

Installation Instructions



Air Sourced 310 Heat Pump Module

*This water heater must be installed and serviced by a qualified person.
Please leave this guide with the householder.*

An electronic copy of these Installation Instructions can be downloaded from
rheem.com.au and rheem.co.nz.

PATENTS

This water heater may be protected by one or more patents or registered designs
in the name of Rheem Australia Pty Ltd.

TRADE MARKS

® Registered trademark of Rheem Australia Pty Ltd.
™ Trademark of Rheem Australia Pty Ltd.

Note: Every care has been taken to ensure accuracy in preparation of this publication.
No liability can be accepted for any consequences,
which may arise as a result of its application.

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HOUSEHOLDER – This installation instruction booklet is intended for the installer but you may find it of interest.

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INSTALLATION

INSTALLATION NOTES

These instructions cover only the installation of the heat pump module onto the storage tank and the connections made between the heat pump module and the storage tank. Refer to the installation instructions supplied with the storage tank for further information including:

- where and how to locate the heat pump water heater
- the dimensions of the heat pump water heater
- how to connect the heat pump water heater to the electricity supply and to the plumbing system
- how to operate the heat pump water heater
- what to do if something goes wrong.

Installation Standards

The water heater must be installed:

- by a qualified person,
- in accordance with the installation instructions,
- in compliance with the Plumbing Code of Australia (PCA) and Plumbing Standard AS/NZS 3500.4,
 - This water heater is designed for outdoor installation only.
 - Refer to **dimensions diagram** on page 12 for clearance requirements to provide adequate ventilation for the heat pump module.
- in compliance with the Wiring Rules AS/NZS 3000,
 - Electrical connections between the heat pump module and storage tank are made using mating connectors fitted to these components.
- in compliance with all local codes and regulatory authority requirements.
- in New Zealand also conforming to Clauses G12 and H1 of the New Zealand Building Code.

PURGING AIR FROM THE SYSTEM

The water heater system must be purged of air prior to operation, using the air bleed valve supplied on the heat pump module. Failure to bleed the air out of the pipe work within the heat pump module will result in non-operation of the circulator and failure of the heat pump to operate due to overheating.

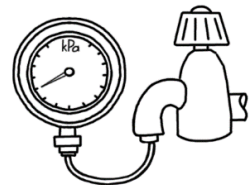
⚠ SAFETY AND WARNINGS

- This water heater is only intended to be operated by persons who have the experience or the knowledge and the capabilities to do so.
- This water heater is not intended to be operated by persons with reduced physical, sensory or mental capabilities i.e. the infirm, or by children. Children should be supervised to ensure they do not interfere with the water heater.
- This water heater uses 220 V - 240 V a.c. electrical power for operation of the control systems and the electrically operated components. The removal of the access cover(s) will expose 220 V - 240 V a.c. wiring. They must only be removed by a qualified person.
- The heat pump module will operate until a water temperature of 60°C is reached. If the ambient air temperature is outside of the heat pump's operating range and heating of water is required, a booster electric heating unit will heat the water temperature to 60°C.
- For continued safety of this water heater it must be installed, operated and maintained in accordance with the Owner's Guide and Installation Instructions supplied with the storage tank.
- Servicing of the water heater must only be carried out by qualified personnel. Phone Rheem Service or their nearest Accredited Service Agent / Centre.
- Ensure the air flow, air inlet louvres and outlet grille are not obstructed in any way at any time.
- Do not modify this water heater.

MAINS WATER SUPPLY

Where the mains water supply pressure exceeds that shown in the table below, an approved pressure limiting valve is required. Refer to the Owner's Guide and Installation Instructions supplied with the storage tank for the position of the pressure limiting valve.

Model	310
Temperature pressure relief valve setting	1000 kPa
Expansion control valve setting *	850 kPa
Maximum mains supply pressure	
With expansion control valve	680 kPa
Without expansion control valve	800 kPa
Minimum mains supply pressure	200 kPa



* Expansion control valve not supplied with the water heater.

A minimum water supply pressure of 200 kPa is required to enable the heat pump circulator and heat pump system to operate effectively.

TANK WATER SUPPLY

If the water heater is supplied with water from a tank supply and a minimum water supply pressure of 200 kPa at the water heater cannot be achieved, then a pressure pump system must be installed to allow the heat pump circulator to operate and avoid air locks in the circuit. Care must be taken to avoid air locks. The cold water line from the supply tank should be adequately sized and fitted with a full flow gate valve or ball valve.

WATER HEATER APPLICATION

This water heater is designed for use in a single family domestic dwelling for the purpose of heating potable water. Its use in an application other than this may shorten its life.


If this water heater is to be used where an uninterrupted hot water supply is necessary for the application or business, then there should be back-up redundancy within the hot water system design. This should ensure the continuity of hot water supply in the event that this water heater was to become inoperable for any reason. We recommend you provide advice to the system owner about their needs and building back-up redundancy into the hot water supply system.

The 551310 model water heater is recommended for connection to either a 24 hour continuous tariff or an extended off-peak (minimum 16 hours per day – replacement model and climate dependant) power supply. If replacing an electric water heater greater than 250 litres, heat pump connection to a 24 hour continuous tariff is recommended.

FREEZE PROTECTION

The water heater has a freeze protection system. The freeze protection system will protect the water heater from damage, by preventing ice forming in the waterways of the water heater, in the event of freezing conditions occurring.

If the water temperature at the heat pump heat exchanger falls below 3°C and the heat pump is not operating, the system will operate the circulator periodically. Water is circulated from the storage tank through the heat pump circuit, to prevent freezing in the connecting pipe work and heat pump module. During this freeze protection cycle, the circulator will operate for at least thirty (30) seconds, deactivating when the water temperature increases above 5°C.

 **Warning:** In areas where the ambient air temperature may fall below 4°C, power must be available to the water heater at all times to prevent freezing in the heat pump circuit.

The water heater has NO WARRANTY for freeze damage if power is unavailable at the water heater.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises are vacant, then:

- Switch off the electrical supply at the water heater isolating switch on the switchboard and at the isolating switch at the water heater.
- Close the cold water isolation valve at the inlet to the water heater.

Notes

- The freeze protection system will be rendered inoperable if electrical power is not available at the water heater.
- Damage caused by freezing due to the unavailability of power at the water heater is not covered by the manufacturer's warranty (refer to "[Terms Of The Warranty And Exclusions To It](#)" on page 31).
- If the power has been switched off to the water heater and there is a risk of freezing, then it is necessary to drain the water heater (refer to "Draining The Water Heater" section in the Owner's Guide and Installation Instructions supplied with the storage tank).

