

stuart

Installation, Operation & Maintenance Instructions

Please leave this instruction booklet with the owner as it contains important guarantee, maintenance and safety information



Read this manual carefully before commencing installation.

This manual covers the following products suitable for 230/1/50 supply.

CH 4-30 FL

Pt. No. 46578

Pt. No. 46578 EXP

CH 4-40 FL

Pt. No. 46596

Pt. No. 46596 EXP

CH 4-50 FL

Pt. No. 46605

CH 4-60 FL

Pt. No. 46606

FOR POSITIVE HEAD APPLICATIONS ONLY

50 Hz



PRODUCT DESCRIPTION

Electric motor driven centrifugal pump complete with an automatic control system, consisting of flow switch, and electronic control.

APPLICATION

The Stuart CH FL range is designed for pressure boosting applications in vented stored, hot, cold or blended clean water systems, where under gravity, a flow is available of at least 1 l/min. If you wish to boost both hot and cold services, then CH Boostamatic models must be used, for further details contact 'PumpAssist'.

Inlet pressures to the pump and ambient temperatures must not exceed the values given in the technical specifications.



- **This pump set must not be used for any other application without the written consent of Stuart Turner Limited.**
- **Do not connect this pump to the mains water supply.**
- **The use of this product requires experience with and knowledge of the product. Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety.**
- **Children must not use or play with this product.**

Please read installation details carefully as they are intended to ensure this product provides long, trouble free service. Failure to install the unit in accordance with the installation instructions will lead to invalidation of the warranty.

STORAGE

If this product is not to be installed immediately on receipt, ensure that it is stored in a dry, frost and vibration free location in its original packaging.

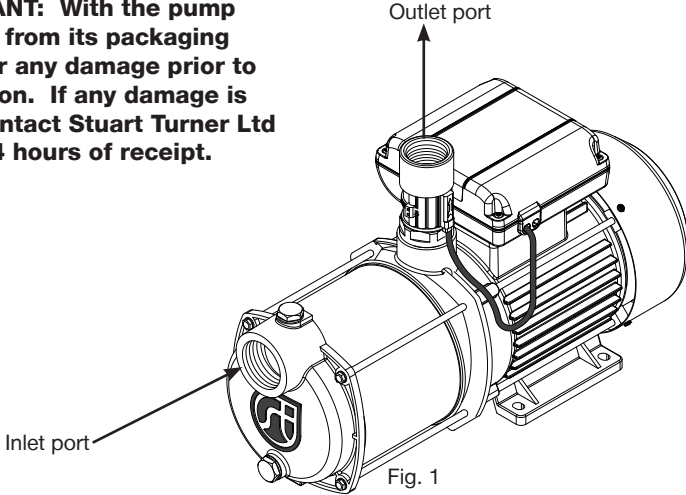
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CHECKLIST

IMPORTANT: With the pump removed from its packaging check for any damage prior to installation. If any damage is found contact Stuart Turner Ltd within 24 hours of receipt.

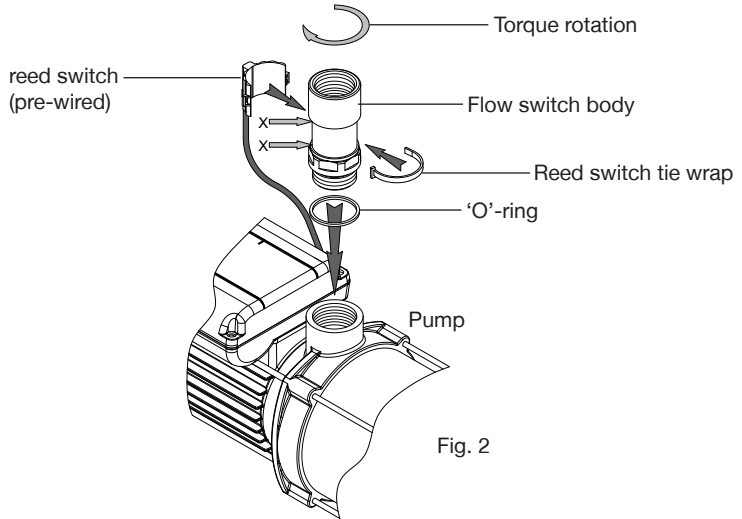


Your product may vary slightly from the picture above.

