



Horne Engineering Ltd
 PO Box 7, Rankine Street
 Johnstone, PA5 8BD
 Tel: +44 (0)1505 321455 Fax: +44 (0)1505 336287
 Email: Technical@horne.co.uk
 Web: www.horne.co.uk

**HORNE T109A/306A/307A THERMOSTATIC SHOWER VALVE
 FOR SURFACE MOUNTING WITH TIMED FLOW CONTROL
 INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**

NOTE: The T109A, T306A and T307A are all identical except for the shower outlet fittings. All comments about the T306A in these instructions equally refer to the T109A and the T307A.

Approvals

The Home 15 Type H1503 Thermostatic Mixing Valve used in the T109/T306/T307 shower panels 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 flow rate
LP - S	Shower with supply pressures of 0.2 – 1 Bar and unrestricted flow rate

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.*

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

Where the TSV1-3 panel is fed by supplies with differing pressures, a pressure-reducing valve (PRV) may be required on the inlet with the higher pressure. If the lower inlet pressure is low enough (typically 0.5 to 1Bar dynamic) that the flow-regulator in the outlet fitting (see pages 9, 10, 11) can be removed, then a PRV should not be required. If the lower of the 2 supply pressures is higher than around 1Bar, then a flow-regulator will likely be required to restrict flow. If the flow-regulator is installed, and the supply pressures are substantially unbalanced, then a PRV could also be needed to prevent pulsing of the flow. Although thermostatic performance is unaffected by this, the flow pulsing is often considered undesirable.

Note that output flow-rate is always determined by the lower of the two inlet pressures.

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, and adjusted if necessary, on site during commissioning to suit prevailing conditions and requirements.

Water and Energy Conservation

The TSV1 range shower panels are fitted with 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 regulators for removal or replacement.

General

Every T306A 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 T306B model is also available. A "B" suffix indicates that the shower panel is equipped with braided stainless steel hoses with SOFT-PEX liner 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 B variants.

Also note that ligature resistant models (e.g. T109ALR, T109BLR) are also available, which feature a ligature resistant shroud around the push-button timed flow control.

INSTALLATION

The surface mounting enclosure is supplied with a fitting kit containing the necessary fixings to attach it to the wall.

Mounting Height

When considering what height to mount the TSV1 panel, local need should be taken into account (eg height of users, wheelchair or ambulatory users, size of shower enclosure, etc). However a good starting point is to mount the top of the TSV1 panel 2 metres from the finished floor level. In the case of the 306 models (with the chromium-plated droop-arm and swivel shower head), 2.1 metres from finished floor level is usually a better height.

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

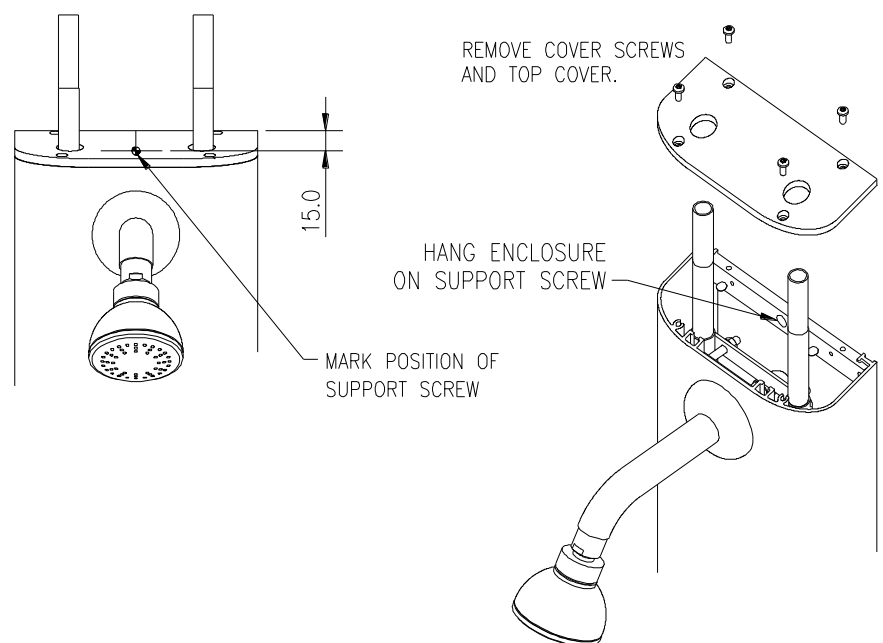
Identify a suitable position for the Enclosure and mark a line on the wall level with the top of the casing. Mark a point on the wall which is on the required centreline for the casing 15mm below the line of the top of the casing for the support screw (See Fig. 1).

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).