ENVIRONMENT

At the end of the service life of the heat pump water heater and prior to the water heater being disposed of, a person qualified to work with refrigerants must recover the refrigerant from within the sealed system. The refrigerant must not be vented to atmosphere. Phone your water heater Distributor or Accredited Service Agent to arrange for an inspection.

VICTORIAN CUSTOMERS

Notice to Victorian Customers from the Victorian Building Authority. This water heater must be installed by a licensed person as required by the Victorian Building Act 1993.

Only a licensed person will give you a Compliance Certificate, showing that the work complies with all the relevant Standards. Only a licensed person will have insurance protecting their workmanship for 6 years. Make sure you use a licensed person to install this water heater and ask for your Compliance Certificate.

STORAGE TANK AND HEAT PUMP MODULE

The heat pump water heater is made of two main components, the storage tank and the heat pump module. For transport and handling (weight) purposes both items are shipped separately and designed to be assembled at the installation site. The water heater must not be operated until both components are assembled. Refer to “[Heat Pump and Tank Assembly](#)” on page 10.

Care must be taken during transportation and handling. Do not tilt the heat pump module or the heat pump and storage tank assembly more than 45° from the vertical. This will unsettle the refrigerant gas and compressor lubricating oil. If the heat pump module or heat pump and storage tank assembly has been tilted more than 45° from the vertical during handling, it will need one hour to settle before the power to the water heater can be switched on, otherwise damage to the compressor may result.

All packaging materials must be removed from the heat pump module prior to its installation. This includes the removal of the cardboard base of the carton from the underside of the module. Take care when handling the heat pump module. The jacket of the heat pump module needs to be handled gently so as not to cause damage.

A clearance of at least 300 mm is required perpendicular from both the air inlet and outlet louvres to any wall or obstruction. Refer to the [dimensions diagram](#) on page 12.

The water heater must not be installed in an area with a corrosive atmosphere where chemicals are stored or where aerosol propellants are released. Remember the air may be safe to breathe, but the chemicals may attack the materials used in the heat pump system.

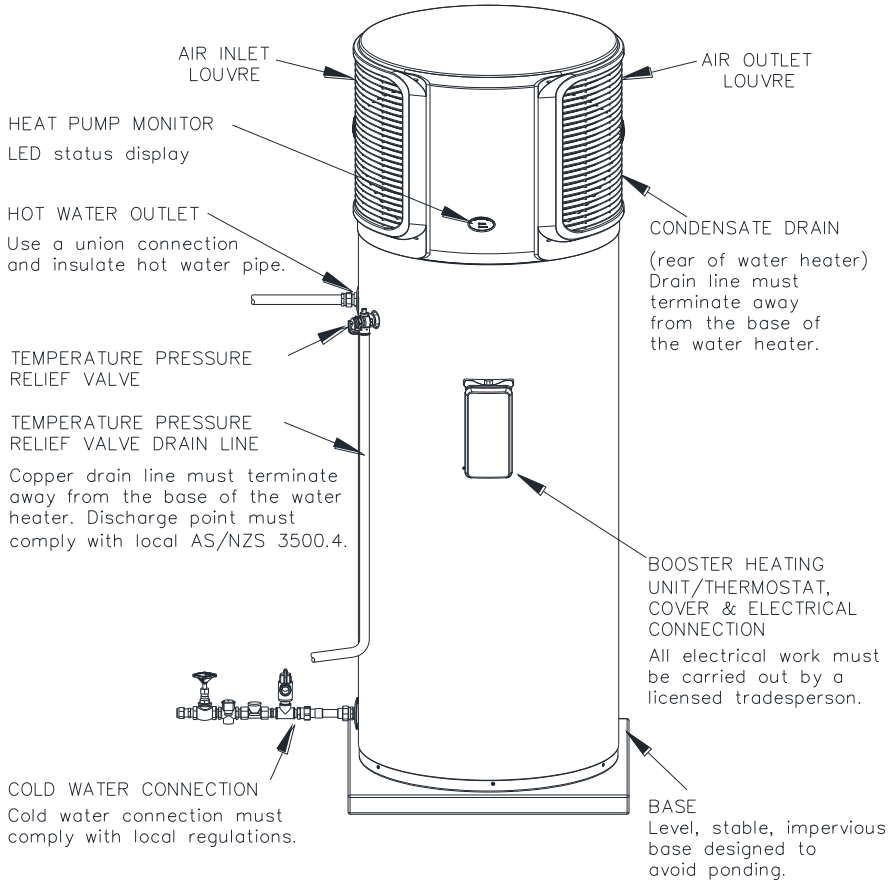
⚠ Warning: This heat pump module is designed to be installed with a purpose built water heater storage tank and may not be used for any other purpose.

CONDENSATE DRAIN

A drain line must be fitted to the condensate drain to carry the discharge clear of the water heater. The drain line can be extended using 13 mm rigid hose or conduit. The pipe work from condensate drain should be as short as possible, and fall all the way from the water heater with no restrictions. It should have no more than three right angle bends in it. The outlet of the drain line must be in such a position that flow out of the pipe can be easily seen - but arranged so water discharge will not cause damage or nuisance.

The condensate drain line must not be connected to the temperature pressure relief valve drain line but may discharge at the same point.

TYPICAL INSTALLATION – OUTDOOR LOCATION



TECHNICAL DATA

Maximum rated power input	3600 watts
Rated heat pump power input	1300 watts
Booster element rating	3600 watts
Refrigerant type	R134a
Refrigerant circuit pressure	3000 kPa
Heat pump module number	180532

Storage capacity	310 litres
Boost capacity	220 litres
Mass empty - total	147 kg
Storage tank	94 kg
Heat pump module	53 kg
Mass full - total	457 kg

Technical data is subject to change.

HEAT PUMP AND TANK ASSEMBLY

STORAGE TANK AND HEAT PUMP MODULE

The heat pump water heater is made of two main components, the storage tank and the heat pump module. For transport and handling (weight) purposes both items are shipped separately and designed to be assembled at the installation site. The water heater must not be operated until both components are assembled.

HEAT PUMP MODULE

The heat pump module is to be mounted on the top of the storage tank. It is designed so that it can be lifted to the top of the storage tank by two people. It is shipped in a box containing two lifting bars that are inserted into the heat pump module to facilitate lifting.

