



Horne Engineering Ltd
 PO Box 7, Rankine Street
 Johnstone, Renfrewshire
 Scotland. PA5 8BD
 Tel: +44 (0)1505 321 455
 Fax: +44 (0)1505 336 287
 Email technical@home.co.uk
 Web www.home.co.uk

Horne OPTITHERM Thermostatic Bib Tap

Type TBT-03

**INSTALLATION, COMMISSIONING, OPERATING AND MAINTENANCE INSTRUCTIONS
 APPROVAL**

The Horne OPTITHERM Thermostatic Bib Tap has been designed as a Type 3 TMV, and designed to comply with the requirements of *NHS Model Engineering Specifications D08: Thermostatic mixing valves (Healthcare premises)*, to the following designations.

APPLICATION	DESIGNATION	HOT & COLD WATER PRESSURES	WATER TEMPERATURES
WASHBASIN	HP-WE	1 to 5 BAR (Hot and cold pressures do not need to be equal)	HOT: 55°C - 65°C COLD: 5°C - 20°C
		Static Pressure Max. 10 Bar	Differential between mixed and supply temperatures: Min. 11°C

Table 1

If the Horne OPTITHERM Thermostatic Bib Tap is operated out with these conditions it cannot be guaranteed to operate as a Type 3 TMV.

The Horne OPTITHERM Thermostatic Bib Tap is supplied with integral single check valves (spring-loaded, resilient trim in-line check valve cartridge with plastic guide and stem) located in each of the hot and cold water supply inlets, in accordance with Regulation 4 of the Water Supply (Water Fittings) Regulations 1999.

The Horne OPTITHERM Thermostatic Bib Tap is a tap containing a thermostatic mixing valve (TMV). All comments made herein regarding TMVs apply equally to thermostatic taps.

Note that although a wide range of inlet pressures are tolerated by the Optitherm Tap, certain extreme pressure imbalances may cause a pulsing of the output. This is an unavoidable fact of physics and not a design feature of the tap. Temperature control will not be compromised, but pulsing may be considered undesirable, so if in doubt pressure reducing valves should be fitted.

THIS PAGE IS INTENTIONALLY LEFT BLANK

Table of Contents

[1]	ACCESSORIES:	5
[2]	INSTALLATION	6
2.1	NOTE ON O-RING FITTING	6
2.2	FITTING.....	6
2.3	FLUSHING OF PIPEWORK (METHOD 1).....	7
2.4	FLUSHING OF PIPEWORK (METHOD 2).....	8
[3]	COMMISSIONING	8
3.1	FLUSHING	8
3.2	TEMPERATURE CHECK (COLD WATER)	8
3.3	TEMPERATURE CHECK (HOT WATER)	8
3.4	THERMAL DISINFECTION.....	9
3.5	TEMPERATURE CHECK (MIXED WATER)	9
3.6	MIXED WATER TEMPERATURE ADJUSTMENT	9
3.7	COLD WATER FAILURE TEST	9
[4]	OPERATION	10
4.1	DUAL LEVER VERSION	10
4.2	SHORT LEVER VERSION	10
4.3	LEVER CLUTCH.....	10
4.4	POTABLE WATER SUPPLY	10
[5]	MAINTENANCE	11
5.1	IN-SERVICE TESTING	11
5.2	FLUSHING AND THERMAL DISINFECTION	11
5.3	CLEANING AND REPLACEMENT OF STRAINERS	11
5.4	TESTING AND REPLACEMENT OF CHECK VALVES	11
5.5	REPLACEMENT OF THERMOSTATIC CARTRIDGE	12
5.6	REPLACEMENT OF CERAMIC DISC CARTRIDGES.....	12
5.7	REPLACEMENT OF OUTLET FITTING	13
5.8	REMOVAL OF TAP FROM SPIGOT FOR WORKSHOP MAINTENANCE	14
	FOLDOUT PAGE – DIAGRAMS	16
[6]	FAULT FINDING CHART	17
6.1	FAULT FINDING CHART – CONTINUED.....	18

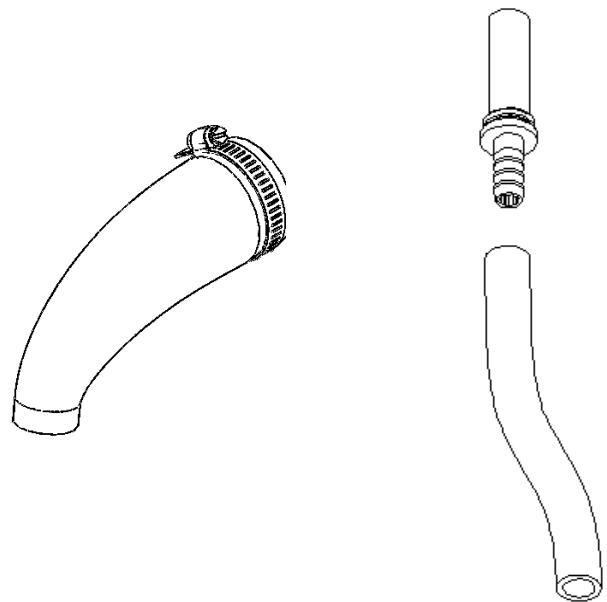
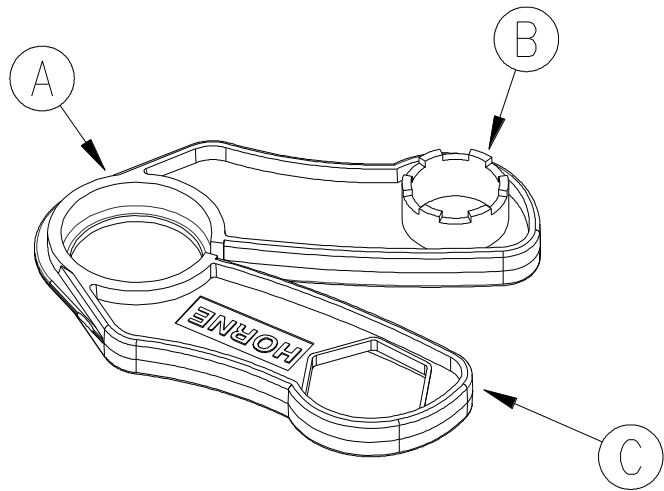
THIS PAGE IS INTENTIONALLY LEFT BLANK

[1] ACCESSORIES:

MULTI-TOOL:

A,B,C = Optitherm Multi Tool (Part No. 5459). Available as part of full toolkit (part no. 5491).

