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**HORNE TSV1–A109A/A306A/A307A THERMOSTATIC SHOWER VALVE
 FOR SURFACE MOUNTING WITH TIMED FLOW CONTROL
 INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**

NOTE: The TSV1-A109A, A306A and A307A are all identical except for the shower outlet fittings. All comments about the TSV1-A306A in these instructions equally refer to the TSV1-A109A and the TSV1-A307A.

APPROVALS

The Home 15 Type H1503 Thermostatic Mixing Valve used in the TSV1–306A shower valve has been independently tested by the WRc-NSF and approved to the requirements of *NHS Model Engineering Specifications D08 Thermostatic Mixing Valves (Healthcare Premises)* to the following designations for shower applications.

HP-S	Shower with supply pressures of 1 – 5 Bar and unrestricted flowrate
LP - S	Shower with supply pressures of 0.2 – 1 Bar and unrestricted flowrate

Supply Water Pressure Requirements

The minimum water pressure required to achieve a spray at the shower head is a dynamic head of 5m (8psi, 0.5 Bar). Note that the dynamic head is the pressure measured with the water running.

Where one supply is tank fed and the other pressurised, (e.g. cold mains and tank fed hot, or pressurised hot and tank fed cold), a pressure reducing valve on the higher pressure side is not required provided the lower of the two pressures is equivalent to at least a 5m (8psi, 0.5 Bar) dynamic head at the sprayhead.

The maximum recommended dynamic supply pressure is 6 Bar (90psi, 60m head) for hot, and 10 Bar (150psi, 100m head) for the cold.

Supply Water Temperature Requirements

Max. Hot water temperature* 85°C
 Min. Hot water temperature# 55°C
 Max. Cold water temperature# 20°C

Note that requirements marked * originate from WRAS approval of non-metallic components, and those marked # originate from HTM 04-01, Part B, 2007.

Temperature Adjustment

The mixed water temperature is not user adjustable. It is preset at approx. 41°C, but should be checked, or adjusted, on site during commissioning to suit prevailing conditions and requirements.

Water and Energy Conservation

The TSV1 range shower panels are fitted with flow restrictors or flow regulators at the shower outlet to reduce the flow rate and conserve water and energy. The drawings at the end of this document provide information for accessing the flow restrictors/regulators for removal or replacement.

General

Every TSV1–A306A is supplied with a single check valve and integral large area strainer on each inlet. The Shower Panel terminates in 15mm copper pipes for hot and cold supplies. The hot pipe is on the left, cold on the right, when viewed from the user’s perspective.

Note that a TSV1-A306AB model is also available. An “AB” suffix indicates that the shower panel is equipped with braided stainless steel hoses at the inlets instead of copper pipes. These permit recessed water entry from behind the panel, rather than above. The final page of the installation section of this document provides installation instructions for AB variants.

Also note that ligature resistant models (e.g. TSV1-A306ALR) are also available, which feature a ligature resistant shroud around the push-button timed flow control..

INSTALLATION

General

The surface mounting enclosure is supplied with a fitting kit containing the necessary fixings to attach it to the wall and hex keys to assist with routine maintenance.

Installation

Installation of the pre-plumbed enclosure is particularly simple and involves mounting the enclosure on the wall and connecting and flushing the water supply pipes.

1) *Position the Pre-Plumbed Enclosure*

Identify a suitable position for the Enclosure and mark a line on the wall level with the top of the casing. Mark a point on the wall which is on the required centreline for the casing 15mm below the line of the top of the casing for the support screw (See Fig 1).

2) *Install the Support Screw*

Drill a 7.0mm dia hole in the wall and insert a wallplug and screw, leaving the head of the screw 11-13mm from the wall surface. Note that a stainless steel screw is supplied for this (corrosion resistant).

3) *Hang the Enclosure on the Support Screw*

Release the top cover of the pre-plumbed enclosure by removing the four cross-head screws. Hang the pre-plumbed enclosure on the support screw by the larger hole in the middle of the back strap and let this take the weight of the enclosure. See Fig 2.

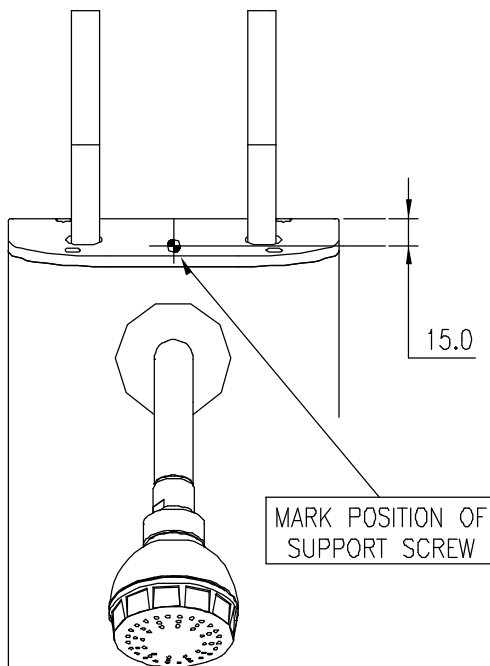


Fig 1.