CAUTION: The heat pump module weighs approximately 53 kg. Use the lifting bars provided to lift and mount to the top of the storage tank. Good lifting practice should be followed.

There are two flexible hoses provided inside the heat pump module. The flexible hoses are to be fixed to the two water fittings on the top of the storage tank during the assembly procedure.

There are two connection points located on the control board behind the electrical cover in the heat pump module to which the power cable and tank sensor cable from the storage tank are connected during the assembly procedure.

STORAGE TANK

The storage tank must be fully supported by a stable base. The storage tank is designed to support the heat pump module.

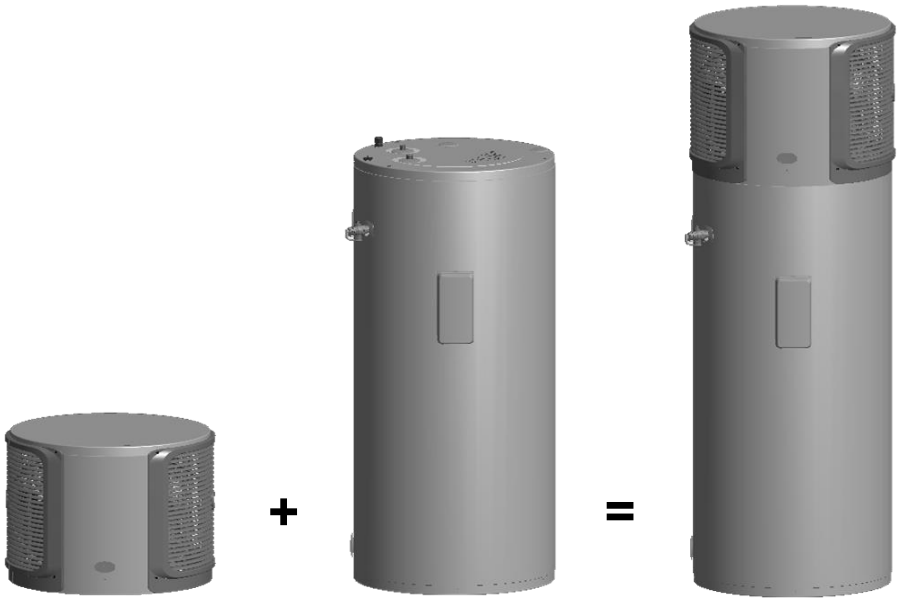
There are two water fittings located at the top of the storage tank to which flexible hoses from the heat pump module are connected during the assembly procedure.

A power cable and a tank sensor cable protrude from the top of the storage tank. These are to be connected to the control board behind the electrical cover in the heat pump module during the assembly procedure.

heat pump module

storage tank

heat pump water heater



ASSEMBLY PROCEDURE

⚠ Warning: The heat pump must be assembled, plumbed and filled with water prior to power being connected and switched on.

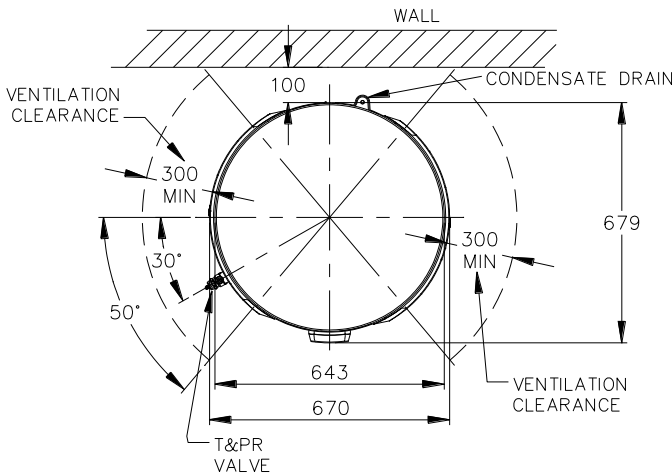
The following procedure should be followed to properly lift, place and connect the heat pump module onto the storage tank:

1. **Storage Tank:** Remove all packaging including the carton base from the storage tank and position in its intended location, supported by a stable base.

The water connections are on the left hand side and should be parallel to the wall, unless the water heater is to be installed in a manifolded bank of water heaters. If the water heater is installed in a manifolded bank of water heaters, refer to “Multiple Installations” in the Owner’s Guide and Installation Instructions supplied with the storage tank for information on the correct storage tank orientation.

The storage tank is to be positioned at least 100 mm from the wall and such that when the heat pump module is in position on top of the storage tank, there is a clearance of at least 300 mm perpendicular from both the air inlet and outlet louvres to any wall or obstruction.

- Ensure the power cable and tank sensor cable are hanging down the side of and not sitting on top of the storage tank before lifting the heat pump module into position.



Step 1
position storage tank at least 100 mm from the wall
and allow for at least 300 mm ventilation clearance

2. **Heat Pump Module:** Place the heat pump module in front of the storage tank and open the top flaps of the carton.

Two (2) lifting bars are housed in a recess in the cardboard layer on top of the heat pump module.

- Remove the lifting bars and set them aside.
- Remove the carton from the heat pump module.

Be aware the carton sides have flaps, which tuck under the carton base of the heat pump module.

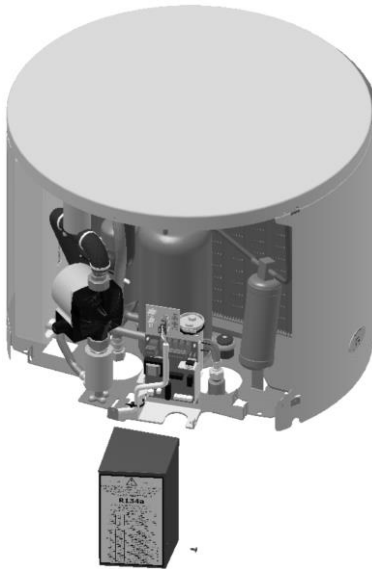
3. **Air Louvre Removal:** Using a Phillips head screw driver, remove the six (6) screws from each of the two air louvres (twelve (12) screws in total).

- Remove the louvres from the heat pump module.

4. **Electrical Cover:** Remove the mounting screw from the side of the electrical cover.

- Gently remove the cover.

The electrical cover needs to be handled gently so as not to damage the electronic controls located behind the electrical cover.

