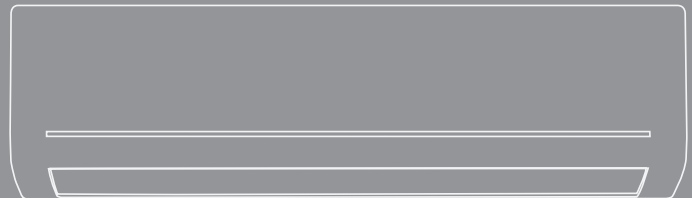


Inverter Air Conditioner Installation Manual

KSV25CRH, KSV35CRH, KSV71CRH,
KSV25HRH, KSV35HRH, KSV50HRH,
KSV71HRH, KSV90HRH,
KSD25HRH, KSD35HRH, KSD50HRH,
KSD71HRH, KSD90HRH



Congratulations

Congratulations and thank you for choosing our Inverter split system room air conditioner. We are sure you will find your new air conditioner a pleasure to use. Before you use the air conditioner, we recommend that you read through the entire user manual, which provides the description of the air conditioner and its functions.

To avoid the risks that are always present when you use an electrical appliance, it is important that the air conditioner is installed correctly and that you read the safety instructions carefully to avoid misuse and hazards.

We recommend that you keep this instruction booklet for future reference and pass it on to any future owners.

After unpacking the air conditioner please check it is not damaged. If in doubt, do not use the air conditioner but contact your local Electrolux Customer Care Centre.

Conditions of use

This appliance is intended to be used in household and similar applications such as :

- staff kitchen areas in shops, offices and other working environments.
- farm houses.
- by clients in hotels, motels and other residential type environments.
- bed and breakfast type environments.

This air conditioner is designed for and intended to be used in normal domestic applications only.

Record model and serial number here:

Model number:

Serial number:



environment

Information on disposal for users

- Most of the packing materials are recyclable. Please dispose of those materials through your local recycling depot or by placing them in appropriate collection containers.
- If you wish to discard this air conditioner, please contact your local authorities and ask for the correct method of disposal.



R32 refrigerant warning

This product uses R32 difluoromethane refrigerant, which is a mildly flammable gas class 2.2 according according to AS 1677 and must be handled by a refrigeration mechanic with appropriate Australian refrigerant handling licence.

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Important safety instructions

Please read this installation manual and the user manual before installation and carefully store in a handy place for later reference. Inside you will find many helpful hints on how to install and test the air conditioner properly.

Incorrect installation due to ignoring this instruction may cause harm or damage, which may not be covered by warranty.



warning

This symbol indicates information concerning your personal safety



caution

This symbol indicates information on how to avoid damaging the appliance



important

This symbol indicates tips and information about use of the appliance



environment

This symbol indicates tips and information about economical and ecological use of the appliance



caution

- Contact an authorised installer for installation of this unit.
- Contact an authorised service technician for repair or maintenance of this unit.
- Installation work must be performed in accordance with the national wiring standards by authorised personnel only.

Notice for installation



caution

- 1 The unit must only be installed by a qualified refrigeration mechanic and electrical work carried out by a qualified electrician according to AS/NZS 3000 electrical installation standard and in accordance with all local and national regulations.
- 2 If the installation is not completed by a suitably licensed person, any faults resulting from poor installation may not be covered under warranty.
- 3 Means for disconnection must be provided in the fixed wiring according to AS/NZS 3000 and local wiring regulations, install a suitable isolation switch in an accessible location adjacent to this air conditioner.
- 4 The temperature of the refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
- 5 This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.



warning

Before obtaining access to terminals, all supply circuits must be disconnected.

Choosing a location to mount unit

Indoor unit

- Do not install the unit near any heat source, flammable gas or steam.
- Choose a location where the air circulation is good, and where there are no obstacles blocking the air flow.
- Select a place that will be convenient to run a drain to suitable location outside.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the restrictions on installation specified in the indoor unit installation drawings are met.
- Select a location which is firm enough for installation so that the device is not subjected to vibrations.
- The device should be installed at a distance of at least 1m from all other electrical devices and installations, e.g. TV, radio, computer, etc.
- Avoid installing in direct sunlight, if it's unavoidable consider installing something to protect from direct sunlight.

Minimum floor areas

Your air conditioner is designed to condition the air for a certain range of room size, please ensure the selection of your air conditioner complies with the Kelvinator selection tool available from www.kelvinator.com.au

This product uses mildly flammable R32 refrigerant. Certain levels of refrigerant require minimum room sizes. Please ensure that these minimum room sizes are adhered to for standard installations (up to 5m pipe length). If larger refrigerant charges than standard are used then please consult AS/NZS 60335.2.40 to determine the safe minimum floor area for the installation.

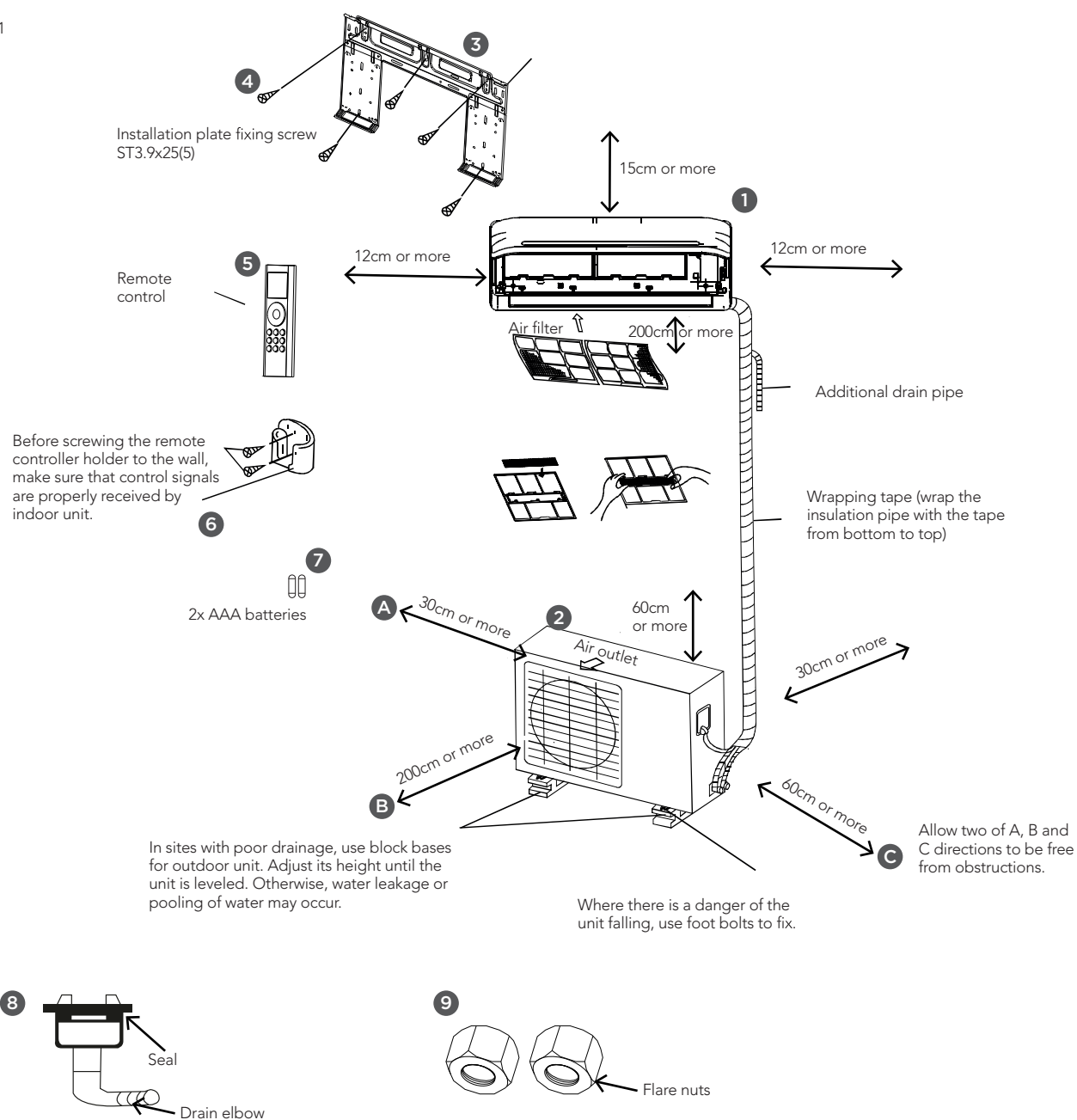
Model	Charge of R32 (g)	Minimum floor area (m²)
KSV25CRH KSV25HRH KSD25HRH	830	N/A
KSV35CRH KSV35HRH KSD35HRH	900	N/A
KSV50HRH KSD50HRH	1450	2.00
KSV71CRH KSV71HRH KSD71HRH	1600	2.44
KSV90HRH KSD90HRH	2700	6.95

