POWERS

A WATTS INDUSTRIES CO.

TECHNICAL INSTRUCTIONS

Hydroguard 400 Valves
Models 1–6

Form TI400 v2

OPERATION

Hot and cold water enter their respective ports and the pressures are equalized through the action of the balancing poppet (1). The entire balancing poppet assembly is contained in a celcon chamber (2). This chamber is replaceable as a complete cartridge. After the hot and cold presses are equalized, they are mixed by the action of the mixing plate (3). As the temperature adjustment stem is rotated from shutoff to maximum hot water temperature (approximately 180°), the mixing plate passes the required proportion of hot and cold water to produce the control point. With the adjustment stem in its full clockwise position, shutoff is obtained by shutting off both supplies. The maximum temperature stop (4) allows the user to set the maximum discharge temperature. This mixer does not recognize supply water temperature changes so any variation in the water temperature will affect the control point and the maximum temperature setting.

SPECIFICATIONS

Operating Capacity

Model 1–3 ..... 9 GPM @ 45 psi (.57L/sec @ 310 kPa)

Model 4 3-port..... 6 GPM @ 45 psi (.38L/sec @ 310 kPa)

4-port

Top .....6 GPM @ 45 psi (.38L/sec @ 310 kPa)

Bottom....6 GPM @ 4S psi (.38L/sec @ 310 kPa)

Model 6 .....6 GPM @ 45 psi (.38L/sec @ 310 kPa)

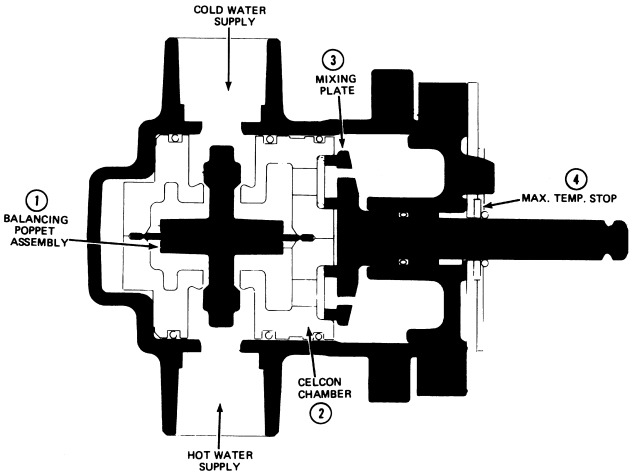
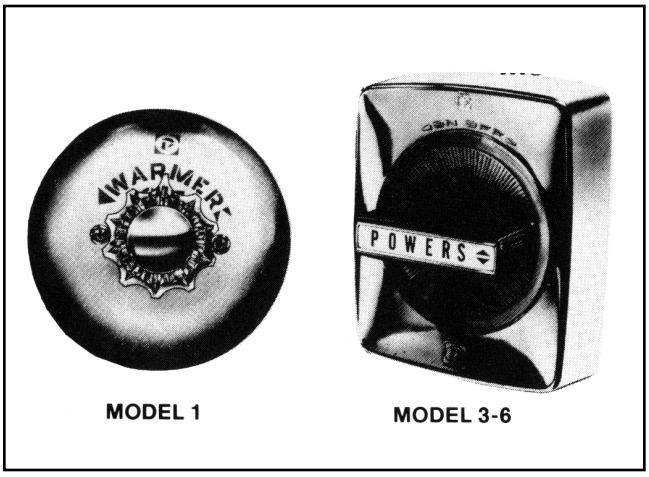


FIGURE 1



MODEL 1 **MODEL 3-6**

Inlet and Outlet Sizes

Model 1–3: Inlet and Top.....1/2″ NPT

Bottom .....3/4″ NPT

Model 4–6, all ports.....1/2″ NPT

Maximum pressure (static)..... 125 psi (862 kPa)

Maximum inlet temperature.....180°F (82°C)

Built-in shutoff .....All models

Roughing-in template .....All models

Maximum temperature adjustment.....All models

MAINTENANCE

Troubleshooting Pointers

What to look for if:

1. The flow of water is less than desired.
   a. Valves upstream from supply not fully open.
   b. Low supply pressures.
   c. Accumulation of lime deposits in hot water pipes, restricting the flow of hot water.
   d. Shower head clogged.
2. Flow of water is completely shut off.
   a. Valves upstream from supply completely closed.
   b. Failure of hot or cold water supply pressure. The Hydroguard is constructed to restrict the flow of water on hot or cold water supply failure,
3. The temperature of the water goes from hot to cold when the adjustment handle is rotated counter-clockwise.
   a. The water supplies are connected to the wrong port.
4. Flow of water continues when Hydroguard is shut off.
   a. Worn SHUTOFF DISCS. Replace worn disc.
5. Maximum temperature is too low.
   a. Accumulation of lime deposits in hot water pipes, which restricts the flow of hot water.
   b. The concealed maximum temperature is not at its maximum adjustment.
   c. Hot water temperature too low.