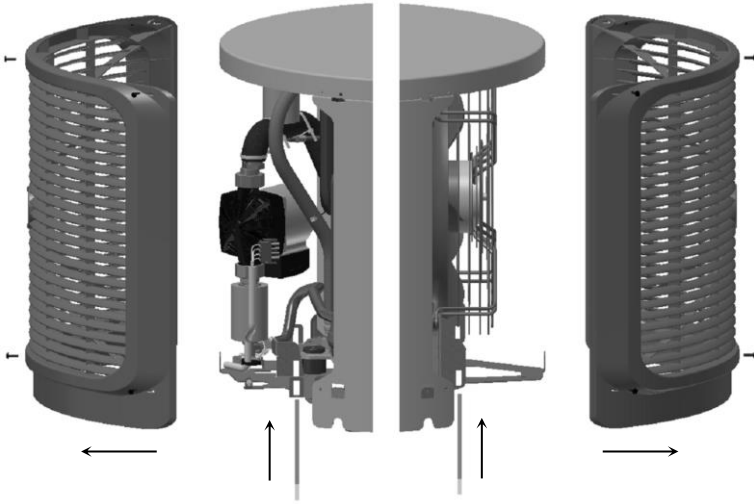


Step 4
remove electrical cover

5. **Lifting Bars:** Insert the two (2) lifting bars into the slots at the front of the heat pump module chassis and carefully push through to engage the slots at the rear.

Take care not to catch any of the wiring or hoses in the heat pump module.

Leave sufficient overhang at either end to enable a firm and safe grip for lifting the heat pump module onto the top of the storage tank.



Steps 3 and 5
remove louvres and insert lifting bars into the slots provided

6. **Heat Pump Module Placement:** Using **two** people, one person on each lifting bar, lift the heat pump module and place it on the top of the storage tank.

It is recommended to place the hands under the bar to enable the lift in a curl action.

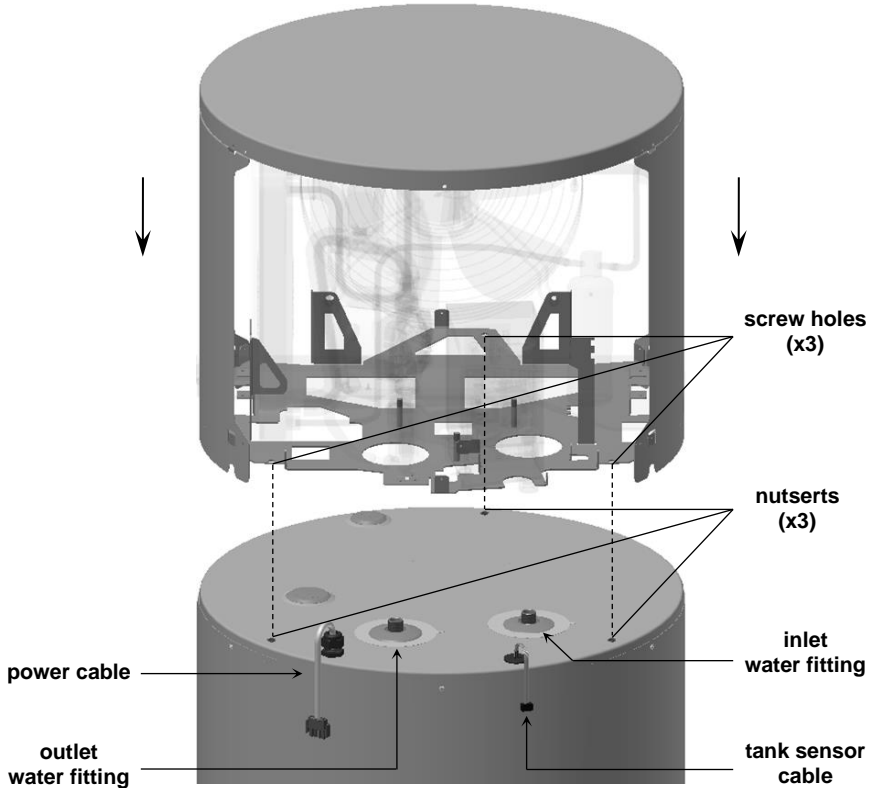
- Ensure the two water fittings on the storage tank pass through the openings marked “INLET” and “OUTLET” on the heat pump module chassis.
- Ensure the three screw holes in the bottom plate of the chassis are lined up with the three nutserts in the top of the storage tank.

Take care to avoid resting the heat pump module on the power cable or the tank sensor cable.

Final positioning is best undertaken with the lifting bars still in position.

CAUTION: The heat pump module weighs approximately 53 kg. This operation should be performed carefully by two people and good lifting practice should be followed.

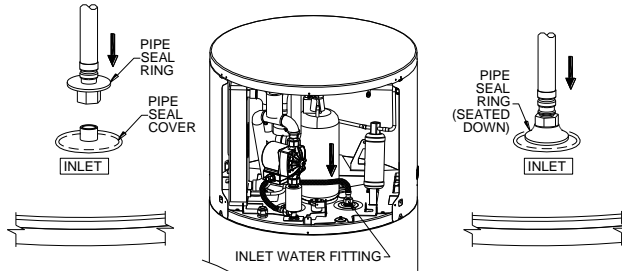
- Heat Pump Module Attachment:** Remove the two (2) lifting bars and attach the heat pump module to the storage tank with the three (3) M6 screws provided with the heat pump module.



Steps 6 and 7
install heat pump module to storage tank

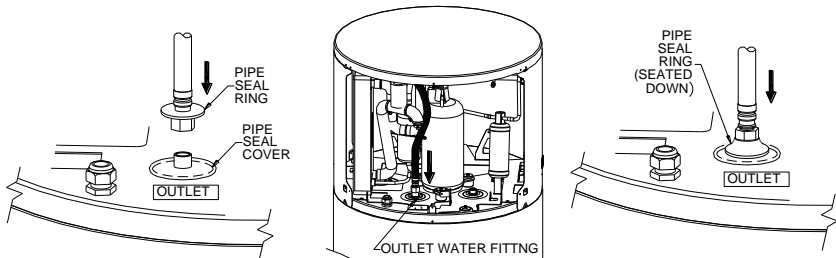
- Water Fitting Caps:** Remove the caps from the water fittings on the storage tank. These may be unscrewed or cut from the fittings if necessary.
Take care not to loosen the fittings or damage the threads whilst removing the caps.

9. **Inlet Flexible Braided Hose:** Attach the flexible braided hose marked “INLET” to the water fitting marked “INLET”.
- Tighten the swivel nut on the hose using a 24 mm spanner.
 - Push down the pipe seal ring to seat over the swivel nut and against the pipe seal cover.