A	Endcap Gripper
B	Legacy Outlet Fitting Tool (24mm)
C	26mm Ring Spanner
D (Not Shown)	Universal Outlet Fitting Tool, Part No. 44-6667



FLUSHING ADAPTORS.

Part nos. 5684 (left), & 5492 (right).

To order spare parts consult drawing 10321 – available at
www.horne.co.uk/products/water-products/spare-parts/tap-spare/

[2] INSTALLATION

The Horne OPTITHERM Thermostatic Bib Tap must be installed in accordance with the Water Supply (Water Fittings) Regulations 1999.

2.1 NOTE ON O-RING FITTING

Before fitting o-rings care should be taken that they, and the grooves/bores into which they fit are...

- ◇ Clean
- ◇ Free from damage (nicks, tears, etc.)
- ◇ Lubricated lightly with water or a WRAS approved silicone oil.

Failure to do this may result in leaks and considerable damage.

2.2 FITTING

The Horne OPTITHERM Thermostatic Bib Tap is intended for installation on a vertical panel above a clinical hand wash basin or surgical trough.

2.2.1 Before installation, 2 holes must be bored in the panel in the configuration shown in the diagram.

A	150mm to 300mm depending on vessels to be filled. Less than 150mm will impede access for servicing. Recommended height 225mm
B	34mm
C	48mm (min 47mm, max 50mm)
D	6mm
Panel thickness	30mm maximum

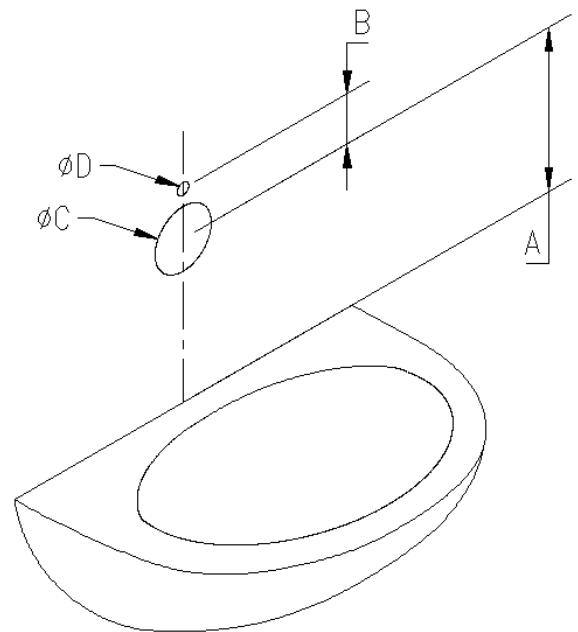


Diagram 1

► Open out the last (fold out) page of this instruction booklet to see the installation diagrams ►

- 2.2.2 Install the spigot (17) to the panel. Ensure that the chrome bezel (19) is located around the spigot first, and that the locating pin in the bezel engages in the small hole bored previously in the panel. The bezel should be retained between the spigot and the panel. Tighten to the panel using the 1½ BSP bulkhead nut (18) supplied. Put this nut on tightly. If it works loose the tap will not be secure and the nut may be difficult to tighten later, after the panel has been fixed.
- 2.2.3 Connect the water supplies to the spigot using 10mm copper pipe. The Hot Water Supply should be connected to the inlet port nearest the lever with the red endcap (i.e. the left hand side as one faces the basin), and the Cold Water Supply connected to the inlet port nearest the lever with the blue endcap (i.e. the right hand side as one faces the basin). Be very careful with the connections here, as any leaks may go undetected for some time and cause considerable damage.
- 2.2.4 At this stage, the screw on the spigot can be used to attach an electrical earth, if required.
- 2.2.5 Close the ball valves (X,Y) in the spigot and test for leaks. Once this part of the installation is confirmed to be watertight, and the hot and cold supplies are confirmed to be the right way around (see section 3.2), all further work on the Horne OPTITHERM Thermostatic Bib Tap can be done with the panel in place.

- 2.2.6 Ensure that the 2 interconnect nozzles (17) are still present in the rear orifice of the tap body. If these are dry they should be lubricated with some water or WRAS approved silicone oil.
- 2.2.7 Offer the main tap body up to the spigot. Locate firmly over the spigot and tighten the retaining screw (15) from below. In order to get a good fit of the tap onto the spigot it is helpful to push the tap against the spigot and slightly upwards as the retaining screw is tightened – this ensures that there is no gap between the spigot and the tap body. Torque the retaining screw to 5Nm (if a torque wrench is not available, tightening fairly tightly with the 4mm hex key supplied should be adequate for this purpose).
- 2.2.8 **DO NOT OPEN THE TAP YET.** Commence with the flushing procedure as detailed in 2.3 below.

2.3 FLUSHING OF PIPEWORK (METHOD 1)

Pipework must be flushed in accordance with Water Fittings Regulations 1999, schedule 2 G13.1 before connecting the Horne OPTITHERM Thermostatic Bib Tap.

The most common cause for complaint regarding the performance of any TMV/thermostatic tap is traced to dirt or debris in the TMV or check valves.

