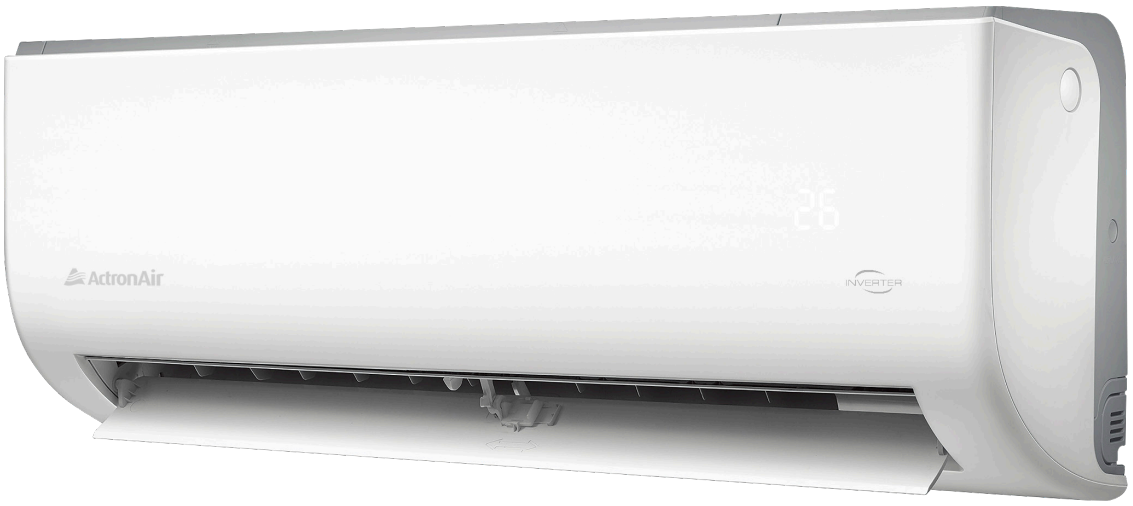
SERENE

INSTALLATION MANUAL

Wall Hung Split System Air Conditioner



Model Numbers:

WRC-026AS/WRE-026AS
WRC-035AS/WRE-035AS
WRC-050AS/WRE-050AS
WRC-071AS/WRE-071AS
WRC-080AS/WRE-080AS

IMPORTANT NOTE:

Please read this manual carefully before installing or operating your new air conditioning unit and keep it near the unit for future reference.

That's better. That's Actron.

ActronAir

Table of Contents

Installation Manual

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 in accordance with 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

⚠ 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 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 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.
2. Ensure that unit installation complies with relevant council regulations and building code standards.
3. All electrical wiring must be in accordance with current electrical authority regulations and all wiring connections to be as per electrical diagram provided.
4. Always wear appropriate PPE, remove any dangling jewellery 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. Installer must incorporate a means of electrical disconnection (isolator) in the sub mains fixed wiring in accordance with the Australian wiring rule (AS3000).
8. Secure the power cords and control cables that goes in/out the unit. Use the cable ties provided in the control box.

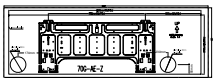
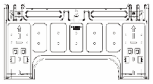
! CAUTION

⊘ **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.

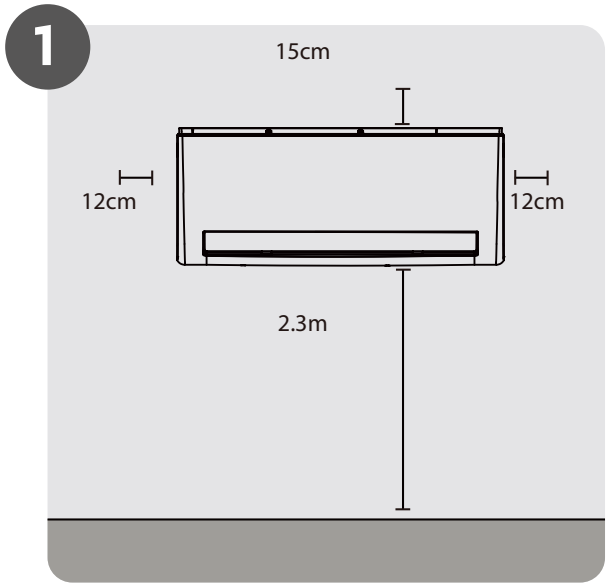
⊘ **Do not** install your air conditioner in a wet room such as a bathroom or laundry room. Too much exposure to water can cause electrical components to short circuit.

1. The product must be properly earthed 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.

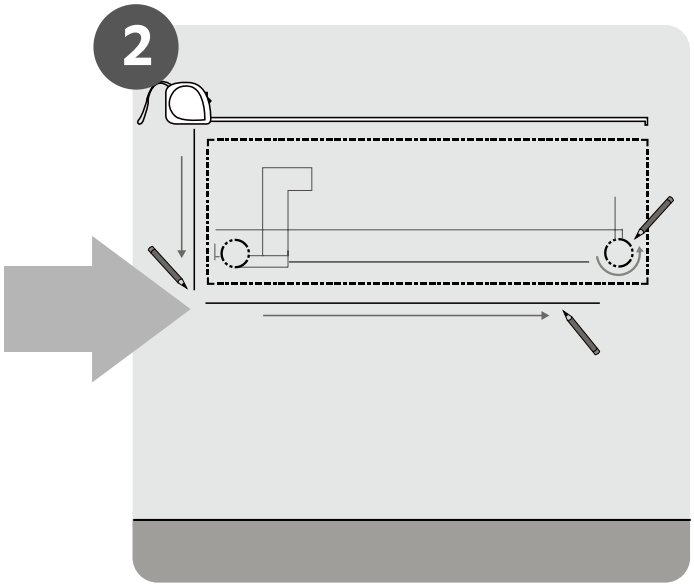
The air conditioning system comes with the following components. Use all of the installation parts and accessories to install the air conditioner. Improper installation may result in water leakage, electrical shock, fire or cause the equipment to fail.

Name	Shape	Quantity
Installation template		1
Mounting plate		1
Clip anchor		5
Mounting plate fixing screw ST3.9 X 25		5
Remote controller		1
Fixing screw for remote controller holder ST2.9 x 10		2
Remote controller holder		1
Dry battery AAA.LR03		2
Seal		1
Drain joint		1
Owner's manual		1
Installation manual		1
Remote controller illustration		1