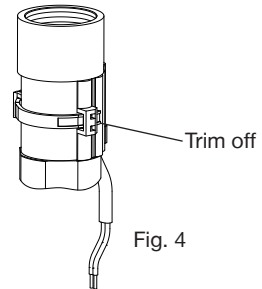
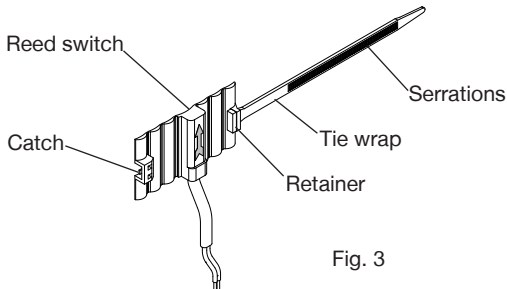
ASSEMBLY

To protect the unit during transit the pump is supplied with the flow switch removed. Follow the instructions below to complete assembly.

- Ensure all components are clean and free from debris.
- Screw complete flow switch body assembly into pump body, ensuring 'O'-ring is fitted (Fig. 2).
- Tighten to 7 - 10 Nm (5 - 7 lb ft).
- Care should be taken when handling the reed switch not to damage the reed or cable.
- For correct operation of the flow switch, the reed must be secured to the body (Fig. 2).
- Firstly feed the tie wrap through the retainer on the reed switch, ensuring that the tie wrap serrations are facing outwards (Fig. 3).



- Locate the reed switch within the body groove as highlighted X-X (Fig. 2), and feed the tie wrap through the second catch. Note the arrow on the reed switch should be pointing up, towards the outlet connection.
- The tie wrap can now be pulled tight to secure the reed and the excess cut to length as shown (Fig. 4).



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1 IMPORTANT FACTS: READ BEFORE COMMENCING PUMP INSTALLATION

A. Water storage capacity.

- 1.11 The water storage capacity must be sufficient to meet the flow rates required by the pumped equipment and any other water using fittings and appliances, which may be operated simultaneously.
- 1.12 Ensure the pump is primed as described in the priming section before starting, damage to the shaft seal will result otherwise. See Section 4 - Plumbing.

B. Water temperature

The water entering the pump must be controlled as follows:

- 1.13 The maximum allowable water temperature is 65 °C.
- 1.14 The minimum allowable water temperature is 4 °C.
- 1.15 **Ambient temperature:** The pump must be sited in a location where the maximum ambient temperature should not exceed 40 °C continuous or 50 °C intermittent.
- 1.16 **DO NOT** fit a pump if the hot water is heated via a method whereby the water temperature cannot be controlled, such as solar or solid fuel you must consult the PumpAssist team on +44 (0) 800 31 969 80.

C. Water flow

- 1.17 For this pump to operate correctly there must be a minimum gravity flow of at least 1 l/min through all outlets to be pumped.

D. Pipework - general

- 1.18 **Secure pipework:** Ensure pipework to and from pump is independently supported & clipped to prevent forces being transferred to inlet and outlet branches of pump.
- 1.19 **Flux:** Solder joints must be completed and flux residues removed prior to pump installation (**flux damage will void any warranty**).
- 1.20 **Pipework design:** Care should be taken in the design of pipework runs to minimize the risk of air locks e.g. use drawn bends rather than 90° bends.



- 1.21 **DO NOT** introduce solder flux to pump parts manufactured from plastic.

- 1.22 **DO NOT** allow contact with oil or cellulose based paints, paint thinners or strippers, acid based descalents or aggressive cleaning agents.



- 1.23 **DO NOT** install a non-return valve, or devices which contain non-return valves, in the suction (inlet) pipework to the pump. The pump must be free to vent to the supply tank at all times.

E. Plumbing installation regulations

- 1.24 The plumbing installation must be installed by a qualified person and in accordance with local regulations.