Outdoor unit

- If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.
- Do not install outdoor unit in a location where the air outlet will be directed on plants or animals as it may harm them.
- Make sure that there is sufficient space as specified in the installation drawings.
- Do not place any obstacles which may cause a short circuit of the discharged air.
- Select a location which avoids causing a nuisance to neighbours from noise and air emissions from device.
- Select a location which is sufficiently well ventilated.
- Never cover the air inlets and outlets.
- The location must be sufficiently firm for installation and the prevention of vibrations.
- There must be no risk presented by combustible gas or gas escaping as a result of corrosion.
- Avoid a location where there is a high salt content.
- Avoid a location which is heavily exposed to dust.
- Avoid a location to which the general public have access.

Installation drawing

Fig. 1



Air conditioner	Qty.		Qty.
1 Indoor unit	1	7 Battery (AAA 1.5V)	2
2 Outdoor unit	1	8 Drain elbow & seal	1
3 Indoor unit mounting plate	1	9 Flare nuts	2
4 Mounting plate fixing screws, ST3.9x25	5 or 8*	10 Installation Manual	1
5 Remote controller	1	11 User manual	1
6 Remote controller holder	1		

* 9kW models have 8 screws, other models have 5 screws.

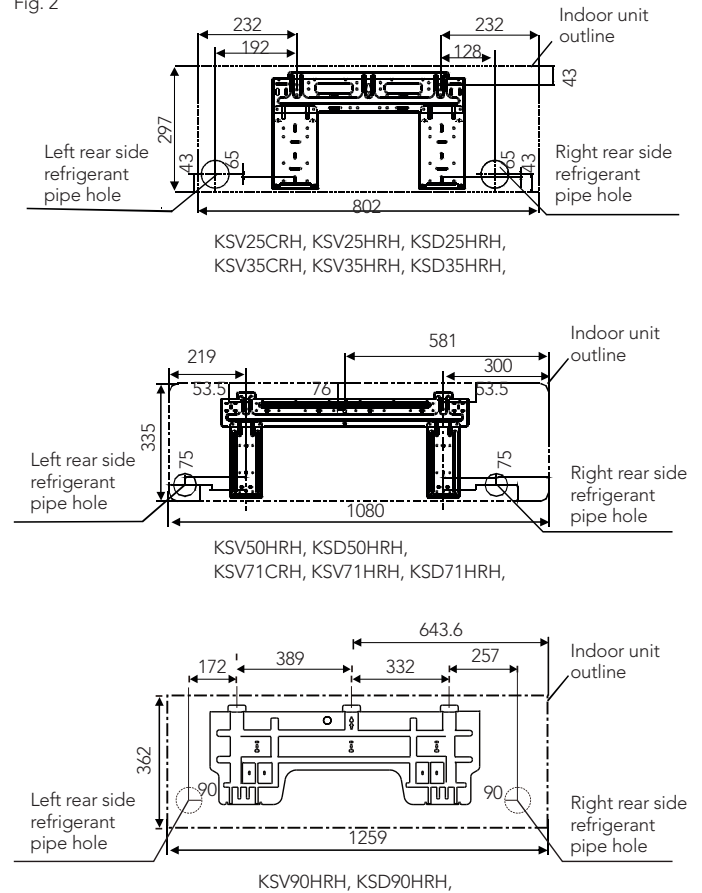
NOTE: Appearance of outdoor unit and indoor unit may differ from some models. The actual shape shall prevail.

Indoor unit installation

Remove the installation plate from the indoor unit. The installation plate should be installed on a wall which can support the weight of the indoor unit.

Model	Indoor unit dimensions W x H x D (mm)	Weight (kg)
KSV25CRH KSV25HRH KSD25HRH KSV35CRH KSV35HRH KSD35HRH	802 x 297 x 189	9.5
KSV50HRH KSD50HRH KSV71CRH KSV71HRH KSD71HRH	1080 x 335 x 226	14.5
KSV90HRH KSD90HRH	1259 x 362 x 282	19.5

Fig. 2

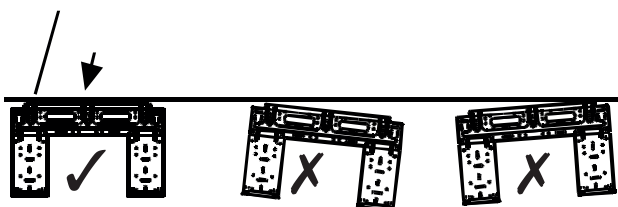


Installation plate mounting

1. Fit the installation plate horizontally on structural parts of the wall with sufficient space around the installation plate to accommodate the indoor unit and meet the clearance requirements as per the assembly diagram, see figure 1.
2. Use appropriate wall fixings suitable for the wall type being fixed to which is sufficient to support the full weight of the indoor unit.
3. Secure the installation plate to the wall with screws.

NOTE: Mount the installation plate and drill holes in the wall according to the wall structure and corresponding mounting points on the installation plate. The installation plate provided with the machine differ from appliance to appliance. (Dimensions are in mm unless otherwise stated).

Correct orientation
of Installation Plate



Indoor unit installation

Drilling the wall

1. Choose the hole position to be either on the left or right side of the installation plate and mark the position according to the dimensions shown in figure 2. Note most simple installation is with hole on the right side.
2. Drill the piping hole with a hole core drill of the following size: 65mm for models: KSV25CRH, KSV25HRH, KSD25HRH, KSV35CRH, KSV35HRH, KSD35HRH. 75mm for models: KSV50HRH, KSD50HRH, KSV71CRH, KSV71HRH, KSD71HRH. 90mm for models: KSV90HRH, KSD90HRH.
3. Drill the hole with slight (5-10mm) downward angle from indoor to outdoor side so that the outside end is lower than the inside end to help drainage, see figure 3.
4. Insert a wall pipe or other means of protection to prevent the pipes and electrical wires from touching sharp edges within the wall.

Connective pipe installation

1. For the left-hand and right-hand piping, remove the pipe cover from the side panel.
2. For the right back and left back piping, install the piping as shown.

NOTE: Bundle the pipes, connecting cable, and drain hose with tape securely, evenly as shown in figure 4 on the right. The drain connection can be on the right side, left side or both. If choosing to drain from both sides, another drain pipe will need to be supplied by the installer. If choosing one side drainage connection, make sure the drain hole on the other side is well plugged. For 2.5kW & 3.5kW models, if choosing left-hand or left-back piping, please choosing left side drainage connection. The connection of the drain pipe hose must be connected by a qualified installer in accordance with these instructions to prevent leakage.

