

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:

Jet 55-45 B
Pt. No. 46619

Jet 80-45 B
Pt. No. 46620



PRODUCT DESCRIPTION

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

APPLICATION

The Stuart Jet Boostamatic range is designed for pressure boosting applications in vented stored, cold, clean water systems, where under gravity, no flow is available and can be used in systems where either a positive or negative head exists.

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.**
- **This pump MUST NOT be connected directly to the mains water supply.**
- **This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.**
- **Children should be supervised to ensure that they do not play with the appliance.**
- **This product should not be used for the supply of water to more than one dwelling (house, apartment, flat).**

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.

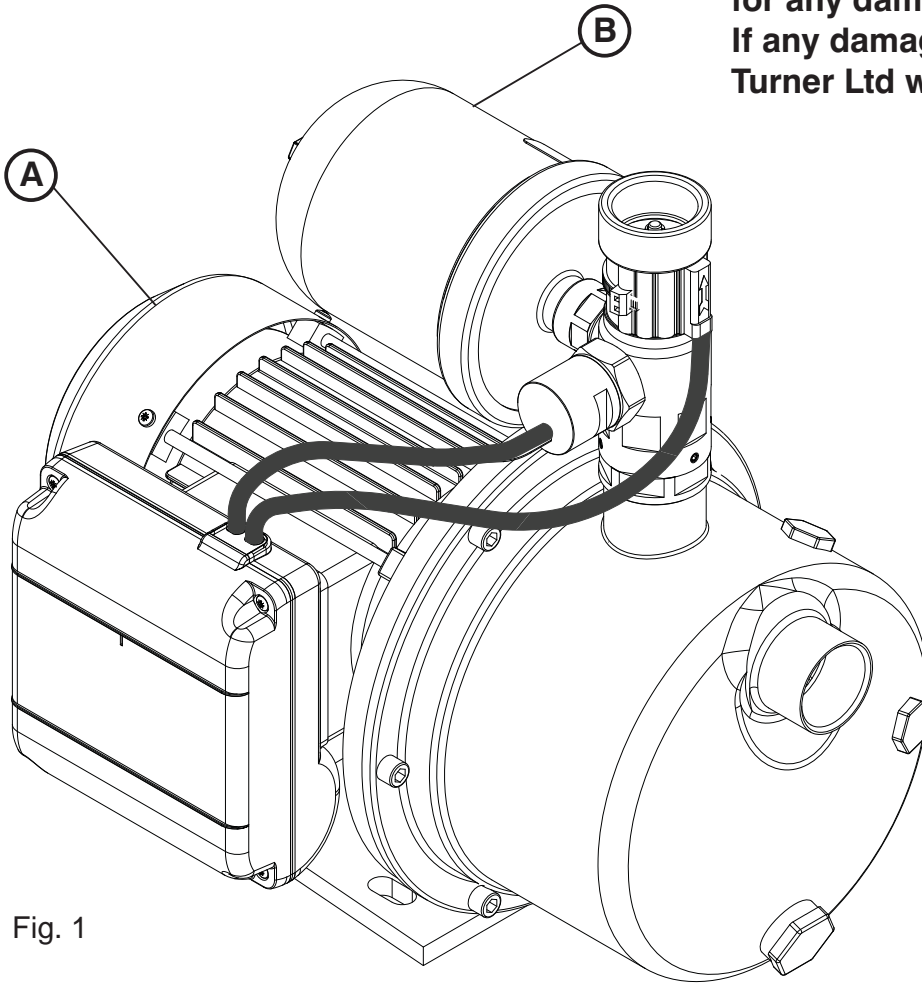


Fig. 1

Item	Description	Qty	Item	Description	Qty
(A)	Pump	1	(B)	Pressure vessel	1

Your product may vary slightly from the picture above.