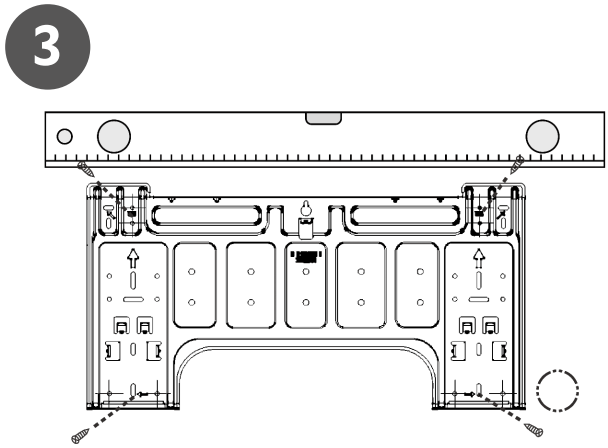
Installation Overview



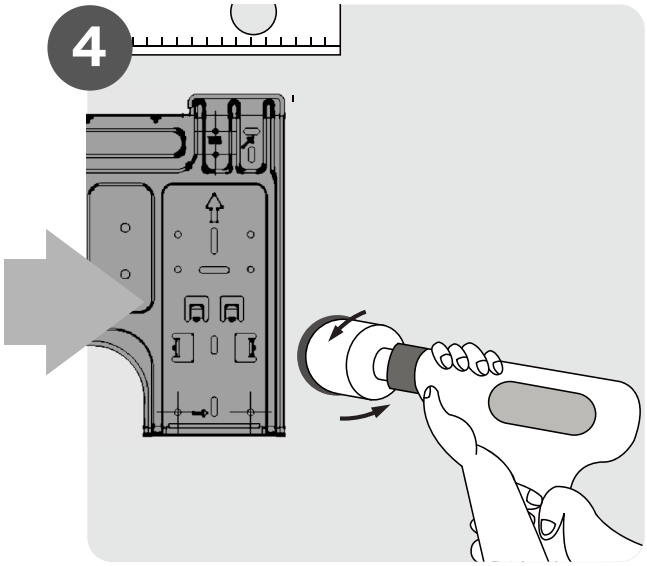
Select Installation Location



Determine Wall Hole Position

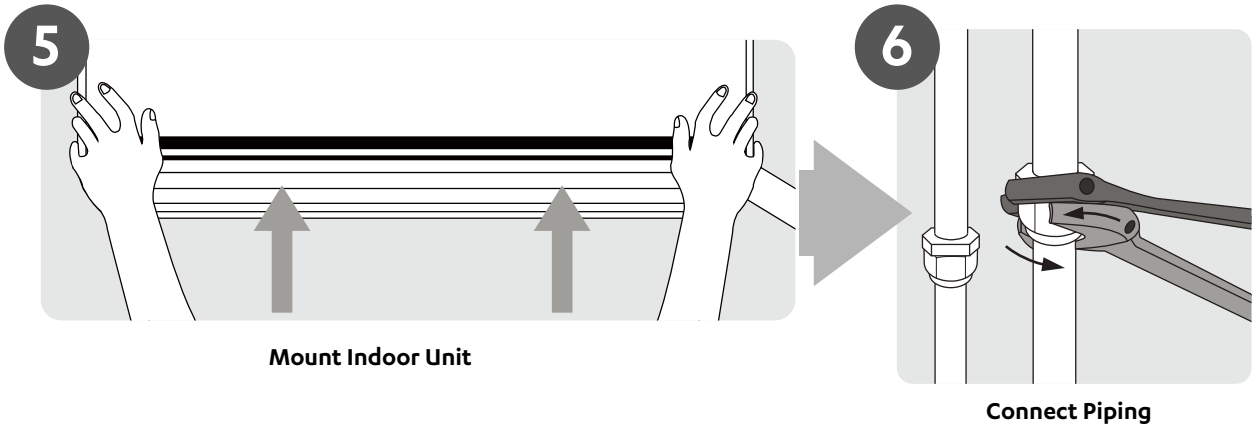


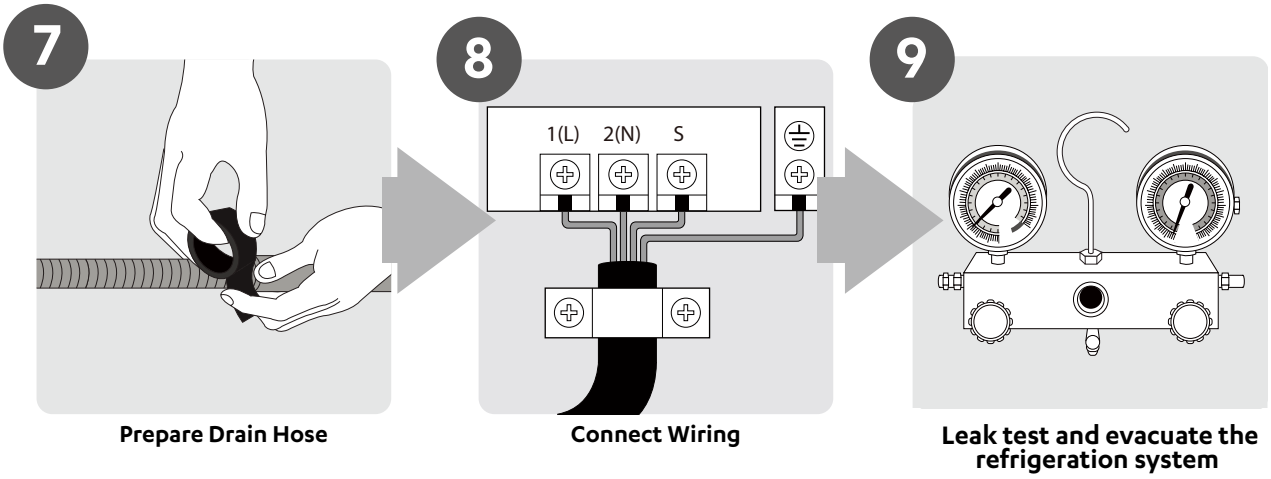
Attach Mounting Plate



Drill Wall Hole

Installation Overview





Parts Overview

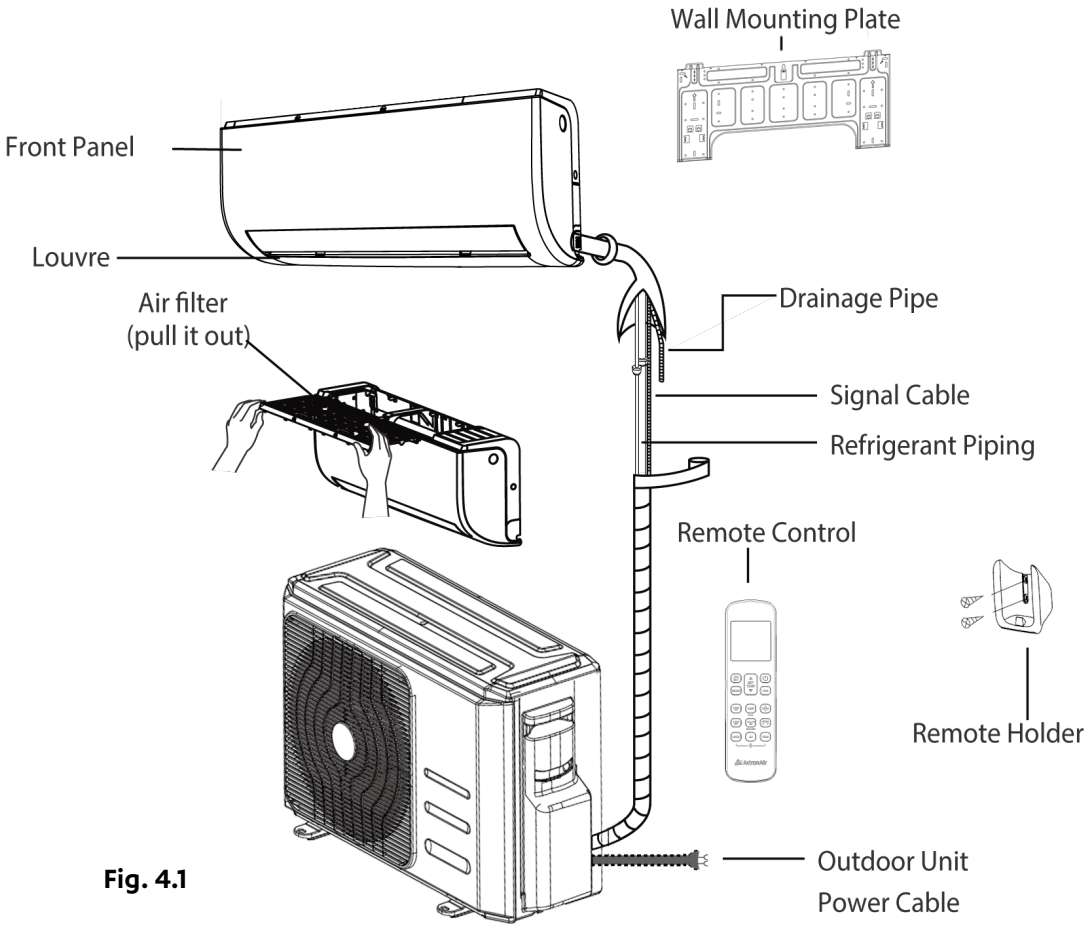
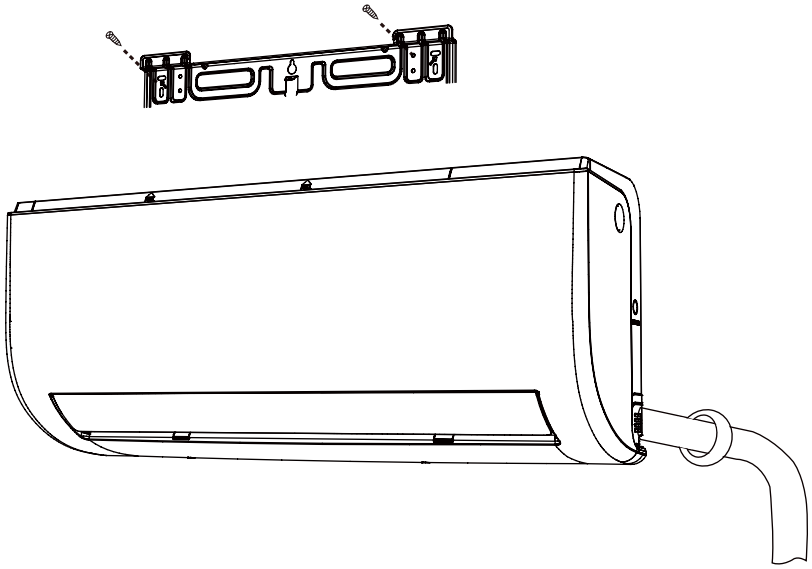


Fig. 4.1

Installation Overview



Installation Instructions – Indoor Unit

PRIOR TO INSTALLATION

Before installing the indoor unit, refer to the label on the product box to make sure that the model number of the indoor unit matches the model number of the outdoor unit.

Step 1: Select installation location

Before installing the indoor 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:

- ☑ Good air circulation
- ☑ Convenient drainage
- ☑ Noise from the unit will not disturb other people
- ☑ Firm and solid—the location will not vibrate
- ☑ Strong enough to support the weight of the unit
- ☑ A location at least one metre from all other electrical devices (e.g., TV, radio, computer)

<u>DO NOT</u> install unit in the following locations:

- ⊘ Near any source of heat, steam, or combustible gas
- ⊘ Near flammable items such as curtains or clothing
- ⊘ Near any obstacle that might block air circulation
- ⊘ Near the doorway
- ⊘ In a location subject to direct sunlight

NOTE ABOUT WALL HOLE:

If there is no fixed refrigerant piping:

While choosing a location, be aware that you should leave ample room for a wall hole (see **Drill wall hole for connective piping** step) for the signal cable and refrigerant piping that connect the indoor and outdoor units. The default position for all piping is the right side of the indoor unit (while facing the unit). However, the unit can accommodate piping to both the left and right.

Refer to the following diagram to ensure proper distance from walls and ceiling:

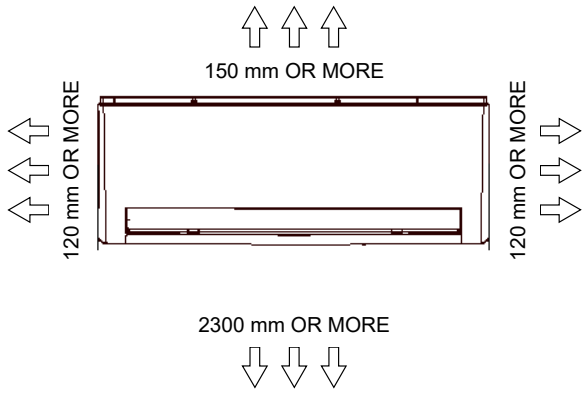


Fig. 5.1

Installation Overview

Step 2: Attach mounting plate to wall

The mounting plate is the device on which you will mount the indoor unit.

1. Remove the screw that attaches the mounting plate to the back of the indoor unit.
2. Place the mounting plate against the wall in a location that meets the standards in the **Select Installation Location** step. (See **Mounting Plate Dimensions** for detailed information on mounting plate sizes.)
3. Drill holes for mounting screws in places that:
   - have studs and can support the weight of the unit
   - correspond to screw holes in the mounting plate
4. Secure the mounting plate to the wall with the screws provided.
5. Make sure that mounting plate is at against the wall.

NOTE FOR CONCRETE OR BRICK WALLS:

If the wall is made of brick, concrete, or similar material, drill 5mm-diameter holes in the wall and insert the sleeve anchors provided. Then secure the mounting plate to the wall by tightening the screws directly into the clip anchors.

Step 3: Drill wall hole for connective piping

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

1. Determine the location of the wall hole based on the position of the mounting plate. Refer to **Mounting Plate Dimensions** on the next page to help you determine the optimal position. The wall hole should have a 65mm diameter at least, and at a slightly lower angle to facilitate drainage.
2. Using a 65-mm core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 5mm to 7mm. This will ensure proper water drainage. **(See Fig. 5.3)**
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.

CAUTION

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

Correct orientation of Mounting Plate

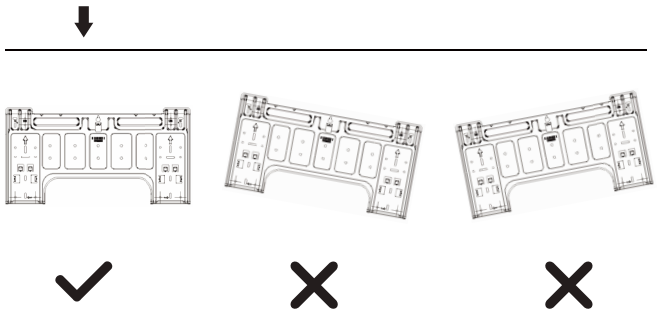


Fig. 5.2

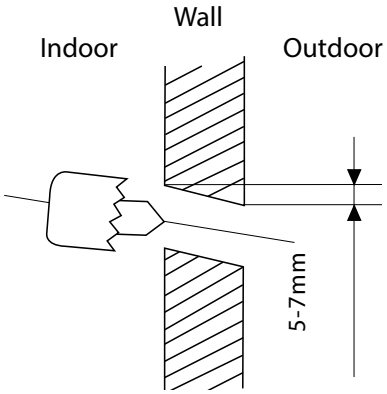


Fig. 5.3

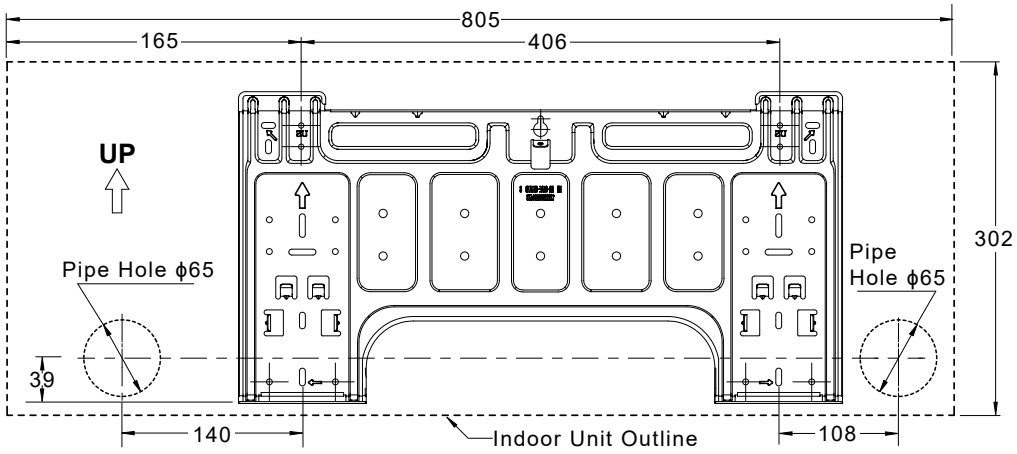
Installation Overview

MOUNTING PLATE DIMENSIONS

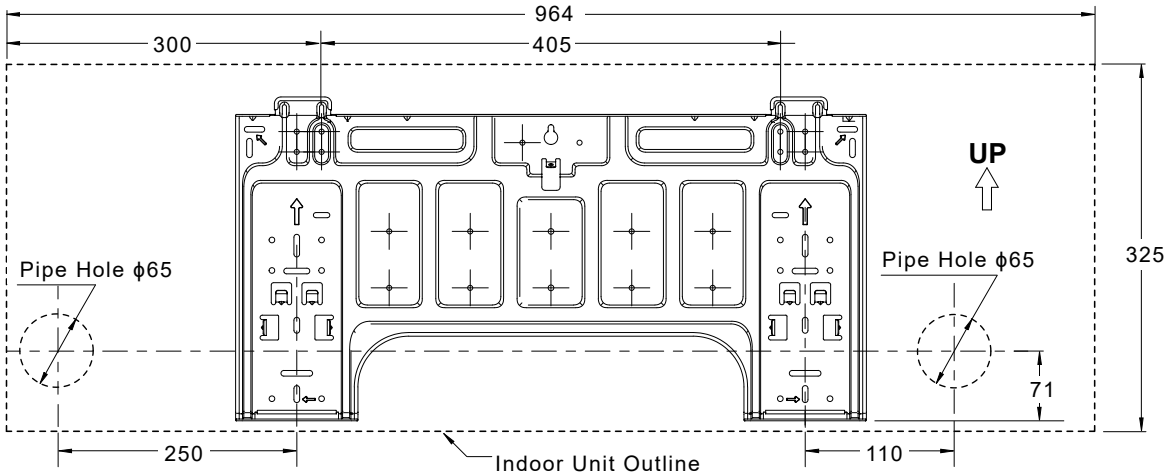
Different models have different mounting plates. In order to ensure that you have ample room to mount the indoor unit, the diagrams to the right show different types of mounting plates along with the following dimensions:

- Width of mounting plate
- Height of mounting plate
- Width of indoor unit relative to plate
- Height of indoor unit relative to plate
- Recommended position of wall hole (both to the left and right of mounting plate)
- Relative distances between screw holes

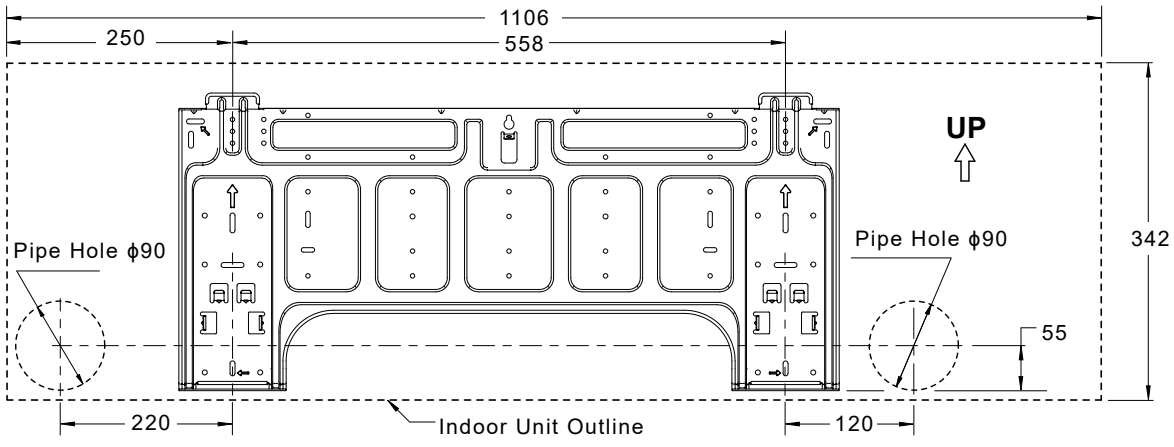
WRE-026AS



WRE-035AS & WRE-050AS



WRE-071AS & WRE-080AS



Installation Overview

Step 4: Prepare refrigerant piping

The refrigerant piping is inside an insulating sleeve attached to the back of the unit. You must prepare the piping before passing it through the hole in the wall. Refer to the **Refrigerant Piping Connection** section of this manual for detailed instructions on pipe flaring and flare torque requirements, technique, etc.

NOTE ON PIPING ANGLE

Refrigerant piping can exit the indoor unit from four different angles:

- Left-hand side
- Left rear
- Right-hand side
- Right rear

Refer to **Fig. 4.4** for details.

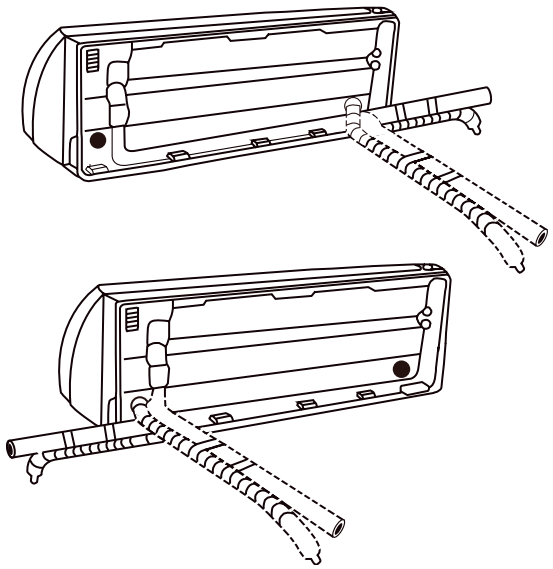


Fig. 5.4

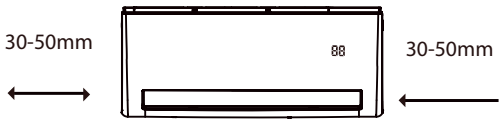
CAUTION

Be extremely careful not to dent or damage the piping while bending them away from the unit. Any dents in the piping will affect the unit's performance.

If refrigerant piping is already embedded in the wall, do the following:

Step 1: Hook the indoor unit on the mounting plate:

Keep in mind that the hooks on the mounting plate are smaller than the holes on the back of the unit. If you find that you don't have ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 30-50mm, depending on the model. (See Fig.5.5)



Move to left or right

Fig. 5.5

Step 2: Prepare refrigerant piping:

1. Disassemble the louvre:

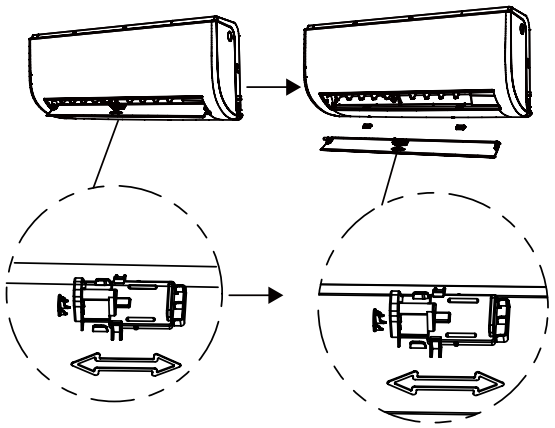


Fig. 5.6

2. Open and fix the position of the panel firstly, unscrew the two screws showed in the picture below, then open the panel, and fix the position of the panel by the latch (see Fig.5.7).

Installation Overview

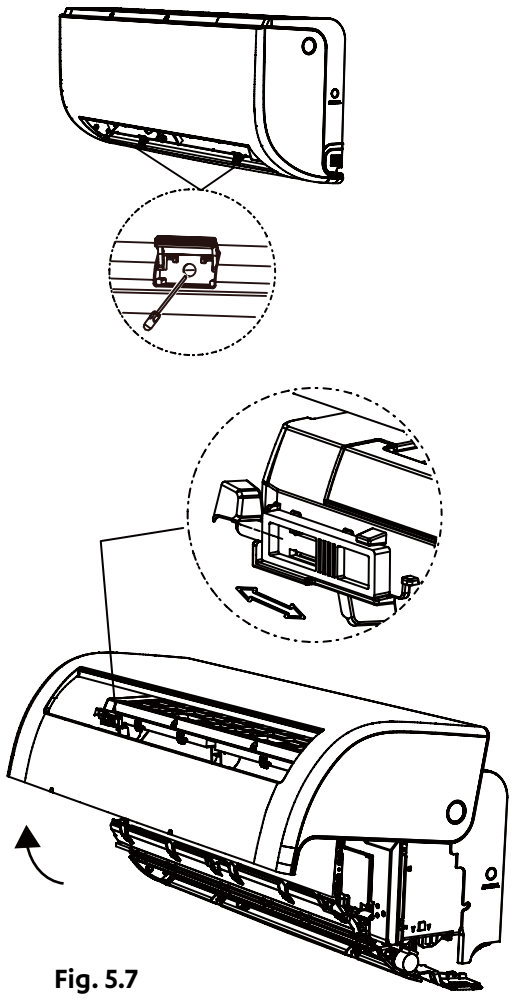


Fig. 5.7

3. Use the holder in the mounting plate to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain hose.

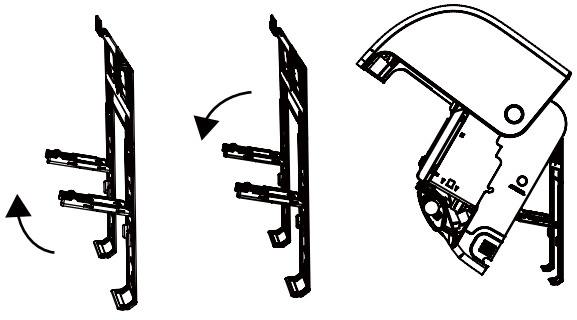


Fig. 5.8

Step 3. Connect drain hose and refrigerant piping (refer to **Refrigerant Piping Connection** section of this manual for instructions).

Step 4. Keep pipe connection point exposed to perform the leak test (refer to **Electrical Checks and Leak Checks** section of this manual).

Step 5. After the leak test, wrap the connection point with insulation tape.

Step 6. Remove the bracket or wedge that is propping with insulation tape.

Step 7. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.

If there is no refrigerant piping embedded in the wall, do the following:

1. Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit.
2. If the wall hole is behind the unit, keep the knock-out panel in place. If the wall hole is to the side of the indoor unit, remove the plastic knock-out panel from that side of the unit. (See **Fig. 5.9**). This will create a slot through which your piping can exit the unit. Use needle nose pliers if the plastic panel is too dicult to remove by hand.

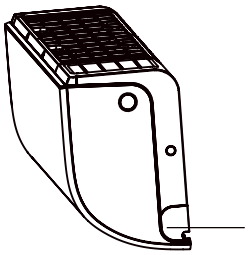


Fig. 5.9

Knock-out Panel

3. Use scissors to cut down the length of the insulating sleeve to reveal about 40mm of the refrigerant piping. This serves two purposes:
   - To facilitate the **Refrigerant Piping Connection** process
   - To facilitate Gas Leak Checks and enable you to check for dents
4. Connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor units. Refer to the **Refrigerant Piping Connection** section of this manual for detailed instructions.

Installation Overview

5. Based on the position of the wall hole relative to the mounting plate, determine the necessary angle of your piping.
6. Grip the refrigerant piping at the base of the bend.
7. Slowly, with even pressure, bend the piping towards the hole. Do not dent or damage the piping during the process.

Step 5: Connect drain hose

By default, the drain hose is attached to the lefthand side of unit (when you're facing the back of the unit). However, it can also be attached to the right-hand side.

1. To ensure proper drainage, attach the drain hose on the same side that your refrigerant piping exits the unit.
2. Attach drain hose extension (purchased separately) to the end of drain hose.
3. Wrap the connection point firmly with Teflon tape to ensure a good seal and to prevent leaks.
4. For the portion of the drain hose that will remain indoors, wrap it with foam pipe insulation to prevent condensation.
5. Remove the air filter and pour a small amount of water into the drain pan to make sure that water flows from the unit smoothly.

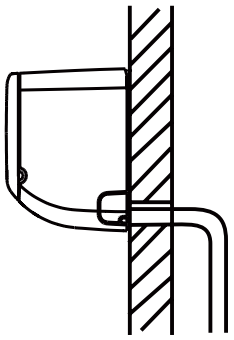
NOTE ON DRAIN HOSE PLACEMENT

Make sure to arrange the drain hose according to **Fig. 5.10**.

- ⊘ **DO NOT** kink the drain hose.
- ⊘ **DO NOT** create a water trap.
- ⊘ **DO NOT** put the end of drain hose in water or a container that will collect water.

PLUG THE UNUSED DRAIN HOLE

To prevent unwanted leaks you must plug the unused drain hole with the rubber plug provided.



CORRECT

Make sure there are no kinks or dent in drain hose to ensure proper drainage.

Fig. 5.10

NOT CORRECT

Kinks in the drain hose will create water traps.