MAXIMUM TEMPERATURE SETTING:
MODELS 1–3

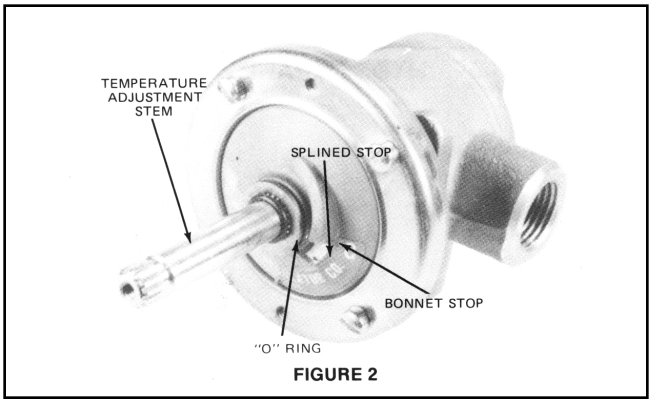


FIGURE 2

CAUTION: MAXIMUM TEMPERATURE SETTING. To change setting, remove splined stop by slipping O-ring up on stem. (Do not remove from stem.) Rotate temperature adjustment stem to required maximum temperature setting. Position splined stop on adjustment stem so that it contacts bonnet stop, See figure 2. Slip O-ring back to original position. Shut-off is made by rotating temperature adjustment stem clock-wise. This mixer cannot sense supply water temperature changes, so any variation in inlet temperatures will affect control point and maximum temperature setting.

MODELS 4–6

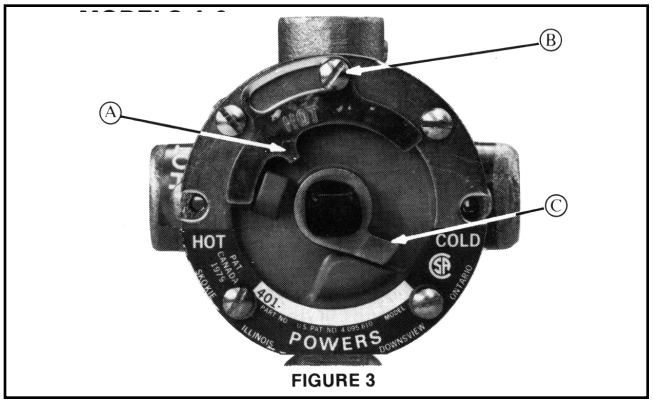


FIGURE 3

MAXIMUM TEMPERATURE SETTING (Refer to figure 3). *This must be set on the job. Mixer will pass full HOT water.* Loosen screw B (do not remove). Rotate stem to get desired maximum temperature. Move stop A until it touches stop C. Tighten screw B. **Special case**—with high (over 140°F–60°C) hot water. Remove screw B, turn stop A over as shown by dashed lines (the word "HOT" will face in) replace screw B. Reset stop A per above.

CAUTION: Adjustable stop A must be present for proper operation.

BALANCING CARTRIDGE PULLER

To Remove Balancing Cartridge Assembly

1. Insert hooked ends of puller into HOT and COLD outlet ports of Balancing Cartridge. (See figure 4)
2. Push puller clasp into notches of puller.
3. Insert screwdriver or similar type bar through puller.
4. Place a 3″ wood or plastic block (do NOT use metal) between bar end and mixer body. Pull other end of bar.
5. Release puller clasp, spread hooked ends of puller slightly and remove from cartridge.

