INSTALLATION INSTRUCTIONS

SERVICE KIT - MONSOON NEGATIVE PUMPS (Pre - 2008) Part No. **28474**

- N1.5, N2.0 & N3.0 bar variants only.

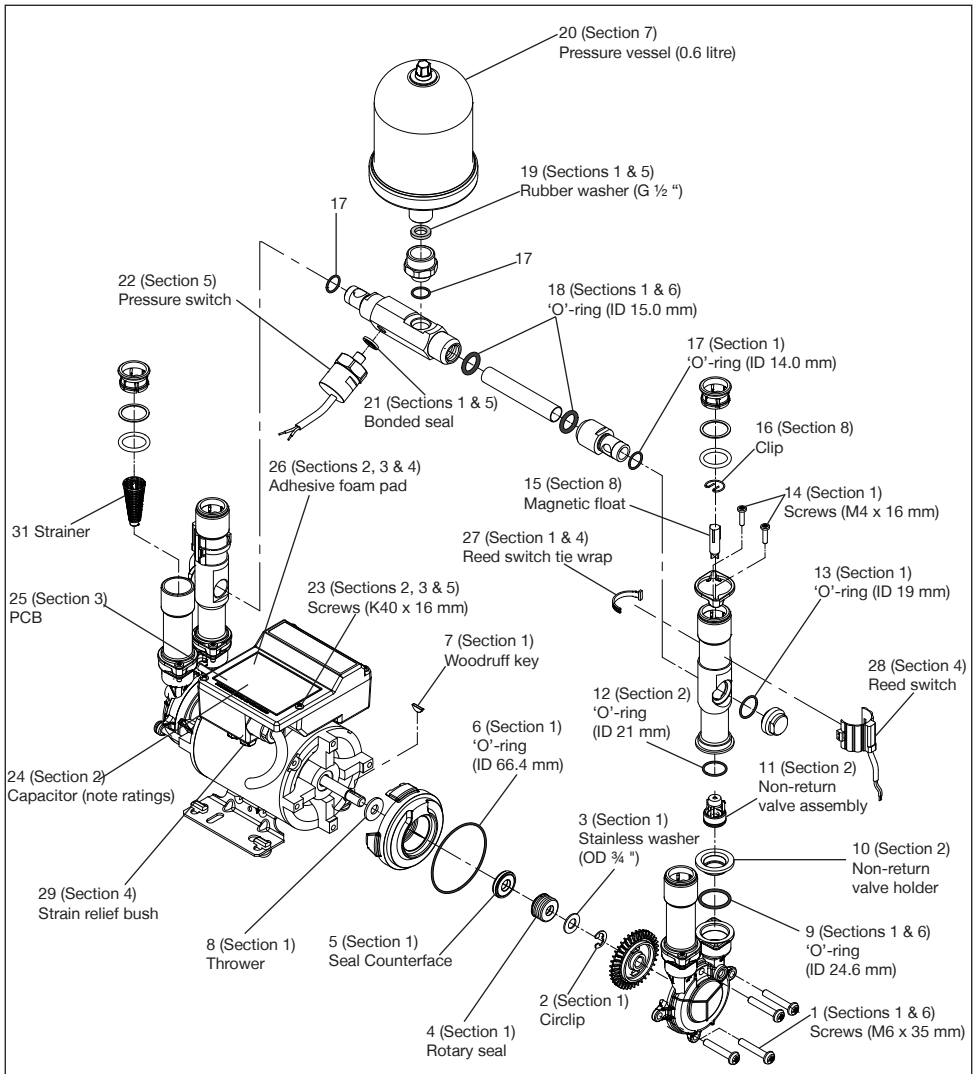


Fig. 1

Note: 1) Quantities are to cover a twin pump, singles use half.
2) See relevant section for detailed instructions.

Cont ...

- **COMPLETE KIT CONTENTS**

This kit contains parts for a range of different pump types - please ensure you correctly identify the relevant parts for the pump being serviced before commencing. Also refer to the relevant section for detailed instructions for the correct installation of the parts.

Fitting of incorrectly identified parts could lead to pump failure. If in doubt contact PumpAssist on +44 (0) 800 31 969 80.

ITEM		QTY	ITEM		QTY
1	Screws (M6 x 35 mm)	8	17	'O'-Ring (ID 14 mm)	3
2	Circlip	2	18	'O'-Ring (ID 15 mm)	2
3	Stainless Washer (OD ¾ ")	2	19	Rubber Washer (G ½ ")	1
4	Rotary Seal Assembly	2	20	Pressure Vessel (0.6 litre)	1
5	Seal Counterface	2	21	Bonded Seal	1
6	'O'-Ring (ID 66.4 mm)	2	22	Pressure Switch	1
7	Woodruff Key	2	23	Screws (K40 x 16 mm)	4
8	Thrower	2	24	Capacitor (1 off each variant)	2
9	'O'-Ring (ID 24.6 mm)	4	25	PCB	1
10	Non-Return Valve Holder	2	26	Adhesive Foam Pad	1
11	Non-Return Valve Assembly	2	27	Reed Switch Tie Wrap	2
12	'O'-Ring (ID 21 mm)	2	28	Reed Switch	2
13	'O'-Ring (ID 19 mm)	2	29	Strain Relief Bush	3
14	Screws (M4 x 16 mm)	4	30	Applicator Tool (not shown)	1
15	Magnetic Float	2	31	Strainer	2
16	Clip	2			

Check to see that you have all the above items and that they are not damaged. If any damage is found contact Stuart Turner Ltd within 24 hours of receipt.

- **PUMP PREPARATION**

To prepare the pump to accept the service kit parts, each pump part must be removed noting its exact position and sequence (Fig. 1).
Now clean all the individual parts. Before fitting the new service kit parts, the pump and seal type must be identified.

- **CONTENTS** **PAGE**

Cont ...