3. Attach the drain hose to the underside of the refrigerant pipes with adhesive vinyl tape.
4. Bundle the pipes, connecting cable, and drain hose with tape securely, evenly as shown in Fig. 4.
5. Pass them through the wall hole.
6. Ensure that the drain hose has a continual downward fall from the indoor side to the outdoor side to ensure the water flows out smoothly. Failure to do this can result in water gathering in and leaking from the indoor unit.



caution

- Do not put anything inside the condensate drain pan (refer to figure 5), as this space is required to collect the condensate prior to draining out of the indoor unit.

Fig. 3

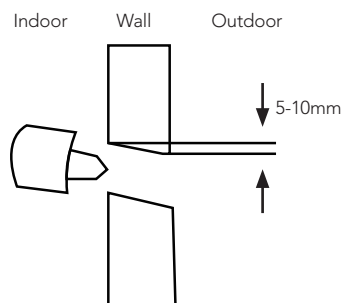


Fig. 4

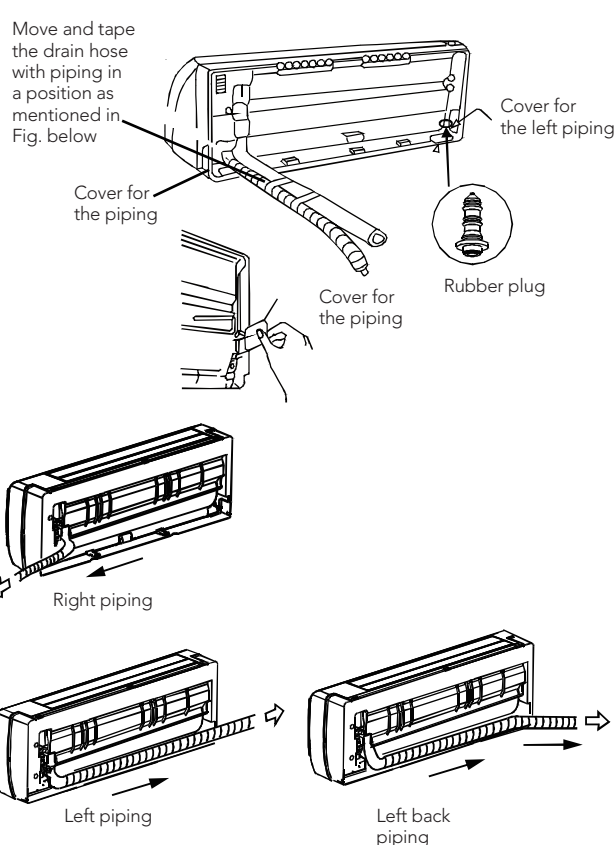
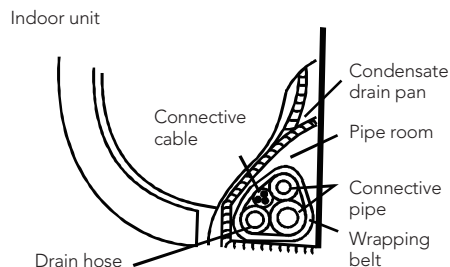


Fig. 5

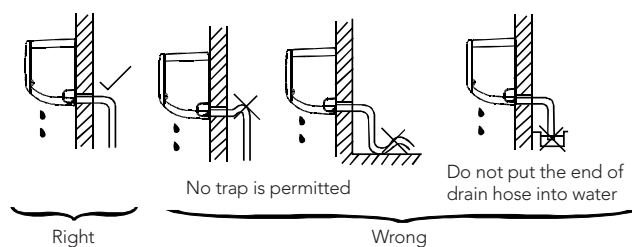


Indoor unit installation

Drain piping

1. Run the drain hose as shown in figure 6, ensuring it has a constant downward fall.
2. The installer must supply a suitable drain hose extension to run from the indoor unit drain hose to the desired drain location. The drain hose extension should be fitted and sealed tightly with the indoor unit drain hose, and secured in place with vinyl tape. Ensure that the drain hose extension also has a continual downward fall with an air gap at the bottom, and is drained to a suitable location which will not cause damage to people or property.
3. Remove the air filter and pour some water into the drain pan to check the water flows smoothly.

Fig 6.



Connect the cable to the indoor unit



Electrical installation must be completed by suitably qualified electrician

Electric safety regulations for the initial installation

1. If there is serious safety problem about the power supply, the technician should refuse to install the air conditioner and explain to the client until the problem is solved.
2. Power voltage should be in the range of 90%–110% of rated voltage.
3. The surge protector and main power switch with a 1.5 times capacity of maximum. Current of the unit should be installed in power circuit. Ensure the air conditioner is grounded well.
4. The appliance shall be installed in accordance with national wiring regulations.
5. An all-pole disconnection device which has at least 3mm clearances in all poles, the residual current device (RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules. Refer to the table for recommended circuit breaker rating for normal installation, however national and local wiring regulations will prevail.
7. According to the attached electrical connection diagram located on the panel of the indoor and outdoor unit to connect the wire.
8. All wiring must comply with local and national electrical codes and be installed by qualified and skilled electricians.
9. Every wire must be connected firmly. No wire should be allowed to touch refrigerant tubing, the compressor, or any moving parts.
10. Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Therefore, be sure all wiring is tightly connected.
11. This air conditioner may need to be installed on its own separate circuit, please refer to AS/NZS 3000 and local wiring regulations for requirements.
12. For this air conditioner, the main power supply is fed to the outdoor unit terminal block, ensure that the main power supply wires running to the outdoor unit can carry the full current of the air conditioner, which is stated on the rating label, according to national wiring regulations. The power and signal cable that connects from outdoor unit to indoor unit do not carry the full compressor current, therefore 1.0mm² (or larger) is suitable for this application.

Indoor unit installation

Recommended circuit breaker rating

Model	Circuit breaker rating (Amps)
KSV25CRH, KSV25HRH, KSD25HRH	15
KSV35CRH, KSV35HRH, KSD35HRH	15
KSV50HRH, KSD50HRH,	20
KSV71CRH, KSV71HRH, KSD71HRH	25
KSV90HRH, KSD90HRH,	25

NOTE: The wire size of power supply cord and interconnected wire and the current of the fuse or switch are determined by the maximum current indicated on the nameplate which located on the side panel of the unit. Please refer to the nameplate before selecting the wire size, fuse or switch.

important

Take note of fuse specifications

The air conditioners circuit board (PCB) is designed with a fuse to provide over current protection. The specifications of the fuse are printed on the circuit board, such as:

Indoor unit: T3.15A/250VAC, T5A/250VAC (applicable for unit adopts R32 refrigerant).

Outdoor unit: T20A/250VAC (for < 5.0kW unit), T30A/250VAC (for > 5.0kW unit)

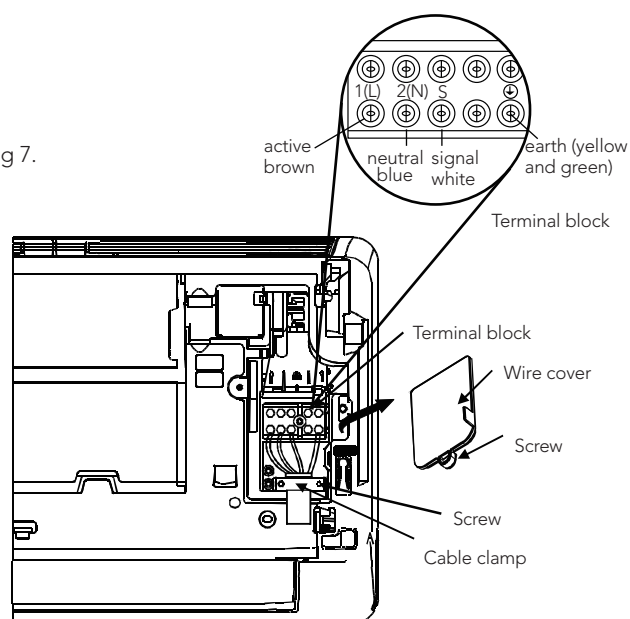
NOTE: Ceramic body fuse.