Step 9
attach inlet water hose and seat pipe seal ring

10. **Outlet Flexible Braided Hose:** Attach the flexible braided hose marked “OUTLET” to the water fitting marked “OUTLET”.
- Tighten the swivel nut on the hose using a 24 mm spanner.
 - Push down the pipe seal ring to seat over the swivel nut and against the pipe seal cover.

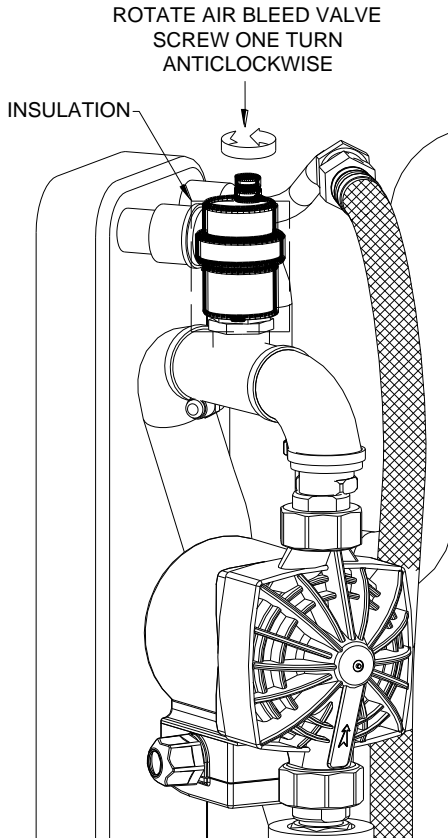


Step 10
attach outlet water hose and seat pipe seal ring

11. **Air Bleed Valve:** Open the air bleed valve screw by rotating anticlockwise one turn.

This will allow air to bleed from the circulator and flexible hose during the filling of the tank process.

- Leave the air bleed valve screw in this position.
- Ensure the screw is not removed, nor left screwed shut.



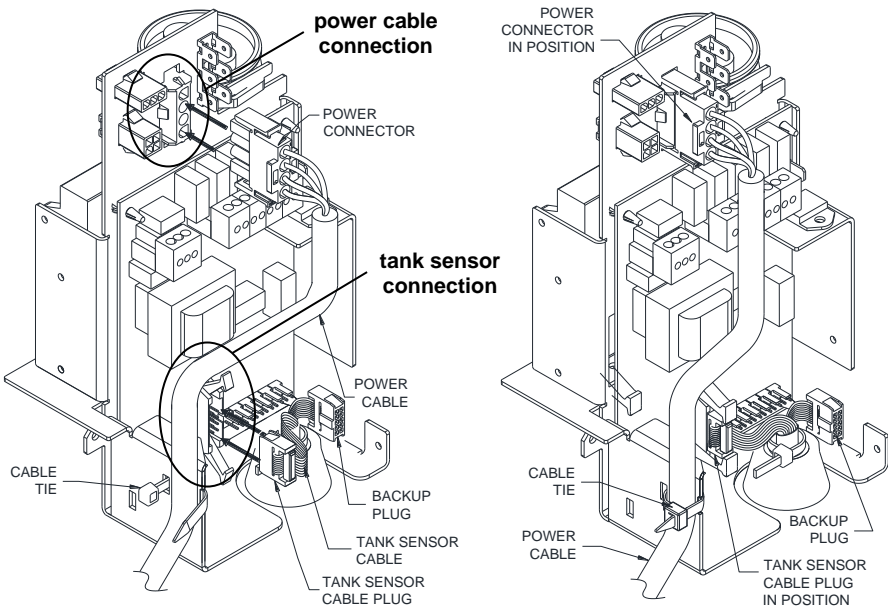
Step 11
open air bleed valve screw by rotating one turn anticlockwise

12. **Tank Sensor Cable Connection:** Insert ONE tank sensor cable plug firmly into the connector marked "TANK SENSOR" at the bottom of the control board.

Note: There are two tank sensor cables protruding through the top of the storage tank, each with a tank sensor cable plug. Only **ONE** tank sensor cable plug is to be connected to the control board. The second plug is a backup plug and is not to be connected to any part of the control board.

- Ensure the plug is fully inserted so the holding clips on the board automatically engage the plug.
- Coil up both the excess length of tank sensor cable and the spare cable and plug for storage behind the electrical cover when refitted.

Do not allow the cables and spare plug to hang loose outside of the control board enclosure as damage to these components could occur.



Steps 12, 13 and 14
connect power cable and tank sensor cable

13. **Power Cable Connection:** Connect the four (4) pin power cable plug to the connector at the top of the control board.
 - Ensure the plug fully engages the locking feature on the connector.
14. **Cable Tie Power Cable:** Position the power cable firmly against the outside lower left hand side of the control board chassis and cable tie in position. The cable tie is to fit in the recess at the front edge of the chassis and through the adjacent slot.
15. **Electrical Cover:** Replace the electrical cover, engaging the bottom of the cover into the slots on the supporting bracket.
 - Secure at the side with the mounting screw.
16. **Condensate Drain:** Install a drain line to the condensate drain to carry the discharge clear of the water heater. Refer to “Condensate Drain” in the “Connections – Plumbing” section in the Owner’s Guide and Installation Instructions supplied with the storage tank.
17. **Water Connections:** Connect the cold water supply and the hot water pipe work to the water heater.
 - Connect the temperature pressure relief valve and its drain line.

Refer to “Connections – Plumbing” in the Owner’s Guide and Installation Instructions supplied with the storage tank.
18. **Water Supply:** Turn on the cold water supply and fill the water heater.
 - Check the pipe work and the inlet and outlet connection points of the flexible hoses for leaks.

Refer to “To Fill And Turn On The Water Heater” on page 23, however the electrical supply should not be switched on at this stage.
19. **Air Louvre Attachment:** Replace the two air louvres, ensuring the longer skirt of the louvre is orientated to the bottom and re-fit all twelve (12) louvre attachment screws.
20. **Electrical Connection:** Refer to “Connections – Electrical” on page 21 and in the Owner’s Guide and Installation Instructions supplied with the storage tank.
21. **Commissioning:** Refer to “Commissioning” on page 23 and in the Owner’s Guide and Installation Instructions supplied with the storage tank.