SECTION 1 - MECHANICAL SEAL REPLACEMENT

The parts required to replace the seal (one end only) are:

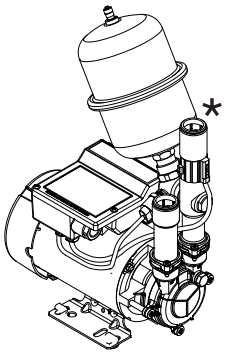
ITEM		QTY	ITEM		QTY
1	Screws, (M6 x 35 mm)	4	9	'O'-Ring (ID 24.6 mm x 2.4 mm c/sec)	2
2	Circlip	1	14	Screws (M4 x 16 mm)	4
3	Stainless Washer (OD ¾ ")	1	17	'O'-Ring (ID 14 mm)	2
4	Rotary Seal Assembly	1	19	Rubber Washer (G ½ ")	1
5	Seal Counterface	1	21	Bonded Seal	1
6	'O'-Ring (ID 66.4 mm x 1.78 mm c/sec)	1	27	Reed Switch Tie Wrap	2
7	Woodruff Key	1	30	Seal Applicator Tool (not shown)	1
8	Thrower	1			

- **DISASSEMBLY**

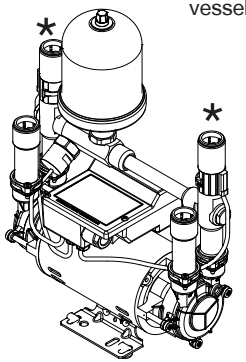
  To access the mechanical seal assembly the flow switch assemblies must first be removed (Fig. 2).

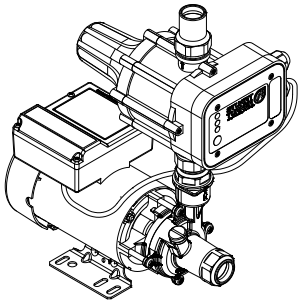
  Flow Switch Assemblies:-

*Flow switch body assembly



Note: Alternative pressure vessels shown



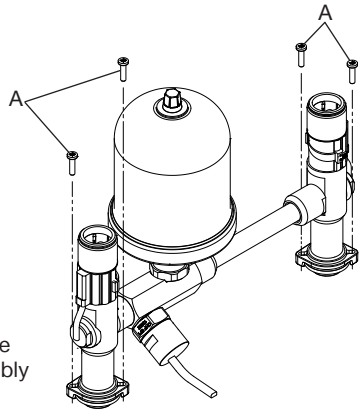


This kit can be used to service the pump only.
The control module is not included and needs to be purchased separately.

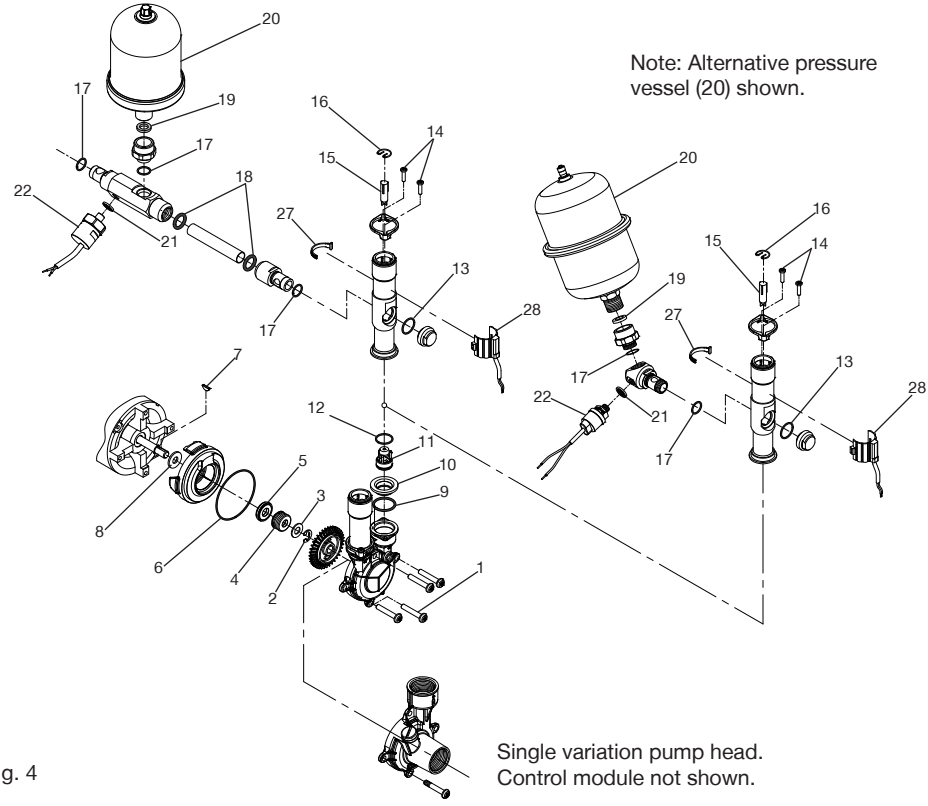
Fig. 2

Cont ...

To identify which components are required, the following exploded view details the pump components along with the serviceable parts.



Flow switch, transfer pipe
& pressure vessel assembly
Fig. 3



Note: Alternative pressure vessel (20) shown.

Fig. 4

Single variation pump head.
Control module not shown.

Cont ...

To disassemble the pump, the following items are required to be removed in the sequence detailed (Fig. 4).

- Remove screws (A) and lift complete assembly away and position next to pump ensuring no stress is placed on the cables.
- Remove 4 screws (item 1) and gently prise off the pump body – note 'O'-ring (item 6) between pump body and mounting plate.
- Slide impeller away from shaft and remove woodruff key (item 7) – (see note: Fig. 5).
- Remove circlip (item 2) and mechanical seal parts. (items 3 & 4).
- Gently prise off mounting plate.
- Remove Counterface (item 5) from its mounting plate location.
- Note: Other parts are supplied in this kit and can be used as shown in Fig. 4 if replacement required.

Note:
Difficulties may be experienced in the removal of the impeller. To overcome this, two screwdrivers can be used to gently lever the impeller away from the shaft as detailed (Fig. 5), ensuring equal pressure is applied to each side of the component to avoid bending the shaft.

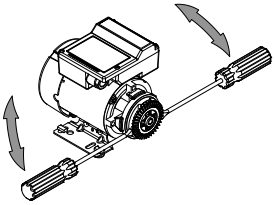


Fig. 5

NOTE: DO NOT USE EXCESSIVE FORCE, AS THIS MAY DAMAGE THE COMPONENTS

- **MAINTENANCE & CARE BEFORE REASSEMBLY**

To allow ease of reassembly, along with correct functioning of the pump, the following points on reassembly are necessary:

- All pump parts must be free from debris and assembled in the correct order.
- The impeller must be a slide fit on the shaft.
- The seal must always be replaced as a complete unit.

- **SEAL IDENTIFICATION & ASSEMBLY**

The seal is shown in order of identification in Fig 6.

A Seal Counterface complete with rubber cup washer.
B Rotary seal assembly.
C Stainless steel Washer.
D Seal retaining clip.