To Install Balancing Cartridge

1. Apply small amount of oil or grease or soap to inner surface of body.
2. Align cartridge and body holes.
3. Slowly push cartridge in, side O-rings. *Be careful not to pinch side O-rings.*

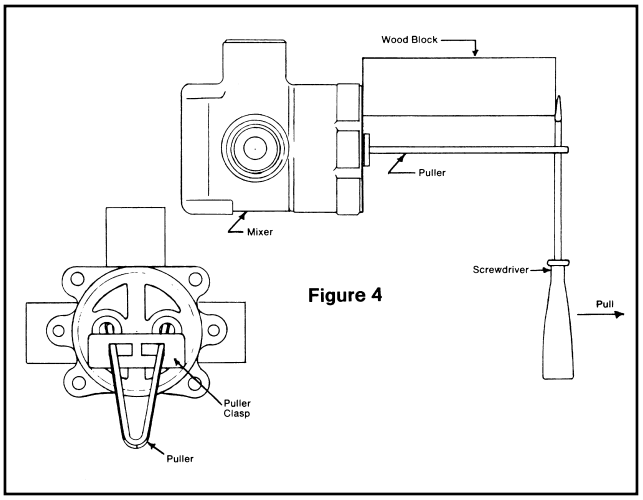


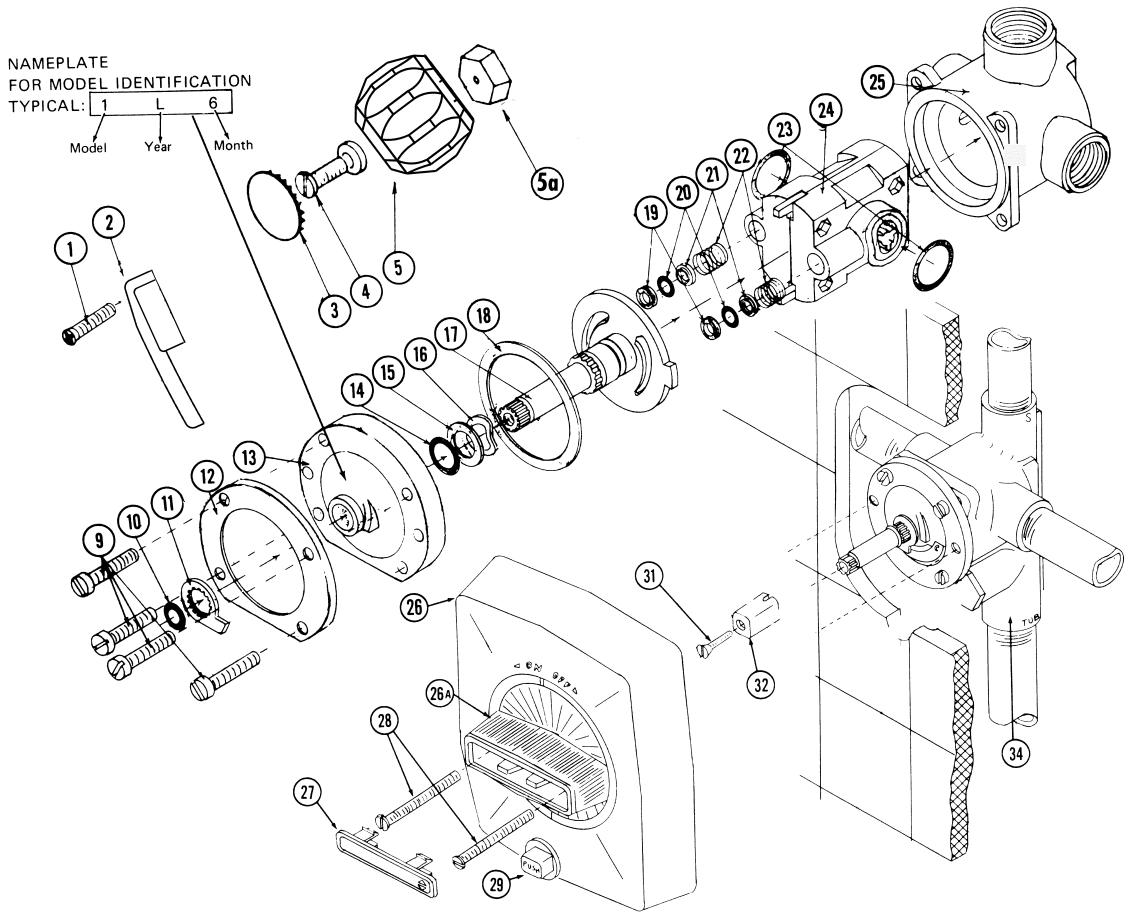
Figure 4

	Troubleshooting	Recommended Repair Kit
Gasket and Disc Replacement	1. Water leak at stem and/or bonnet 2. Flow of water continues after mixer is turned off.	410-182 Includes items: 10, 14, 18, 19(2), 20(2), 23(2)
Balancing Cartridge Replacement	1. Variable or untempered discharge temperature.	410-183 (Models 1–3) 401-175 (Models 4–6) Includes items 18 through 24
Throttling Stem and Plate Replacement	1. Flow continues after mixer is turned off. 2. Handle splines on stem damaged.	410-378 (Models 1–3) 401-176 (Models 4–6) includes items 10, 14, 15, 16, 17 and 18

Note: When replacing cartridge "O" ring (item 23), coat the body surface with a small amount of grease or soap.