F. Electrical/installation regulations

- 1.25 The electrical installation must be installed by a qualified person and in accordance with local regulations.
- 1.26 Check the mains voltage and frequency corresponds to the values on the pump rating plate.

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2 LOCATION - GENERAL



- 2.11 **Access:** For emergencies and maintenance the pump must be easily accessible.
- 2.12 **Protection:** The pump must be located in a dry position, frost free and protected from freezing, particularly when installed in a loft (not recommended).
- 2.13 **Ventilation:** Ensure an adequate air flow to cool the pump. Separate the pump from other appliances that generate heat. An 80 mm (3 ") air gap must be maintained around the pump.
- 2.14 **Safety:** The motor casing can become very hot under normal operating conditions. Care must be taken to ensure it cannot be touched during operation.
- 2.15 **Water retention:** Site the pump in a location where in the unlikely event of a water leak, any spillage is contained or routed to avoid electrics or areas sensitive to water damage.
- 2.16 **Mounting foot securing:** This pump is fitted with cast feet. If there is a requirement to secure the pump via the feet, the following points should be noted.
The pump should be mounted only in the horizontal position.

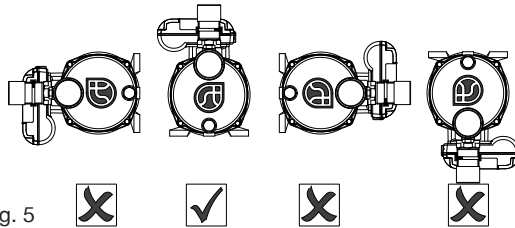


Fig. 5

The mounting bolts used to secure the pump must be fitted with a plain washer to distribute clamping load evenly across load bearing face of foot (not supplied).

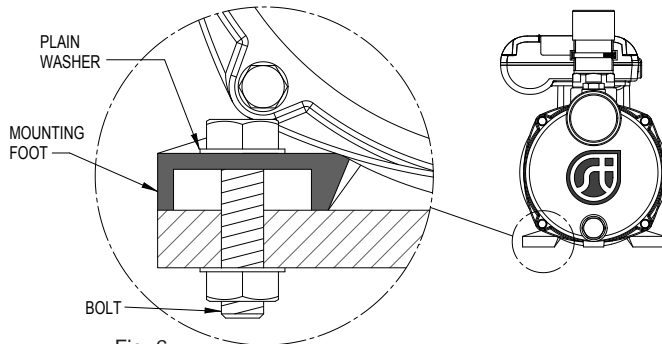


Fig. 6

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3 ELECTRICAL INSTALLATION / EARTHING



- 3.11 **Regulations:** The electrical installation must be carried out in accordance with the current local regulations by a qualified person.
- 3.12 **Safety:** In the interests of electrical safety a 30 mA residual current device (**R.C.D. not supplied**) should be installed in the supply circuit. This may be part of a consumer unit or a separate unit.
- 3.13 Before starting work on the electrical supply ensure power supply is isolated.
- 3.14 **DO NOT** allow the supply cord to contact hot surfaces, including the motor shell, pump body or pipework. The cord should be safely routed and secured by cable clips.
- 3.15 **Earthing:** This appliance must be earthed via the supply cord, which must be correctly connected to the earth point located in the terminal box.
- 3.16 **Connections:** The pump must be permanently connected to the fixed wiring of the mains supply using the factory fitted supply cord, via a dedicated double pole switched fused spur off the ring main.
- 3.17 **Wiring of connection unit:**



WARNING: This appliance must be earthed.

The wires in the mains lead are coloured in accordance with the following code:

Green and Yellow: Earth Blue: Neutral Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your connection unit proceed as follows:

Green and yellow coloured wire must be connected to the terminal in the connection unit marked with the letter E or by the earth symbol: \oplus or coloured green or green and yellow.

Blue coloured wire must be connected to the terminal marked with the letter N or coloured black.

Brown coloured wire must be connected to the terminal marked with the letter L or coloured red.