CONNECTIONS – ELECTRICAL

The power supply to the water heater must not be switched on until the water heater is filled with water and a satisfactory megger reading is obtained.

MEGGER READING

When a megger test is conducted on this water heater, then the following should be noted.

⚠ Warning: This water heater contains electronic equipment and 500 V insulation tests must only be conducted between active and earth and between neutral and earth. An active to neutral test WILL damage the electronics.

An insulation test result of between 100 K Ω and 660 K Ω for this water heater is normal.

AS/NZS 3000 permits an insulation test result less than 1 M Ω where the appliance is approved to a Standard applicable to the appliance.

This model water heater is categorised as a 'stationary Class 1 motor operated appliance' and satisfies the requirements of AS/NZS 60335.2.40 for leakage current and electric strength. Therefore, this model water heater complies with the insulation resistance requirements of AS/NZS 3000.

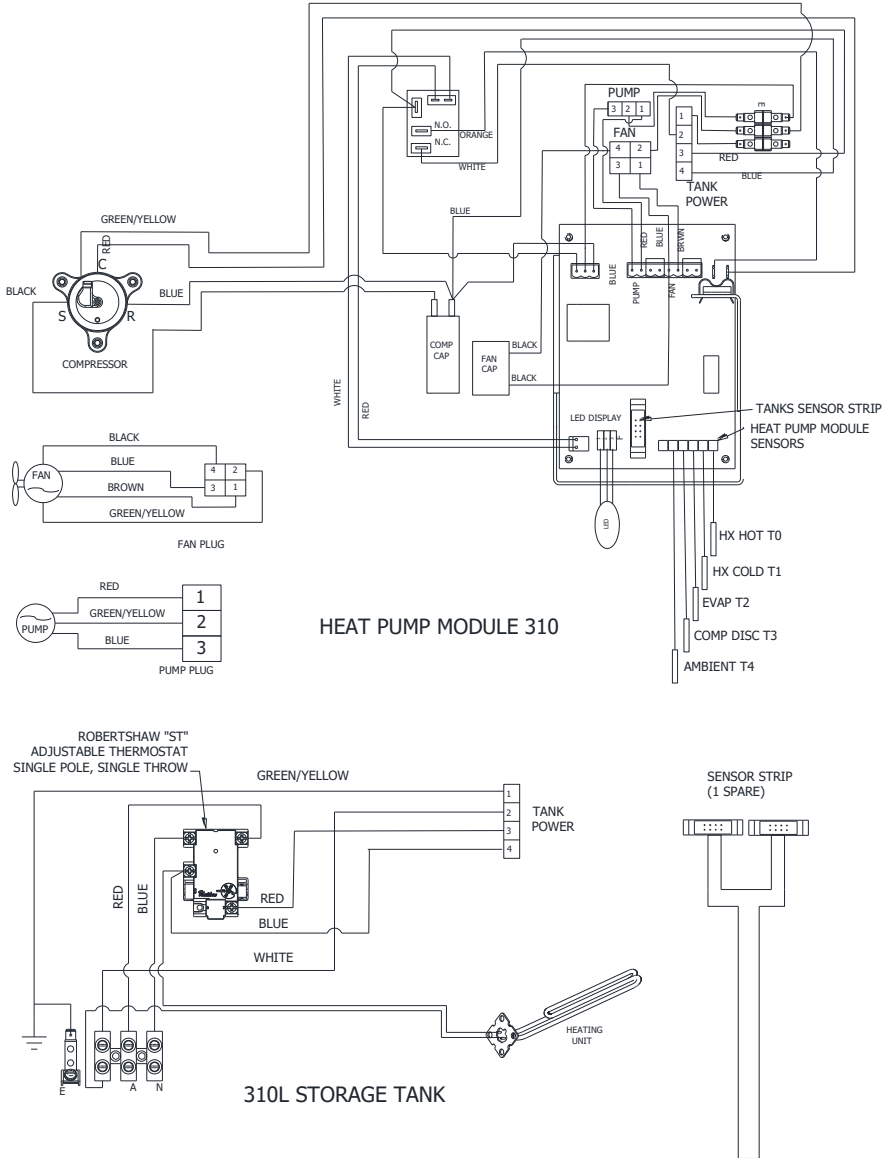
ELECTRICAL CONNECTION

The electrical connections between the heat pump module and storage tank are made using mating connectors fitted to these components. This procedure is outlined in "Heat Pump and Tank Assembly" commencing on page 10.

Refer to the Owner's Guide and Installation Instructions supplied with the heat pump storage tank for information on the connection of the power supply to the water heater.

Note: This water heater must not be connected via a power switching device which allows alternative supply of grid power and photovoltaic (PV) power. The switching of the supplies will cause the water heater to enter a start delay mode for an undetermined period. Repeated switching will reduce the available heating time for the water heater and can result in an insufficient hot water supply.

WIRING DIAGRAM



Electrical Circuit for Heat Pump – Robertshaw “ST” Thermostat

COMMISSIONING

TO FILL AND TURN ON THE WATER HEATER

The power supply to the water heater must not be switched on until the water heater is filled with water and a satisfactory megger reading is obtained.

- Open all of the hot water taps in the house (don't forget the shower).
Ensure the air bleed valve has been opened (refer to step 11 on page 18).
- Open the cold water isolation valve fully to the water heater.
Air will be forced out of the taps and the air bleed valve.
- Close each tap as water flows freely from it. Leave the air bleed valve open.
- Check the pipe work for leaks.
- Inspect for leaks at the temperature pressure relief valve connection to the water heater.

If a leak is detected, close the cold water isolation valve fully and relieve pressure from the water heater by either operating the easing lever on the temperature pressure relief valve or opening a hot tap. Remove the valve and all of its thread sealant from the threads of the valve. Reapply new thread sealant and refit the valve. Refer to the procedure in "Temperature Pressure Relief Valve" in the Owner's Guide and Installation Instructions supplied with the heat pump tank.

- Operate the easing lever on the temperature pressure relief valve to check the smooth operation of the valve plunger and that water discharges freely from the drain line. It is very important the lever is raised and lowered gently. The lever should move smoothly and without undue force.
If the lever cannot be moved or is jerky in its movement, then the valve has been damaged and must be replaced.
- Switch on the electrical supply at the water heater isolating switch on the switchboard and at the isolating switch at the water heater.
- Set the timer if one is installed.

The heat pump may take up to 30 seconds to commence operating when the power supply is switched on. The heat pump will only operate when the water in the storage tank requires heating, the heat pump compressor is cool and power is available at the water heater.