- 2.3.1 Do not open either tap lever before flushing the hot and cold water pipework.
- 2.3.2 A flushing kit (Horne part no: 5492 is available to provide means of flushing the pipework.
- 2.3.3 Unscrew the main bottom cover (1) using a strap wrench.
- 2.3.4 Remove an inlet cartridge assembly (7,8) using a 12mm hex key.
- 2.3.5 Using an 8mm hex key, screw the flushing adaptor (Z) into the space occupied by one of the strainer/check valve cartridges (20,21).
- 2.3.6 Ensure that the hose is securely attached to the flushing adaptor and that the open end of the hose is also secure - the hot water could scald badly if the hose ‘whips’ unexpectedly.
- 2.3.7 Open the ball valve (X,Y) using a 4mm hex key from under the spigot, and allow the water to flow at full bore into the sink until the water flows absolutely clean.
- 2.3.8 Repeat on the other side so that both hot and cold supplies to the tap are flushed.

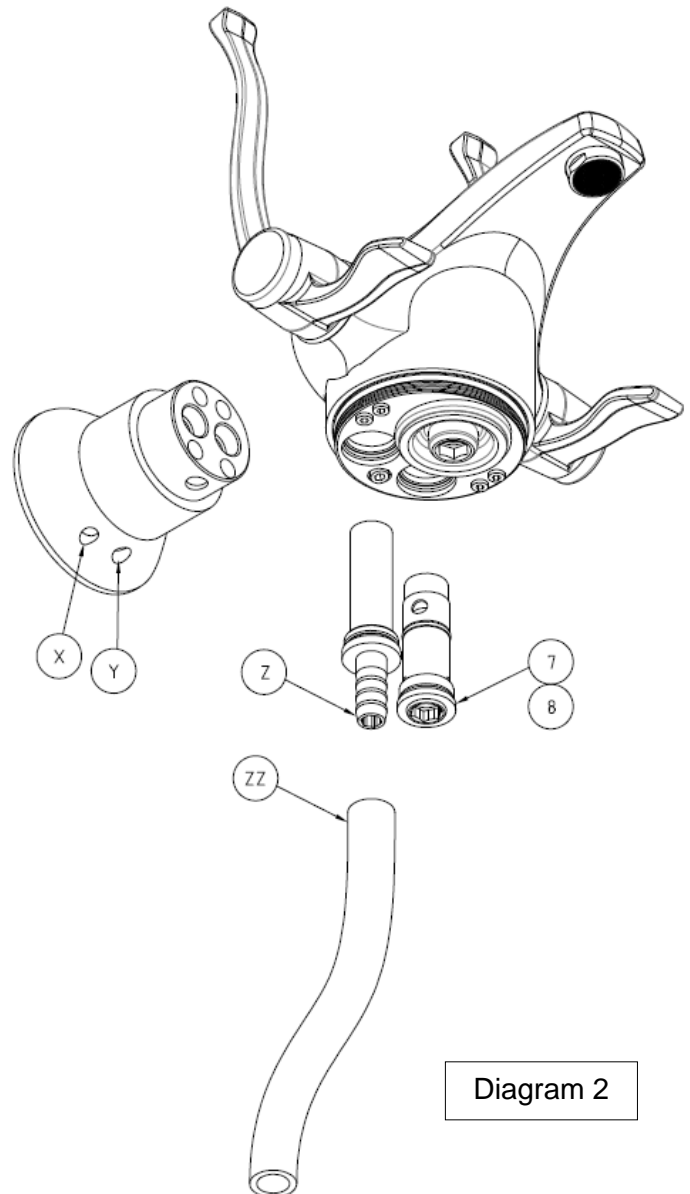


Diagram 2

Key to Diagram Above			
X	Hot isolating valve	Y	Cold isolating valve
7	Strainer/check-valve cartridge	Z	Flushing adaptor
ZZ	Flushing hose		

2.4 FLUSHING OF PIPEWORK (METHOD 2)

Alternatively the pipework can be flushed before fitting the Optitherm to the spigot using Horne part no.5684.

2.4.1 Connect adapter to spigot with jubilee clip around the large end.

2.4.2 Tighten the jubilee clip.

2.4.3 Open the valves from under the spigot and allow water to flow at full bore into the basin until the water runs absolutely clean.

[3] COMMISSIONING

The commissioning process comprises sections 3.1 to 3.7 below. The tap cannot be considered commissioned until these processes are all carried out.

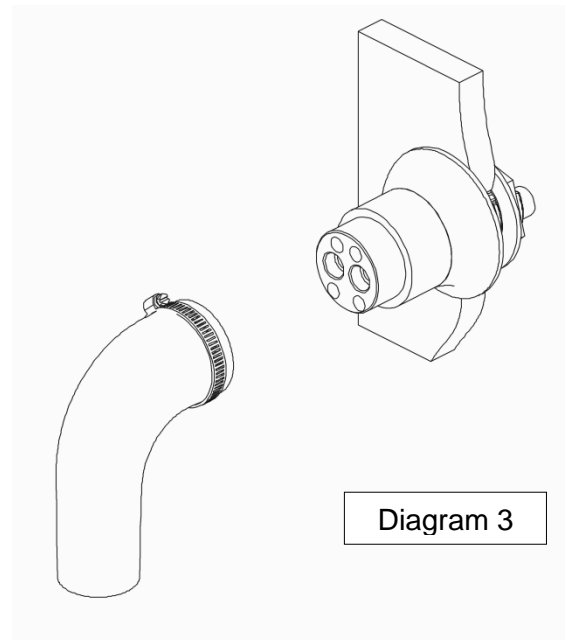


Diagram 3

Note that it is NOT possible to commission the Horne OPTITHERM Thermostatic Bib Tap before the hot water service (boiler) has been commissioned.

