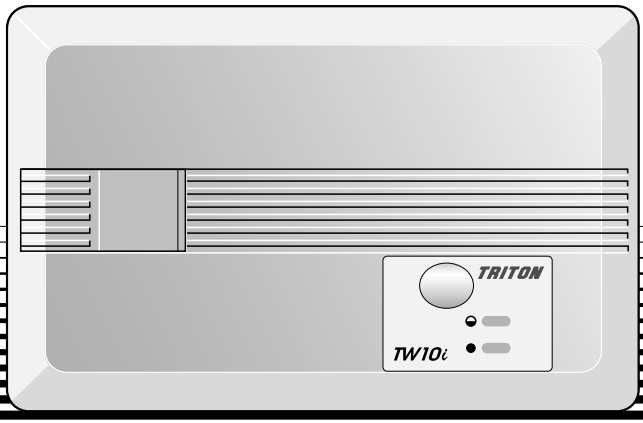
TRITON

· TW10i handwash water heater ·



Installation and Operating Instructions

INSTALLERS PLEASE NOTE THESE INSTRUCTIONS ARE TO BE LEFT WITH THE USER

2180359A May 2002

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To ensure the product suitability for commercial and multiple installations, please contact Triton's specification advisory service prior to installation.

Telephone: (024) 7632 5491
Facsimile: (024) 7632 4564
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INTRODUCTION

This book contains all the necessary fitting and operating instructions for your Triton TW10i water heater. Please read them carefully.

The heater installation must be carried out by a suitably qualified person and in the sequence of this instruction book.

Care taken during the installation will ensure a long and trouble-free life from your water heater.

Important: All plumbing connections must be completed before making the electrical connections.

SPECIFICATIONS

Electrical (UK only):

Nominal power rating at 240V	Nominal power rating at 230V
9.5kW – (40A MCB rating)	8.7kW – (40A MCB rating)

Electrical (export only):

Nominal power rating at 230V
8kW – (35A MCB rating)

Nominal power rating at 230V
6kW – (30A MCB rating)

Water inlet connection:
15mm diameter 1/2" BSP nut and compression olive supplied.

Water outlet connection:
15mm diameter 1/2" BSP nut and compression olive supplied.

Entry points:
Water – bottom.
Cable – top or back.

Materials:
Backplate - zinc plated mild steel.
Cover – flame retardant ABS.
Elements – Minerally insulated corrosion resistant metal sheathing.

Dimensions (in millimetres):
Height - 188; Width - 295; Depth - 85

When installed in accordance with this installation/instruction book, the TW10i unit then complies with the following standards and approvals:
Splashproof rating IPX4

Complies with requirements of current British and European safety standards for household and similar electrical appliances'.

Meets with Compliance with European Community Directives (CE).

ADVICE TO USERS

A The electric heating elements operate at a constant rate. It is the flow rate of the water passing through the heater which determines the water temperature – the slower the flow, the hotter the water becomes and the faster the flow, the cooler the water.

B The heater can provide sufficient hot water for handwash purposes or low fill rates to a sink. If connected to two taps, they should not be operated simultaneously. During Winter, mains cold water entering the unit will be cooler than in Summer. Therefore the flow rate of hot water will vary between seasons.

C Switch off immediately at the isolating switch if water ceases to flow and contact Triton Customer Service.

SAFETY WARNINGS

1 The heater MUST NOT be used if suspected of being frozen.

2 Switch off immediately at isolating switch if water ceases to flow during use.

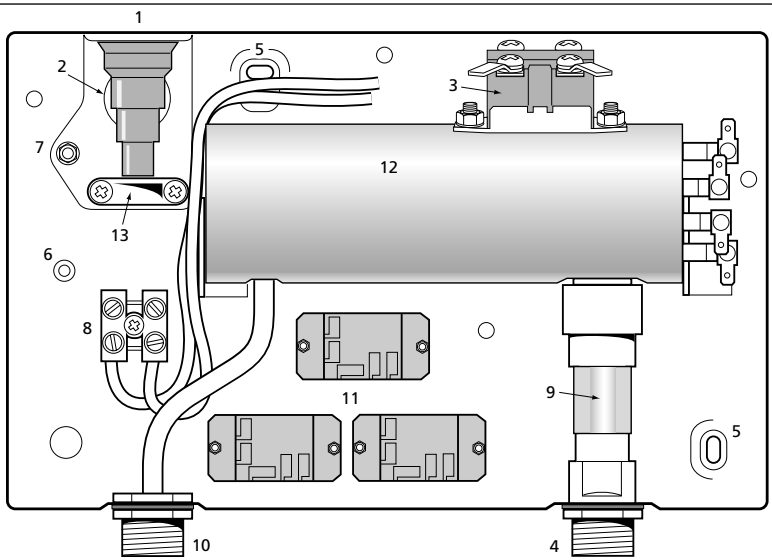
3 If it is intended to operate the heater in areas of hard water it is advisable to fit a scale inhibitor (contact Triton for advice).