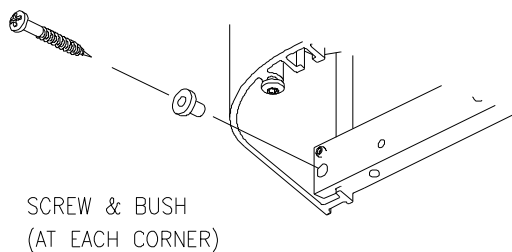
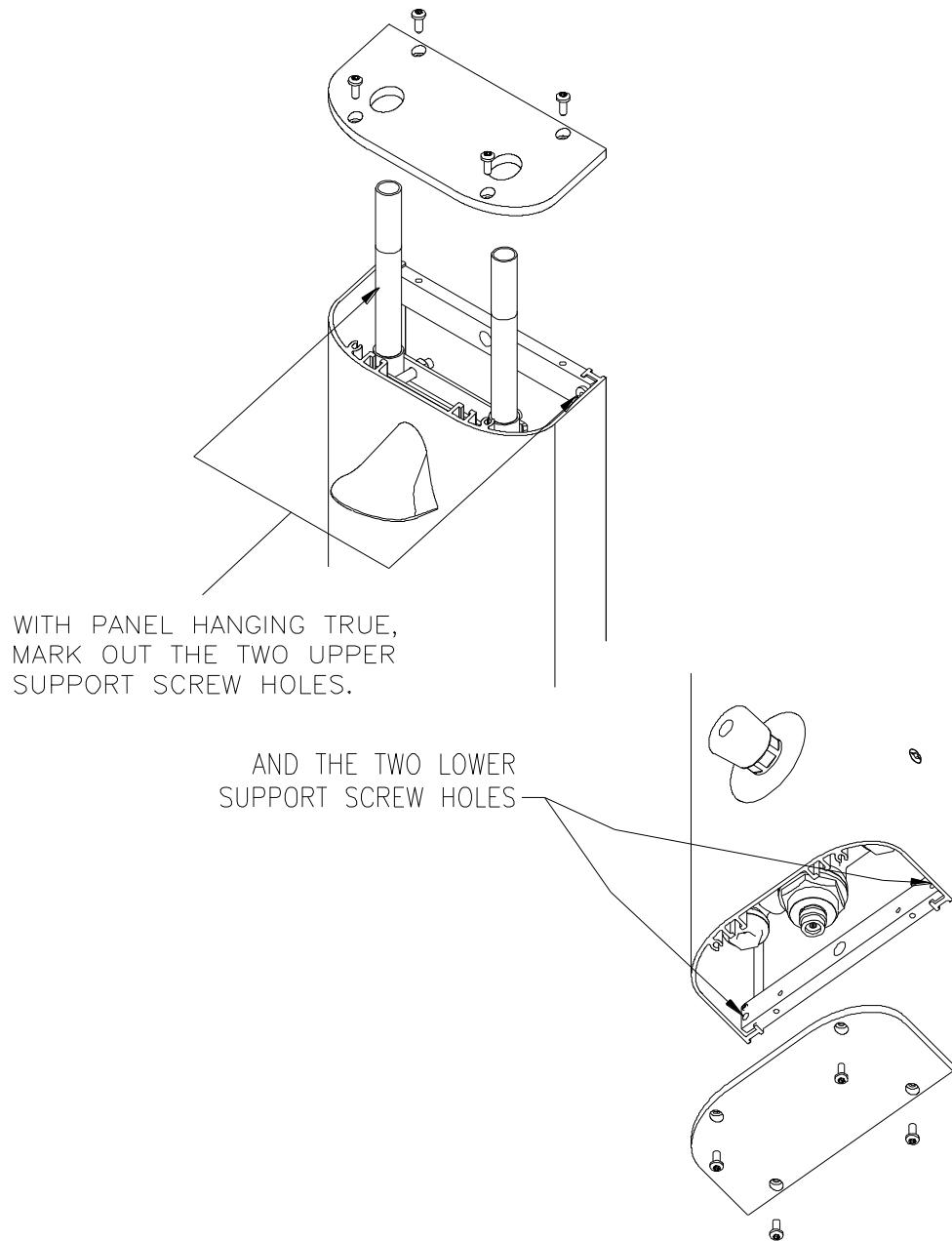
3) Hang the Enclosure on the Support Screw

Release the top cover of the pre-plumbed enclosure by removing the four Torx T20 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 image adjacent.



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 adjacent image.



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.

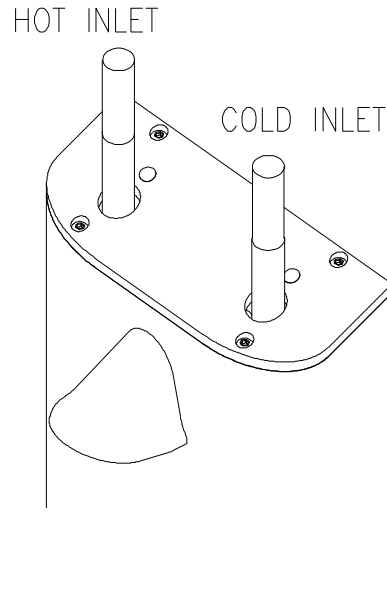
6) Attach the Pre-Plumbed Enclosure to the Wall

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.