Connect the cable to the indoor unit

NOTE: Before performing any electrical work, turn off the main power to the system.

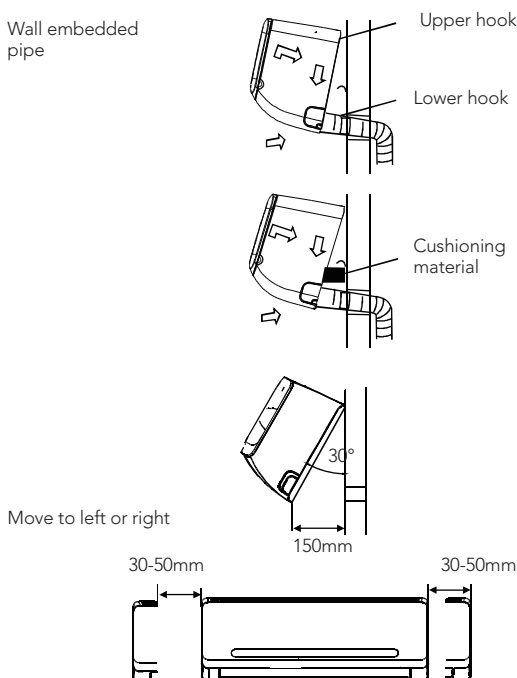
1. Use suitably rated power cable to connect to the indoor unit. Note the main power supply goes to the outdoor unit and the indoor unit does not carry full compressor current, therefore 1mm² (or larger) wire is suitable for connecting between indoor unit and outdoor unit accordingly.
2. Lift the indoor unit panel up, remove the wire box cover by loosening the screw.
3. Feed in the active, neutral, earth and signal wires from the outside until the wires are visible in the indoor unit terminal block area.
4. Remove the cable clamp. Match wire colours with terminal numbers on indoor and outdoor unit terminal blocks and firmly screw wires to the corresponding terminals. It is recommended to use the following wire colour sequence:
1(L) = Brown;
2(N) = Blue;
S = White;
(Earth) = Yellow & Green.
5. Connect the end of the connection cable fully inserting into the terminal block. Tighten the terminal block screws, then gently pull on the wires to confirm they are securely attached.
6. Fasten the connection cable with a cable clamp.
7. Re-fit the wire box cover and secure with the screw, then close the indoor unit cover.

Fig 7.



1. Use vinyl tape to tape the power cables to the drain pipe and hose assembly with drain hose at the bottom.
2. Carefully pass the piping and wiring assembly through the hole, taking care to ensure that no pipe or cable touches any sharp edge within the cut wall.
3. Hook the indoor unit onto the upper portion of installation plate (Engage the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving it in left and right.
4. Piping can easily be made by lifting the indoor unit with a cushioning material between the indoor unit and the wall. Get it out after finish piping. When use a wall embedded pipe, the indoor unit can be moved to the left or right for 30–50mm (model dependent), which offers sufficient space to arrange the pipes and ensure the indoor unit fully close to the wall after installation.
5. Press the lower left and right side of the unit against the installation plate until hooks engages with the their slots.

Fig 8.

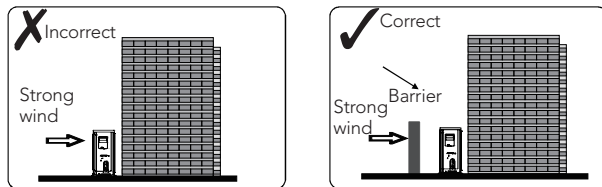


Outdoor unit installation

caution

- Install the outdoor unit on a rigid base to prevent excessive noise level and vibration.
- Choose an outdoor unit location where the air outlet direction is not blocked, and the clearances as per the assembly diagram (figure 1) are followed.
- In the case that the installation location is exposed to strong wind such as a seaside, make sure the fan can operate properly by putting the unit lengthwise along the wall or using a dust or shield plates. If installing on a wall bracket, the installer must supply a suitable mounting bracket that can hold the full weight of the product, use suitable fixings to attach to the wall and must follow the installation instructions of the wall bracket accordingly.
- The installation wall should be solid brick, concrete or the same intensity construction, or take actions to reinforce, support and add vibration dampening material as required. The connection between the wall, bracket and the air conditioner should be firm, stable and reliable.
- Be sure there is no obstacle which blocks the air flow.

Fig. 9



Location of outdoor unit

- Anchor the outdoor unit with a 8 or 10 diameter bolt and nut tightly and horizontally on a concrete or rigid mount.

Model	Outdoor unit dimensions W x H x D (mm)	Outdoor unit weight (kg)	Dimensions A (mm)	Dimensions B (mm)
KSV25CRH KSV25HRH KSD25HRH KSV35CRH KSV35HRH KSD35HRH	885 x 554 x 365	32.5	514	340
KSV50HRH KSD50HRH	924 x 702 x 382	42.1	540	350
KSV71CRH KSV71HRH KSD71HRH	924 x 702 x 382	52.5	540	350
KSV90HRH KSD90HRH	1040 x 810 x 455	64.5	673	403

Drain elbow installation

NOTE: The drain elbow is slightly different according to the different outdoor unit. For the drain elbow with the seal (Fig.11 (A)), first fit the seal onto the drain elbow, then insert the drain elbow into the base pan hole of outdoor unit, rotate 90 to securely assemble them. To install drain elbow as shown in Fig.11 (B), insert the drain elbow into the base pan hole of outdoor unit until it remains fixed with a clicking sound.

The installer may supply and connect a drain hose to the drain elbow to direct the condensed water to a suitable location that will not cause damage to people or property."

In cold areas that can drop below 0°C, it is not recommended to install a drain hose as it may be subject to freezing

Fig. 10

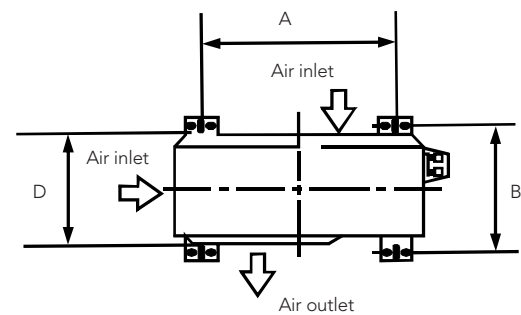
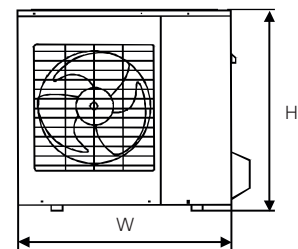
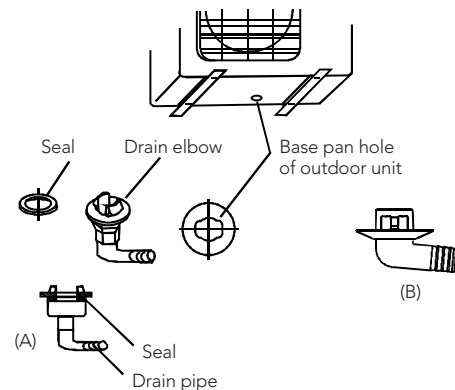


Fig. 11



Outdoor unit installation

Refrigerant pipe connection

NOTE:

- The connectors used to join the indoor and outdoor refrigeration pipes must be located outside. They cannot be located inside or within a wall cavity where refrigerant may build up in the case of a leak.
- Refrigeration pipe length will affect the capacity and energy efficiency of the unit. The nominal efficiency is tested based on the pipe length of 5 meters.
- If the installation requires pipe length greater than the standard 5m, then add additional refrigerant according to the below table, which also indicates the maximum pipe length and maximum height difference between indoor and outdoor units.
- Please also refer to the below table for discharge and suction pipe diameter.