3.18 Wiring diagram:

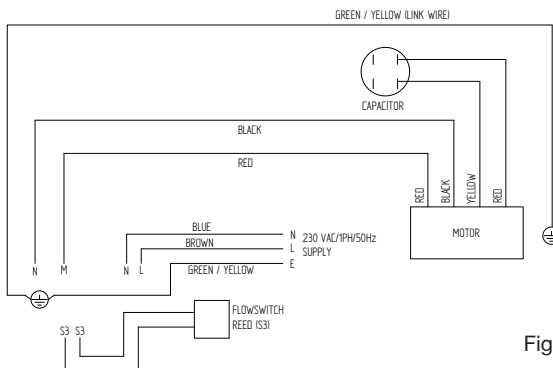


Fig. 7

3.19 **Fuse:** All models should use 13 Amp fuse.

3.20 **Supply cord replacement:**



The supply cord and internal wiring within the terminal box are routed and secured to ensure compliance with the electrical standard EN 60335-1. It is essential that prior to any disturbance of this internal wiring, all cable routing and securing details are carefully noted to ensure re-assembly to the same factory pattern is always maintained.

3.21 If the supply cord is to be changed or damaged, it must be replaced by a special cord available from Stuart Turner or one of its approved repairers.

4 PLUMBING

- 4.11 **Pipework:** For optimum performance pipework use 28 mm dia., 22 mm can be used but will result in reduced pump performance.
Pipework should only reduce to 15 mm when entering terminal fitting.
- 4.12 **Isolating valves:** Separate isolating valves (non restrictive) must be fitted to allow easy pump service.
- 4.13 **Inline strainer:** When pump is to be installed in areas where there is risk of debris or scale build up within the system, you **MUST** ensure the inlet pipework is fitted with an inline strainer.
- 4.14 The pump must be located with at least 0.5 metres flooded suction at all times.

Cold water installation

- 4.15 Must have a dedicated air free supply.
- 4.16 Pump must be sited as close to the water source as possible and never more than 4 metres away.
- 4.17 Do not connect this pump to the mains supply.

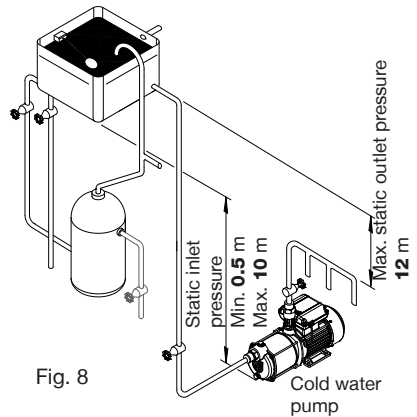


Fig. 8

Hot water installation

- 4.18 Must have a dedicated air free supply.
- 4.19 Pump must be sited as close to the water source as possible and never more than 4 metres away.
- 4.20 The preferred pump location is below the hot water take off.
- 4.21 However if the pump can not be located below the hot stored water take off the following must be adhered to:
- The pump must be located 0.5 metre below the cold water tank.
 - From a hot dedicated air free connection a downward loop of 350 mm depth must be fitted before rising directly to the pump.

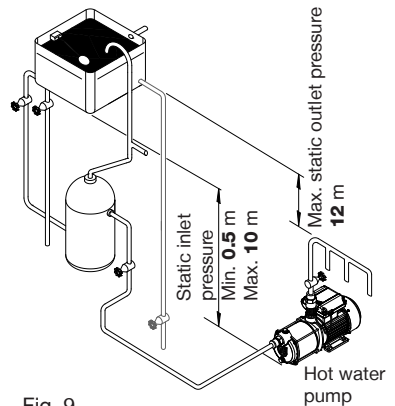


Fig. 9

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4.22 **System flushing:** The pipework system should be flushed out prior to the pump being connected to ensure any contaminants/chemical residues and foreign bodies are removed from elsewhere in the system.

4.23 **Priming:**



Never operate pump with inlet and/or outlet isolating valves in the closed position. Damage will occur!

The pump must be primed (filled with water) before starting.
Turn on the service valves and vent/prime pump head.

- (a) Loosen priming plug and allow an even flow of water this may take a few seconds.
- (b) Re-seal vent plug, nipping tight. The pump is now ready to start.