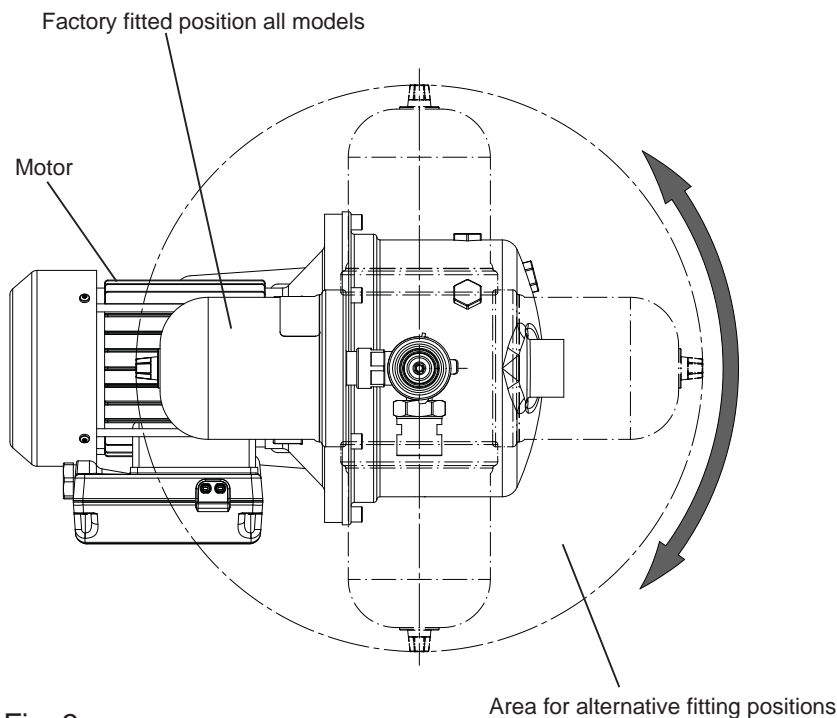
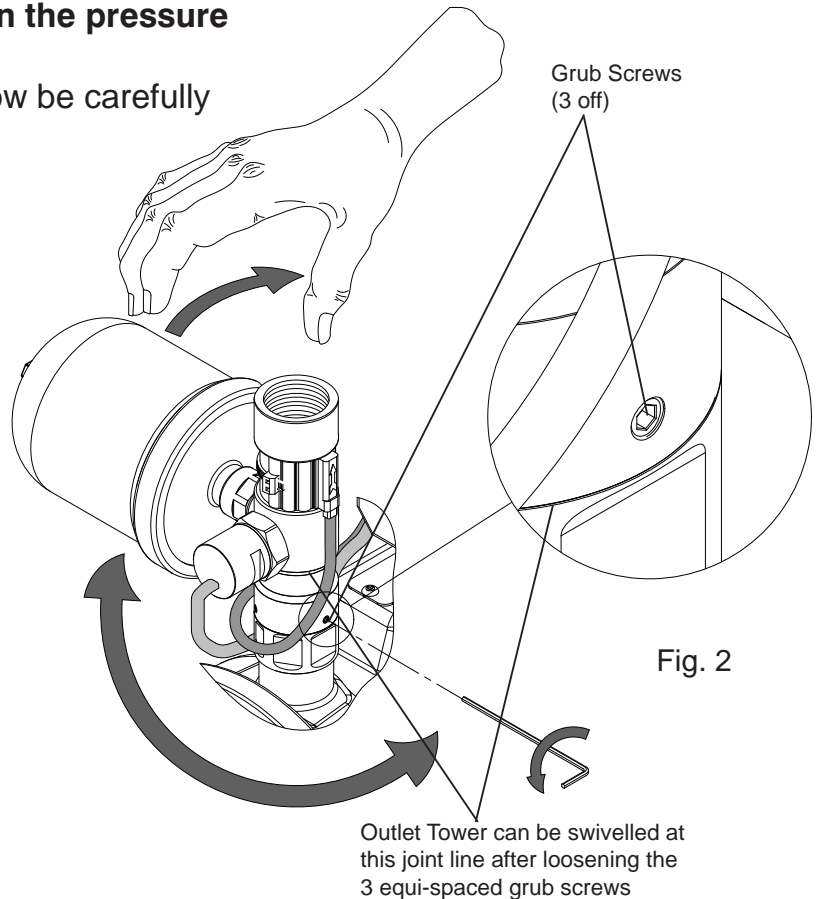
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PRE-INSTALLATION ASSEMBLY

Re-positioning of Pressure Vessel

The pressure vessel can be rotated to alternative positions (Fig. 3) in the event of the factory fitted position being unsuitable for a specific installation.

- 1 Remove pressure vessel by unscrewing anti-clockwise.
- 2 Using a 2 mm allen key, carefully loosen all three retaining grub screws by two turns (Fig. 2).
- 3 **Warning - Care must be taken when re-positioning the pressure vessel to ensure no strain is placed upon the pressure switch or reed switch cables.**
The flow switch assembly can now be carefully rotated to an alternative position (Fig. 3).
- 4 Ensure all three grub screws are re-tightened securely to a torque of 2.2 Nm (1.62 ft lbf).
- 5 Re-fit the pressure vessel ensuring the 'O'-ring seal is in place.



1 READ BEFORE COMMENCING PUMP INSTALLATION

A. Water storage capacity.

- 1.11 The cold 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 - Commissioning.

B. Water temperature

The water entering the pump must be controlled as follows:

- 1.13 The maximum allowable water temperature is 35 °C.
- 1.14 The minimum allowable water temperature is 4 °C.

C. Pipework - General

- 1.15 **Secure pipework:** Ensure pipework to and from pump is independently supported & clipped to prevent forces being transferred to inlet and outlet branches of pump.
- 1.16 **Flux:** Solder joints must be completed and flux residues removed prior to pump installation (**flux damage will void any warranty**).
- 1.17 **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.



1.18 **DO NOT** introduce solder flux to pumps or pump parts manufactured from plastic.

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



1.20 **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 unless pump in suction lift application.