3.1 FLUSHING

Before commissioning the Horne OPTITHERM Thermostatic Bib Tap, it is imperative that flushing of the pipework has been carried out in accordance with section 2.3 or 2.4.

3.2 TEMPERATURE CHECK (COLD WATER)

3.2.1 Open the cold water isolating valve (Y) and lever (30), allow the water to run for a while and ensure that cold water flows from the spout (if hot water comes out, then the supplies are connected the wrong way around). Ensure that the tap is run for long enough to draw off any deadleg to be absolutely sure. Getting this right will save frustration later.

3.2.2 To check the temperature of the incoming cold water, open the blue/cold lever (13) only, and measure the temperature after 30 seconds. This should be within the range on table 1, page 1.

3.2.3 If hot water comes out of the spout when the blue lever is turned, the inlet hoses will have to be reversed behind the panel. This necessitates removal of the spigot (section 1.1 describes fitting of the spigot).

3.3 TEMPERATURE CHECK (HOT WATER)

3.3.1 To check the temperature of the incoming hot water, follow the procedure in section 5.3 for removal of the strainer/check valve cartridge on the hot side only (see also diagram in section 2.3)

3.3.2 Screw the flushing adaptor (Z: diagram 2) into the space vacated by the hot inlet cartridge assembly (8).

3.3.3 Ensure that the hose is securely attached to the flushing adaptor. Take care that the open end of the hose is also secure and pointing down the drain as the hot water could scald badly.

3.3.4 Carefully open the hot ball valve (X) from under the spigot and measure the temperature of water that flows out from the tube after 30 seconds; it should be within the range on table 1, page 1.

3.3.5 Re-fit the hot inlet cartridge assembly (8) and the bottom cover (1).

3.4 THERMAL DISINFECTION

3.4.1 Horne recommends thermal treatment as the most effective means of outlet disinfection. The Horne Inline Thermal Disinfection Unit (ILTDU) is designed specifically for this purpose, and should be used in conjunction with the Optitherm tap. Thermal disinfection should be conducted as part of the commissioning procedure. Instructions for the thermal disinfection procedure are supplied with the ILTDU

3.5 TEMPERATURE CHECK (MIXED WATER)

3.5.1 Check that hot and cold water supplies are at or near to their designated temperatures and pressures (see sections 3.2 & 3.3 and Table 1 on Page 1 for details).

3.5.2 Open the red (safe hot) lever only and allow water to run through the TMV.

3.5.3 Measure the temperature at the spout. This is the temperature of the mixed water. Ensure that the mixed water temperature is set appropriately. For healthcare applications, basin taps should always be set to 41°C.

If necessary, make minor adjustments to the temperature setting as described in Section 3.6 below.

N.B. For Type 3 TMV (healthcare) applications, the mixed water at the terminal fitting should never be set to exceed 41°C.

3.6 MIXED WATER TEMPERATURE ADJUSTMENT

3.6.1 The Horne OPTITHERM Thermostatic Bib Tap is approximately set at the factory to check for correct function. However, the temperature must be checked and adjusted on site to ensure correct installation. For healthcare applications, basin taps should always be set to 41°C.

For other applications, where applicable, the range of temperature adjustment is 35 – 44°C.

3.6.2 It should be noted that the Horne OPTITHERM Thermostatic Bib Tap requires a temperature differential of at least 11°C to work correctly (ie. the mixed water temperature must be at least 11°C lower than the hot water temperature and 11°C higher than the cold water temperature).

To alter the temperature setting, carry out the following procedure.

3.6.3 Unscrew the main bottom cover (1) using a strap wrench.

3.6.4 Check that hot and cold water supplies are within the designated temperature and pressure ranges (see sections 3.2 & 3.3)

3.6.5 Open the red/safe-hot lever (30) and allow water to flow until the mixed water temperature has stabilised. Make sure that the dead leg from the Hot Water Supply to the Horne OPTITHERM Thermostatic Bib Tap has fully cleared.

3.6.6 Using a 4mm hex key, turn the adjusting screw (3a) clockwise as viewed from below † to reduce the mixed water temperature or anti-clockwise to increase it. Adjustments of not more than half a turn at a time should be made. The temperature at the outlet should be measured and allowed to stabilise after each adjustment.

† Note screwing the adjusting screw inwards towards the cartridge will reduce the set temperature. Screwing it outwards away from the cartridge will increase the set temperature. The screw has a conventional right-hand thread.

After making an adjustment, close the red/safe-hot lever (30) for ten seconds then re-open it and measure the mixed water temperature again. If a further adjustment is required, repeat the procedure.

3.7 COLD WATER FAILURE TEST

3.7.1 Close the cold water isolating valve (Y) and, after 6 seconds, measure the mixed water temperature. The flow of mixed water should immediately stop and then a drip or trickle may or

may not be seen. The temperature, measured after 6 seconds, of any water coming from the tap should not be more than 2°C above the mixed water set temperature measured in 3.4.1 above. If no water comes out this is also acceptable.

3.7.2 If the Horne OPTITHERM Thermostatic Bib Tap performs satisfactorily, open the cold water isolating valve (Y) – the Horne OPTITHERM has passed the cold water failure test.

3.7.3 However, if the water coming from the tap is at a temperature of more than 2°C above the mixed water temperature setting, then the Horne OPTITHERM is not shutting off the hot water supply properly. The cartridge is likely to be contaminated with dirt or damaged. Replace the cartridge according to section 5.5.

Note that the Horne OPTITHERM may, in some circumstances, fail the cold water failure test if the hot supply temperature is not 11°C above the set mixed water temperature. The hot water temperature can be checked as outlined in section 3.3 above..