Model	Discharge pipe diameter	Suction pipe diameter	Standard length (m)	Maximum length (m)	Maximum height (m)	Additional refrigerant (g/m)
KSV25CRH KSV25HRH KSD25HRH	ø 6.35 (1/4")	ø 9.52 (3/8")	5	25	10	15
KSV35CRH KSV35HRH KSD35HRH	ø 6.35 (1/4")	ø 12.7 (1/2")	5	25	10	15
KSV50HRH KSD50HRH	ø 6.35 (1/4")	ø 12.7 (1/2")	5	30	20	15
KSV71CRH KSV71HRH KSD71HRH	ø 9.52 (3/8")	ø 15.9 (5/8")	5	50	25	30
KSV90HRH KSD90HRH	ø 9.52 (3/8")	ø 15.9 (5/8")	5	50	25	30

Outdoor unit installation

Flaring work

important

For installer

It is critical that the installer follows the correct flaring procedure using the right tools to produce good quality flares in order to ensure installation without refrigerant gas leaks.

Service calls caused by poor installation are the responsibility of the installer, and these service calls will be referred back to the installer accordingly.

Please take care to make the flare connection carefully and test for refrigerant leaks before commissioning the air conditioner.

Main cause for refrigerant leakage is due to defect in the flaring work. Carry out correct flaring work using the following procedure:

Cut the pipes and the cable

1. Purchase the appropriate pipe size locally according to the table on page 11.
2. Measure the distance between the indoor and the outdoor unit.
3. Cut the pipes a little longer than the measured distance.
4. Cut the cable 1.5m longer than the pipe length.
5. Cut pipes must follow the requirements shown in figure 12.

Burr removal

1. Completely remove all burrs from the cut cross section of the pipe.
2. Put the end of the copper pipe in a downward direction as you remove burrs in order to avoid dropping burrs into the the pipe, as shown in figure 13.



caution

Putting nut on

Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal (not possible to put them on after flaring work).

Flaring work

Carry out flaring work using a flaring tool as shown in figure 15, and ensure dimension A is maintained within the tolerance as indicated in the table below.

Outer diameter (mm)	Dimension A (mm) as per fig. 15	
	Max.	Min.
ø 6.35 (1/4")	1.3	0.7
ø 9.52 (3/8")	1.6	1.0
ø 12.7 (1/2")	1.8	1.0
ø 15.9 (5/8")	2.4	2.2

Fig. 12

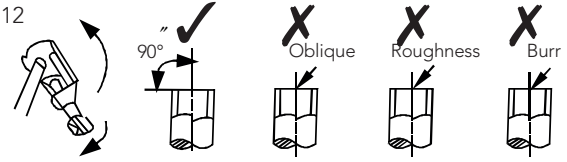


Fig. 13

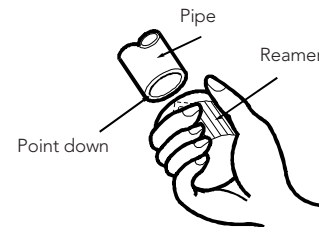
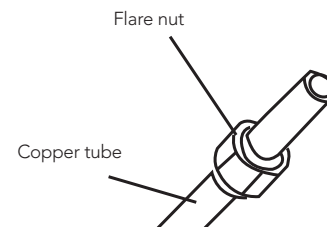


Fig. 14



Checking flare work

Compare the flare work with the adjacent diagram. If the pipe has any defect, cut off the flared section and redo the flare until it meets the requirements.

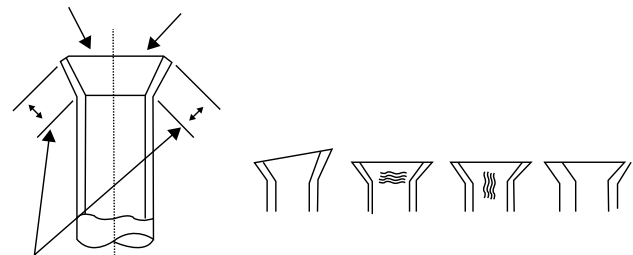
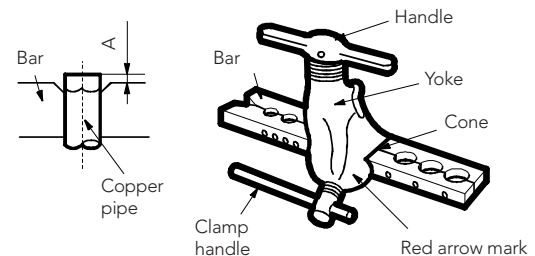


Fig. 15



Outdoor unit installation

Tightening Connection

- Align the center of the pipes.
- Sufficiently tighten the flare nut with fingers, and then tighten it with a spanner and torque wrench as shown in Fig.16 & 17.

Outer diameter (mm)	Torque (Nm)
ø 6.35 (1/4")	15-20
ø 9.52 (3/8")	35-40
ø 12.7 (1/2")	50-55
ø 15.9 (5/8")	60-65

caution

- Excessive torque can break the nut or flared pipe and cause a leak, and too low torque can also cause a leak. Follow the specified torque and use a torque wrench as required.
- When flared joints are reused, the flare part shall be re-fabricated.
- Neatly run the refrigeration pipe from the indoor unit connection to the outdoor unit suction and discharge connections. Follow the same flaring procedure outlined above to flare and connect the suction and discharge pipes to the outdoor unit accordingly.

Insulating the pipes

Wrap suitable insulation material (supplied by the installer) separately around each individual refrigeration pipe, the suction and discharge pipes must not be in direct contact. Ensure that the flare connections are covered, then wrap the insulated pipes with vinyl tape.

Attach the interconnecting electrical cable and drain pipe to the pipe assembly with narrow vinyl tape, then wrap the whole assembly with wide vinyl tape starting from top to bottom, as pictured in the diagram below.

Finally plug the hole in the wall using gum type sealer.

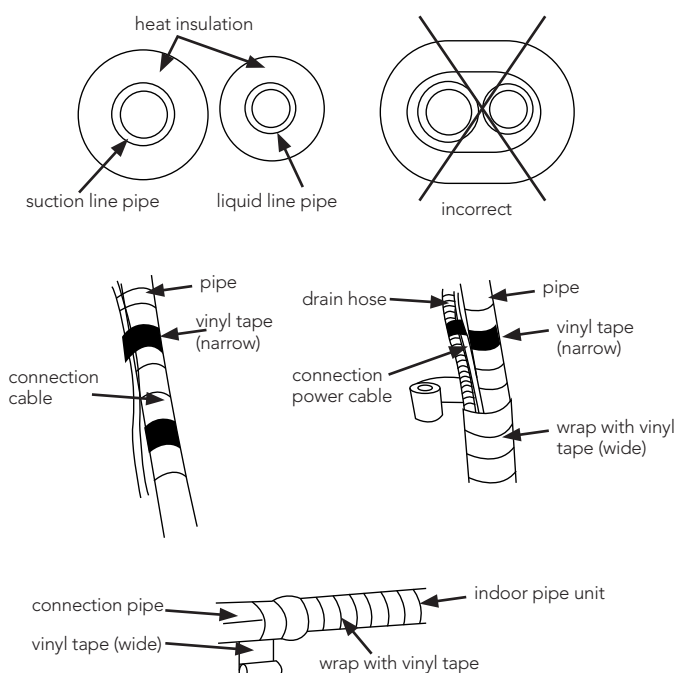


Fig. 16

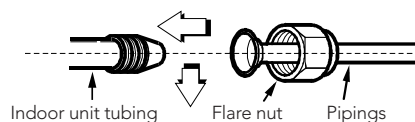
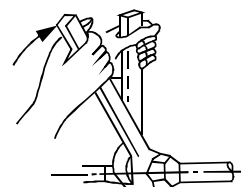


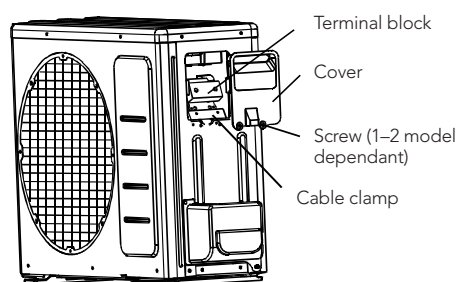
Fig. 17



Outdoor unit electrical connection

- Check that power supply to the air conditioner circuit is off
- Confirm that power cable with suitable rating for the air conditioner current rating has been run from the circuit breaker to the isolation switch, according to AS/NZS 3000 & local wiring rules.
- Run power supply cable from the isolation switch to the outdoor unit terminal block area. Also run the interconnecting cables from the indoor unit to the outdoor unit terminal block area. All exposed power cables must be protected, for example in conduit.
- Remove the terminal block cover and loosen the cable clamp as shown in figure 18.