1.21 **DO NOT** connect this pump to the mains water supply.

D. Plumbing & Electrical Installation Regulations

- 1.22 The plumbing installation must comply with “The Water Supply (Water Fittings) Regulations 1999” and “BS 6700” building regulations.
- 1.23 The plumbing installation must be installed by a qualified person.
- 1.24 The electrical installation must be carried out in accordance with the current national electrical regulations.
- 1.25 The electrical installation must be installed by a qualified person.

E. Pressure vessel

- 1.26 Pressure vessel is charged at the factory see Section 5 - Maintenance for details.

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 **Static inlet pressure:** Before deciding where to locate the unit check to ensure the static inlet head between pump and cold water level (Fig. 4) is at least 1 metre and does not exceed the max inlet head of 5 metres.
- 2.17 **Pump position:** The pump must be positioned as close to the water source as possible. The pump has a side mounted terminal box. Ensure the pump is mounted in a position that allows easy access to the box if required.
- 2.18 **Ambient temperature:** The pump must be sited in a location where the maximum ambient temperature does not exceed 40 °C.
- 2.19 **Pipework:** For optimum performance pipework 28 mm should be used. 22 mm is acceptable, however, any pipe size reduction will reduce the pumps performance.
- 2.20 **Static outlet pressure:** The static outlet head (Fig. 4) must also be within the maximum requirement of 13 metres.
- 2.21 **Direction of flow:** Ensure the water flow is in the direction of the arrow marked on the flow switch reed clamp (vertically upwards).
- 2.22 **Isolating valves:** If permanently installed, isolating valves should be fitted in suction and delivery pipework to enable easy isolation and access to the pump.
- 2.23 **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.
- 2.24 **Suction lift:** This pump is capable of a maximum suction lift of 5 m in this case only, an NRV in the footvalve is permissible (Fig. 5).

2 LOCATION - PUMP MOUNTED BELOW WATER SOURCE

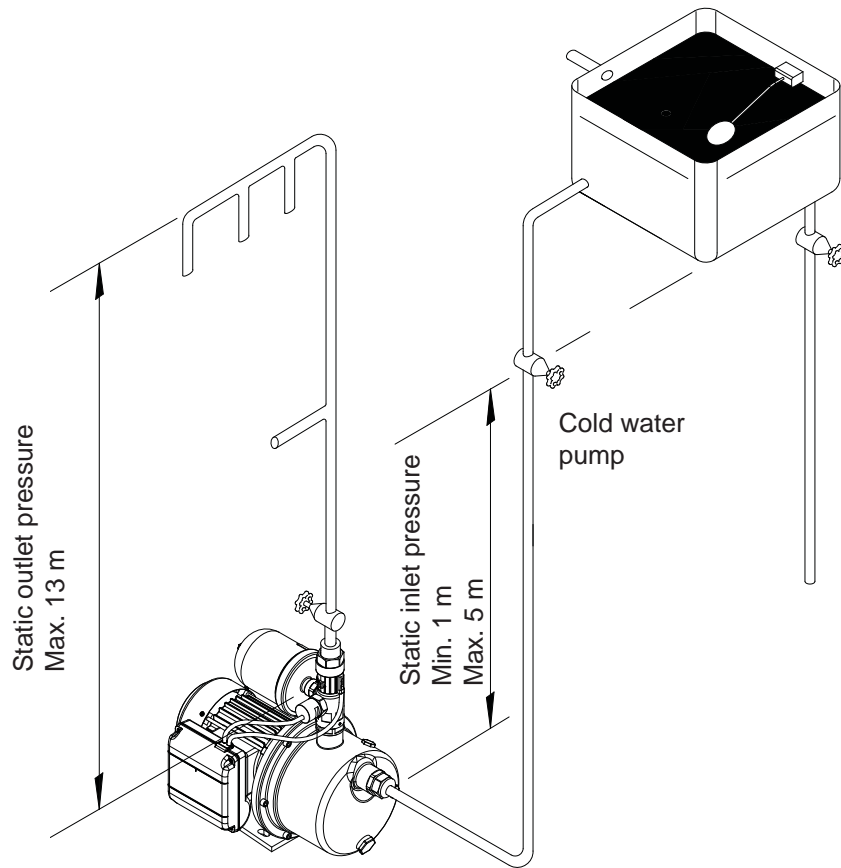


Fig. 4

2.25 **Water supply:** Must be made via a tank connector offering a dedicated supply direct to the pump.