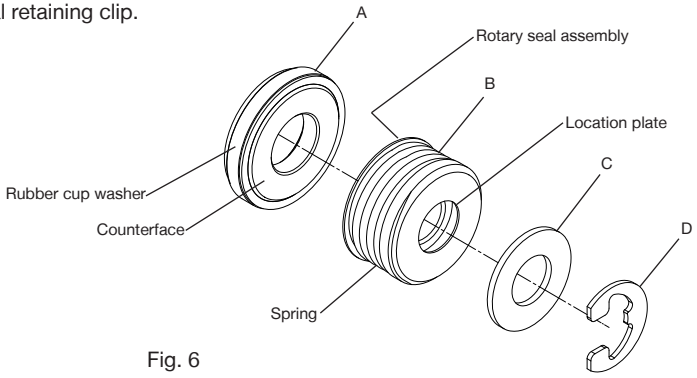


Fig. 6

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To assemble the seal correctly, the shaft must be clean and the following steps carried out.

1. Use End 1 of the applicator tool to push the seal counterface (item A) firmly into the housing, ensuring it is located flat against the back of the mounting plate housing.
2. Now use End 2 of the applicator tool to push the rotary section of the seal assembly (item B) onto the motor shaft until it is flat against the seal counterface (Fig. 7). The shaft may be lubricated with clean water to assist assembly.
   Assemble the spring and location plate onto the shaft so as to complete the rotary seal assembly (Fig. 8)
3. The washer (item C) can then be placed on the shaft and the whole assembly held into position by locating the Circlip (item D) in the groove and pushing it into position (Fig. 9)
   WARNING: Do not install the circlip onto full shaft diameter, it must only be located in the groove.

Fig. 7

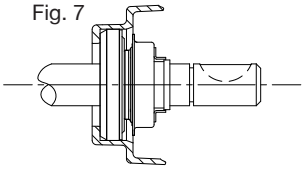


Fig. 8

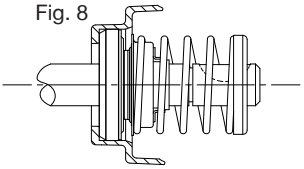
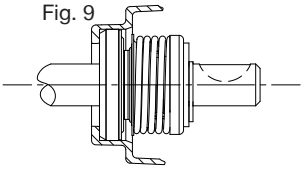


Fig. 9



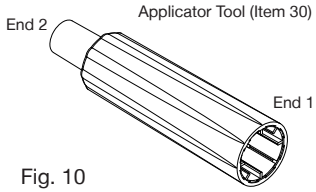


Fig. 10

- **REASSEMBLY**
  - Reassembly of the remaining pump parts is the reverse of disassembly instructions, ensuring all re-used parts are clean, and new replacement parts fitted as required.
  - Secure pump body screws to a torque of 2.6 Nm (item 1).
  - Screws (A) to be tightened to 1.5 Nm of torque.

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

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SECTION 2 - CAPACITOR REPLACEMENT

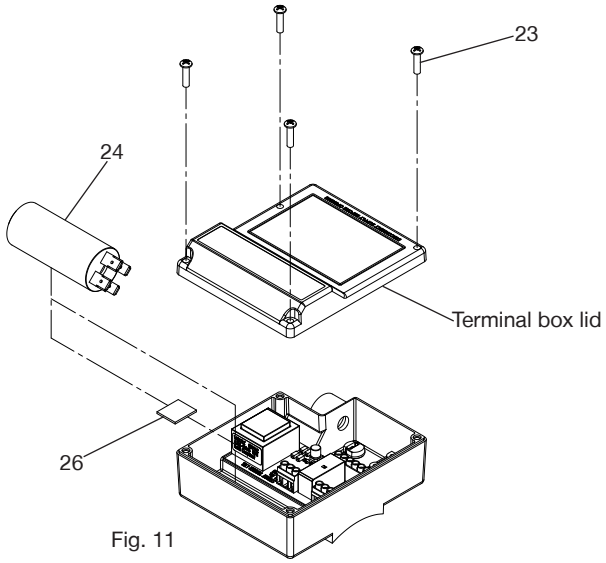


Fig. 11

The parts required to replace the capacitor are:

ITEM		QTY	ITEM		QTY
23	Screws, Self Tapping (K40 x 16 mm)	4	26	Adhesive Foam Pad	1
24	Capacitor	1			

- **CAPACITOR - USED ON MONSOON UNIVERSAL PUMPS**

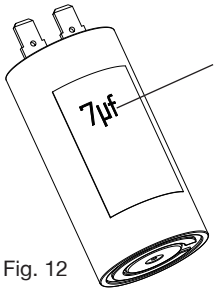


Fig. 12

7 µf - N1.5, N2.0, N3.0 bar Single
N1.5, N2.0 bar Twin
10 µf - N3.0 bar Twin

- **DISASSEMBLY**

- **Isolate electrical supply before fitting replacement part.**
- **Replacing the capacitor, should only be carried out by a competent person.**
- **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 reassembly to the same factory pattern is always maintained.**

Cont ...

Reference Fig 11:

- Remove 4 screws (item 23), and carefully remove terminal box lid.
- **IMPORTANT:** Take note of capacitor wiring connection and colours before removal. Disconnect and remove capacitor (item 24) and foam securing pad (item 26), make note of pad fitted position.

Damaged components must be replaced. Contact Stuart Turner for advice on replacements not supplied with kit.

- **REASSEMBLY**

Reassembly is the reverse of the disassembly instructions, with new replacement parts fitted as required.

Note: For correct installation the capacitor must be connected, secured and positioned as detailed (Figs. 13 & 14).

Secure terminal box lid screws to a torque of 0.8 Nm (item 23).

IMPORTANT NOTE: For correct pump rotation, ensure both blue wires are connected to the linked capacitor terminals as shown.

Fig. 13

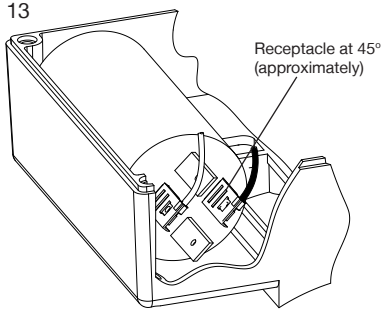
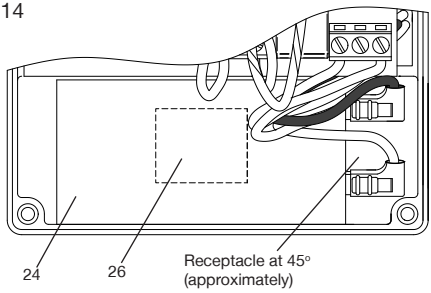


Fig. 14



- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissiong instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

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SECTION 3 - PRINTED CIRCUIT BOARD REPLACEMENT

The parts required to replace the printed circuit board are:

ITEM		QTY	ITEM		QTY
23	Screws, Self Tapping (K40 x 16 mm)	4	26	Adhesive Foam Pad	1
25	Printed Circuit Board	1			

Note: - When fitted this printed circuit board will detect the following fault conditions:

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

If the above fault condition occurs, then the pump will stop.
The fault should therefore be rectified before restarting the pump.
Check that there is sufficient water supply to the pump and also ensure that all outlets are closed.

