



# Service

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| Title: SAFETY PROCEDURE - WORKING WITH ELECTRICITY | Doc No: OHS-03-016 |
| Created By: T.Thornton - R.Daisley                 | Revision: C        |
| Checked By: R. Bevitt                              | D.O.I.: 08/04      |
| Authorised By: T.Thornton                          | Page 1 of 5        |

**Distribution:** Service Department - Queensland  
Newcastle  
Sydney  
Victoria  
Sth Australia  
Western Australia

**State Distribution:** Supervisors  
Technicians

| Date  | Reason for change                                      | Rev |
|-------|--|-----|
| 10/01 | Procedure  | A   |
| 08/02 | Change document number to OHS-03-016 also Rheem header | B   |
| 08/04 | Clauses 2, 5, 6, 7, 11 & 17 modified, 26&27 added.     | C   |
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The installation and servicing of Rheem Water Heaters involves working with electric circuits. Rheem electric water heaters are all designed to operate on 240 volts 50 Hz supplies. Predominantly the water heaters are “hard wired” to single phase circuits, although some Heavy Duty models may be connected between phases of a 2 or 3 phase supply. Also some water heaters and ancillary equipment are connected via a 10-amp lead and GPO.

To ensure the safety of all technicians and supervisors when working on water heaters with an electrical mains supply connection the following requirements must be followed:

All technicians must work within the confines of their electrical licence:

- a) Service staff (unlicensed) may only work on equipment that can be disconnected from the electrical supply via a removable plug and GPO. (Queensland regulations require that all technicians be licensed, either as electricians or plumbers with restricted licences to work on these appliances) They must also have a documented record of safety training for working on this equipment.
  - b) Technicians with restricted electrical licences must only work on existing water heater installations. Disconnecting and reconnecting water heaters is allowed.
  - c) Electricians can carry out all of the electrical tasks undertaken by Rheem Service.
1. Close observance of the instructions contained in the relevant Service Manual will minimise the opportunity for electricity related injuries. The Service Manuals highlight when safety precautions are required and when Personal Protective Equipment (PPE) is to be used.
  2. Equipment should be isolated before removing safety covers exposing live components. Exceptions to this requirement are stated in the relevant Service Manual. Isolation must include either disconnecting the load wire from the fuse/circuit breaker base, or the use of a lock out device to prevent the circuit being made active. Lock out devices are fitted to circuit breakers, fuse bases, isolation switches or 3 pin plugs to isolate the circuit/appliance. In either case a suitable warning notice to AS1319 must be attached to the point of isolation.
  3. Prior to working on an isolated appliance a voltmeter test must prove conclusively that the appliance is isolated. If you leave the appliance always retest to ensure it has not been reconnected in your absence. Remember – test before touching.
  4. Element changes or leaking water heaters can expose electrical components to water. Whenever an element change is being done remove all electrical components from the danger of becoming wet. If water has contacted any component that component must be thoroughly dried and insulation checked before reconnecting it to the supply. Regard all liquids as conductive unless proven otherwise.

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5. Never leave an appliance without ensuring all covers have been refitted. If a cover is missing then the appropriate electrical circuit must be isolated and locked off.
6. Whenever live testing is required to be done (refer Service Manuals) the following precautions must be included:
  - a) Exposed parts are to be treated as “live” until they are isolated and proved conclusively not to be energised.
  - b) Personal Protective Equipment must be worn including long sleeves, long pants, safety glasses, OO gloves and rubber soled shoes.
  - c) Ensure that the person in control of the equipment has been consulted.
  - d) Ensure sufficient lighting so that the correct contact points can easily be seen.
  - e) Any ladders or steps being used must be non-conductive.
  - f) Do not probe connections haphazardly. Ensure that the Service Manual has been read and thoroughly understood. Identify each contact point prior to commencing the testing.
  - g) Review and recognise all live components that may be inadvertently touched.
  - h) Work from a safe position which would require a deliberate movement to contact directly energised conductors or parts.
  - i) Remove any neck chains, bracelets, earrings, watches and rings that could contact live conductors or parts.
  - j) Whenever testing is to be done on an appliance connected electrically by a plug and lead, always insert a portable RCD between the GPO and the appliance to provide additional safety.
  - k) If an RCD cannot simply be inserted into the supply prior to live testing being required then Insulated Working Gloves, Class “OO” must be worn on each hand.
7. Using a “tong tester” – ammeter is considered to be live testing and extreme care needs to be taken to ensure there is no inadvertent contact with live conductors or parts.
8. When disconnecting/reconnecting a hard wired appliance always disconnect the earth last and reconnect the earth first.