2 LOCATION - PUMP MOUNTED ABOVE WATER SOURCE (SUCTION LIFT INSTALLATION)

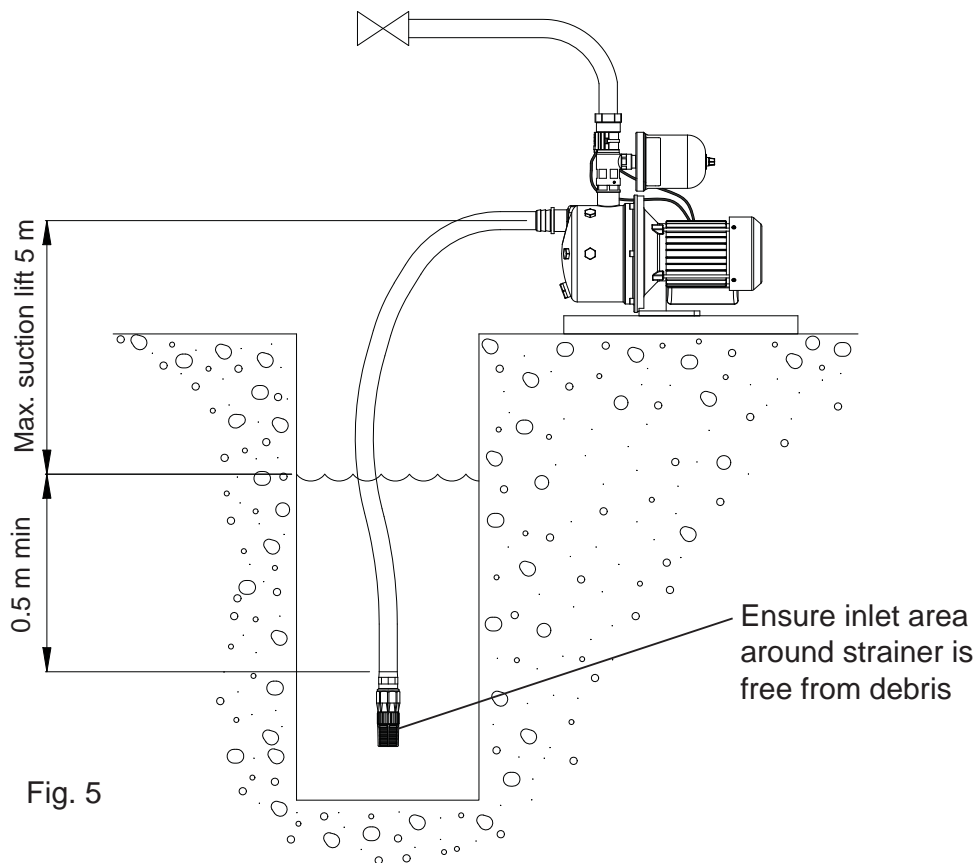


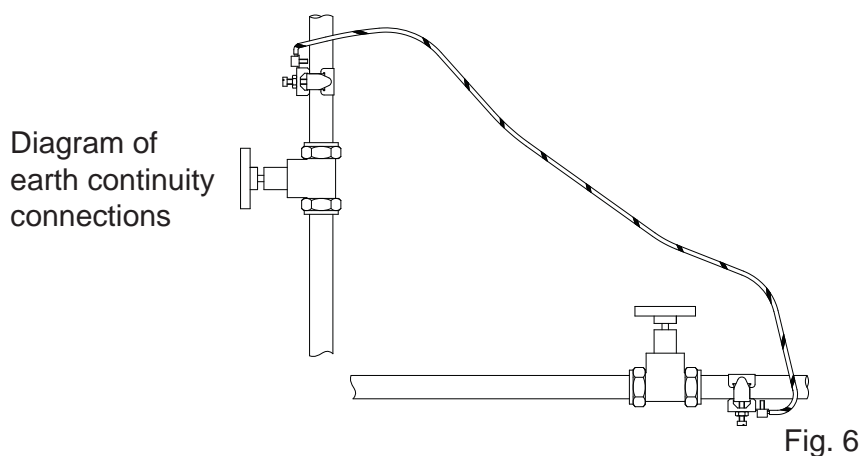
Fig. 5

- 2.26 **Self Priming:** Jet 55-45 B and 80-45 B pumps are capable of self priming the suction hose assembly, providing a footvalve and strainer (not supplied) is always used for this type of installation. The Jet pump can be used in a suction lift installation providing the height of lift is no greater than maximum permitted (Fig. 5). For full priming procedure see section 4.13.
- 2.27 **Footvalve/strainer:** It is important that the optional footvalve and strainer is always used for suction lift installations.
- 2.28 **Suction pipe:** Lay the suction piping over the shortest possible distance and ensure there is a constant rise from the water source to the pump. Any high spots will cause air pockets to form reducing system efficiency. The suction hose must be a minimum of 25 mm to ensure the pump is not starved of water and must be reinforced to prevent it collapsing.
- 2.29 **Connections:** Ensure all joints in suction pipework are completely airtight. Failure to comply will result in loss of prime.
- 2.30 **Position:** The intake of the footvalve/strainer should be positioned so that it cannot be blocked with debris or silt that are frequently found in the bottom of sumps and wells.

3 ELECTRICAL INSTALLATION / EARTHING



- 3.11 **Regulations:** The electrical installation must be carried out in accordance with the current national electrical regulations and installed 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 **Adjacent pipes:** Adjacent suction and delivery pipes should be fitted with earthing clamps to BS 951 in accordance with current regulations (Fig. 6).