[4] OPERATION

Operation of the Horne OPTITHERM Thermostatic Bib Tap is similar to that of a conventional tap. Open the red lever to draw hot water at a safe and comfortable temperature (controlled by the thermostatic mechanism). Open the blue lever to draw fresh, cold water. The user may notice a slight pulsing of the water stream if both levers are opened. This is normal and is not a cause for concern. Note that it is not normally necessary to open both levers simultaneously as the water supplied from the hot lever is at a safe and constant temperature.

4.1 DUAL LEVERS

The dual levers on the Horne OPTITHERM Thermostatic Bib Tap are a unique feature to prevent the spread of infection.

The intended mode of operation is that the user should open (turn-on) the tap using a thumb to push the short lever backwards and downwards.

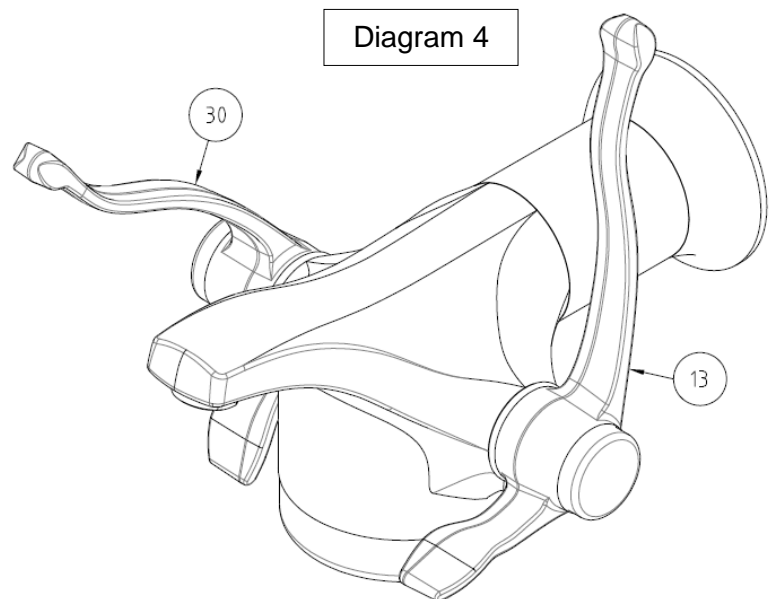
After washing, the long lever should be returned to the original position with an elbow, thus avoiding re-contamination by touching the short lever again.

4.2 LEVER CLUTCH

The Horne OPTITHERM is fitted with clutches on the levers to prevent lever breakage in the event of a lever being forced either accidentally or intentionally. Hence if the tap lever is found to be at an unexpected angle, simply push the lever in the opposite direction, beyond the normal 'stop'. One or two clunks should restore the lever to its correct position.

4.3 POTABLE WATER SUPPLY

When cold water is drawn (via the blue lever) from the Horne OPTITHERM Thermostatic Bib Tap the water completely bypasses the thermostatic mechanism. Hence, if the cold water supply to the Horne OPTITHERM Thermostatic Bib Tap is potable, so is the water drawn via the cold lever. NB: care should be taken to run the tap for at least 20 seconds before drawing water for drinking. This will ensure satisfactory purging of the spout.



[5] MAINTENANCE

Maintenance of all TMVs and thermostatic taps is essential. If a TMV does not operate properly, there is a risk of someone being scalded. The frequency of maintenance depends upon the condition of the water passing through the TMV. The remarks in 5.1.3 regarding in-service testing apply equally to maintenance. Generally, the thermostatic cartridge should be replaced after three years. The strainer/check-valve cartridges and ceramic disc cartridges should be replaced as necessary.

5.1 IN-SERVICE TESTING

5.1.1 Periodic testing should be carried out to check whether or not any deterioration has occurred in the performance of the Horne OPTITHERM Thermostatic Bib Tap.

5.1.2 A COLD WATER FAILURE TEST should be carried out as described in paragraph 3.7 above. If the water coming from the tap is at a temperature of more than 2°C above the mixed water temperature setting then the Horne OPTITHERM Thermostatic Bib Tap is due for maintenance.

NOTE: A TMV in need of maintenance can be undetectable in normal use and only become apparent when a disruption occurs in the hot or cold water supply pressures or temperatures.

5.1.3 The frequency of in-service testing depends upon the condition of the water passing through the tap. In-service testing must be carried out more frequently in hard water areas than in soft water areas. As a general guide, in-service testing should be carried out at least every twelve months and, where the water is hard, the interval may be less than six months. Experience of local conditions and the in-service testing record will dictate the frequency of in-service testing.

5.2 FLUSHING AND THERMAL DISINFECTION

5.2.1 Horne recommends periodic thermal disinfection in conjunction with high velocity flushing, using the Water Quality Compliance Kit (part no.6006), or the Inline Thermal Disinfection Unit (ILTDU). See paragraphs 2.3 and 2.4 for instructions on flushing. The periodicity of this maintenance should be determined in conjunction with the current best practice.

5.3 CLEANING AND REPLACEMENT OF STRAINERS

5.3.1 Close the isolating valves (X,Y) at the back underneath the tap spigot; open the levers and allow the residual pressure to be relieved.

5.3.2 Unscrew the main bottom cover (1) using a strap wrench.

5.3.3 Remove the strainer/check-valve cartridges (7,8) using a 12mm hex key.

5.3.4 The strainer can be removed from the top of the cartridge and cleaned or replaced as necessary.

5.4 TESTING AND REPLACEMENT OF CHECK VALVES

5.4.1 Close the isolating valves (X,Y) at the back underneath the tap spigot; open the levers and allow the residual pressure to be relieved.

5.4.2 Unscrew the main bottom cover (1) using a strap wrench.

5.4.3 Remove a strainer/check-valve cartridge (7,8)

Remove the strainer basket from the top. Inspect the white plastic check valve for signs of obvious damage. Carefully insert a clean probe (pen or similar) down the strainer hole to ensure that the check valve element can move freely. It should spring back into the closed position when released. If the check-valve is not in good condition, the whole strainer/check-valve cartridge should be replaced.