7) Connect the Supply Pipes

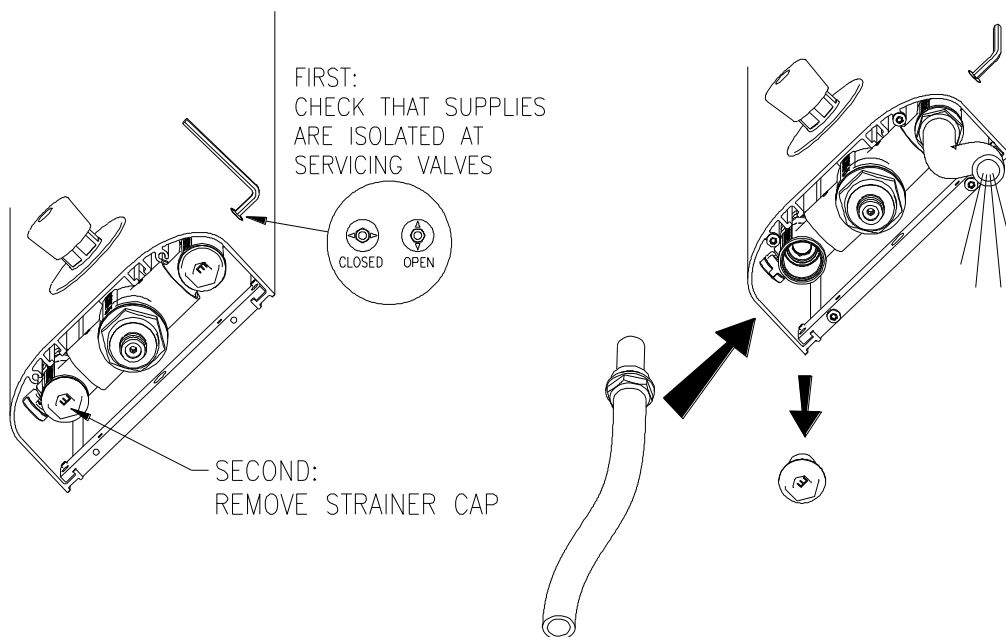
Ensure that the top cover of the pre-plumbed enclosure is replaced prior to connecting up the supply pipes. Connect the HOT water supply to the LEFT HAND inlet, and COLD water to the RIGHT HAND inlet.



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 below).



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.

Supplementary Installation Instructions for 'B' Variants.

TSV1 Panel Mounted Shower Valves are available in versions with flexible braided stainless steel inlet hoses, with SOFT-PEX liner, rather than top entry isolating valves. These versions have Product References with the suffix B, e.g. T306B. 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 T306A (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. 55 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.

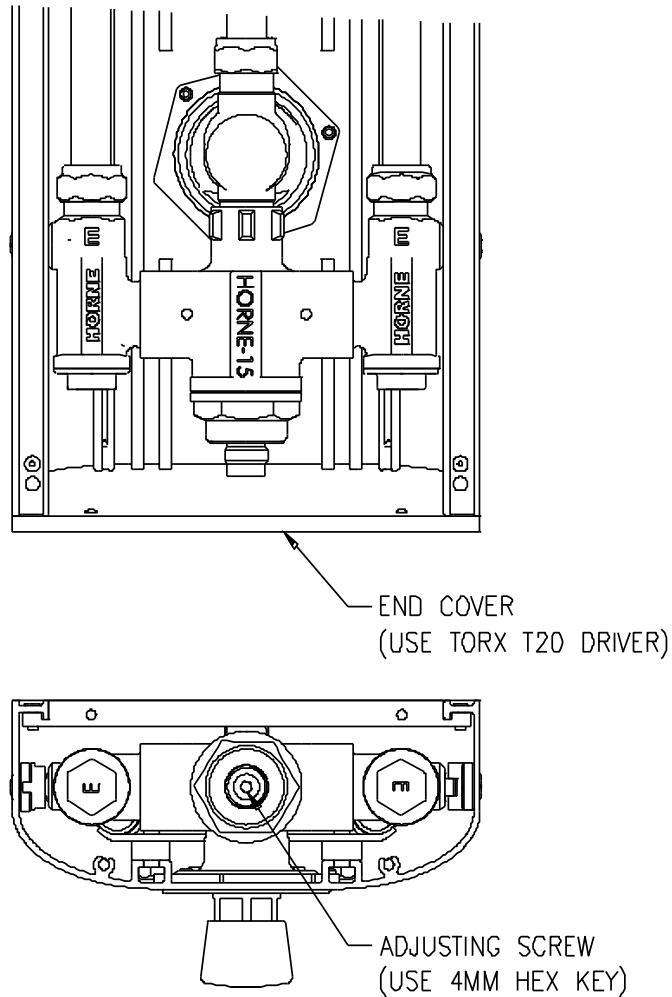
The T306A is set at the factory to provide an outlet temperature of approx. 41°C, but this should be checked on site to ensure that the setting has not been adjusted and that it meets site requirements. To adjust the temperature setting, follow the instructions below:

- a. Remove the lower end cap from the shower enclosure by removing the four screws.
- b. Using a 4mm (or 5/32") hex key, adjust the temperature of the mixed water. Turn the screw anticlockwise to increase the temperature, or clockwise to reduce it.
- c. After each adjustment, isolate the HOT supply at the servicing valve for a few seconds, restore it and check the set temperature.
- d. Operate the shower a few times to ensure the set temperature is correct.
- e. 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.

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

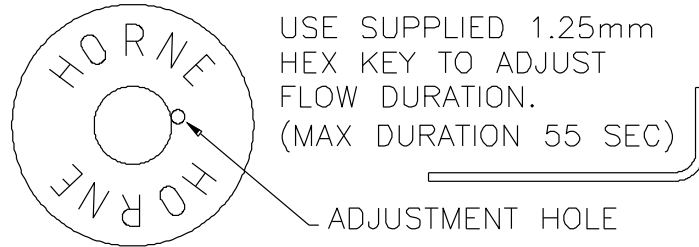
The Timed Flow Control Cartridge supplied with all variants has an adjustable duration, and is factory set to 55 seconds (maximum duration). This is adjusted using the supplied Hex Key through the hole in the front of the Pushbutton - see below.