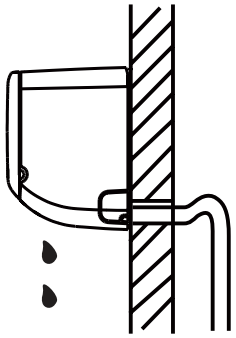
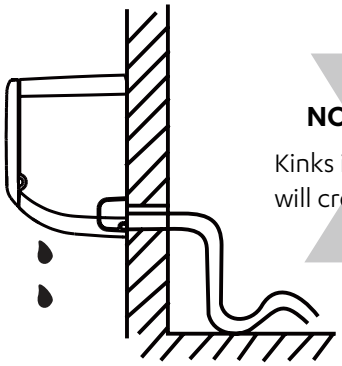


Fig. 5.11



NOT CORRECT

Kinks in the drain hose will create water traps.

Fig. 5.12

NOT CORRECT

Do not place the end of the drain hose in water or in containers that collect water. This will prevent proper drainage.

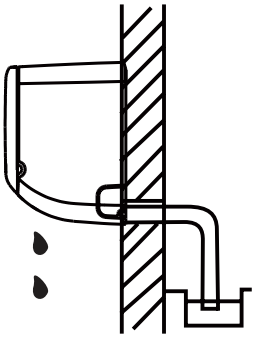


Fig. 5.13

Installation Overview

BEFORE PERFORMING ELECTRICAL WORK, READ THESE REGULATIONS

1. All wiring must comply with local and national electrical codes, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. Power voltage should be within Australian Standards 230VAC (+10%, -6%) 50Hz. Insouciant power supply can cause malfunction, electrical shock, or fire.
4. Correct sized circuit breaker must be installed.
5. Only connect the unit to an individual final sub-circuit. Do not connect another appliance to that sub-circuit.
6. Make sure to properly earth the air conditioner.
7. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
8. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.

WARNING

BEFORE PERFORMING ANY ELECTRICAL OR WIRING WORK, ISOLATE POWER TO UNIT. CORRECT LOCKOUT/TAG OUT PROCEDURES TO BE USED ETC.

Step 6: Connect signal cable

The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection.

CHOOSE THE RIGHT CABLE SIZE

The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate located on the side panel of the unit. Refer to this nameplate to choose the right cable and refer to AS3000 and local wiring rules and etc.

TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board, such as: T3.15A/250VAC, T5A/250VAC, etc.

1. Prepare the cable for connection:
   a. Using wire strippers, strip the outer insulation from both ends of signal cable to reveal about 40mm of the wires inside.
   b. Strip the inner insulation from the ends of the wires.
   c. Using wire crimper, crimp u-type lugs on the ends of the wires.
2. Open front panel of the indoor unit by loosening the screws according to picture Fig. 5.7, which provide big space for wiring connection.
3. Open the wire box cover to connect the cable.

Installation Overview

⚠ WARNING

ALL WIRING MUST PERFORMED STRICTLY IN ACCORDANCE WITH THE WIRING DIAGRAM LOCATED ON THE INSIDE OF THE INDOOR UNIT' S WIRE COVER.

1. Unscrew the cable clamp below the terminal block and place it to the side.
2. Facing the back of the unit, remove the plastic panel on the bottom left-hand side.
3. Feed the signal wire through this slot, from the back of the unit to the front.
4. Facing the front of the unit, match the wire colors with the labels on the terminal block, connect the u-lug and and firmly screw each wire to its corresponding terminal.

! CAUTION

DO NOT MIX UP MAINS POWER AND SIGNAL WIRES

This is dangerous, and can cause the air conditioning unit to malfunction.

1. After checking to make sure every connection is secure, use the cable clamp to fasten the signal cable to the unit. Screw the cable clamp down tightly.
2. Replace the wire cover on the front of the unit, and the plastic panel on the back.

⚠ NOTE ABOUT WIRING

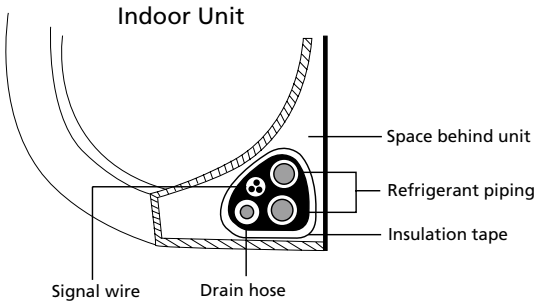
THE WIRING CONNECTION PROCESS MAY DIFFER SLIGHTLY BETWEEN UNITS.

Step 7: Wrap piping and cables

Before passing the piping, drain hose, and the signal cable through the wall hole, you must bundle them together to save space, protect them, and insulate them.

1. Bundle the drain hose, refrigerant pipes, and signal cable according to Fig. 5.15.

Fig. 5.15



DRAIN HOSE MUST BE ON BOTTOM

Make sure that the drain hose is at the bottom of the bundle. Putting the drain hose at the top of the bundle can cause the drain pan to overflow, which can lead to fire or water damage.

2. Using adhesive vinyl tape, attach the drain hose to the underside of the refrigerant pipes.
3. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain hose tightly together. Double-check that all items are bundled in accordance with Fig. 4.19.

DO NOT WRAP ENDS OF PIPING

When wrapping the bundle, keep the ends of the piping unwrapped. You need to access them to test for leaks at the end of the installation process (refer to Electrical Checks and Leak Checks section of this manual).

Installation Overview

Step 8: Mount indoor unit

If you installed new connective piping to the outdoor unit, do the following:

1. If you have already passed the refrigerant piping through the hole in the wall, proceed to Step 4.
2. Otherwise, double-check that the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.
3. Slowly pass the wrapped bundle of refrigerant pipes, drain hose, and signal wire through the hole in the wall.
4. Hook the top of the indoor unit on the upper hook of the mounting plate.
5. Check that unit is hooked firmly on mounting by applying slight pressure to the left and right-hand sides of the unit. The unit should not jiggle or shift.
6. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.
7. Again, check that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.

Installation Instructions – Outdoor Unit

PRIOR TO INSTALLATION

Before installing the outdoor unit, refer to the label on the product box to make sure that the model number of the outdoor unit matches the model number of the indoor unit.

Step 1: Select installation location

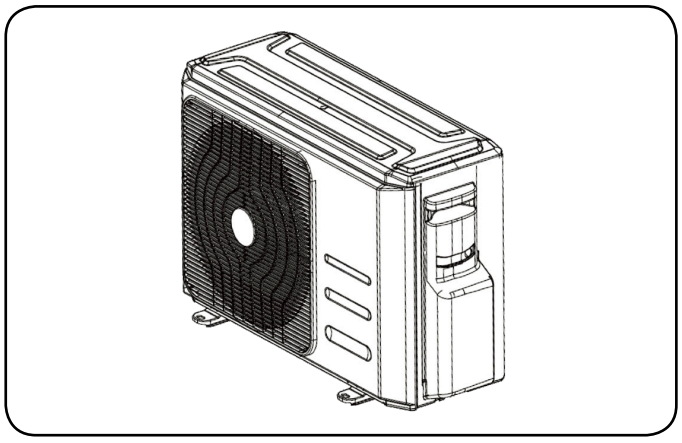
Before installing the outdoor unit, you must choose an appropriate location. The following are standards that will help you choose an appropriate location for the unit.

Proper installation locations meet the following standards:

- ☑ Good air circulation
- ☑ Convenient drainage
- ☑ Sufficient clearances for periodic maintenance and service access.
- ☑ Noise from the unit will not disturb other people
- ☑ Firm, level and solid—the location will not vibrate and strong enough to support the weight of the unit
- ☑ Fit anti-vibration rubber (not provided with the unit) under the unit feet to reduce noise and vibration transfer through the foundation. Make sure that vibration rubbers are rated to provide sound and stable support without impairing the unit's structural integrity.

DO NOT install unit in the following locations:

- ⊘ Near any source of heat, steam, or combustible gas
- ⊘ Near flammable items such as curtains or clothing
- ⊘ Near any obstacle that might block air circulation
- ⊘ Near the doorway
- ⊘ In a location subject to direct sunlight



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:

- ☑ Meets all spatial requirements shown in Installation Space Requirements (Fig. 6.3)
- ☑ Good air circulation and ventilation
- ☑ Firm and solid—the location can support the unit and will not vibrate
- ☑ Noise from the unit will not disturb others
- ☑ Protected from prolonged periods of direct sunlight or rain

⊘ DO NOT INSTALL UNIT IN THE FOLLOWING LOCATIONS

Near an obstacle that will block air inlets and outlets

Near a public street, crowded areas, or where noise from the unit will disturb others

Near animals or plants that will be harmed by hot air discharge

Near any source of combustible gas

In a location that is exposed to large amounts of dust

In a location exposed to excessive amounts of salty air

SPECIAL CONSIDERATIONS 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 Fig. 6.1 and Fig. 6.2 below.

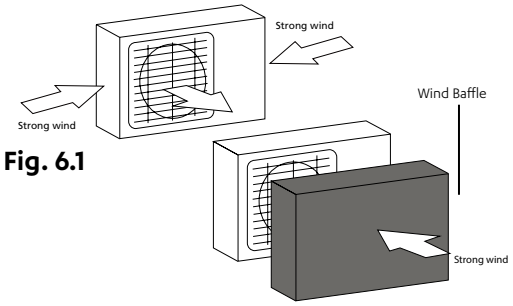


Fig. 6.1

Fig. 6.2

Installation Instructions – Outdoor Unit

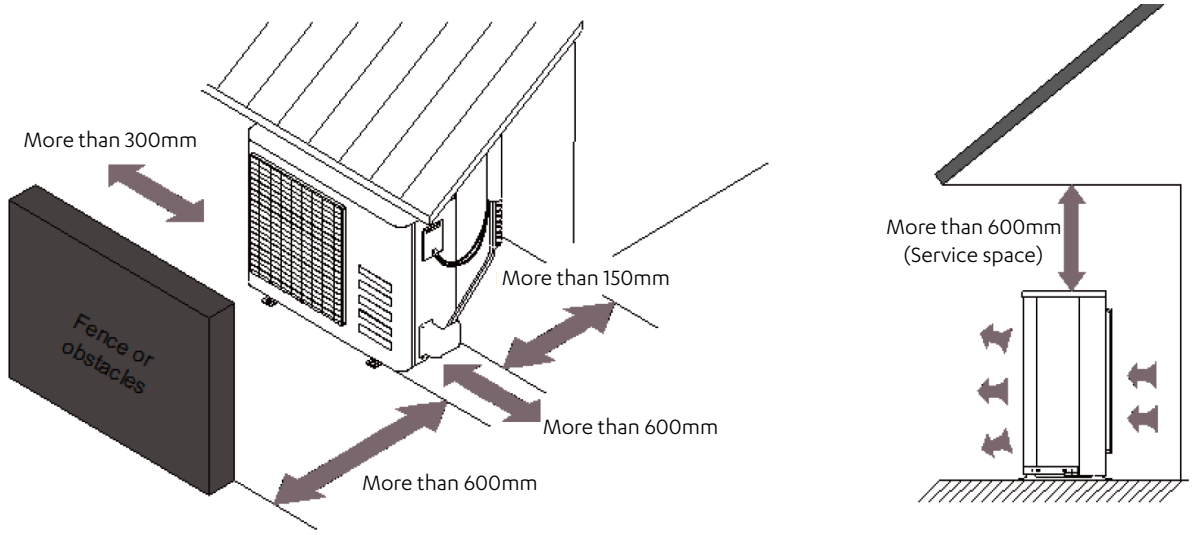


Fig. 6.3

Step 2: Install drain joint

Heat pump units require a drain joint. Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit.

The drain joint comes with a rubber seal (see Fig. 6.4), do the following:

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.

IN COLD CLIMATES

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.