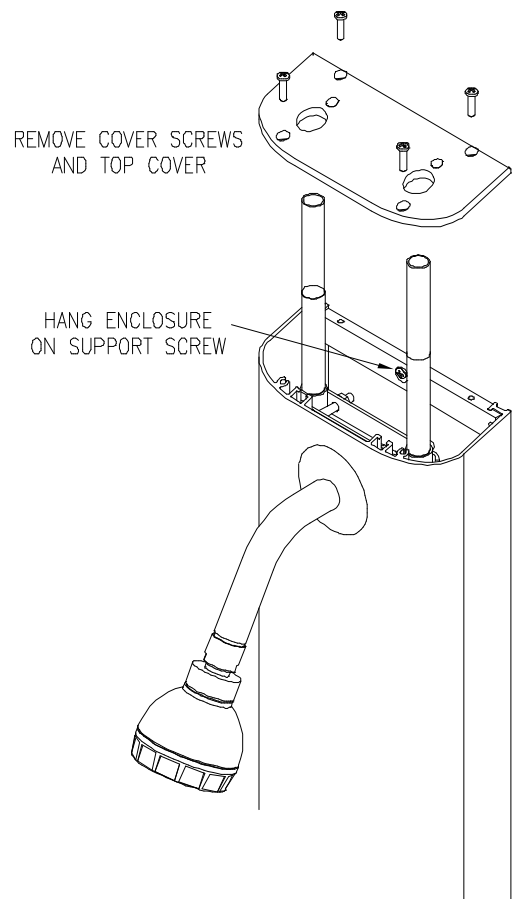


Fig 2.

4) *Mark Out the 4 Support Holes.*

Ensure that the enclosure is hanging true and then mark out the holes for the 2 upper support holes. Remove the bottom cover of the pre-plumbed enclosure and mark out the 2 lower support holes (see Fig 3).