5.5 REPLACEMENT OF THERMOSTATIC CARTRIDGE

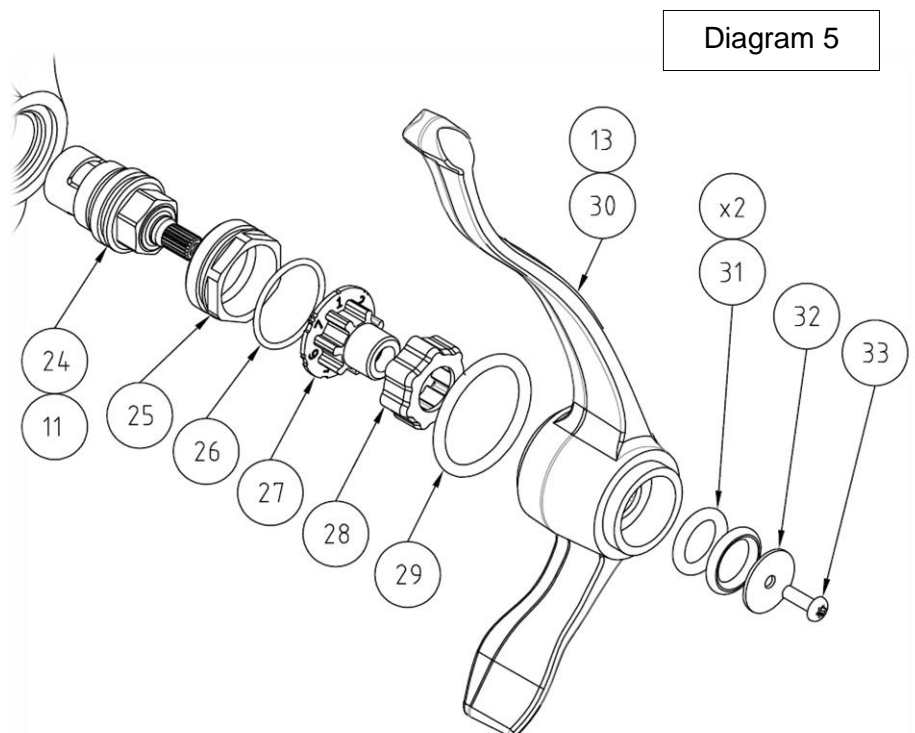
- 5.5.1 Close the isolating valves (X,Y) at the back underneath the tap spigot; open the levers and allow the residual pressure to be relieved.
- 5.5.2 Unscrew the main bottom cover (1) using a strap wrench
- 5.5.3 To remove the thermostatic cartridge, first remove the thermostatic cover (3) using a 12mm hex key. The thermostatic cartridge (4) can then be removed in one of 2 ways.
- ◇ Screw the Horne cartridge removal tool (part no. 5458) into the cartridge from underneath. This can then be pulled downwards to remove the thermostatic cartridge.
 - ◇ Use a 4mm hex key to turn the adjusting screw (3a) clockwise and remove it from the thermostatic cover (the adjusting screw has the same thread on it as the cartridge remover no.5458). This can be used to screw into the cartridge and remove it. Ensure that the adjusting screw o-ring is in good condition; clean; free from debris and lightly lubricated with water or WRAS approved silicone oil before re-assembly (see 2.1).
- 5.5.4 The new cartridge can be inserted into the tap body from below. If the o-rings are dry, they should be lubricated with some water or WRAS approved silicone oil.
- 5.5.5 Screw in the new thermostatic cover, again lubricating the o-ring if necessary.
- 5.5.6 Be sure to adjust the temperature and perform a cold-water failure test after replacing the cartridge. These processes are detailed in sections 3.4.1; 3.6 & 3.7.

5.6 REPLACEMENT OF CERAMIC DISC CARTRIDGES

- 5.6.1 The ceramic disc cartridges are reliable and expected to give a very long life provided that the strainers are maintained in a clean condition. If replacement is necessary a kit should be purchased from Horne for this purpose (part no. 5489). The kit will comprise...

- | | |
|---|--|
| ◇ Endcap removal tool – (part no. 23-5459) | ◇ 2 no. o-rings (29) (part no. 42-3452) |
| ◇ Pair of ceramic disc cartridges (11,24) – (part nos. 44-5407 & 44-5406) | ◇ 4 no. o-rings (31) (part no. 42-5416) |
| ◇ Pair of torque control members (28) – (part no. 23-5410) | ◇ 2 no. M4 screw (33) (part no. 41-5414) |

- 5.6.2 Unscrew and remove the coloured aluminium endcap using the special Horne tool (no. 5459)
- 5.6.3 Unscrew and remove the screw and washer (33,32). Torx T20 key needed.
- 5.6.4 Pull the lever outwards to remove
- 5.6.5 Remove the spline adaptor and torque control member (27,28). These may come out as one piece.
- 5.6.6 Unscrew the actuator sleeve (25), using a 26mm ring spanner or Horne tool no. 5459.
- 5.6.7 Using a 17mm spanner, unscrew the ceramic disc cartridge (11,24). This will be tight.