- 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 +44 (0) 800 31 969 80.

- 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

Cont ...

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

- Isolate the mains electrical power supply from the pump.
- Remove the four screws (item 23) retaining the terminal box lid.
- 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 indicator 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.

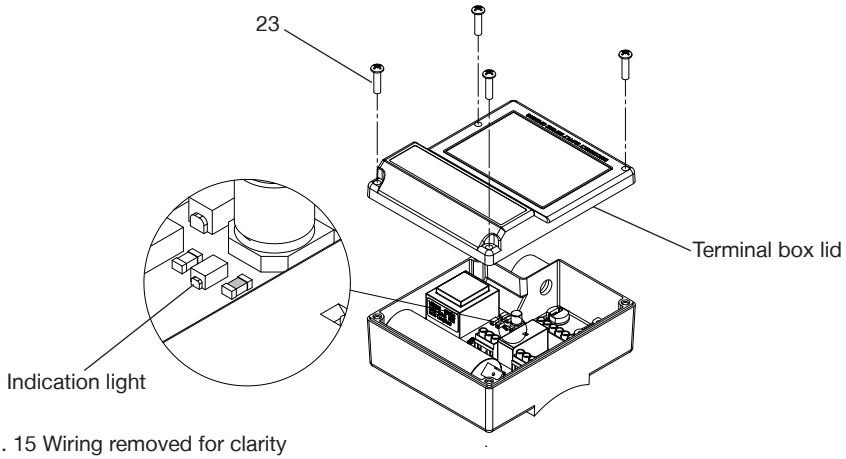
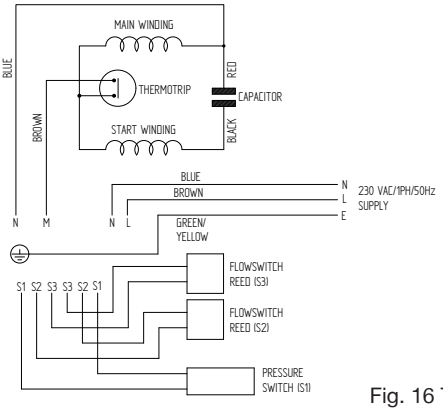


Fig. 15 Wiring removed for clarity

- **DISASSEMBLY**

- **Isolate electrical supply before fitting replacement part.**
- **Replacing the PCB should only be carried out by a competent person.**
- **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 reassembly to the same factory pattern is always maintained.**



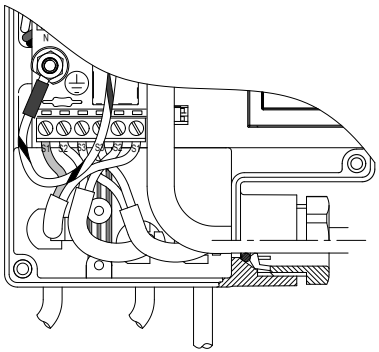


Fig. 16 Twin

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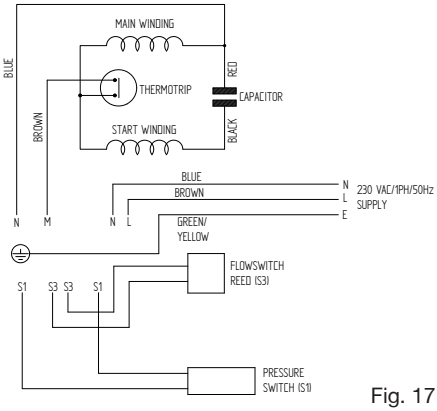

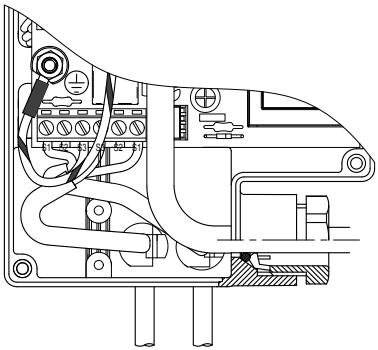

Fig. 17 Single

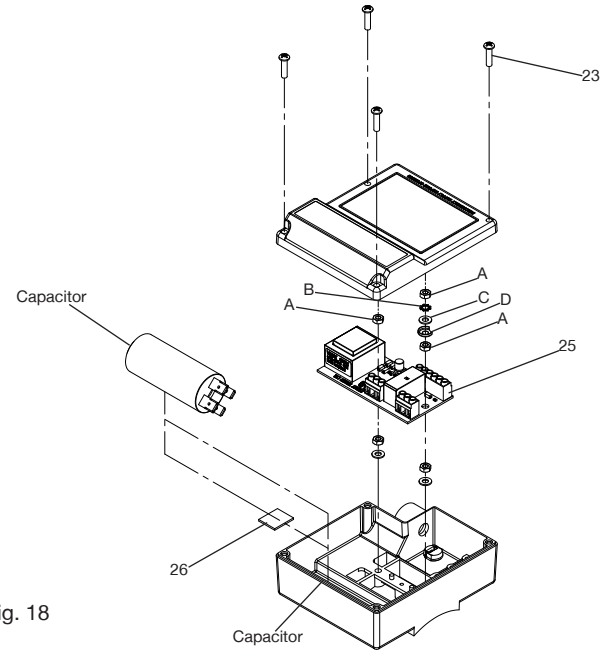

Fig. 18

Reference Fig 18.

- Remove four screws (Item 23) and carefully remove terminal box lid.
- **IMPORTANT**: Take note of capacitor wiring connection and colours **before removal**.
- Disconnect and remove capacitor, and foam securing pad (Item 26) make note of pad fitted position.
- Remove M4 nut (Item A) then M4 lock washer (Item B) and plain washer (Item C), this allows removal of earth wire and cup washer (Item D).
- Disconnect all wiring from terminal blocks on printed circuit board (PCB Item 25).
- Remove two M4 nuts (item A) and carefully lift PCB (Item 25) away from terminal box.