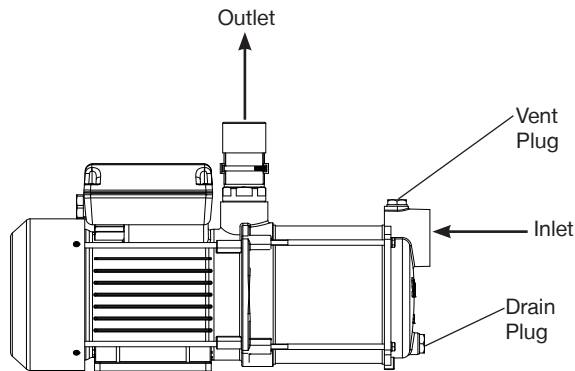


Fig. 10

4.24 **Starting:**

- a) Switch on power and open terminal fitting.
- b) Open and close all outlets in turn associated with the pump, allowing water to flow from each outlet until all air is purged. As each outlet is opened and closed, the pump will start and stop respectively.
- c) Any tap or control valve within the system when opened and closed will now turn the pump on/off.

4.25 **Maintenance:**

This product is maintenance free for its life, however it is a mechanical product and will eventually show signs of wear. Spare parts are available, for more information phone the Stuart Turner PumpAssist team on +44 (0) 800 31 969 80.

5 TECHNICAL SPECIFICATION

Pump Model		CH 4-30 FL 50 Hz 46578	CH 4-40 FL 50 Hz 46596	CH 4-50 FL 50 Hz 46605	CH 4-60 FL 50 Hz 46606
General	Guarantee	2 years			
	WRAS approval	1601035			
Features	Pump type	Centrifugal			
	Mechanical seal	EPDM / Carbon / Ceramic			
	Dry run protection	✓	✓	✓	✓
Materials	Pump Body	Brass / stainless steel			
	Impeller	Stainless steel			
Performance	Maximum head (closed valve)	25 metres	36 metres	50 metres	62 metres
	Performance @ 50 l/min	21 metres	30 metres	45 metres	56 metres
	Performance @ 100 l/min	13 metres	17 metres	31 metres	41 metres
	Maximum flow	134 l/min	141 l/min	145 l/min	148 l/min
	Minimum static inlet pressure	0.05 bar (0.5 metre)			
	Maximum static inlet pressure	1.0 bar (10 metres)			
	Maximum working pressure*	600 kPa (6 bar)		900 kPa (9 bar)	
	Max. ambient air temperature (Intermittent)	40 °C			
	Max. ambient air temperature (Intermittent)	50 °C		-	
	Min / Max water temperature**	Min 4 °C / Max 65 °C			
Flow switch sensitivity (approx)	1 l/min				
Connections	Pump connections	G 1¼ female (inlet), G 1 female (outlet)			
Motor	Type	Induction, auto-reset thermal trip			
	Duty rating	Continuous (S1)			
Electrical	Power supply / phase / frequency	230 V a.c. / 1 / 50 Hz			
	Current (full load)	3.6 Amps	5.4 Amps	7.3 Amps	8.8 Amps
	Power consumption	805 Watts	1210 Watts	1640 Watts	1980 Watts
	Fuse rating	13 Amps			
	Power cable (pre-wired)	0.75 metres			
Physical	Enclosure protection	IPX5			
	Length	360 mm	384 mm	431 mm	456 mm
	Width	155 mm		187 mm	
	Height (excluding hoses)	228 mm		247 mm	
	Weight (including fittings)	10.2 Kg	12.0 Kg	15.5 Kg	18.0 Kg

Stuart Turner reserve the right to amend the specification in line with its policy of continuous development of its products.

*Note: The maximum pressure that can be applied to the pump under any installation conditions.

**Note: A stored water temperature of 60°C is considered sufficient to meet all normal requirements and will minimise deposition of scale in hard water areas.

5.11 **Noise:** The equivalent continuous A-weighted sound pressure level at a distance of 1 metre from the pump does not exceed 70 dB(A).