4 A thermal cut-out device is fitted to the elements to protect the unit under faulty conditions.
If cut-out operates, see 'Operating Functions' (overheat cut-out) or contact Triton Customer Service for advice.

Due to continuous improvement and updating, specification may be altered without prior notice. Replacement parts can be ordered from Triton. See 'spare parts' for details and part numbers.

Fig.1
3 relay unit

NOTE: Not all wires have been depicted for reason of clarity.

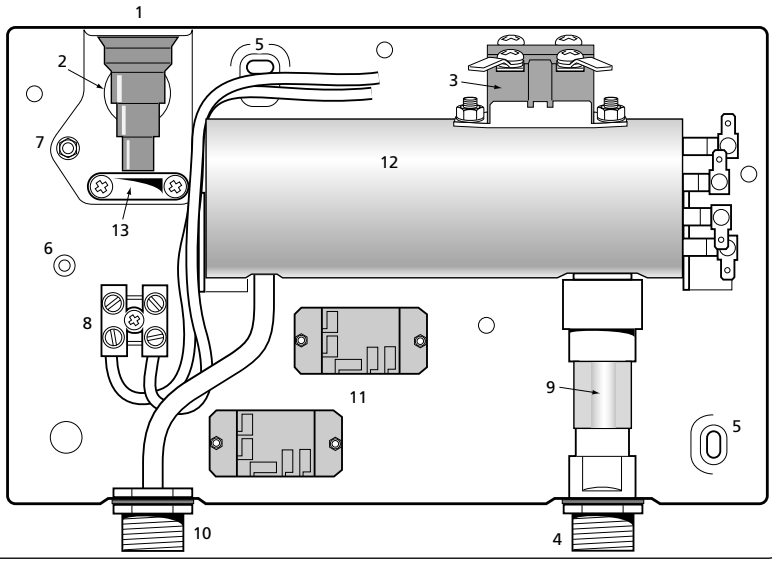


KEY TO MAIN COMPONENTS

1 Top cable entry
2 Back cable entry
3 Thermal cut-out
4 Water inlet
5 Wall screw fixings
6 Cover screw fixing
7 Earth connection
8 Terminal block
9 Flow switch
10 Hot water outlet
11 Relays
12 Can and element assembly
13 Cable clamp

Fig.2
2 relay unit

NOTE: Not all wires have been depicted for reason of clarity.



WATER REQUIREMENTS

WARNING: This unit must NOT be positioned where it will be subjected to freezing conditions. For ease of servicing, the unit must always be mounted on the surface of tiled walls. Never tile up to the unit.

WATER: The installation must be in accordance with Water Regulations / Byelaws. To ensure correct operation of the heater, it must be connected to a cold mains water supply with a minimum and maximum running pressure as stated on the rating label situated inside the unit.

Figure 3 shows a typical system layout.

DO NOT use jointing compounds on any pipe fittings for the installation.

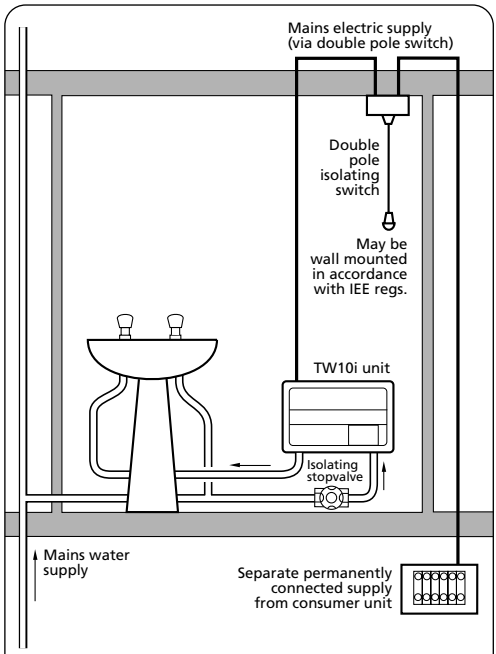


Fig.3
Diagrammatic view (not to scale)

NOTE: The TW10i heater is suitable for use with standard basin/sink taps but is NOT suitable for use with basin/sink mixer taps, shower mixer valves, bath taps, time delay taps, washing machines or similar appliances.

ELECTRICAL REQUIREMENTS

WARNING
THIS APPLIANCE MUST BE EARTHED

In the UK, the installation, supply cable and circuit protection must conform with IEE wiring regulations and be sufficient for the amperage required.
The following notes are for guidance only:

1 The heater must only be connected to a 230-240V ac supply. If you are installing a heater with a kilowatt rating above 9kW, it is advisable to contact the local electricity supply company.