Fig. 18



- Connect the interconnecting cable from the indoor unit to the terminal block following the below wiring diagram, ensuring that the colours match between indoor unit and outdoor unit.
- Connect the main power supply cables from the isolation switch to the outdoor unit terminal block following the wiring diagram.
- Ensure that the terminal block screws are secure by gently pulling the wires.
- Fit the cable clamp over the incoming wires to protect from strain, then fit the cover and fix in place with the screw.

Outdoor unit installation

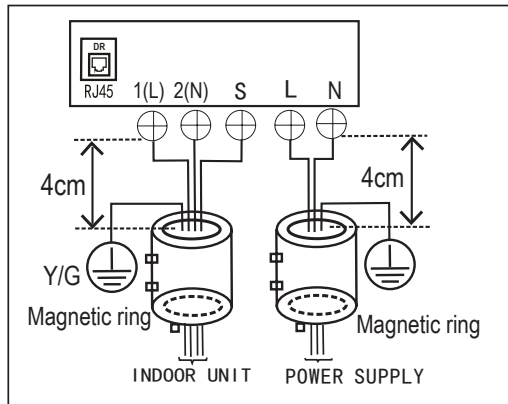
Magnetic ring installation

Please note that different models are supplied with a different combination of magnetic rings that must be installed by a licensed electrician. These magnetic rings (if required) help to minimise electro magnetic interference, which if not installed correctly may impact television and radio operation.

The installer must install the magnetic rings inside the outdoor unit electrical cover by clipping around the wires (as explained below) located approximately 4cm from the terminal block and securing in place with a cable ties.

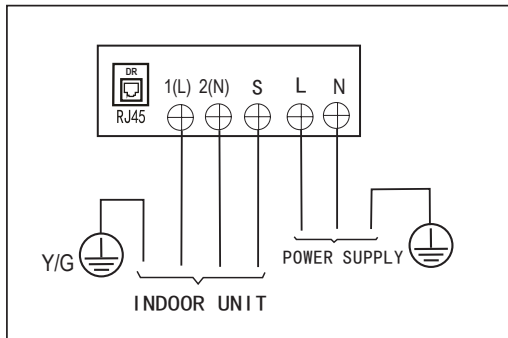
Models KSV50HRH, KSD50HRH, KSV71CRH, KSV71HRH & KSD71HRH are supplied with two magnetic rings that must be clipped around both the power supply in wires (L, N & Earth) and the interconnecting wires (1(L), 2(N), S & Earth) leading to the indoor unit.

Fig. 19a



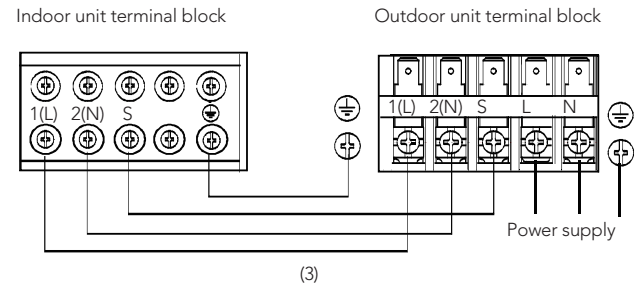
Models KSV25CRH, KSV25HRH, KSD25HRH, KSV35CRH, KSV35HRH, KSD35HRH, KSV90HRH & KSD90HRH do not require magnetic rings to be fitted.

Fig. 19b



Electrical connection

Wiring diagram



Key:

1(L) = Live (Brown)

2(N) = Neutral (Blue)

S = Signal (White)

⊕ = Earth (Yellow & Green)

Installation of DRED network cable

The following models are equipped with a RJ45 Demand Response connection socket to facilitate demand response control by your electricity provider:

KSD25HRH, KSD35HRH, KSD50HRH, KSD71HRH, KSD90HRH,

Please refer to your electricity provider for more information about DRED.

The DRED socket is located inside the outdoor unit near the terminal block, and is labelled "DR", refer to figure 19.

Connect the demand response cable into the DRED socket labelled DR, ensure that a click is heard to confirm it has locked into place.

Secure the demand response cable in the cable clamp, then fit the terminal block cover and secure with screws.

Test running

Air purging

Air and other foreign matter in the refrigerant circuit causes abnormal pressure rise, which may result in equipment damage and even injury. Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any non condensable and moisture from the system.

NOTE: Any brazed connections must be completed before evacuation and prior to release of any refrigerant into the refrigeration system. Low temperature solder must not be used.

Air purging with vacuum pump

- Preparation
Check that each tube (both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Note that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.
- Pipe length and refrigerant amount:

Model	Standard length (m)	Maximum length (m)	Maximum height (m)	Additional refrigerant (g/m)
KSV25CRH KSV25HRH KSD25HRH	5	25	10	15
KSV35CRH KSV35HRH KSD35HRH	5	25	10	15
KSV50HRH KSD50HRH	5	30	20	15
KSV71CRH KSV71HRH KSD71HRH	5	50	25	30
KSV90HRH KSD90HRH	5	50	25	30

Minimum length: 3m

Additional refrigerant required for pipe length greater than standard 5m installation can be calculated using the following equation:

$$M = (L - 5) \times A$$

Where:

M = Mass of additional refrigerant (g)

L = Actual installed connecting pipe length (m)

A = Additional refrigerant required per meter of connecting pipe (g/m) (refer to the above table)



caution

R32 is a mildly flammable refrigerant. Make sure that the area has been made safe by having suitable ventilation and is free from ignition sources before charging or releasing the charge of R32.



warning

If additional refrigerant charge is added, please check the minimum indoor room size for the complete air conditioner R32 charge has been checked and complied with against the requirements of AS/NZS 60335.2.40

Outdoor unit installation

- Make sure the refrigerant added into the air conditioner is **liquid** form.

Caution in handling the service valve

- To open the service valve, remove the cap then open the valve stem using an Allen key until it hits the stopper, do not try to open it further.
- To close the service valve, securely tighten the valve stem using an Allen key, then fit and tighten the cap with a spanner.

When Using the Vacuum Pump

(For method of using a manifold valve, refer to its operation manual.)

- Completely tighten the flare nuts, A, B, C, D, connect the manifold valve charge hose to a charge port of the low-pressure valve on the gas pipe side.
- Connect the charge hose connection to the vacuum pump.
- Fully open the handle Lo of the manifold valve.
- Operate the vacuum pump to evacuate. After starting evacuation, slightly loose the flare nut of the Lo valve on the gas pipe side and check that the air is entering (Operation noise of the vacuum pump changes and a compound meter indicates 0 instead of minus). Then retighten the flare nut.
- Keep the vacuum pump running for more than 15 minutes and make sure the pressure reading is -76cm.Hg or lower. Now fully close the low handle of the manifold valve and stop the operation of the vacuum pump.
- Turn the stem of the packed valve B about 45 counterclockwise for 6-7 seconds after the gas coming out, then tighten the flare nut again. Make sure the pressure display in the pressure indicator is a little higher than the atmosphere pressure.
- Remove the charge hose from the Low pressure charge hose.
- Fully open the service valve stems B and A.
- Securely tighten the cap of the service valve.

