
- h. The length of the piping and the added refrigerant stow capacity have been recorded.
- i. 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.

Test Run Instructions

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.

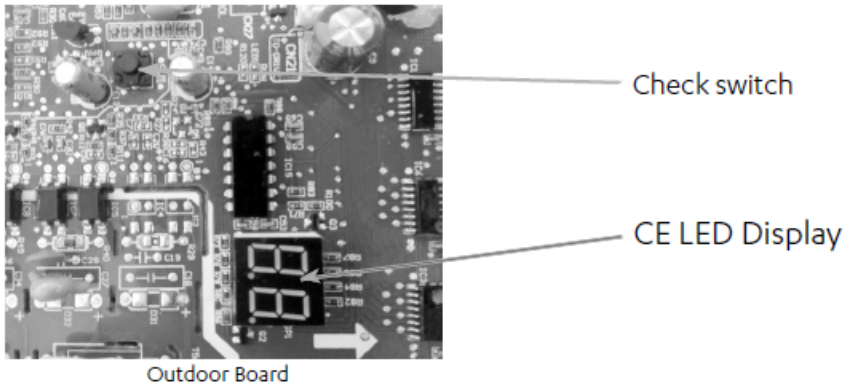
4. For the Indoor Unit,
    - a. Ensure the wired and/or remote control and its buttons work properly.
    - b. Ensure the louvers move properly and can be changed using the remote control.
    - c. Double check to see if the room temperature is being registered correctly.
    - d. Ensure the indicators on the wired and/or remote control and the display panel on the indoor unit work properly.
    - e. Ensure the manual buttons on the indoor unit work properly.
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.

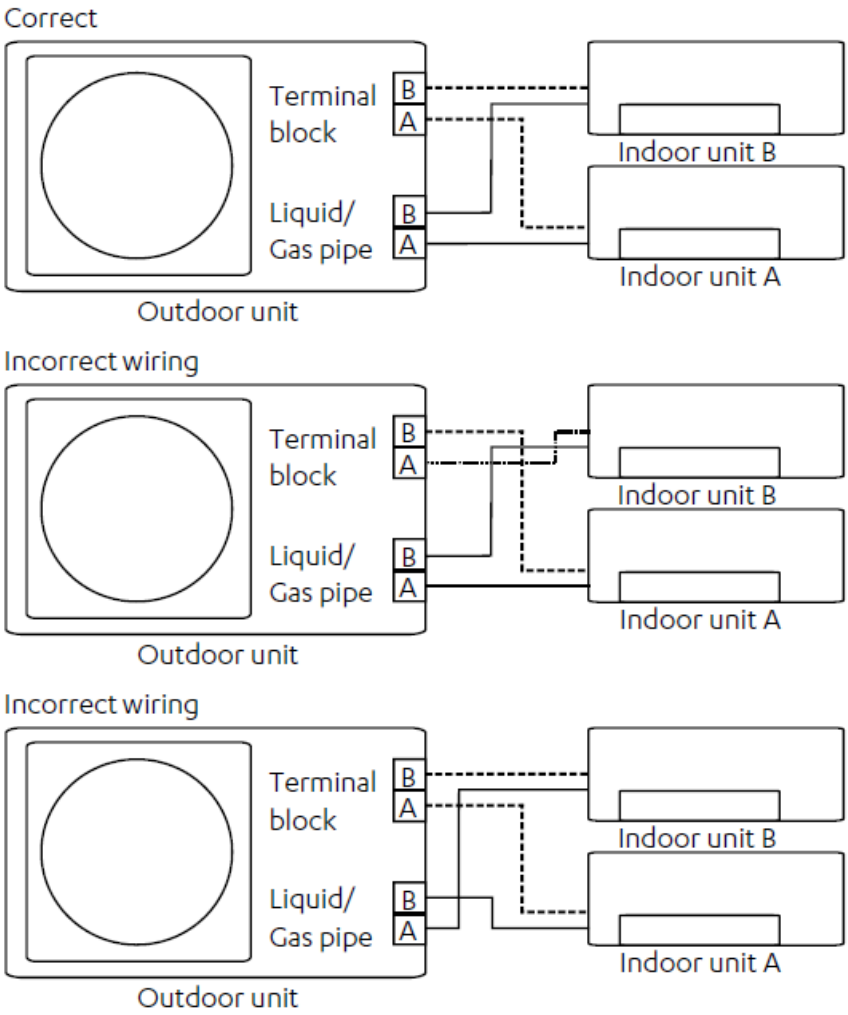
NOTE
If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of the Owner's Manual before calling customer service.

Automatic Correction Function

Automatic Wiring/Piping Correction Function

The new product is capable of automatic correction of wiring/piping errors. Press the "check switch" on the outdoor unit PCB board for 5 seconds until the LED displays "CE", then wait approximately 5-10 minutes after the switch is pressed, the "CE" will then disappear and the wiring/piping error will be corrected, and wiring/piping will be properly connected.





How to activate this function

1. Check the outside temperature is above 5˚C degrees.
   (This function does not work when the 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.

Maintenance

Maintenance Procedures

- This section describes the procedures that must be performed as a part of a normal maintenance program.
- Regular servicing of equipment by a licensed HVAC technician is highly recommended. Always disconnect electrical power to the unit before performing these procedures.
- It is always a safe practice to observe all safety warnings and cautions when conducting maintenance tasks.