1.1 The electrical rating of the heater is shown on the rating label **(fig.4)** within the unit.

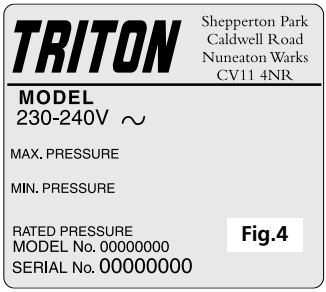
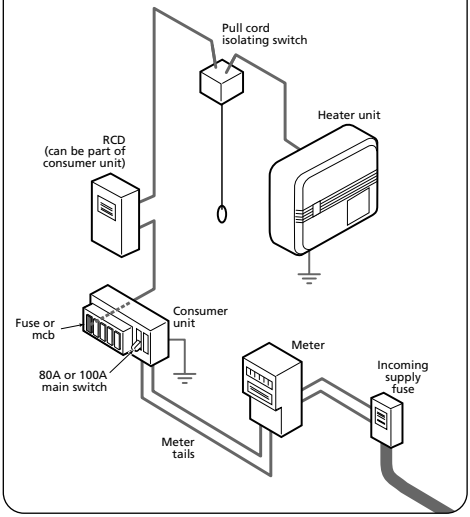


Fig.4

Fig.5 schematic of installation circuit



2 Before making any sort of electrical connection within the installation, ensure that no terminal is live. If in any doubt, switch off the whole installation at the consumer unit.

3 The heater must be connected to its own independent electrical circuit. IT MUST NOT be connected to a ring main, spur, socket outlet, lighting circuit or cooker circuit.

3.1 The electrical supply must be adequate for the loading of the unit and existing circuits.

4 Check your consumer unit (main fuse box) has a main switch rating of 80A or above and that it has a spare fuse way which will take the fuse or mcb necessary for the heater **(fig.5)**.

4.1 If your consumer unit has a rating below 80A or if there is no spare fuse way, then the installation will not be straight forward and may require a new consumer unit serving the house or just the heater.

4.2 You will need to contact the local electricity company. They will check the circuit and carry out what is necessary.

5 The earth continuity conductor of the electrical installation must be effectively connected electrically to all exposed metal parts of other appliances and services in the room in which the heater is to be installed, to conform to current IEE regulations.

Table A

CIRCUIT PROTECTION

unit rating	mcb	cartridge fuse
7.0kW	30/32A	30A
7.5kW	32A	35A
8.0kW	40A	35A
8.5kW	40A	45A
9.0kW	40A	45A
9.5kW	40/45A	45A
10.5kW	45A	45A

ELECTRICAL REQUIREMENTS

5.1 When installed in a bathroom, exposed metallic parts must be bonded together using a cable of at least 4mm² cross sectional area. These parts include metal baths, radiators, water pipes, taps and waste fittings.

6 For close circuit protection DO NOT use a rewireable fuse. Instead use a suitably rated miniature circuit breaker (MCB) or cartridge fuse (see table A).

6.1 In the interest of electrical safety a 30mA residual current device (RCD) should be installed in the circuit. This may be part of the consumer unit or a separate unit.

7 A 45 amp double pole isolating switch with a minimum contact gap of 3mm in both poles must be incorporated in the circuit.

7.1 It must have a mechanical indicator showing when the switch is in the OFF position, and **t**he wiring must be connected to the switch without the use of a plug or socket outlet.

7.2 If the heater is installed in a bathroom then the switch must be accessible and clearly identifiable, but out of reach of a person using the heater, except for the cord of a cord operated switch.

Table B

Twin and earth PVC insulated cable

CURRENT CARRYING CAPACITY

installed in an insulated wall	in conduit or trunking	clipped direct or buried in a non insulated wall
6mm²	6mm²	6mm²
32A	38A	46A
10mm²	10mm²	10mm²
43A	52A	63A
16mm²	16mm²	16mm²
57A	69A	85A

Note: Cable selection is dependent on de-rating factors

8 If located in any room other than a bathroom, all socket outlets in the room must be protected by a 30mA RCD.

9 The current carrying capacity of the cable must be at least that of the heater circuit protection (see table B).

9.1 To obtain full advantage of the power provided by the heater, use the shortest cable route possible from the consumer unit to the heater.

9.2 It is also necessary to satisfy the disconnection time and thermal constraints which mean that for any given combination of current demand, voltage drop and cable size, there is a maximum permissible circuit length.

10 The heater circuit should be separated from other circuits by at least twice the diameter of the cable or conduit.

10.1 The current rating will be reduced if the cabling is bunched with others, surrounded by thermal loft or wall insulation or placed in areas where the ambient temperature is above 30°C. Under these conditions, de-rating factors apply and it is necessary to select a larger cable size.

10.2 In the majority of installations, the cable will unavoidably be placed in one or more of the above conditions. This being so, it is strongly recommended to use a minimum of 10mm cabling throughout the heater installation.