Damaged components must be replaced. Contact Stuart Turner for advice on replacements not supplied with kit.

Cont ...

- **REASSEMBLY**

  Reassembly is the reverse of the disassembly instructions with the new replacement parts fitted as required.

  Note: For correct installation the capacitor must be secured and positioned as detailed in Figs. 19 & 20.

  Secure PCB nuts to a torque of 1.5 Nm (item A).

  Secure terminal box lid screws to a torque of 0.8 Nm (item 23).

  IMPORTANT NOTE: For correct pump rotation, ensure both blue wires are connected to the linked capacitor terminals as shown.

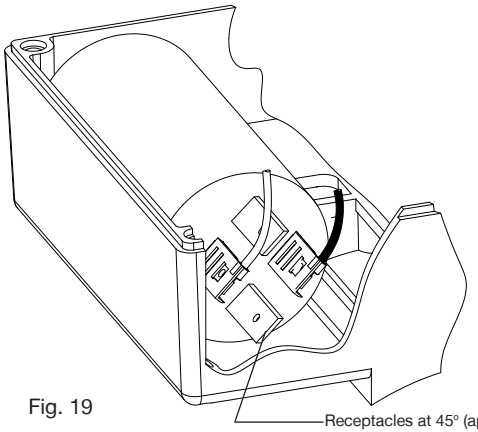

Fig. 19

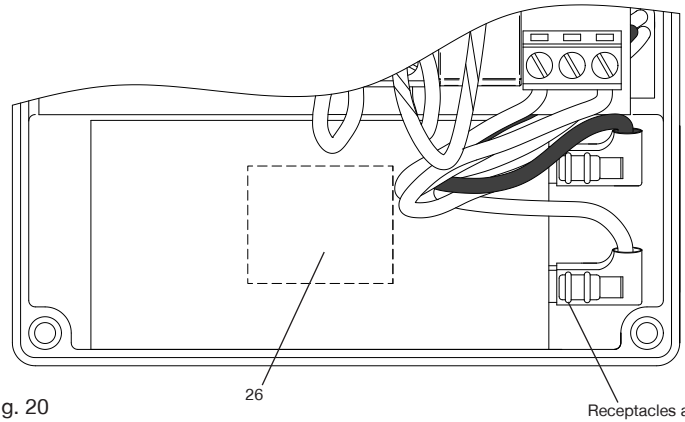

Fig. 20

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

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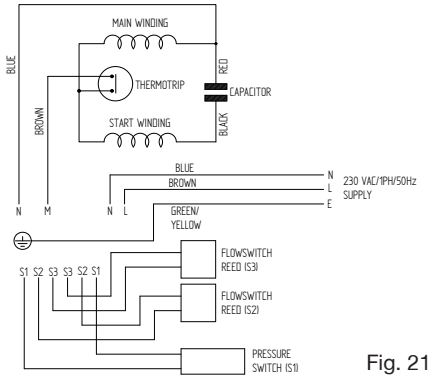
SECTION 4 - REED SWITCH REPLACEMENT

The parts required to replace the reed switch are:

ITEM		QTY	ITEM		QTY
23	Screws (K40 x 16 mm)	4	28	Reed Switch	1
27	Reed Switch Tie Wrap	1	29	Strain Relief Bush	3

- **WIRING DIAGRAMS**



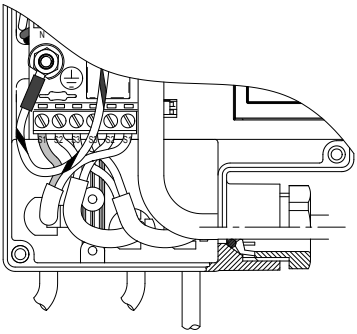
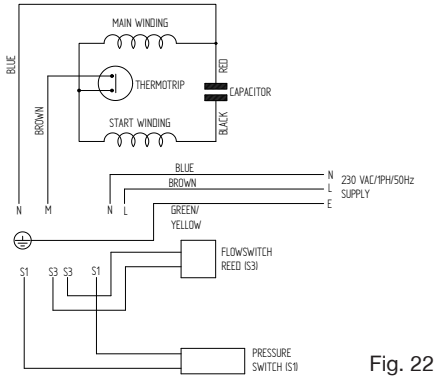


Fig. 21 Twin



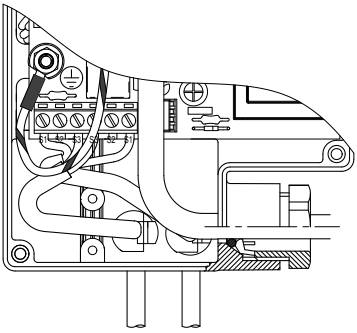


Fig. 22 Single

- **DISASSEMBLY**

- **Isolate electrical supply before fitting replacement part.**
- **Replacing the reed switch components should only be carried out by a competent person.**
- **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 reassembly to the same factory pattern is always maintained.**
- Remove four screws and carefully remove terminal box lid (item 23).
- Note the cable routing within the terminal box (Figs. 21 & 22).
- Slacken the two screws retaining the reed switch wires on the PCB.
- Remove the strain relief bush and reed switch cable by gripping with pliers (Fig. 23) and pulling downwards from the terminal box.
- Remove the existing reed switch by cutting the securing tie wrap and pulling away from the flow switch body (Fig. 23)

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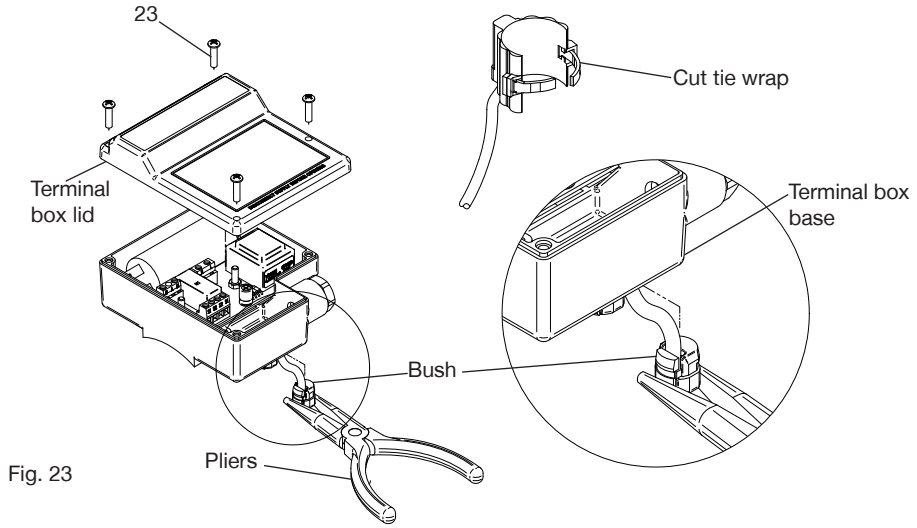


Fig. 23

Damaged components must be replaced. Contact Stuart Turner for advice on replacements not supplied with kit.