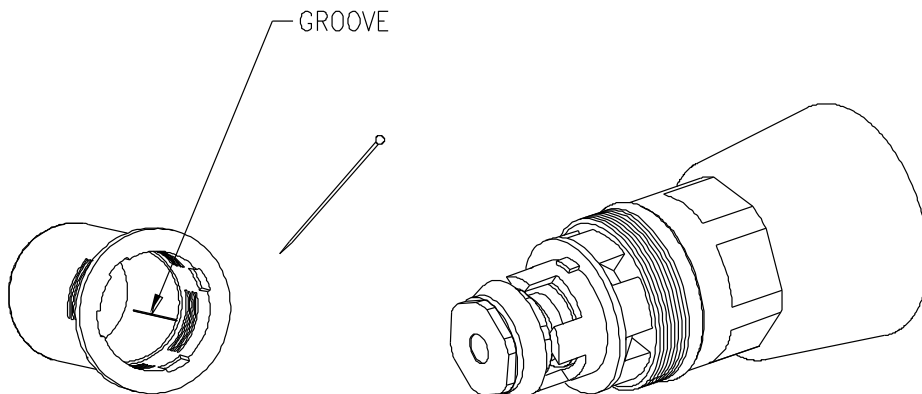
MAINTENANCE

Note that the T306A 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.

ADDENDUM: ADJUSTING DURATION OF TIMED FLOW-CONTROL CARTRIDGE



TURN CLOCKWISE TO REDUCE DURATION,
ANTI-CLOCKWISE TO INCREASE DURATION.
(ADJUSTS THE MAXIMUM PISTON STROKE).



ADDENDUM: CLEANING TIMED FLOW-CONTROL CARTRIDGE

IF TFC CARTRIDGE BECOMES JAMMED (WON'T MOVE OUT TO CLOSED POSITION), REMOVE THE CARTRIDGE IN ACCORDANCE WITH DRAWING PA713-1, THEN CLEAN OUT THE GROOVE ON THE INSIDE OF THE CUP (LEFT) BY GENTLY RUNNING THE SHARP END OF A PIN UP AND DOWN THE GROOVE. A SMALL AMOUNT OF DEBRIS SHOULD BE DISLODGED BY THIS ACTION.

RE-ASSEMBLE ACCORDING TO DRAWING PA713-1 (SEE OVERLEAF).

COPYRIGHT 2019, HORNE ENGINEERING LTD. ALL REPRODUCTION PROHIBITED UNLESS AUTHORISED IN WRITING

HORNE ENGINEERING LTD.
JOHNSTONE
RENFREWSHIRE

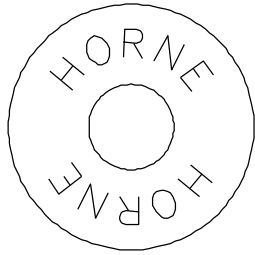
TITLE:
TIMED FLOW CONTROL
INSTRUCTIONS

SCALE	DO NOT SCALE
DRAWN	MJ (21.1.2019)
CHECKED	
ISSUE	1

DR'G. No. D11391

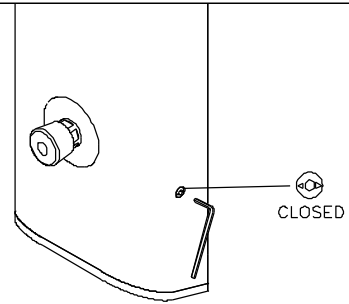
HORNE ENGINEERING LTD, RANKINE STREET, JOHNSTONE. PA5 8BD
 INSTRUCTION SHEET FOR ADJUSTING FLOW DURATION CUP
 TSV1 TIMED FLOW CONTROL UNITS BUILT AFTER APRIL 2010

1



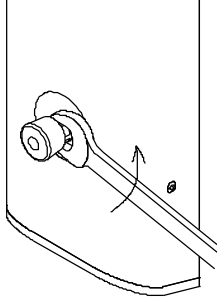
THIS INSTRUCTION SHEET IS ONLY APPLICABLE TO TSV1 PRODUCTS BUILT AFTER APRIL 2010. THESE CAN BE IDENTIFIED BY THE PUSHBUTTON BEING MARKED WITH "HORNE" AS SHOWN ABOVE. IF THE PUSHBUTTON DOES NOT HAVE THIS MARKING THEN THESE INSTRUCTIONS DO NOT APPLY.

2



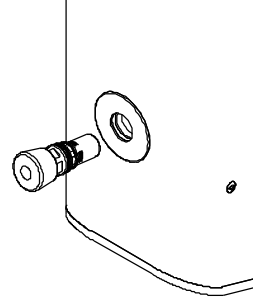
USE A HEX KEY TO ISOLATE THE HOT AND COLD WATER SUPPLIES AT THE LOW LEVEL SERVICING VALVES. THE INDICATOR ARROWS ON THE SERVICING VALVES WILL POINT TO THE FRONT AND THE BACK OF THE PANEL WHEN THE SUPPLIES ARE ISOLATED.

3



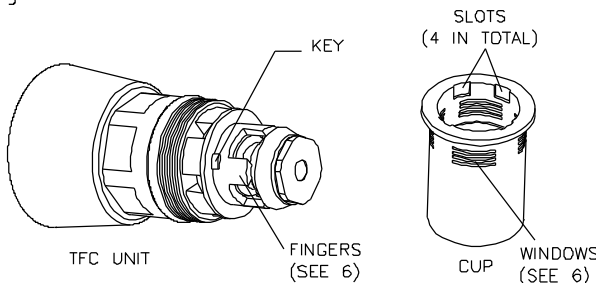
PRESS THE PUSHBUTTON TO RELEASE ANY TRAPPED PRESSURE. USING A SLIM JAW 24mm SPANNER ON THE HEX UNDER THE PUSHBUTTON, UNSCREW THE TIMED FLOW CONTROL CARTRIDGE.