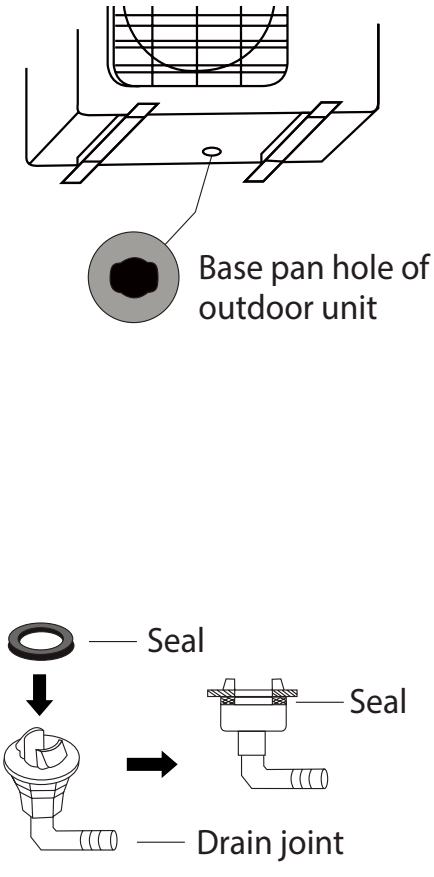


Fig. 6.4

Installation Overview

Step 3: Anchor outdoor unit

The outdoor unit can be anchored to the ground or to a wall-mounted bracket.

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.

Model Number	Outdoor Unit Dimensions (mm) W x H x D	Mounting Dimensions	
		Distance A (mm)	Distance B (mm)
WRC-026AS WRC-035AS	800 x 554 x 333	514	340
WRC-050AS	845 x 702 x 363	540	350
WRC-071AS WRC-080AS	946 x 810 x 410	673	403

If you will install the unit on the ground or on a concrete mounting platform, do the following:

1. Mark the positions for four expansion bolts based on dimensions in the Unit Mounting Dimensions chart.
2. Pre-drill holes for expansion bolts.
3. Clean concrete dust away from holes.
4. Place a nut on the end of each expansion bolt.
5. Hammer expansion bolts into the pre-drilled holes.
6. Remove the nuts from expansion bolts, and place outdoor unit on bolts.
7. Put washer on each expansion bolt, then replace the nuts.
8. Using a wrench, tighten each nut until snug.

⚠ WARNING

WHEN DRILLING INTO CONCRETE, EYE PROTECTION IS RECOMMENDED AT ALL TIMES.

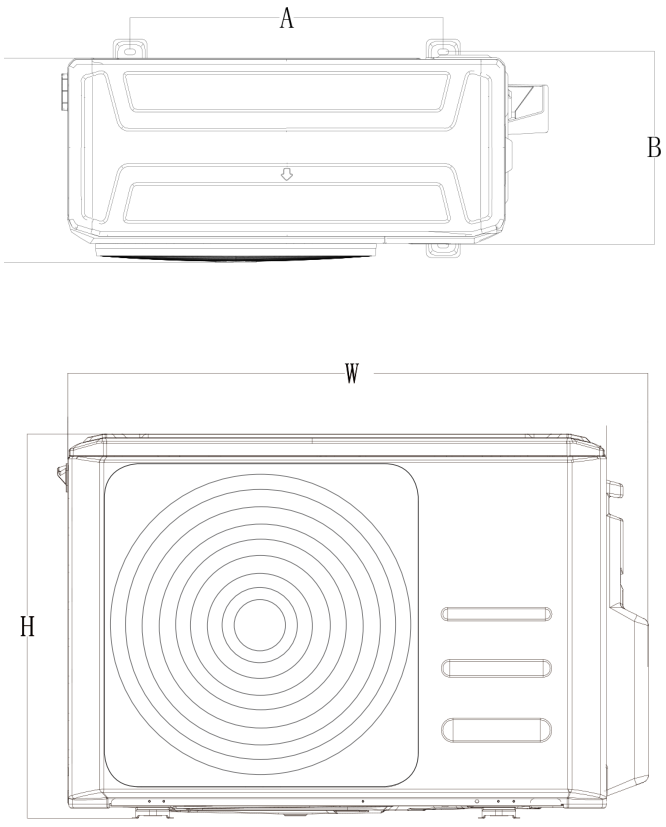


Fig. 6.5

Installation Overview

If you will install the unit on a wall-mounted bracket, do the following:

CAUTION

Before installing a wall-mounted unit, make sure that the wall is made of solid brick, concrete, or of similarly strong material. The wall must be able to support at least four times the weight of the unit.

1. Mark the position of bracket holes based on dimensions in the Unit Mounting Dimensions chart.
2. Pre-drill the holes for the expansion bolts.
3. Clean dust and debris away from holes.
4. Place a washer and nut on the end of each expansion bolt.
5. Thread expansion bolts through holes in mounting brackets, put mounting brackets in position, and hammer expansion bolts into the wall.
6. Check that the mounting brackets are level.
7. Carefully lift unit and place its mounting feet on brackets.
8. Bolt the unit firmly to the brackets.

TO REDUCE VIBRATIONS OF WALL MOUNTED UNIT

If allowed, you can install the wall-mounted unit with rubber gaskets to reduce vibrations and noise.

Step 4: Connect signal and power cables

The outside unit's terminal block is protected by an electrical wiring cover on the side of the unit. A comprehensive wiring diagram is printed on the inside of the wiring cover.

WARNING

ALL WIRING MUST PERFORMED STRICTLY IN ACCORDANCE WITH THE WIRING DIAGRAM LOCATED INSIDE THE OUTDOOR UNITS' WIRE COVER.

9. Unscrew the electrical wiring cover and remove it.
10. Unscrew the cable clamp below the terminal block and place it to the side.
11. Match the wire colors/labels with the labels on the terminal block, and firmly screw the u-lug of each wire to its corresponding terminal.
12. After checking to make sure every connection is secure, loop the wires around to prevent rain water from flowing into the terminal.
13. Using the cable clamp, fasten the cable to the unit. Screw the cable clamp down tightly.
14. Insulate unused wires with PVC electrical tape. Arrange them so that they do not touch any electrical or metal parts.
15. Replace the wire cover on the side of the unit, and screw it in place.

Note on Pipe Length

Table 7.1 Maximum Length and Drop Height of Refrigerant Piping per Unt Model

Model	Min. Length (m)	Max. Length (m)	Max. Drop Height (m)
WRC-026AS	3	25	10
WRC-035AS			
WRC-050AS	3	30	20
WRC-071AS	3	50	25
WRC-080AS			

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 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.

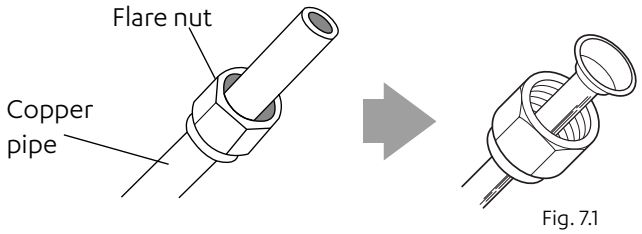


Fig. 7.1

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.

Fig. 7.2

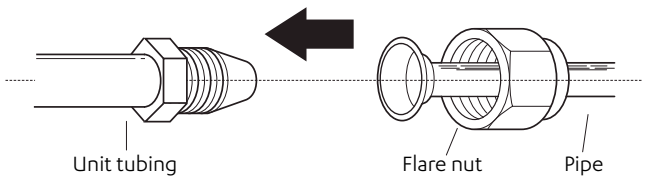


Table 7.2
Pipe Flare Dimension and Tightening Torque Guide

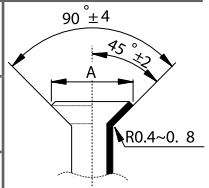
Pipe Size	Tightening Torque	Flare Dimension (A)		Flare Shape
		Min (mm)	Max (mm)	
ø 6.4	14.2 - 17.2 Nm	8.3	8.3	
ø 9.5	32.7 - 39.9 Nm	12.4	12.4	
ø 12.7	49.5 - 60.3 Nm	15.4	15.8	

Fig. 7..3

CAUTION

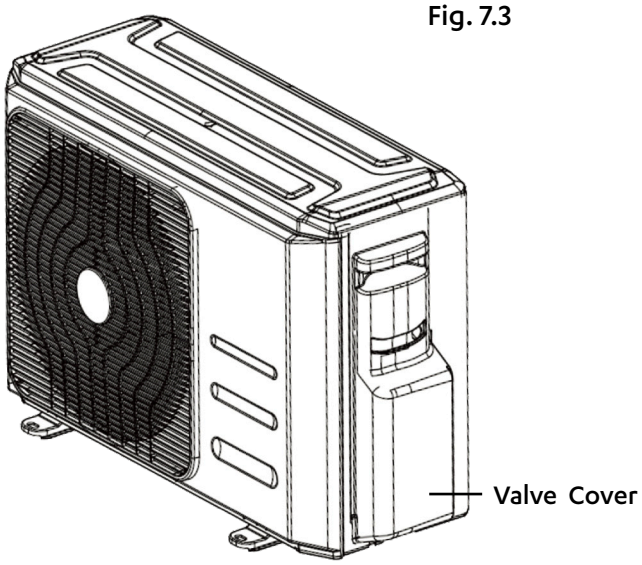
- Ensure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Make sure the pipe is properly connected. Over tightening may damage the bell mouth and under tightening may lead to leakage.

Overview

Instructions for Connecting Piping to Outdoor Unit

1. Unscrew the valve cover on the side of the outdoor unit. (See Fig. 7.3)

Fig. 7.3



Remove protective caps from ends of valves.

2. Align flared pipe end with each valve, and tighten the flare nut as tightly as possible by hand.
3. Using a spanner, grip the body of the valve. Do not grip the nut that seals the service valve. (See Fig. 7.4)

USE SPANNER TO GRIP MAIN BODY OF VALVE

Torque from tightening the flare nut can snap off other parts of valve.

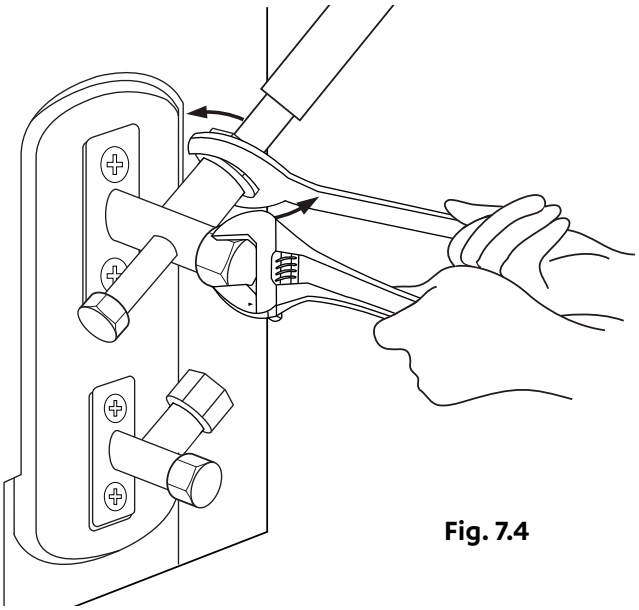


Fig. 7.4

4. While firmly gripping the body of the valve, use a torque wrench to tighten the flare nut according to the correct torque values.
5. Loosen the flaring nut slightly, then tighten again.
6. Repeat Steps 3 to 6 for the remaining pipe.

Safety Precautions

⚠ 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.
- 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 A/C unit.
- The unit's power information can be found on the rating sticker on the product.

TAKE NOTE OF FUSE SPECIFICATIONS

The air conditioners circuit board (PCB) is designed with a fuse to provide overcurrent protection. The specifications of the fuse are printed on the circuit board, such as: T5A/250VAC, T10A/250VAC, etc.

Outdoor Unit Wiring

⚠ WARNING

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

1. Prepare the cable for connection
   a. Ensure the correct size cable size has been selected, as per specifications.
   b. Using wire strippers, strip the rubber jacket from both ends of signal cable.
   c. Strip the insulation from the ends of the wires.
   d. 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 8.1)

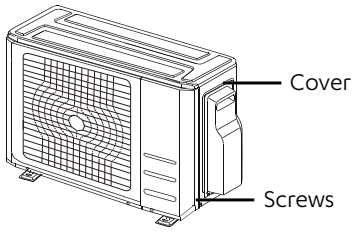


Fig. 8.1

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.