- **REASSEMBLY**
  - Fit the new strain relief bush around the reed switch cable and squeeze the strain relief bush with pliers to compress the cable.
  - Push the cable and bush into the base of the terminal box ensuring the bush is fully seated into its location.
  - Connect the two reed switch wires to the PCB (Figs. 21 & 22)
  - For correct operation of the flow switch, the reed must be secured to the body (Fig. 25)
  - Firstly feed the tie wrap (item 13) through the retainer on the reed switch, ensuring that the tie wrap serrations are facing outwards (Fig. 24).

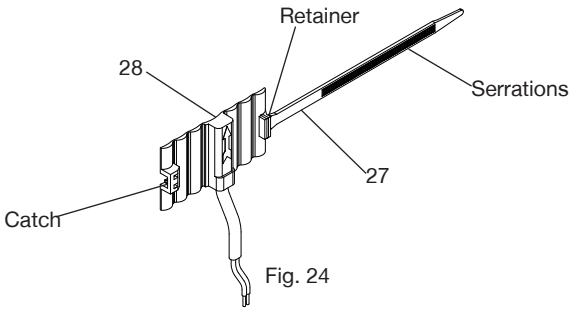


Fig. 24

Cont ...

- Locate the reed switch within the body groove as highlighted X-X (Fig. 25), and feed the tie wrap through the second catch.
- The tie wrap can now be pulled tight to secure the reed and excess cut to length as shown (Fig. 26)

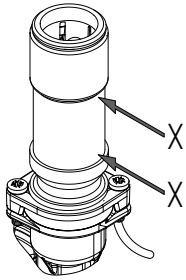


Fig. 25

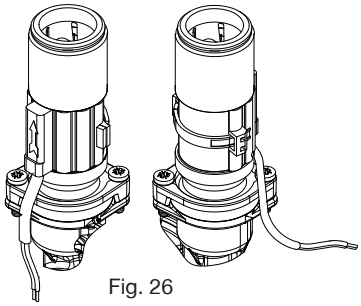


Fig. 26

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

Cont ...

SECTION 5 - PRESSURE SWITCH REPLACEMENT

The parts required to replace the pressure switch are:

ITEM		QTY	ITEM		QTY
19	Rubber Washer (G ½ ")	1	22	Pressure Switch	1
21	Bonded Seal	1	23	Screws, Self Tapping (K40 x 16 mm)	4

- **PRESSURE SWITCHES**

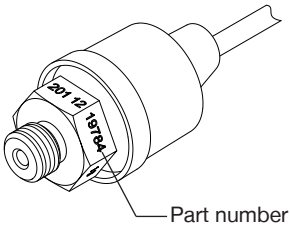
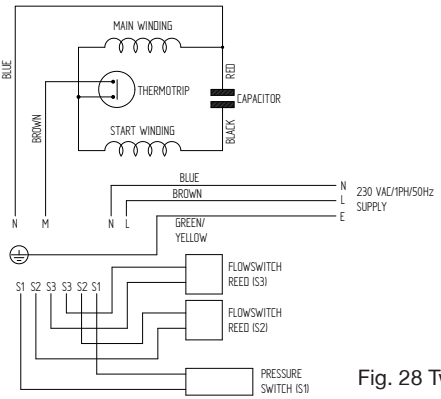


Fig. 27

Number	Used on Monsoon Negative Pumps
19784	N1.5 / N2.0 bar Twins
19785	N2.0 / N3.0 bar Twins, N2.0 / N3.0 bar Single

- **WIRING DIAGRAMS**



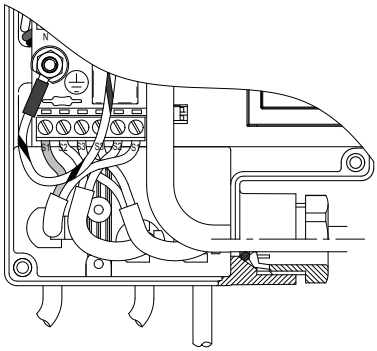
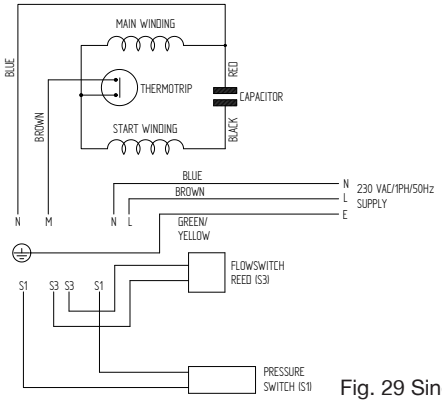


Fig. 28 Twin



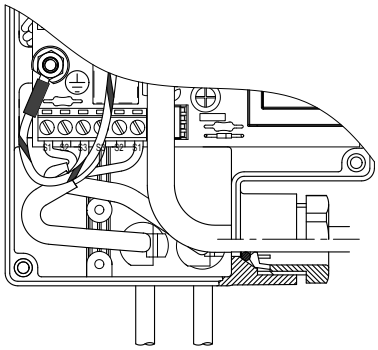


Fig. 29 Single

Cont ...

- **DISASSEMBLY**

- **Isolate electrical supply before fitting replacement part.**
- **Replacing the pressure switch components should only be carried out by a competent person.**
- **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 reassembly to the same factory pattern is always maintained.**

Note:
The switch supplied with this kit may appear different to the unit being replaced. The variation is due to product evolution and is intentional.