10.3 In any event, it is essential that individual site conditions are assessed by a competent electrician in order to determine correct cable size and permissible circuit length.

Fig. 6

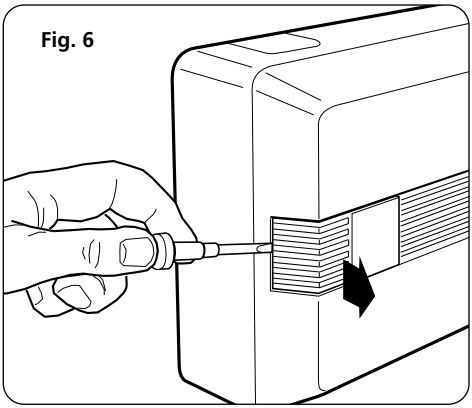


Fig. 7

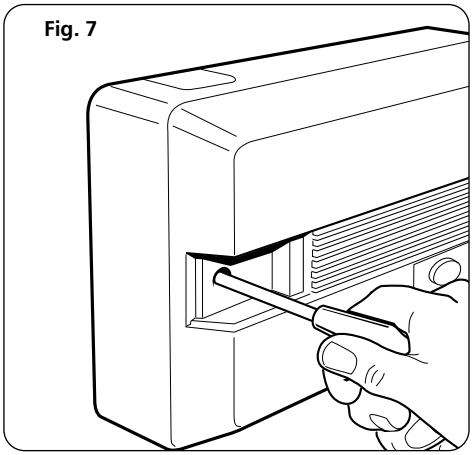
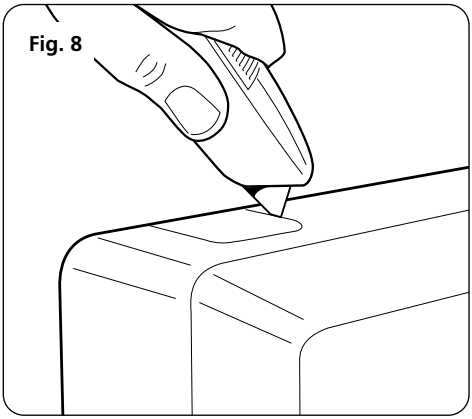


Fig. 8



FITTING THE UNIT TO THE WALL

Refer to **figure 2** for correct siting of the unit. Avoid long pipe runs between the heater and the tap as this will affect the available outlet temperature.
THE UNIT MUST BE MOUNTED IN THE HORIZONTAL POSITION ONLY WITH THE WATER CONNECTIONS AT THE BOTTOM.

Procedure: Remove the cover trimplate **(fig.6)** by using a thin bladed screwdriver and gently prise out. Insert a screwdriver **(fig.7)** and remove the retaining screw, then lift off the cover. Entry position for the mains water is at the bottom only. Electrical supplies are at the top or at the rear of the unit. If top entry is required for cable entry, a hole will need to be cut out of the cover **(fig.8)**. Using the backplate as a template, mark the two wall fixing holes. Drill and plug to suit the fixing screws supplied. Offer the unit to the wall and screw to the wall. DO NOT fully tighten the screws at this stage, as the fixing holes are elongated to allow for out of square adjustment after the plumbing connections have been completed.

NOTE: The heater must be mounted as near to horizontal as possible to ensure fault free operation.

PLUMBING CONNECTIONS

WARNING: Do not use jointing compounds on any pipe fittings for the installation.
DO NOT use soldered fittings within the vicinity of the heater unit.
DO NOT install a non-return valve in the supply pipework.

NOTE: An additional stopvalve (complying with Water Byelaws) MUST be fitted in the mains water supply to the heater as an independent means of isolating the water supply should maintenance or servicing be necessary. **Important:** Before completing the connection of the water supply to the inlet of the unit, flush out the pipework to remove all swarf and system debris. This can be achieved by connecting a hose to the pipework and turning on the mains water supply long enough to clear the debris to waste.

Procedure: Turn off the water supply either at the mains stop tap or the isolating stopvalve.

Before connecting the supply pipe to the unit, push the supplied wire mesh filter into the heater inlet. This helps to prevent ingress of debris. Ensure the filter is inserted the correct way as shown in **fig.9**.

Connect the mains water supply to the inlet of the unit via 15mm copper or stainless steel pipe using the nut and olive supplied **(fig.10)**.

Connect the hot water pipe to the outlet side using the nut and olive supplied.

Ensure the backplate is square on the wall and tighten the two retaining screws which hold it to the wall.

Turn on the mains water supply at the isolating valve, then fully open the sink tap until a smooth flow of water is obtained. Close the tap and check for leaks in the pipework connection to the heater.