Indoor Unit Wiring

1. Prepare the cable for connection
   a. Using wire strippers, strip the outer insulation from both ends of signal cable.
   b. strip the insulation from the ends of the internal wires.
   c. Using a wire crimper, crimp fork-lugs on the ends of the wires.
2. Open front panel of the indoor unit. Loosen the screws according to figure 8.2.
3. Open the control box cover to connect the cable.
4. 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. Refer to the Wiring Diagram located on the cover of the control box.
5. Clamp down cable with the designated cable clamp to secure it in place. The cable should not be loose, and should not pull on the lugs.
6. Close the control box cover and screw back to the unit.
7. Close the fornt panel.

CAUTION

- While connecting the wires, please strictly follow the wiring diagram.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.

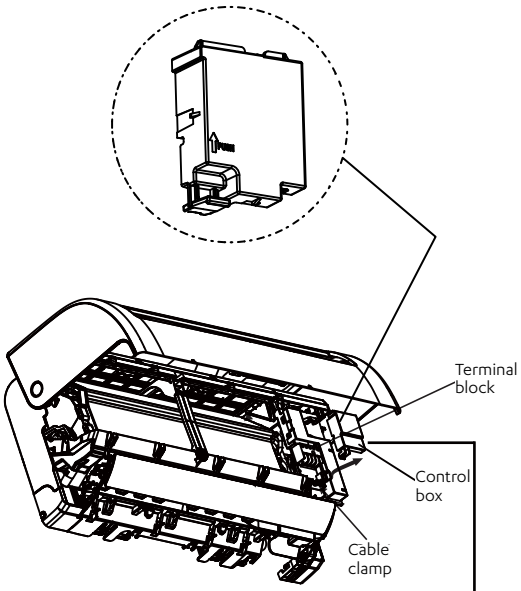


Fig. 8.2

Wiring diagram is located on the back of indoor unit's control box cover.

Indoor Unit Wiring Diagram

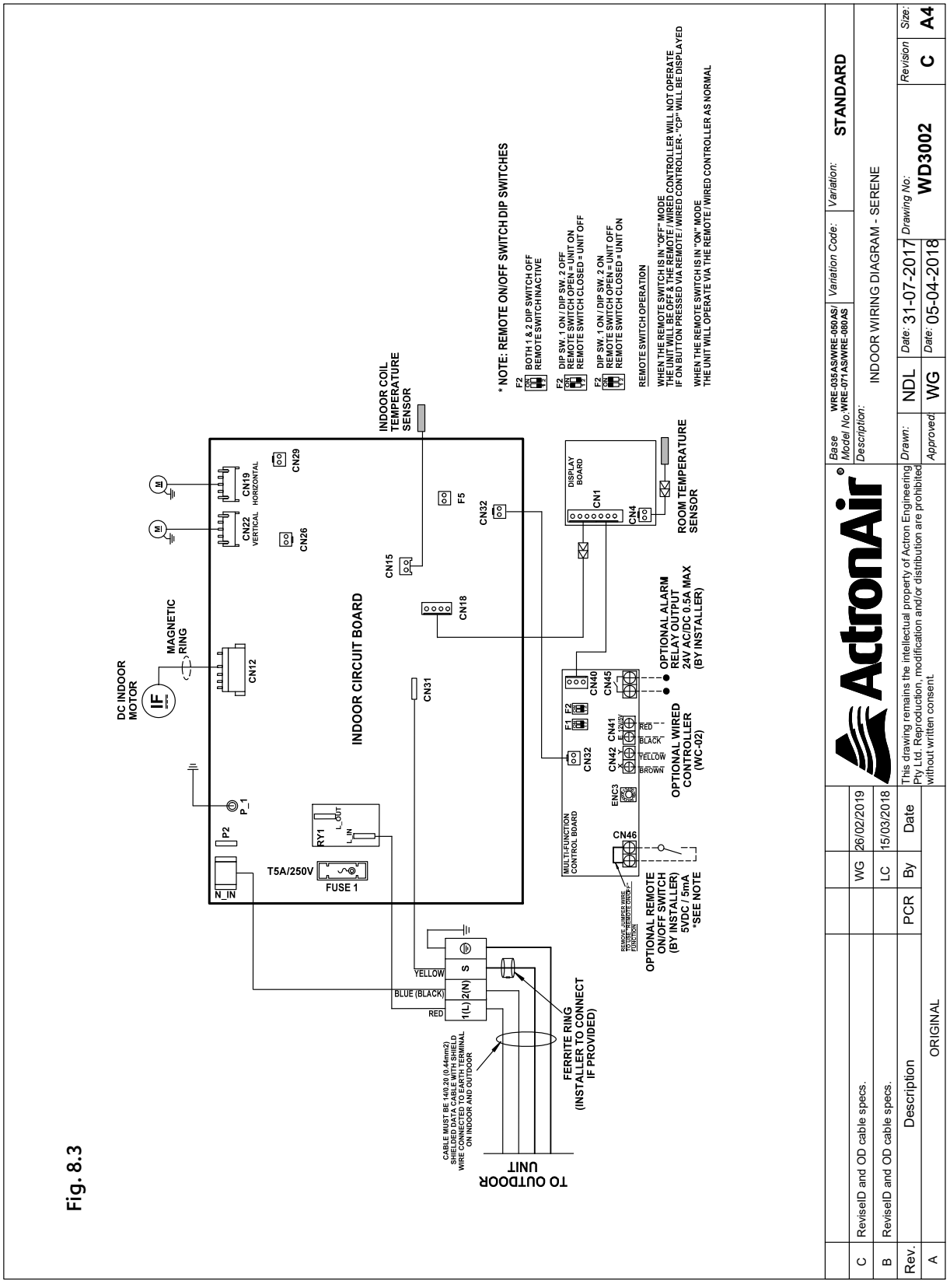


Fig. 8.3

Outdoor Unit Wiring Diagram (WRC-026AS & WRC-035AS)

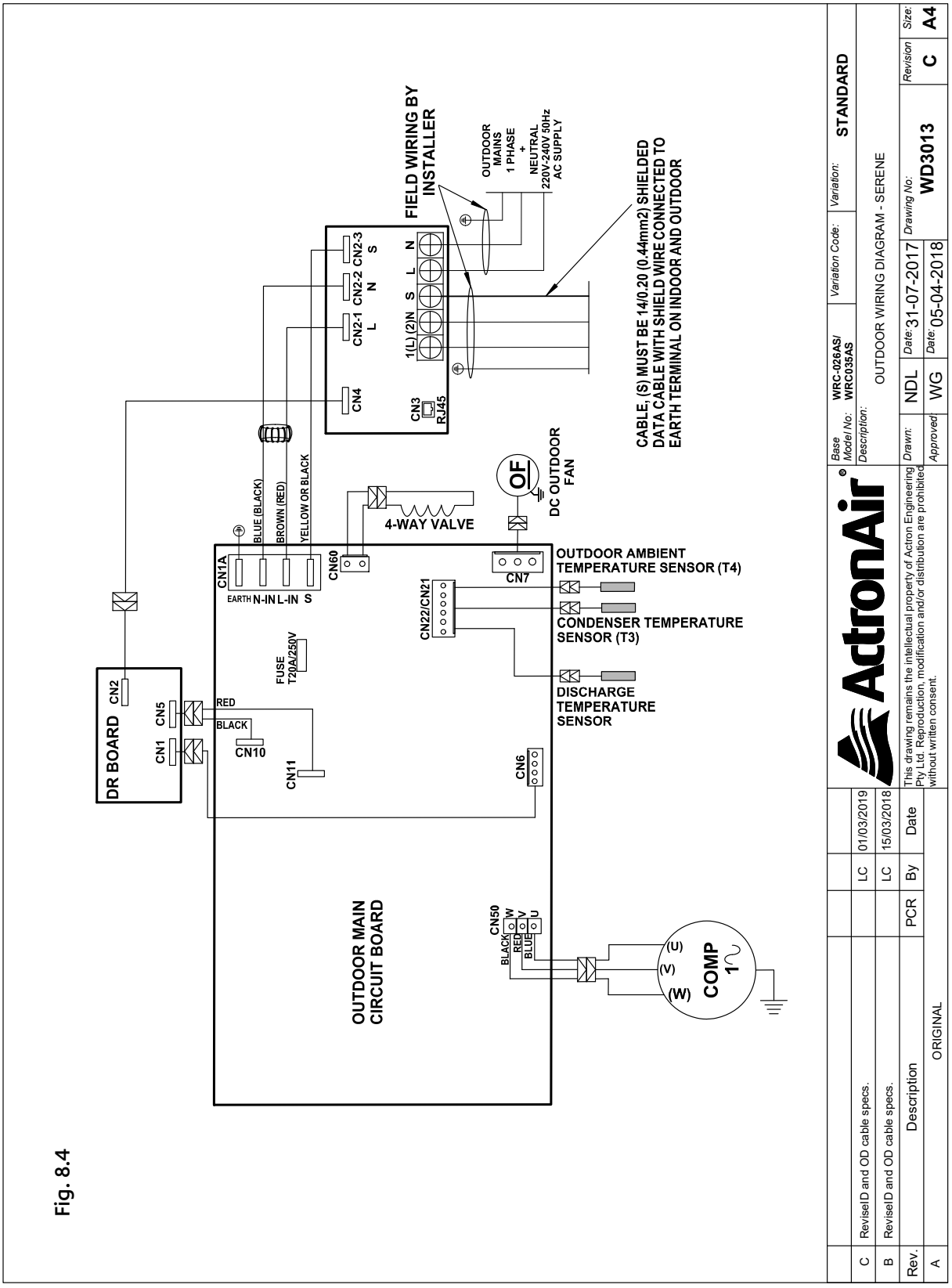


Fig. 8.4

Rev.	Description	By	Date
C	Revise ID and OD cable specs.	LC	01/03/2019
B	Revise ID and OD cable specs.	LC	15/03/2018
A	ORIGINAL	PCR	

ActronAir

Base Model No.: WRC-026AS/ WRC035AS | Variation Code: | Variation: STANDARD

Description: OUTDOOR WIRING DIAGRAM - SERENE

Drawn: NDL Date: 31-07-2017 | Drawing No.: WD3013 | Revision: C | Size: A4

Approved: WG Date: 05-04-2018

Outdoor Unit Wiring Diagram (WRC-052AS & WRC-071AS)