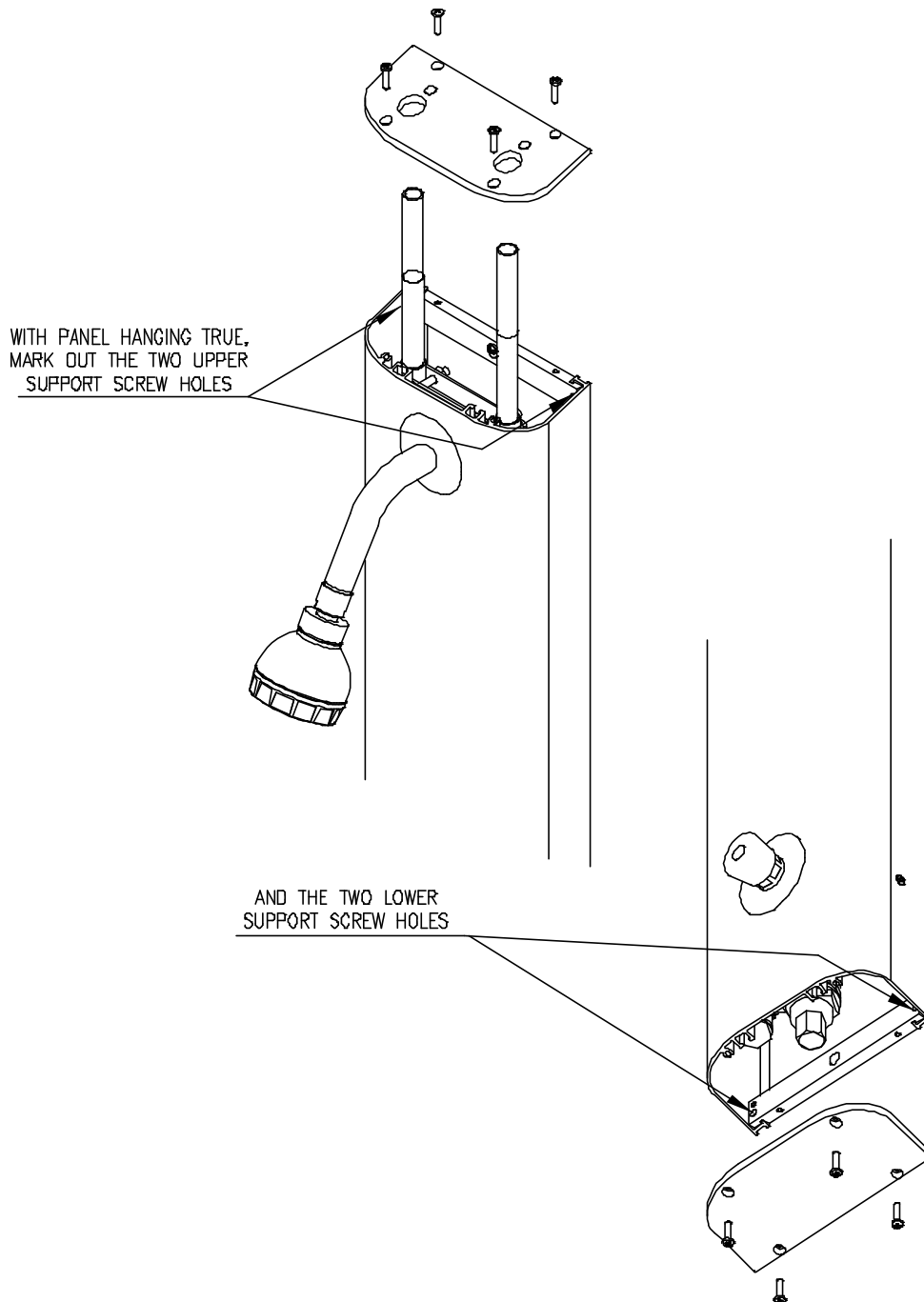


Fig 3.

5) *Drill Support Holes.*

Carefully remove the pre-plumbed enclosure from the temporary support screw and, being careful not to scratch the enclosure or top and bottom covers, lay it down where it will not be damaged. Drill 4 x 7mm dia. support holes and install the wall plugs.

6) *Attach the Pre-Plumbed Enclosure to the Wall*

Carefully re-hang the pre-plumbed enclosure on the temporary screw. Put the four supplied screw bushes in the mounting holes in the panel and then attach the panel firmly to the wall by the four supplied stainless steel screws. A bead of silicon mastic can be used, if required, to cover any gaps behind the panel on uneven walls. Do not Mastic the lower end cap to the wall. See Fig 4.