4



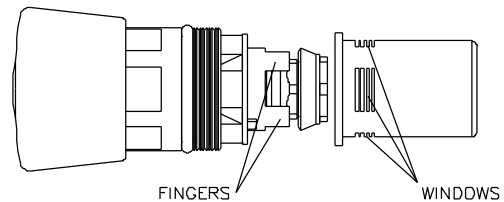
REMOVE THE TIMED FLOW CONTROL CARTRIDGE. BE CAREFUL NOT TO DROP THIS PRECISION PIECE OF EQUIPMENT. DO NOT PUT IT DOWN ANYWHERE WHERE IT COULD BECOME CONTAMINATED WITH DIRT OR DUST, NOR WHERE IT COULD BE STOOD ON.

5



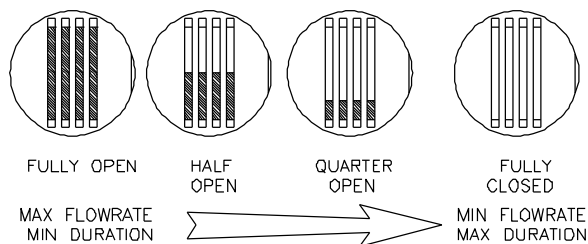
THE TFC UNIT HAS A KEY WHICH FITS INTO ONE OF 4 SLOTS IN THE CUP. THERE ARE THEREFORE 4 ORIENTATIONS OF THE TFC IN THE CUP. EACH OF THESE GENERATES A DIFFERENT FLOWRATE AND FLOW DURATION.

6



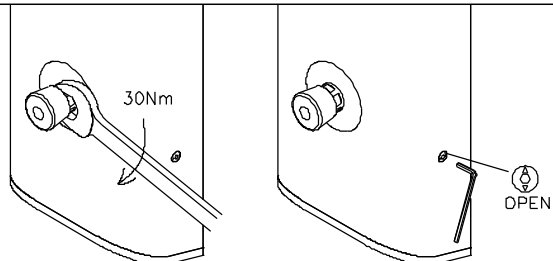
THE TFC UNIT HAS FINGERS WHICH BLANK OFF "WINDOWS" IN THE CUP WHEN ASSEMBLED. THE 4 ORIENTATIONS CORRESPOND TO 4 DIFFERENT DEGREES OF BLANKING. SECTION 7 SHOWS CLOSE-UP VIEWS OF THE WINDOWS AND EXPLAINS THE SIGNIFICANCE OF EACH ORIENTATION

7



THE TFC UNIT HAS FINGERS WHICH COVER THE "WINDOWS" IN THE SIDE WALL OF THE CUP. SELECT THE MOST APPROPRIATE COMBINATION AS ABOVE, AND PUSH THE CUP ONTO THE CARTRIDGE.
 NOTE: THE PRODUCT IS SHIPPED IN THE FULLY OPEN CONDITION.

8



PUT THE CARTRIDGE BACK INTO THE SHOWER PANEL. TIGHTEN DOWN TO 30Nm. OPEN THE HOT AND COLD SUPPLIES AT THE SERVICING VALVES. THE INDICATOR ARROWS ON THE SERVICING VALVES WILL POINT UP AND DOWN WHEN THE SUPPLIES ARE OPEN. PUSH THE BUTTON TO PURGE THE AIR AND THEN VERIFY THE PERFORMANCE OF THE CARTRIDGE.