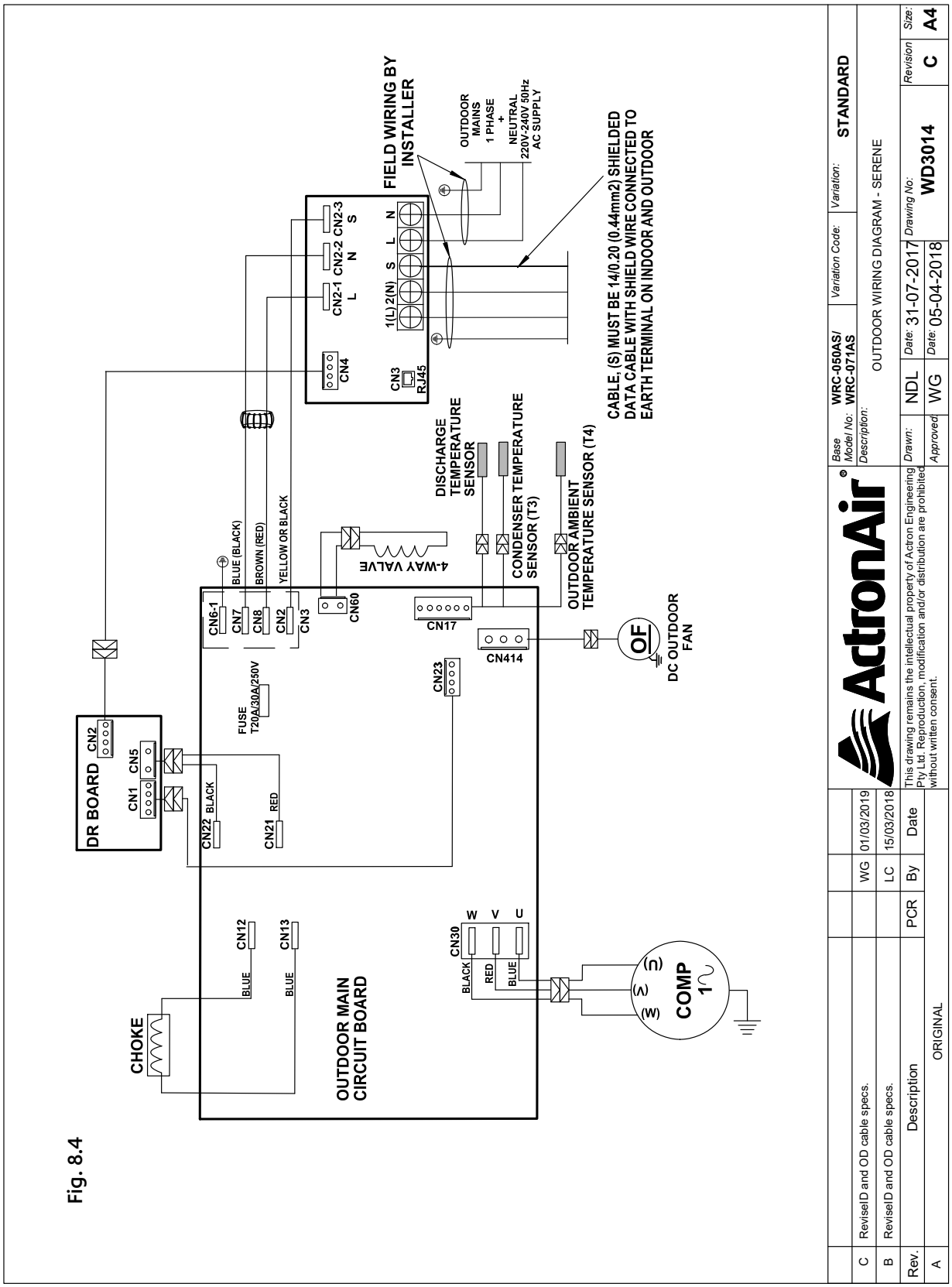
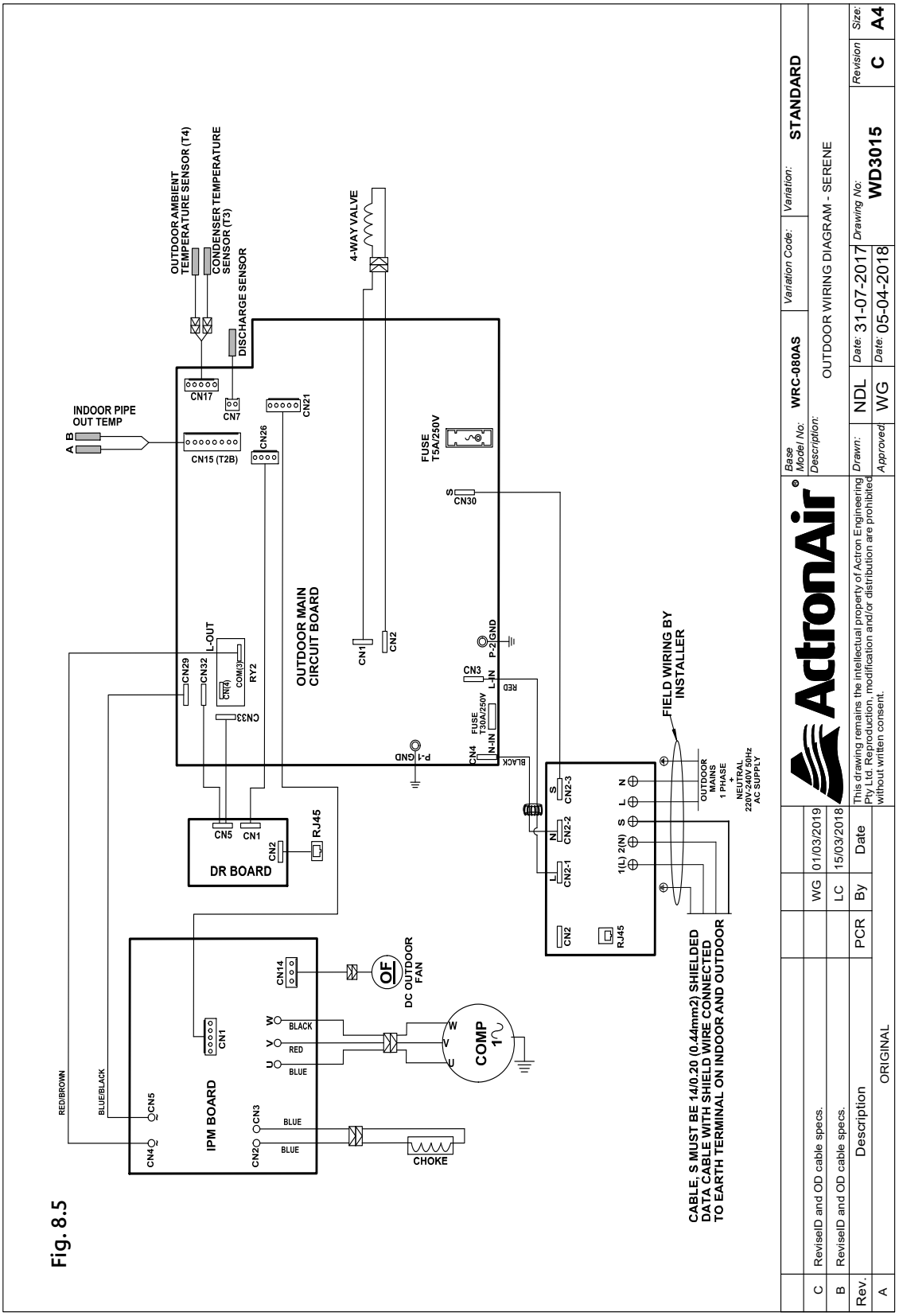
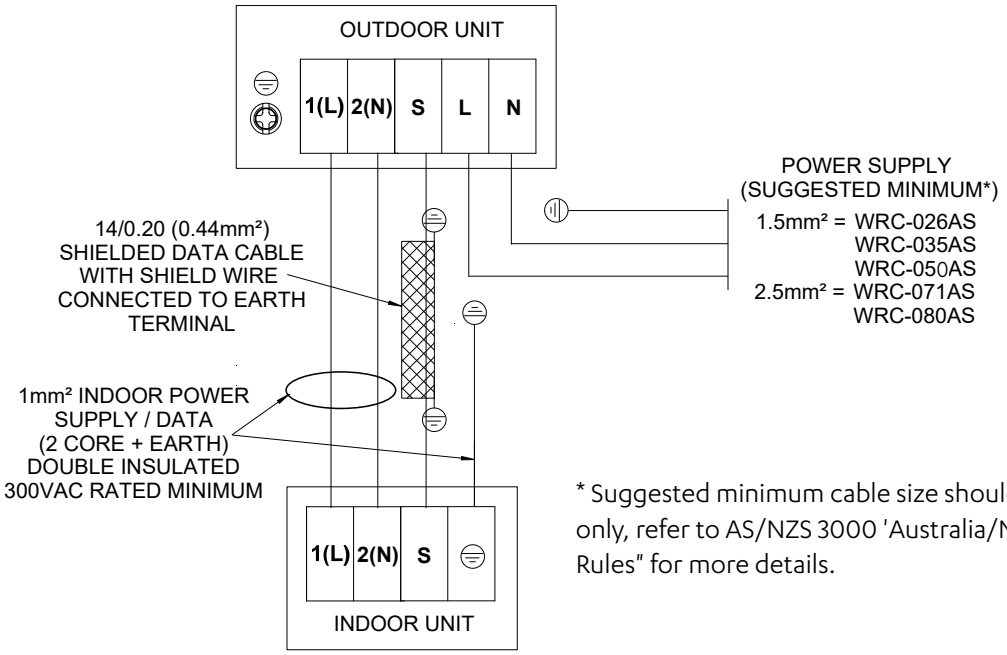


Fig. 8.4

Outdoor Unit Wiring Diagram (WRC-080AS)



Connecting Diagram



* Suggested minimum cable size should be used as a guide only, refer to AS/NZS 3000 'Australia/New Zealand Wiring Rules" for more details.

Fig. 8.6

DIP Switch Settings (Indoor Board)

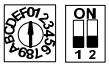
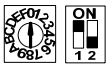
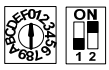
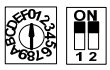
SETTING NETADDRESS (CCM Com. Bus)				
ENC3+F1 (MULTI-FUNCTION CONTROL BOARD)				
CODE	0-F	0-F	0-F	0-F
NETADDRESS	0-15	16-31	32-47	48-63
FACTORY SETTING	●			

Fig. 8.7

REMOTE ON/OFF FUNCTION			
F2 (MULTI-FUNCTION CONTROL BOARD)			
	REMOTE SWITCH INACTIVE	REMOTE SWITCH OPEN = UNIT ON REMOTE SWITCH CLOSED = UNIT OFF	REMOTE SWITCH OPEN = UNIT OFF REMOTE SWITCH CLOSED = UNIT ON
FACTORY SETTING	●		

NOTE FOR REMOTE ON/OFF FUNCTION:

- Remove jumper wire in CN46 terminal and set F2 dip switch as above in the multi-function control board to use Remote ON/OFF switch.
- When the remote switch is in "OFF" mode, the unit will be off and the remote/ wired controller will not operate. If ON button is pressed via remote/wired controller - "CP" will be displayed.
- When the remote switch is in "ON" mode, the unit will operate via remote/wired controller as normal.
- When using remote switch, the unit will respond within 3 seconds before turning ON or OFF.

Electrical Connection

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^2)
maximum 65 metres

④ EXTRA LOW VOLTAGE DATA CONTROL WIRING
4 core shielded data cable (0.75mm^2)
maximum 12 metres

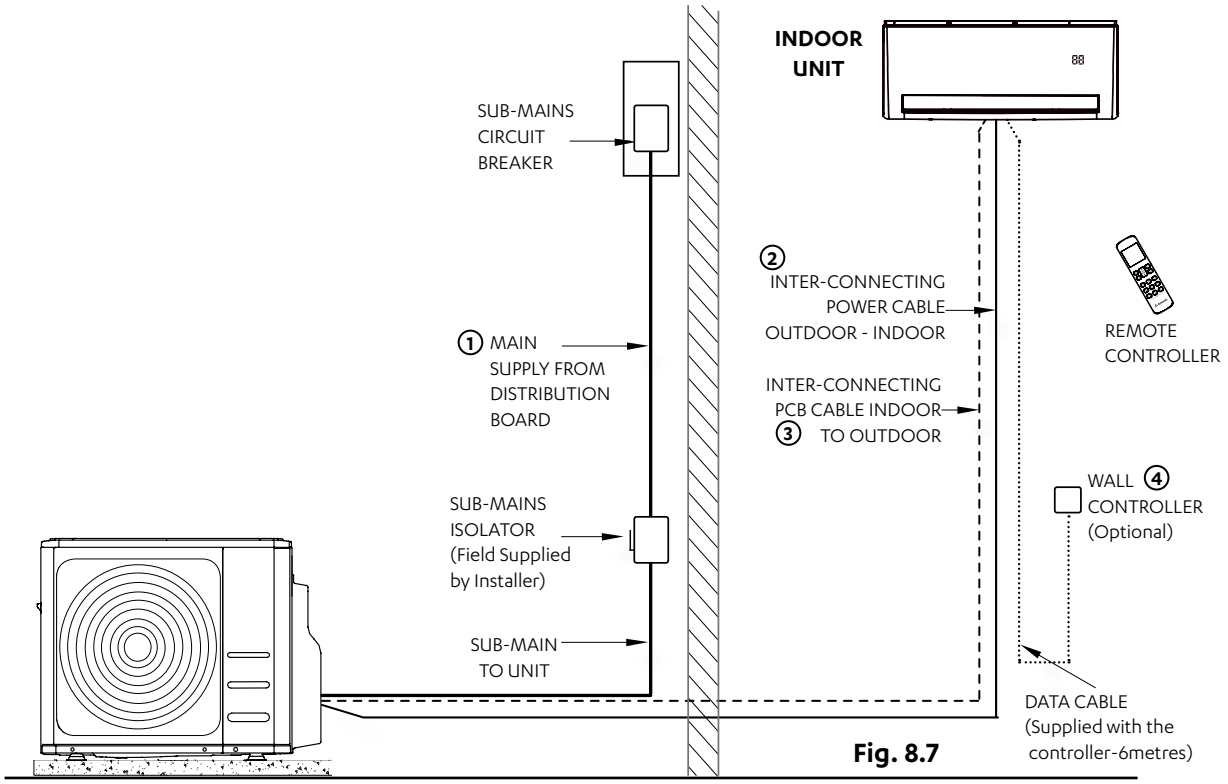


Fig. 8.7

Leak Test

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 instruction).
3. Fit 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.