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9. Whenever there is a requirement to leave a site having disconnected (either permanently or temporarily) the water heater, the circuit must be isolated and suitably terminated so that future energising of that circuit will not cause a safety risk.
10. Always check that terminations are tight to ensure no high resistance joints.
11. Equipment such as meggers and multimeters must be calibrated within the period(s) nominated in the Quality Procedure, or as per local Electrical Safety Regulations.
12. All electric leads, power tools, extension lamps and RCD's must be visually checked for defects and insulation tested to AS/NZS 3760 annually with a permanent tag attached indicating date of test. A record of maintenance is to be retained in the branch for each electric lead, power tool, RCD or extension lamp, indicating the date of test, condition and the readings obtained.
13. Use insulated tools whenever possible and ensure all equipment is checked at least annually during the vehicle safety checks.
14. Safety glasses to AS1337, safety helmets to AS1801 and safety footwear to AS/NZS2210 shall be worn in any work area as designated by Workplace Health and Safety requirements.
15. All electrical hand tools, lights and extension leads must be used in conjunction with Residual Current Device (RCD).
16. If more than one technician including apprentices are working on one site they must discuss and decide who is responsible for each task at the beginning of the job. Many electric shocks are caused by poor communication between workers. Never assume that another person has taken all safety precautions.
17. At all times the Company uniform must be worn. Uniforms include flame retardant material.
18. Do not allow poor lighting to be the cause of safety problems. Use a good torch (with charged batteries) or a lead lamp fitted with a Residual Current Device (RCD).
19. When drilling holes always check that the bit will not contact wiring which is behind or under the drilling surface.
20. It is the responsibility of the technician on site to ensure nothing is done or left undone that will jeopardise the safety of the residents, staff and general public who may be on that site.

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21. Remember electricity will be conducted by most liquids, wet or damp timber, concrete, gases, flames (LPG and oxyacetylene), uninsulated tools, metal rulers and tape measures, and fire extinguishers that contain conductive liquids.
22. Any electrical shock must be reported immediately to a supervisor. Other accidents involving injury or damage, or/and dangerous conditions at the work site, must also be reported to a supervisor.
23. Any equipment associated with an accident must not be interfered with until the accident has been investigated.
24. If a technician observes someone being subject to an electric shock it is most important that in rescuing the person, the technician does not become subject to the risk of electric shock.  
  
If the supply cannot be switched off immediately, try to remove the victim from electric contact as quickly as possible by using a dry, non-conducting material, e.g. dry clothing, or a dry wooden stick. Avoid direct contact with the skin of the victim or any conducting material, which may be touching the victim. Once the victim has been removed from electrical contact resuscitation should be commenced.
25. Plug in appliances must be megger tested and an earth continuity test conducted (as outlined in the relevant Service Instructions) at the conclusion to any repairs or maintenance. A record of service must be attached, or updated detailing the date of service and the megger and earth continuity readings obtained.
26. Upon completion of work and after testing, a certificate shall be issued indicating that the electrical work has been tested and that the electrical work and equipment is electrically safe. (Qld regulation only).
27. Job Safety Analysis (JSA) shall be carried out for all jobs which include live work and/or live testing.

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