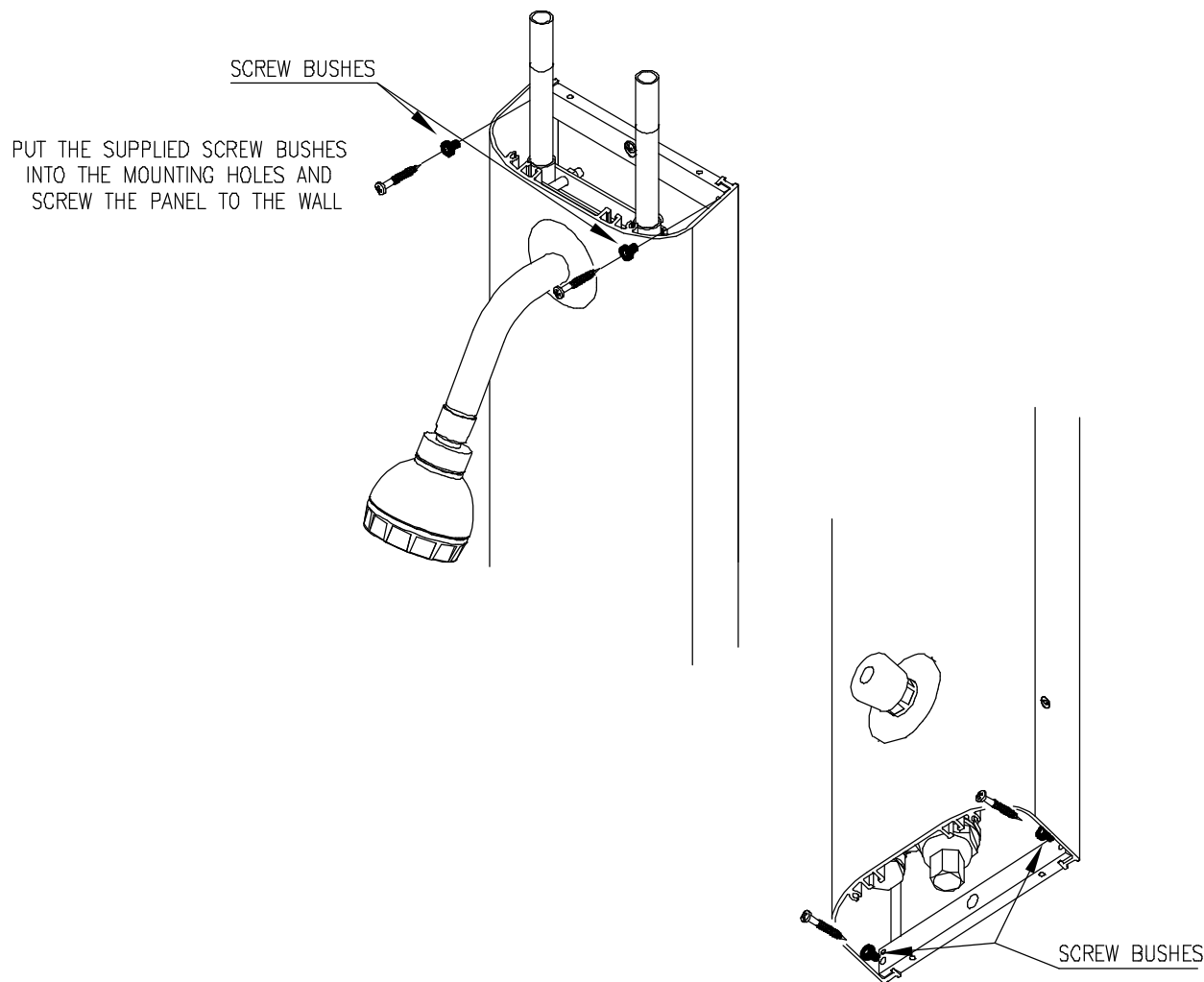


Fig 4.

7) *Connect the Supply Pipes*

Ensure that the top cover of the pre-plumbed enclosure is replaced prior to connecting up the supply pipes.

Connect the HOT water supply to the LEFT HAND inlet, and COLD water to the RIGHT HAND inlet (see Fig 5).

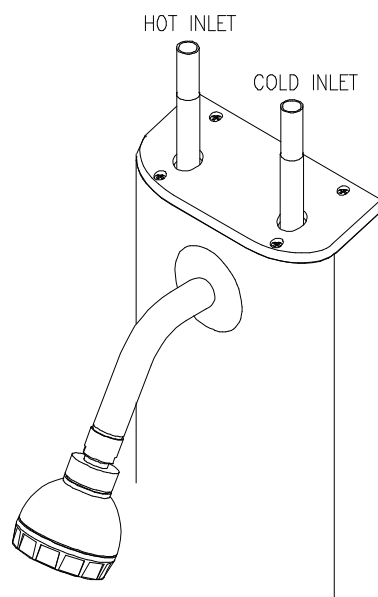


Fig 5.

DO NOT OPEN THE WATER SUPPLIES AT THIS STAGE AS THEY HAVE NOT BEEN FLUSHED OUT TO REMOVE DEBRIS IN THE PIPEWORK. SUCH DEBRIS CAN DAMAGE THE VALVE.

8) *Flush the Pipework*

Flush out the pipework in accordance with Water Bylaws 2000 (Scotland) and BS 6700:1997 (England and Wales). The use of a Horne Flushing Kit is strongly recommended because this connects directly to the water inlets of the mixing valve. Access to the flushing points is gained from underneath the pre-plumbed enclosure through the lower end cap. Isolate the hot and cold water supplies at the low level servicing valves; remove the strainer cap and strainer basket and screw in the flushing adaptor. Place the end of the flushing hose in an appropriate drain or container and turn on the supply to flush as required. Note that the servicing valves must be opened to permit flushing. The servicing valves are located on the sides of the panel and are operated by 4mm hex key (supplied). After flushing, remove the flushing adaptor and replace the strainer cap. Repeat for both hot and cold supplies (see Figs 6 and 7).

NOTE THAT IF THERE IS A DANGER OF FREEZING THEN THE PIPES AND VALVE MUST BE DRAINED TO AVOID DAMAGE.

9) *Test for Leaks in Pipework*

Open the supplies and check for any leaks at the supply pipe joints. Open the servicing valves on the panel casing (see Fig 6). Water should not flow from the sprayhead as the push button timed flow control has not been pressed. Make good any leaks found. The valve is now ready for commissioning.

Note that if any controls, enclosure or shower sprayhead require cleaning then care must be taken not to scratch them in the process. Wash off any surface dust before cleaning with soapy water.

DO NOT USE ANY ABRASIVE CLEANERS OR SOLVENTS OR THE SURFACES MAY BE DAMAGED.

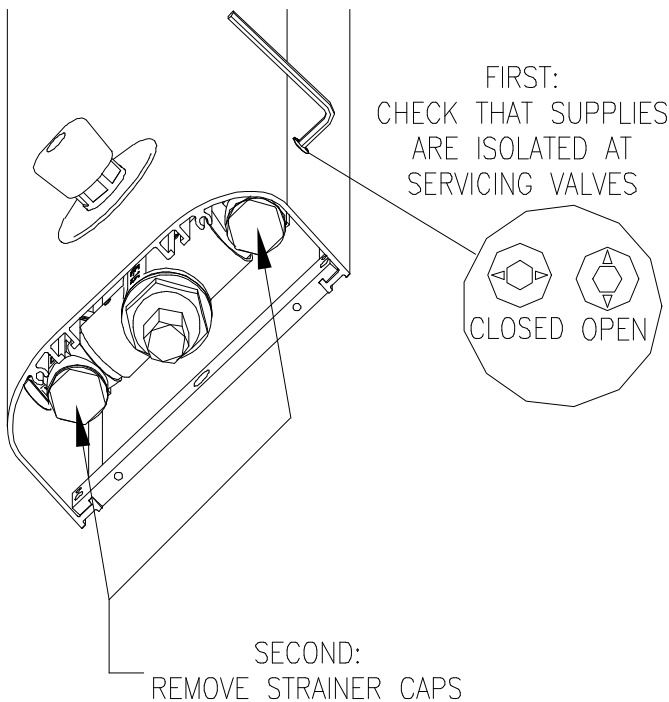


Fig 6.