When the heat pump is operating, the system may switch to the booster heating unit if it detects that the ambient air temperature is below the minimum operating temperature of 5°C (41°F). It may also switch back to heat pump operation from

the booster heating unit if it detects the ambient air temperature has moved back to within the heat pump's operating temperature range. If the ambient air temperature is below 0°C (solid red LED), the heat pump will not operate and the booster heating unit will operate instead.

Note: The heat pump may not turn on after having just completed a heating cycle and more hot water is drawn from the water heater, or if power was switched off whilst the heat pump was operating. The heat pump will wait at least five (5) minutes, and until the compressor has cooled down and the conditions for start-up are favourable, in order to protect the compressor from damage. This may take up to twenty (20) minutes from the last heating cycle.

It is important to wait for five (5) minutes after the heat pump has activated to ensure it continues to operate and is functioning correctly.

Explain to the householder or a responsible officer the functions and operation of the heat pump water heater. Upon completion of the installation and commissioning of the water heating system, leave this guide with the householder or a responsible officer.

TO TURN OFF THE WATER HEATER

If it is necessary to turn off the water heater on completion of the installation, such as on a building site or where the premises are vacant, refer to ["To Turn Off the Water Heater"](#) on page 7.

DIAGNOSTIC FEATURES OF THE HEAT PUMP CONTROLLER

An operating mode monitor is located on the front of the heat pump module and houses a green and a red LED.

The green LED, marked "NORMAL", indicates the current operating mode (with the red LED off) of the heat pump water heater and the red LED, marked "ATTENTION", may indicate a potential fault mode.



The green LED will emit either a constant glow or a series of flashes, with a two (2) second interval between each series. The green LED may also emit a series of flashes in conjunction with the red LED to indicate a particular fault condition with the system.

The red LED will emit either a constant glow or a series of flashes, with a two (2) second interval between each series. A series of flashes indicates there may be a particular fault condition with the system. A constant glow or 3 flashes (with the green LED off), or 1 flash (with a solid green LED) does not necessarily mean there is a fault with the system.

The modes are:

Green LED	Red LED	Operational Modes
solid green (remains on)	off	Standby mode – water is hot
1 x green	off	Call for heating received – system checks performed Note: if call for heating received, unit may wait and continue flashing until five minutes has elapsed after its last operation and until the compressor has cooled
2 x green	off	Circulator commences circulation
4 x green	off	Heat pump operation – compressor and fan running
no green (remains off)	off	No power at the water heater or to the heat pump or a possible fault condition Refer to notes overleaf before calling for service

Green LED	Red LED	Indicator or Fault Modes
off	Solid red (remains on)	Ambient temperature < 0°C Heating unit on
off	1 x red	Storage tank thermistor fault condition Heating unit on
off	2 x red	Heat exchanger (heat pump) water outlet > 80°C Heating unit on
off	3 x red	Evaporator < -3°C Heating unit on
off	4 x red	Refrigeration system fault 1 Heating unit on
off	5 x red	Refrigeration system fault 2 Heating unit on
off	6 x red	Water flow fault Heating unit on
off	7 x red	Compressor over temperature condition (> 110°C) Heating unit on
solid green (remains on)	1 x red	Heating stopped due to insufficient flow rate Heating unit off
1 x green	1 x red	Heat exchanger (heat pump) water outlet thermistor fault condition Heating unit on
2 x green	2 x red	Heat exchanger (heat pump) water inlet thermistor fault condition Heating unit on
3 x green	3 x red	Evaporator thermistor fault condition Heating unit on
4 x green	4 x red	Compressor thermistor fault condition Heating unit on
5 x green	5 x red	Ambient temperature thermistor fault condition Heating unit on

Notes

- **Red LED Illuminated**

Solid Red or 3 x Red Flashes (Green LED Off) – If the power supply to the water heater is on and the green LED is off and the red LED is emitting a solid glow or three (3) flashes, this does not necessarily mean there may be a fault with the water heater but is indicating the water heater is operating outside of the heat pump’s operating range. The heat pump’s operating range is when the ambient air temperature is 5°C or higher. Refer to “**Heat pump operating range**” in the “Save A Service Call” section of the Owner’s Guide and Installation Instructions supplied with the storage tank.

1 x Red Flash (Solid Green LED) – If the green LED is emitting a solid glow and the red LED is flashing a single flash, this does not necessarily mean there may be a fault with the water heater. Refer to “**Red and Green LEDs Are Illuminated**” in the “Save A Service Call” section of the Owner’s Guide and Installation Instructions supplied with the storage tank.

Other Red Flash Sequences – If the red LED emits a series of flashes other than three (3) flashes (green LED off) or a single flash (green LED solid glow), there may be a fault with the water heater.

Before phoning to arrange a service inspection due to the red LED flashing or the green LED not illuminating refer to “**Heat Pump Is Not Operating**”, “**Green and Red LEDs Are Not Illuminated On Operating Mode Monitor**”, and “**Red LED is Illuminated – Green LED is Off**” in the “Save A Service Call” section of the Owner’s Guide and Installation Instructions supplied with the storage tank.

- **Power must be available at the water heater and to the heat pump for the LEDs to glow or flash.**

If there is power to the water heater and the green LED is off or the red LED is flashing (other than 3 x red flashes with the green LED off, or a solid red glow, or a single red flash with a solid green LED), this indicates there may be a fault condition with the water heater. The red LED may emit up to seven (7) flashes in each series of flashes. Refer to “**Possible fault condition**” on page 28.

- **Time controlled power supply (power must be available at the water heater)**

If the water heater is connected to a time controlled power supply, then during periods of no power supply at the water heater the LEDs will be off.

This is not a fault condition, but a result of no power being available to energise the LEDs. The green LED will recommence glowing or flashing when power is available again at the water heater.

- **Heat pump operating range (power must be available to the heat pump)**
The heat pump's operating range is when the ambient air temperature is 5°C or higher.

If the ambient air temperature is between 0°C and 5°C and heating is required, the heat pump will commence operating and after a period of time, heating will switch from the heat pump to the booster heating unit in booster heating mode (three red flashes, green LED is off). At the completion of this heating cycle by the booster heating unit (three red flashes), the green LED will glow (standby mode – water is hot) and the red LED will go out.

If the ambient air temperature drops below 0°C, the red LED will display a solid glow and the green LED will be off. This will occur whether or not the water heater is up to temperature or the booster heating unit is heating. If a call for heating is received, the water heater will automatically heat in booster heating mode. At the completion of this heating cycle by the booster heating unit (solid red glow), the red LED will continue to display a solid glow and the green LED will remain off.