- 5.6.8 Fit the replacement cartridge and tighten to 25Nm. Note that the two cartridges are left and right handed. The cartridge with the small nicks around the 17mm spanner hex is for the left (hot) side of the tap. If the o-ring around the cartridge is dry, lubricate it with a little water or WRAS approved silicone oil.
- 5.6.9 Fit the new actuator sleeve and o-ring. If using a spanner for this take care not to over-tighten it as the thread is plastic - only light torque is needed. Horne tool no. 5459 can be used.
- 5.6.10 Remove the old torque control member (28) from the spline adaptor, and push-fit the new one. Lubricate this with a little (silicone) oil around the outside before final assembly.
- 5.6.11 Fit this assembly over the ceramic disc cartridge spline. Note that the spline has 20 teeth and the torque control member has 7 lobes. This allows 140 possible orientations of the lever. The correct orientation will have a lobe as near as possible to the vertical position (with the ceramic discs closed). It may be beneficial to experiment with orientations to ensure that the two levers end up aligned neatly with each other. Contact Horne technical for pictorial instructions on this if needed.
- 5.6.12 Re-fit the levers, replacing o-rings if necessary. The large o-ring goes on the in-board side and the two small ones go immediately under the penny washer on the out-board side.
- 5.6.13 Refit the washer and M4 screw tightly. Then fit the endcap (red on the left, blue on the right). Use the tool no. 5459 to tighten the endcap. This will prevent unauthorized removal.

5.7 REPLACEMENT OF OUTLET FITTING

- 5.7.1 The outlet fitting, or flow conditioner (14) performs a number of functions, namely:-
 - ◇ Inducing a straight, laminar stream, and thus reducing splash
 - ◇ Regulating the flow to 6 litres per minute
 - ◇ Preventing drain-down of the spout between draw-offs
 - ◇ Preventing airborne infection from entering the tap & water pipework
- 5.7.2 As the outlet fitting forms the interface between the water service and the clinical environment, there may be, from time to time, a build up of bacteria on the outlet fitting itself. If this is the case, then it may be desirable to introduce a regime to periodically exchange the outlet fitting.
- 5.7.3 Exchanging the outlet fitting can be conducted using part no. 44-6667,. The outlet fitting unscrews with a conventional right-handed thread and is inserted with a reversal of this procedure.

Key to Diagram 5 on Page 12	
11/24	Ceramic Disc Cartridge
25	Actuator Sleeve
26	Act. Sleeve O-Ring
27	Spline Adaptor
28	Torque Control Member
29	Lever Interface O-Ring
31	Hub cushioning O-Ring
32	Lever Retaining Washer
33	Lever Retaining Screw

Key to Diagrams on Page 16			
X	Hot Isolating Valve	15	Outlet Fitting Adaptor & Seal
Y	Cold Isolating Valve		
1	Main Bottom Cover	17	Interconnect Nozzles
3	Thermostatic Cover	18	Spigot
3a	Adjusting Screw	18a	Earth Screw & Washer
4	Thermostatic Cartridge	18b	Bulkhead Nut
5	Tap Securing Screw	19	Bezel
7	Inlet Cartridge Assy. (C)	21	Extension Piece
8	Inlet Cartridge Assy. (H)	22	M5 Screws
13	Double Lever Right (C)	23	Spigot Sealing Washers
14	Outlet Fitting	30	Double Lever Left (H)

5.8 REMOVAL OF TAP FROM SPIGOT FOR WORKSHOP MAINTENANCE

Numbers in parentheses refer to the diagram on the fold-out page 16

If desired the tap body can be removed from the spigot for off-site maintenance. Furthermore, a substitute tap body can be fitted while the original tap is being maintained. The process for this is as follows.

- 5.8.1 Close the isolating valves (X,Y) at the back underneath the tap spigot; open the levers and allow the residual water to drain.
- 5.8.2 Unscrew the main bottom cover (1) using a strap wrench.
- 5.8.3 Loosen the tap retaining screw (5) until the head is flush or slightly proud of the bottom of the tap body.
- 5.8.4 Pull the tap away from the panel horizontally until it is free of the spigot. Pay careful attention not to drop it as it is rather heavy and may cause damage.
- 5.8.5 Rotate the tap to allow the residual water to pour out into the sink.
- 5.8.6 If a replacement tap body is to be fitted, follow the procedure in 2.2.7 & following. The commissioning procedures in 3.4.1; 3.6 & 3.7 should be followed for the new tap body.