Hydroguard 400
Models 1–3

HYDROGUARD 400 MODELS 1-3



PARTS LIST

Item	Product No.	Description	Material
1	034-224G	Handle Screw (8-32 x ⅞″)	C.P. Steel
2	420-301E	Lever Handle	C.P. Cast
3	420-314 (4)	Plug Button	C.P. Steel
4	034-515K	Handle Screw (8-32 x ½″)	C.P. Steel
5	420-300	Handle (includes items 3, 4, 5)	—
5A	420-213	Insert	
9	030-889	Bonnet Screws (10-24 x ⅞″)	Stainless Steel
10	410-366 (25)	O-Ring (⅜ x ½ x 1/16″)	Buna-N
11	410-371 (6)	Temperature Stop	Brass
12	410-377	Support Ring	Stainless Steel
13	410-346	Bonnet	Noryl
14	410-366 (25)	O-Ring (⅜ x ½ x 1/16″)	Buna-N
15	410-368 (15)	Washer	Synthane
16	410-369 (10)	Wavy Washer	Stainless Steel
17	*	Adjustment Stem	—
18	*	Bonnet Gasket	Rubber

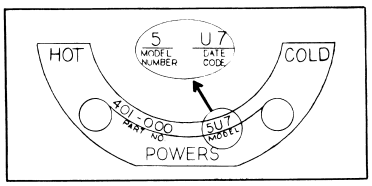
Item	Product No.	Description	Material
19	*	Shut-Off Disc	Buna-N
20	410-366 (25)	O-Rings	Buna-N
21	*	Guide	Brass
22	*	Spring	Monel
23	*	O-Ring (¾ x 15/16 x 3/32″)	Buna-N
24	*	Cartridge	Celcon
25	N/A	Body	Bronze
26	400-062	Dial Plate (includes 27, 28, 31, 32)	—
26A	401-086	Handle Only	Duralac
27	401-090	Plug Button	—
28	420-216 (20)	Screw (8-32 x 2″)	Steel
29	401-092	Button in Kit 400-085	Duralac
30	OBS	Dial Plate with Diverter Assembly	—
31	032-064	Screw (8-32 x ½″)	Brass
32	401-088	Stem Guide	C.P. Cast
34	OBS	Body (Diverter)	Bronze

( ) Number of items per package.

* Available in kits (page 2).

NOTE: Model 1 dial is not available.

Hydroguard 400
Models 4–6



Model Number Identification
See Bonnet Label

PARTS LIST

Item	Product No.	Description	Material
1	401-090	Plug Button	—
2	080-008	Screws	Brass
3	401-230A	Complete Dial Assembly	—
4	401-231	Handle	—
5	030-885	Bonnet Screws 10-32 x 1″	St. Steel
6	030-884	Adj. Stop Screw 10-32 x 5⁄16″	St. Steel
9	401-228	Adjustment Stop	Stl. Zinc Pl.
10	401-366 (25)	O-Rings 3⁄8 x 1⁄2 x 1⁄16″	Buna-N
11	401-165	Max. Temp. Stp	Brass
12	410-377	Support Ring	St. Steel
13	401-162	Bonnet	Noryl
14	410-366 (25)	O-rings 3⁄8 x 1⁄2 x 1⁄16″	Buna-N
15	410-368 (15)	Flat Washer	Synthane
16	410-369 (10)	Wavy Washer	St. Steel
17	*	Throttling Stem	Celcon
18	*	Bonnet Gasket	Rubber
19	*	Shut-Off Discs	Buna-N
20	*	O-rings 1 3⁄4 x 1 7⁄8 x 1⁄16″	Buna-N
21	*	Quad Rings	Buna-N
23	*	O-Ring 3⁄4 x 15⁄16 x 3⁄32″	Buna-N
24	*	Balance Chamber	Celcon
25	401-158	Body (4-Port)	Bronze
	401-160	Body (3-Port)	Bronze
26	401-210	Strainer Caps	Celcon

( ) Number of items per package.

* Available in kits (page 2).

CALIFORNIA PROPOSITION 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

(Installer: California law requires that this warning be given to the consumer.)

For more information: www.wattsind.com/prop65

POWERS
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