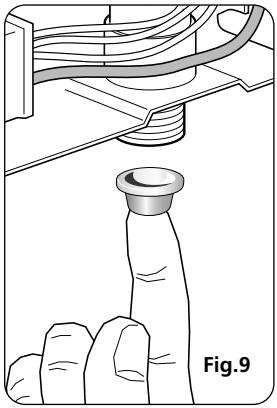


Fig.9

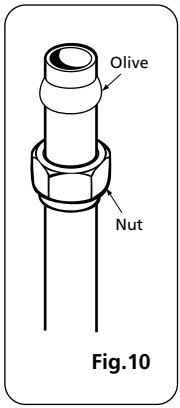


Fig.10

ELECTRICAL CONNECTIONS

WARNING: THIS UNIT MUST BE EARTHED.

NOTE: A double pole linked switch with a minimum contact gap of 3mm in both poles must be fitted in the circuit. The supply cable must conform to relevant tables in the current IEE regulations. The electrical rating of the heater is shown on the rating label within the unit.

Fig.11 depicts a schematic wiring diagram for the two relay unit but with a two element heater can.

Fig.12 shows a schematic wiring diagram for the two relay unit with an optional three element heater can.

Fig.13 shows a schematic wiring diagram for the three relay heater.

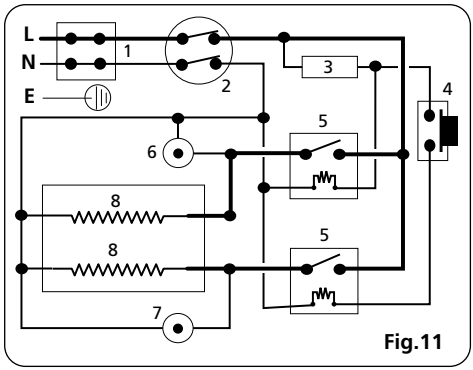


Fig.11

1 Terminal block
2 Double pole thermal cut-out
3 Reed switch
4 Power selector
5 Relays
6 Low power neon
7 Full power neon
8 Elements

SWITCH OFF THE ELECTRICITY SUPPLY.

Cable entry points are shown in **fig.1 & 2**. The cable can be surface clipped, hidden or via 20mm conduit (conduit entry can only be from rear).

NOTE: The cable grommet for top entry can be cut to suit different sizes. The cable grommet MUST be used when the supply cable is routed through the top entry.

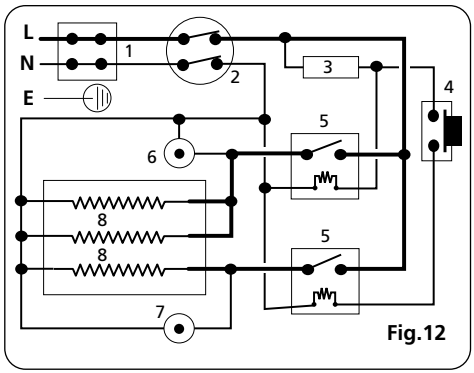
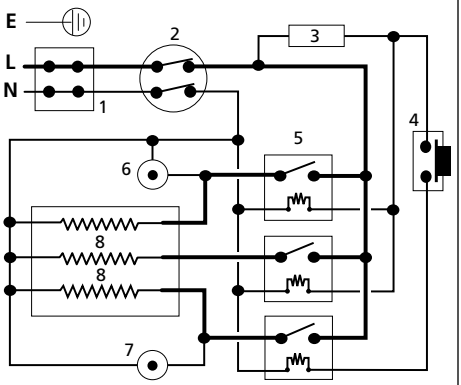


Fig.12

Fig.13



1 Terminal block
2 Thermal cut-out
3 Reed switch
4 Power selector
5 Relays
6 Low power neon
7 Full power neon
8 Elements

Fig.14

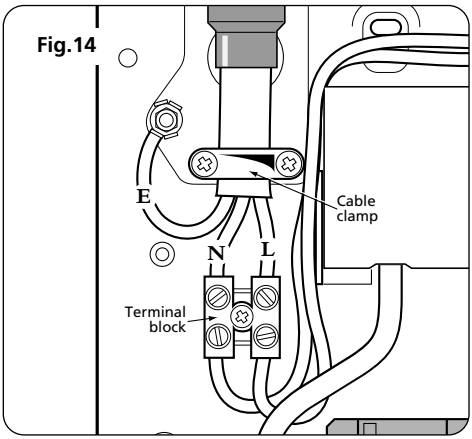
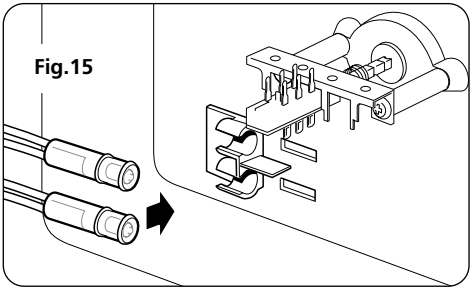


Fig.15



Route the cable into the heater unit and connect to terminal block **(fig.14)** as follows:-

Earth cable to terminal marked ⏚

Neutral cable to terminal marked **N**

Live cable to terminal marked **L**

Important: Fully tighten the terminal block screws and ensure that no cable insulation is trapped under the screws. NOTE: The supply cable earth conductor must be sleeved.
The outer sheath of the supply cable must be stripped back to just after the clamp.
The cable clamp **(fig.14)** is suitable for up to four mm^2 cable or can be reversed for use with up to ten mm^2 cable. The earth continuity conductor of the electrical installation must be effectively connected electrically to all exposed metal parts of other appliances and services in the room in which the heater is to be installed, to conform to current IEE regulations.