THIS PAGE IS INTENTIONALLY LEFT BLANK

FOLDOUT PAGE – DIAGRAMS

Diagram 6

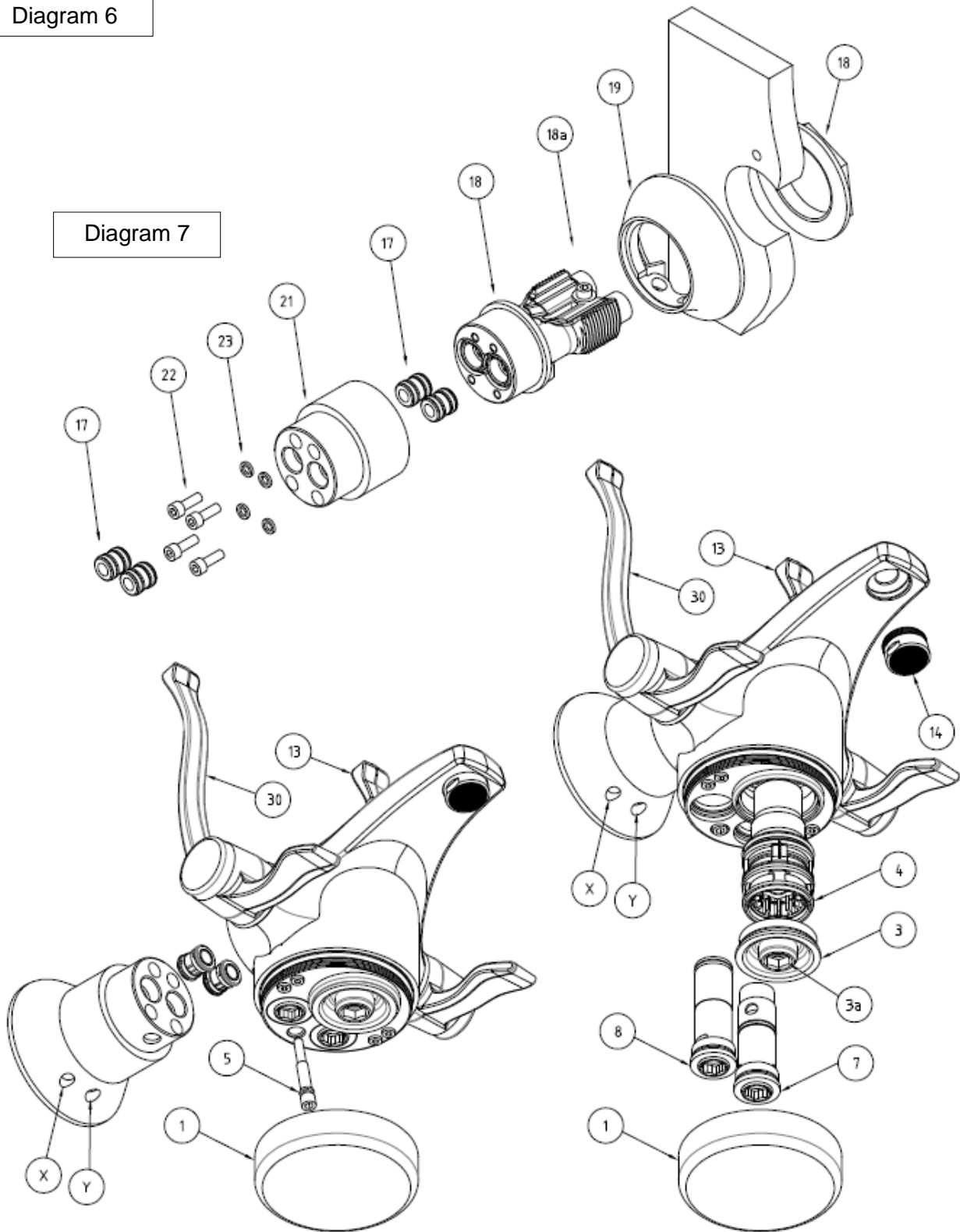


Diagram 8

Note that numbers are out-of-sequence for the purpose of harmony with spare parts Drg 10321

This drawing is available at

www.horne.co.uk/products/water-products/spare-parts/tap-spares/

[6] FAULT FINDING CHART

SYMPTOM	POSSIBLE CAUSE	ACTION	REFER TO SECTION
Mixed water temperature too high	Temperature setting too high. Temperature has been set when hot water supply temperature was too low	Re-adjust temperature setting ensuring hot water supply is at correct temperature.	3.4.1, 3.6
	Hot water supply has migrated into cold water supply	Inspect/replace cold inlet cartridge assembly (7)	5.4
	Thermostat Element has failed. This can be checked by carrying out a hot or cold water failure test.	Replace Thermostatic cartridge (4) and cover assembly (3)	3.7 & 5.5
Mixed water temperature too low	Temperature Setting too low	Re-adjust temperature setting	3.4.1, 3.6
	Hot water supply temperature has fallen.	Check hot water supply temperature.	3.3
	Cold water has migrated into hot supply	Inspect/replace hot inlet cartridge assembly (8)	5.4
	Cold valve face requires cleaning	Remove thermostatic cover (3) and clean up valve face	5.5
Mixed water flow rate too low.	Partly blocked strainers	Clean strainers	5.3
	Unusually high pressure drop in supply pipework	Check all valves are fully open. Check Pressurisation unit. Check mains supply	-
	Extra Demand added to system	Check pipe sizing	-
Mixed water temp does not respond to adjusting screw	Thermostatic cartridge is seized	Replace Thermostatic cartridge (4) and cover assembly (3)	5.5
	Hot and cold inlets reversed	Reverse inlet connections. [Connect hose from hot supply to inlet nearest red endcap].	3.2
	Hot water supply temperature is too low	Check hot water supply	-

6.1 FAULT FINDING CHART – CONTINUED...

Mixed water temp changes and is not steady	Thermostatic cartridge is seized	Replace Thermostatic cartridge (4) and cover assembly (3)	5.5
	Thermostat element has failed. (This can be checked by carrying out a hot or cold water failure test)	Replace Thermostatic cartridge (4) and cover assembly (3)	3.7, 5.5
Water at outlet runs full hot or full cold	Hot and cold inlets are reversed	Reverse inlet connections. [Connect hose from hot supply to inlet nearest red endcap].	3.2
Valve continues to pass cold water when hot supply is isolated	Cold valve face is contaminated with debris	Remove loose debris from between Thermostatic cartridge (4) and cover assembly (3). Or replace (4) and (3) if no loose debris is found.	5.5
Valve continues to pass hot water when cold supply is isolated.	Element has failed, or Slide-Valve seal is damaged, or Fouling at hot valve seat	Replace Thermostatic cartridge (4) and cover assembly (3)	5.5
	If water flowing is more than 11°C above required mixed water temperature then valve may not have been commissioned with an adequate hot water supply temperature; or the set temperature may be too high. NB If this is the case the valve may not offer scald protection	Re-commission the valve, closely following the guidance in Section 2.	3.2 thru' 3.7
	If water flowing is less than 11°C above required mixed water temperature then the hot water supply temperature may not be sufficient to cause thermal shut-off. (N.B. this is possible with combi boilers).	Repeat test with hot water temperature at least 11°C above required mixed water temp.	3.3, 3.7
Water flow pulses when both levers are opened at once	This can happen when cold water pressure is low relative to the hot water pressure. Note that it is not normally necessary to open both levers simultaneously as the water supplied from the hot lever is at a safe and constant temperature.	This is not a fault condition and is normal. See note at bottom of page 1.	-
Tap does not shut-off when levers are in the closed position	Interconnect nozzles (17) are damaged or may not have been fitted.	Remove tap body from spigot and check interconnect nozzles.	2.2.6