- 3.16 **Earthing:** This appliance must be earthed via the supply cord, which must be correctly connected to the earth point located in the terminal box.
- 3.17 **Pipework:** Copper or metallic pipework must have supplementary earth bonding where the continuity has been broken by flexible hoses or plastic components (not supplied).
- 3.18 **Additional earthing:** Certain installations may require additional earthing arrangements such as equipotential bonding. Reference should be made to the relevant regulations concerning this subject to ensure compliance.
- 3.19 **Connections:** The pump must be permanently connected to the fixed wiring of the mains supply using the factory fitted supply cord, this must be a fused spur off the ring main and **NOT** connected to the boiler or the immersion heater circuits.
- 3.20 **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:

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

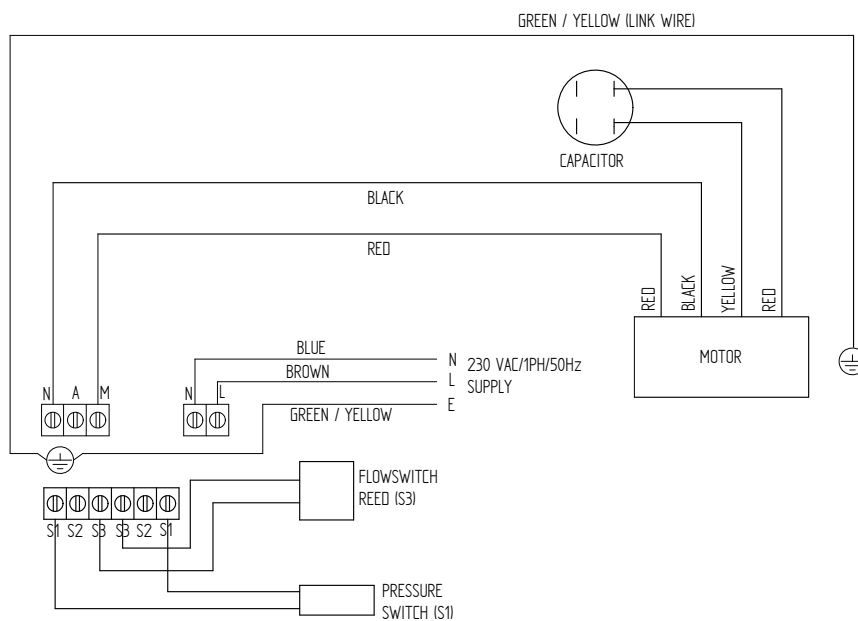
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

3.21 Wiring Diagram:



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 any disturbance of this internal wiring is avoided and the factory routing and securing of all internal wiring is always maintained.



All models
Fig. 7

3.22 **Fuses:** The following fuse size should be used with the appropriate pump:

Model	Fuse Size (AMPS)
All Models	13

4 COMMISSIONING



4.11 **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.

4.12 **Water Supply:** Always ensure that water storage capacity is adequate to meet the demand. Ensure the pump chamber is full of water before starting the pump. Failure to do this could result in seal damage. To ensure dry running does not occur the pump must be primed as described in priming section below.
Do not run pump dry.

4.13 **Priming:** Prior to switching the pump on and connecting the outlet hoses to the system pipework the pump chamber must be primed. The pump must be primed (filled with water) before starting. Turn on water supply, prime and vent the pump by unscrewing the priming plug (Fig. 8) slowly until all air escapes and water emerges. Re-tighten the plug.

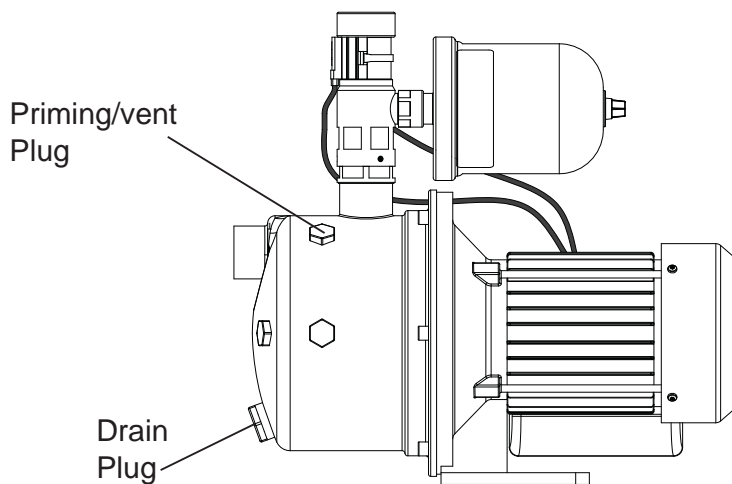


Fig. 8

4.14 **Suction lift installation:** Self priming of suction hose.