DANGER
Live Electrical Connections!
It may be necessary to work with live electrical components on certain maintenance tasks. Only licensed electricians and qualified technicians are allowed to perform these tasks.

WARNING
Hazardous Voltage!
Always make sure that all power supplies, including remote controls, are disconnected before performing maintenance. Observe proper Lock-Out / Tag-Out procedures to ensure that power cannot be inadvertently energized. Failure to disconnect power before maintenance procedures can result in serious injury and/or death.

Annual Maintenance Checklists

- Perform general maintenance inspections.
- Perform scheduled start-up checks.
- Leak test refrigerant circuits.
- Inspect contacts of all contactors and relays. Replace all worn contacts as required.
- Inspect, clean, and tighten all electrical connections.
- Check fans for balanced operation. Make sure that there are no loose screws/bolts, no fan blade interference, and no damage to the fans and guards.
- Inspect the air filters, and clean or replace them as required.
- Clean and repaint any corroded panel section.
- Ensure no blockage of airflow through the variable speed drive and drive fan is operating correctly.

Cleaning the Condenser Coils

- Clean the coils at least once a year or more frequently if the unit is located in a dusty and dirty environment, to maintain your system’s proper operating performance.
- High discharge pressures are a good indication that the coils need cleaning. When using detergent or solvents to clean the coils, follow the manufacturer’s instructions to avoid potential damage to the coils and to the unit.
- To clean the refrigerant coils, use a soft brush and water spray, such as a garden hose or pressure washer with a low-pressure nozzle.

DANGER
Beware of Rotating Fan Blades!

- Always make sure that all power supplies, to the Outdoor Fans are turned off and isolated.
- Observe WH&S safety procedures, and do not wear loose clothing and any jewelry when working near the fans.
- Wear PPE whenever performing any maintenance procedures.
- Observe all necessary procedures when working in a confined space.

CAUTION
Do Not Use High Alkaline Detergent!
When using detergent for coil cleaning, ensure that the alkaline level is no higher than 8.5, which can cause corrosion damage to the coils.

Coil Cleaning Procedures

- Disconnect power to the unit.
- Remove the louvered panels from the unit to gain access to the air inlet side of the coils.
- Use a soft brush to remove loose dirt and debris from both sides of the coils.
- Straighten bent coil fins with a fin comb.
- Prepare the detergent solutions according to the manufacturer's instructions.
- Spray solution at a 90o angle to the coils, keeping a minimum nozzle spray angle of 15o, with at least an 1800mm distance from the coils and 600 psi pressure.
- Spray the leaving air side of the coils first then the air inlet side. Allow the solution to stand on the coils for fifteen minutes.
- Rinse both sides of the coils with cool clean water.
- Inspect the coils, if they are still dirty, repeat the cleaning procedure.
- Clean and wipe dry the outer and inner sides of the unit, the refrigerating parts, and other components.
- Ensure that the condensate drain lines are not blocked.
- Reinstall all unit panels, covers, and guards.
- Restore electrical power to the unit.

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.**

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 environments, 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				✓					A visual check for running out of balance and dust is attached.	Clean off the dust as necessary to negate the possibility of the fan running out of balance.
Motor				✓ Ω					Visual check on wiring. Insulation resistance checks are 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 a fins comb.
Drain Pan/ Condensation line				✓					Check for obstructions & free flow of water.	Clean to eliminate obstructions/ sludge & check the condition of the 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.

Outdoor Unit										
	Service Frequency									

Parts	1 Mth	3 Mth	6 Mth	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	Detail of Service Check	Service Methods
Casing/ Panels and Frames				✓					Visual check for damage, rust, and dust accumulation.	For highly corrosive environments, 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 running out of balance and dust accumulation.	Clean off the dust as necessary to negate the possibility of the fan running out of balance.
Motor				✓ Ω					Visual check on wiring. Insulation resistance checks 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 a fins comb.
Condensate Drain Line (if available)				✓					Check for obstructions & free flow of water.	Clean to eliminate obstructions/ sludge & check the condition of the drain line. Pour water to ensure free flow.
Compressor				✓ Ω					Check for high/low pressure. Measure insulation resistance. Check the 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 the variable drive compressor check th e full operation of the drive from minimum hertz to maximize, check t he fan operation of th e drive.**	**Check compressor amperage & running frequency feedbac k from the outdoor board sev en-segment display.**
				✓					**Ensure the drive fres h air path is clear and the drive fan is opera ting correctly.**	**Check ventilation holes on to p and bottom of the drive cov er are clear of leaves, pebbles, or dirt.**
Refrigeratio n Operationa l Readings				✓					**Make note of operational reading i n test cool/heat mode.**	**Check operating pressures, a nd record super heat & sub-c ool values.**
“Safety Devi ces”				✓					**Check the calibration of safety devices.**	**Check resistance of sensors, and pressure cut in / cut out of pressure controls.**
Faults				✓					**Check for any previo us fault history on th e unit.**	**Investigate any causes for pr evious faults, and reset fault history.**

Documents / Resources

	MULTIELITE MRC-052AS-2 Multi Split System Air Conditioner [pdf] Installation Guide MRC-052AS-2, MRC-071AS-3, MRC-100AS-4, MRC-110AS-5, MRC-135AS-5, MRC-052AS-2 Multi Split System Air Conditioner, MRC-052AS-2, Multi Split System Air Conditioner, Split Syste m Air Conditioner, System Air Conditioner, Air Conditioner, Conditioner

References

- User Manual