- Unscrew pressure vessel and remove rubber washer.
- Remove four screws (item 23) and carefully remove terminal box lid (Fig. 30).
- Note the cable routing within the terminal box (Figs. 28, 29).
- Identify and remove the pressure switch wiring from the terminal block on PCB.
- **IMPORTANT**: Take note of cable clamp position **before removal** as reassembly in the original factory orientation is essential - Remove two screws and cable clamp, this allows the pressure switch cables to be removed from the terminal box (Figs. 28, 29).
- Remove the strain relief bush and reed switch cable by gripping with pliers (Fig. 30) and pulling downwards from the terminal box.
- Remove the existing reed switch by cutting the securing tie wrap and pulling away from the flow switch body (Fig. 30)

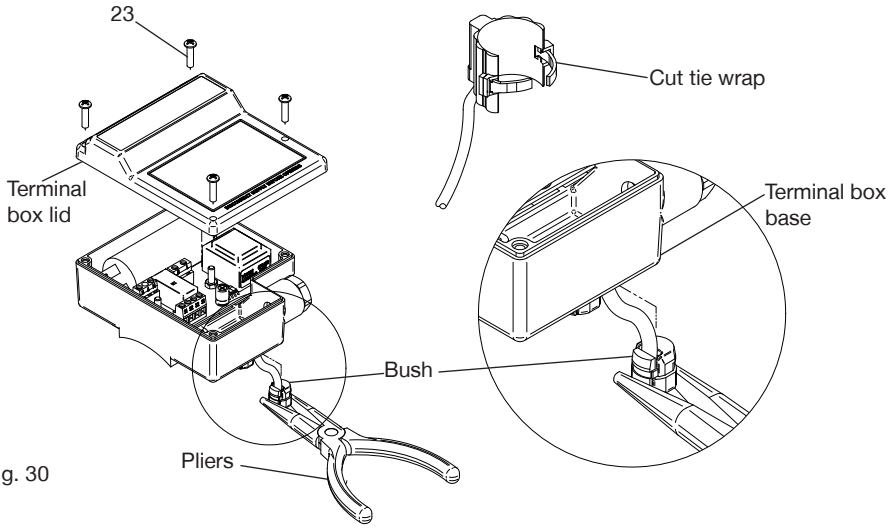


Fig. 30

Cont ...

- Remove the pressure switch cable from the terminal box by gently sliding the cable out through the sealing grommet, ensuring no damage to the seal area (Fig. 31).
- Unscrew the pressure switch and seal from the flow switch manifold body (Fig 31).

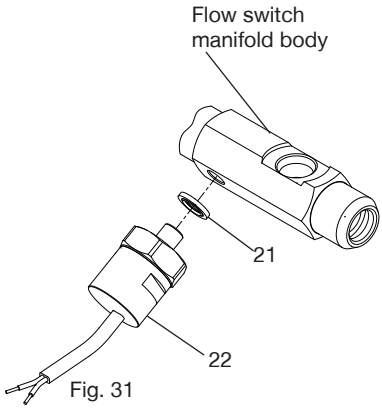


Fig. 31

Damaged components must be replaced. Contact Stuart Turner for advice on replacements not supplied with kit.

- **REASSEMBLY**
  Reassembly is the reverse of the disassembly instructions with the new replacement parts fitted as required.
  - Pressure switch (item 22) to be tightened to a torque of 7-8 Nm.
  - Secure two cable clamp screws (item 23) and four terminal box lid screws, to a torque of 0.8 Nm (Fig. 31).

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

Cont ...

SECTION 6 - NON-RETURN VALVE (NRV) REPLACEMENT

The parts required to replace the non-return valve are:

ITEM		QTY	ITEM		QTY
9	'O'-Ring (ID 24.6 mm x 2.4 mm sec)	4	11	Non-Return Valve Assembly (NRV)	2
10	Non-Return Valve Holder	2	14	Screws (M4 x 16 mm)	4

- **DISASSEMBLY**
  To access the NRV, the flow switch body assemblies must first be removed (Fig. 32).
  Please refer to the following, dependant on pump.
  Note: The NRV is part of the flow switch body assemblies - see Figs. 33 & 34 for reference.

  Flow Switch Assemblies:-

*Flow switch body assembly

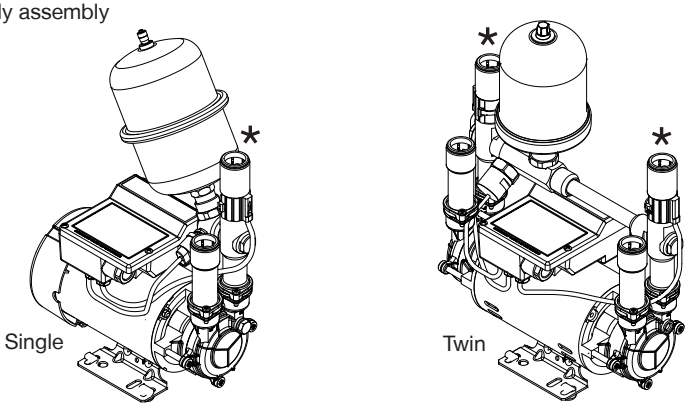


Fig. 32

- Remove screws (item 14) and lift complete assembly away ensuring no stress is placed on the cables.

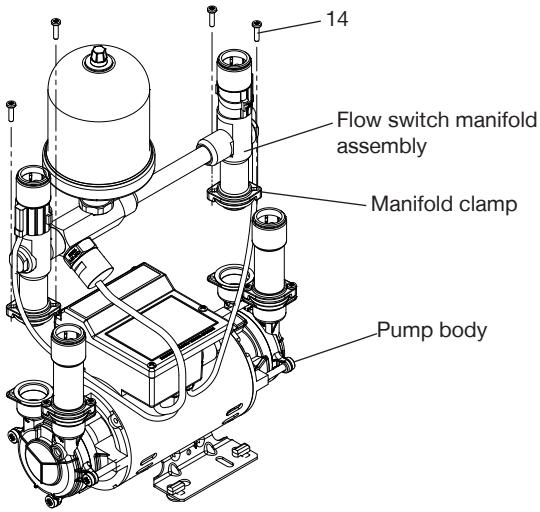


Fig. 33

Cont ...

Once the flow switch assemblies have been removed the NRV is now accessible as shown in Fig. 33.

- Remove 'O'-ring (item 9) from between pump body and flow switch assembly.
- Firmly pull the NRV assembly (items 10/11) from the lower end of the flow switch body assembly (Fig. 34).
- Remove 'O'-ring (item 12).

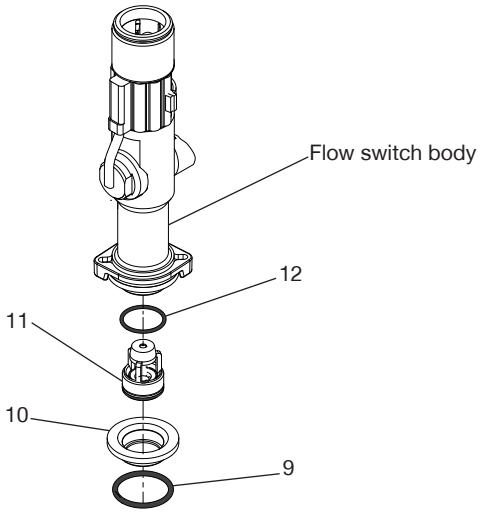


Fig. 34

- **REASSEMBLY**

  Reassembly is reverse of disassembly instructions, ensuring all re-used parts are clean, and new replacement parts fitted as required.
  Secure flow switch manifold clamp screws to a torque of 1.5 Nm (item 9).