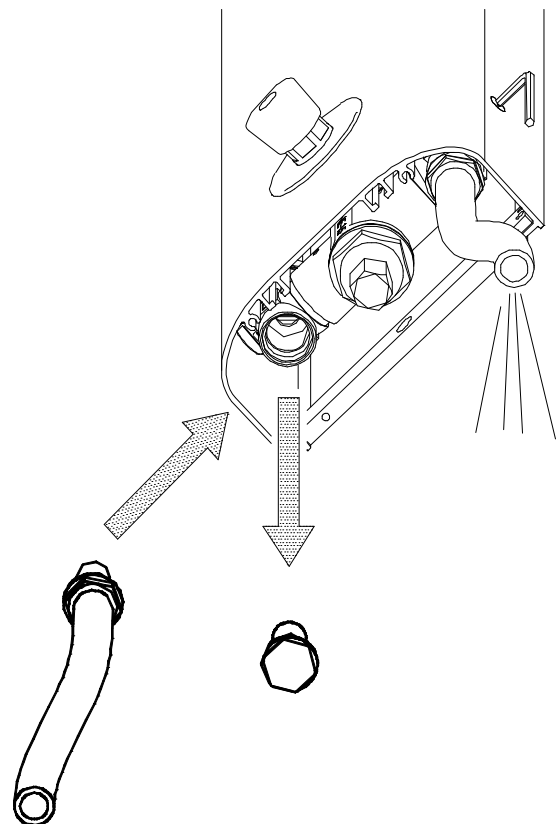


Fig 7.

Supplementary Installation Instructions for AB Variants.

TSV1 Panel Mounted Shower Valves are available in versions with flexible braided stainless steel inlet hoses rather than top entry isolating valves. These versions have Product References with the suffix AB, e.g. TSV1-A306AB.

The main difference, from an installation point of view, is that the water supplies may have to be connected before the pre-plumbed enclosure is attached to the wall.

Accordingly, Point 7 on the attached installation instructions (Connect the supply Pipes) should be performed before Point 6 (Attach the Pre-plumbed Enclosure to the wall) unless alternative access is available to the connections, e.g. via an access panel.

Note that the braided hoses are colour coded with BLUE for the Cold Water Supply and RED for the Hot Water Supply.

Care should be taken to ensure that the weight of the pre-plumbed enclosure is taken by the mounting screws and NOT by the hoses.

COMMISSIONING

ENSURE THAT THE PIPEWORK HAS BEEN FLUSHED OUT BEFORE COMMISSIONING THE TSV1-A306A (SEE INSTALLATION INSTRUCTIONS).

Ensure that both hot and cold water supplies are open and at, or near their design temperatures and pressures, and that they are within the requirements of the valve as outlined on page 1. The NHS designation of the valve should match the intended application.

Run the shower by pressing the push button timed flow control. The shower will run for approx. 15 seconds before the flow stops and the button needs to be pushed again. Allow the shower to run until the water temperature has stabilised, pressing the push button as required to maintain the flow.

The TSV1-A306A is set at the factory to provide an outlet temperature of approx. 41°C, but this should be checked on site to ensure that the setting has not been adjusted and that it meets site requirements. To adjust the temperature setting, follow the instructions below:

- a) Remove the lower end cap from the shower enclosure by removing the four cross-head screws.
- b) Remove the adjusting screw cover from the valve (see Fig 8).
- c) Using the 5/32" (or 4mm) hex key supplied, adjust the temperature of the mixed water. Turn the screw anti-clockwise to increase the temperature, or clockwise to reduce it.
- d) After each adjustment, isolate the HOT supply at the servicing valve for a few seconds, restore it and check the set temperature.
- e) Operate the shower a few times to ensure the set temperature is correct.
- f) Record the commissioning details on the attached maintenance sheet to permit the in-service performance of the valve to be assessed.

Finally, check the thermal shut-off facility of the valve by performing a thermal shut-off test. Shut off the cold supply at the servicing valve. The flow from the shower should immediately stop or reduce to a trickle, in which case the mixed water temperature should be less than 3°C above the set temperature. In either case there is no scalding risk. If the temperature rises more than 3°C above the set temperature then it is likely that there is contamination in the mixing valve that is preventing it from shutting off the hot supply. Refer to the maintenance section of the attached booklet for the Home 15 or phone the factory for advice.