TO REMOVE FLOW REGULATOR

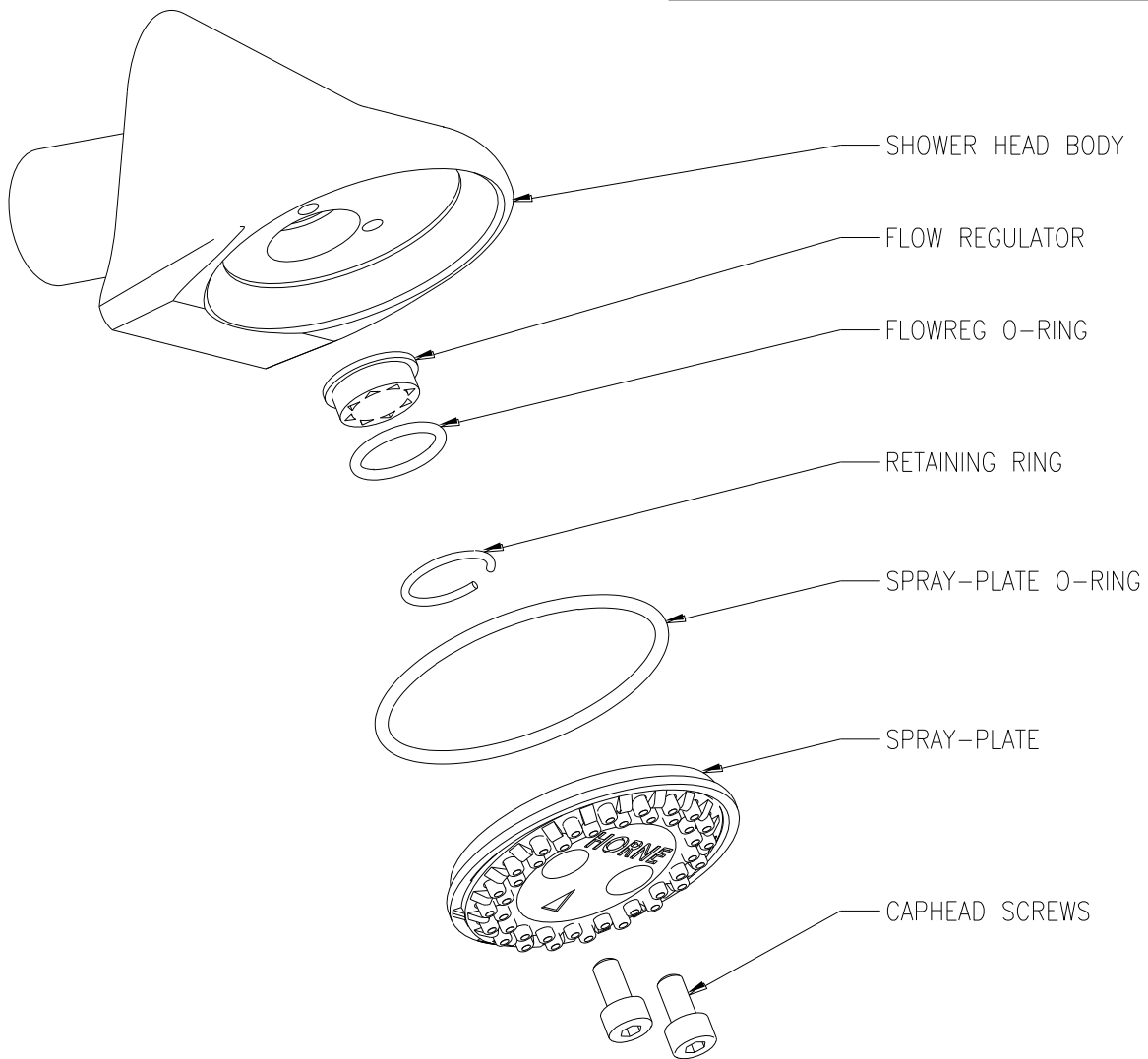
- 1> REMOVE THE 2 CAPHEAD SCREWS (USING 3MM HEX KEY)
- 2> PRIZE SPRAYPLATE OUT WITH A BLADE OR SIMILAR
- 3> REMOVE THE 2 RETAINING RINGS
- 4> REMOVE FLOW REGULATOR WITH ITS O-RING

STEPS <3> AND <4> CAN BE DONE BY TURNING ON THE WATER SUPPLY AND CATCHING THE PARTS IN A BUCKET

TO RE-FIT FLOW REGULATOR

- 1> INSERT FLOWREG INTO HOLE, FLANGED SIDE UP (FACING THE WATER SUPPLY)
- 2> PUSH O-RING INTO GAP AROUND FLOWREG
- 3> INSERT RETAINING RING
- 4> FIT THE LARGE O-RING ONTO THE SPRAYPLATE AND FIT THE SPRAYPLATE
- 5> RE-FIT THE CAPHEAD SCREWS

NOTE THAT THE SPRAY PLATE CAN BE FITTED IN 2 DIFFERENT ORIENTATIONS TO ALLOW GREATER OR LESSER 'THROW' OF THE WATER.