DO NOT switch on the electricity supply until the cover has been fitted.

REPLACING THE COVER

Offer the cover to the backplate and plug the two loose neons into the bracket that is located inside the cover **(fig.15)** ensuring that the neon with the grey wires is placed in the upper position and the neon with the yellow wires is placed in the lower position.

While supporting the cover (it is not advisable to let the cover dangle with the weight taken by the neon wires) connect the two loose brown wires attached to the backplate unit to the two brown wires attached to the switch assembly located inside the cover **(fig.16)**. These are male and female spade connectors and simply push in.

Carefully replace the cover by first engaging the lug on the right hand side into the location hole on the backplate **(fig.17)**.

Swing the left side onto the backplate ensuring no cables etc. are trapped. Secure with the retaining screw. Replace the cover trimplate by pushing into place.

COMMISSIONING

The first operation of the unit is intended to flush out any remaining system debris, using the unit with the electricity switched OFF at the isolating switch. Fully open the basin/sink tap. It will take approximately one minute for a smooth flow of water to be obtained whilst air and any debris are being dispersed from the unit.

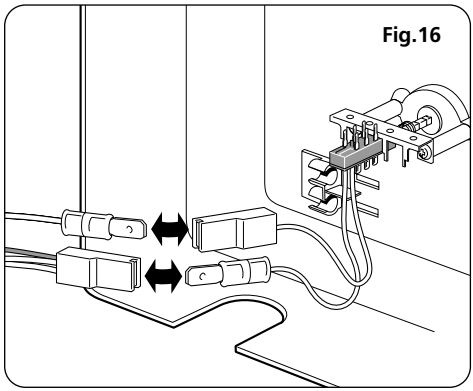
Once flushing out has been completed, stop the water flow by turning off the tap.

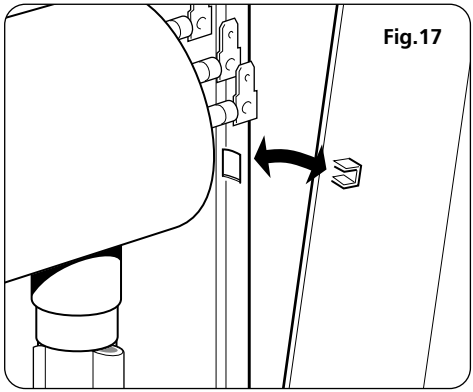
To enable easier temperature adjustment via the outlet tap, regulation of flow rate into the heater via the inlet isolating valve is recommended. This is carried out as follows:

a) Open the outlet tap to its full extent.

b) Control the flow rate via the inlet isolating valve until approximately five litres is flowing at the outlet tap.

Switch on the electricity supply to the heater unit. The heater is now ready for normal use.



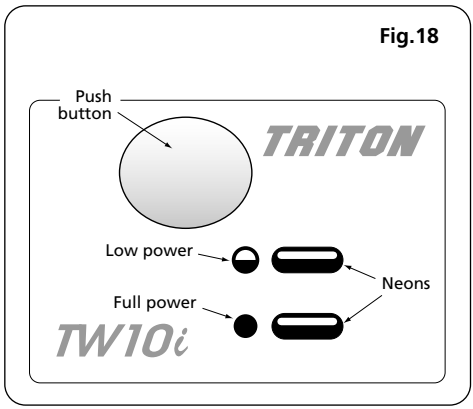


OPERATING FUNCTIONS

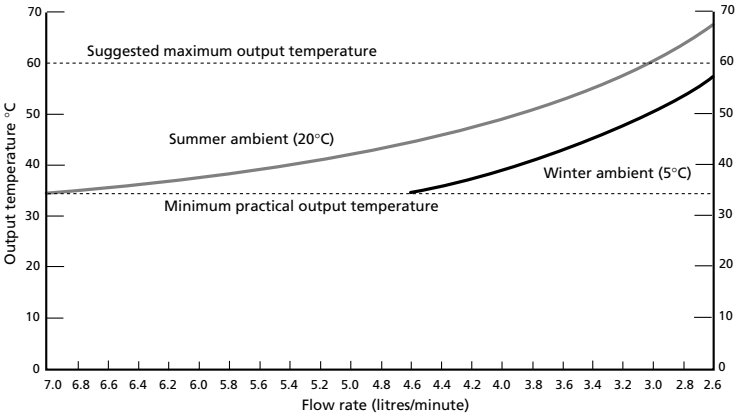
Power selector

The push button selector on the front of the unit **(fig.18)** allows the heater to operate on two power settings – low power or full power, the selection of which is indicated by neons. Note that the low power neon will always be lit whenever the hot tap is turned on. When the button is pressed for full power, both neons will be lit.