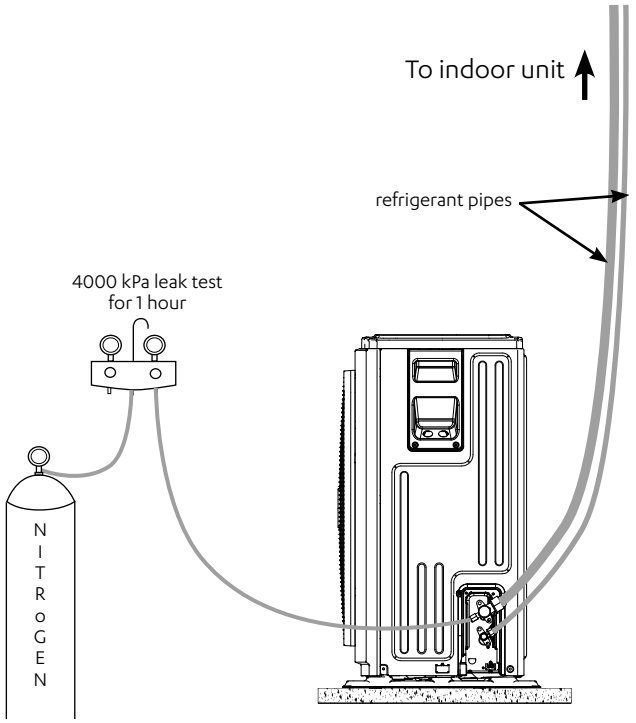


Fig. 9.1

Evacuation Instructions

CAUTION

- Use a vacuum pump and a vac stat 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 micron or below after 2 hours. If after three hours of operation and the vac stat reading is still above 500 microns, check re-pressurise system and check for 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.

Overview

Evacuation Instructions

Before using the manifold gauge and vacuum pump, read their operation manuals to familiarize yourself with how to use them properly.

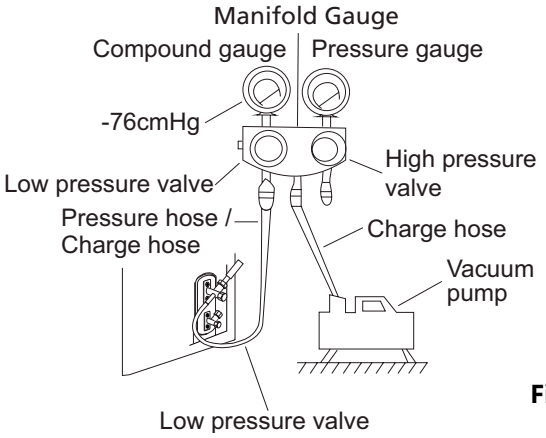


Fig. 9.2

1. Connect the charge hose of the manifold gauge to 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 compound meter reads 500 microns.
6. Close the Low 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 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.
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 hexagonal wrench, fully open both the high pressure and low pressure valves.
12. 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.

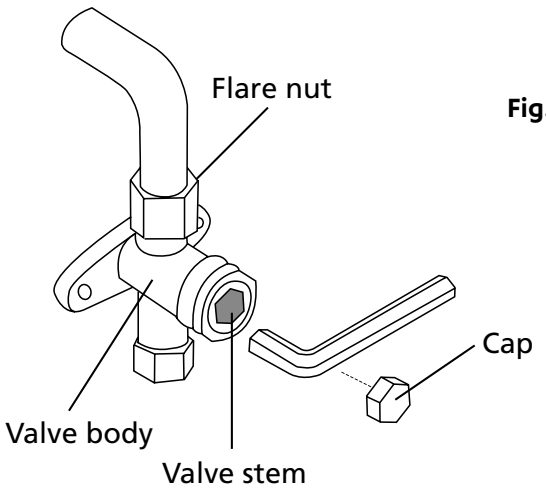


Fig. 9.3

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.

Note on Adding Refrigerant

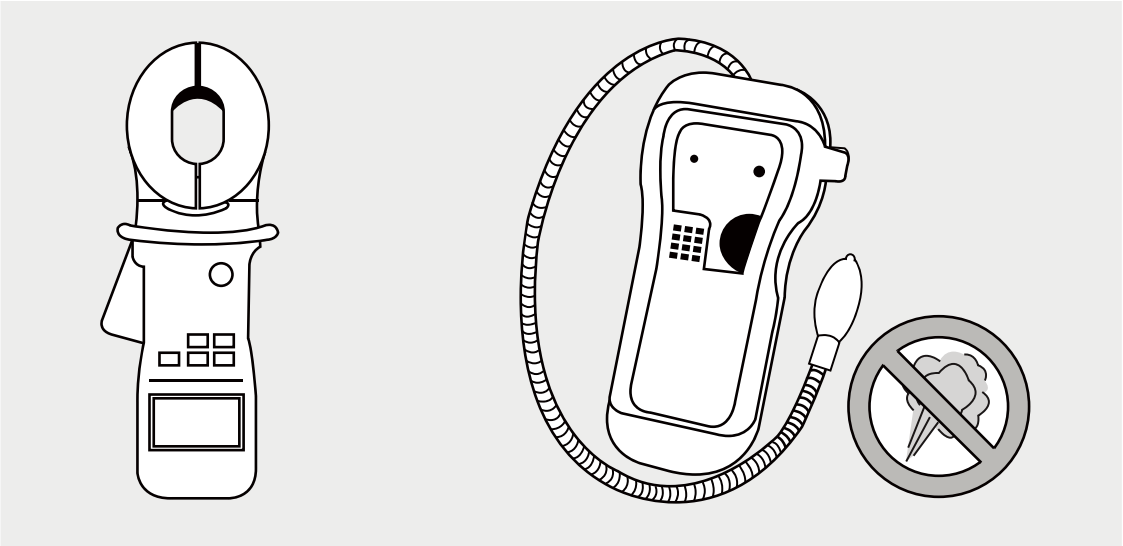
CAUTION

- Refrigerant charging must be performed after wiring, vacuuming and the leak test.
- **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.
- **DO NOT** mix refrigerant types.
- Some systems require additional charging depending on pipe lengths. The standard pipe length is 15m
- The additional refrigerant to be charged can be calculated using the following formula:

Refrigerant Charge Details

Model	WRC-026AS / WRE-026AS	WRC-035AS / WRE-035AS	WRC-050AS / WRE-050AS	WRC-071AS / WRE-071AS	WRC-080AS / WRE-080AS
Refrigerant Type	R410A				
Refrigerant Charge (grams)	1175	1175	1575	2150	2300
Pre-charged Length (metres)	10				
Additional Refrigerant per meter (grams/metres)	15			30	
Liquid Pipe	6.35mm (1/4")	6.35mm (1/4")	6.35mm (1/4")	9.52mm (3/8")	9.52mm (3/8")
Gas Pipe	9.52mm (3/8")	12.7mm (1/2")	12.7mm (1/2")	15.9mm (5/8")	15.9mm (5/8")

Overview



Electrical Safety Checks

After installation, confirm that all electrical wiring is installed in accordance with local and national regulations, and according to the Installation Manual.

⚠ WARNING – RISK OF ELECTRIC SHOCK

ALL WIRING MUST COMPLY WITH LOCAL AND NATIONAL ELECTRICAL CODES, AND MUST BE INSTALLED BY A LICENSED ELECTRICIAN.

Gas Leak Checks

Proper pressure test with dry nitrogen should be performed, prior to air evacuation.

AFTER PERFORMING GAS LEAK CHECKS

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

Overview

Before Test Run

Only perform test run after you have completed the following steps:

- **Electrical Safety Checks** – Confirm that the unit's electrical system is safe and operating properly
- **Gas Leak Checks** – Check all flare nut connections and confirm that the system is not leaking
- Confirm that gas and liquid (high and low pressure) valves are fully open

Test Run Instructions

You should perform the **Test Run** for at least 30 minutes.

1. Connect power to the unit.
2. Press the **ON/OFF** button on the remote controller to turn it on.
3. Press the **MODE** button to scroll through the following functions, one at a time:

- COOL – Select lowest possible temperature
- HEAT – Select highest possible temperature

4. Let each function run for 5 minutes, and perform the following checks:

List of Checks to Perform	PASS/FAIL	
No electrical leakage		
Unit is properly grounded		
All electrical terminals properly covered		
Indoor and outdoor units are correctly installed		
All pipe connection points do not leak	Outdoor (2):	Indoor (2):
Water drains properly from drain hose		
All piping is properly insulated		
Unit performs COOL function properly		
Unit performs HEAT function properly		
Indoor unit louvres rotate properly		
Indoor unit responds to remote controller		

Overview

5. After the Test Run is successfully complete, and you confirm that all checks points in List of Checks to Perform have PASSED, do the following:
   a. Using remote control, return unit to normal operating temperature.
   b. Using insulation tape, wrap the indoor refrigerant pipe connections that you left uncovered during the indoor unit installation process.

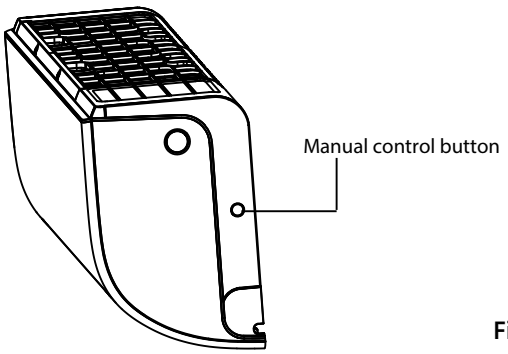


Fig. 10.1

IF AMBIENT TEMPERATURE IS BELOW 17°C

You can't use the remote controller to turn on the COOL function when the ambient temperature is below 17°C. In this instance, you can use the MANUAL CONTROL button to test the COOL function.

1. Locate the MANUAL CONTROL button on the right-hand side panel of the unit. See Fig.10.1.
2. Press the MANUAL CONTROL button one time to activate FORCED AUTO mode.
3. Press the MANUAL CONTROL again to activate FORCED COOLING mode.
4. Perform Test Run as normal.

FORCED AUTO MODE

A/C system will go to Auto Mode with 24 ˚C set point.

FORCED COOL MODE

The outdoor unit will run at minimum capacity and indoor fan in low speed. After 30 minutes, the A/C system will go to Auto Mode with 24 ˚C set point.

Maintenance Procedures
This section describes the procedures that must be performed as a part of normal maintenance program. Regular servicing of equipment by 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 supply, including remote controls, are disconnected before performing maintenance. Observe proper Lock-Out / Tag-Out procedures to ensure that power cannot be inadvertently energised. 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 blades interference and no damage to the fans and guards.
- Inspect the air filters, clean or replace as required.
- Clean and repaint any corroded panel section.
- Ensure no blockage of airflow through 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 unit is located in a dusty and dirty environment, in order to maintain your system's proper operating performance. High discharge pressures are 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 garden hose or pressure washer with low pressure nozzle.

DANGER

Beware of Rotating Fan Blades !
- Always make sure that all power supply, to the Outdoor Fans are turned-off and isolated.
- Observe WH&S safety procedures, do not wear loose clothing and any jewellery when working near the fans.
- Wear PPE whenever performing any maintenance procedures.
- Observe all necessary procedures when working on 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 fin comb.
- Prepare the detergent solutions according to the manufacturer's instructions.
- Spray solution at a 90° angle to the coils, keeping a minimum nozzle spray angle of 15°, with at least a 1800mm distance from the coils and 600 psi pressure.
- Spray leaving air side of the coils first then the air inlet side. Allow the solution to stand on the coils for five 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 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

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.

ActronAir

That's better. That's Actron.

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1300 522 722

Installation Document: 9590-5000 Ver. 5 190325