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6 TROUBLE SHOOTING GUIDE

Symptoms	Probable Cause	Recommended Action
Pump will not start.	<p>Electrical supply.</p> <p>Pump Jammed.</p> <p>Recommended static inlet/outlet heads exceeded.</p> <p>No flow.</p> <p>Internal motor thermotrip activated.</p>	<p>Check power supply. Check fuse (see fuse section). Check circuit breaker is set. Check wiring connections.</p> <p>If motor 'Buzzes' switch off power and contact Stuart Turner.</p> <p>Re-position pump (see pump location section).</p> <p>Insufficient gravity flow to start the pump (must be at least 1 l/min).</p> <p>Wait for thermotrip to auto-reset and check that duty point and run time is within specification (see technical specification).</p>
Reduced/intermittent flow.	<p>Incorrect or no anti-aeration flange fitted</p> <p>Incorrect pipe sizes.</p> <p>Blocked inlet filters.</p> <p>Hot water temperature set too high.</p> <p>Blocked shower head spray plate</p>	<p>Check that the installation complies with installation instructions.</p> <p>Check for correct pipe sizing, see Page 8 - Section 4.11.</p> <p>Clean inline strainer.</p> <p>Reduce cylinder stat setting to 60 °C max.</p> <p>Clean in accordance with manufacturers instructions.</p>
No hot water.	<p>Air locked water feed.</p> <p>Heat source not operating.</p> <p>All hot water has been used.</p> <p>Faulty thermostatic mixer valve.</p>	<p>Vent hot water pump of air. Check cold feed to hot water cylinder. Check water level in cold water tank and that all stopcocks and isolating valves are open.</p> <p>Check boiler is switched 'on'. Check cylinder thermostat. Check immersion heater. Check cylinder contains hot water.</p> <p>Check tank volume is adequate.</p> <p>Consult makers instructions.</p>
Pump runs on with outlets closed.	<p>Leak in system.</p> <p>Damaged reed switch, P.C.B.</p> <p>Jammed flow switch.</p>	<p>Check tap washers, w/c valve washers, pipe joints.</p> <p>Check visually reed seated in groove on flow switch body. Position a magnet directly in front of the reed, slowly move the magnet up and down to a position that exceeds the extent of the reed clamp. If the pump does not start a possible reed switch or P.C.B fault is indicated. Contact Stuart Turner.</p> <p>Remove outlet hoses and check that flow switch sits in lowest position. Check float for free movement.</p>
Flexible hose leaks	<p>Not fitted correctly.</p> <p>Damaged 'O'-rings.</p>	<p>Check that the hose is pushed firmly onto the pump inlet/outlet connections and pipework.</p> <p>Check copper pipe ends are cleanly cut and deburred.</p>

6.11 **Fault Finding:** The PCB is also fitted with a “power on” indicator light. This will remain illuminated when mains power is supplied to the board. The indicator light is located on the PCB within the terminal box.



- **This operation should only be carried out by a competent person**

To view the light the following procedure must be followed:-

- Isolate the mains electrical power supply from the pump.
- Remove the four screws retaining the terminal box lid (Fig. 11).
- Lift the terminal box lid off.
- **IMPORTANT** – Ensure there is no contact with any of the internal parts of the terminal box.
- Briefly reconnect the mains power supply to the pump – the ‘power on light should illuminate if the pump has been correctly wired.
- Isolate the mains electrical power supply from the pump.
- Re fit the terminal box lid ensuring no cables are trapped.
- Re fit the four terminal box lid retaining screws, tighten to 0.8 Nm.