Fig. 20

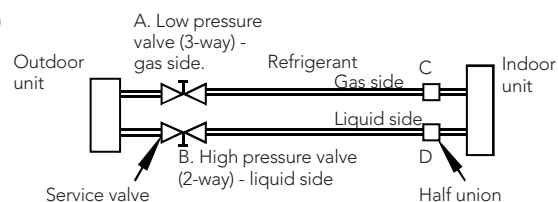
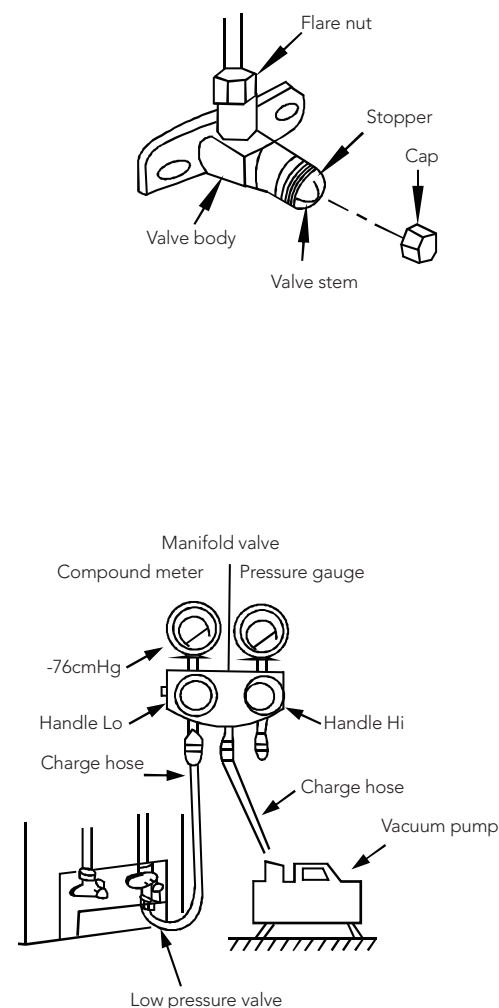


Fig. 21



Electrical and gas leak check

Electrical safety check

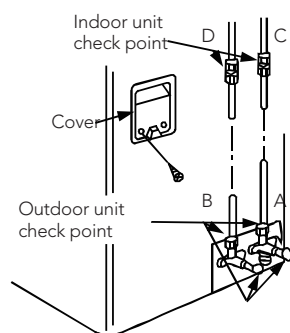
Perform the electric safe check after completing installation:

1. Earth connection - Check the earth connection visually and with a multi meter following national wiring rules to confirm good earth connection of both the indoor unit and the outdoor unit.
2. Earth leakage test - While the unit is running, conduct earth leakage test with a multi meter. If high leakage current is detected immediately switch off the unit and solve the problem before proceeding. Follow earth leakage test procedure as per national wiring rules.

Gas leak check

1. Soap water method: Apply a soap water or a liquid neutral detergent on the indoor unit connections and outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, it indicates that the pipes have leakage.
2. Leak detector method: Use a leak detector to check near connections A, B, C & D for refrigerant leakage.

Fig. 22



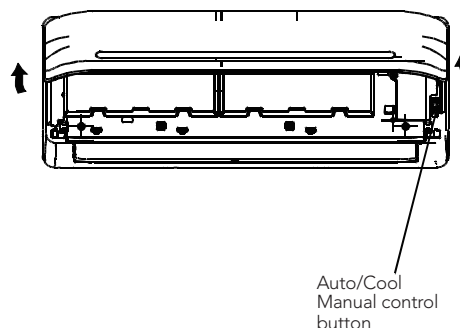
Operation test

After confirming the electrical safety has passed and confirmed there are no gas leaks, follow the below steps to complete an operation test:

Check that all tubing and wiring have been properly connected.

Check that the gas and liquid side service valves are fully open.

1. Connect the power, press the ON/OFF button on the remote controller to turn the unit on.
2. Use the MODE button to select COOL, HEAT, AUTO and FAN to check if all the functions work well.
3. When the ambient temperature is too low (lower than 17°C), the unit cannot be controlled by the remote controller to run in cooling mode. Force the unit into cooling mode by using the manual control button on the indoor unit as per below.
 - Hold the panel sides and lift the panel up to an angle until it remains fixed with a clicking sound.
 - Pressing the button once will put the unit into AUTO mode, and the unit will automatically select heating or cooling based on the ambient room conditions. Pressing the button twice within 5 seconds will put the air conditioner into forced cooling mode and "FC" will be shown on the display. After about 30 minutes operation in forced cooling mode, the air conditioner will switch to AUTO mode and "FC" will be replaced with AUTO mode set temperature of "24" on the display. Pressing the button again while the air conditioner is operating will switch off the air conditioner.
4. The test operation should last about 30 minutes.



Information servicing

Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the work space shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. no sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO₂ fire extinguisher adjacent to the charging area.

No ignition sources

No person carrying out work in relation to a refrigeration system which involves exposing any pipe work that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which flammable refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. NO SMOKING signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigeration equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt consult the manufacturer's technical department for assistance.

- The following checks shall be applied to installations using flammable refrigerants: the charge size is in accordance with the room size within which the refrigerant containing parts are installed;
- The ventilation machinery and outlets are operating adequately and are not obstructed;
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant; marking to the equipment continues to be visible and legible.
- Markings and signs that are illegible shall be corrected; refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- That capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- That there is no live electrical components and wiring are exposed while charging, recovering or purging the system;
- That there is continuity of earth bonding.

Information servicing

Repairs to sealed components

1. During repairs to sealed components, all electrical supplies shall be disconnected from the equipment being worked upon prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to equipment during servicing, then a permanently operating form of leak detection shall be located at the most critical point to warn of a potentially hazardous situation.
2. Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This shall include damage to cables, excessive number of connections, terminals not made to original specification, damage to seals, incorrect fitting of glands, etc.
 - Ensure that apparatus is mounted securely.
 - Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

NOTE: The use of silicon sealant may inhibit the effectiveness of some types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

Repair to intrinsically safe components

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use. Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating. Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Leak detection methods

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants. Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25 % maximum) is confirmed. Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work. If a leak is suspected, all naked flames shall be removed or extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

Removal and evacuation

When breaking into the refrigerant circuit to make repairs or for any other purpose conventional procedures shall be used. However, it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to

- Remove refrigerant;
- Purge the circuit with inert gas;
- Evacuate;
- Purge again with inert gas;
- Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. The system shall be flushed with OFN to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for this task. Flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place. Ensure that the outlet for the vacuum pump is not close to any ignition sources and there is ventilation available.

Information servicing

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.
- Prior to recharging the system it shall be pressure tested with OFN. The system shall be leak tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken.