Ensure that the Flow Control push button remains pressed during the thermal shut-off test.

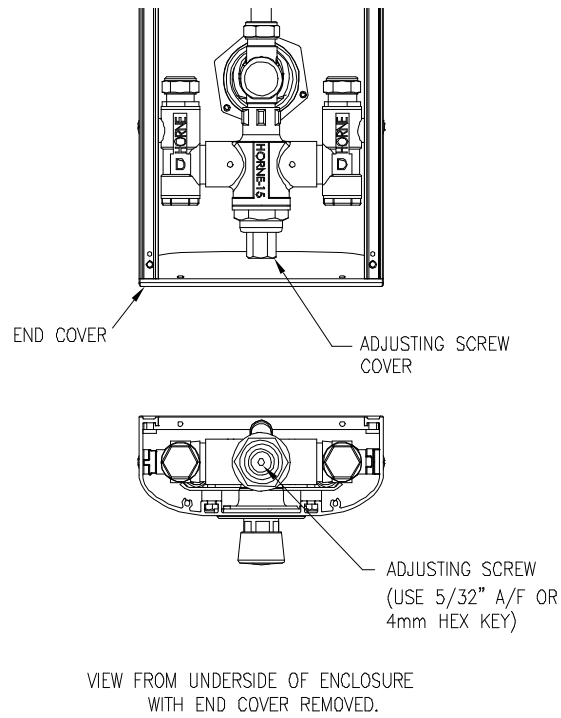
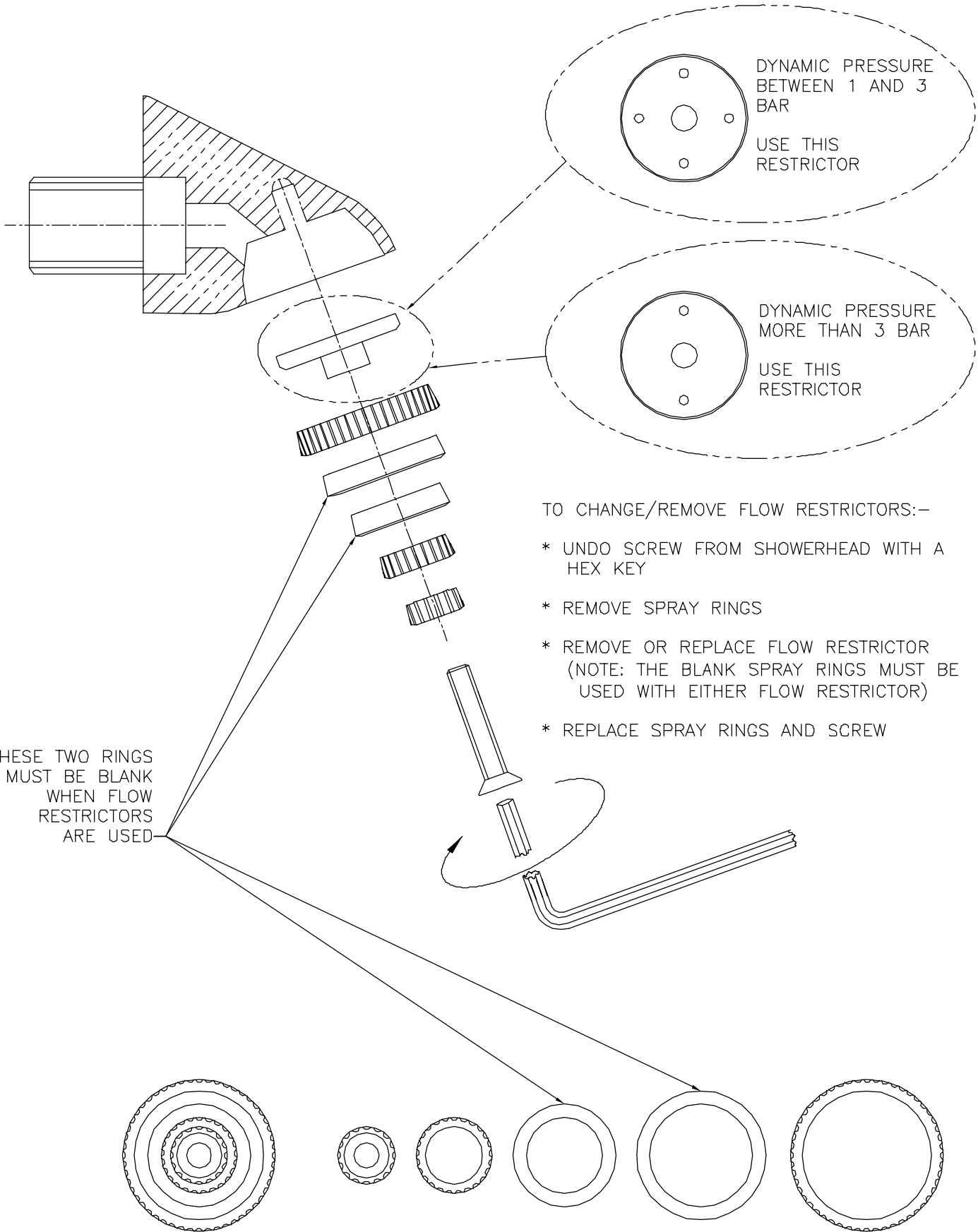


Fig 8.