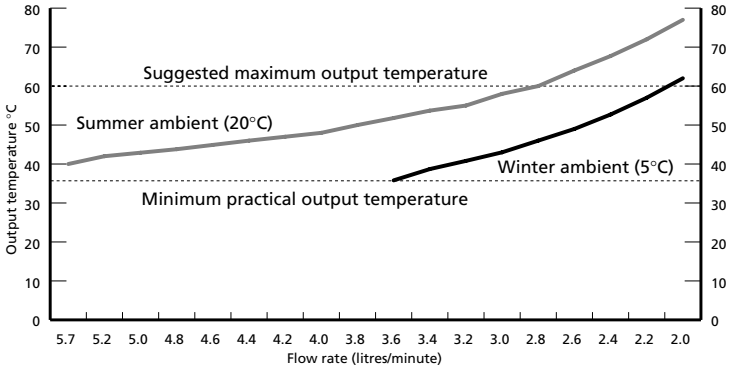
During warmer months when the ambient temperature is higher, selecting low power will save power and energy.



9.5kW performance under Winter/Summer ambient conditions

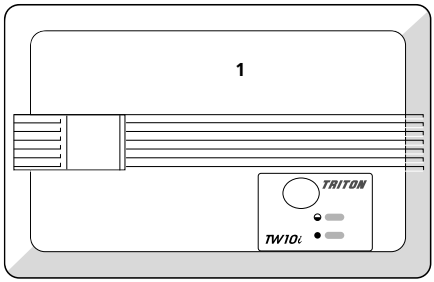


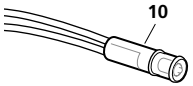
8kW performance under Winter/Summer ambient conditions

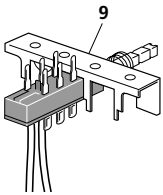


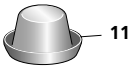
SPARE PARTS

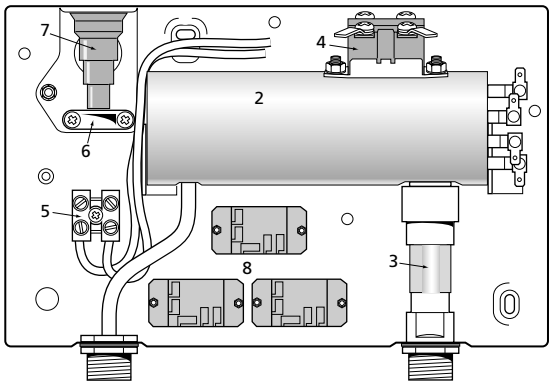
Ref.	Description	Part No.
1	Cover assembly	81600010
2	Can assembly	
	9.5 kW 240V	2600010
	9.5 kW 230V	2600010
	8 kW 230V	2600002
	6 kW 220V	2600005
3	Flow switch assembly	82800320
4	Thermal cut-out	22005840
5	Terminal block & wires	82200370
6	Cable clamp	22000420
7	Cable grommet	7061035
8	Relay (3 relay units)	22007030
	Relay (2 relay units)	22005950
9	Power switch assembly	82300300
10	Neon	82300340
11	Filter	7012763











FAULT FINDING

IMPORTANT: Switch OFF the electricity at the mains supply and remove the circuit fuse before removing the cover from the heater while attempting any fault finding inside the unit.

Problem/Symptom	*Cause*	*Action/cure*
1 No water from hot tap.	**1.1** Isolating stopvalve turned off.	**1.1.1** Open valve
	1.2 Filter blocked.	**1.2.1** Clean filter.
	1.3 Outlet side may be blocked.	**1.3.1** Unscrew and check outlet tap.
	1.4 Blockage in mains supply pipe.	**1.4.1** Check for water flow in supply pipe leading up to the heater inlet.
	1.5 Main water pipe frozen.	**1.5.1** Switch off at the isolating switch and check for evidence of freezing. Contact Customer Service for advice.
2 No hot water.	**2.1** Safety overheat cut-out has operated.	**2.1.1** Turn off at the isolating switch and have the unit checked by a suitably qualified electrician or contact Customer Service.
	2.2 Electrical malfunction.	**2.2.1** Turn off at the isolating switch and have unit the checked by a suitably qualified electrician or contact Customer Service.
3 Water too hot.	**3.1** Not enough water flowing through heater.	**3.1.1** See 'no water from hot tap' and their appropriate action/causes.
	3.2 Increase in ambient water temperature.	**3.2.1** Increase the flow rate from the outlet tap or select low power setting.
4 Unit switches off during use – water suddenly goes cold.	**4.1** Interrupted power supply.	**4.1.1** Blown fuse or circuit breaker. Check supply. Renew or reset fuse or circuit breaker. If it fails again, consult a qualified electrician. **4.1.2** Power cut. Check other appliances and if necessary, contact local Electricity Supply Co.
	4.2 Water flow too little.	**4.2.1** Open tap further to increase water flow.