Note: During the heating cycle in booster heating mode due to a cold ambient air temperature condition, the heating of the water by the heat pump will recommence (4 x green flashes) and the booster heating unit will turn off (red LED goes out) if the ambient air temperature increases to back within the heat pump's operating range. Likewise, the water heater will switch to the booster heating unit (three red flashes or solid red glow, green LED is off) if, during a heat pump heating cycle, the ambient air temperature decreases to outside of the heat pump's operating range.

The water temperature in the upper part of the water heater at the end of a heating cycle will be 60°C.

- **Possible fault condition**

If the heat pump has developed a fault, the heat pump will not operate and the red LED will flash a fault mode of a series of up to seven (7) flashes. The green LED may also simultaneously flash or display a solid glow.

There may be a fault condition with the water heater if either:

- there is power available at the water heater and the green LED is off, and either
 - ◆ the water heater **is not** operating outside of the heat pump's operating range, i.e. booster heating unit is not heating the water (normally three red flashes or solid red glow if heating is occurring) due to a cold ambient air temperature condition, or, or
 - ◆ the ambient air temperature **is not** below 0°C (normally solid red glow if ambient air temperature is below 0°C).

or

- the red LED is flashing (other than 3 x red flashes with the green LED off, or a solid red glow, or a single red flash with a solid green LED) – the red LED may emit up to seven (7) flashes in each series of flashes. The green LED may also simultaneously flash or display a solid glow.

The fault condition which led to the red LED flashing may be cleared after the backup heating cycle by the booster heating unit has completed. If the red LED continues to or recommences to flash, or recommences to flash after the heat pump next operates or attempts to operate, a service call may be required.

- Before phoning to arrange a service inspection due to the red LED flashing, refer to “Heat Pump Is Not Operating”, “Green and Red LEDs Are Not Illuminated On Operating Mode Monitor”, “Red LED is Illuminated – Green LED is Off” and “Red and Green LEDs Are Illuminated” in the “Save A Service Call” section of the Owner’s Guide and Installation Instructions supplied with the storage tank.

WATER SUPPLIES

This water heater must be installed in accordance with this advice to be covered by the manufacturer's warranty.

This water heater is manufactured to suit the water conditions of most public reticulated water supplies. However, there are some known water chemistries which can have detrimental effects on the water heater and its operation and / or life expectancy. If you are unsure of your water chemistry, you may be able to obtain information from your local water supply authority. This water heater should only be connected to a water supply which complies with these guidelines for the manufacturer's warranty to apply.

CHANGE OF WATER SUPPLY

The changing or alternating from one water supply to another can have a detrimental effect on the operation and / or life expectation of a number of components in this water heater.

Where there is a changeover from one water supply to another, e.g. a rainwater tank supply, bore water supply, desalinated water supply, public reticulated water supply or water brought in from another supply, then water chemistry information should be sought from the supplier or it should be tested to ensure the water supply meets the requirements given in these guidelines for the manufacturer's warranty to apply.

SATURATION INDEX

The saturation index (SI) is used as a measure of the water's corrosive or scaling properties. The saturation index figures stated are calculated using a water temperature of 80°C.

Where the saturation index is less than -1.0 , the water is very corrosive and the manufacturer's warranty does not apply to the water heater. In a corrosive water supply, the water can attack copper parts and cause them to fail.

Where the saturation index exceeds $+0.40$, the water is very scaling and the manufacturer's warranty does not apply to the water heater.

Water which is scaling may be treated with a water softening device to reduce the saturation index of the water.

CHLORIDE AND PH

Where the chloride level exceeds 250 mg/L the manufacturer's warranty does not apply to the water heater. In a high chloride water supply, the water can corrode stainless steel parts and cause them to fail.

Where the pH is less than 6.0 the manufacturer's warranty does not apply to the water heater. pH is a measure of whether the water is alkaline or acid. In an acidic water supply, the water can attack stainless steel parts and cause them to fail.

Water with a pH less than 6.0 may be treated to raise the pH. The water supply from a rainwater tank in a metropolitan area is likely to be corrosive due to the dissolution of atmospheric contaminants.

SUMMARY OF WATER CHEMISTRY ADVICE AFFECTING WARRANTY

The water heater, including this heat pump module, is not suitable for certain water chemistries. Those chemistries are listed below. If the water heater is connected at any time to a water supply with the following water chemistry, the manufacturer's warranty will not cover any resultant faults:

Water Chemistry

Saturation Index (SI) < -1.0

Saturation Index (SI) > +0.4

Chloride > 250 mg/L

pH < 6.0

Refer to "Water Supplies" in the Owner's Guide and Installation Instructions supplied with the storage tank for the complete water supply statement.

WARRANTY NOTE

Your heat pump water heater is covered by a manufacturer's warranty. For full manufacturer's warranty details, refer to the Owners Guide and Installation Instructions supplied with the storage tank.

The part extracts from the "Terms Of The Warranty And The Exclusions To It" of the water heater warranty should be noted before commencing the installation.

TERMS OF THE WARRANTY AND EXCLUSIONS TO IT

- 2.5 Where the water heater is installed in a position that does not allow safe or ready access, the cost of that access, including the cost of additional materials handling and/or safety equipment, shall be the owner's responsibility. In other words, the cost of dismantling or removing cupboards, doors or walls and the cost of any special equipment to bring the water heater to floor or ground level or to a serviceable position is not covered by this warranty.
- 2.7 The warranty does not cover faults that are a result of:
- c) Installation not in accordance with the Owner's Guide and Installation Instructions or with relevant statutory and local requirements in the State or Territory in which the water heater is installed.
 - d) Connection at any time to a water supply that does not comply with the water supply guidelines as outlined in the Owner's Guide and Installation Instructions.
 - k) Ice formation in the waterways of a water heater system incorporating a freeze protection system where the electricity supply has been switched off or has failed.
- 2.8 Rheem may reject a claim under this warranty in its sole discretion if a third party solar diverter is connected to the water heater.
- 2.9 Subject to any statutory provisions to the contrary, this warranty excludes any and all claims for damage to furniture, carpet, walls, foundations or any other consequential loss either directly or indirectly due to leakage from the water heater, or due to leakage from fittings and/ or pipe work of metal, plastic or other materials caused by water temperature, workmanship or other modes of failure.