MAINTENANCE

Note that the TSV1-A306A contains a Horne 15 Thermostatic Mixing Valve and is supplied with separate instructions for the mixing valve. Please refer to these instructions for details of maintenance procedures, which can be carried out without removing the panel from the wall.



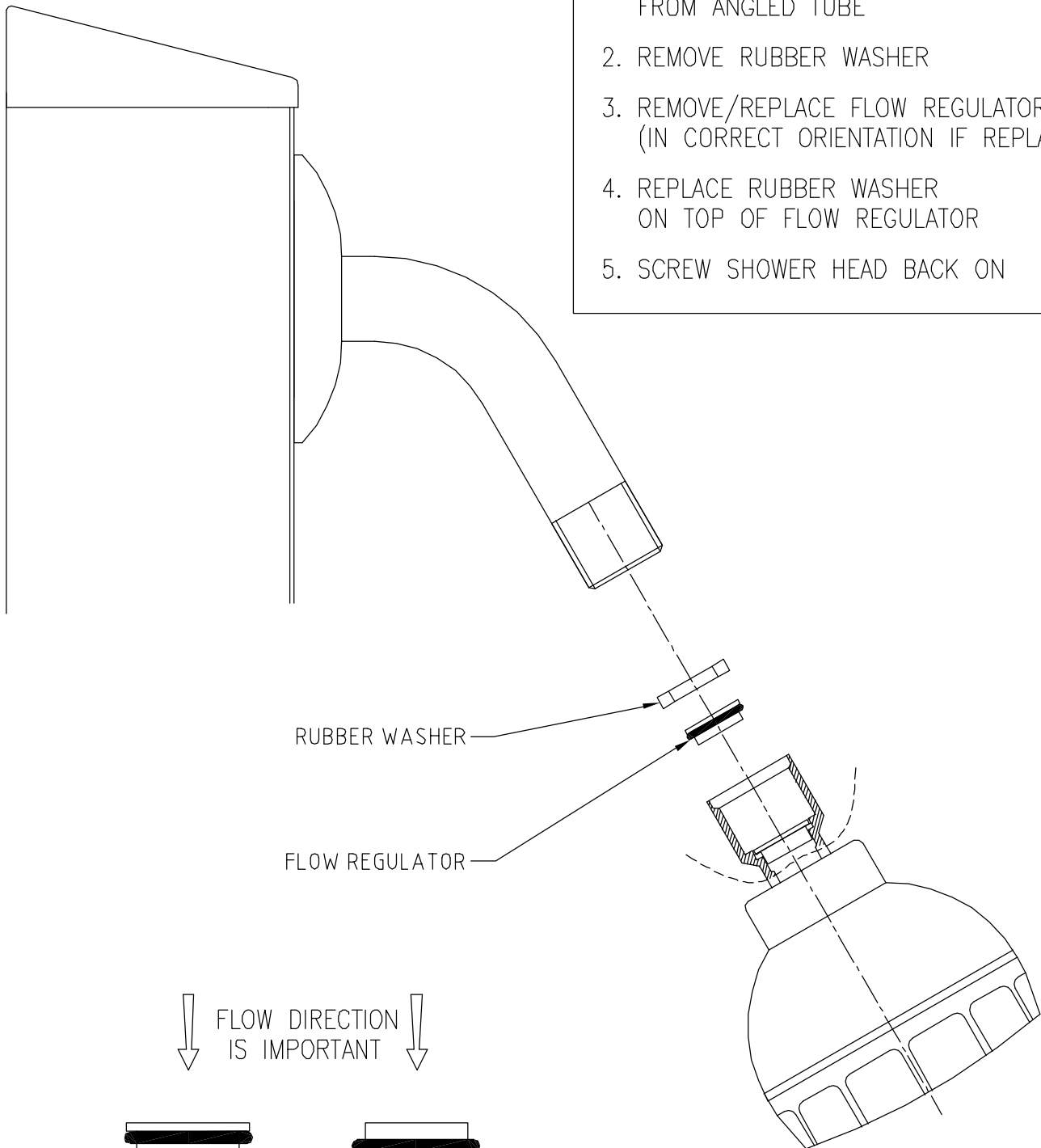
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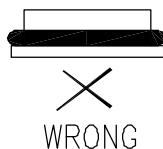
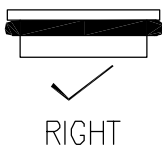
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		SCALE	DO NOT SCALE	
		DRAWN	GDP 7/12/05	
		CHECKED		
		ISSUE	1	