It is advised that all electrical repairs/maintenance to the heater should be carried out by a suitably qualified person

INSTRUCTIONS FOR INSTALLERS AND SERVICE ENGINEERS

Re-settable safety cut-out

This TW10i unit is fitted with a thermal cut-out to prevent excessive heat and to protect the unit under fault conditions.

In the event of operation the unit will require manual re-setting as follows:

SWITCH OFF THE ELECTRIC SUPPLY AT THE ISOLATING SWITCH.

Remove the front cover and press the red reset button located on the thermal cut-out.

NOTE: Always isolate the electric supply to the unit before removing the cover.

If the safety cut-out operates again after re-setting, determine the nature of the fault to prevent undue re-setting.

Contact Customer Service for advice if cut-out continues to operate.

TRITON STANDARD GUARANTEE

Triton Plc guarantee this product against all mechanical and electrical defects arising from faulty workmanship or materials for a period of one year for domestic use only, from the date of purchase, provided that it has been installed by a competent person in full accordance with the fitting instructions.

Any part found to be defective during this guarantee period we undertake to repair or replace at our option without charge so long as it has been properly maintained and operated in accordance with the operating instructions, and has not been subject to misuse or damage.

This product must not be taken apart, modified or repaired except by a person authorised by Triton Plc. This guarantee applies only to products installed within the United Kingdom and does not apply to products used commercially.
This guarantee does not affect your statutory rights.

What is not covered:

1 Breakdown due to: ***a)*** use other than domestic use by you or your resident family; ***b)*** wilful act or neglect; ***c)*** any malfunction resulting from the incorrect use or quality of electricity, gas or water or incorrect setting of controls; ***d)*** faulty installation.

2 Repair costs for damage caused by foreign objects or substances.

3 Total loss of the product due to non-availability of parts.

4 Compensation for loss of use of the product or consequential loss of any kind.

5 Call out charges where no fault has been found with the appliance.

6 The cost of repair or replacement of pressure relief devices, sprayheads, hoses, riser rails and/or wall brackets, isolating switches, electrical cable, fuses and/or circuit breakers or any other accessories installed at the same time.

7 The cost of routine maintenance, adjustments, overhaul modifications or loss or damage arising therefrom, including the cost of repairing damage, breakdown, malfunction caused by corrosion, furring, pipe scaling, lime scale, system debris or frost.

Service Policy

In the event of a complaint occurring, the following procedure should be followed:

1 Telephone Customer Service on 024 7637 2222 (08457 626591 in Scotland and in Northern Ireland), having available the model number and power rating of the product, together with the date of purchase.

2 Triton Customer Service will be able to confirm whether the fault can be rectified by either the provision of a replacement part or a site visit from a qualified Triton service engineer.

3 If a service call is required it will be booked and the date of call confirmed. In order to expedite your request, please have your postcode available when booking a service call.

4 It is essential that you or an appointed representative (who must be a person of 18 years of age or more) is present during the service engineer's visit and receipt of purchase is shown.

5 A charge will be made in the event of an aborted service call by you but not by us, or where a call under the terms of guarantee has been booked and the failure is not product related (i.e. scaling and furring, incorrect water pressure, pressure relief device operation, electrical installation faults).

6 If the product is no longer covered by the guarantee, a charge will be made for the site visit and for any parts supplied.

7 Service charges are based on the account being settled when work is complete, the engineer will then request payment for the invoice. If this is not made to the service engineer or settled within 10 working days, an administration charge will be added.

Replacement Parts Policy

Availability: It is the policy of Triton to maintain availability of parts for the current range of products for supply after the guarantee has expired. Stocks of spare parts will be maintained for the duration of the products' manufacture and for a period of five years thereafter.

In the event of a spare part not being available a substitute part will be supplied.

Payment: The following payment methods can be used to obtain spare parts:

1 By post, pre-payment of pro forma invoice by cheque or money order.

2 By telephone, quoting credit card (MasterCard or Visa) details.

Triton Plc, Shepperton Park, Caldwell Road,
Nuneaton, Warwickshire. CV11 4NR

Customer Service
☎ (024) 7637 2222

Scottish and Northern Ireland
Customer Service
☎ 08457 626591

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E mail: technical@triton.plc.uk