First ensure both suction and delivery hose connections are airtight. Remove the priming plug (Fig. 8) and slowly fill the pump body with water, whilst allowing the air to escape. Replace the plug.

4.15 **Suction hose:** Ensure the suction hose end is fully submerged in the water source and the delivery hose is open to enable the pump to vent air.

4.16 **Starting the pump:**

- a) Ensure all outlets are closed, turn power supply 'on' - pump will start, pressurise the system then stop.
- 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.

Note: After closing the outlet there will be a small time delay before the pump stops, which is normal.

- c) Any tap or control valve within the system when opened and closed will now turn the pump on/off. Providing this is the case the system is now operating correctly.
- d) Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.



- **Do not run pump without guards and terminal box lid correctly fitted.**
- **The pump chamber must be full of water at all times. Seal damage will result if the pump runs dry.**

4.17 **For Further Technical Support:** Phone the Stuart Turner PumpAssist team on 0844 98 000 97. Our staff are trained to help and advise you over the phone.

5 MAINTENANCE

5.11 **Pressure vessel:** The pressure vessel should be checked once every 6 months to have its air charge checked or replenished, this should be carried out as follows:-

- a) Isolate pump electrically.
- b) Isolate the water supply by closing the appropriate isolating valves.
- c) Release system water pressure by opening a system outlet on the system.
- d) Remove pressure vessel from the pump taking care to collect or absorb any residual water using towels.
- e) Check air charge at Schrader valve (Fig. 9) using a tyre pressure gauge.
- f) Replenish air charge if required by injecting air into the vessel via the Schrader valve using a car or bicycle pump, see Pre-installation assembly.
- g) Reassemble pressure vessel to pump hand tight to achieve a water tight connection. Ensure sealing 'O'-ring is in place.
- h) Close all system outlets, open inlet and outlet isolating valves.
- i) After maintenance is completed refer to Section 4 - Commissioning for instructions on re-starting pump.

Model	Air Precharge bar (psi)
All other models	2.0 (29)

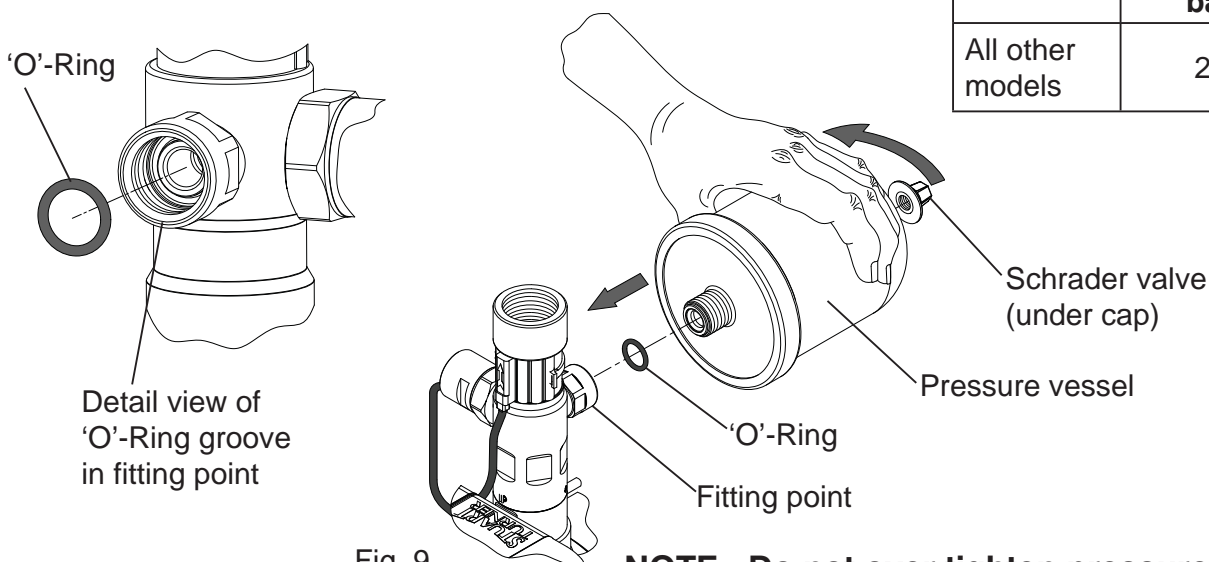


Fig. 9

NOTE: Do not over tighten pressure vessel.

5.12 Cleaners, Disinfectants and Descalents:



Acid based descalents and aggressive cleaning agents must not come into contact with the pump. The pump must be removed from the system prior to the use of these products. The system should be flushed to remove all chemicals before the pump is re-connected. If in any doubt as to the suitability of the chemical solutions, please contact our PumpAssist helpline.