TO REMOVE/REPLACE FLOW REGULATOR

1. UNSCREW SHOWER HEAD FROM ANGLED TUBE
2. REMOVE RUBBER WASHER
3. REMOVE/REPLACE FLOW REGULATOR (IN CORRECT ORIENTATION IF REPLACING)
4. REPLACE RUBBER WASHER ON TOP OF FLOW REGULATOR
5. SCREW SHOWER HEAD BACK ON

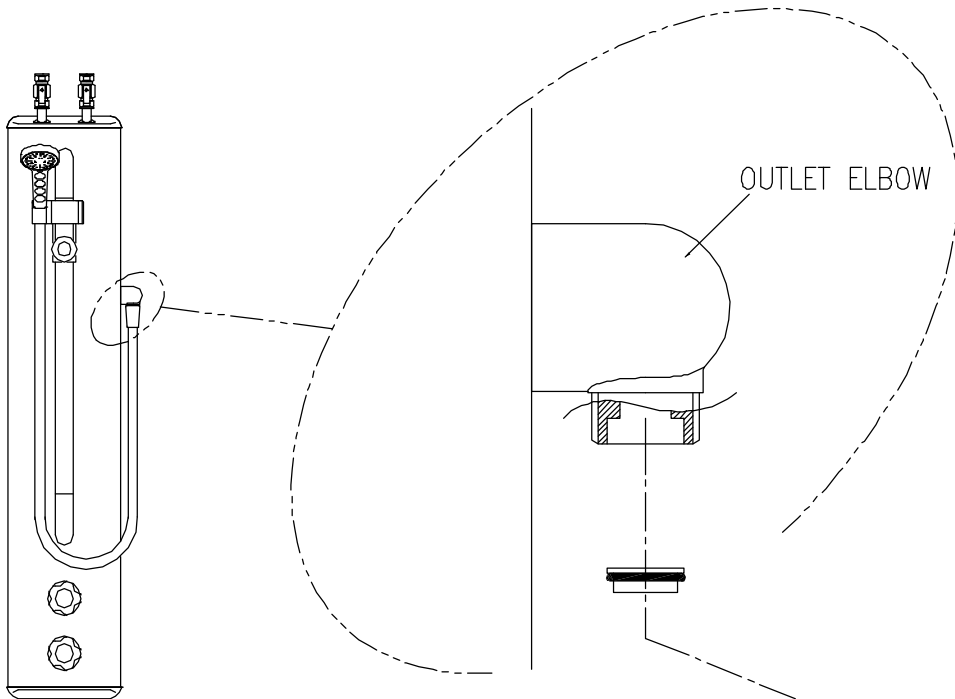


↓ FLOW DIRECTION IS IMPORTANT ↓

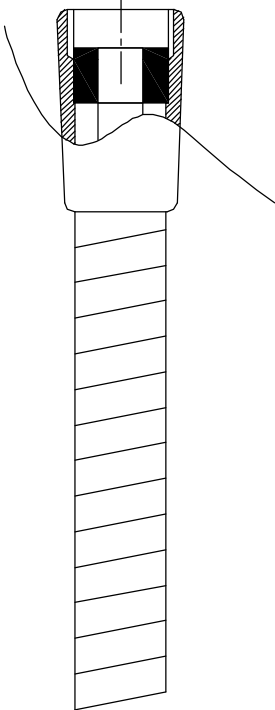


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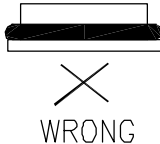
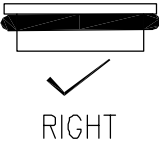
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		SCALE	DO NOT SCALE	
		DRAWN	GDP 7/12/05	
		CHECKED		
		ISSUE	1	



- TO REMOVE/REPLACE THE FLOW REGULATOR
1. UNSCREW SHOWER HOSE FROM FIXED END
 2. REMOVE, OR REPLACE REGULATOR (WITH O-RING ATTACHED, INTO THE OUTLET ELBOW, FLANGED SIDE FIRST IF REPLACING)
 3. ENSURE THAT THE O-RING IS SEATED EVENLY IF REPLACING REGULATOR
 4. RE-ATTACH SHOWER HOSE



NOTE:
IF REPLACING,
FLOW DIRECTION
IS IMPORTANT



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PART : FLOW REGULATOR REMOVAL/REPLACEMENT INSTRUCTIONS	PRODUCT : HORNE SHOWERS ALL HANDSET MODELS	MATERIAL : N/A		HORNE ENGINEERING LTD. JOHNSTONE RENFREWSHIRE DR'G. No. 9302B
		SCALE	DO NOT SCALE	
		DRAWN	GDP 7/12/05	
		CHECKED		
		ISSUE	1	