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

Cont ...

SECTION 7 - PRESSURE VESSEL REPLACEMENT

The parts required to replace the pressure vessel are:

ITEM		QTY
19	Rubber Washer (G ½ ")	1
20	Pressure Vessel (0.6 litre)	1

- **DISASSEMBLY**
  - Rotate the pressure vessel as shown to unscrew (Fig. 35).
  - Remove rubber washer from manifold body (Fig. 36).

Damaged components must be replaced. Contact Stuart Turner for advice on replacements not supplied with kit.

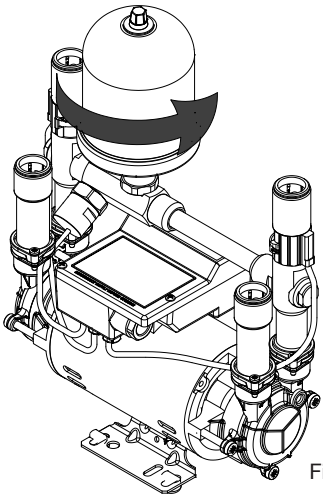


Fig. 35

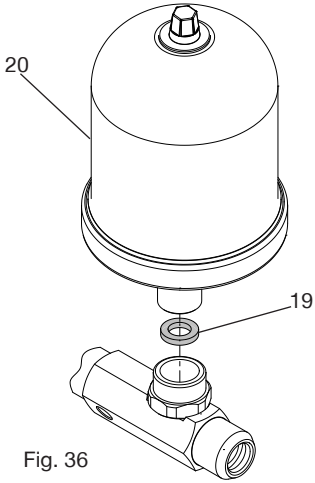


Fig. 36

Cont ...

- **REASSEMBLY**

  Reassembly is the reverse of the disassembly instructions with the new replacement parts fitted as required.

  Engage vessel screw thread and tighten as shown to confirm a secure hand tight connection, nip tight to 5-6 Nm torque (Fig. 37).

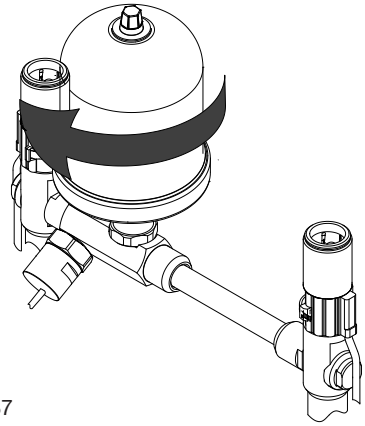


Fig. 37

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

SECTION 8 - MAGNETIC FLOAT REPLACEMENT

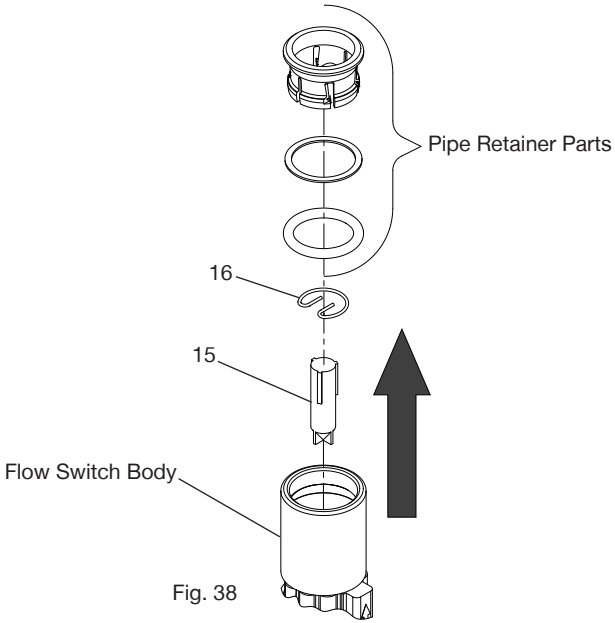


Fig. 38

The parts required to replace the magnetic float are:

ITEM		QTY
15	Magnetic Float	2
16	Clip	2

- **DISASSEMBLY**

  - **Isolate electrical supply before fitting replacement part.**

  - Carefully remove pipe retainer clip, washer and 'O'-ring (Fig. 38).
  - Remove clip (item 16) using needle nose pliers (Fig. 38).
  - Remove magnetic float (item 15) using needle nose pliers (Fig. 38).

  Damaged components must be replaced. Contact Stuart Turner for advice on replacements not supplied with kit.

- **REASSEMBLY**
  Reassembly is the reverse of the disassembly instructions with the new replacement parts fitted as required.

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

SECTION 9 - STRAINER REPLACEMENT

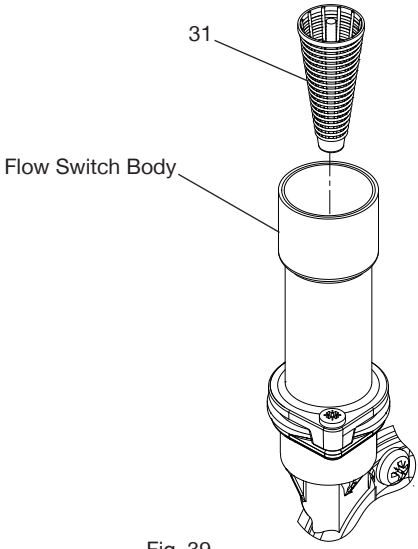


Fig. 39

The parts required to replace the strainer are:

ITEM	QTY
31 Strainer	2

- **DISASSEMBLY**
  - Pull out strainer (item 31).

- **REASSEMBLY**
  Reassembly is the reverse of the disassembly instructions with the new replacement parts fitted as required.

- **INITIAL OPERATING INSTRUCTIONS**
  - Consult instruction manual for commissioning instructions.
  - Do not run pump dry. Allow the water to be pumped to enter the pump body thus ensuring the seal is lubricated before switching the pump on. Failure to do this will damage the seal.
  - Carefully check pump and pipework for leaks whilst pump running and stationary before leaving the installation unattended.

Stuart Turner reserves the right to amend specifications without notice.

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