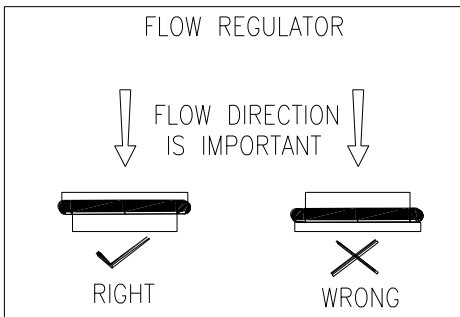
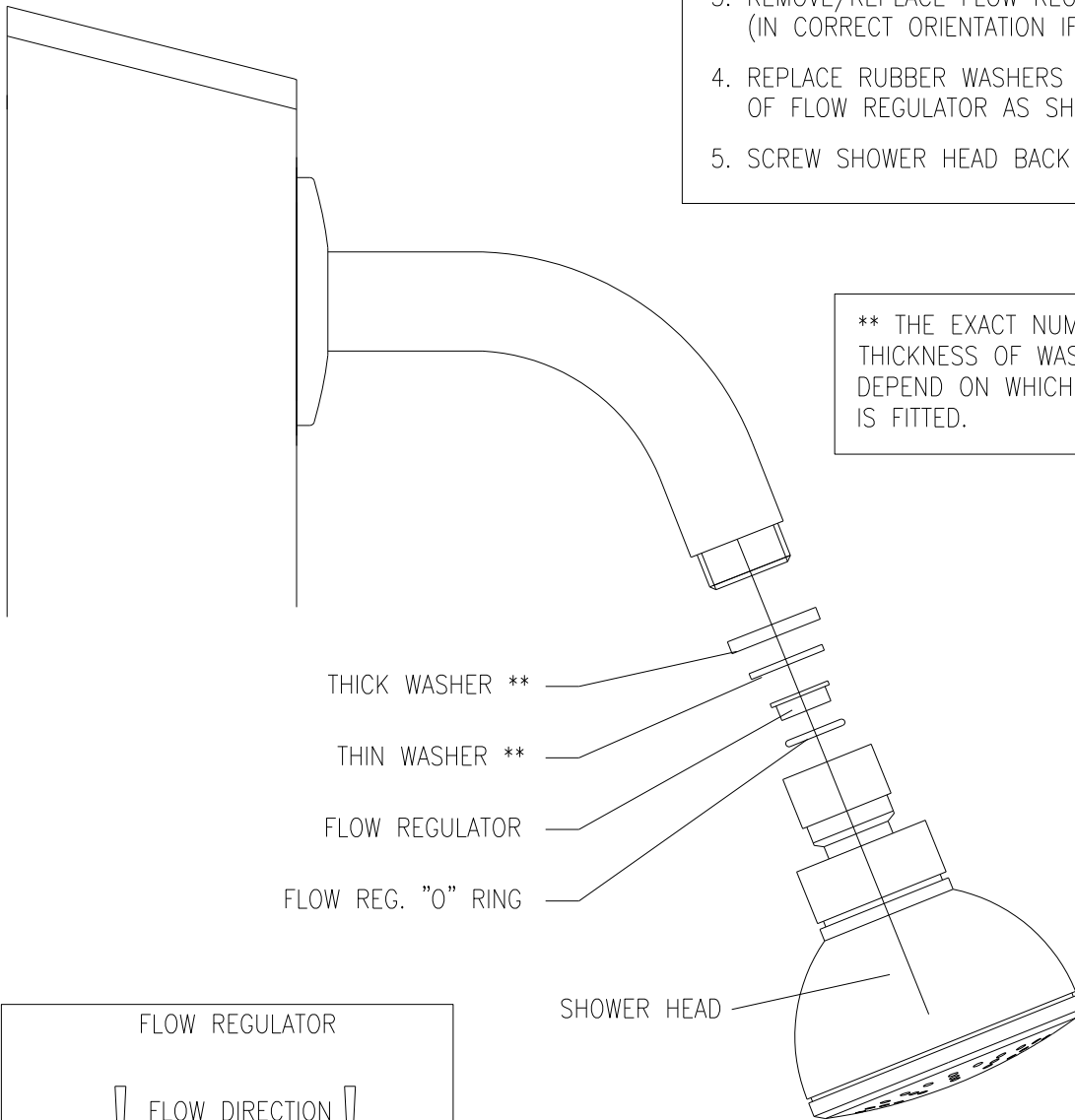
COPYRIGHT 2012, HORNE ENGINEERING LTD. ALL REPRODUCTION PROHIBITED UNLESS AUTHORISED IN WRITING

PART : REMOVAL / REPLACEMENT OF FLOW REGULATOR (VANDAL RESISTANT HEAD)		PRODUCT : HORNE SHOWER PANELS		MATERIAL : MATERIAL SPECIFICATION		HORNE ENGINEERING LTD. JOHNSTONE RENFREWSHIRE	
				SCALE	DO NOT SCALE		
				DRAWN	MJ (24/5/2012)		
				CHECKED			
				ISSUE	1	DR'G. No. 10393	