In case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

- a) Become familiar with the equipment and its operation.
- b) Isolate system electrically.
- c) Before attempting the procedure ensure that:
 - Mechanical handling equipment is available, if required, for handling refrigerant cylinders;
 - All personal protective equipment is available and being used correctly; the recovery process is supervised at
 - All times by a competent person.
 - Recovery equipment and cylinders conform to the appropriate standards.
- d) Pump down refrigerant system, if possible.
- e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- f) Make sure that cylinder is situated on the scales before recovery takes place.
- g) Start the recovery machine and operate in accordance with manufacturer's instructions.
- h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
- i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
- j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

- k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct numbers of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure relief valve and associated shut-off valves in good working order.
- Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery inflammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order.
- Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders. If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Transportation, marking and storage for units

1. Transport of equipment containing flammable refrigerants compliance with the transport regulations.
2. Marking of equipment using signs compliance with local regulations.
3. Disposal of equipment using flammable refrigerants Compliance with national regulations.
4. Storage of equipment/appliances The storage of equipment should be in accordance with the manufacturers instructions.
5. Storage of packed (unsold) equipment Storage package protection should be constructed such that mechanical damage to the equipment inside the package will not cause a leak of the refrigerant charge. The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

Notes

[illegible]

Notes

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal grey lines across the entire width of the page, providing a guide for handwriting or typing. The background is a solid off-white color.



FOR SALES IN AUSTRALIA AND NEW ZEALAND
APPLIANCE: KELVINATOR SPLIT SYSTEM AIR CONDITIONER

This document sets out the terms and conditions of the product warranties for Kelvinator Appliances. It is an important document. Please keep it with your proof of purchase documents in a safe place for future reference should there be a manufacturing defect in your Appliance. This warranty is in addition to other rights you may have under the Australian Consumer Law.

1. In this warranty:

- (a) 'ACL' or 'Australian Consumer Law' means Schedule 2 to the Competition and Consumer Act 2010;
- (b) 'Appliance' means any Electrolux product purchased by you and accompanied by this document;
- (c) 'ASC' means Electrolux's authorised serviced centres;
- (d) 'Kelvinator' is the brand controlled by Electrolux Home Products Pty Ltd of 163 O'Riordan Street, Mascot NSW 2020, ABN 51 004 762 341 in respect of Appliances purchased in Australia and Electrolux (NZ) Limited (collectively "Electrolux") of 3-5 Niall Burgess Road, Mount Wellington, in respect of Appliances purchased in New Zealand;
- (e) 'Warranty Condition' means:
 - (i) evidence by the customer that the Appliance was installed by a licensed air conditioner installer and in accordance with Electrolux installation guidelines as set out in the installation manual;
 - (ii) the Appliance rating is correct for the size and thermal characteristics of the room;
 - (iii) the Appliance has been regularly maintained in accordance with Electrolux guidelines as set out in the user manual;
 - (iv) the Appliance is designed for providing human comfort and should be used under ambient conditions as set out in the product specifications and general air quality conditions.
- (f) 'Warranty Period' means the period specified in clause 3 of this warranty;
- (g) 'you' means the purchaser of the Appliance not having purchased the Appliance for re-sale, and 'your' has a corresponding meaning.

2. Application: This warranty only applies to new Appliances, purchased and used in Australia or New Zealand and is in addition to (and does not exclude, restrict, or modify in any way) other rights and remedies under a law to which the Appliances or services relate, including any non-excludable statutory guarantees in Australia and New Zealand.

3. Warranty Period: Subject to these terms and conditions, this warranty continues for in Australia for a period of 60 months and in New Zealand for a period of 60 months, following the date of original purchase of the Appliance.

4. Repair or replace warranty: During the Warranty Period, Electrolux or its ASC will, at no extra charge if your Appliance is readily accessible for service, without special equipment and subject to these terms and conditions, repair or replace any parts which it considers to be defective. Electrolux may, in its absolute discretion, choose whether the remedy offered for a valid warranty claim is repair or replacement. Electrolux or its ASC may use refurbished parts to repair your Appliance. You agree that any replaced Appliances or parts become the property of Electrolux.

5. Travel and transportation costs: Subject to clause 7, Electrolux will bear the reasonable cost of transportation, travel and delivery of the Appliance to and from Electrolux or its ASC. Travel and transportation will be arranged by Electrolux as part of any valid warranty claim.

6. Proof of purchase is required before you can make a claim under this warranty.

7. Exclusions: You may not make a claim under this warranty unless the defect claimed is due to faulty or defective parts or workmanship. This warranty does not cover:

- (a) light globes, batteries, filters or similar perishable parts;
- (b) parts and Appliances not supplied by Electrolux;
- (c) cosmetic damage which does not affect the operation of the Appliance;
- (d) damage to the Appliance caused by:
 - (i) negligence or accident;
 - (ii) misuse or abuse, including failure to properly maintain or service;
 - (iii) improper, negligent or faulty servicing or repair works done by anyone other than an Electrolux authorised repairer or ASC;
 - (iv) normal wear and tear;
 - (v) power surges, electrical storm damage or incorrect power supply;
 - (vi) incomplete or improper installation;
 - (vii) incorrect, improper or inappropriate operation;
 - (viii) insect or vermin infestation;
 - (ix) failure to comply with any additional instructions supplied with the Appliance; and
 - (x) a breach of the Warranty Conditions.

In addition, Electrolux is not liable under this warranty if:

- (a) the Appliance has been, or Electrolux reasonably believes that the Appliance has been, used for purposes other than those for which the Appliance was intended, including where the Appliance has been used for any non-domestic purpose;
- (b) the Appliance is modified without authority from Electrolux in writing;
- (c) the Appliance's serial number or warranty seal has been removed or defaced.

8. How to claim under this warranty: To enquire about claiming under this warranty, please follow these steps:

- (a) carefully check the operating instructions, user manual and the terms of this warranty;
- (b) have the model and serial number of the Appliance available;
- (c) have the proof of purchase (e.g. an invoice) available;
- (d) telephone the numbers shown below.

9. Australia: For Appliances and services provided by Electrolux in Australia: Electrolux goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the Appliance repaired or replaced if the Appliance fails to be of acceptable quality and the failure does not amount to a major failure. 'Acceptable quality' and 'major failure' have the same meaning as referred to in the ACL.

10. New Zealand: For Appliances and services provided by Electrolux in New Zealand, the Appliances come with a guarantee by Electrolux pursuant to the provisions of the Consumer Guarantees Act, the Sale of Goods Act and the Fair Trading Act. Where the Appliance was purchased in New Zealand for commercial purposes the Consumer Guarantee Act does not apply.

11. Confidentiality: You accept that if you make a warranty claim, Electrolux and its agents including ASC may exchange information in relation to you to enable Electrolux to meet its obligations under this warranty.

Important Notice

Before calling for service, please ensure that the steps listed in clause 8 above have been followed.

FOR SERVICE or to find the address of your nearest authorised service centre in Australia PLEASE CALL 13 13 49 <small>For the cost of a local call (Australia only)</small>	AUSTRALIA ELECTROLUX HOME PRODUCTS 163 O'Riordan Street, Mascot NSW 2020 electrolux.com.au	FOR SPARE PARTS or to find the address of your nearest spare parts centre in Australia PLEASE CALL 13 13 50 <small>For the cost of a local call (Australia only)</small>
FOR SERVICE or to find the address of your nearest authorised service centre in New Zealand PLEASE CALL 0800 10 66 10 <small>(New Zealand only)</small>	NEW ZEALAND ELECTROLUX (NZ) Limited 3-5 Niall Burgess Road, Mount Wellington electrolux.co.nz	FOR SPARE PARTS or to find the address of your nearest spare parts centre in New Zealand PLEASE CALL 0800 10 66 20 <small>(New Zealand only)</small>

For more information on all Kelvinator appliances, or for dimension and installation information, call into your retailer, phone or email our customer care team or visit our website:

AUSTRALIA

phone: 1300 363 640

fax: 1800 350 067

email: customercare@electrolux.com.au

web: kelvinator.com.au

NEW ZEALAND

phone: 0800 436 245

fax: 0800 225 088

email: customercare@electrolux.co.nz

web: kelvinator.co.nz

Kelvinator. We are part of the Electrolux Family.
To add a touch of professional inspiration to
your home, visit electrolux.com.au