6 TECHNICAL SPECIFICATION

Model		Jet 55-45 B	Jet 80-45 B
Electrical	Power supply Volts/phase frequency	230/1/50	230/1/50
	Enclosure	IPX4	IPX4
	Type of motor	Induction	Induction
	Power consumption	640 Watts	925 Watts
	Full load current	2.9 Amps	5.2 Amps
	Rating	Continuous (S1)	Continuous (S1)
	Max. No Starts per hour	30	30
Mechanical	Min inlet head	1 metres	1 metres
	Max inlet head	5 metres	5 metres
	Max head (closed valve)	45 metres	42 metres
	Max working pressure*	500 kPa (5.0 bar)	470 kPa (4.7 bar)
	Max ambient air temperature	40 °C	40 °C
	Max water temperature	35 °C	35 °C
	Min water temperature	4 °C	4 °C
	Max. suction lift	5 metres	5 metres
	Cut out flow	1 l/min (approx)	1 l/min (approx)
	Cut in pressure	180 kPa (1.8 bar)	180 kPa (1.8 bar)
	Vessel charge	200 kPa (2.0 bar)	200 kPa (2.0 bar)
Pump Dimensions	Length (max)	341 mm	368 mm
	Width (max)	207 mm	214 mm
	Height (excluding flexible hoses)	327 mm	327 mm
	Weight (including accessories)	9.8 Kg	12.2 Kg
	Pump Connections: Inlet	G 1 Female	G 1 Female
	Outlet	G 1 Female	G 1 Female
Materials	Body	Stainless Steel	Stainless Steel
	Shaft	Stainless Steel	Stainless Steel
	Mechanical Seal	EPDM/Carbon/ceramic	EPDM/Carbon/ceramic
	Pump Parts	GEPP0	GEPP0

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

*Note: Max working pressure is the maximum pressure that can be applied to the pump internal casing under any installation conditions.

6.11 **Noise:** The equivalent continuous A-weighted sound pressure level at a distance of 1 metre from the pump does not exceed 73 dB(A) for Jet 55-45 B or 76 dB(A) for Jet 80-45 B.

7 TROUBLE SHOOTING GUIDE

Symptoms	Probable Cause	Recommended Action
Pump will not start.	Electrical supply. Faulty reed switch/PCB, pressure switch Recommended static inlet/outlet heads exceeded. Internal motor thermotrip activated. Water starvation to pump.	Check wiring connections. Check all switches are 'on'. Check fuse (see fuse section). Check circuit breaker is set. Contact PumpAssist. Re-position pump (see Section 2 - Location). Wait for thermotrip to cool and auto-reset and investigate cause of problem before re-starting. Refer to 'dry running' section.
Pump starts when outlets are off. or Pump cycles (hunts) on/off frequently.	Leak in system. Low charge pressure in pressure vessel. Debris under non-return valve sealing face.	Check tap washers, w/c valve washers, pipe joints. Check charge pressure in pressure vessel (see Section 5 - Maintenance). Run at full flow to try and flush away debris or remove, clean or replace non-return valve.
Pump runs on when all terminal outlets are closed.	Leak in system. Reed clamp out of position. Faulty reed switch or P.C.B, pressure switch Jammed flow switch.	Check tap washers, w/c valve washers, pipe joints. Ensure reed clamp is fitted correctly in location groove. If pump continues to run, this indicates a closed circuit in either the flow switch reed or P.C.B. in the terminal box, these should be checked electrically. Isolate the pump electrically and hydraulically and remove brass housing that contains the float. Check float for free movement.
Pump runs, but no water.	Pump air locked. Water supply low. Inlet filter/strainer blocked (if fitted). Blocked suction pipe. Air bubbles in suction pipe.	Remove priming plug, fill with water. Refit plug. Check water level in the supply tank or well and all stopcocks are open. Check outlet not restricted or blocked. Remove and clean filter gauze/strainer. Clean footvalve/strainer. Check connections are all airtight.
Pump runs but no water on suction lift installation.	Lack of priming water. Insufficient time allowed for priming to be completed.	Prime pump casing. Amount of time taken to prime suction pipe will vary dependent upon model selected and suction lift height. After 5 minutes repeat priming procedure.
Reduced flow/performance.	Blocked shower head spray plate. Blocked pipework or pump.	Clean in accordance with manufacturers instructions. Isolate pump electrically and hydraulically, locate blockage and remove.

Cont ...

7.11 **Dry Run Protection:**

This pump is fitted with a safety control circuit, which will detect the following fault condition:

- **Dry running caused by water starvation to the pump.**

Should the pump run out of water it will stop as part of a “protective logic sequence”, detailed below.

The fault should be rectified before re-starting the pump. Check that there is sufficient water supply to the pump and also ensure that all terminal fitting outlets are closed.

7.12 **Protective Logic Sequence:** If water starvation occurs and the power supply to the pump remains uninterrupted, the pump controller will perform the following protective sequence.