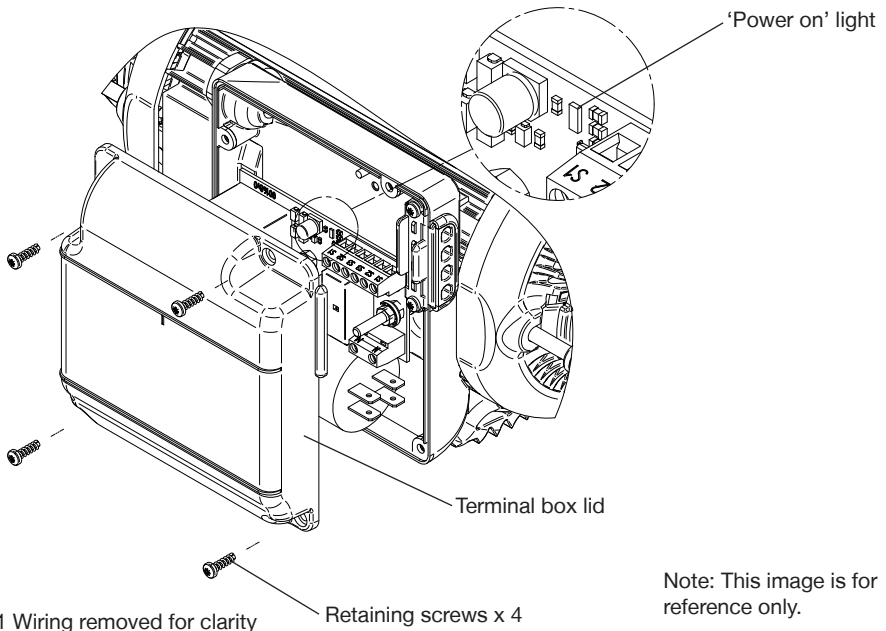


Fig. 11 Wiring removed for clarity

6.12 **Environment protection:** Your appliance contains valuable materials which can be recovered or recycled. At the end of the products’ useful life, please leave it at an appropriate local civic waste collection point.

Cont ...

7 YOUR 2 YEAR GUARANTEE

Congratulations on purchasing a Stuart Turner pump.

We are confident this pump will provide many years of trouble free service as all our products are manufactured to the very highest standard.

All Stuart Pumps are guaranteed to be free from defects in materials or workmanship for 2 years from the date of purchase.

Within the guarantee period we will repair, free of charge, any defects in the pump resulting from faults in material or workmanship, repairing or exchanging the whole unit as we may reasonably decide.

Not covered by this guarantee: Damage arising from incorrect installation, improper use, unauthorised repair, normal wear and tear and defects which have a negligible effect on the value or operation of the pump.

Reasonable evidence must be supplied that the product has been purchased within the guarantee term prior to the date of claim (such as proof of purchase or the pump serial number).

This guarantee is in addition to your statutory rights as a consumer. If you are in any doubt as to these rights, please contact your local Trading Standards Department.

In the event of a claim please telephone '**PumpAssist**' or return the pump and flexible hoses with the accessories removed e.g pipes etc. If you have any doubt about removing a pump, please consult a professional.

+44 (0) 800 31 969 80

Proof of purchase should accompany the returned unit to avoid delay in investigation and dealing with your claim.

You should obtain appropriate insurance cover for any loss or damage which is not covered by Stuart Turner Ltd in this provision.

Please record here for your records

TYPE NO.	SERIAL NO.	DATE PURCHASED

NOTES



DECLARATION OF CONFORMITY

2006/42/EC

BS EN ISO 12100-1, BS EN ISO 12100-2, BS EN 809

2014/35/EU

BS EN 60335-1, BS EN 60335-2-41

2014/30/EU

BS EN 55014-1, BS EN 55014-2, BS EN 55022, BS EN 61000-3-2, BS EN 61000-3-3,
BS EN 61000-4-2, BS EN 61000-4-3, BS EN 61000-4-4, BS EN 61000-4-5, BS EN 61000-4-6,
BS EN 61000-4-11

1999/519/EC

BS EN 62233

2011/65/EU

IT IS HEREBY CERTIFIED THAT THE STUART ELECTRIC MOTOR DRIVEN PUMP AS SERIAL NUMBER BELOW, COMPLIES WITH THE ESSENTIAL REQUIREMENTS OF THE ABOVE E.E.C. DIRECTIVES.



RESPONSIBLE PERSON
AND MANUFACTURER

STUART TURNER LIMITED
HENLEY-ON-THAMES, OXFORDSHIRE
RG9 2AD ENGLAND.

Signed.....

Business Development Director

Stuart Turner are an approved company to BS EN ISO 9001:2008



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