TO REMOVE/REPLACE FLOW REGULATOR

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

** THE EXACT NUMBER AND THICKNESS OF WASHERS WILL DEPEND ON WHICH SWIVEL-HEAD IS FITTED.



COPYRIGHT 2016, HORNE ENGINEERING LTD. ALL REPRODUCTION PROHIBITED UNLESS AUTHORISED IN WRITING

MATERIAL : N/A

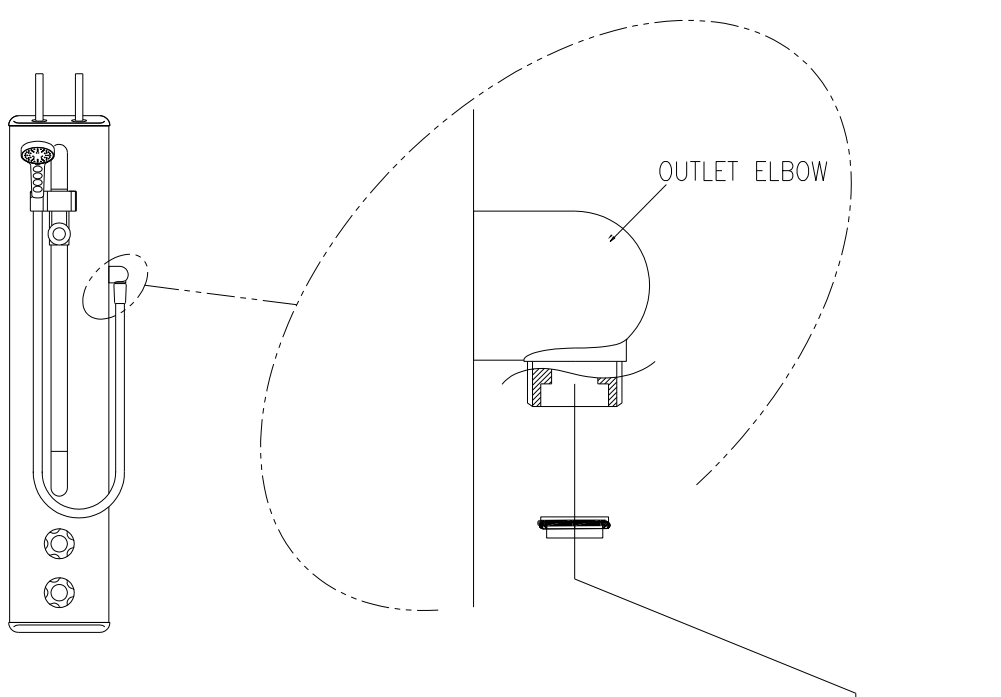
HORNE ENGINEERING LTD.
JOHNSTONE
RENFREWSHIRE

PART :
REMOVAL/REPLACEMENT OF
FLOW REGULATOR

PRODUCT :
TSV1-106A/AB

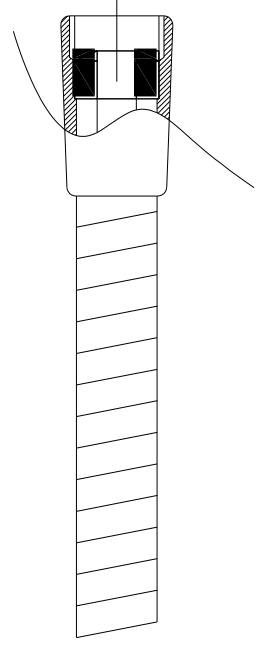
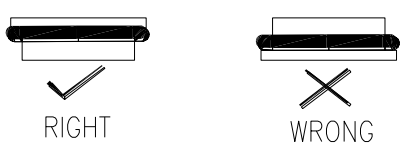
SCALE	DO NOT SCALE
DRAWN	GDP 7/12/05
CHECKED	
ISSUE	4

DR'G. No. 9301B



- 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



COPYRIGHT 2003, HORNE ENGINEERING LTD. ALL REPRODUCTION PROHIBITED UNLESS AUTHORISED IN WRITING

PART : FLOW REGULATOR REMOVAL/REPLACEMENT INSTRUCTIONS		PRODUCT : HORNE SHOWERS ALL HANDSET MODELS		MATERIAL : N/A		HORNE ENGINEERING LTD. JOHNSTONE RENFREWSHIRE	
				SCALE	DO NOT SCALE		
				DRAWN	GDP 7/12/05		
				CHECKED			
				ISSUE	2	DR'G. No. 9302B	

IN-SERVICE TESTING RECORD					
Establishment:					
Type of Valve: Horne TSV1-3 Shower Valve			Date Installed:		Installed by:
Location of Valve:					
Commissioning Details Note: Fill in ALL information during commissioning.					
Hot Water Supply :	HW Temp	C	HW Pressure	Bar	Temp:
Cold Water Supply:	CW Temp	C	CW Pressure	Bar	Instrumentation: Pressure:
Mixed Temp at max draw-off:	Mixed Temp:	C	Flowrate at max draw-off:	l/min	
Mixed Temp at low draw-off:	Mixed Temp:	C	Flowrate at low draw-off:	l/min	
Instrumentation Used:	Temp:		Press:	Flow:	
Cold Water Isolation Test	Max Mixed Water Temp during CW Isolation test: C Mixed Water Temp on restoration of CW Supply: C				
Note: MWT should return within 2 degrees of set temp, and be no greater than 43C after this test.					
Comments:					
In-Service Testing Record					
Date:		Establishment:		Location of Valve:	
		Type of Valve : TSV1-3 Shower Valve			
Hot Water Supply :	HW Temp	C	HW Pressure	Bar	Temp:
Cold Water Supply:	CW Temp	C	CW Pressure	Bar	Instrumentation: Pressure:
Mixed Temp at max draw-off:	Mixed Temp:	C	Flowrate at max draw-off:	l/min	
Mixed Temp at low draw-off:	Mixed Temp:	C	Flowrate at low draw-off:	l/min	
Instrumentation Used:	Temp:		Press:	Flow:	
Cold Water Isolation Test	Max Mixed Water Temp during CW Isolation test: C Mixed Water Temp on restoration of CW Supply: C				
Note: MWT should return within 2 degrees of set temp, and be no greater than 43C after this test.					
Comments:					
Recommended Date of Next In-Service Test:					

(Note: Photocopy this page)

In-Service Testing Record		Establishment:		Location of Valve:	
Date:		Type of Valve : TSV1-3 Shower Valve			
Hot Water Supply :	HW Temp	C	HW Pressure	Bar	Temp:
Cold Water Supply:	CW Temp	C	CW Pressure	Bar	Instrumentation: Pressure:
Mixed Temp at max draw-off:	Mixed Temp:	C	Flowrate at max draw-off:	l/min	
Mixed Temp at low draw-off:	Mixed Temp:	C	Flowrate at low draw-off:	l/min	
Instrumentation Used:	Temp:		Press:	Flow:	
Cold Water Isolation Test	Max Mixed Water Temp during CW Isolation test: C		Mixed Water Temp on restoration of CW Supply: C		
Note: MWT should return within 2 degrees of set temp, and be no greater than 43C after this test.					
Comments:					
Recommended Date of Next In-Service Test:					

In-Service Testing Record		Establishment:		Location of Valve:	
Date:		Type of Valve : TSV1-3 Shower Valve			
Hot Water Supply :	HW Temp	C	HW Pressure	Bar	Temp:
Cold Water Supply:	CW Temp	C	CW Pressure	Bar	Instrumentation: Pressure:
Mixed Temp at max draw-off:	Mixed Temp:	C	Flowrate at max draw-off:	l/min	
Mixed Temp at low draw-off:	Mixed Temp:	C	Flowrate at low draw-off:	l/min	
Instrumentation Used:	Temp:		Press:	Flow:	
Cold Water Isolation Test	Max Mixed Water Temp during CW Isolation test: C		Mixed Water Temp on restoration of CW Supply: C		
Note: MWT should return within 2 degrees of set temp, and be no greater than 43C after this test.					
Comments:					
Recommended Date of Next In-Service Test:					