- 1) If the pump detects water starvation, it will stop operation after a 1 minute period.
- 2) The pump will remain in the off condition for a period of 5 minutes.
- 3) The pump will then re-start and if the water starvation condition remains present, the pump will then stop operation after a 1 minute period.
- 4) The pump will remain in the off condition for a period of 5 minutes.
- 5) The pump will then re-start and if the water starvation condition remains present, the pump will then stop operation after a 1 minute period.
- 6) The pump will remain in the off condition for a period of 5 minutes.
- 7) The pump will then re-start and if the water starvation condition remains present, the pump will then stop operation after a 1 minute period.
- 8) After three consecutive resets are performed the pump will remain in the off condition indefinitely.
- 9) To restart the pump, the power supply should be first isolated for a period of at least 10 seconds before switching on again.

If the pump fails to operate normally after three attempts to re-start, then please consult Stuart Turner PumpAssist 0844 9800097.

7.13 **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 qualified 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. 10).
- Lift the terminal box lid off.
- **IMPORTANT** – Ensure there is no contact with any of the internal parts of the terminal box.

Cont ...

- 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.

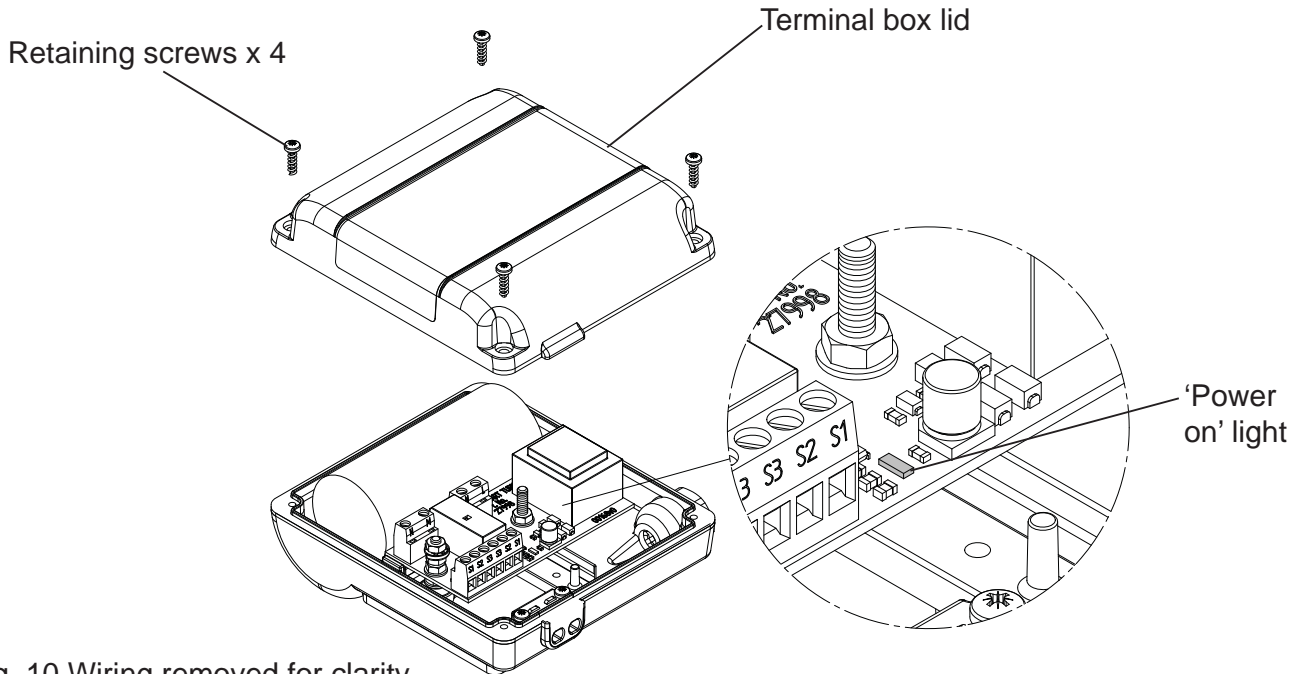


Fig. 10 Wiring removed for clarity

7.14 **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.

8 YOUR 1 YEAR GUARANTEE

Stuart Pumps are guaranteed by Stuart Turner Limited to be free from defects in materials or workmanship and the guarantee period starts from the date of purchase or date of manufacture. Within the guarantee period we will repair, free of charge, any defects in the pump resulting from faults in material or workmanship, repairing, exchanging parts 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 pump has been purchased within the applicable guarantee period 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 or Citizen's Advice Bureau.

In the event of a claim please telephone Stuart Turner Limited on 0844 980 0097 before taking any further action. If you have any doubt about removing a pump, please consult a professional.

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

Please record here for your records.

TYPE NO.	SERIAL NO.	DATE PURCHASED



DECLARATION OF CONFORMITY

2006/42/EC

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

2006/95/EC

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

2004/108/EC

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

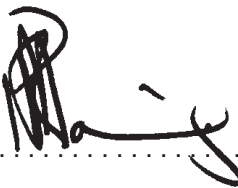
2011/65/EU

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.

[Large dashed rectangular box for serial number entry]

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 9001:2000



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